

Approved Building Consent Documents

Please Note: A copy of the stamped approved documents must be available on site for all inspections.

Inspection booking timeframes

Call received	before 3pm inspection will be done	after 3pm inspection will be done
Monday	Wednesday	Thursday
Tuesday	Thursday	Friday
Wednesday	Friday	Monday
Thursday	Monday	Tuesday
Friday	Tuesday	Wednesday

Building inspections and enquiries phone: 03 347 2839

Please ensure all work for inspection is ready the day before. Incomplete work requiring re-inspection will incur an additional inspection fee.



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

Search Copy



R.W. Muir
Registrar-General
of Land

Identifier **931721**
Land Registration District **Canterbury**
Date Issued **01 July 2020**

Prior References
CB39A/506

Estate Fee Simple
Area 725 square metres more or less
Legal Description Lot 663 Deposited Plan 546564

Registered Owners

Harry Kwok-Hung Lo and Sze Ping Jessica Lee

Interests

Subject to Part IV A Conservation Act 1987

Subject to Section 11 Crown Minerals Act 1991

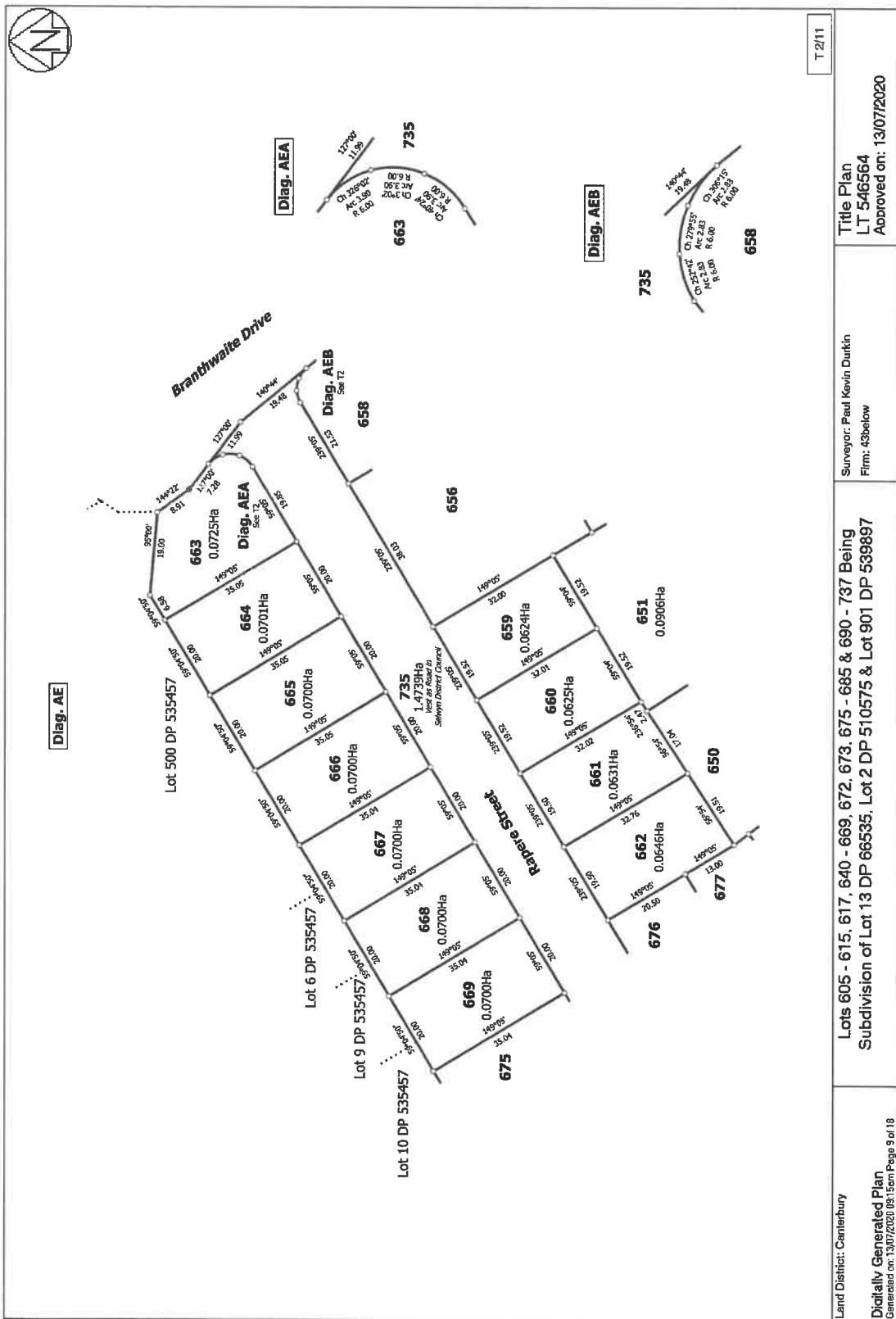
Land Covenant (in gross) in favour of GW Rolleston Limited created by Covenant Instrument 11718125.17 - 1.7.2020 at 3:35 pm

11718125.19 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.7.2020 at 3:35 pm

Fencing Covenant in Transfer 11923102.2 - 17.11.2020 at 5:04 pm

12307728.2 Mortgage to ANZ Bank New Zealand Limited - 25.11.2021 at 2:35 pm







View Instrument Details

Instrument No. 11718125.19
Status Registered
Date & Time Lodged 01 Jul 2020 15:35
Lodged By Tait, Andrew David Royds
Instrument Type Consent Notice under s221(4)(a) Resource Management Act 1991



Affected Records of Title	Land District
931689	Canterbury
931690	Canterbury
931691	Canterbury
931692	Canterbury
931693	Canterbury
931694	Canterbury
931695	Canterbury
931696	Canterbury
931697	Canterbury
931698	Canterbury
931699	Canterbury
931700	Canterbury
931701	Canterbury
931702	Canterbury
931703	Canterbury
931704	Canterbury
931705	Canterbury
931706	Canterbury
931707	Canterbury
931708	Canterbury
931709	Canterbury
931710	Canterbury
931711	Canterbury
931712	Canterbury
931713	Canterbury
931714	Canterbury
931715	Canterbury
931717	Canterbury
931718	Canterbury
931719	Canterbury
931720	Canterbury
931721	Canterbury
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931725	Canterbury
931726	Canterbury
931727	Canterbury
931728	Canterbury
931729	Canterbury
931730	Canterbury
931731	Canterbury

SDC - Approved Building Consent Document - BC220881 - Pg 5 of 134 - 30/05/2022 - craigz

931735	Canterbury
931736	Canterbury
931737	Canterbury
931738	Canterbury
931739	Canterbury
931740	Canterbury
931741	Canterbury
931742	Canterbury
931743	Canterbury
931744	Canterbury
931745	Canterbury
931746	Canterbury
931747	Canterbury
931748	Canterbury
931749	Canterbury
931750	Canterbury
931751	Canterbury
931752	Canterbury
931754	Canterbury
931755	Canterbury
931756	Canterbury
931757	Canterbury
931758	Canterbury
931759	Canterbury
931760	Canterbury
931761	Canterbury
931762	Canterbury
931763	Canterbury
931764	Canterbury
931765	Canterbury
931766	Canterbury
931767	Canterbury
931768	Canterbury
931769	Canterbury
931772	Canterbury
931773	Canterbury
931774	Canterbury
931775	Canterbury
931776	Canterbury
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931779	Canterbury
931782	Canterbury
931783	Canterbury
931784	Canterbury
931785	Canterbury
931786	Canterbury

931787	Canterbury
931788	Canterbury
931790	Canterbury
931792	Canterbury

Annexure Schedule Contains 1 Pages.

Signature

Signed by Andrew David Royds Tait as Territorial Authority Representative on 14/07/2020 02:50 PM

***** End of Report *****



IN THE MATTER of the Resource Management Act 1991
AND
IN THE MATTER of Resource Consent 175169, 175243,
175617, 185190 & 185381 and Deposited Plan
546564

CONSENT NOTICE PURSUANT TO SECTION 221 RESOURCE MANAGEMENT ACT 1991

To: The District Land Registrar
Canterbury Land Registration District

TAKE NOTICE that the land hereinafter described is subject to conditions in relation to a subdivision consent as follows:-

*"That the discharge of roof stormwater must not arise from unpainted galvanised sheet materials or copper building materials. The use of these materials is prohibited;
&*

That, unless a resource consent has been granted otherwise, any fence between the front façade of the dwelling and the street boundary or Private Right of Way or shared access over which an allotment has legal access which is parallel or generally parallel to that boundary shall be a maximum height of one metre. For lots with frontage to more than one road, any fencing on the secondary road boundary is to be no higher than 1.8 metres. Any other fence shall be a maximum height of one metre if it is located within three metres of the street boundary or Private right of Way or shared access over which allotment has legal access."

AND THAT you are hereby requested to register the same pursuant to Section 221 of the Resource Management Act 1991.

DESCRIPTION OF LAND

All those pieces of land being Lots 605 – 615, 640 – 669, 675 – 685 and 690 – 730 DP 546564 held in Records of Title 931689 – 931715, 931717 – 931731, 931735 – 931752, 931754 – 931769, 931772 – 931779, 931782 – 931788, 931790 and 931792

DATED this 30th day of June 2020

SIGNED for and on behalf of
THE SELWYN DISTRICT COUNCIL

Authorised Officer



22 September 2020

11698

Harry Lo

Email: harrykhlo@gmail.com
Cc: warren.sheddan@outlook.com

Dear Harry,

**SOIL BEARING INVESTIGATION
LOT 663 RAPERE STREET, FALCONS LANDING, ROLLESTON**

Testing & Results

We confirm that a soil bearing investigation was completed on 21 September 2020 at the above property and now report as follows.

The section is located on the North-Western corner of Rapere Street and Branthwaite Drive in the new Falcons Landing subdivision. The section is a relatively flat, grass covered site.

The investigation consisted of four penetrometer tests and two Hand Augers to determine the underlying soil conditions and allowable bearing capacity. The locations and results of the scala penetrometer tests are recorded on the attached plan and 'soil investigation record' sheets.

The static water table was not encountered in the scala penetrometers at the time of this investigation.

Due to the gravels encountered, it was difficult to penetrate the ground to a significant depth with a scala penetrometer or hand auger. Hand augers at test location '1' and '4' revealed topsoil to approximately 100mm overlying dark brown silts on gravels. The scala penetrometer results were quite similar in all locations with medium bearing capacity at the surface, increasing with depth, and refusal at shallow depths.

The penetrometer results showed that an ultimate bearing capacity of **300kPa** is available at approximately **200mm** below existing ground level, beneath the topsoil layer.

Other Information Reviewed

The Aurecon report dated 16 February 2017 has classified the site as TC1, with reference to MBIE guidance document.

Conclusion

Based on the testing results and other information reviewed, the site complies with the "good ground" criteria of NZS3604:2011.

We would infer that normal NZS3604:2011 type foundation details can be utilised for this site provided that the construction of the proposed dwelling is in accordance with NZS3604:2011.

Cont...

Christchurch Office:

6/75 Peterborough Street, Christchurch 8013
PO Box 21381, Christchurch 8143
Phone 03 365 3243 Email cory@constructure.co.nz

Auckland Office:

Suite 2.1, 63 Ponsonby Road, Auckland 1011
PO Box 21381, Christchurch 8143
Phone 09 320 5226 Email james@constructure.co.nz



Cont...

All rubbish, noxious and organic matter as outlined in NZS3604:2011 Clause 3.5.1 should be removed from the building area and the ground brought back up to formation using compacted hardfill if required prior to pouring the foundation slab. An engineer should inspect the foundations at the time of excavation to ensure adequate bearing throughout.

Please note that my recommendations are based on a limited number of penetrometer tests and the nature and continuity of subsoil conditions is inferred. It should be appreciated that actual conditions could vary from the tests results.

Please contact me should any further information be required.

Yours faithfully

Cory Bedford

BEng (HONS) CMEngNZ CPEng IntPE (NZ)

Christchurch Office:

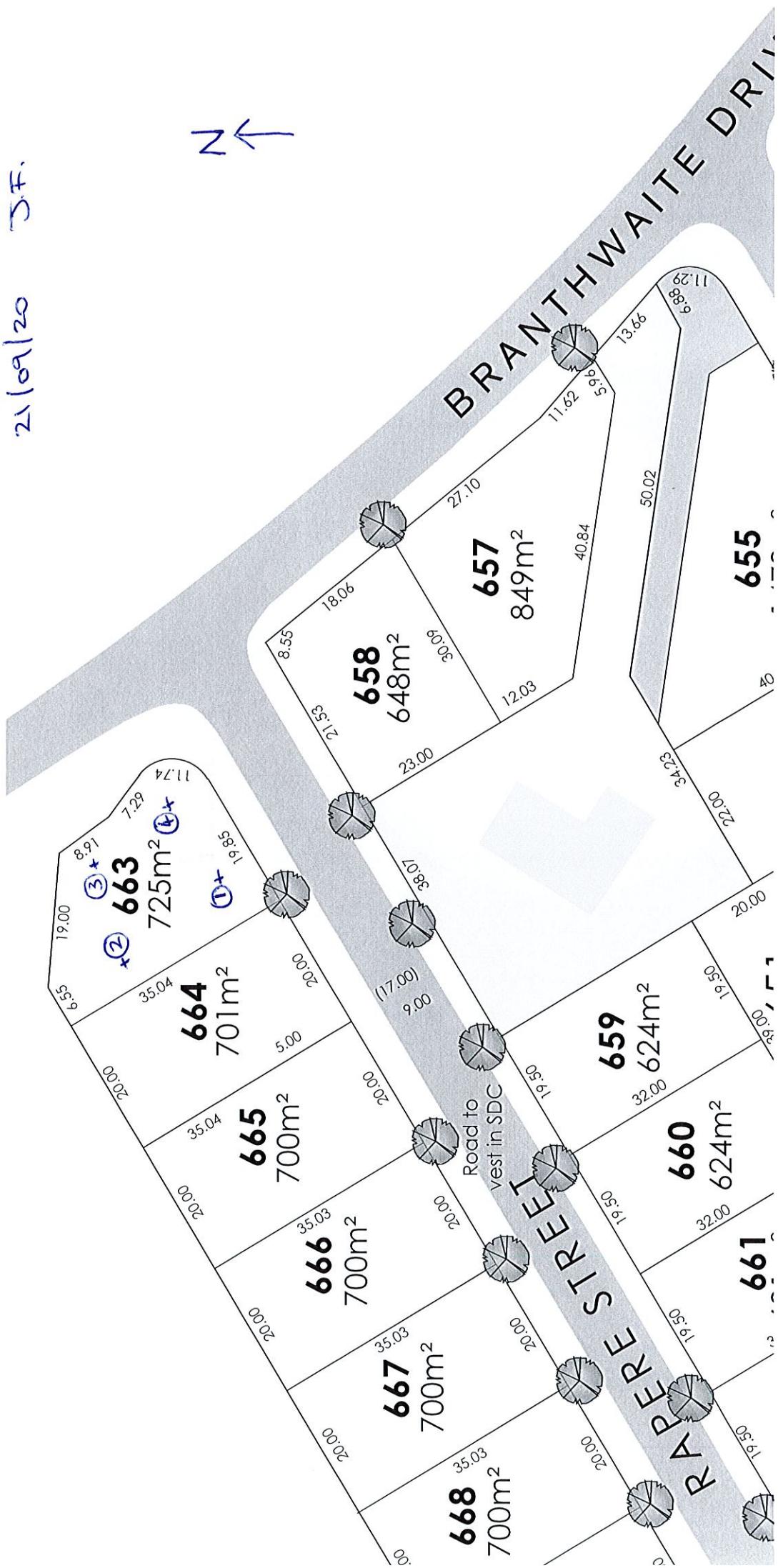
6/75 Peterborough Street, Christchurch 8013
PO Box 21381, Christchurch 8143
Phone 03 365 3243 Email cory@constructure.co.nz

Auckland Office:

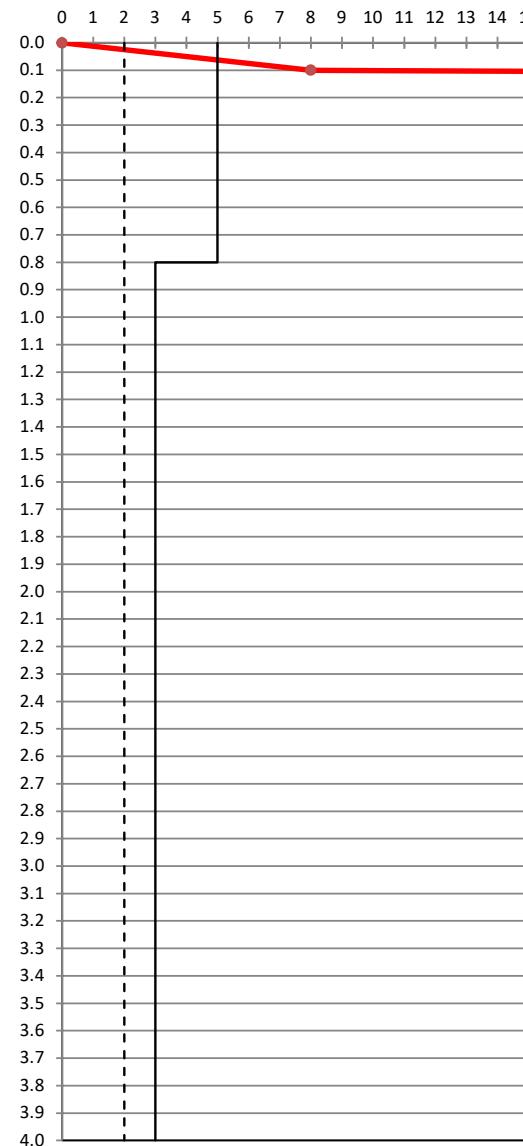
Suite 2.1, 63 Ponsonby Road, Auckland 1011
PO Box 21381, Christchurch 8143
Phone 09 320 5226 Email james@constructure.co.nz

11698
Test locations
21/09/20 J.F.

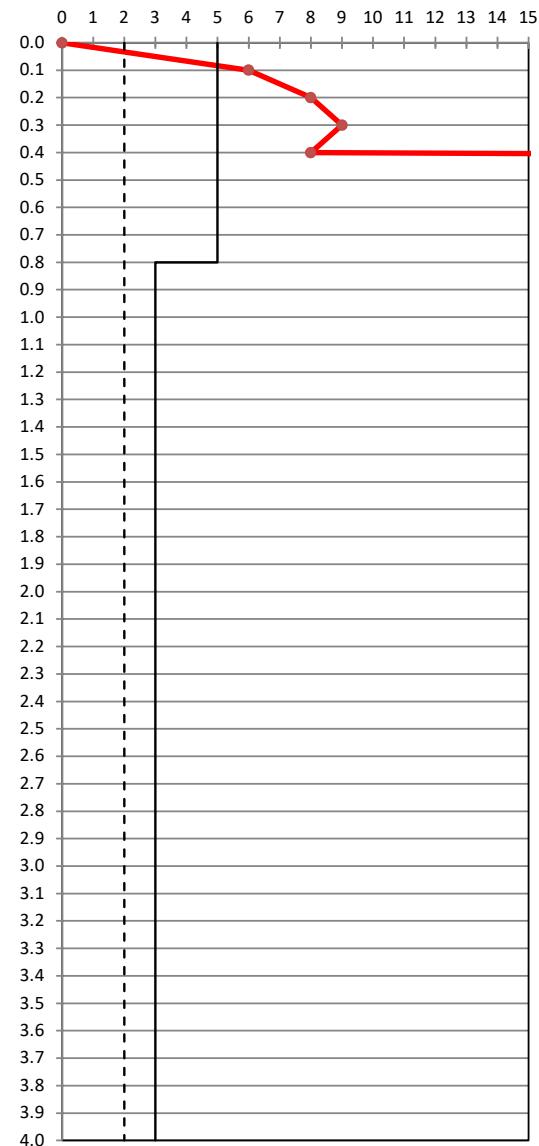
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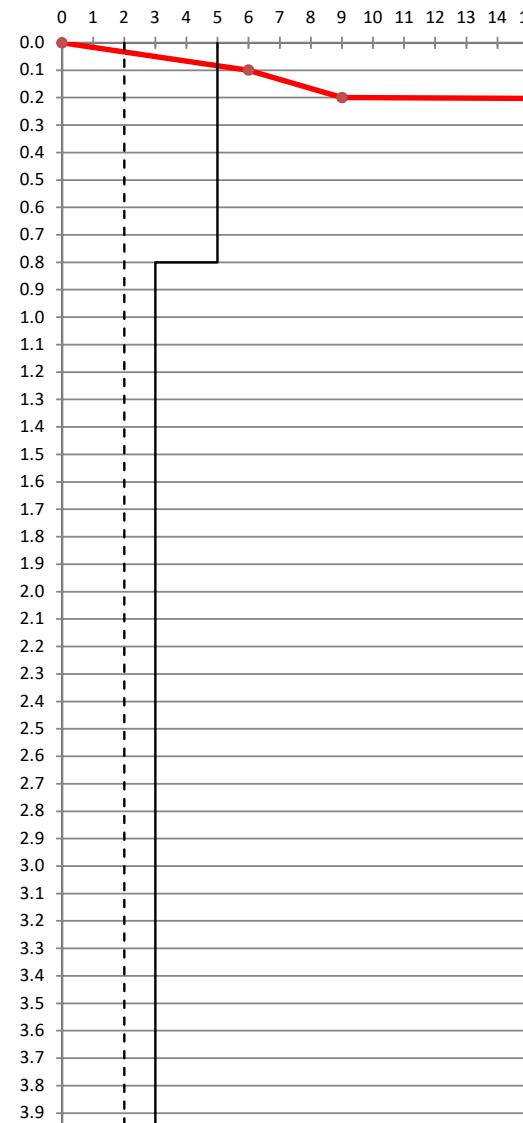
soil investigation record

Project:	LOT 663 RAPERE STREET, FALCONS LANDING, ROLLESTON	No.:	1 OF 5
Ref:	11698	Date:	22/09/2020
By:	CH	Checked	CB
Test Location 1			
Depth (m)		Scala Penetrometer (Blows/100mm)	
Symbol	Description		
GL	Topsoil End (Drop-weight Bounced)		
0.0		0.0	0
0.2		0.1	1
0.4		0.2	2
0.6		0.3	3
0.8		0.4	4
1.0		0.5	5
1.2		0.6	6
1.4		0.7	7
1.6		0.8	8
1.8		0.9	9
2.0		1.0	10
2.2		1.1	11
2.4		1.2	12
2.6		1.3	13
2.8		1.4	14
3.0		1.5	15
3.2			
3.4			
3.6			
3.8			
4.0			
Notes: • Refer to attached site plan for location. • Based on Stockwell, M.J., 1997: Determination of allowable bearing pressure under small structures, New Zealand Engineering (32:6), dated 15 June 1977, using a factor of safety of three to back calculate the UBC. • The allowable bearing pressure has been calculated using a factor of safety = 3. • 100 kPa allowable bearing pressure corresponds to the NZS 3604:2011 requirements for "Good ground". • 65 kPa allowable bearing pressure corresponds to the MBIE Guidelines requirements for use of foundation options 1-4 (TC2).			
			

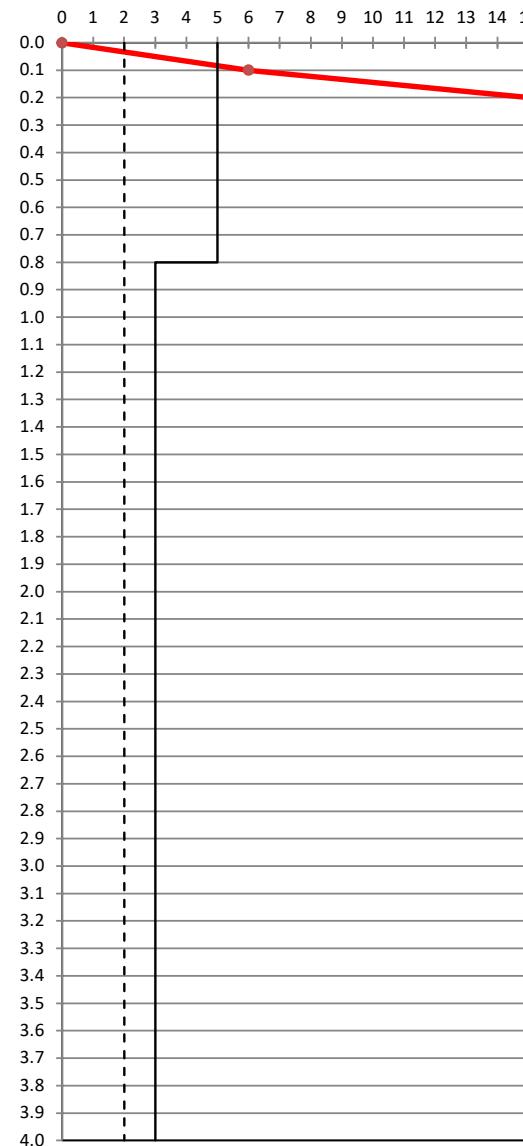
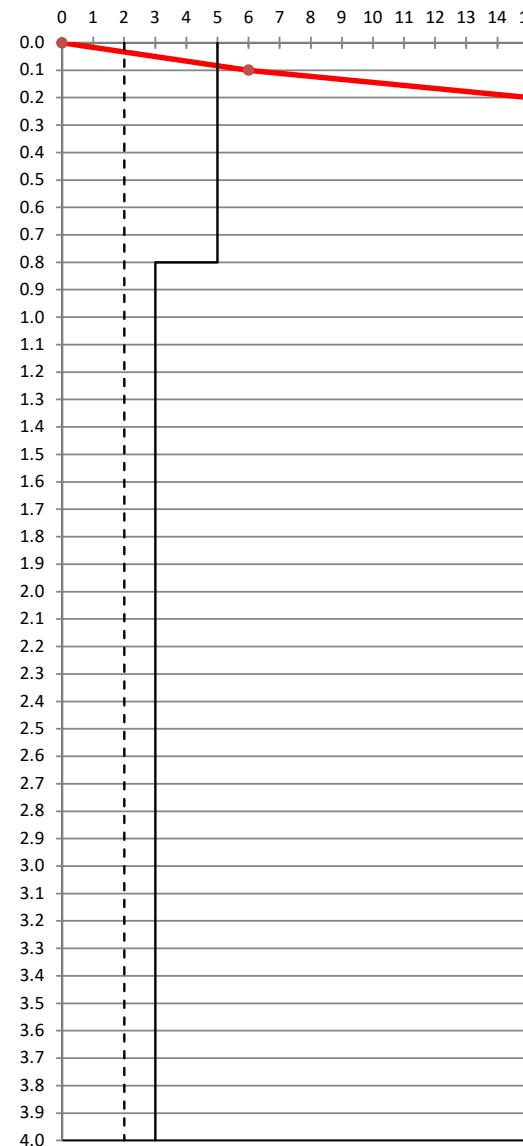
soil investigation record

Project:	LOT 663 RAPERE STREET, FALCONS LANDING, ROLLESTON	No.:	2 OF 5		
Ref:	11698	Date:	22/09/2020		
By:	CH	Checked	CB		
Test Location 2					
Depth (m)		Bore Log (Hand Auger)			
Symbol		Scala Penetrometer (Blows/100mm)			
GL					
0.2		End (Drop-weight Bounced)			
0.4					
0.6					
0.8					
1.0					
1.2					
1.4					
1.6					
1.8					
2.0					
2.2					
2.4					
2.6					
2.8					
3.0					
3.2					
3.4					
3.6					
3.8					
4.0					
Notes:					
<ul style="list-style-type: none"> • Refer to attached site plan for location. • Based on Stockwell, M.J., 1997: Determination of allowable bearing pressure under small structures, New Zealand Engineering (32:6), dated 15 June 1977, using a factor of safety of three to back calculate the UBC. • The allowable bearing pressure has been calculated using a factor of safety = 3. • 100 kPa allowable bearing pressure corresponds to the NZS 3604:2011 requirements for "Good ground". • 65 kPa allowable bearing pressure corresponds to the MBIE Guidelines requirements for use of foundation options 1-4 (TC2). 					

soil investigation record

Project:	LOT 663 RAPERE STREET, FALCONS LANDING, ROLLESTON	No.:	3 OF 5
Ref:	11698	Date:	22/09/2020
By:	CH	Checked	CB
Test Location 3			
Depth (m)		Scala Penetrometer (Blows/100mm)	
Symbol	Description		
GL	End (Drop-weight Bounced)		
0.0			
0.1			
0.2			
0.3			
0.4			
0.5			
0.6			
0.7			
0.8			
0.9			
1.0			
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			
1.8			
1.9			
2.0			
2.1			
2.2			
2.3			
2.4			
2.5			
2.6			
2.7			
2.8			
2.9			
3.0			
3.1			
3.2			
3.3			
3.4			
3.5			
3.6			
3.7			
3.8			
3.9			
4.0			
Notes: • Refer to attached site plan for location. • Based on Stockwell, M.J., 1997: Determination of allowable bearing pressure under small structures, New Zealand Engineering (32:6), dated 15 June 1977, using a factor of safety of three to back calculate the UBC. • The allowable bearing pressure has been calculated using a factor of safety = 3. • 100 kPa allowable bearing pressure corresponds to the NZS 3604:2011 requirements for "Good ground". • 65 kPa allowable bearing pressure corresponds to the MBIE Guidelines requirements for use of foundation options 1-4 (TC2).			

soil investigation record

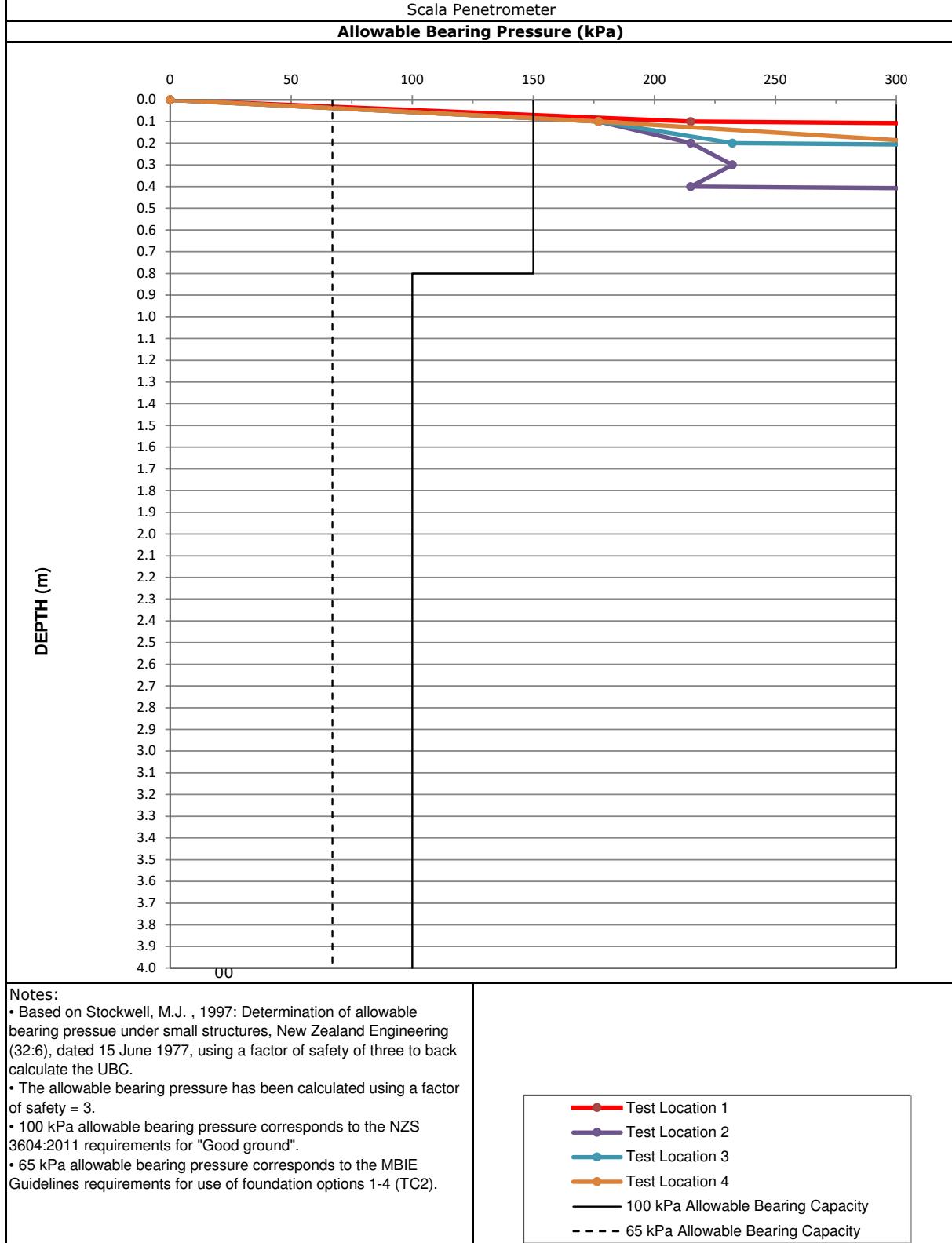
Project:	LOT 663 RAPERE STREET, FALCONS LANDING, ROLLESTON	No.:	4 OF 5
Ref:	11698	Date:	22/09/2020
By:	CH	Checked	CB
Test Location 4			
Depth (m)		Scala Penetrometer (Blows/100mm)	
Symbol	Description		
GL	Topsoil Stoney Brown Silts End (Drop-weight Bounced) Red & E		
0.0		0.0	1.2
0.1		0.1	1.1
0.2		2.0	2.0
0.3		2.0	2.0
0.4			
0.5			
0.6			
0.7			
0.8			
0.9			
1.0			
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			
1.8			
1.9			
2.0			
2.1			
2.2			
2.3			
2.4			
2.5			
2.6			
2.7			
2.8			
2.9			
3.0			
3.1			
3.2			
3.3			
3.4			
3.5			
3.6			
3.7			
3.8			
3.9			
4.0			

Notes:
 • Refer to attached site plan for location.
 • Based on Stockwell, M.J., 1997: Determination of allowable bearing pressure under small structures, New Zealand Engineering (32:6), dated 15 June 1977, using a factor of safety of three to back calculate the UBC.
 • The allowable bearing pressure has been calculated using a factor of safety = 3.
 • 100 kPa allowable bearing pressure corresponds to the NZS 3604:2011 requirements for "Good ground".
 • 65 kPa allowable bearing pressure corresponds to the MBIE Guidelines requirements for use of foundation options 1-4 (TC2).



soil investigation record

Project:	LOT 663 RAPERE STREET, FALCONS LANDING, ROLLESTON	no.	5 OF 5
Ref:	11698	date	22/09/2020
By:	CH	checked	CB





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

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

www.miteknz.co.nz

Printed: 16:13:41 04 Apr 2022

MiTek 20/20 Engineering 4.7.346.0

PRODUCER STATEMENT for MiTek 20/20® TRUSS DESIGN - Version 4.7

S100 - Approved Building Consent Document BC20881-PCB175f1241-30/05/2022 - Craigz

ISSUED BY: **MiTek New Zealand Limited**

TO: **VIP Frames & Trusses**

IN RESPECT OF: **MiTek® Truss Designs**

This producer statement covers the MiTek 20/20® truss design and the structural performance of the GANG-NAIL® connector plate for the job reference **100433** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

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

Or behalf of **MiTek New Zealand Limited**, and subject to:

- i) All proprietary products meeting their performance specification requirements
- ii) The provision of adequate roof bracing and overall building stability
- iii) Correct selection and placement of GANG-NAIL connector plates
- iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
- v) The design being undertaken by the accredited fabricator under the terms of the software licence
- vi) Timber is graded to the requirements of NZS 3603:1993
- vii) Minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20® truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than \$500,000.

Or behalf of **MiTek New Zealand Limited**,

Date: Monday, 4 April 2022

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

Job: 100433

Client: JSR Construction
Phone:Site: New House
2 Rapera St
Rolleston

Phone:

Printed: 16:13:41 04 Apr 2022

Description:
Building Consent No.:
MiTek 20/20 Engineering 4.7.346.0

MiTek New Zealand Limited

MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **VIP Frames & Trusses**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek® trusses.

Job Details

Roof Truss	Importance Level : 2	Design Working Life : 50 years
Roof	Pitch: 25.000 deg	Nominal Overhang: 600 mm
Material: Metal Tiles	Material: Gib Board 13mm	Wind
Dead Load: 0.210 kPa	Dead Load: 0.200 kPa	Area: High (44.0 m/s)
Restraints: 400 mm centres	Restraints: 600 mm centres	Pressure Coeff: Cpe = varies; Cpi = -0.30, 0.20
Live Load: Qur = 0.250 kPa	Live Load: Qc = 1.400 kN	Snow
Qc = 1.100 kN	Quf = 1.500 kPa	Location: Rolleston (N4) at 100 m
	Concentrated: Qcf = 1.800 kN	Open Ground Load: 0.900 kPa
		Basic Roof Load: 0.441 kPa
Attic Floor	Occupancy Live Load	Attic Wall
Material: 20mm Particle Board	Distributed: Material: Gib Board 12mm	Material: Gib Board
Dead Load: 0.200 kPa	Dead Load: 0.200 kPa	Dead Load: 0.300 kPa
Restraints: Continuous	Restraints: 600 mm centres	Restraints: Continuous

The minimum timber treatment for these MiTek® trusses shall be in accordance with B2/AS1 Table 1A and the relevant sections of NZS 3602:2003. The timber for these MiTek® trusses shall be graded to the requirements of NZS 3603:1993. Proprietary fixings and timber connectors shall be selected in accordance with NZS 3604:2011 Section 4.

Durability

MiTek® Trusses List

Legend: * = detail only, ? = input only, Txx = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required
GB = gable brace required

Trusses	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
*H1	2	1251	18.249	900	J29	1	1522	25.000	900	S18	1	4890	25.000	852
*H2	1	4563	18.249	900	P1	1	5980	0.000	900	S19	2	4800	25.000	852
*H3	1	8212	18.249	900	*R1	1	2701	25.000	900	S21	1	3790	25.000	445
*H4	1	3797	18.249	900	*R2	2	913	25.000	900	S22	1	3790	25.000	445
*H5	2	4655	18.249	900	*R3	1	1813	25.000	900	S23	2	4178	25.000	900
*H6	1	1756	18.249	900	*R4	1	1335	25.000	900	T1	1	10490	25.000	900
*H7	1	2524	18.249	900	*R5	8	913	25.000	900	T2	1	10490	25.000	900
*H8	2	5023	18.249	900	*R6	8	913	25.000	900	T4	1	10980	25.000	900
*H9	1	5588	18.249	900	*R7	1	1520	25.000	900	T5	1	10980	25.000	900
*H1	2	4252	18.249	900	*R8	1	1520	25.000	900	T7	1	5980	25.000	900
J1	1	2522	25.000	900	*R9	1	1801	25.000	900	V1	1	2285	25.000	900
J2	1	2522	25.000	900	*R10	1	913	25.000	900	V2	1	1385	25.000	900
J3	1	2522	25.000	900	*R11	1	1180	25.000	900	V4	1	726	25.000	900
J5	1	1622	25.000	900	*R12	1	1780	25.000	900	V6	1	1317	25.000	900
J6	1	1622	25.000	900	*R13	1	901	25.000	900	V7	1	945	25.000	900
J7	1	2707	25.000	900	*R14	1	1280	25.000	900	J4	1	2522	25.000	900
J9	1	1807	25.000	900	*R15	1	1235	25.000	900	J8	1	2707	25.000	900
J10	1	1807	25.000	900	*R16	1	1235	25.000	900	J11	1	2707	25.000	900
J12	1	1807	25.000	900	S1	1	10980	25.000	900	LB				
J13	1	1807	25.000	900	S3	1	5460	25.000	772	J19	1	2467	25.000	900
J14	1	2067	25.000	900	S4	2	5950	25.000	772	J20	1	2467	25.000	900
J15	1	2067	25.000	900	S5	2	2310	25.000	778	J24	1	2422	25.000	900
J16	1	2067	25.000	900	S6	1	2720	25.000	778	J27	1	2422	25.000	900
J17	1	2067	25.000	900	S7	1	3130	25.000	778	S10	1	9378	25.000	755
J18	1	2067	25.000	900	S8	1	5967	25.000	900	T6	1	2522	25.000	900
J21	1	1567	25.000	900	S11	2	9378	25.000	755	T8	1	5980	25.000	900
J22	1	1567	25.000	900	S12	1	9378	25.000	755	S2	1	5460	25.000	900
J23	1	2422	25.000	900	S13	1	5980	25.000	900	S9	1D	6780	25.000	900
J25	1	1522	25.000	900	S14	4	5120	25.000	844	S16	1	4890	25.000	900
J26	1	1522	25.000	900	S15	2	6780	25.000	900	S20	1	4800	25.000	852
J28	1	1522	25.000	900	S17	2	4890	25.000	852	T3	1D	10980	25.000	900
Total quantity : 122														

SDC - Approved Building Consent Document - BC220881 - Pg 88

The computer design input has been carried out by:

Signed:

Date: ...Monday, 4 April 2022...

Name of Detailer: Michael Lim

Qualifications and Title: Detailer

On behalf of:

VIP Frames & Trusses

Job: 100433

Client: JSR Construction
Phone:Site: New House
2 Rapera St
RollestonDescription:
Building Consent No.:
MitTek 20/20 Engineering 4.7.346.0

MiTek New Zealand Limited

Phone:

Printed: 16:13:52 04 Apr 2022

TRUSS FIXING SELECTION REPORT - Characteristic Loads

Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data)

MiTek® Truss List

Legend: * = detail only, ? = input only, Tx = failed design, Ø = non certified, Unmarked trusses = designed successfully

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	Fixing	
							Qty	Selected
*H1	2	1251						Refer NZS3604:2011 Tables 15.6
*H2	1	4563						Refer NZS3604:2011 Tables 15.6
*H3	1	8212						Refer NZS3604:2011 Tables 15.6
*H4	1	3797						Refer NZS3604:2011 Tables 15.6
*H5	2	4655						Refer NZS3604:2011 Tables 15.6
*H6	1	1756						Refer NZS3604:2011 Tables 15.6
*H7	1	2524						Refer NZS3604:2011 Tables 15.6
*H8	2	5023						Refer NZS3604:2011 Tables 15.6
*H9	1	5588						Refer NZS3604:2011 Tables 15.6
*H10	2	4252						Refer NZS3604:2011 Tables 15.6
J1	1	2522	B	3.749	1.006	Cross	1	Pair of Wire Dog Staples
			F	1.678	1.065	Butt	1	JH 47x90
			D	0.793	0.507	Butt	1	Pair of 3.15d Nails
J2	1	2522	B	3.672	0.738	Cross	1	Pair of Wire Dog Staples
			E	0.522	0.385	Butt	1	Pair of 3.15d Nails
			D	3.520	2.273	Cross	1	Pair of Wire Dog Staples
J3	1	2522	B	3.611	0.469	Cross	1	Pair of Wire Dog Staples
			F	0.538	0.368	Butt	1	Pair of 3.15d Nails
			D	3.370	2.173	Cross	1	Pair of Wire Dog Staples
J5	1	1622	B	2.864	0.666	Cross	1	Pair of Wire Dog Staples
			D	0.475	0.047	Butt	1	Pair of 3.15d Nails
			C	1.173	0.933	Butt	1	JH 47x90
J6	1	1622	B	2.568	0.788	Cross	1	Pair of Wire Dog Staples
			E	0.791	0.466	Butt	1	Pair of 3.15d Nails
J7	1	2707	B	3.931	1.074	Cross	1	Pair of Wire Dog Staples
			D	2.670	1.689	Butt	1	JH 47x90
J9	1	1807	B	3.048	0.743	Cross	1	Pair of Wire Dog Staples
			E	1.136	0.568	Butt	1	JH 47x90
			D	0.798	0.522	Butt	1	Pair of 3.15d Nails
J10	1	1807	B	2.772	0.855	Cross	1	Pair of Wire Dog Staples
			E	0.947	0.584	Butt	1	JH 47x90
J12	1	1807	B	3.048	0.743	Cross	1	Pair of Wire Dog Staples
			E	1.136	0.568	Butt	1	JH 47x90
			D	0.798	0.522	Butt	1	Pair of 3.15d Nails
J13	1	1807	B	2.772	0.855	Cross	1	Pair of Wire Dog Staples
			E	0.947	0.584	Butt	1	JH 47x90
J14	1	2067	B	3.238	0.566	Cross	1	Pair of Wire Dog Staples
			G	1.251	0.750	Butt	1	JH 47x90
			E	0.516	0.378	Butt	1	Pair of 3.15d Nails
			D	1.955	1.276	Cross	1	Pair of Wire Dog Staples
J15	1	2067	B	3.297	0.840	Cross	1	Pair of Wire Dog Staples
			F	1.419	0.800	Butt	1	JH 47x90
			D	0.723	0.453	Butt	1	Pair of 3.15d Nails
J16	1	2067	B	3.297	0.840	Cross	1	Pair of Wire Dog Staples
			F	1.419	0.800	Butt	1	JH 47x90
J17	1	2067	B	3.054	0.951	Cross	1	Pair of Wire Dog Staples
			F	1.170	0.749	Butt	1	JH 47x90
J18	1	2067	B	3.054	0.951	Cross	1	Pair of Wire Dog Staples
			F	1.170	0.749	Butt	1	JH 47x90
J21	1	1567	B	2.814	0.646	Cross	1	Pair of Wire Dog Staples
			D	0.459	0.045	Butt	1	Pair of 3.15d Nails
			C	1.119	0.900	Butt	1	JH 47x90
J22	1	1567	B	2.507	0.768	Cross	1	Pair of Wire Dog Staples
			E	0.740	0.431	Butt	1	Pair of 3.15d Nails
J23	1	2422	B	3.651	0.969	Cross	1	Pair of Wire Dog Staples
			D	2.364	1.509	Butt	1	JH 47x90
J25	1	1522	B	2.774	0.630	Cross	1	Pair of Wire Dog Staples
			D	0.445	0.044	Butt	1	Pair of 3.15d Nails
			C	1.074	0.872	Butt	1	JH 47x90
J26	1	1522	B	2.456	0.752	Cross	1	Pair of Wire Dog Staples
			E	0.712	0.402	Butt	1	Pair of 3.15d Nails
J28	1	1522	B	2.774	0.630	Cross	1	Pair of Wire Dog Staples
			D	0.445	0.044	Butt	1	Pair of 3.15d Nails
			C	1.074	0.872	Butt	1	JH 47x90
J29	1	1522	B	2.456	0.752	Cross	1	Pair of Wire Dog Staples
			E	0.712	0.402	Butt	1	Pair of 3.15d Nails
P1	1	5980	H	5.124	2.787	Cross	1	Pair of Wire Dog Staples
			L	6.039	2.863	Cross	1	Pair of Wire Dog Staples
*R1	1	2701						Refer NZS3604:2011 Tables 15.6
*R2	2	913						Refer NZS3604:2011 Tables 15.6
*R3	1	1813						Refer NZS3604:2011 Tables 15.6
*R4	1	1335						Refer NZS3604:2011 Tables 15.6
*R5	8	913						Refer NZS3604:2011 Tables 15.6

SDC - Approved Building Consent Document - BC220881 - Pg 19 of 134 - 30/05/2022 - craigz

VIP Frames & Trusses

Job: 100433

Client: JSR Construction
Phone:Site: New House
2 Rapera St
Rolleston

Phone:

Printed: 16:13:52 04 Apr 2022

Description:
Building Consent No.:
MitTek 20/20 Engineering 4.7.346.0

MiTek New Zealand Limited

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	Fixing	
							Qty	Selected
*R6	8	913						Refer NZS3604:2011 Tables 15.6
*R7	1	1520						Refer NZS3604:2011 Tables 15.6
*R8	1	1520						Refer NZS3604:2011 Tables 15.6
*R9	1	1801						Refer NZS3604:2011 Tables 15.6
*R10	1	913						Refer NZS3604:2011 Tables 15.6
*R11	1	1180						Refer NZS3604:2011 Tables 15.6
*R12	1	1780						Refer NZS3604:2011 Tables 15.6
*R13	1	901						Refer NZS3604:2011 Tables 15.6
*R14	1	1280						Refer NZS3604:2011 Tables 15.6
*R15	1	1235						Refer NZS3604:2011 Tables 15.6
*R16	1	1235						Refer NZS3604:2011 Tables 15.6
S1	1	10980	A	0.945	0.474	Cross	1	Pair of Wire Dog Staples
			K	11.106	7.079	Cross	1	CT400
			I	7.234	3.803	Cross	1	CT400
S3	1	5460	A	3.829	2.337	Cross	1	Pair of Wire Dog Staples
			E	4.601	2.394	Cross	1	Pair of Wire Dog Staples
S4	2	5950	E	2.601	1.522	Butt	2	JH 47x90
			D	2.243	1.338	Cross	2	Pair of Wire Dog Staples
S5	2	2310	F	1.649	0.999	Cross	2	Pair of Wire Dog Staples
			J	1.649	0.999	Cross	2	Pair of Wire Dog Staples
S6	1	2720	F	3.232	1.015	Cross	1	Pair of Wire Dog Staples
			H	1.395	0.992	Cross	1	Pair of Wire Dog Staples
S7	1	3130	B	2.590	1.287	Wide		No fixing selected
			F	0.522	0.126	Wide		No fixing selected
			D	2.348	1.267	Wide		No fixing selected
			H	0.522	0.126	Wide		No fixing selected
S8	1	5967	F	5.404	2.645	Cross	1	Pair of Wire Dog Staples
			E	5.090	2.984	Cross	1	Pair of Wire Dog Staples
S11	2	9378	J	7.242	2.800	Butt	2	Pair of MultiGrips
			P	9.158	2.663	Cross	2	Pair of Wire Dog Staples
S12	1	9378	J	7.462	2.881	Cross	1	Pair of Wire Dog Staples
			I	4.771	1.829	Wide		No fixing selected
			P	6.203	1.295	Wide		No fixing selected
S13	1	5980	A	4.899	2.986	Cross	1	Pair of Wire Dog Staples
			E	5.791	3.051	Cross	1	Pair of Wire Dog Staples
S14	4	5120	B	4.850	2.393	Cross	4	Pair of Wire Dog Staples
			H	3.873	2.460	Butt	4	JH 47x90
S15	2	6780	B	6.413	3.447	Cross	2	CT400
			F	6.413	3.447	Cross	2	CT400
S17	2	4890	B	4.596	2.368	Cross	2	Pair of Wire Dog Staples
			F	4.596	2.368	Cross	2	Pair of Wire Dog Staples
S18	1	4890	B	4.631	2.373	Cross	1	Pair of Wire Dog Staples
			F	4.129	2.335	Cross	1	Pair of Wire Dog Staples
S19	2	4800	B	4.575	2.331	Cross	2	Pair of Wire Dog Staples
			F	3.707	2.266	Butt	2	JH 47x90
S21	1	3790	A	1.293	0.868	Cross	1	Pair of Wire Dog Staples
			C	1.293	0.868	Cross	1	Pair of Wire Dog Staples
			D	0.506	0.069	Cross	1	Pair of Wire Dog Staples
			F	0.506	0.069	Cross	1	Pair of Wire Dog Staples
S22	1	3790	B	1.939	0.889	Wide		No fixing selected
			F	0.454	0.073	Wide		No fixing selected
			D	1.938	0.889	Wide		No fixing selected
			H	0.455	0.073	Wide		No fixing selected
S23	2	4178	F	3.432	2.102	Butt	2	JH 47x90
			E	3.474	2.076	Butt	2	JH 47x90
T1	1	10490	B	9.354	5.305	Cross	1	CT400
			G	8.911	5.272	Cross	1	CT400
T2	1	10490	B	9.391	5.302	Cross	1	CT400
			I	9.391	5.302	Cross	1	CT400
T4	1	10980	D	4.418	3.035	Cross	1	Pair of Wire Dog Staples
			C	1.086	0.931	Cross	1	Pair of Wire Dog Staples
			H	7.926	4.399	Cross	1	CT400
			K	6.313	4.142	Cross	1	CT400
T5	1	10980	A	0.842	0.350	Cross	1	Pair of Wire Dog Staples
			J	11.159	7.079	Cross	1	CT400
			H	7.142	3.819	Cross	1	CT400
T7	1	5980	H	5.404	2.617	Cross	1	Pair of Wire Dog Staples
			E	5.848	3.052	Cross	1	Pair of Wire Dog Staples
V1	1	2285	A			Wide		No fixing selected
V2	1	1385	A			Wide		No fixing selected
V4	1	726	A			Wide		No fixing selected
V6	1	1317	A			Wide		No fixing selected
V7	1	945	A			Wide		No fixing selected
J4	1	2522	B	4.162	1.691	Cross	1	Pair of Wire Dog Staples
			F	2.147	1.446	Butt	1	JH 47x90
J8	1	2707	B	4.490	1.839	Cross	1	Pair of Wire Dog Staples
			F	2.571	1.710	Butt	1	JH 47x90
J11	1	2707	B	4.490	1.839	Cross	1	Pair of Wire Dog Staples
			F	2.571	1.710	Butt	1	JH 47x90
J19	1	2467	A	5.253	2.685	Butt	1	JH 47x90
			E	4.869	3.066	Butt	1	JH 47x90
J20	1	2467	A	2.902	1.576	Cross	1	Pair of Wire Dog Staples
			E	2.150	1.380	Butt	1	JH 47x90
J24	1	2422	B	3.974	1.603	Cross	1	Pair of Wire Dog Staples
			F	1.925	1.306	Butt	1	JH 47x90

SDC - Approved Building Consent Document - BC220881 - Pg 20 of 134 - 30/05/2022 - craigz

VIP Frames & Trusses

Job: 100433

Client: JSR Construction
Phone:Site: New House
2 Rapera St
Rolleston

Phone:

Printed: 16:13:53 04 Apr 2022

Description:
Building Consent No.:
MitTek 20/20 Engineering 4.7.346.0

Mitek New Zealand Limited

Truss	Qty	Span (mm)	Joint	Down (kN)	Uplift (kN)	Bearing	Fixing	
							Qty	Selected
J27	1	2422	B	3.974	1.603	Cross	1	Pair of Wire Dog Staples
			F	1.925	1.306	Butt	1	JH 47x90
S10	1	9378	A	4.602	1.604	Butt	1	JH 47x90
			N	7.041	4.238	Cross	1	CT400
			J	12.348	6.842	Cross	1	CT400
			I	1.997	1.148	Wide		No fixing selected
			R	6.805	1.626	Wide		No fixing selected
T6	1	2522	A	4.299	1.994	Cross	1	Pair of Wire Dog Staples
			E	4.533	2.784	Butt	1	JH 47x90
T8	1	5980	A	7.654	5.088	Cross	1	CT400
			F	8.529	5.153	Cross	1	CT400
S2	1	5460	A	7.941	5.037	Cross	1	CT400
			E	8.841	5.103	Cross	1	CT400
S9	1D	6780	B	5.982	3.042	Cross	1	Pair of Wire Dog Staples
			H	7.905	3.155	Cross	1	Pair of Wire Dog Staples
			O	15.435	6.687	Cross	1	CT400
S16	1	4890	B	7.530	4.318	Cross	1	CT400
			F	7.530	4.318	Cross	1	CT400
S20	1	4800	A	7.765	4.241	Cross	1	CT400
			G	4.323	2.554	Butt	1	JH 47x90
T3	1D	10980	B	12.569	7.727	Cross	1	CT400
			K	1.913	1.426	Cross	1	Pair of Wire Dog Staples
			R	18.994	12.015	Cross	1	16kN Truss to Top Plate
T9	1	6780	B	10.479	6.138	Cross	1	CT400
			G	8.318	4.724	Cross	1	CT400

Fixing List

Qty Selected Fixing

79 Pair of Wire Dog Staples
 39 JH 47x90
 16 Pair of 3.15d Nails
 27 CT400
 2 Pair of MultiGrips
 1 16kN Truss to Top Plate
 17 No fixing selected

PQ21 of 1341 - 30/05/2022 - craigz

PQ21 of 1341 - BC220881 - BC220881

SDC - Approved Building Consent Document - BC220881

Note:

- 1) Fixings have been selected based on loading only. Please check that selected fixings are practical for each situation and that appropriate nailing can be applied on site.
- 2) Fixings are selected from the LUMBERLOK Brochure 08/2014 (Timber Connectors Characteristic Loadings Data) with down and uplift characteristic loads of at least the values shown for each joint.

DYERS ROAD

Date: **4 April 2022**

Fabricator: **VIP Frames & Trusses**

Job Name: JSR Construction
New House
2 Rapera St Rolleston

Building Consent No: _____
(Provided by relevant Consenting Authority at time of Consent application)

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

- (a) Truss Layout and Producer Statement.
- (b) Any slab thickening requirements detailed.
- (c) All truss loaded lintels that are either inside or outside the requirements of NZS3604:2011.
- (d) All roof bracing details as required by NZS3604:2011.

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

Wind Zone	<u>High</u>	Altitude	<u>100m</u>
Roof Material	<u>Metal Tile</u>	Snow (Open Ground Load)	<u>0.900 kPa</u>
		Snow (Basic Roof Load)	<u>0.441 kPa</u>

Treatment Definition:

External Walls -	H1.2 Treated
Internals Walls -	H1.2 Treated
Trusses -	H1.2 Treated

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

- (1) A full 'as-built' layout and Producer Statement.
- (2) Specific Truss/Truss fixings done as per NZS3604:2011,Clause 10.2.2.6.1
- (3) Specific top plate to stud fixings that comply with NZS3604:2011, Table 8.18
- (4) Specific lintel Fixings outside NZS3604:2011.

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

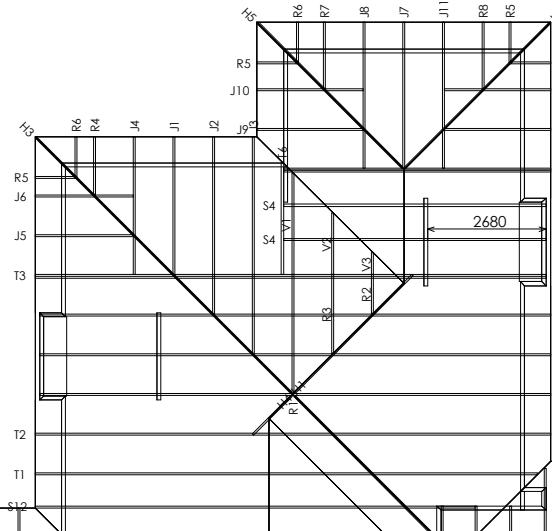
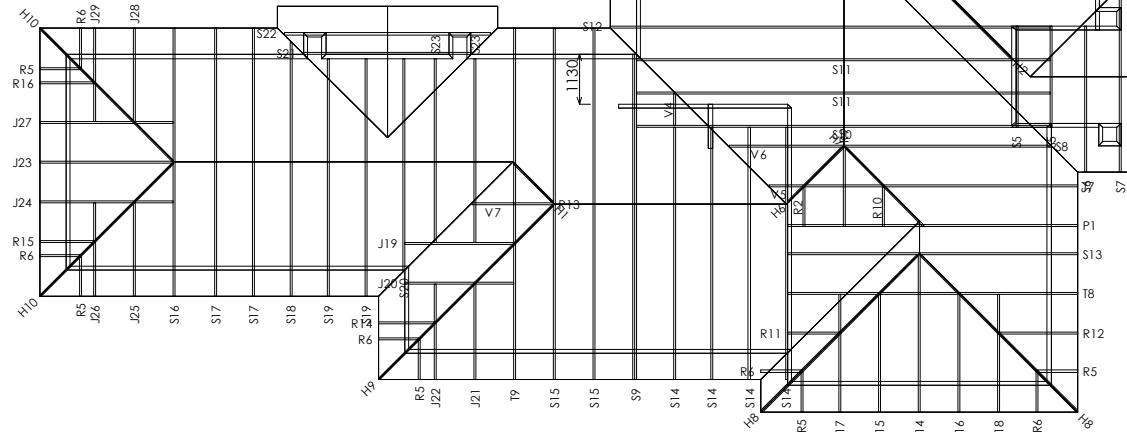
Acknowledgement of this letter, along with the Building Consent number, is required by our company as soon as possible.

Council Contacts:

Consents Officer: _____
Email #: _____
Phone: _____

Please forward to:

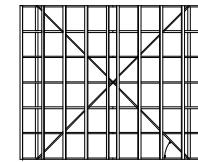
VIP Frames & Trusses
65-67 Wickham Street
Ph (03) 389 8200



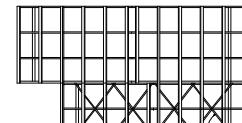
**Trusses And Rafters At 900 Centres
Unless Stated Otherwise**

DRAWN BY Michael Lim
DATE 4 Apr,2022 PAGE 1 of

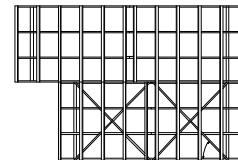
Roof Bracing Details



Single Cross @ 45



84/8

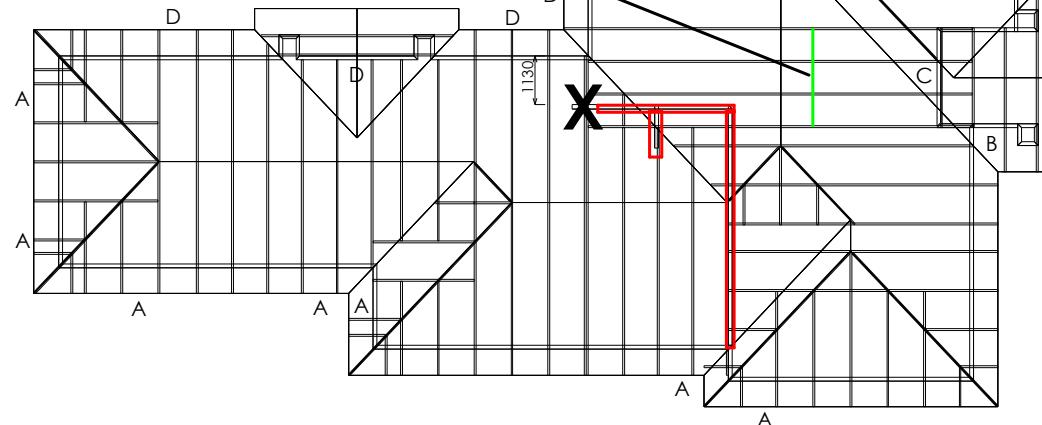


Double Cross @ 4

NOTES:
Refer to:
Lumberlok roof bracing brochure
07/2006

ATIC TRUSSES:

MII 190MM BOTTOM CHORD
MII 140MM TOP CHORD
140MM HIGH FROM TOP OF BOTTOM CHORD TO UNDER OF COLLAR TIE
720MM WIDE AT WIDEST POINT



X = Point load Download / Uplift (Ultimate Limit State Loads)

= Internal load bearing wall (Individual point loads of trusses under 8kN)

All walls shown are considered load bearing

Architect / Engineer to confirm all top floor loads are transferred to foundation / slab below

All Other lintels / beams by architect / engineer

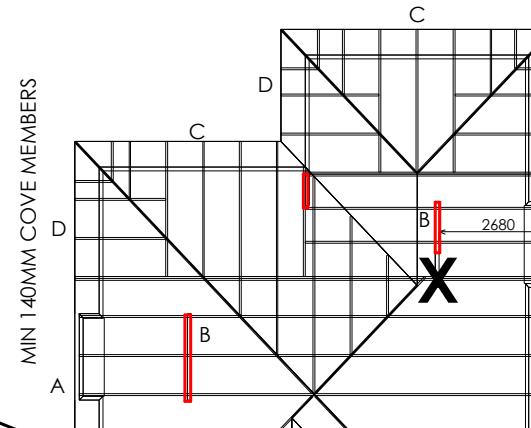
LINTELS DESIGNS BY ENGINEER SUPERSEED TRUSS DESIGN

Architect to ensure there is enough space / height for lintels allocated or advise otherwise

Fabricating Detailer MUST confirm lintel min size or bigger at detailing stage based off consented plans before detailing for fabrication

Fabricating Detailer MUST confirm lintel Fixings min size or bigger at detailing stage based off consented plans before detailing for fabrication

No allowance for heat pump units / Any type of air conditioning units or ducting in roof space - Architect MUST advise if required



MIN 140MM COVE MEMBERS

VIP *Frames & Trusses*
CHRISTCHURCH | AUCKLAND

65 Wickham St. 91 Adams Drive,
PO Box 19-765, Pukekohe,
Christchurch Auckland
0800 PRENAIL (0800 7736245)

JOB No 100433

Client: JSR Construction
Job Name: New House
Address: 2 Rapera St
Rolleston

Pitch: 25.000
Roof Material: Metal Tiles
Soffit Overhang: 600
Wind Area: High
Snow Load: 0.441

Trusses And Rafters At 900 Centres
Unless Stated Otherwise

DRAWN BY Michael Lim

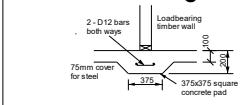
DATE 4 Apr,2022 PAGE 1 of 1

These lintels have been sized as per
the GANGLAM and FLITCH BEAM
selection manuals as provided by
MITek NZ Ltd.

HYPAN lintels have been sized as per
the HYPAN selection charts.

Unless otherwise stated all lintels are
as per NZS3604 2011

LINTEL	SIZE	
A	2/90x45	MSG8
B	150x90	Hy90
C	200x90	Hy90
D	240x90	Hy90
E	300x90	Hy90
F		

Slab Thickening Details

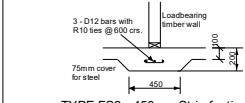
TYPE FP1 - 375x375mm Pad



TYPE FS1 - 300mm Strip footing



TYPE FP2 - 450x450mm Pad



TYPE FS2 - 450mm Strip footing

PROLAM SUMMARY

12 April 2022

100433

2 Rapera St

1. Lintel Supporting Girder or Setback Truss

a) Garage

PLX20H1-300100

(Non-visual)

Lintel Span	4.8 m	Building Type	House
Supported Girder Truss Span		Wind Zone	High
Span	6.0 m	Wet in Service	No
Girder Truss Setback	2.1 m	Snow Zone	N4
Eaves Width	0.6 m	Site Elevation	100
Truss Position on Lintel	2.0 m	Roof Type	Light (0.25 kPa)
Roof Pitch	25.0 °	Ceiling Type	Standard (0.15 kPa)
Member Depth	290 mm	Capacity Ratio	2.2
Member Width	88 mm	Rigidity Ratio	2.4
Uplift Restraint Required	5.5 kN	Support Reaction	10.4 kN
Residual Deflection	<1 mm	Critical Load Combination	1.2G + Su + psi_cQp
Absolute Deflection	5.1 mm		
Notes	Residual deflection is long term deflection below horizontal after pre-camber, absolute deflection is maximum beam movement. Composite member (includes timber and steel).		

PRODUCER STATEMENT

Tasman Consulting Engineers Limited has been engaged by Prowood Limited to provide design services as used for the Prolam on-line calculator.



This producer statement covers the design of the member(s) as above for the input parameters shown utilising the Prowood products listed (substitution is not permitted). The design has been carried out using sound and widely accepted engineering principles to the requirements of AS/NZS1170:2002, NZS3603:1993 and with reference to NZS3604:2011.

I believe on reasonable grounds that the above design will meet the requirements of clause B1/VM1 of the New Zealand Building Code Documents.



24 January 2022 (2.0.11)

David King

ME(civil) CMEngNZ CPEng(no 145511) IntPE(NZ)

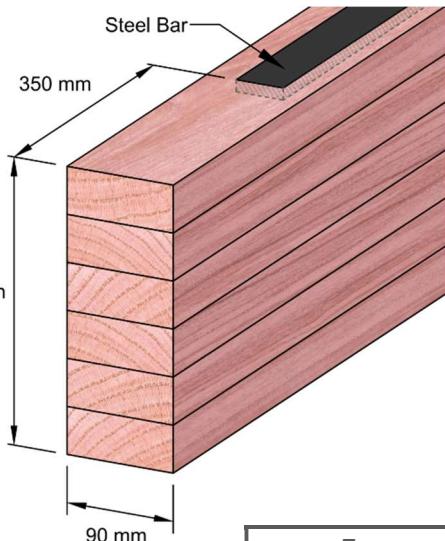
For Tasman Consulting Engineers, PO Box 3631, Richmond, NELSON 7050

Prolam PLX20™



Prolam®

Engineered Laminated Timber



The Prolam PLX20 is an innovative structural laminated beam being the ideal choice for garage door lintels. Manufactured from radiata pine, with steel inserts in the top and bottom laminates, PLX20's have superior spanning capabilities.

It is the responsibility of the designer to establish hold down fixing's accordance with NZS3604:2012 or an alternative fixing.

	E Lower bound Modulus of Elasticity GPa	f _b Bending MPa	f _s Shear MPa	f _c Compression parallel to grain MPa	f _t Tension MPa	G Modulus of Rigidity MPa
PLX20-250100	20	40	3.7	18	4	480
PLX20-300100	21	45	3.7	18	4	480

Product Details

Code	Size
PLX20-250100	240x90x5.4
PLX20-300100	290x90x5.4

Treatment: H1.2

Grade: Non-Visual

Applications: Lintels and Rafters

Key Features and Benefits

- Light weight
- Labour Savings – quicker to install
- Span further with smaller member
- Competitively priced
- Easy to Specify using Prolam Specifier specifier.prolamnz.com

Note: PLX20 have been signed off by Tasman Consulting engineers and independently tested by Scion Research in Rotorua.

For further information and technical support please contact our team on
03 526 7436 or info@prowoodnz.com



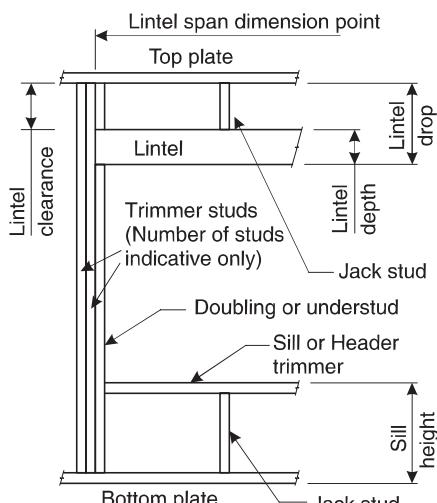
LINTEL FIXING SCHEDULE

ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12

NZS 3604:2011

NOTE:

- ★ All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20kPa.
- ★ Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist horizontal loads.
- ★ These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- ★ All fixings assume bottom plate thickness of 45mm maximum. Note: TYLOK options on timber species.
- ★ Wall framing arrangements under girder trusses are not covered in this schedule.
- ★ All timber selections are as per NZS 3604:2011.

DEFINITIONS**Lintel Supporting Girder Trusses**

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

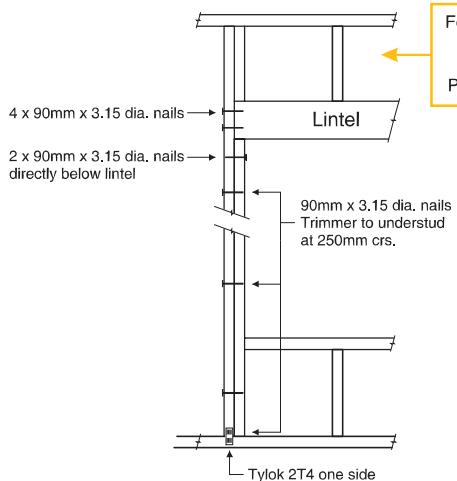
NOTES:

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

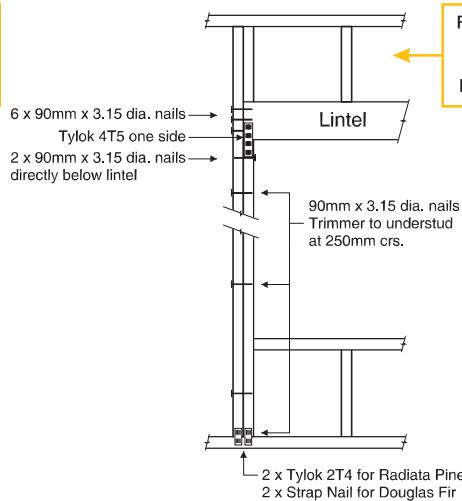
Lintel Span (m)	Loaded Dimension (m) (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
1.0	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	E	E	F
	4.0	E	F	F	F	G	E	E	E	F	F
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	E	F	F	G	G	E	E	F	F	G
	2.0	E	E	F	F	F	E	E	E	E	F
1.2	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	F	F	G	G	E	E	F	F	G
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	F	F	G	G	H	E	E	F	G	G
	2.0	E	E	F	F	F	E	E	E	E	F
	3.0	E	F	F	G	G	E	E	F	F	F
1.5	4.0	E	F	F	G	G	E	E	F	G	G
	5.0	F	F	G	G	H	E	E	F	G	H
	6.0	F	F	G	H	H	E	E	F	G	H
	2.0	E	F	F	G	H	E	E	F	F	F
	3.0	E	F	F	G	G	E	E	F	F	G
	4.0	E	F	F	G	H	E	E	F	G	H
2.0	5.0	F	F	G	H	H	E	E	F	G	H
	6.0	F	G	H	H	H	E	E	F	G	H
	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	E	F	F	G	G	E	E	F	G	G
	4.0	F	F	G	H	H	E	E	F	G	H
	5.0	F	G	H	H	H	E	E	F	G	H
2.4	6.0	F	G	H	H	H	E	E	F	G	H
	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	F	F	G	G	H	E	E	F	G	G
	4.0	F	F	G	H	H	E	E	F	G	H
	5.0	F	G	H	H	H	E	E	F	G	H
	6.0	F	G	H	H	H	E	E	F	G	H
3.0	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	F	F	G	H	H	E	E	F	G	H
	4.0	F	G	G	H	H	E	E	F	G	H
	5.0	F	G	H	H	-	E	E	F	G	H
	6.0	F	G	H	H	-	E	E	F	G	H
	2.0	F	F	G	G	H	E	E	F	G	G
3.6	3.0	F	F	G	H	H	E	E	F	G	H
	4.0	F	G	H	H	-	E	E	F	G	H
	5.0	F	G	H	-	-	E	E	F	G	H
	6.0	G	H	H	-	-	E	F	H	-	-
	2.0	F	F	G	G	H	E	E	F	G	G
	3.0	F	F	G	H	H	E	E	F	G	H
4.2	4.0	F	G	H	-	-	E	E	F	G	H
	5.0	G	H	H	-	-	E	E	F	H	-
	6.0	G	H	H	-	-	E	F	H	-	-
	2.0	F	F	G	G	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	E	F	G	H
	4.0	F	G	H	-	-	E	E	F	G	H
4.5	5.0	G	H	H	-	-	E	F	H	-	-
	6.0	G	H	H	-	-	E	F	H	-	-
	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	E	F	G	H
	3.4	F	G	H	H	-	E	E	F	G	H
	4.0	F	G	H	-	-	E	E	F	G	H
4.8	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	E	F	G	H
	3.2	F	G	H	H	-	E	E	F	G	H
	4.0	F	G	H	-	-	E	E	F	G	H
5.1	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	E	F	G	H
	3.5	F	G	H	-	-	E	E	F	G	H
	4.0	G	G	H	-	-	E	E	F	H	-
5.4	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	G	H	-	-
	2.0	F	F	G	H	H	E	F	G	G	H
	2.8	F	G	H	H	-	E	F	G	H	H
	3.0	F	G	H	-	-	E	F	G	H	-
	4.0	G	H	H	-	-	E	F	H	-	-
5.5	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	G	H	-	-

LINTEL FIXING OPTIONS

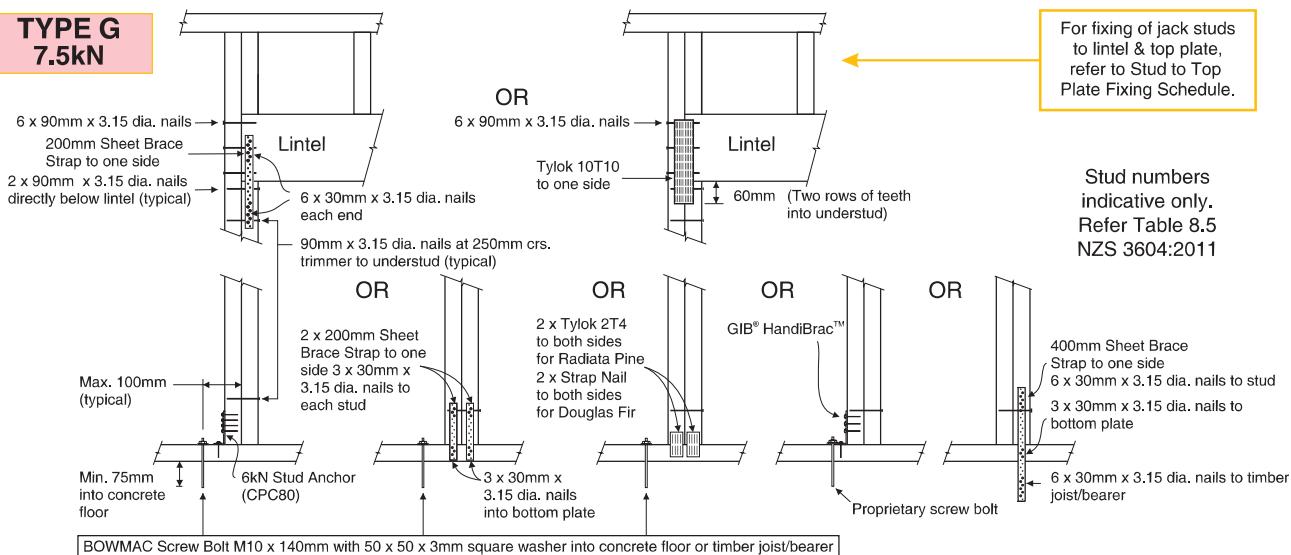
TYPE E 1.4kN



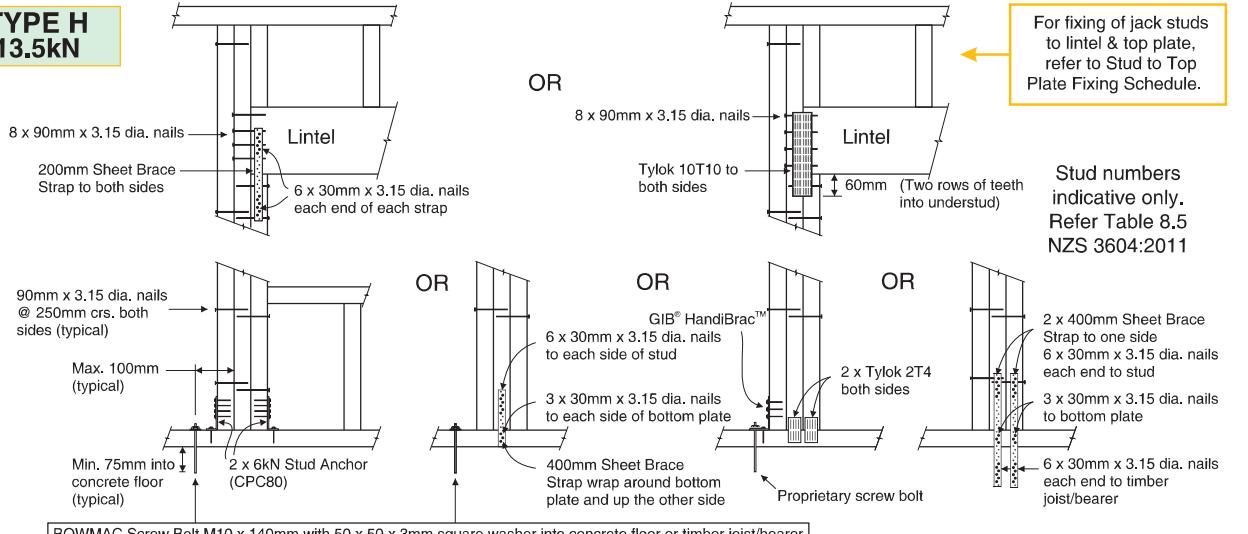
TYPE F 4.0kN



TYPE G 7.5kN



TYPE H 13.5kN



Demand Calculation Sheet

Job Details

Name:	Harry and Jessica Lo
Street and Number:	2 Rapera Steet
Lot and DP Number:	Lot 663 DP TBC
City/Town/District:	Rolleston
Designer:	Joe Jun
Company:	
Date:	Thursday, 30 December 2021

craigz - 05/2022 - 30/05/2024 - Pg 29 of 134 - BC220881 - Approved Building Consent Document

Building Specification

Number of Storeys	1
Floor Loading	2 kPa
Foundation Type	Slab
Cladding Weight	Single Heavy
Roof Weight	Light
Room in Roof Space	0 to 12.5%
Roof Pitch (degrees)	25
Roof Height above Eaves (m)	2.8
Building Height to Apex (m)	5.2
Ground to Lower Floor (m)	0.2
Average Stud Height (m)	2.455
Building Length (m)	24.02
Building Width (m)	18.8
Building Plan Area (m ²)	256.29

Building Location

Wind Zone = High		Earthquake Zone 2	
Wind Region	A	Soil Type	D & E (Deep to Very Soft)
Lee Zone	No	Annual Prob. of Exceedance:	1 in 500 (Default)
Ground Texture	Open		
Site Exposure	Exposed		
Hill Site Category	T1		

Bracing Units required for Wind

	Along	Across
Single Level	1049	1430

Bracing Units required for Earthquake

Along & Across	
Single Level	1813

SDC - Approved Building Consent Document

Single Level Along Resistance Sheet

Job Name: Harry and Jessica Lo

Wind	EQ
Demand	
1049	1813
Achieved	

Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	2472	2566
									236%	142%
A	1	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	2	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	External Length = 5.6								282 OK	317 OK
B	1	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	2	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	External Length = 5.2								282 OK	317 OK
C	1	4.94	0	2.455	GS1-N	GIB®	333	290		
	2	4.19	0	2.455	GS1-N	GIB®	283	246		
	External Length = 1.0								616 OK	536 OK
D	1	0.80	0	2.455	EP1 (0.6)	CHH	74	82		
	2	0.60	0	2.455	EP1 (0.6)	CHH	56	62		
	3	0.55	0	2.455	EP1 (0.4)	CHH	43	51		
	4	0.50	0	2.455	EP1 (0.4)	CHH	39	46		
	5	3.50	0	2.455	GS1-N	GIB®	236	205		
	External Length = 14.5								448 OK	447 OK
E	1	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	2	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	External Length = 7.7								282 OK	317 OK
F	1	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	2	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	3	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	4	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	External Length = 14.6								563 OK	633 OK

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Single Level Across Resistance Sheet

Job Name: Harry and Jessica Lo

Wind	EQ
Demand	
1430	1813
Achieved	

Line	Element	Length (m)	Angle (degrees)	Stud Ht. (m)	Type	Supplier	Wind (BUs)	EQ (BUs)	2261	2261
									Wind	EQ
Demand										
M	1	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
	2	1.20	0	2.455	EP1 (1.2)	CHH	141	158		
External Length = 5.0								282 OK		317 OK
N	1	3.80	0	2.455	GS1-N	GIB®	256	223		
	External Length = 0.6							256 OK		223 OK
O	1	0.40	0	2.455	EP1 (0.4)	CHH	31	37		
	2	0.78	0	2.455	BLP-H	GIB®	111	114		
External Length = 2.6								142 OK		151 OK
P	1	1.00	0	2.455	EP1 (0.6)	CHH	93	103		
	2	0.95	0	2.455	EP1 (0.6)	CHH	88	98		
Q	1	1.20	0	2.455	GS1-N	GIB®	81	70		
	2	0.80	0	2.455	GS1-N	GIB®	48	46		
External Length = 8.4								310 OK		317 OK
R	1	0.60	0	2.455	GS1-N	GIB®	216	188		
	2	0.58	0	2.455	EP1 (0.6)	CHH	56	62		
External Length = 0.7								272 OK		249 OK
S	1	2.30	0	2.455	EP1 (0.4)	CHH	45	54		
	2	1.60	0	2.455	GS1-N	GIB®	155	135		
T	1	2.00	0	2.455	GS1-N	GIB®	108	94		
	2	0.50	0	2.455	GS1-N	GIB®	135	117		
External Length = 2.6								443 OK		400 OK
S	1	0.96	0	2.455	GS1-N	GIB®	60	56		
	2	0.40	0	2.455	EP1 (0.4)	CHH	31	37		
T	1	0.50	0	2.455	BLP-H	GIB®	62	68		
	2	0.50	0	2.455	BLP-H	GIB®	62	68		
External Length = 8.2								216 OK		229 OK
T	1	0.76	0	2.455	EP1 (0.6)	CHH	71	78		
	2	1.00	0	2.455	EP1 (0.6)	CHH	93	103		
T	1	0.90	0	2.455	EP1 (0.6)	CHH	84	92		
	2	1.00	0	2.455	EP1 (0.6)	CHH	93	103		
External Length = 10.5								340 OK		376 OK

SDC - Approved Building Consent Document - BC22081 - Pg 31 of 134 - 30/05/2022 - craigz

Custom Wall Elements

**MASONS UNI FLEXIBLE
AIR BARRIER (UNI)
TECH DATA SHEET**



MASONS
Designed Smart, Built Tough.

V1.0 September 2021

DESCRIPTION

UNI is a three-layer flexible wall underlay. It is manufactured by thermally bonding outer spunbonded layers to an inner layer of microporous polypropylene film.

Property	Method	Units	Value
Informative			
Mass/unit area	EN 1849-2:2010	g/m ²	180
Thickness	EN 1849-2:2010	mm	0.7
Width	EN 1849-2:2003	m	2.74 0.6 m
Length	EN 1849-2:2003	m	18.2
Straightness	EN 1849-2:2003	mm/10 m	30
Visible defects	EN 1850-2:2004		No defects
Normative			
Reaction to fire	EN ISO 11925-2 AC-2011	class	E
Resistance to water penetration	EN 1928:2002	class	W1
Water vapour transmission (sd)	EN ISO 12572:2004 EN 1931:2002	m	0.2
Water absorbance	NZS 2295	AS/NZS 4201:part 6	
Air resistance (Air permeability)	EN 12114	m ³ /(m ² x h x 50 Pa)	≤ 0.01
Dimensional stability	EN 1107-2:2002	%	≤2
Flexibility at low temps	EN 495-5:2014	°	-40
Resistance to tearing MD	EN 12310-1:2010	N	210N



Property	Method	Units	Value
Resistance to tearing CD	EN 12310-1:2010	N	290N
Tensile strength MD	EN 12311-2:2013	N/50 mm	330
Tensile strength CD	EN 12311-2:2013	N/50 mm	230
Tensile strength - elongation MD	EN 12311-2:2013	%	40
Tensile strength - elongation CD	EN 12311-2:2013	%	80
Performance after artificial aging			
Method of aging	EN 1296 & EN 1297		
Water resistance, Resistance to water penetration	EN 1928:2002	class	W1
Tensile strength MD/ CD	EN 12311-2:2013	n/50 mm	280/195
Tensile strength elongation	EN 12311-2:2013	%	34/68

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MASONS PLASTABRICK UNI® FLEXIBLE AIR BARRIER

PURPOSE

Masons Plastabrick supplies UNI® Flexible Air Barrier (UNI® FAB) for use as flexible wall underlay that assists in the control of moisture by ensuring moisture, that occasionally penetrates the wall cladding, is directed back to the exterior of the building. During construction UNI® FAB also functions as a temporary cladding.



EXPLANATION

UNI® FAB is a nonwoven, absorbent, water-resistant 180 GSM, synthetic wall underlay. It comprises three polypropylene layers: two outer layers of non-woven polypropylene with a middle layer of a functional-technical film. It is manufactured to meet the European standard EN 13859.2:2014 as well as the absorbency performance requirement as per NZS 2295:2006.

It is supplied coloured blue with a black underside, unless an alternative colour is requested.

For further assistance please contact:

- 📞 0800 522 533
- ✉️ info@mpb.co.nz
- 👉 www.mpb.co.nz



SCOPE AND LIMITATIONS OF USE

Scope	Limitations
Location	
In locations with a wind design pressure (ULS) of up to and including 4.6 kPa (which includes all NZS 3604:2011 wind zones).	▶ Fixings are to be in accordance with the Masons Plastabrick UNI® FAB fixing chart.
In seismic zones up to and including seismic zone 3.	
In all exposure zones.	
Further than 1 m from a relevant boundary.	
Building	
In conjunction with timber or lightweight steel framing.	▶ For lightweight steel, a thermal wrap must be installed.
With a primary structure that complies with the relevant provisions of the NZ building code for the site and location or, for existing buildings, where the designer and/or installer have established that it is fit for the intended building work.	▶ Where a building height is greater than 10 m and upper levels contain sleeping uses or other property the external wall must be subject to specific fire engineering. ▶ In occupied spaces, UNI® FAB must always be installed in conjunction with an internal lining.
With buildings of all building heights, up to the permissible wind design pressure of 4.6 kPa.	
With cladding and joinery that complies with the relevant provisions of the NZ Building Code for the site and location.	▶ UNI® FAB must be covered within 90 days from installation.
As a temporary cladding for up to 90 days.	



USEFUL INFORMATION

For information on the design, installation, and maintenance of UNI® FAB and for our warranty refer to www.mpb.co.nz.



MASONS
Designed Smart, Built Tough.

PERFORMANCE CLAIMS

If designed, installed and maintained in accordance with all Masons Plastabrick's requirements, the UNI® FAB will comply with or contribute to compliance with the following performance claims:

NZ Building Code clauses		BASIS OF COMPLIANCE ¹
	Compliance statement	Demonstrated by
B STRUCTURE B1.3.1, B1.3.2, B1.3.3 (a, e, f, h, j, m, q, & UV), B1.3.4 (a, b, c, d, e)	ALTERNATIVE SOLUTION	► Manufactured to EN 13859-2:2014; tested to EN 12311.2:2013 for tensile properties, EN 12310.1:2010 for resistance to tearing, EN 1107.2:2002 for dimensional stability based on supplier's technical data and testing specification [Masons Plastabrick, 30/08/2021b].
B DURABILITY B1.3.1 (a), B2.3.2 (b)	ALTERNATIVE SOLUTION	► Manufactured to EN 13859-2:2014; tested to EN 1297 & EN 1296 for UV exposure and UV exposed samples tested to EN 12311.2:2013 for tensile properties, EN 12310.1:2010 for resistance to tearing, EN 1928.2002 for resistance to water penetration based on supplier's technical data and testing specification [Masons Plastabrick, 30/08/2021b].
C FIRE AFFECTING AREAS B BEYOND THE FIRE SOURCE C1.4 (c)	ACCEPTABLE SOLUTION	► UNI® FAB has a flammability index of 9. [NZWTA, 29/09/2021].
E EXTERNAL MOISTURE E1.3.2, E2.3.5, E2.3.7 (a, b, c)	ALTERNATIVE SOLUTION	► Manufactured to EN 13859-2:2014; tested to EN 1928:2002 for resistance to water penetration, EN ISO 12572:2004 for water vapour transmission properties, EN 12114 for air resistance based on supplier's technical data and testing specification [Masons Plastabrick, 30/08/2021b]. ► Tested to AS/NZS 4201: Part 6 for absorbency [Scion, 02/2020]. ► Installation details and requirements meet E2/AS1, E2/AS4.
F HAZARDOUS BUILDING MATERIALS F1.3.1	ALTERNATIVE SOLUTION	► Manufactured to EN 13859-2:2014; product does not emit harmful materials based on supplier's technical data and testing specification and material safety information [Masons Plastabrick, 30/08/2021a, 30/08/2021b].

SDC - Approved Building Consent Document - BC220881 - Pg 36 of 134 - 30/05/2022 - craigz

The Compliance Statement is the pass holder's statement that they have met their obligations under s14G(2) of the Building Act 2004.

SOURCES OF INFORMATION²

- Masons Plastabrick. [30/08/2021a]. UNI® Material Data Safety Sheet.
- Masons Plastabrick. [30/08/2021b]. UNI® Technical Data Sheet & Testing Specification.
- Scion. [02/2020]. Evaluation of UNI FR FAB to NZS 2295. Task code/QT number: J31989/QT8080A.
- The Building Business Ltd. [20/08/2021]. Comparison of EN 13859-2:2014 Flexible sheets for waterproofing – Definitions and characteristics of underlays and NZS 2295:2006 Pliable, permeable building underlays.

Sources of information also include the Building Act 2004 and its regulations, including the Building Code (Schedule 1 of the Building Regulations 1992), Acceptable Solutions and Verification Methods, and relevant cited standards.

- NZWTA [29/09/2021]. AS 1530.2-1993 - Methods for Fire Tests on Building Materials, Components and Structures. Part 2 Test for Flammability of Materials. Report no. 1389479.5
- Scion [10/2021]. Surface Water Absorbency of UNI Flexible Air Barrier. Report no. J48921/QT9493.

Scan or click this QR code for a full download of Compliance Documentation for this pass™.
www.mpb.co.nz



Signed on behalf of Masons Plastabrick Ltd:

NZBN 9429031171090

NAME: Trent Mason

POSITION: Director

DATE OF FIRST ISSUE:

DATE OF NEXT ASSURANCE:

By signing this pass™ the signatory confirms that, in respect of the subject of this pass™, the company has met their s14G obligations under the Building Act 2004.



18a David McCathie Place, Silverdale, Auckland 0932 > info@mpb.co.nz > 0800 522 533 > www.mpb.co.nz

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3.3 ECOPLY® BRACING SPECIFICATION - EPI

Table 10: Singled Sided Structural Plywood Brace

Specification No.	Minimum Wall Length	Lining Requirements	BUs/m Wind	BUs/m Earthquake
EPI_0.4	0.4 m	Ecopy one side	80	95
EPI_0.6	0.6 m	Ecopy one side	95	105
EPI_1.2	1.2 m	Ecopy one side	120	135

Framing

Wall framing must comply with:

- NZBC B1 - Structure: ASI Clause 3 Timber (NZS 3604)
- NZBC B2 - Durability: ASI Clause 3.2 Timber (NZS 3602)

Framing dimensions and height are as determined by the NZS 3604 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber, such as Laserframe® of SG8 stress grade minimum, is recommended.

Bottom plate fixing

Use GIB Handibrac® hold-down connections at each end of the bracing element. Refer to manufacturer installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604.

Lining

One layer of 7 mm, 9 mm or 12 mm Ecopoly plywood fixed directly to framing. If part sheets are used, ensure nailing at required centres is carried out around the perimeter of each sheet or part sheet. A 2-3 mm expansion gap should be left between sheets.

Fastening the Ecopoly® panels

Fasten with 50 x 2.8 mm hot dipped galvanised or stainless steel flat head nails for direct fix. Place fasteners no less than 7 mm or 3 fastener diameters from sheet edges. Screws cannot be used. Power driven nails are suitable. Do not overdrive, nails must be full round head.

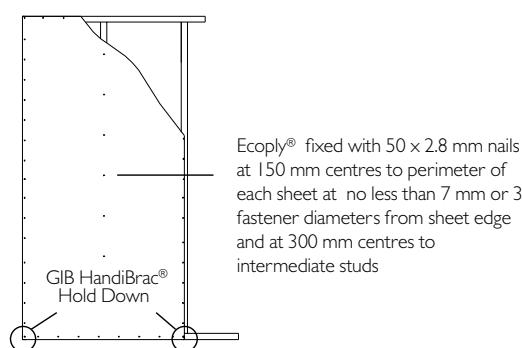
Fasteners for H3.2 CCA treated Ecopoly® panels

Where fasteners are in contact with H3.2 CCA treated timber or plywood, fasteners shall be a minimum of hot dip galvanised.

In certain circumstances stainless steel fasteners may be required. Refer to Table 8 of the Ecopoly Specification and Installation Guide for these circumstances and further fastener selection advice. Where stainless steel nails are required, annular grooved nails must be used.

Fastening centres

Fasteners are placed at 150 mm centres around the perimeter of each sheet and 300 mm centres to intermediate studs. Where more than one sheet forms the brace element each sheet must be nailed off independently.



Ecopoly® Bracing Systems are designed to meet the requirements of the NZBC and have been tested and analysed using the P21 method referenced in NZS 3604:2011 listed as an acceptable solution B1/ASI Structure. Testing was carried out using Ecopoly manufactured by Carter

Holt Harvey and SG8 timber framing, and GIB® products manufactured by Winstone Wallboards Ltd. Substituting materials may compromise performance of the system. GIB® and GIB Handibrac® are registered trade marks of Fletcher Building Holdings Ltd.

SEPTEMBER 2015

THERMAKRAFTTM 215

Thermakraft 215 self-supporting roof and wall underlay is an absorbent, breathable underlay specifically designed for use in Domestic and Commercial buildings. Suitable as a roof and wall underlay with all cladding types, where Fire Retardancy is NOT required.

- ✓ Versatile building Underlay, designed for use in residential and commercial roof and wall applications.
- ✓ Reduces wind entry into wall and roof cavities, improving thermal efficiency of bulk insulation. Can be used as a vapour control layer, and improve thermal performance if installed and taped on the warm side of bulk insulation.
- ✓ High water resistance provides for temporary weather protection prior to installation of cladding, and acts as a secondary layer of water protection during its serviceable life.
- ✓ Highly water vapour permeable, allowing excess water vapour that may otherwise condense in the wall structure to escape.
- ✓ Lap line printed.



Self-Supporting



High Water Barrier



Breathable



Absorbent



ROOF



WALL

TECHNICAL SPECIFICATIONS

NZBC E2/AS1 ROOF UNDERLAY REQUIREMENTS

NZBC E2/AS1 TABLE 23 ROOF UNDERLAY PROPERTIES	PROPERTY PERFORMANCE REQUIREMENTS	PROPERTY PERFORMANCE
Absorbency	$\geq 150\text{gsm}$	Pass
Vapour Resistance	$\leq 7 \text{ MN.s/g}$	Pass
pH of Extract	≥ 5.5 and ≤ 8	Pass
Shrinkage	$\leq 0.5\%$	Pass
Water Resistance	$\geq 100\text{mm}$	Pass

NZS2295:2206 CLASSIFICATION

Flammability Index		Non Fire Retardant
Wind Zone	R2	Up to Very High
NZS2295:2006	R2	Self Support

NOTE:

For wall cavity systems, NZBC Acceptable Solution E2/AS1 Paragraph 9.1.5.5 requires where stud spacing's are greater than 450mm centres, an intermediate means of restraining the building underlay and insulation from bulging into the drained cavity shall be installed. An acceptable means of achieving this is by fixing with Thermakraft Stud Strap horizontally at 300mm centres.

Flammability Index
Thermakraft 215
is not fire retardant.

Roll Dimensions:
1250mm x 20m (25m²)
1250mm x 40m (50m²)
M2 is the roll size for actual coverage, allow for laps and joins.

Thermakraft 215 complies with the requirements of NZBC E2/AS1 Table 23. Is suitable for use in the following:

- With absorbent wall claddings directly fixed to timber and steel framing; and,
- With non-absorbent wall claddings directly fixed to timber and steel framing; and,
- With absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity; and,
- With masonry veneer in accordance with Nzs 3604; and,
- Situated in Nzs3604 Building Wind Zones up to, and including 'Very High' (wall); and,
- As a ROOF underlay Self-supporting when run horizontally at pitches 3° and greater. When run vertically at pitches >3° and <10° degrees, 215 must be supported. Support recommended at very low pitches; and,
- As a roof underlay suitable for use with all Roofing materials; and
- Is suitable as an air barrier in unlined wall spaces.

DURABILITY

For Thermakraft 215 to meet the Performance Requirements of NZBC Clause B2, Durability B2.3.1 (a) 50 years and B2.3.1 (b) 15 years, E2 External Moisture providing:

- Installed in accordance to the Application and Installation Guidelines.
- Run length no greater than 10 meters.
- Is not left exposed for more than (7 days) roof.
- Is not left exposed for more than (28 days) wall.
- When used with LOSP treated timber, inspection must be carried out to ensure that the solvent in the LOSP treated timber has sufficient time to dry out (typically 7 days after the treatment process under the suitable environment conditions).
- Installed by or under guidance of Licensed Building Practitioners.
- Installed in accordance with the Roofing Code of Practice.

 For additional details and latest specifications www.thermakraft.co.nz  Customer Service 0800 806 595

Thermakraft™ THERE IS NO SUBSTITUTE

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The recommendations contained in Thermakraft's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Thermakraft (for example quality of workmanship and design), Thermakraft shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found on the website.



Vertical Installation Technical Specification

Contents

1 APPLICATION AND SCOPE	3	5 INSTALLATION	6
1.1 Application	3	5.1 General	6
1.2 Scope	3	5.2 Fastener durability	6
1.3 Details	3	5.3 Fastener – size and layout	7
1.4 Specific design	3		
2 DESIGN	3	6 JOINTS	7
2.1 Compliance	3	6.1 Vertical joint	7
2.2 Responsibility	3	6.2 Horizontal joint	7
2.3 Site and foundation	3	6.3 Drainage joint	7
2.4 Surface clearances	3	6.4 External corner	7
2.5 Moisture management	4	6.5 Internal corner	7
2.6 Structure	4		
2.7 Fire rated walls	4	7 FINISHES	8
2.8 Structural bracing	4	7.1 Preparation	8
2.9 Energy efficiency	4	7.2 Painting	8
3 FRAMING	5	7.3 Flexible sealant	8
3.1 General	5		
3.2 Timber framing	5	8 STORAGE AND HANDLING	8
3.3 Special framing requirements	5	9 MAINTENANCE	8
3.4 Tolerances	5	10 PRODUCT INFORMATION	9
4 PREPARATION	5	10.1 Manufacturing and classification	9
4.1 Flexible underlay/HomeRAB Pre-Cladding	5	10.2 Product mass	9
4.2 RAB Board	5	10.3 Durability	9
4.3 Cavity closure/vent strip	6		
4.4 Cavity battens	6	11 SAFE WORKING PRACTICES	10
4.5 Intermediate support	6	12 PRODUCT AND ACCESSORIES	12
4.6 Flashings	6	13 DETAILS	14
4.7 Junctions and penetrations	6	PRODUCT WARRANTY	39

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:

Ask James Hardie™

literaturefeedback@jameshardie.co.nz

1 Application and scope

1.1 APPLICATION

Linea™ Oblique™ Weatherboard installed as per this specification gives a vertical rusticated profile weatherboard appearance. Linea Oblique Weatherboard can be fixed to timber-framed external walls. A wide range of colours can be used, varying from light to dark. Linea Oblique Weatherboard is available in 200mm or 300mm wide x 4200mm or 2700mm lengths and is 16mm thick.

Specifiers

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.

Installers

If you are an installer ensure that you follow the design, moisture management principles, associated figures and material selection provided by the designer and this James Hardie Technical Specification. All of the details provided in this document must be read in conjunction with the project specification.

Make sure your information is up to date

When specifying or installing James Hardie products, ensure that you have the current manual. Additional installation information, warranties and warnings are available at www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

1.2 SCOPE

This specification covers the installation of Linea Oblique Weatherboard fixed vertically over James Hardie horizontal cavity battens on buildings that fall within the scope limitation of NZS 3604 and E2/AS1 of the New Zealand Building Code (NZBC).

This specification also covers the installation of Linea Oblique Weatherboard on projects, which are subject to specific engineering design (SED) up to a wind pressure of 2.5kPa (ULS).

1.3 DETAILS

Various typical Linea Oblique Weatherboard vertical construction details are provided in the Details section of this document. These details are available in dwg, dxf, jpg and pdf file format and can be downloaded from our website at www.jameshardie.co.nz.

All dimensions shown are in millimetres unless noted otherwise.

1.4 SPECIFIC DESIGN

For use of Linea Oblique Weatherboard in a specific engineering design (SED) project that is outside the scope of this literature, the designer, architect or engineer must ensure that applicable clauses of the NZBC have been considered and a specific design has been undertaken.

Linea Oblique Weatherboard is suitable for use in SED project up to a wind pressure of 2.5kPa (ULS).

2 Design

2.1 COMPLIANCE

Linea Oblique Weatherboard has been issued a CodeMark certification number GM-CM30059 which confirms Linea Oblique Weatherboard is deemed to comply with the requirements of the NZBC. Please refer to our website www.jameshardie.co.nz for a copy of the CodeMark certificate. Linea Oblique Weatherboard has been appraised by BRANZ as an alternative solution and found to meet the required provisions of the NZBC when installed in accordance with this Linea Oblique Weatherboard Vertical Installation technical specification. BRANZ Appraisal number 897 (2015) at www.branz.co.nz or www.jameshardie.co.nz.



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 details, 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 New Zealand Standards referenced in this document are current editions 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 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 the NZBC requirements.

2.4 SURFACE CLEARANCES

The clearance between the bottom edge of the cladding and paved/unpaved ground must comply with section 9.1.3 of E2/AS1. The finished floor level must also comply with these requirements. These clearances must be maintained throughout the life of the building.

Linea Oblique Weatherboard must overhang the bottom plate by a minimum of 50mm, as required by E2/AS1.

Linea Oblique Weatherboard must maintain a minimum clearance of 100mm from paved ground, and 175mm from unpaved ground.

On 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 to Figure 3.

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 interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration. The building should also be ventilated sufficiently to control moisture accumulation due to condensation, especially in artificially cooled/heated buildings.

Walls must include those provisions as required by the NZBC Acceptable Solution Clause E2/AS1. 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 the NZBC. For further guidance on designing for weathertightness, refer to BRANZ Ltd. and the Ministry of Business Innovation and Employment (MBIE) updates on the following websites respectively, www.branz.co.nz and www.building.govt.nz.

In addition, the following issues must also be considered:

- Sealant must be installed where detailed in this literature
- Where the walls are higher than two storeys, it is necessary to provide a horizontal flashing at the second floor level to drain the cavity
- The installation of smoke chimneys, pipe penetrations and other fixtures etc. must not track moisture into the wall or restrict the drainage of moisture to the exterior

2.6 STRUCTURE

2.6.1 Timber Framing

Timber-framed buildings must either be in accordance with NZS 3604 (Timber-framed Buildings) or designed as per specific engineering design. For a building requiring a specific engineering design, the framing stiffness must be equivalent to, or more than, the stiffness requirements of NZS 3604.

For specific design projects, the timber framing must be designed in accordance with the requirements of NZS 3603 and AS/NZS 1170.

For timber frame walls longer than 12m, it is best practice to allow for construction joints to accommodate movements generated due to timber shrinkage or deflections generated by loadings etc.

2.6.2 Wind Pressures

Linea Oblique Weatherboard is suitable for use in wind zones up to and including EH as defined in NZS 3604.

Linea Oblique Weatherboard is also suitable for use in specific design projects up to wind pressures of 2.5kPa (ULS).

2.7 FIRE RATED WALLS

Linea Oblique Weatherboard when fixed over timber cavity battens to external walls can achieve fire ratings up to 60/60/60 to comply with Clause C/AS1 of the NZBC, when the walls are constructed in accordance with the current James Hardie 'Fire and Acoustic' Design Manual.

Linea Oblique Weatherboard is classified as a 'non-combustible' material suitable for use on walls close to a boundary.

2.8 STRUCTURAL BRACING

Linea Oblique Weatherboard installed as per this specification cannot be used to achieve structural bracing. However, bracing can be achieved by using a James Hardie rigid air barrier board installed direct to framing instead of a flexible underlayment or by using the Villaboard™ Lining bracing system on the internal face of the wall. Refer to the James Hardie Bracing Design Manual for further information.

2.9 ENERGY EFFICIENCY

External walls constructed as per this technical specification using Linea Oblique Weatherboard and bulk insulation, where the area of glazing is 30% or less of the total wall area, complies with the insulation requirements for walls in the NZBC Acceptable Solution H1/AS1 (Energy Efficiency Clause H1), 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 changes when the size or spacing of timber framing is increased or decreased. The calculation used in Table 1 is based on a timber framing size 90 x 45mm and using an internal lining material such as Villaboard Lining or a 10mm plasterboard.

Table 1

Insulation capability		
Climate zone	R-value requirement	Minimum cavity insulation infill requirement
1 and 2	1.9 m ² °C/W	R2.0*
3	2.0 m ² °C/W	R2.2*

Total construction R-value depends on the insulation material used and the framing ratio. The insulation material R-values specified in this table are for studs spaced at 600mm centres and nogs spaced at 600mm centres.

* To achieve higher R-values of construction the wall insulation material must be replaced with an insulation material having higher R-values to suit the requirements.

For further guidance on insulation requirements refer to the current edition of 'House Insulation Guide' published by BRANZ.

3 Framing

3.1 GENERAL

Linea Oblique Weatherboard can be fixed either to a timber-frame or steel-frame.

For fixing to a steel frame Ask James Hardie on 0800 808 868 for specific requirements.

For Linea Oblique Weatherboard Vertical Installation:

- Studs must be provided at 600mm centres maximum
- Nogs must be provided at 600mm centres maximum

Note: For fixing Linea Oblique Weatherboard, fastener spacing is provided in Section 5.

3.2 TIMBER FRAMING

3.2.1 Dimensions

A 90 x 45mm minimum framing size is required.

3.2.2 Structural Grade

Timber grade used must be in accordance with timber grades specified in NZS 3604.

3.2.3 Durability

The external framing timber must be treated to a minimum H1.2 treatment. Higher treatment levels may be used, but check for the compatibility of treatment chemicals with other materials. Refer to the 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 the framing manufacturer's literature for further guidance on timber selection. Framing must be protected from moisture at the site in accordance with the framing manufacturer's recommendations.

3.2.4 Frame Construction

Use of timber framing must be in accordance with NZS 3604 and the framing manufacturer's specifications. The framing must be rigid and must not rely on the cladding for stability. Timber framing sizes and its set-out must comply with NZS 3604 and as specified in this technical specification.

The following framing is required:

- Studs must be provided at 600mm centres maximum
- Nogs must be provided at 600mm centres maximum
- An extra stud is required in internal corners
- For specific design projects exposed to wind speeds higher than 55m/sec the stud size and spacing must be as per the design requirements but not exceeding 600mm maximum

In case of gable end trusses sitting on top plates of the external wall frame, the frame size must be in accordance with truss design and specification supplied by the frame and truss manufacturer/supplier supported by an independent design producer statement.

3.3 SPECIAL FRAMING REQUIREMENTS

The following are special framing requirements for both timber and steel framing:

- Double studs are required at internal corners, refer to Figure 10
- Extra packers may be required at external corners

3.4 TOLERANCES

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

Framing tolerances must comply with Table 2.1 of NZS 3604 and the manufacturer's specifications. All framing shall be made flush.

4 Preparation

4.1 FLEXIBLE UNDERLAY/HOMERAB PRE-CLADDING

Flexible underlay/HomeRAB™ Pre-Cladding must be provided as per the requirements of External Moisture Clause E2 of the NZBC. The flexible underlay selected for use must comply with Table 23 of E2/AS1.

The flexible underlay must be fixed in accordance with section 9.1.7 of E2/AS1 and the underlay 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 Table 23 of E2/AS1. For attached garages, flexible underlays must be selected in accordance with the NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. James Hardie HomeRAB Pre-Cladding complies with these requirements and is suitable for use in this situation. It must be installed in accordance with the James Hardie Rigid Air Barriers installation manual.

4.2 RAB BOARD

For EH wind zone or for specific engineering design (SED) projects where the wind pressure is higher than 1.5kPa, James Hardie RAB™ Board must be used.

To achieve temporary weathertightness using James Hardie RAB Board, windows/doors need to be temporarily installed. Refer to the James Hardie Rigid Air Barriers installation manual for further information regarding its installation.

4.3 CAVITY CLOSURE/VENT STRIP

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

4.4 CAVITY BATTENS

Linea Oblique Weatherboard must be installed on a cavity. The battens provide ventilation and drainage between the frame and the weatherboard and are considered a "packer" only in this specification.

The James Hardie horizontal cavity battens are H3.1 treated in accordance with NZS 3640 (Chemical preservation of rough and sawn timber) to comply with the durability requirements of B2/AS1.

James Hardie horizontal cavity battens meet the requirements of E2/AS1 and:

- Are minimum 20mm thick and 45mm wide
- Fixed horizontally to noggs
- Fixed vertically to studs at corners and openings
- Must be fixed by the cladding fixings to the main framing over the flexible underlay. Therefore until claddings are fixed the battens only need to be tacked to framing by 40 x 2.8mm or longer nails at 800mm centres
- Permit air circulation and water drainage

4.5 INTERMEDIATE SUPPORT

Where studs are at 600mm centres an intermediate means of restraining the flexible underlay and insulation from bulging into the cavity shall be installed. An acceptable method to achieve this is using one of the following options:

- 75mm galvanised mesh; or
- Polypropylene tape at 300mm centres fixed horizontally and drawn taut

No intermediate supports are required:

- When studs are spaced at 400mm centres; or
- When rigid air barriers are used

4.6 FLASHINGS

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to Linea Oblique Weatherboard installation. Refer to moisture management requirements in Clause 2.5. The flexible underlay/rigid air barrier must be appropriately incorporated with penetration and junction flashings using flashing tapes. Materials must be lapped in such a way that water tracks down to the exterior on the face of the flexible underlay or rigid air barrier board.

The selected flashing materials must comply with the durability requirements of the NZBC. For information refer to Table 20 of E2/AS1.

When using James Hardie rigid air barrier boards the entire framing around openings must be protected with a flashing tape. The tape must be finished over the face of the rigid air barrier. Ensure to check the compatibility of flashing tapes and sealants with their manufacturers. Refer to the James Hardie Rigid Air Barriers installation manual for further information.

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. For an example of window details for Linea Oblique Weatherboard which meet the performance requirements of E2 External Moisture, an approved document of the NZBC, refer to Figures 11 to 13.

5 Installation

5.1 GENERAL

Linea Oblique Weatherboard must be installed vertically using the cavity construction method as per the details and information published in this manual.

The two widths of Linea Oblique Weatherboard can be mixed to create the desired look.

Linea Oblique Weatherboard must be kept under cover whilst in storage or at sites and they must be dry at the time of their installation. All site-cut board edges must be sealed with Dulux Acraprime 501/1, Dulux 1 Step, Resene Quick Dry or a similar sealer compatible with the finish coat before installation.

Linea Oblique Weatherboard must be fully supported and fixed through James Hardie horizontal cavity battens. Ensure that cladding is hard against the battens to avoid drumminess.

This technical specification only covers the vertical installation of Linea Oblique Weatherboard. Refer to the Linea Oblique Weatherboard horizontal installation technical specification for horizontal installation.

5.2 FASTENER DURABILITY

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

Fasteners must be fully compatible with the other materials that they are to be in contact with, to ensure the durability of the complete assembly.

Table 2

Exposure conditions and nail selection prescribed by NZS 3604		
NAIL MATERIAL		
Zone D	Zone C* outside sea spray zone, Zone B and geothermal hot spots	Bracing - all zones
Grade 316 Stainless	Hot-dipped galvanised or Grade 316 Stainless	Grade 316 Stainless

*Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made. Microclimate conditions as detailed in NZS 3604, Paragraph 4.2.4 require SED.

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 AND LAYOUT

Linea Oblique Weatherboard must be fixed vertically to framing using fixings as specified in Table 3 below and follow the edge distance required for nails as shown in the details.

Table 3

Weatherboard fixing up to and including VH wind zone		
CAVITY CONSTRUCTION OVER FLEXIBLE UNDERLAY		
Linea Oblique Weatherboard 200	65x2.87mm D head nail or 65x2.87mm RounDrive ring shank nail or 60x3.15mm HardieFlex nail	Fix one nail 100mm from bottom edge of board per nog/plate, refer to Figure 6
Linea Oblique Weatherboard 300	65x2.87mm D head nail or 65x2.87mm RounDrive ring shank nails or 60x3.15mm HardieFlex nail	Fix one nail 150mm from bottom edge of board per nog/plate, refer to Figure 7

Weatherboard fixing up to and including VH wind zone		
CAVITY CONSTRUCTION OVER HOMERAB PRE-CLADDING/RAB BOARD		
Linea Oblique Weatherboard 200	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail 100mm from bottom edge of board per nog/plate, refer to Figure 6
Linea Oblique Weatherboard 300	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail 150mm from bottom edge of board per nog/plate, refer to Figure 7

Weatherboard fixing EH wind zone and SED projects		
CAVITY CONSTRUCTION OVER RAB BOARD		
Linea Oblique Weatherboard 200	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail 100mm from bottom edge of board per nog/plate Refer to Figure 8
Linea Oblique Weatherboard 300	75x3.06mm D head nail or 75x3.15mm RounDrive ring shank nail or 75x3.15mm HardieFlex nail	Fix one nail at 150mm from bottom edge of board per nog/plate. Refer to Figure 9

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

- When fixing the weatherboards using nail guns, refer to the nail gun manufacturer for information about nails and the type of nail gun to be used
- D head nails - finish nails 2mm below weatherboard surface
- RounDrive nails - finish nails flush with weatherboard surface
- HardieFlex nails - finish nails flush with weatherboard surface

6 Joints

6.1 VERTICAL JOINT

Linea Oblique Weatherboard vertical joint shall be formed using the ship lap edge of the Linea Oblique Weatherboard. Ensure that the Linea Oblique Weatherboards are securely interlocked before nailing, refer to Figures 6 to 9.

6.2 HORIZONTAL JOINT

Linea Oblique Weatherboard can run continuously over floor joists without a flashed horizontal joint when LVL timber floor joists or engineered joist are used, refer to Figure 17.

When using a solid timber joist, a horizontal joint or a movement joint must be formed at floor joist, refer to Figure 19.

6.3 DRAINAGE JOINT

After every two floors a horizontal drainage joint flashing is required as per E2/AS1, refer to Figure 22.

6.4 EXTERNAL CORNER

An external box corner flashing is used to fix the external corners, refer to Figure 11. Alternatively an Axent™ Trim external boxed corner can also be formed, refer to Figure 12.

6.5 INTERNAL CORNER

An internal corner flashing is to be used to form an internal corner joint, refer to Figure 10.

An extra stud is required in internal corners.

Note: All joint mouldings to be fixed at 400mm centres both sides.

7 Finishes

7.1 PREPARATION

The D head nail must be finished 2mm below the weatherboard surface. The nail holes must be filled with an exterior grade two part builders fill, ie. CRC ADOS Builders Fill or similar two part external grade filler. The RounDrive nail heads must finish flush with weatherboard surface.

7.2 PAINTING

Linea Oblique Weatherboard is pre-primed and is suitable for site applied acrylic paints.

In order to seal cut edges or sanded patches, Dulux 1 Step, Acraprime 501/1, Resene Quick Dry, Taubmans Underproof Acrylic Primer Undercoat or a similar product should be applied. The primer should be compatible with the paint to be used.

Painting of Linea Oblique Weatherboard is mandatory to meet the durability requirements of the NZBC and the 25 year James Hardie product warranty. Linea Oblique Weatherboard must be dry and free of any dust or grime before painting. The weatherboards must be painted within 90 days of their installation. There is no restriction on the LRV of paint to be applied on the Linea Oblique Weatherboard.

James Hardie recommends a minimum of two coats of exterior grade acrylic paint. Follow the paint manufacturer's recommendations to prepare the surface and to adequately cover and conceal the weatherboard fixings.

7.3 FLEXIBLE SEALANT

Sealant used must comply with the relevant requirements of the NZBC. Their application and usage must be in accordance with the manufacturer's instructions. Check with the sealant manufacturer prior to coating over sealant. Some sealant manufacturers do not recommend coating over their product.

8 Storage and handling

When storing Linea Oblique Weatherboard, they must be laid flat on a smooth level surface. Edges and corners must be protected from chipping.

To ensure optimum performance, store weatherboards under cover and keep dry prior to fixing. If the weatherboards become wet, allow them to dry thoroughly before fixing.

Do not carry weatherboards on the flat, carry on edge to avoid excessive bending.

9 Maintenance

It is the responsibility of the specifier to determine normal maintenance requirements to maintain the effectiveness of the cladding. The extent and nature of maintenance required will depend on the geographical location and exposure of the building.

As a guide, it is recommended that the basic normal maintenance tasks shall include, but not be limited to:

- Washing down exterior surfaces every 6-12 months*
- Re-coating exterior protective finishes**
- Regular inspection and repair if necessary of the cladding joints, sealants, nail head fillers
- Cleaning out gutters, down pipes and overflow pipes as required
- Pruning back vegetation which is close to or touching the building as well as ensuring the NZBC ground clearance requirements are maintained, especially where gardens are concerned
- The clearance between the bottom edge of the Linea Oblique Weatherboard and the finished/unfinished ground must always be maintained

**Do not use a water blaster to wash down the cladding. In extreme coastal conditions or sea spray zones, wash every 3-4 months.*

***Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.*

10 Product information

10.1 MANUFACTURING AND CLASSIFICATION

Linea Oblique Weatherboard is an advanced lightweight cement composite cladding, manufactured using James Hardie formulation. Basic composition is Portland cement, ground sand, cellulose fibre and water. The product is easily identified by the name 'Linea Oblique'.

Linea Oblique Weatherboard is manufactured to Australian/New Zealand Standard AS/NZS 2908.2 'Cellulose-Cement Products' (ISO 8336 'Fibre-Cement Flat Sheet').

Linea Oblique Weatherboard is classified Type A, Category 2 in accordance with AS/NZS 2908.2 "Cellulose-Cement Products".

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

10.2 PRODUCT MASS

Linea Oblique Weatherboard is manufactured in 16mm thickness and has a mass of 20.57kg/m² for 200mm and 19.67kg/m² for 300mm.

Linea Oblique Weatherboard is defined as a Light Weight Wall Cladding (not exceeding 30kg/m²) as per NZS 3604.

10.3 DURABILITY

Linea Oblique Weatherboard and James Hardie rigid air barrier installed and maintained as per this technical specification will meet the durability requirement for cladding as per the NZBC clause B2 Durability.

10.3.1 Resistance to Moisture/Rotting

Linea Oblique Weatherboard is resistant to permanent moisture induced deterioration (rotting) and meets the requirements of the following tests in accordance with the AS/NZS 2908.2:

- Heat Rain (Clause 6.5)
- Water Permeability (Clause 8.2.2)
- Warm Water (Clause 8.2.4)
- Soak Dry (Clause 8.2.5)

10.3.2 Control of External Fire Spread

Linea Oblique Weatherboard meets the requirements of Appendix C C7.1.1 and is classified as 'Non-Combustible Material' which is suitable for use as external wall cladding and complies with the requirements of Paragraph 5.4 of the NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of Acceptable Solutions C/AS2 to C/AS6 of the NZBC.

10.3.3 Alpine Regions

In regions subject to freeze/thaw conditions, Linea Oblique Weatherboard and James Hardie rigid air barrier must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions must be protected where snowdrifts over winter are expected.

These products meet the requirements of the AS/NZS 2908.2 Clause 8.2.3.

11 Safe working practices

11.1 STAY HEALTHY WHEN WORKING WITH BUILDING PRODUCTS CONTAINING CRYSTALLINE SILICA

Crystalline Silica

What is it? Why and when is it a health hazard?

Crystalline Silica is

- Commonly known as sand or quartz
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials

Why is Crystalline Silica a health hazard?

- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks
- The most hazardous dust is the dust you cannot see!

When is Crystalline Silica a health hazard?

- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board)

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS AND INSTALLATION INSTRUCTIONS WHEN WORKING WITH JAMES HARDIE PRODUCTS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

11.2 AVOID BREATHING IN CRYSTALLINE SILICA DUST!

Safe working practices

- 👎 NEVER use a power saw indoors or in a poorly ventilated area
- 👎 NEVER dry sweep
- 👍 ALWAYS use M Class extractor unit as a minimum and always hose down with water/wet wipe for clean up
- 👎 NEVER use grinders
- 👍 ALWAYS use a circular sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the HardieBlade™ logo or one with at least equivalent performance
- 👍 ALWAYS follow tool manufacturers' safety recommendations
- 👍 ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- 👍 ALWAYS wear an approved properly-fitted, approved dust mask (P1 or P2) or respirator

Use one of the following methods based on the required cutting rate:

BEST

- HardieKnife™
- Hand guillotine
- Fibreshear

BETTER

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and M Class extractor unit.

Working outdoors

- 👍 Make sure you work in a well ventilated area
- 👍 Position cutting station so wind will blow dust away from yourself and others in the working area
- 👍 Cut products with either a HardieKnife™ or fibre cement shears or, when not feasible, use a HardieBlade™ Saw Blade (or equivalent) and a dust-reducing circular saw attached to a M Class extractor unit
- 👍 When sawing, sanding, rebating, drilling or machining fibre cement products, always:
 - Wear your P1 or P2 mask (correctly fitted in accordance with manufacturers' instructions) and when others are close by, ask them to do the same
 - If you are not clean shaven, then use a powered air respirator with a loose fitting head top
 - Wear safety glasses
 - Wear hearing protection
 - When others are close by, ask them to do the same

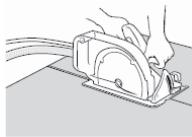
Working indoors

- 👎 Never cut using a circular saw indoors
- 👍 Position cutting station in a well ventilated area
- 👍 Cut ONLY using a HardieKnife™, hand guillotine or fibreshears (manual, electric or pneumatic)
- 👍 Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class extractor unit

IF CONCERN STILL EXISTS ABOUT EXPOSURE LEVELS OR YOU DO NOT COMPLY WITH THE ABOVE PRACTICES, YOU SHOULD ALWAYS CONSULT A QUALIFIED INDUSTRIAL HYGIENIST.

Working Instructions

- Refer to Recommended Safe Working Practices before starting any cutting or machining of product



HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw 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

11.3 STORAGE AND DELIVERY

Keeping products and people safe

Off loading

- James Hardie products should be off-loaded carefully by hand or by forklift
- James Hardie products should not be rolled or dumped off a truck during the delivery to the jobsite

Storage

James Hardie products should be stored:

- In their original packaging
- Under cover where possible or otherwise protected with a waterproof covering to keep products dry
- Off the ground – either on a pallet or adequately supported on timber or other spacers
- Flat so as to minimise bending

James Hardie products must not be stored:

- Directly on the ground
- In the open air exposed to the elements

JAMES HARDIE IS NOT RESPONSIBLE FOR DAMAGE DUE TO IMPROPER STORAGE AND HANDLING.

11.4 TIPS FOR SAFE AND EASY HANDLING

Weatherboard products

- Do not lift planked products flat and in the middle
- Carry the products on the edge
- If only one person is carrying the product, hold it in the middle and spread arms apart to better support the product
- If two people are carrying the plank, hold it near each end and on edge
- Exercise care when handling weatherboard products to avoid damaging the edges/corners

Sheet products

- Carry with two people
- Hold near each end and on edge
- Exercise care when handling sheet products to avoid damaging the edges/corners

12 Product and accessories

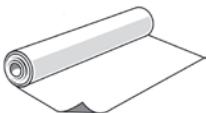
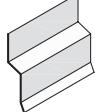
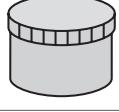
Linea Oblique Weatherboard information					
Product	Description	Size (mm)			Code
		Thickness	Length	Width	
	Linea Oblique Weatherboard A 16mm profiled weatherboard for residential cladding. Factory sealed on all six sides. Each weatherboard has a manila white colour primer applied on its face, which accepts a wide range of paint finishes.	16	2700 4200	200 300 200 300	404855 404856 404849 404848

Note: All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.

Accessories/tools supplied by James Hardie					
Accessories	Description	Size			Code
	James Hardie Horizontal Cavity Batten 20mm H3.1 Timber treated batten the cladding is fixed over	2700mm long			305862
	Oblique Trimline Joint Flashing Aluminium extrusion used behind cladding at horizontal joints.	3000mm long			305826
	JH Weatherboard Internal 'W' Corner Anodised aluminium extrusion used to create internal corners.	2700mm long			300386
	Linea Oblique Weatherboard External Box Corner Anodised aluminium extrusion used to create external corners.	2700mm long 4000mm long			305825 305873
	uPVC Vent Strip PVC moulding used as vermin proofing.	3000mm long			302490
	Trimline Horizontal Jointer A jointer to cover the butt joint of Oblique Trimline Joint Flashing	100mm long			305871
	Trimline External Corner Jointer Joins Trimline Joint Flashing at an external corner				305870
	Trimline Internal Corner Jointer Joins Trimline Joint Flashing at an internal corner				305872
	Linea Oblique Plug To fill recess in Linea Oblique Weatherboard				305930
Tools					
	HardieBlade™ Saw Blade Diamond tip fibre cement circular saw blade. Spacers not included.	184mm 254mm			300660 303375

Accessories/tools not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with Linea Oblique Weatherboard and James Hardie rigid air barrier. 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.

Product	Description
	Flexible underlay Must comply with Table 23 of E2/AS1.
	Flexible window opening flashing 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. Protecto or SUPER-STICK Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ Marshall Innovations: 0800 776 9727 3M™: 0800 474 787
	Rigid air barrier vertical joint sealing tape The tape to be used to seal James Hardie rigid air barrier vertical joints. SUPER-STICK Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ Marshall Innovations: 0800 776 9727 3M™: 0800 474 787
	Flexible Sealant Bostik Seal N Flex-1, Sikaflex AT Facade, Sikaflex MS or similar.
	65 x 2.87mm 'D' head nail or 65 x 2.87 RounDrive nail (ring shank hot dipped galvanised/stainless steel) For fixing Linea Oblique Weatherboard.
	75 x 3.06mm 'D' head nail or 75 x 3.15 RounDrive nail (hot dipped galvanised or ring shank stainless steel) For fixing Linea Oblique Weatherboard.
	40 x 2.8mm or longer HardieFlex™ nail. For fixing timber cavity battens and aluminium flashings.
	Meter box Refer electrical suppliers.
	Head flashing Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1.
	Exterior grade filler CRC ADOS Builders Fill or similar two part filler to fill over nail holes

13 Details

The following generic details have been provided in this document for cavity construction methods.

Table 5

Details	Cavity Construction	
Description	Figure No.	Page No.
Framing set out	Figure 1	15
Cladding and James Hardie horizontal batten setout	Figure 2	16
Ground clearance	Figure 3	17
Soffit detail	Figure 4	17
No soffit detail	Figure 5	18
Vertical joint 200mm weatherboard width up to VH wind zone	Figure 6	18
Vertical joint 300mm weatherboard width up to VH wind zone	Figure 7	19
Vertical joint 200mm weatherboard width EH wind zone and SED	Figure 8	19
Vertical joint 300mm weatherboard width EH wind zone and SED	Figure 9	20
Internal corner	Figure 10	20
External aluminium box corner	Figure 11	21
External box corner	Figure 12	21
Window sill	Figure 13	22
Window head	Figure 14	22
Window jamb	Figure 15	23
Window jamb flashing	Figure 16	23
Over joist at floor level	Figure 17	24
Butt jointing of Vertical Linea Oblique Weatherboard	Figure 18	25
Trimline flashing joint at floor level	Figure 19	25
Trimline flashing joint external corner	Figure 20	26
Trimline joint	Figure 21	27
Drained flashing joint at floor level	Figure 22	28
Drained flashing joint at floor joist	Figure 23	29
Apron flashing detail	Figure 24	30
Parapet flashing	Figure 25	30
Roof to wall junction detail	Figure 26	31
Meter box at sill	Figure 27	31
Meter box at jamb	Figure 28	32
Meter box at head	Figure 29	32
Enclosed deck	Figure 30	33
Pipe penetration	Figure 31	34
Cladding installed	Figure 32	35
Garage head	Figure 33	36
Garage jamb	Figure 34	36

Figure 1: Framing set out

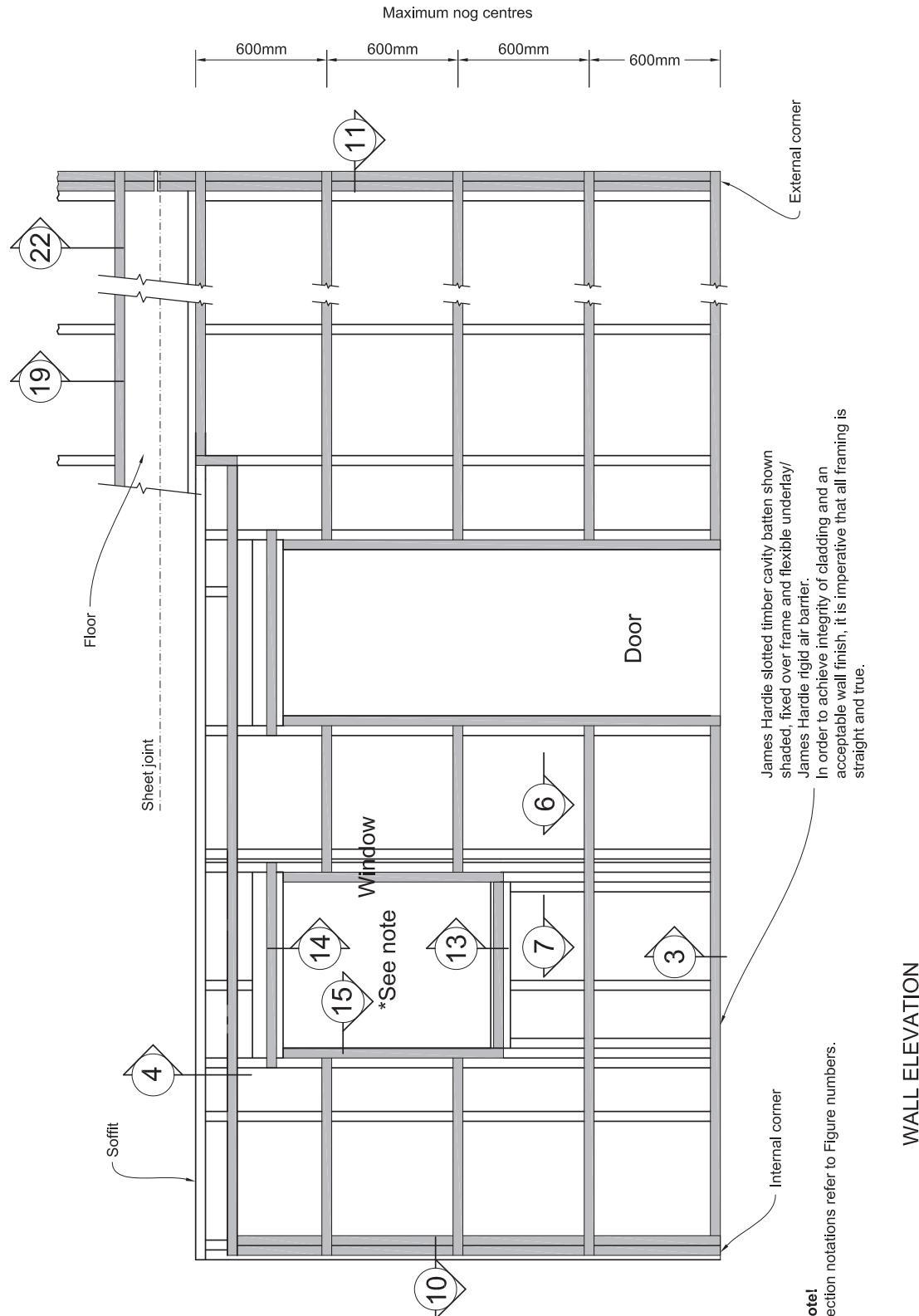


Figure 2: Cladding and James Hardie horizontal batten setout

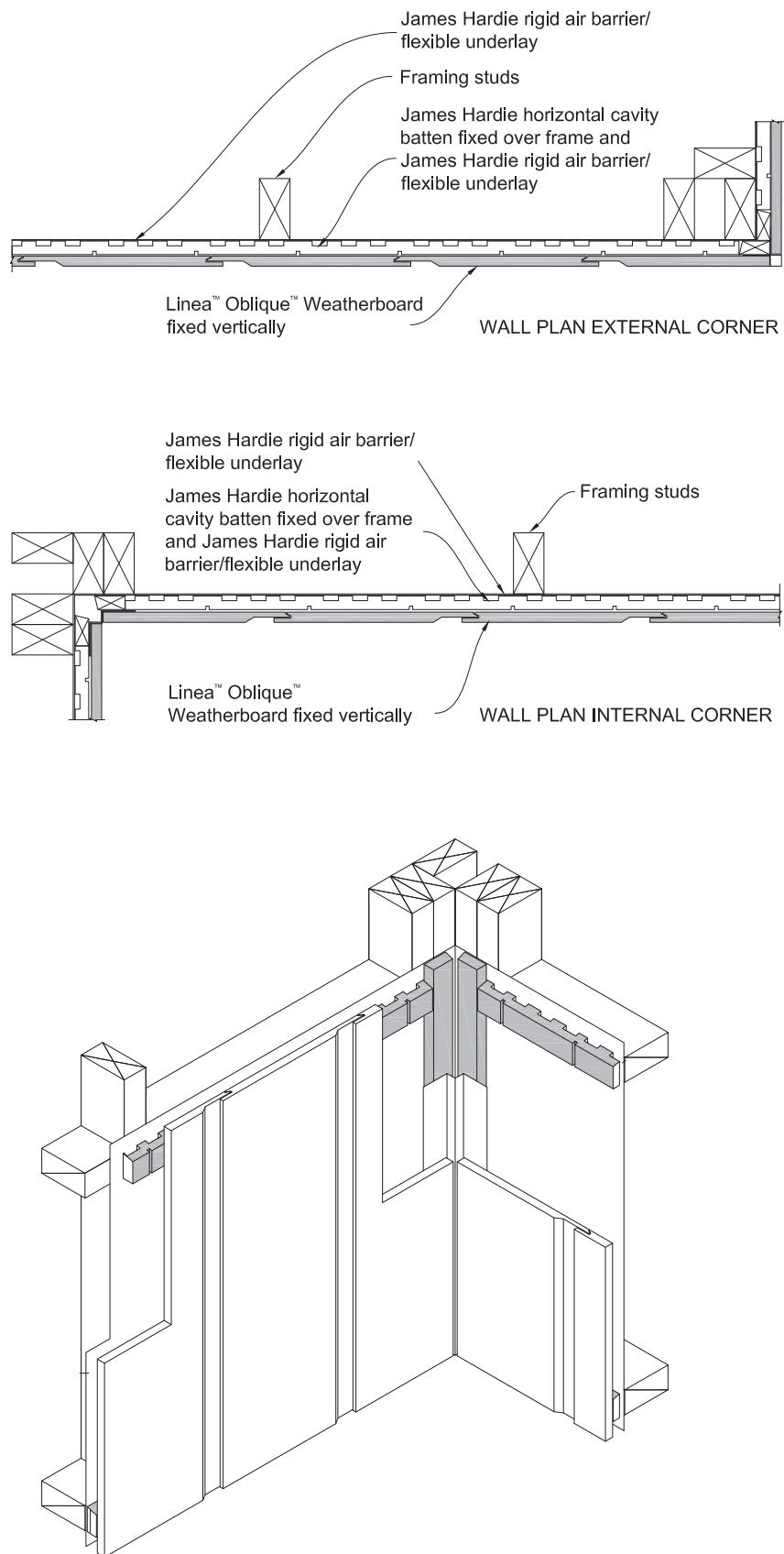


Figure 3: Ground clearance

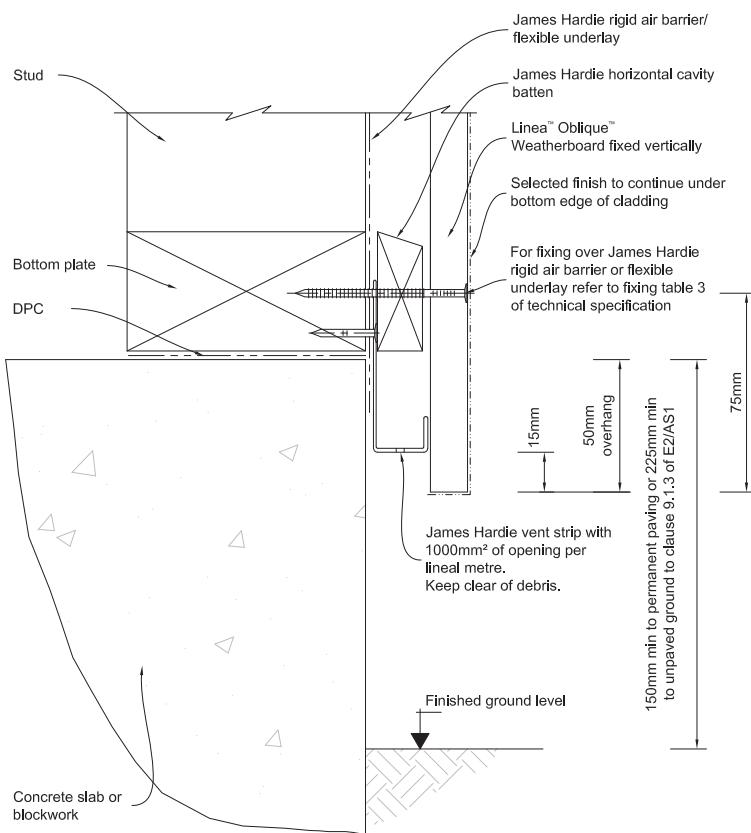


Figure 4: Soffit detail

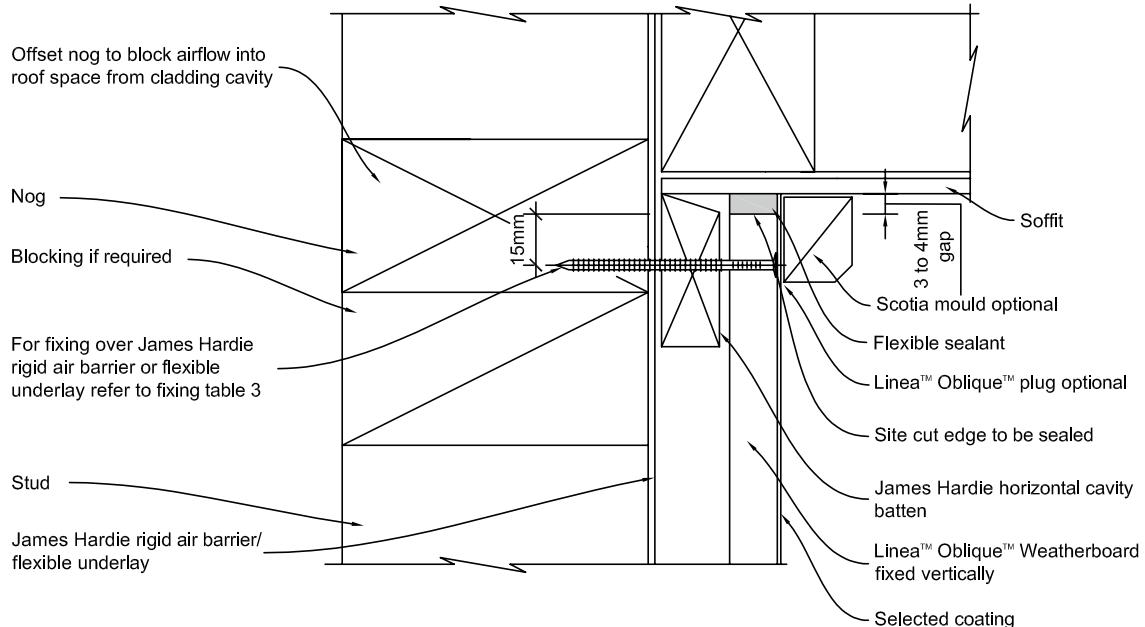


Figure 5: No soffit detail

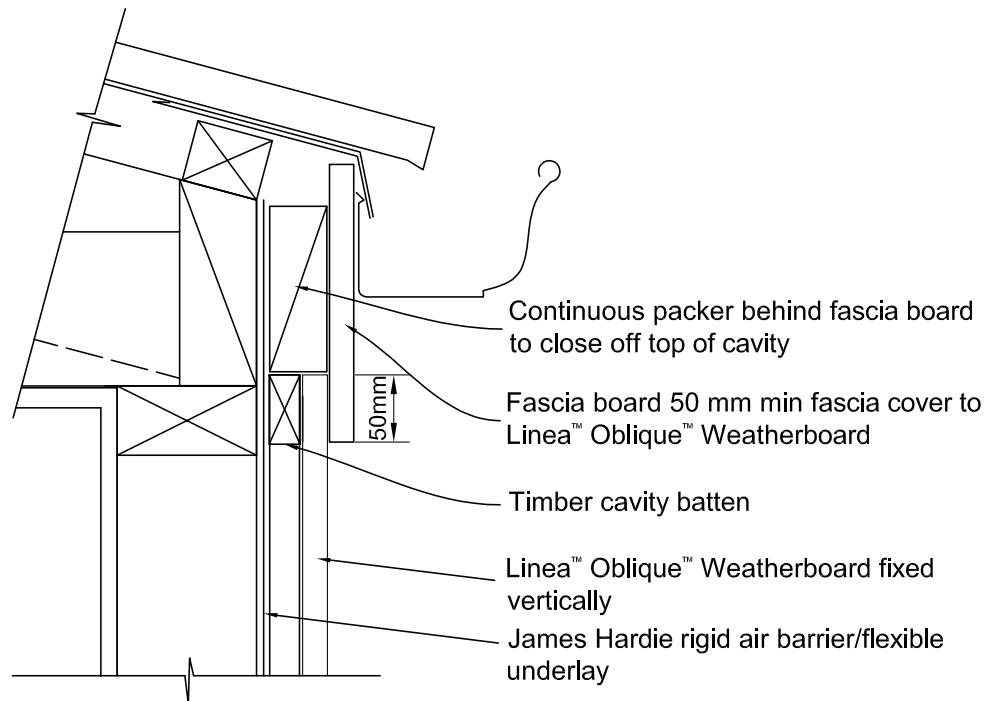


Figure 6: Vertical joint 200mm weatherboard width up to VH wind zone

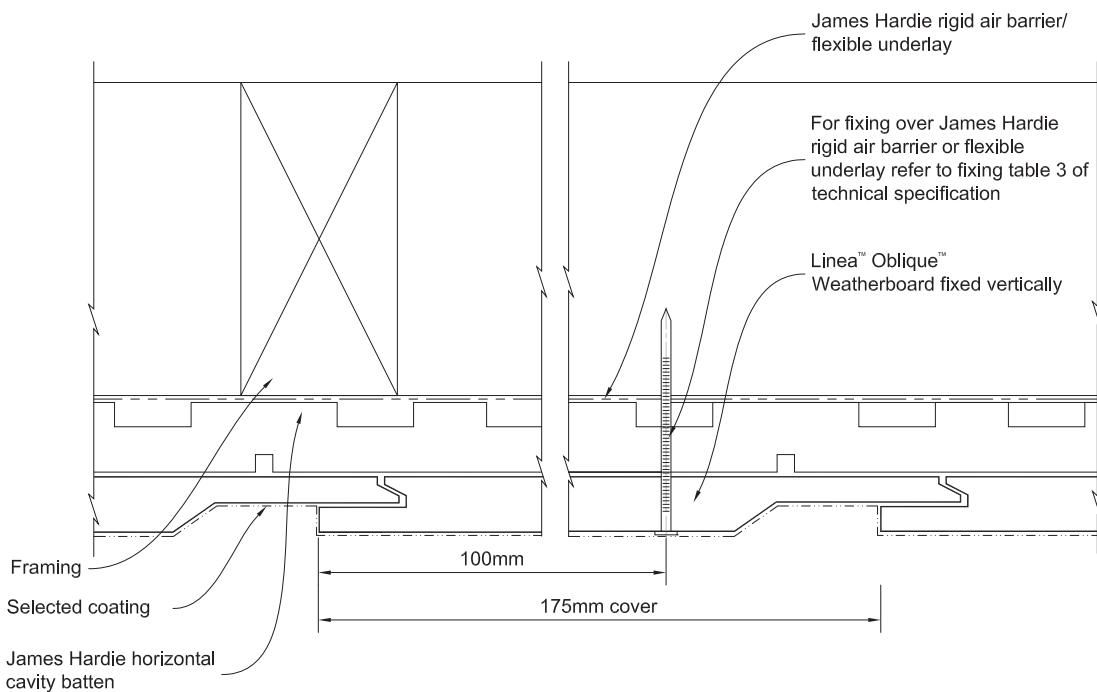


Figure 7: Vertical joint 300mm weatherboard width up to VH wind zone

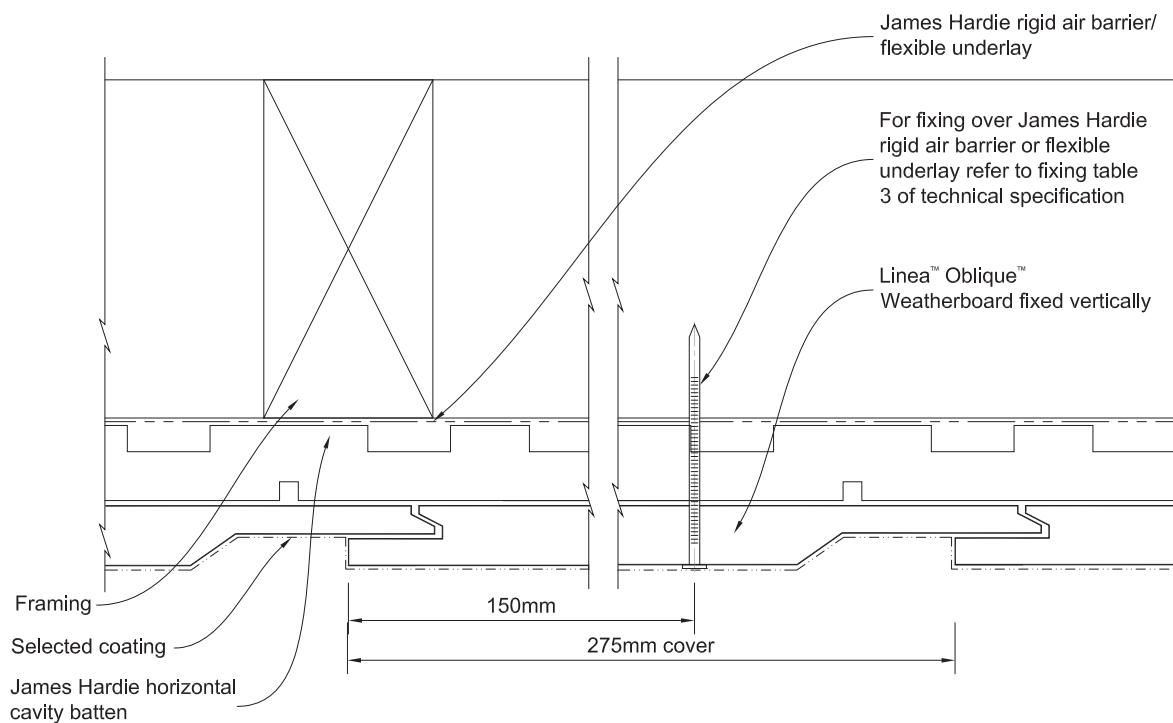


Figure 8: Vertical joint 200mm weatherboard width EH wind zone and SED

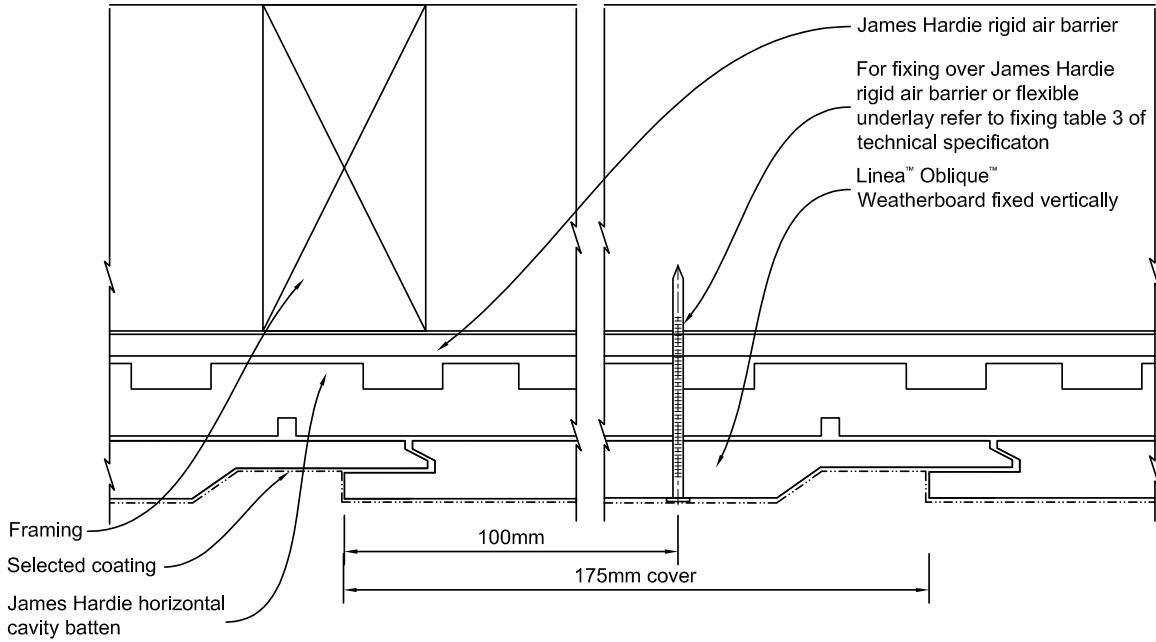


Figure 9: Vertical joint 300mm weatherboard width EH wind zone and SED

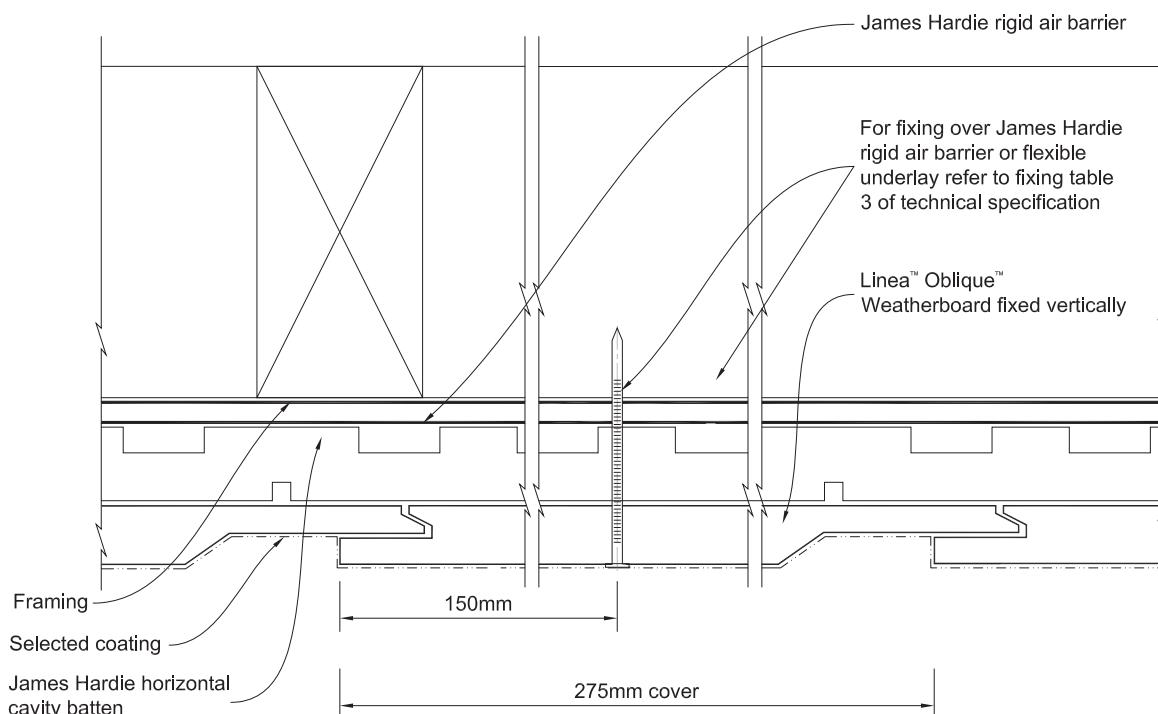


Figure 10: Internal corner

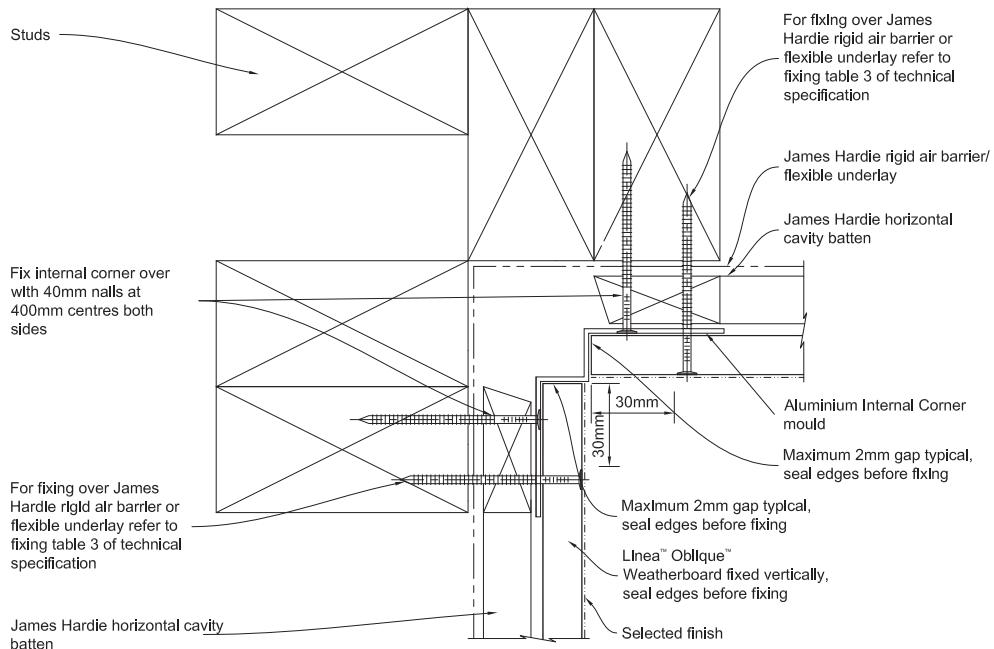


Figure 11: External aluminium box corner

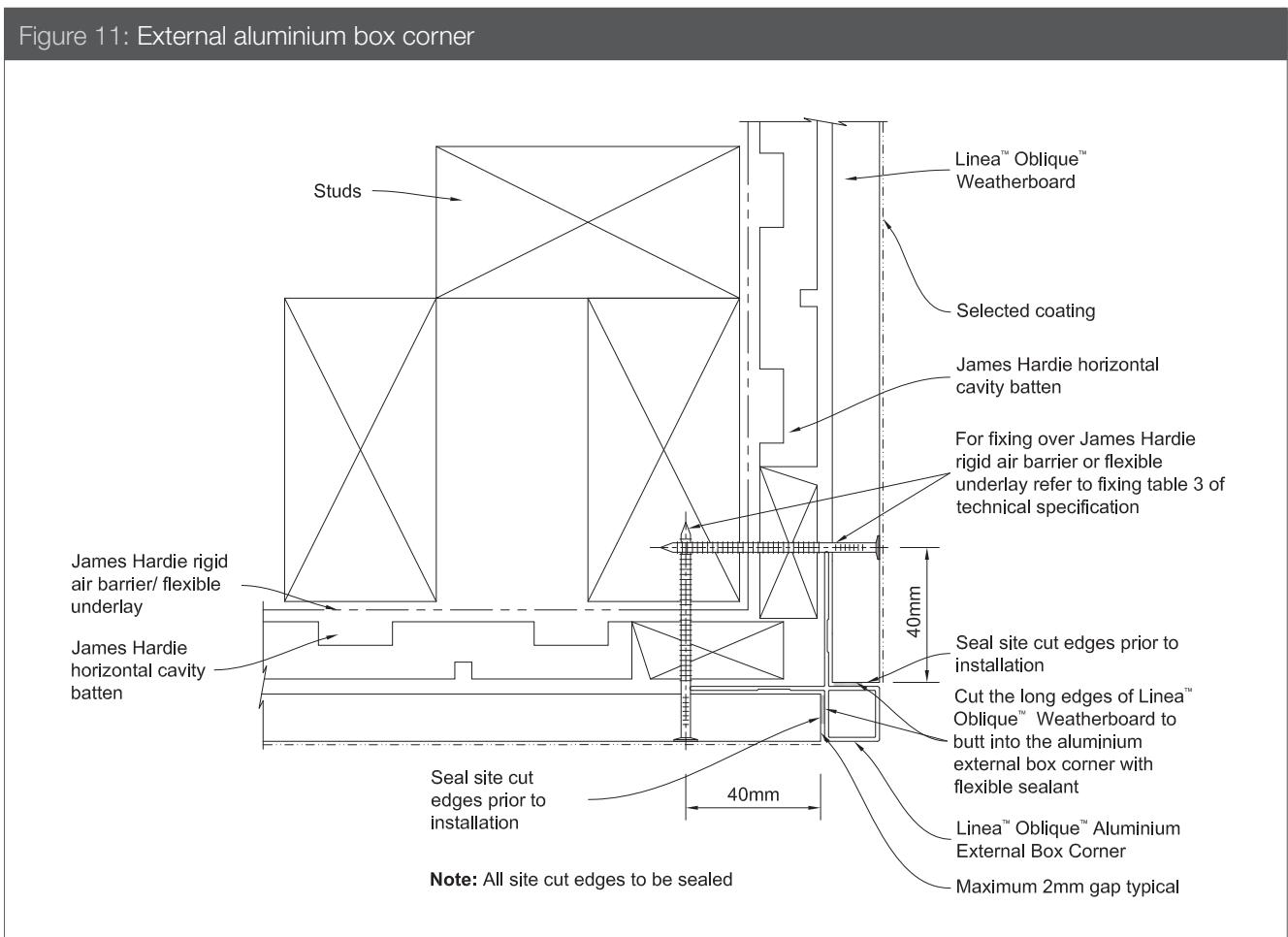


Figure 12: External box corner

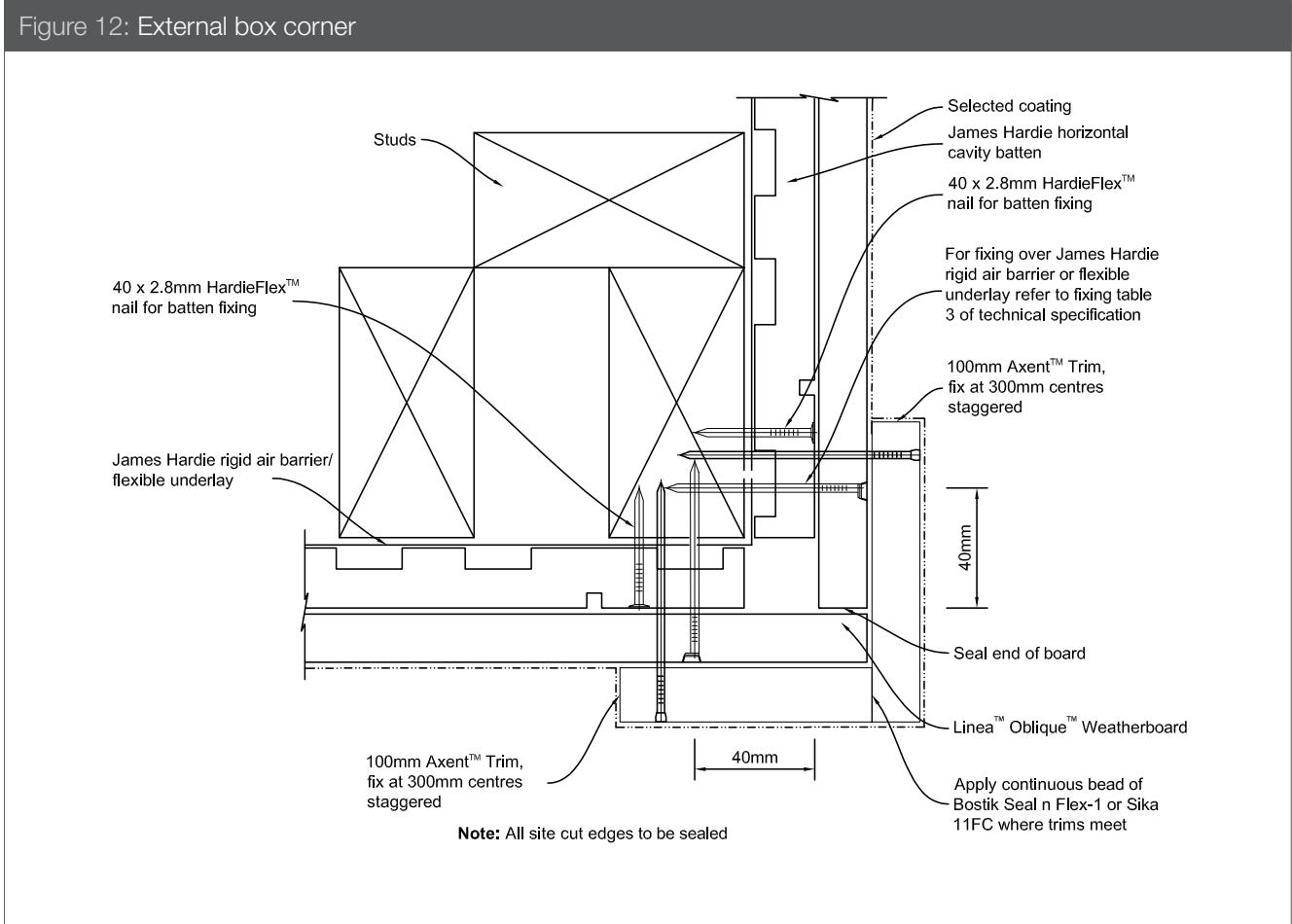


Figure 13: Window sill

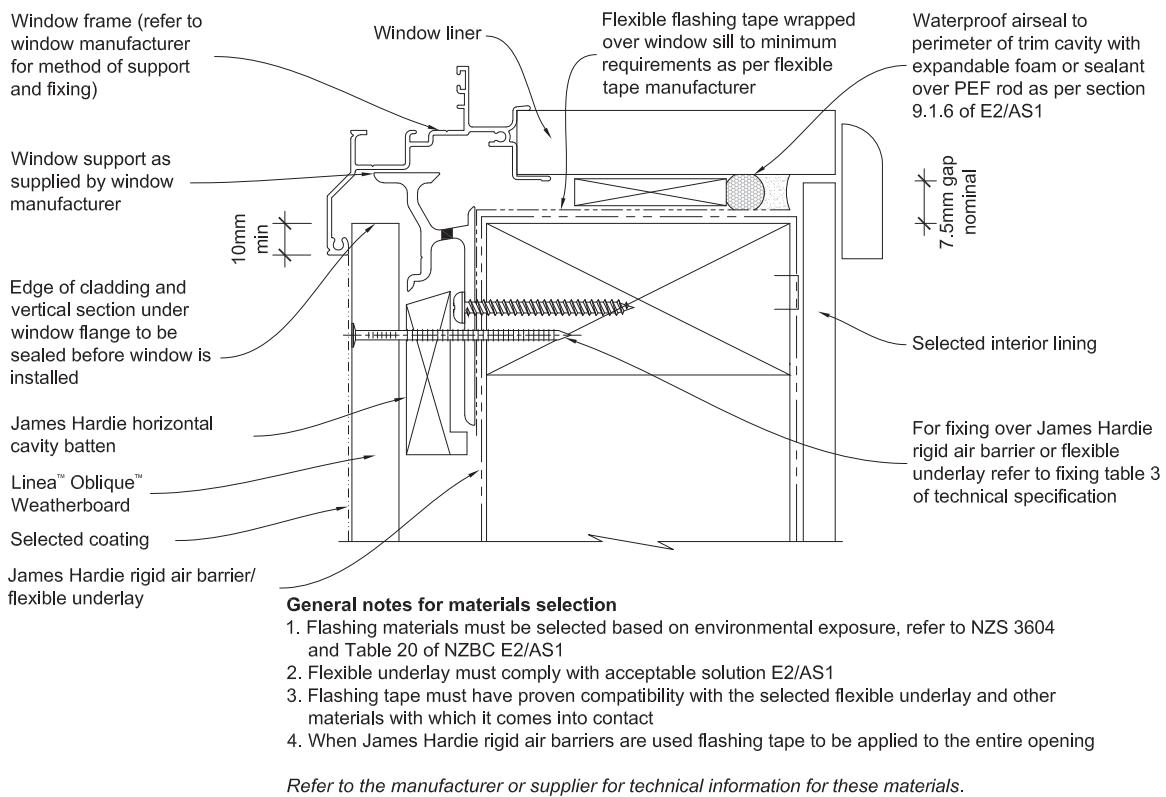


Figure 14: Window head

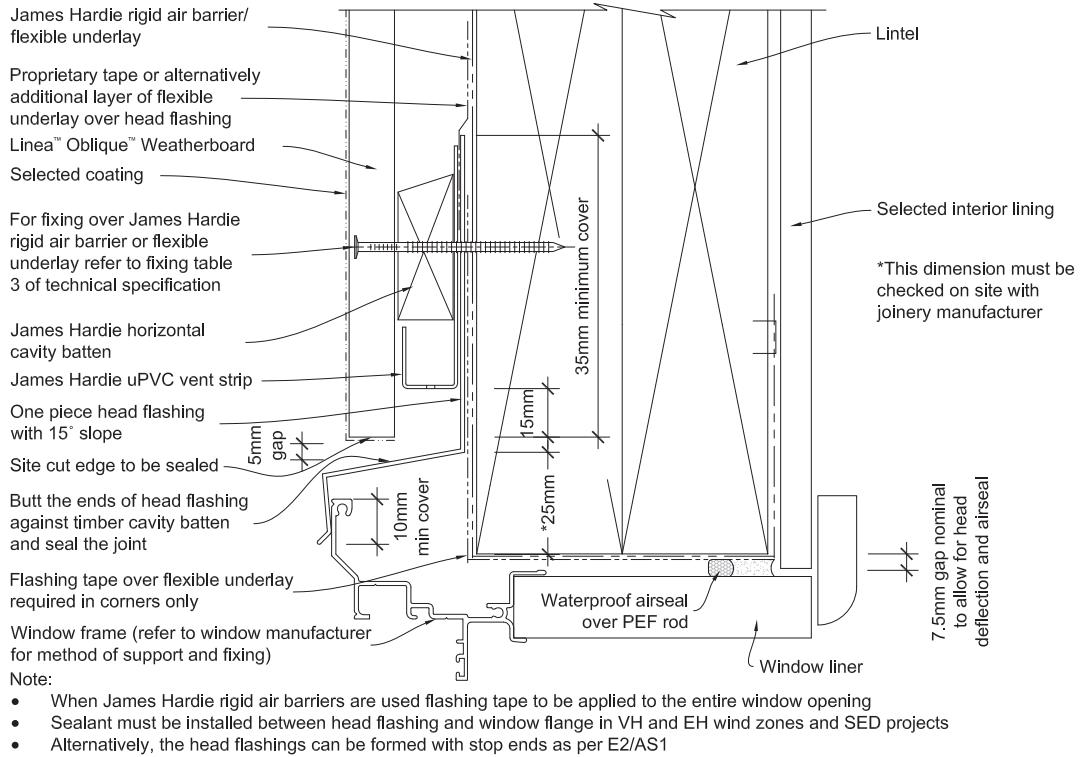


Figure 15: Window jamb

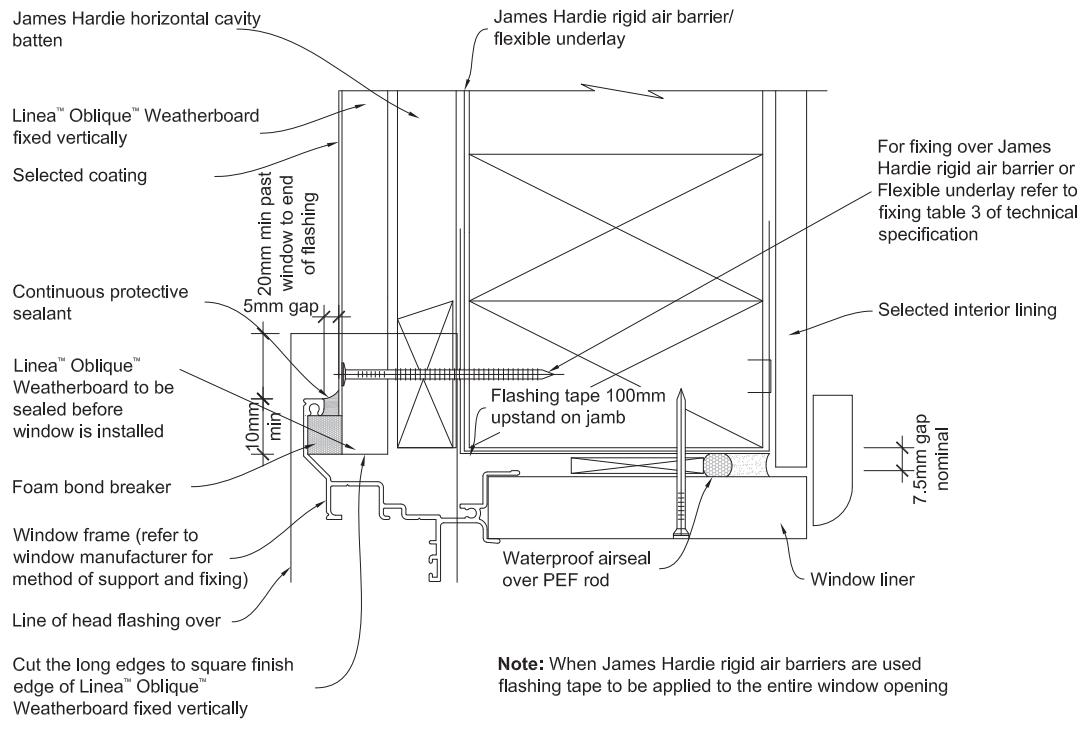


Figure 16: Window jamb flashing

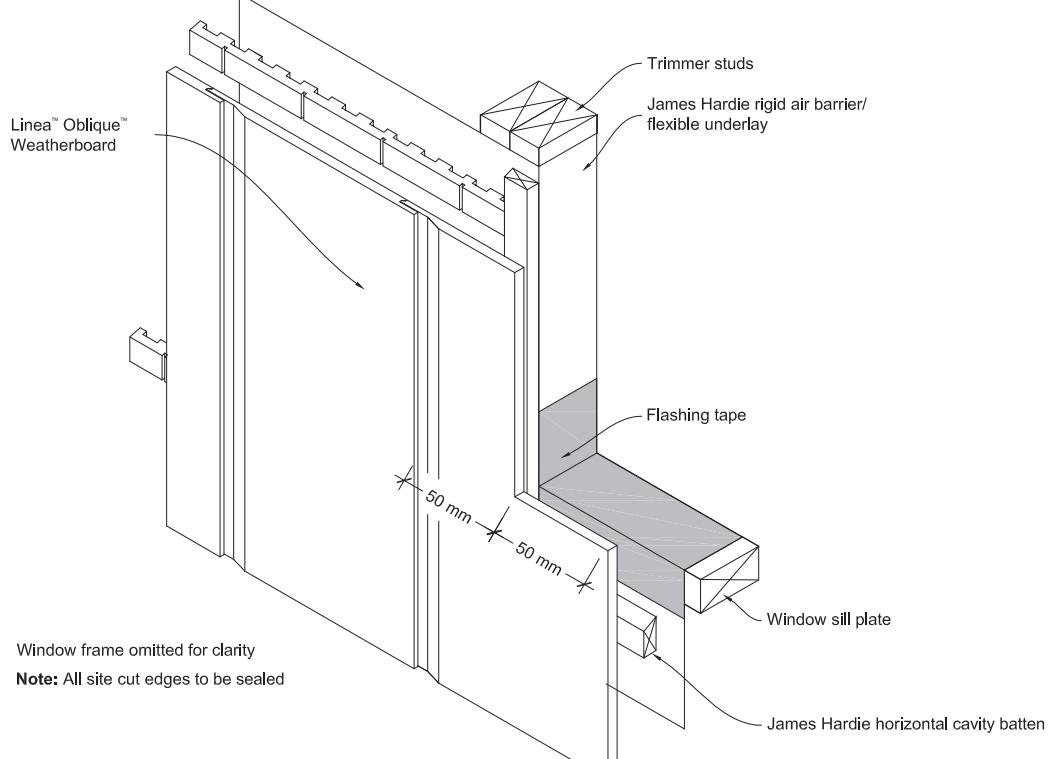


Figure 17: Over joist at floor level

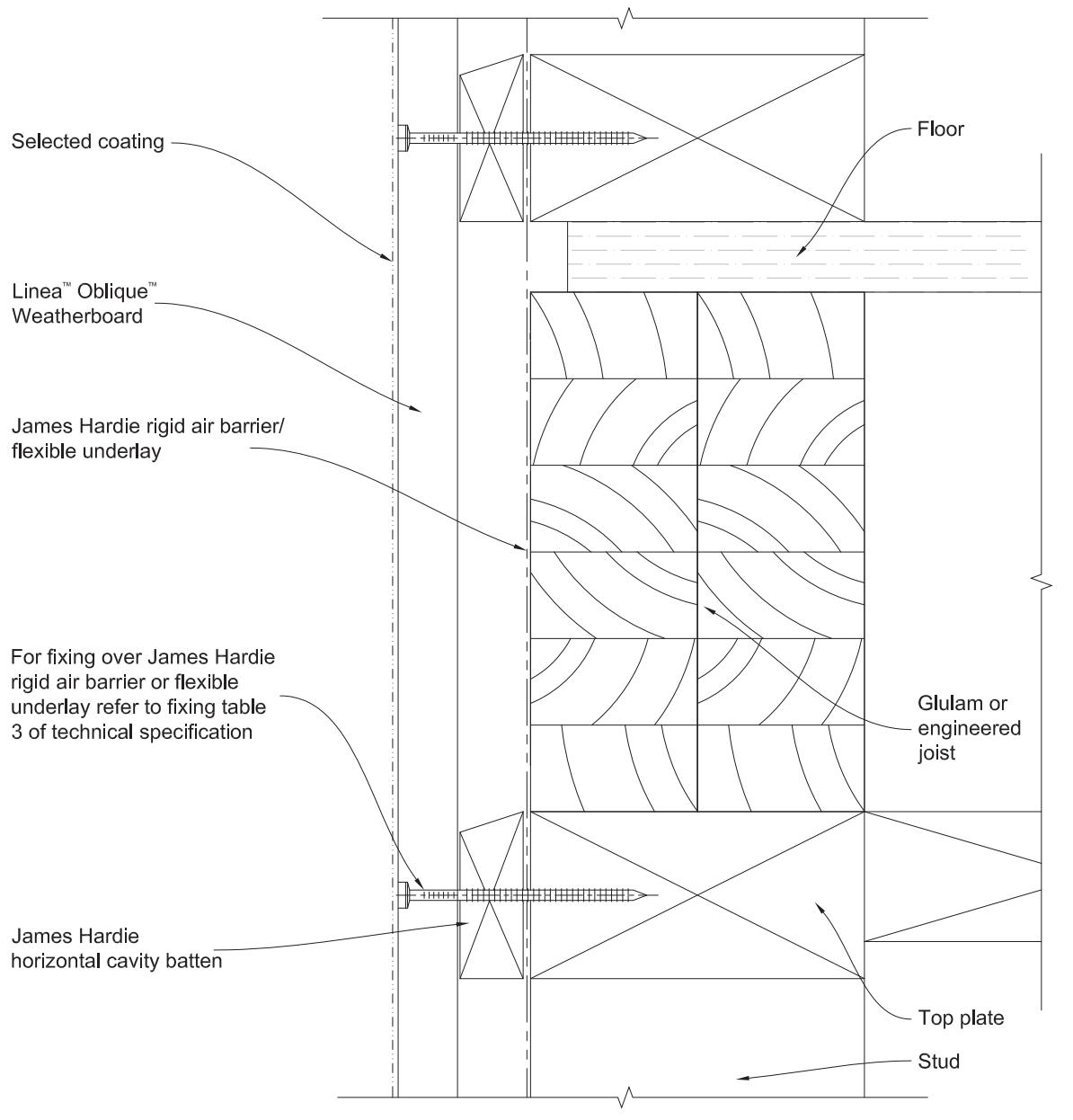


Figure 18: Butt jointing of Vertical Linea Oblique Weatherboard

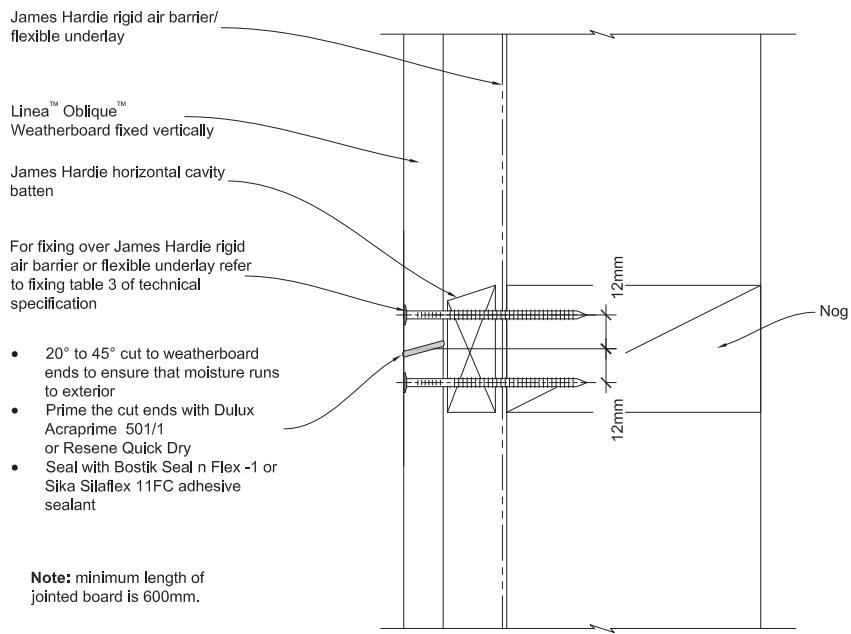


Figure 19: Trimline flashing joint at floor level

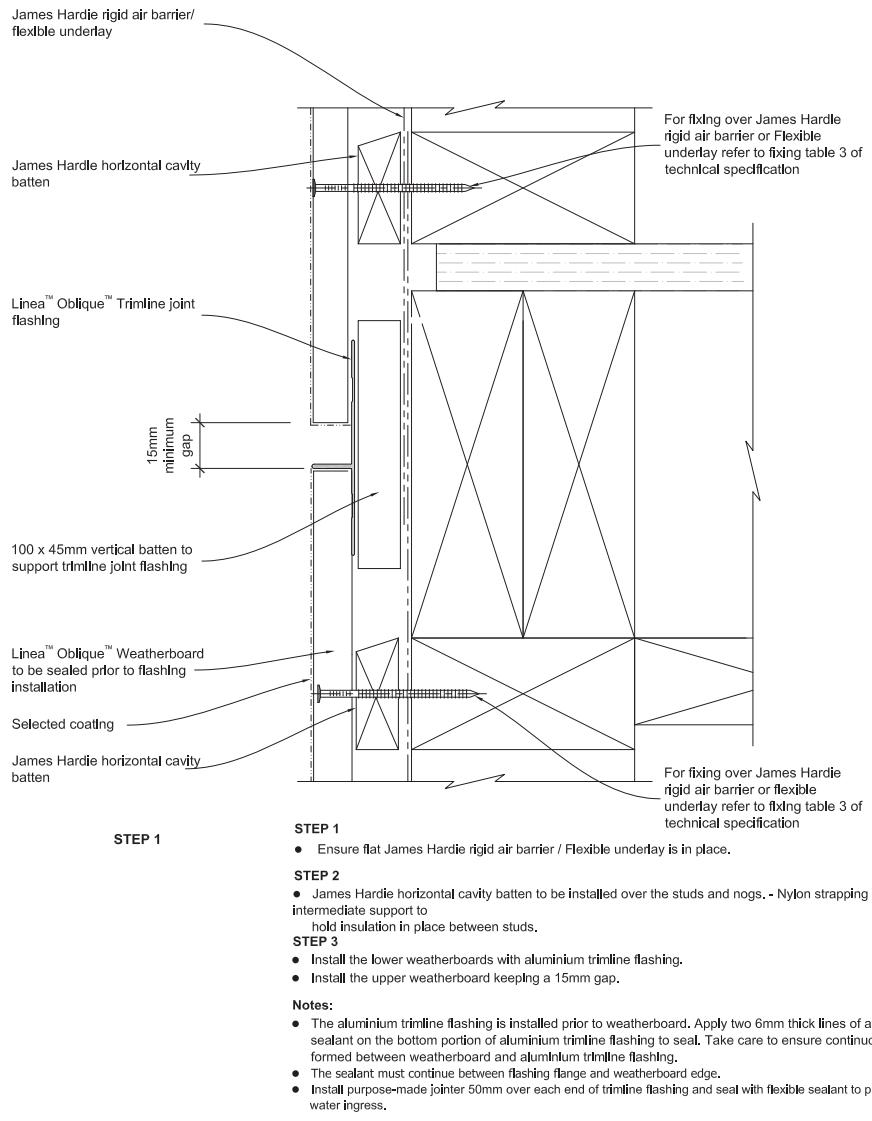


Figure 20: Trimline flashing joint external corner

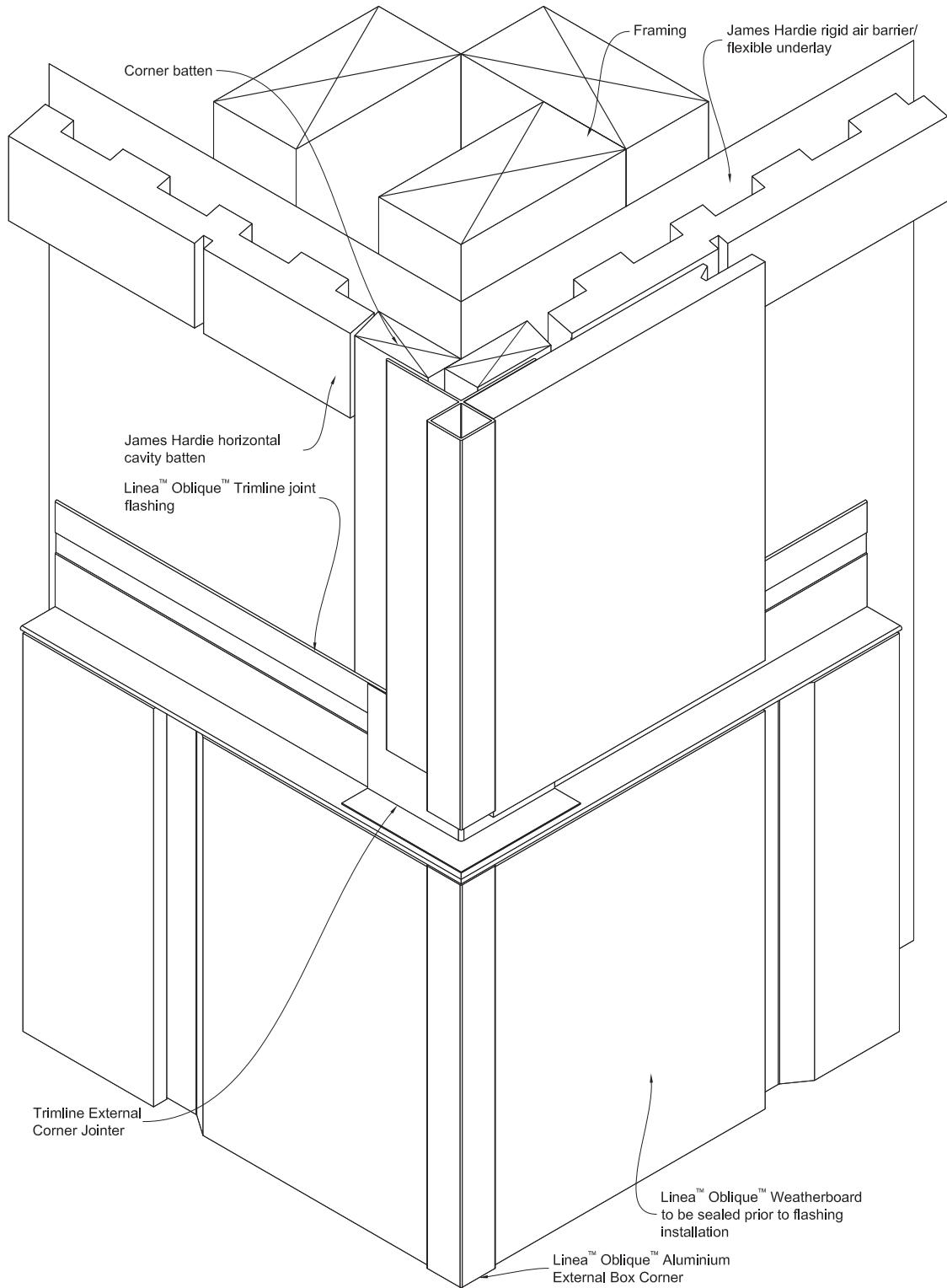


Figure 21: Trimline joint

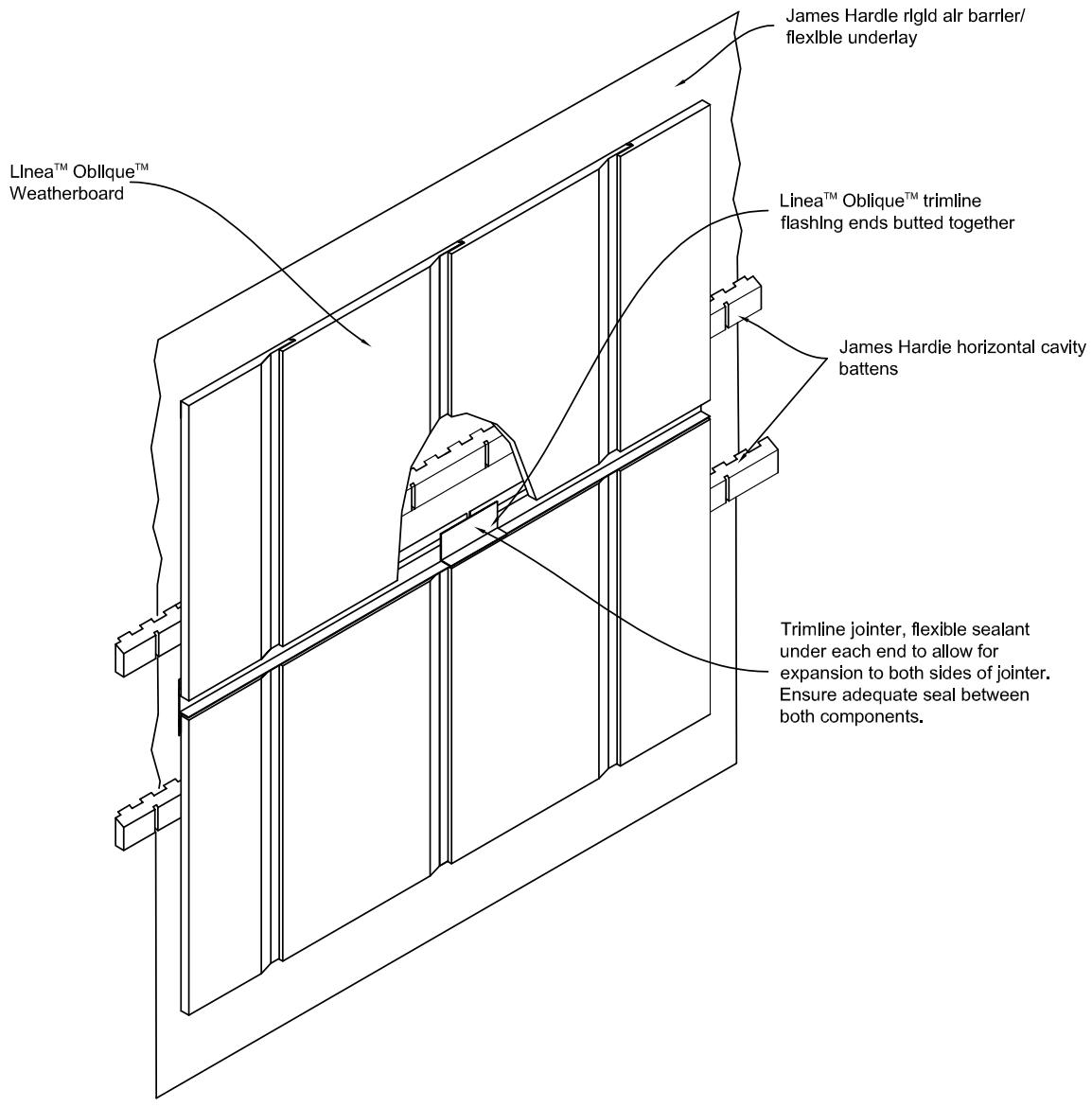
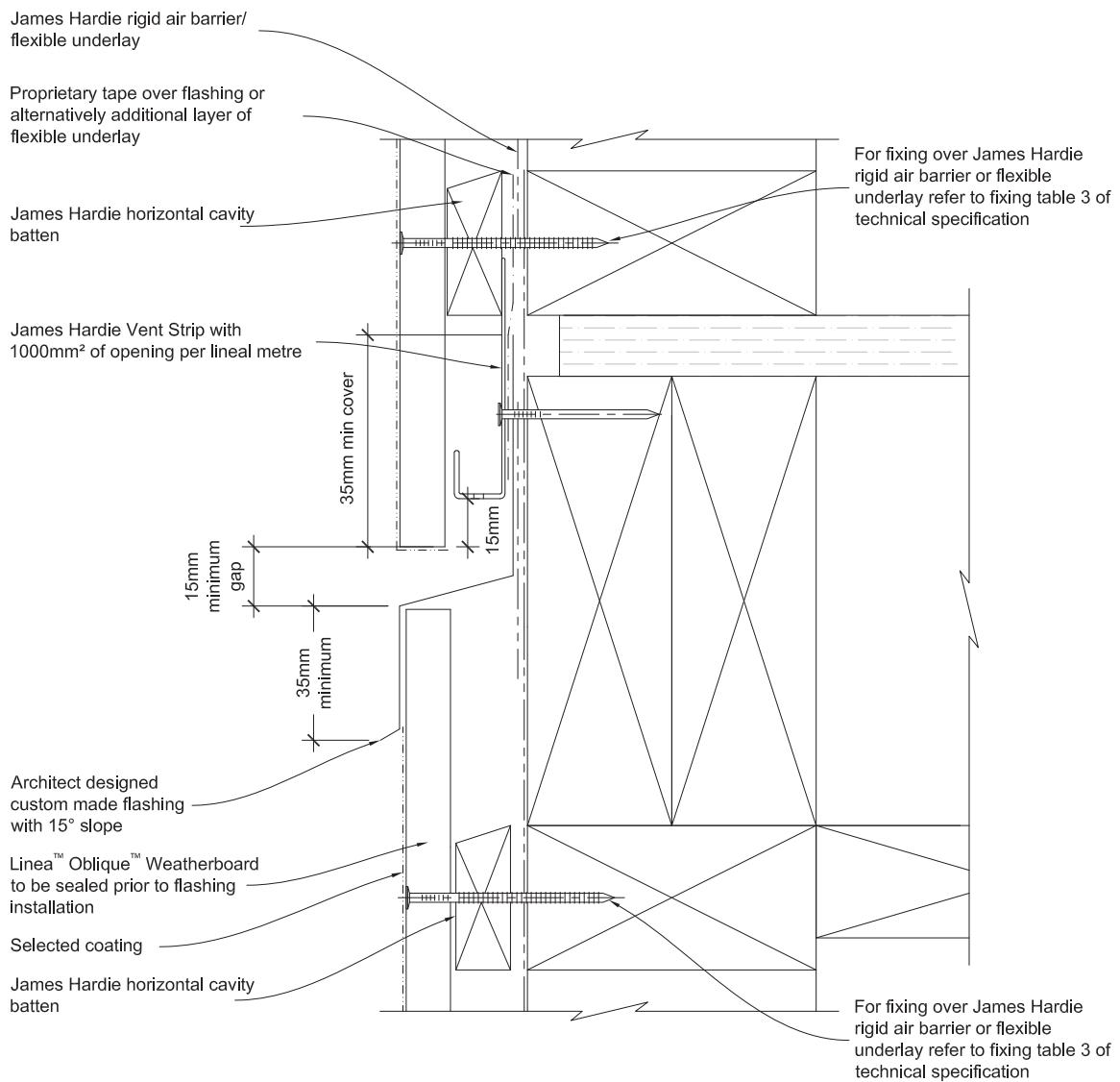


Figure 22: Drained flashing joint at floor level



Note:

This detail is required to limit cavities to a maximum of 2 stories or 7 metres

Refer to E2/AS1 clause 9.1.9.4

STEP 1

- Check architect's plans for the type of flashing to be used

STEP 2

- Check fixing centres and edge distances
- If top fixings are to be hidden by the Z flashing they will need to be fixed and sealed before the Z flashing is installed
- Cut edges need to be primed with Acraprime sealer or similar

STEP 3

- When 50 year durability is required refer Table 20 E2/AS1

STEP 4

- The flashing to be placed in the centre of the floor joists. Do not fix James Hardie horizontal cavity batten or cladding into floor joists

Figure 23: Drained flashing joint at floor joist

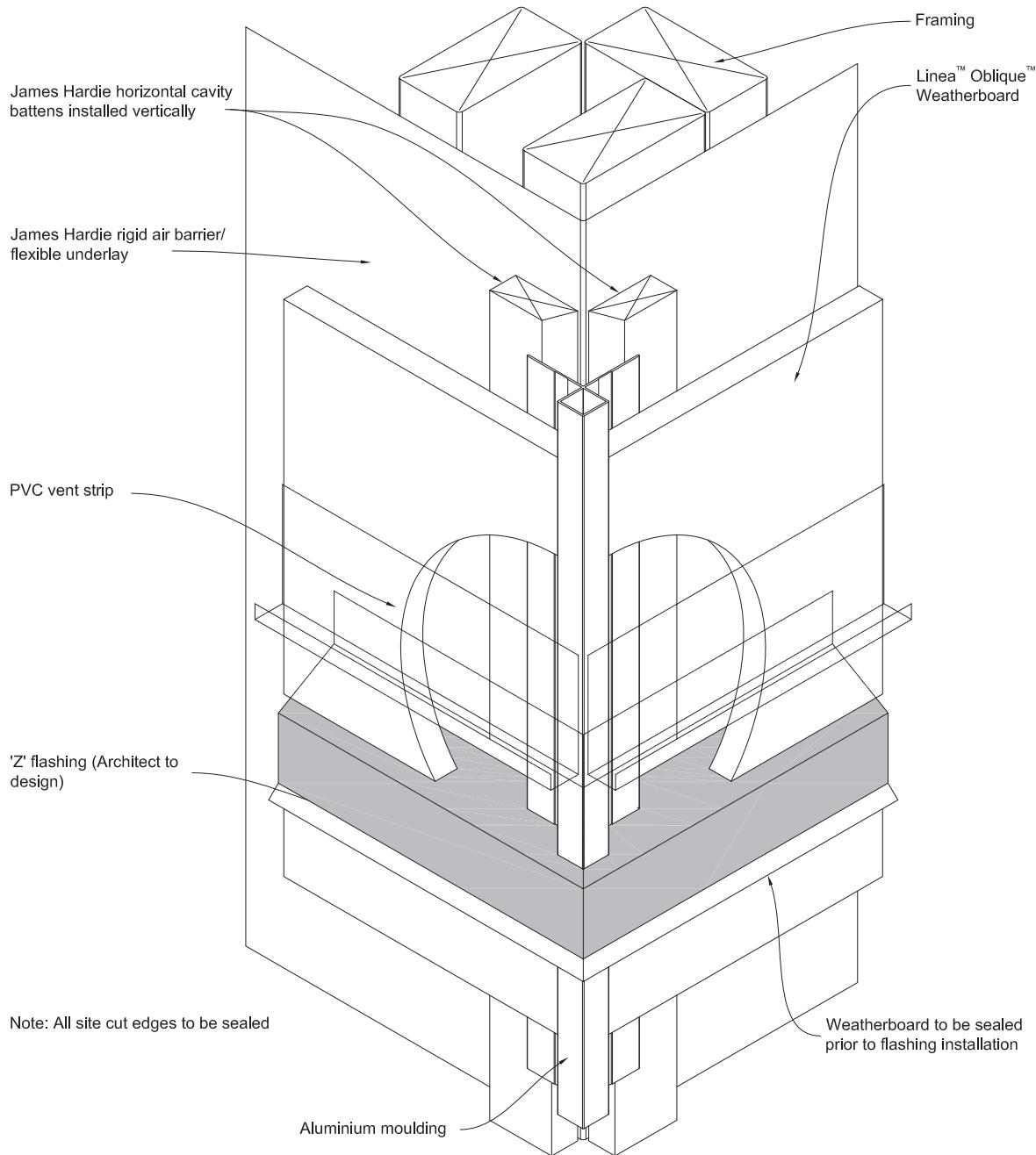


Figure 24: Apron flashing detail

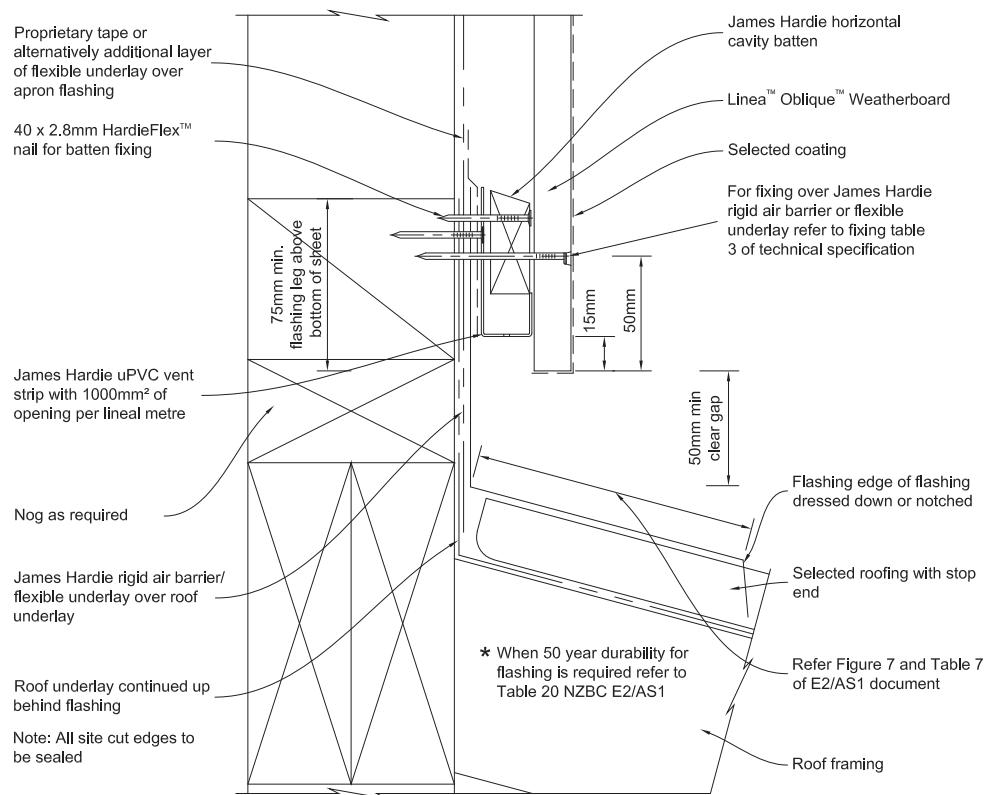


Figure 25: Parapet flashing

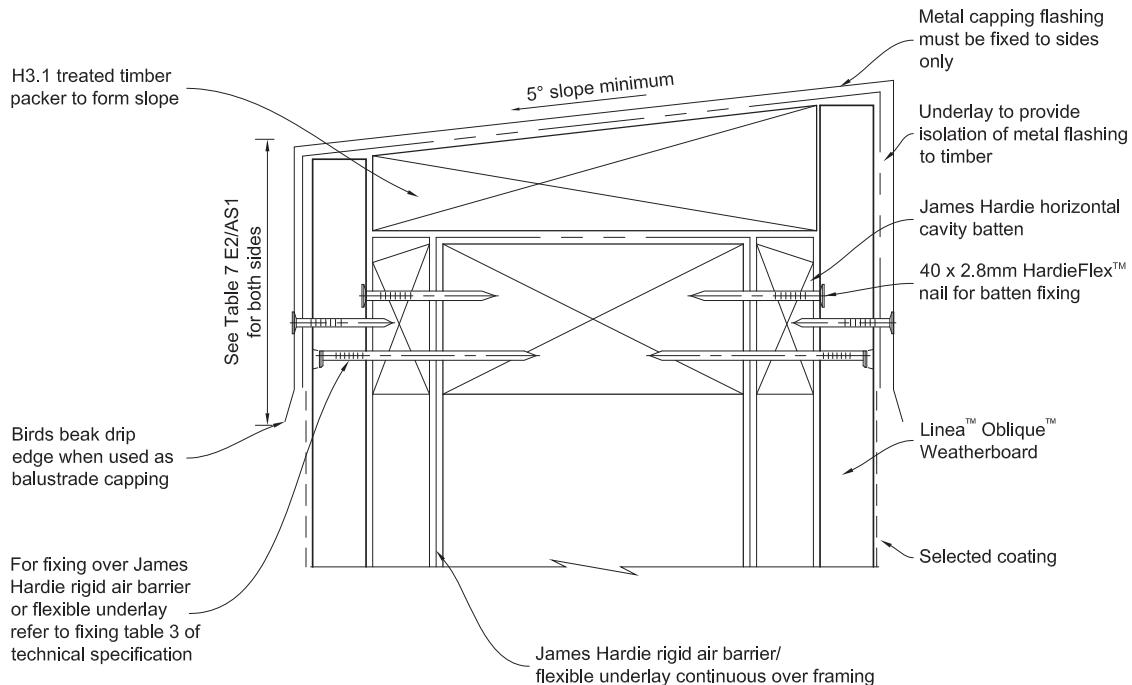


Figure 26: Roof to wall junction detail

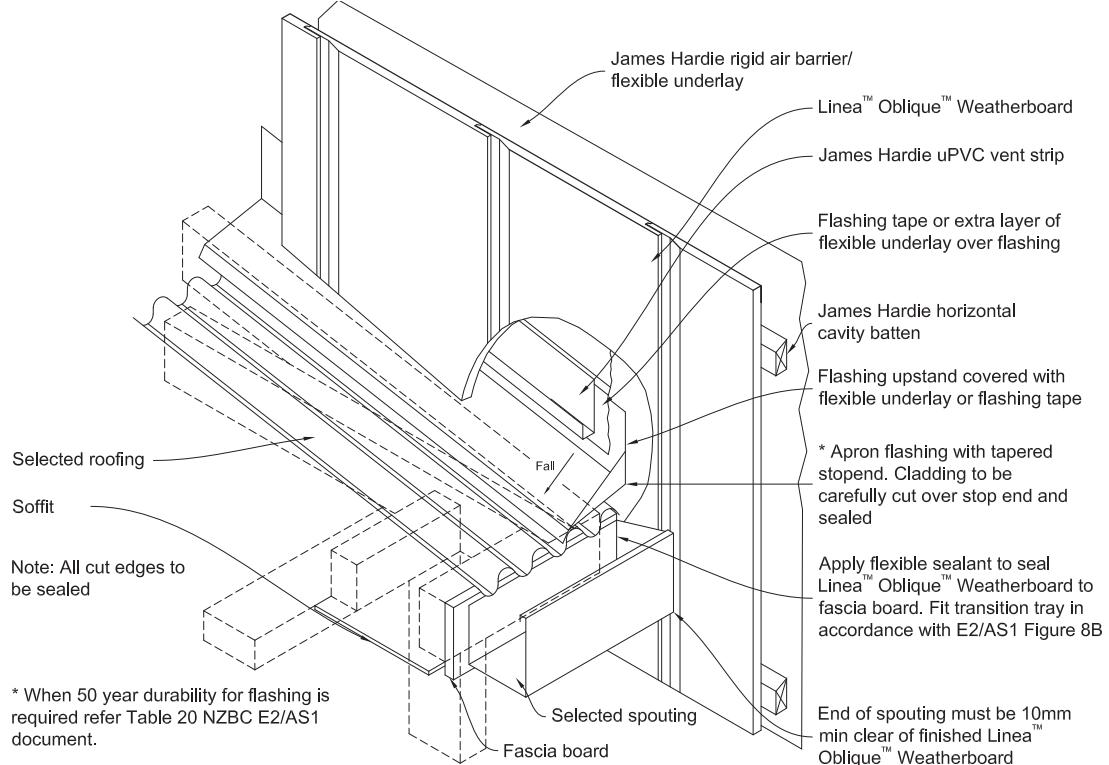


Figure 27: Meter box at sill

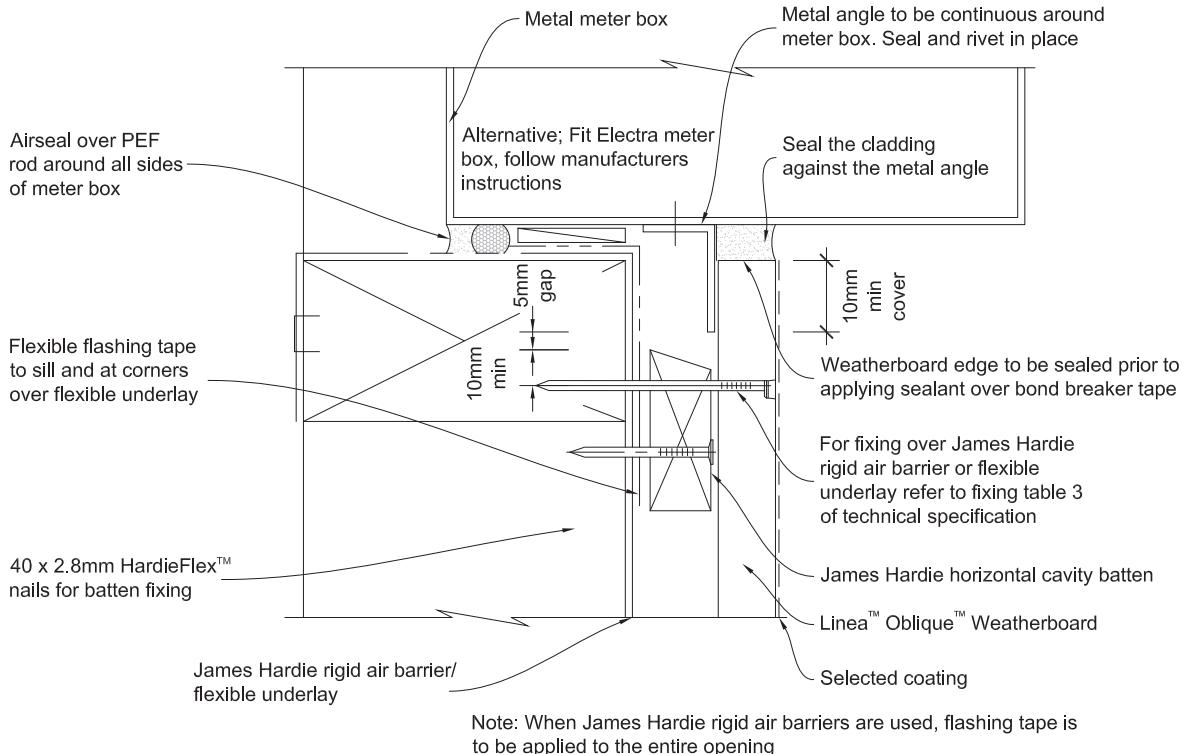


Figure 28: Meter box at jamb

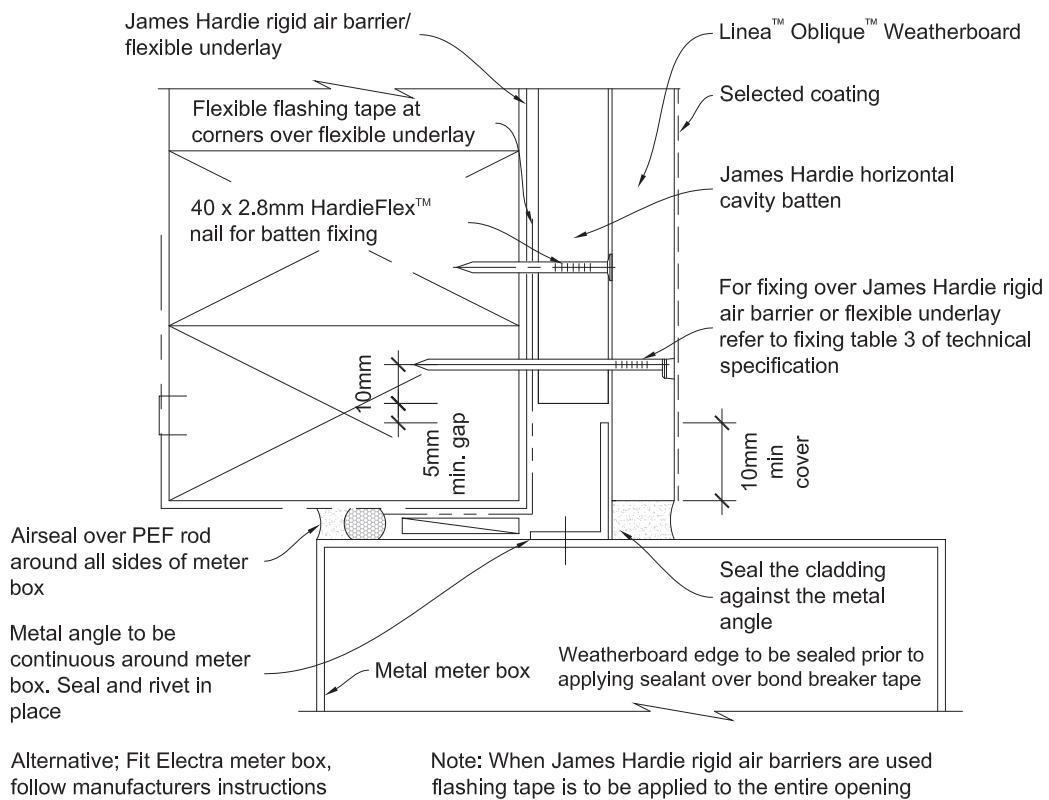
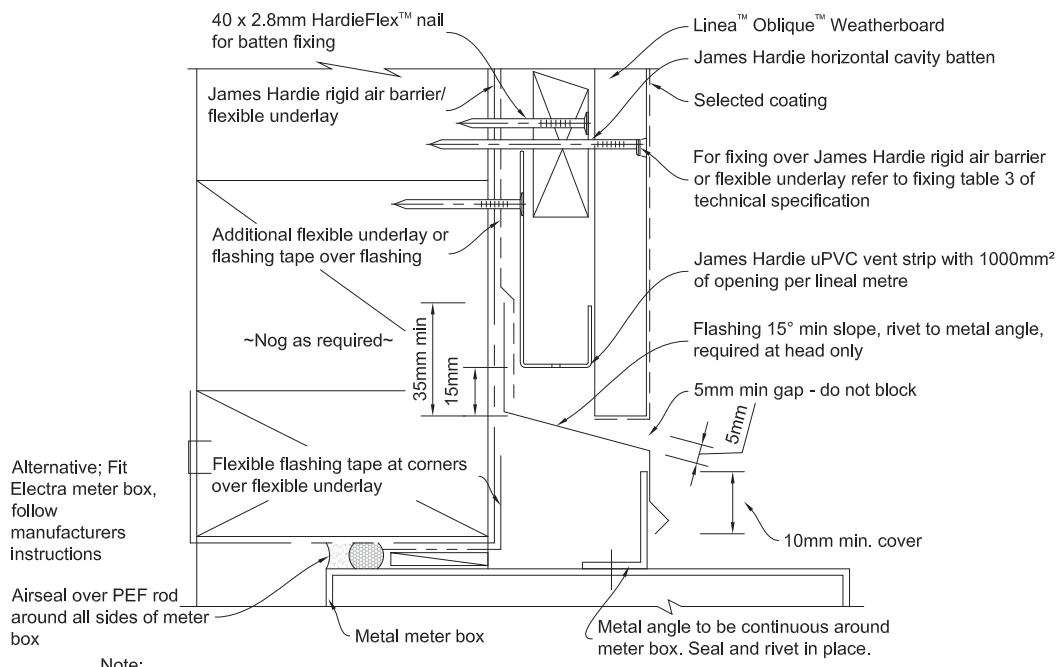


Figure 29: Meter box at head



Note:

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

Figure 30: Enclosed deck

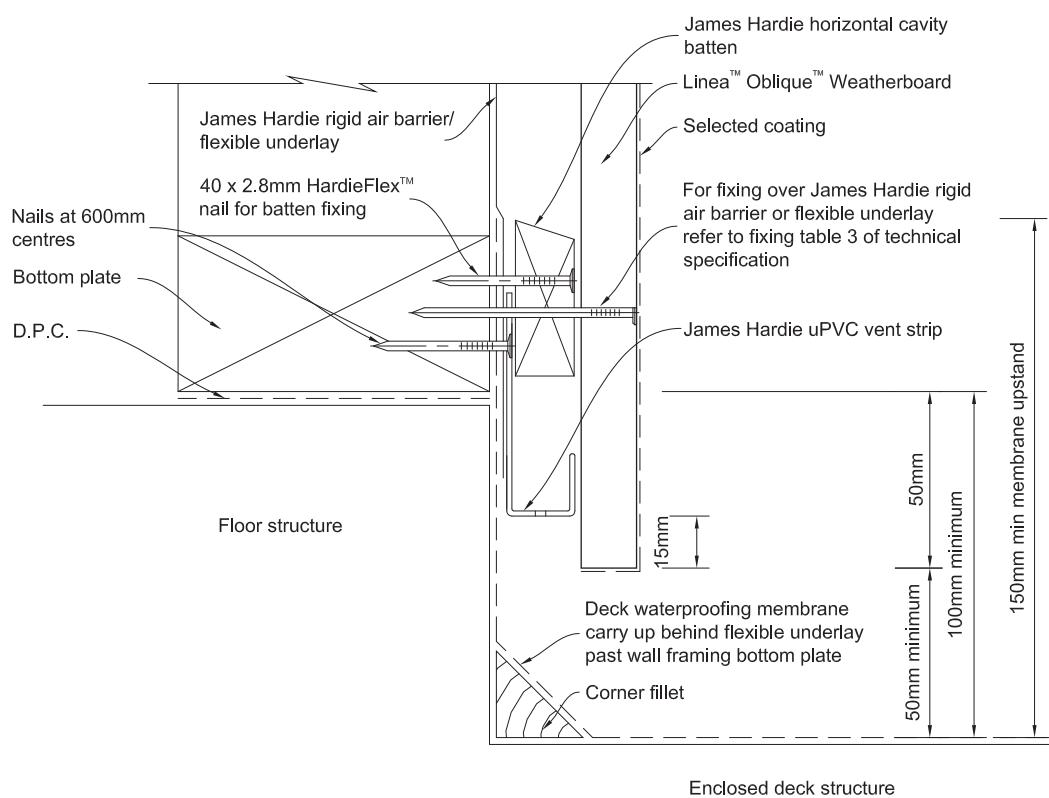


Figure 31: Pipe penetration

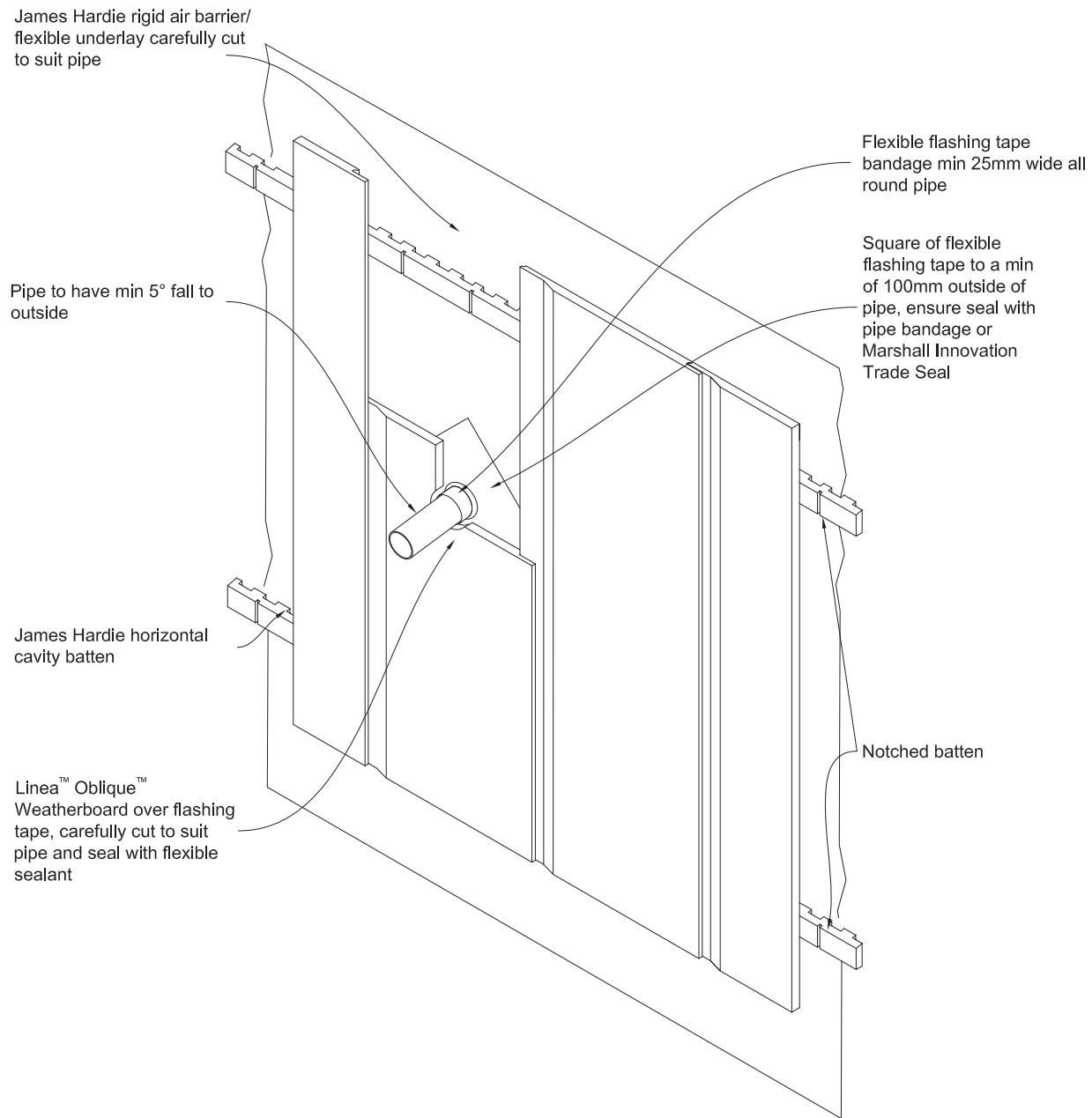


Figure 32: Cladding installed

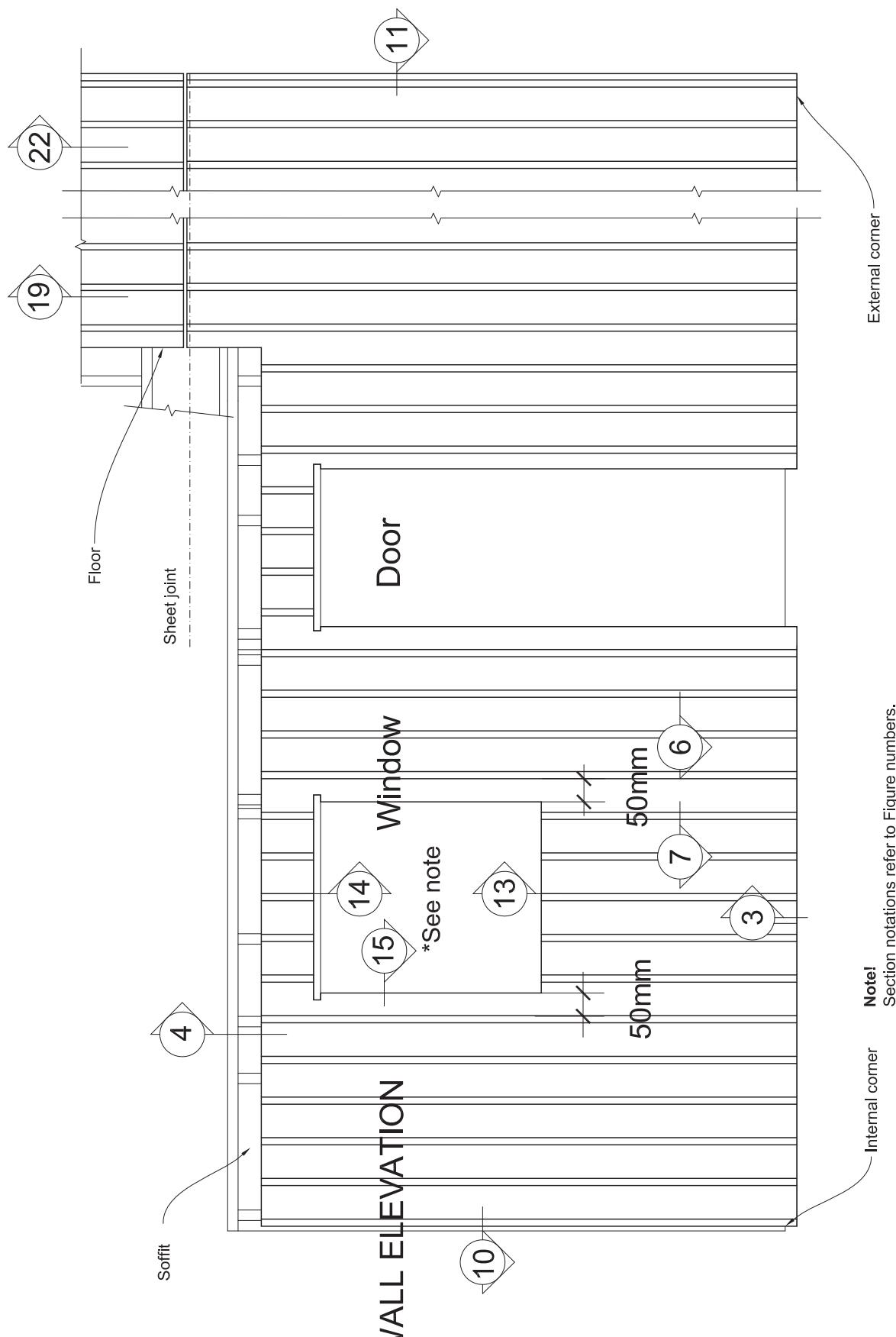


Figure 33: Garage head

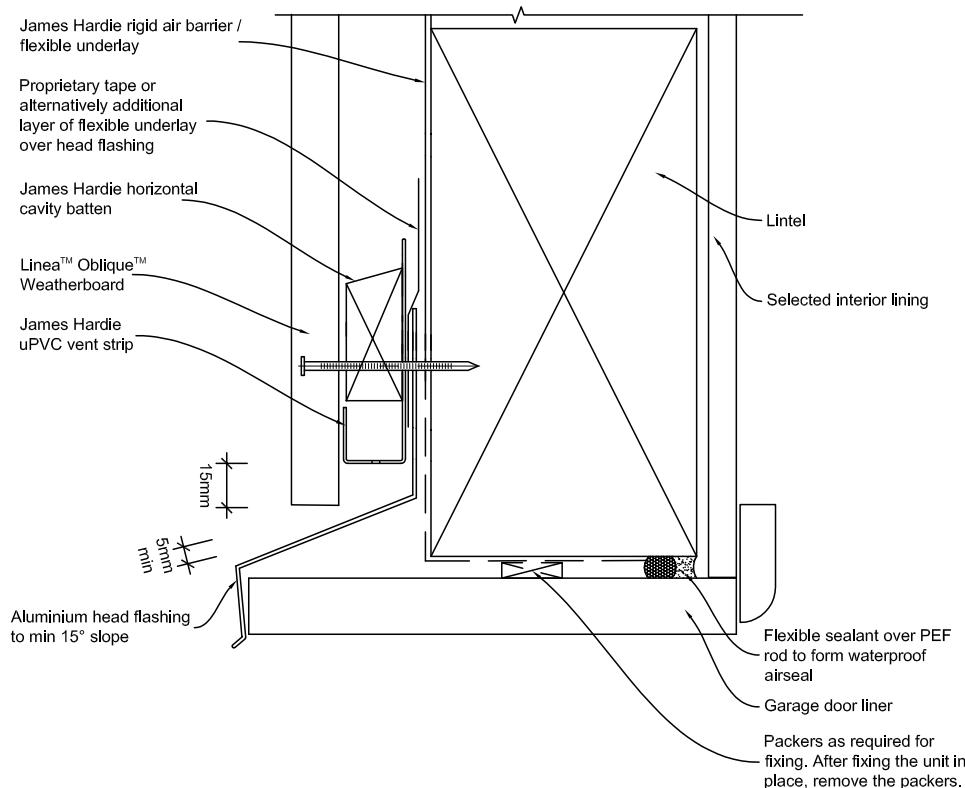
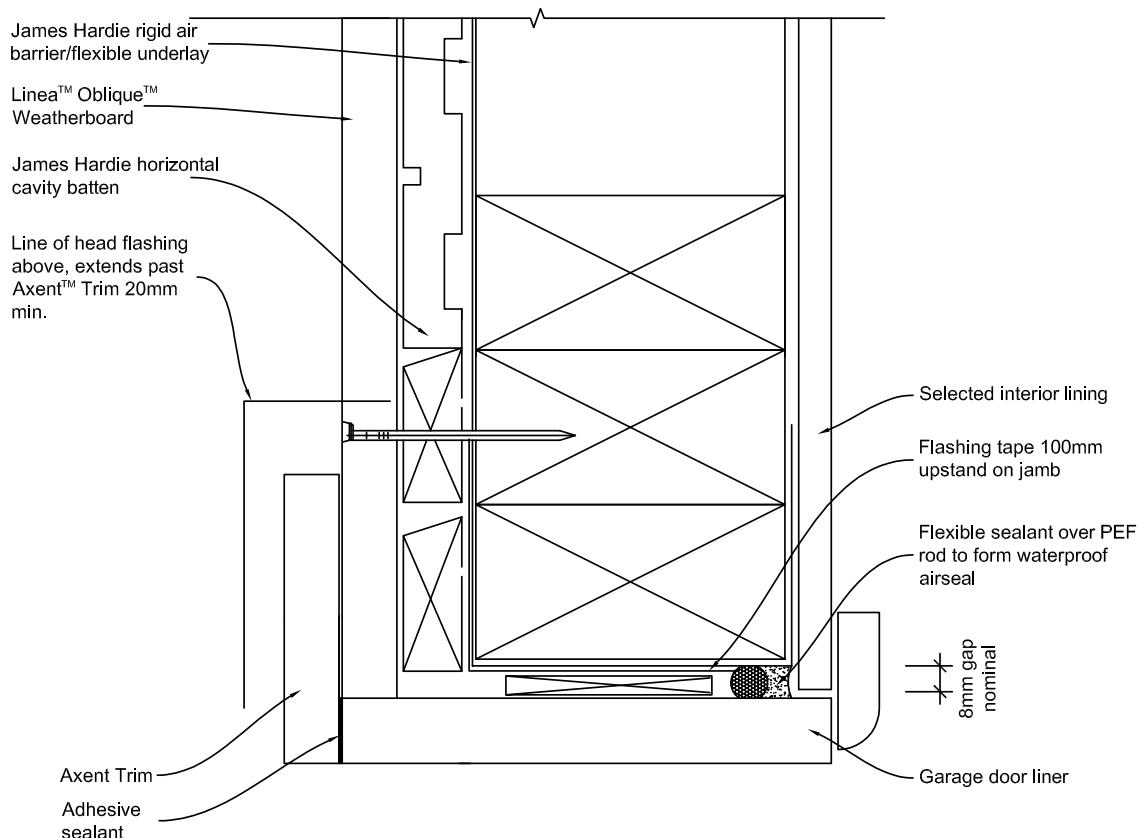


Figure 34: Garage jamb



Notes

Notes

SDC - Approved Building Consent Document - BC220881 - Pg 77 of 134 - 30/05/2022 - craigz

Product Warranty

Linea™
OBLIQUE™ WEATHERBOARD

July 2018

James Hardie New Zealand ("James Hardie") warrants for a period of 25 years from the date of purchase that the Linea™ Oblique™ 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 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. Linea™ Oblique™ Weatherboard has been appraised by BRANZ as an alternative solution and found to meet the required provisions of the NZBC when installed in accordance with the Linea™ Oblique™ Weatherboard Vertical Installation technical specification. 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.

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James Hardie
a smarter way™

SDC - Approved Building Consent Document - BC220881 - Pg 79 of 134 - 30/05/2022 - craigz



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GIB® plasterboard linings

When fixing part sheets of GIB® plasterboard, a minimum sheet width of 300mm applies for bracing elements. Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, and preferably, sheet end butt joints may be back-blocked.

When a GIB® Bracing element has been designated for a section of wall, BU ratings cannot be increased by incorporating additional proprietary bracing elements within that same section of wall.

LIMITATIONS

- GIB® plasterboard must be stacked flat and protected from the weather.
- GIB® plasterboard must be handled as a finishing material.
- GIB® plasterboard in use must not be exposed to liquid water or be installed in situations where extended exposure to humidities above 90% RH can reasonably be expected.
- GIB EzyBrace® Systems must not be used in showers or behind baths.
- It is highly recommended not to install GIB® plasterboard in any situation where external claddings are not in place or the property is not adequately protected from the elements.
- If GIB® plasterboard is installed under these conditions, the risk of surface defects such as joint peaking or cracking is greatly increased.

GIB EzyBrace® Systems in water-splash areas

When GIB® plasterboard is installed in locations likely to be frequently exposed to liquid water it must have an impervious finish. Examples are adhesive fixed acrylic shower linings or ceramic tiles over an approved waterproof membrane over GIB Aqualine®. The NZBC requires 15 years durability in these situations. Bracing elements are required to have a durability of 50 years. Bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members. Otherwise GIB EzyBrace® Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.

For further design details refer to the current GIB Aqualine® Wet Area Systems literature.

Renovation

When relining walls during the process of renovation, ensure that bracing elements are reinstated (check the building plans).

Openings in bracing elements

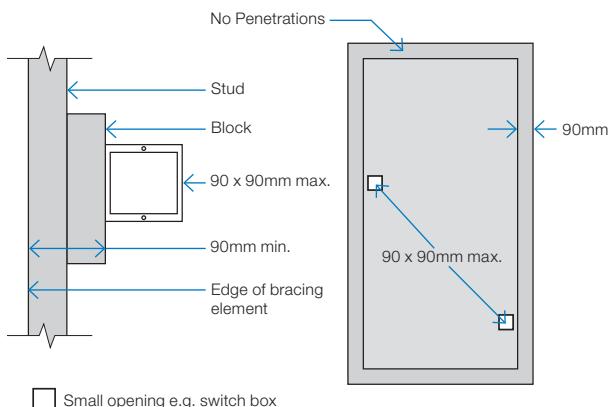
SMALL OPENINGS

Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.

LARGE OPENINGS

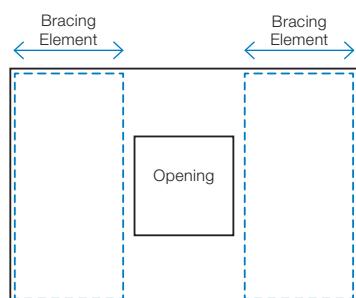
Openings above 90 x 90mm such as switch boards, recessed cabinets and TV's etc. should be placed outside of the bracing element or locate bracing on the other side of the wall framing.

FIGURE 10: SMALL OPENINGS IN BRACING ELEMENTS



GEB001

FIGURE 11: LARGE OPENINGS AND BRACING ELEMENTS



Timber framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 45mm for external walls and 70 x 45mm for internal walls.

As a minimum the use of Kiln Dried Stress Graded timber for all wall, roof and mid-floor framing members is recommended.

GIBFix® Framing System (alternative layout)

Practices recommended as part of the GIBFix® Framing System aim to increase timber framing efficiencies, reduce reliance on unnecessary framing at wall junctions and minimise surface imperfections that commonly arise from constructing plasterboard junctions over multiple timber members. GIBFix® Angles fixed to a single timber framing member are introduced to tie together plasterboard junctions, improving seismic resilience and decrease the risk of future defects due to timber movement. The GIBFix® Framing System can be used in conjunction with the GIB EzyBrace® System.

Note: GIBFix® Angles and 32mm x 7g GIB® Grabber® Dual Thread Screws may also be used in traditional wall framing layouts and in GIB EzyBrace® Systems.

When the GIBFix® Framing System is used a minimum of 2 equally spaced nogs for walls between 2.4m and 3m in height are required at corners and wall junctions.

When used in GIB EzyBrace® systems GIBFix® Angles must run from top to bottom on all applicable studs. If 2 GIBFix® Angles are required on a stud they must be overlapped by a minimum of 300mm with 2/32mm 7g GIB® Grabber® Dual Thread Screws penetrating through both GIBFix® Angles.

For full specification details refer to GIBFix® Framing System literature available at gib.co.nz/gibfix.

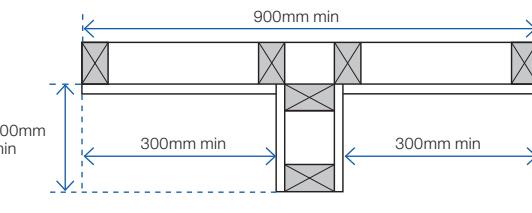
Guidelines for intersection walls

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions shall be fixed and jointed as specified for intermediate sheet joints. The bracing element length must be no less than 900mm.

Where a Wall Bracing Element is interrupted by a T-junction the element is deemed to be continuous for the whole length (900mm minimum in the example illustrated).

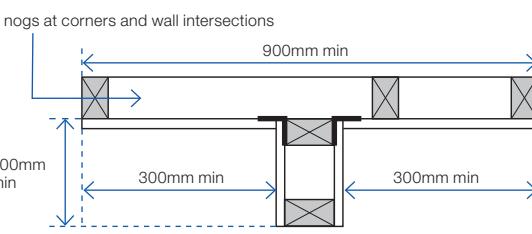
When fixing part sheets of GIB® plasterboard to the side of a T-junction, a minimum width of 300mm applies for bracing elements. See figures 12 and 13.

FIGURE 12: WALL INTERSECTION (TRADITIONAL WALL FRAMING)



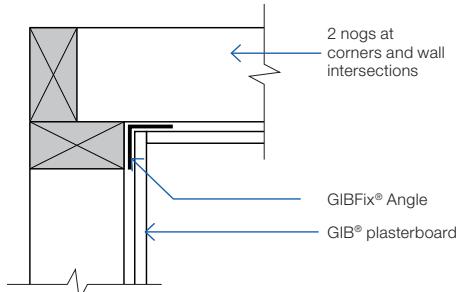
GEB002

FIGURE 13: WALL INTERSECTION (GIBFIX® FRAMING SYSTEM)



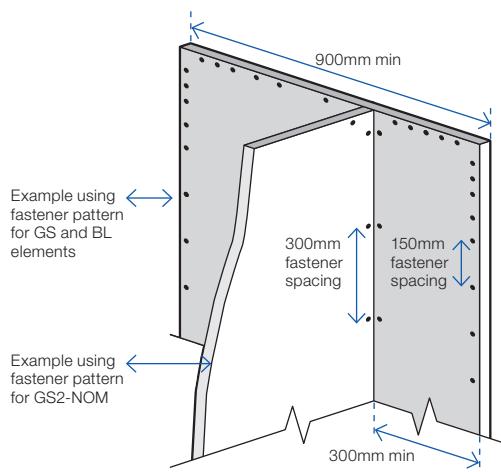
GEB003

FIGURE 14: CORNER INTERSECTION (GIBFIX® FRAMING SYSTEM)



GFS001

FIGURE 15: WALL INTERSECTION FASTENER PLACEMENT



Junction

Min 32mm x 6g GIB® Grabber® High Thread or 32mm x 7g GIB® Grabber® Dual Thread Screws @ 300mm ctrs each side.

Top plate connections

For top plate connections refer to NZS3604:2011 section 8.7.3.

Parapets and gable end walls

Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of noggs is not acceptable unless either:

A continuous member such as an ex 90 x 45mm ribbon plate is fixed across the studs just above a row of noggs at the ceiling line, as shown in figure 16.

or

GIBFix® Angle as shown in figure 17. The angle is fixed to a row of noggs with 30 x 2.5mm galv flat head nails or 32mm x 7g GIB® Grabber® Dual Thread Screws at 300mm centres.

Bottom plate fixing

TIMBER FLOOR

For elements with an 'N' specification use 2/100 x 3.75mm hand or 3/90 x 3.15mm power-driven nails at 600mm centres.

In addition, for elements with an 'H' specification, use GIB HandiBrac® panel hold-down fixings at each end of the bracing element, see p.16.

CONCRETE FLOOR – EXTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix external wall plates in accordance with NZS 3604:2011.

Use GIB HandiBrac® panel hold-down fixings at each end of bracing elements with an 'H' specification and minimum intermediate fixings as required by NZS 3604:2011.

CONCRETE FLOOR – INTERNAL WALL BRACING ELEMENTS

For bracing elements with an 'N' specification fix plates in accordance with NZS 3604:2011 or use 75 x 3.8mm shot-fired fasteners with 16mm discs spaced at 150 and 300mm from end-studs and 600mm centres thereafter.

For bracing elements with an 'H' specification use GIB HandiBrac® panel hold-down fixings at each end of the element and minimum intermediate fixings as required by NZS 3604:2011.

FIGURE 16: PARAPETS AND GABLE ENDS WITH RIBBON PLATE

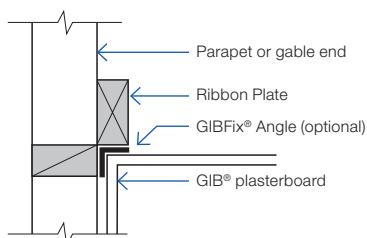
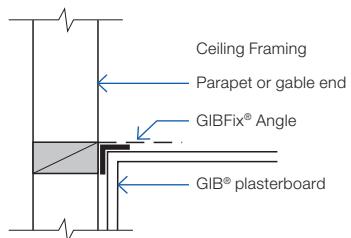


FIGURE 17: PARAPETS AND GABLE ENDS WITH GIBFIX® ANGLE



GFS003

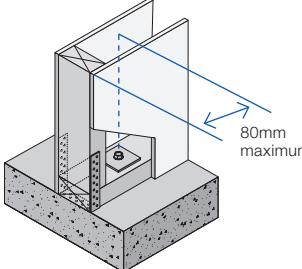
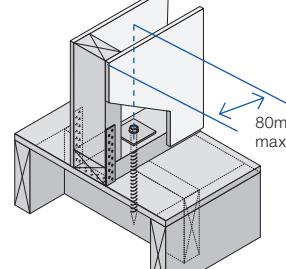
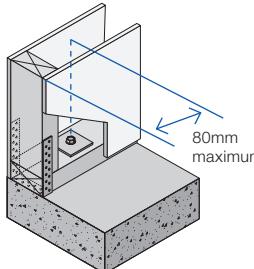
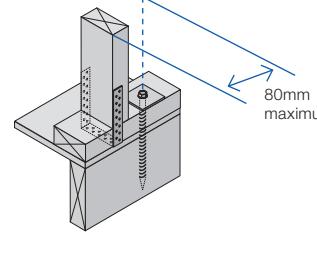
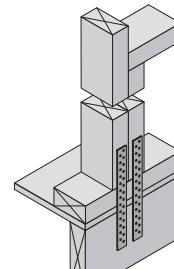
BOTTOM PLATE FIXINGS FOR GIB® BRACING ELEMENTS

Brace type	Concrete slabs		Timber floors
	External wall	Internal wall	
GS1-N	As per NZS 3604:2011. No specific additional fastening required.	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm discs, 150mm and 300mm from each end of the bracing element and at 600mm thereafter.	Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011.
GS2-N	Not applicable.		
GS2-NOM			
GSP-H BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011 In addition: GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16.		Pairs of 100 x 3.75mm flat head hand driven nails or 3/90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. In addition: GIB HandiBrac® fixings or metal wrap-around strap fixings and bolt as illustrated on p.15 and 16.
BLG-H	Not applicable	As for GSP-H, BL1-H, BLP-H on concrete slab as illustrated on p.15 and 16.	

Bracing strap installation

Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard and

positioned in such a way that the corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the corner fastenings to be installed without having to penetrate the bracing strap.

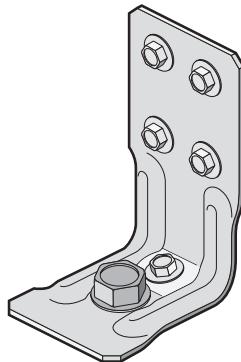
Concrete floor	Timber floor
400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30 x 2.5mm flat head galvanised nails to each side of the stud. Three 30 x 2.5mm flat head galvanised nails to each side of the plate. Hold down bolt with 50 x 50 x 3mm washer to be fitted within 80mm of the end of the element.	
Internal wall	
 GEB004	 GEB005
External wall	
 GEB006	 GEB007
Note: Where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at gib.co.nz/library .	2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud.
	 GEB008
Hold-down fastener requirements	
Concrete floor	Timber floor
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element.	12 x 150mm galvanised coach screw fitted with a 50 x 50 x 3mm square washer within 80mm of the ends of the bracing element

GIB HandiBrac® installation

Developed in conjunction with MiTek™, the GIB HandiBrac® has been designed and tested by Winstone Wallboards for use in GIB EzyBrace® elements that require hold-downs. The GIB HandiBrac® is a substitute for bottom plate hold-down straps.

- Quick and easy to fit.
- May be fitted at any stage before lining.
- Framing face is clear to allow flush lining.
- Easily inspected.

The GIB HandiBrac® with BOWMAC® blue head screw bolt is suitable for timber and concrete floors constructed in accordance with NZS 3604:2011.



Concrete floor		Timber floor	
External walls	Internal walls	External walls	Internal walls
GEB009	GEB010	GEB011	GEB012
Hold-down fastener requirements			
A mechanical fastening with a minimum characteristic uplift capacity of 15kN or use supplied BT10/140 screwbolt in GIB HandiBrac® pack.		12 x 150mm galvanised coach screw or use supplied BT10/140 screwbolt in GIB HandiBrac® pack.	

GIB HandiBrac® placement with GIBFix® Framing System for concrete floors

Figure 18 shows the preferred positioning of the GIB HandiBrac® panel hold-down brackets within the GIBFix® Framing System layout and where they are required by bracing systems with an 'H' in the specification code.

Note that, in corners and at wall junctions, a single GIB HandiBrac® can serve 'H' type bracing elements in both directions, but additional intermediate concrete anchors may need to be installed to meet the minimum requirements of NZS 3604:2011 for bottom plate fixing.

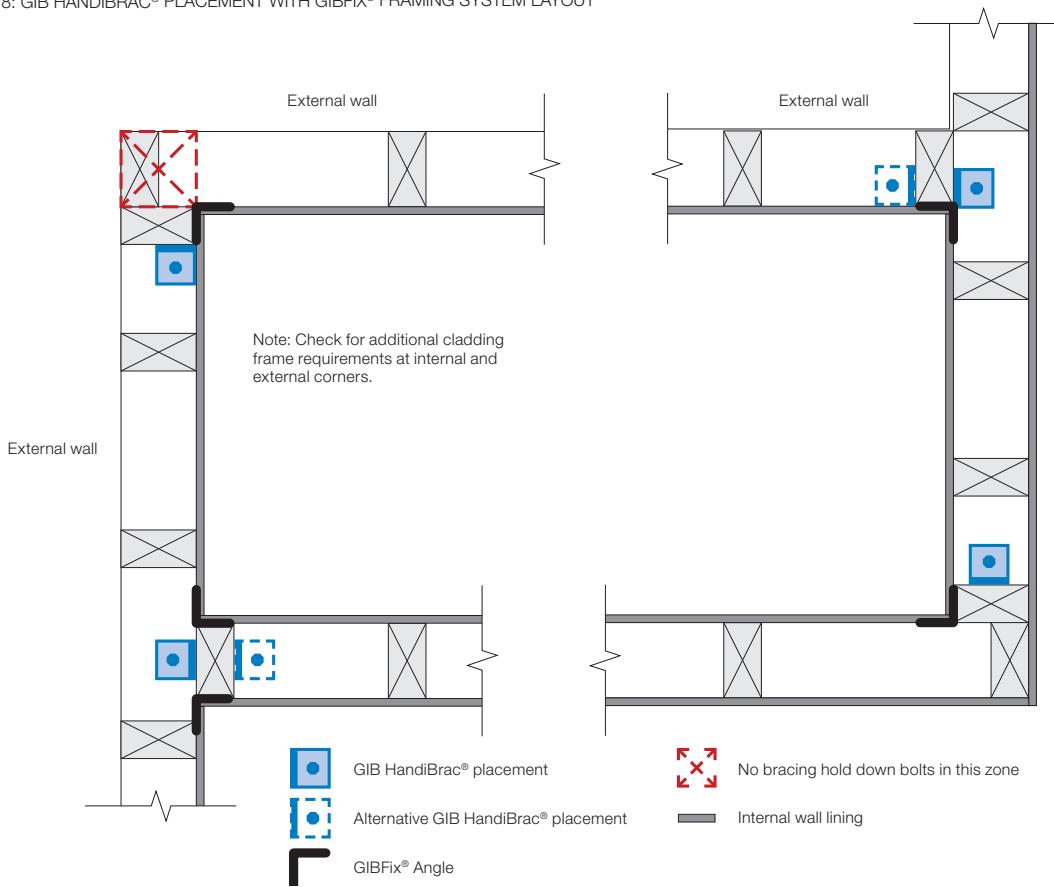
The GIB HandiBrac® is fixed to the stud which has the GIBFix® Angle.

For bracing elements with sheet material both sides of the wall connect corner studs using 8/90mm gun nails as shown in figure 19.

TIMBER FLOORS

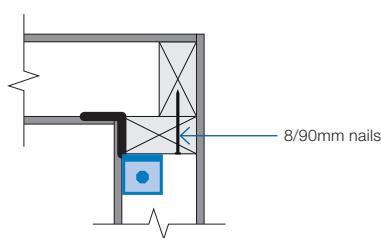
For timber floors bolt fixing in to solid joist or block is required, as shown on p 15.

FIGURE 18: GIB HANDIBRAC® PLACEMENT WITH GIBFIX® FRAMING SYSTEM LAYOUT



GEB013

FIGURE 19: STUD CONNECTION FOR 'H' TYPE BRACING ELEMENTS WITH SHEET MATERIAL BOTH SIDES



GEB014

Length of GIB EzyBrace® elements ('N' Type)

The length of GIB EzyBrace® elements with an 'N' extension (requiring standard NZS3604:2011 plate connections) can be taken as the full frame length measured from the outside of the end-stud to the opening face as illustrated in figures 29-32.

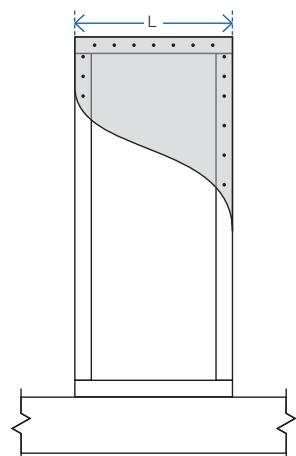
'N' type GIB EzyBrace® elements are identified by GIB® specification numbers GS1-N, GS2-N and GS2-NOM

The dimension 'L' shall not be less than 400mm.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening.

Fastener spacings and diagram scales shown in Figures 29-32 are indicative only. Refer to p.23-30 for construction details.

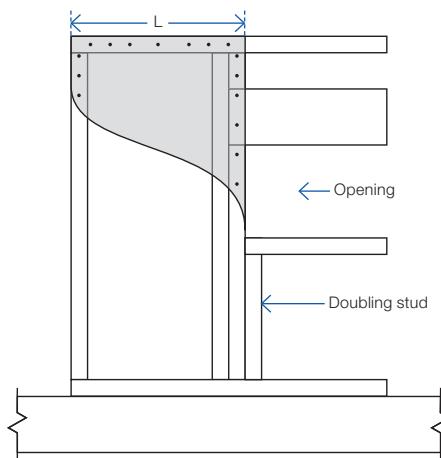
FIGURE 29: GS BRACING ELEMENTS (OPTION A)



GS1-N, GS2-N elements

'L' indicates the length of the bracing element

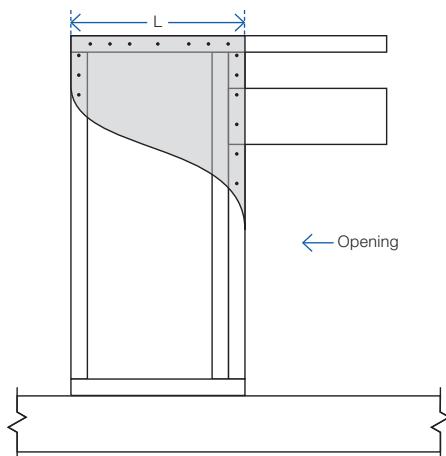
FIGURE 30: GS BRACING ELEMENTS (OPTION B)



GS1-N, GS2-N elements

'L' indicates the length of the bracing element

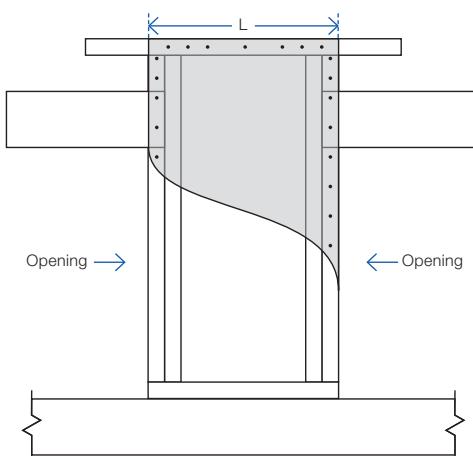
FIGURE 31: GS BRACING ELEMENTS (OPTION C)



GS1-N, GS2-N elements

'L' indicates the length of the bracing element

FIGURE 32: GS BRACING ELEMENTS (OPTION D)



GS1-N, GS2-N elements

'L' indicates the length of the bracing element

Length of GIB EzyBrace® elements ('H' Type)

GIB EzyBrace® elements with an 'H' extension (requiring special panel hold-down fixings) can be used when the dimension 'L' as illustrated in figures 33–36 is 400mm or more.

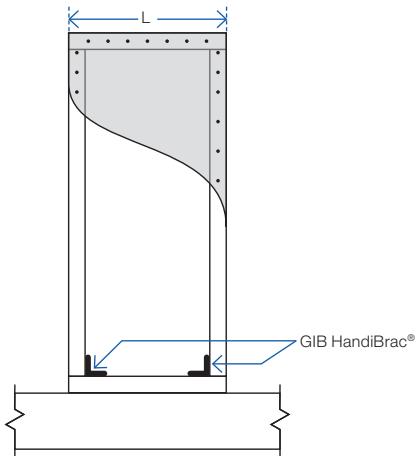
'H' type GIB EzyBrace® elements are identified by GIB® specification numbers GSP-H, BL1-H, BLG-H and BLP-H.

The length of an 'H' type element is not only determined by the sheet material, but also by the placement of the hold-down fixings.

Hold-down fixings cannot be placed closer together than what is shown for the standard panel in figure 33.

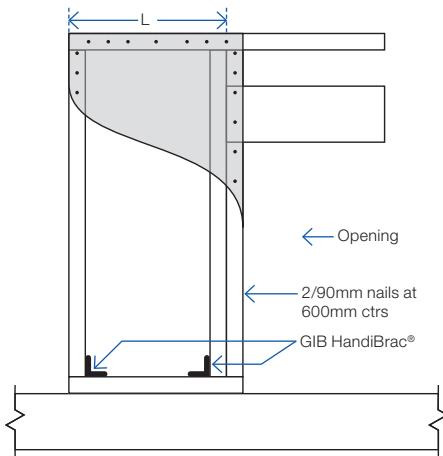
Hold-down fixings can be placed under windows provided sill trimming studs beneath the opening are connected to the bracing element using 8/90mm gun nails, as illustrated in figure 34.

FIGURE 33: BL BRACING ELEMENTS (OPTION A)



'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 35: BL BRACING ELEMENTS (OPTION C)



'H' type elements with specific hold downs
'L' indicates the length of the bracing element

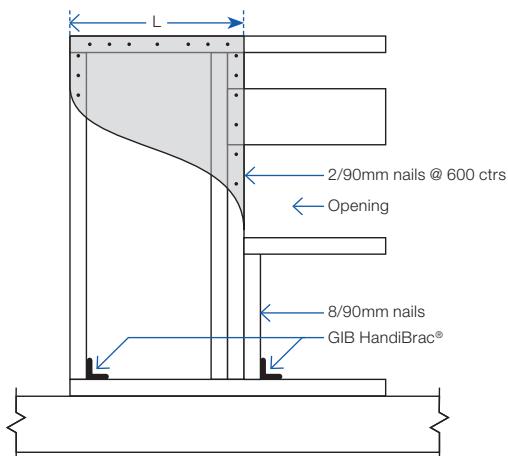
Spike doubling stud to trimming stud using a minimum of 2/90mm gun nails at 600mm centres. Lintel straps (where required for wind uplift) should be checked in and be located away from the bracing element fasteners.

Perimeter bracing fixing for linings of both 'H' and 'N' type elements is along the top and bottom plates, end stud, and doubling stud immediately adjacent to the opening as indicated in figures 34–36.

When using bracing straps, installed in accordance with p.17, fix the strap to the same framing member as shown for the GIB Handibrac® below, and install the adjacent anchor bolt in the same position as the GIB Handibrac® bolt.

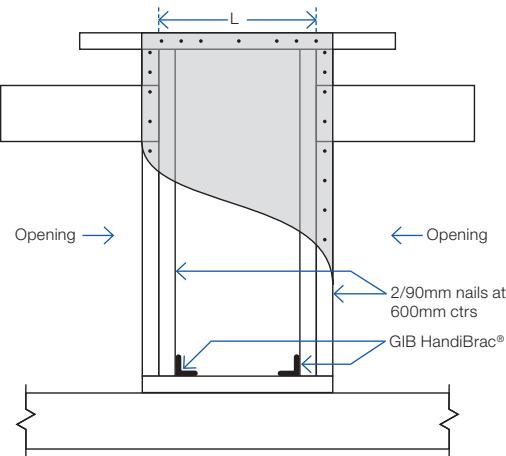
Fastener spacings and diagram scales shown in figures 33–36 are indicative only. Refer to p.23–30 for construction details.

FIGURE 34: BL BRACING ELEMENTS (OPTION B)



'H' type elements with specific hold downs
'L' indicates the length of the bracing element

FIGURE 36: BL BRACING ELEMENTS (OPTION D)



'H' type elements with specific hold downs
'L' indicates the length of the bracing element

GIB EzyBrace® Systems specification GS1-N

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

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Internal Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and 600mm centres thereafter.

External Wall Bracing Lines: In accordance with the requirements of NZS 3604:2011 for external wall bottom plate fixing.

WALL LINING

- Any 10mm or 13mm GIB® plasterboard lining.
- Sheets can be fixed vertically or horizontally.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.

PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

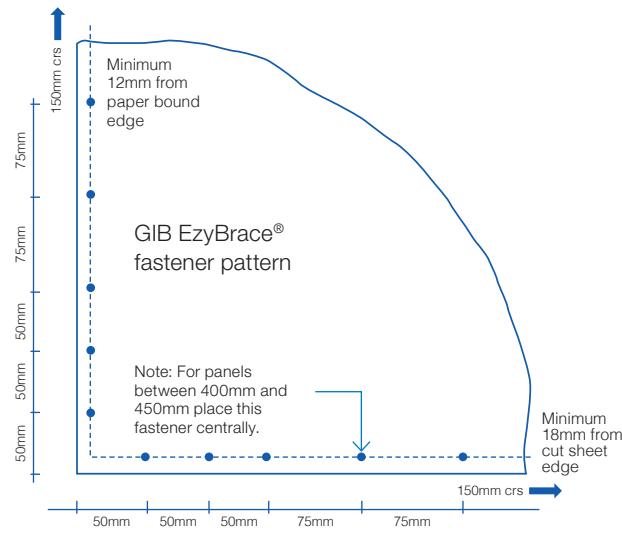
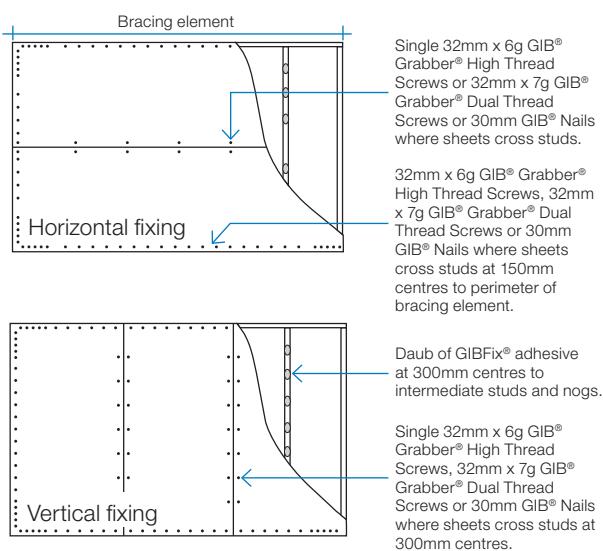
32mm x 6g GIB® Grabber® High Thread Screws, 32mm x 7g GIB® Grabber® Dual Thread Screws or 30mm GIB® Nails. If using the GIBFix® Angle use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

50,100,150, 225, 300mm maximum from each corner and 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm maximum centres to intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm maximum centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

GIB EzyBrace® Systems specification BLP-H

Specification code	Minimum length (m)	Lining requirement	Other requirements
BLP-H	0.4	10mm or 13mm GIB Braceline® to one side of the frame plus minimum 7mm structural plywood manufactured to AS/NZ 2269.0 :2012 to the other side	Hold downs

WALL FRAMING

Wall framing to comply with;

- NZBC B1 — Structure; B1/AS1 Clause 3 Timber (NZS 3604:2011).
- NZBC B2 — Durability B2/AS1 Clause 3.2 Timber (NZS 3602).

Framing dimensions and height as determined by NZS 3604:2011 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber floor

Use panel hold downs at each end of the bracing element. The GIB® HandiBrac is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide.

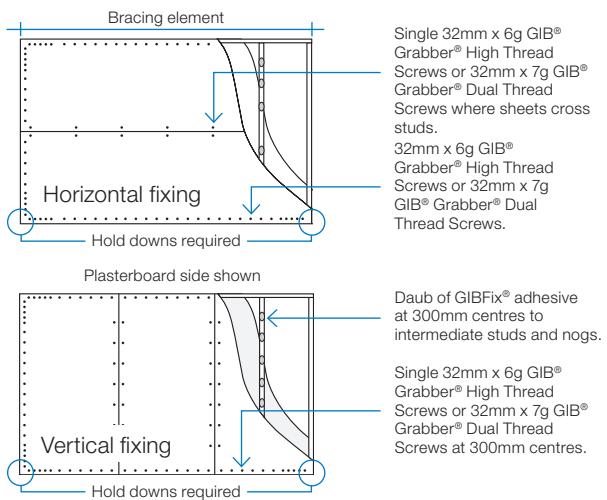
Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or Three power driven 90 x 3.15mm nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB EzyBrace® Systems or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of AS/NZ 2269/0 :2012.

WALL LINING

- A layer of 10mm or 13mm GIB Braceline® to one side of the wall plus minimum 7mm structural plywood manufactured to AS/NZS 2269.0 :2012 to the other side.
- Sheets can be fixed vertically or horizontally.
- Plywood is to be fixed vertically with edges supported.
- Sheet joints shall be touch fitted.
- Use full length sheets where possible.



PERMITTED ALTERNATIVES

For permitted GIB® plasterboard alternatives refer to p. 5 in GIB EzyBrace® Systems literature.

FASTENING THE LINING

Fasteners

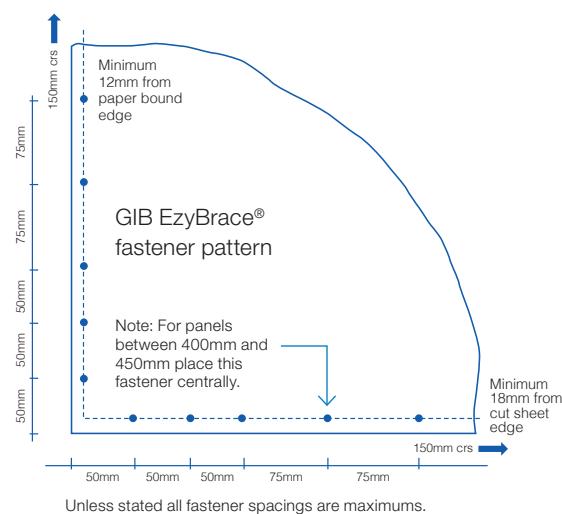
GIB Braceline® side: 32mm x 6g GIB® Grabber® High Thread Screws or 32mm x 7g GIB® Grabber® Dual Thread Screws. Plywood: 50 x 2.8mm Galv or Stainless steel annular grooved FH nails. If using the GIBFix® Framing System or if fastening through GIBFix® Angles use only 32mm x 7g GIB® Grabber® Dual Thread Screws.

Fastener centres

GIB® Plasterboard side: 50,100,150, 225, 300mm from each corner and then 150mm thereafter around the perimeter of the bracing element. For vertically fixed sheets place fasteners at 300mm centres to the intermediate sheet joints. For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud. Use daubs of GIBFix® adhesive at 300mm centres to intermediate studs. Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge. Plywood side: 150mm centres to the perimeter of each sheet. GIB® corner fastener pattern does not apply to the plywood side. 300mm centres to intermediate studs.

JOINTING

Joint strength is important in delivering bracing system performance. All fastener heads stopped and all sheet joints GIB® Joint Tape reinforced and stopped in accordance with the GIB® Site Guide.



Unless stated all fastener spacings are maximums.

In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems

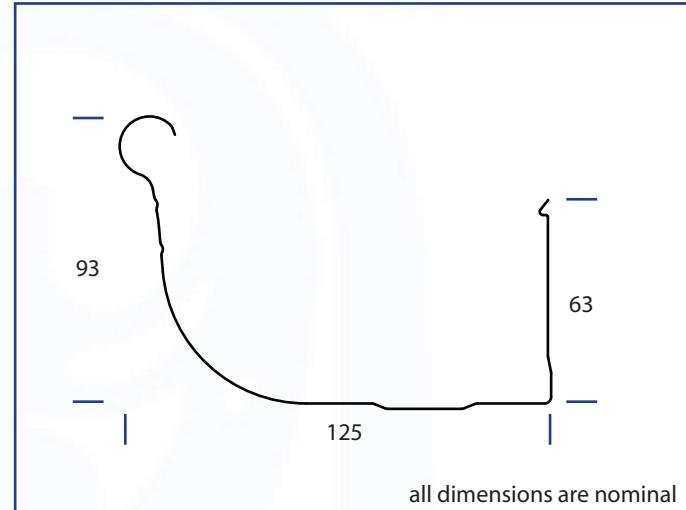
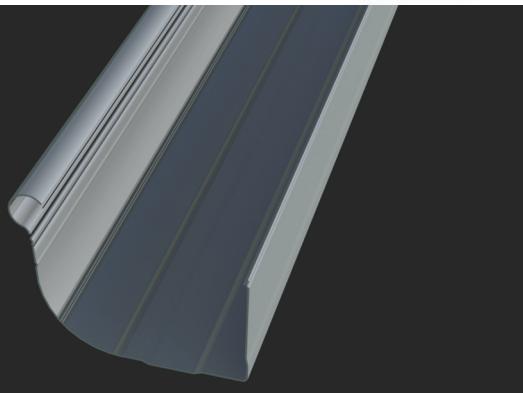
Metalline Quad Gutter

In Christchurch product is known as Colonial Quad Gutter

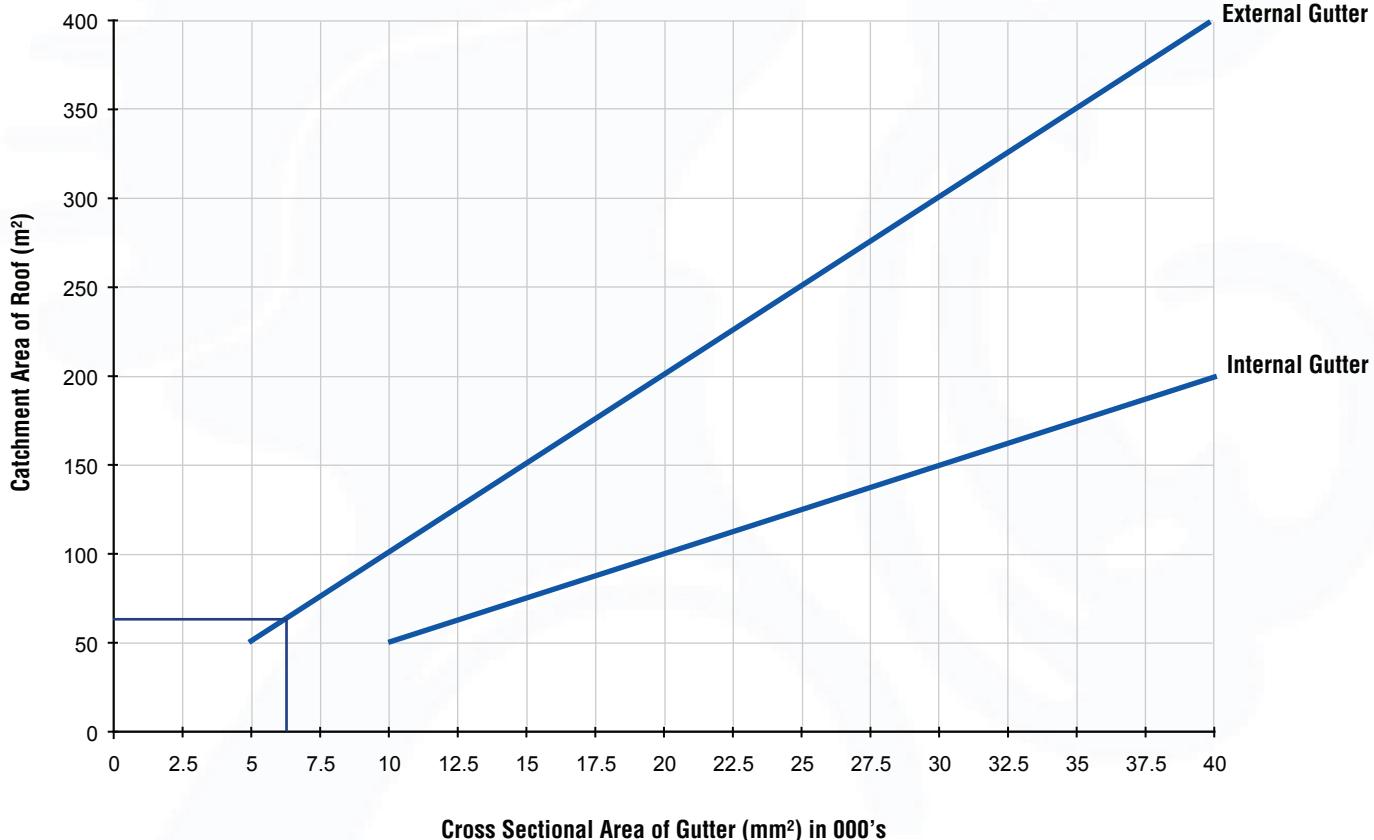
Metalline Quad Gutter is our most popular residential profile. Whether you are renovating or involved in a new build, this profile will enhance the appearance of your home. The Metalline system uses concealed brackets and is compatible with Metalcraft Metalline Fascia or timber fascia. Metalline Quad Gutter is available with overflow slots to prevent flooding from blockages, and snow straps are stocked to suit this profile if required. Metalline Quad Gutter is available in Zincalume, Galvsteel, Colorsteel Endura and Colorsteel Maxx.

SDC - Approved Building Consent Document - BC220881 - Pg 90 of 134 - 30/05/2022 - craigz

Cross-sectional Area: 5550mm²



Catchment Area of Roof v Cross Sectional Area of Gutter



Note: The graph is based on a rainfall intensity of 100mm / hour and roof pitches less than 10 degrees.
 For more information on roof catchment areas and the effect of gutter cross sectional areas download the document on Roof Drainage

Manufacturing Locations Hamilton, Christchurch

Metalline Quad Gutter is available for purchase from all Metalcraft branch locations

www.metalcraft.net.nz

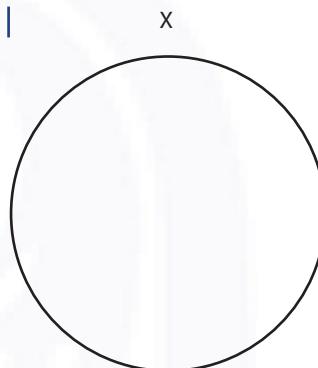
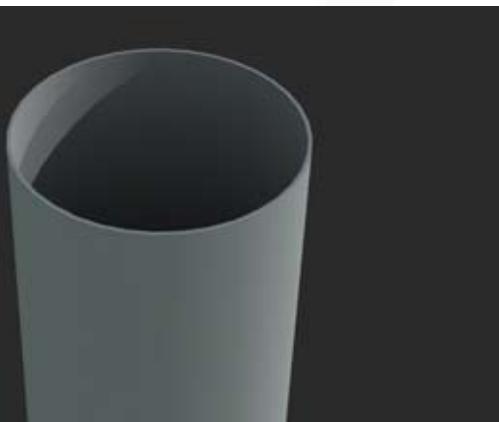
Round Downpipe

Round downpipe is a simple yet effective method for transporting water from the gutter to the drain and is available in a range of sizes. Round downpipe is available in plain and painted with a variety of metal substrates.

SDC - Approved Building Consent Document - BC200881 - Pg 91 of 134 - 30/05/2022 - craigz

Cross-sectional Area:

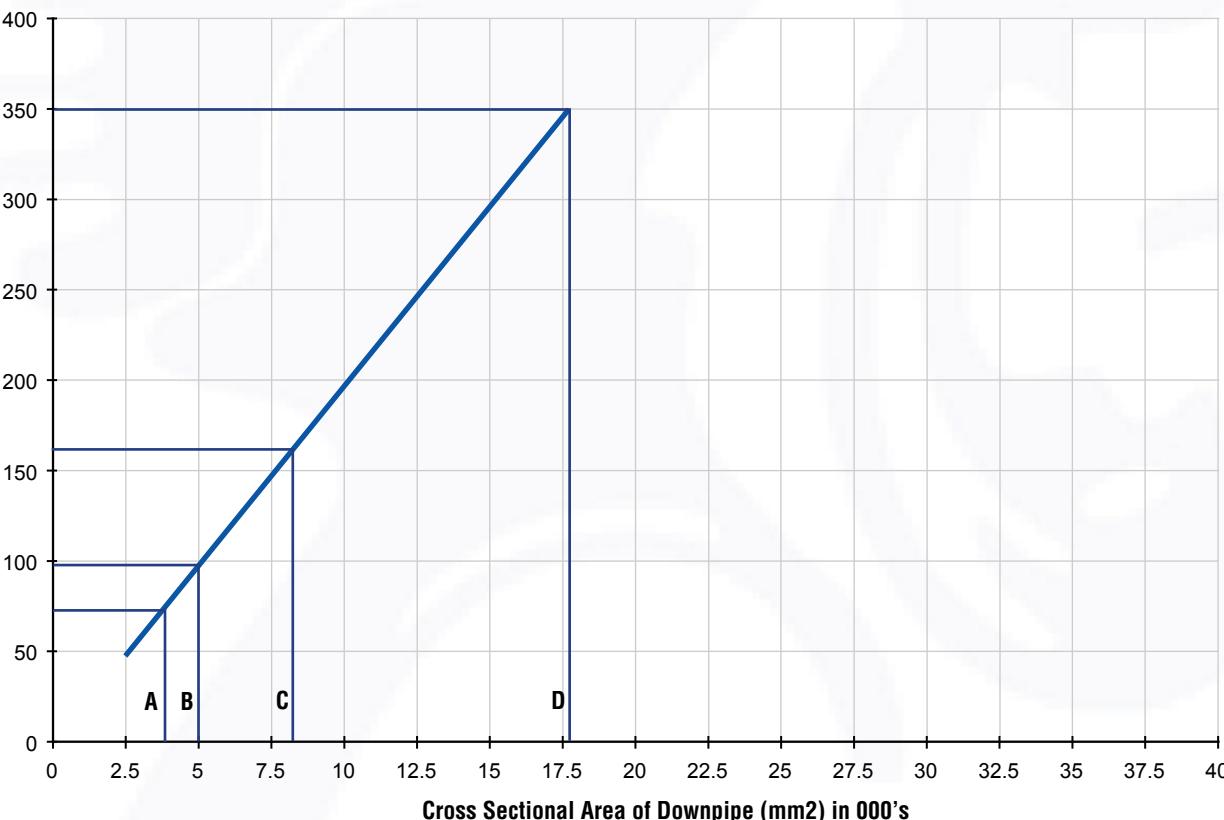
Round Downpipe 65mm = 3318mm² (A)
 Round Downpipe 80mm = 5027mm² (B)
 Round Downpipe 100mm = 7854mm² (C)
 Round Downpipe 150mm = 17671mm² (D)



X = 65mm
 80mm
 100mm
 150mm

Please note: PVC Downpipes are also available and can be sourced in sizes greater than 150mm

Catchment Area of Roof v Cross Sectional Area of Downpipe



Note: The graph is based on a rainfall intensity of 100mm / hour and roof pitches less than 10 degrees.
 For more information on roof catchment areas and the effect of gutter cross sectional areas download the document on Roof Drainage

Manufacturing Locations Metalcraft does not currently manufacture Round Downpipe
 but has access to the product via secondary suppliers.

Round Downpipe is available for purchase from all Metalcraft branch locations

www.metalcraftroofing.co.nz

LEDLUX 13w

CIBA LED
DOWNLIGHT

0mm HCB and 0mm SCB
Zero clearance needed to materials

45mm DEEP 120mm WIDE

One of two LED's on
the market that can be safely
installed beneath trusses

IC RATED – FULLY INSULATE

Safe to cover AND abutt with Pink Batts

100mm Ø CUT OUT

Fits most old downlight holes
Great for renovations

155% BEAM ANGLE

Suitable for Raked Ceilings $\leq 30\%$

3000k WARM COLOUR TONE

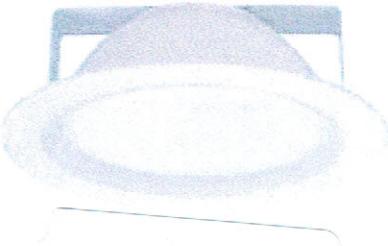
Equivalent to a 100w Incandescent

IP 44 = SAFE for SOFFIT and SHOWER

Protected against splashing water

FULLY DIMMABLE

Search LEDlux DIMMER #14381
Ideal for HPM or Clipsall Switch plates



LEDLUX 13w

CIBA LED
DOWNLIGHT

5 YEAR WARRANTY
Includes labour costs to repair

LIGHTING PLANS

Hand drawn to 1:100 scale

On-site or in-store
to suit your needs

Delivery service
available across Australia

FREE DELIVERY

on any House Lot order

ACCOUNT SERVICES

or pay over the phone with VISA

Technical Data Sheet

FV130

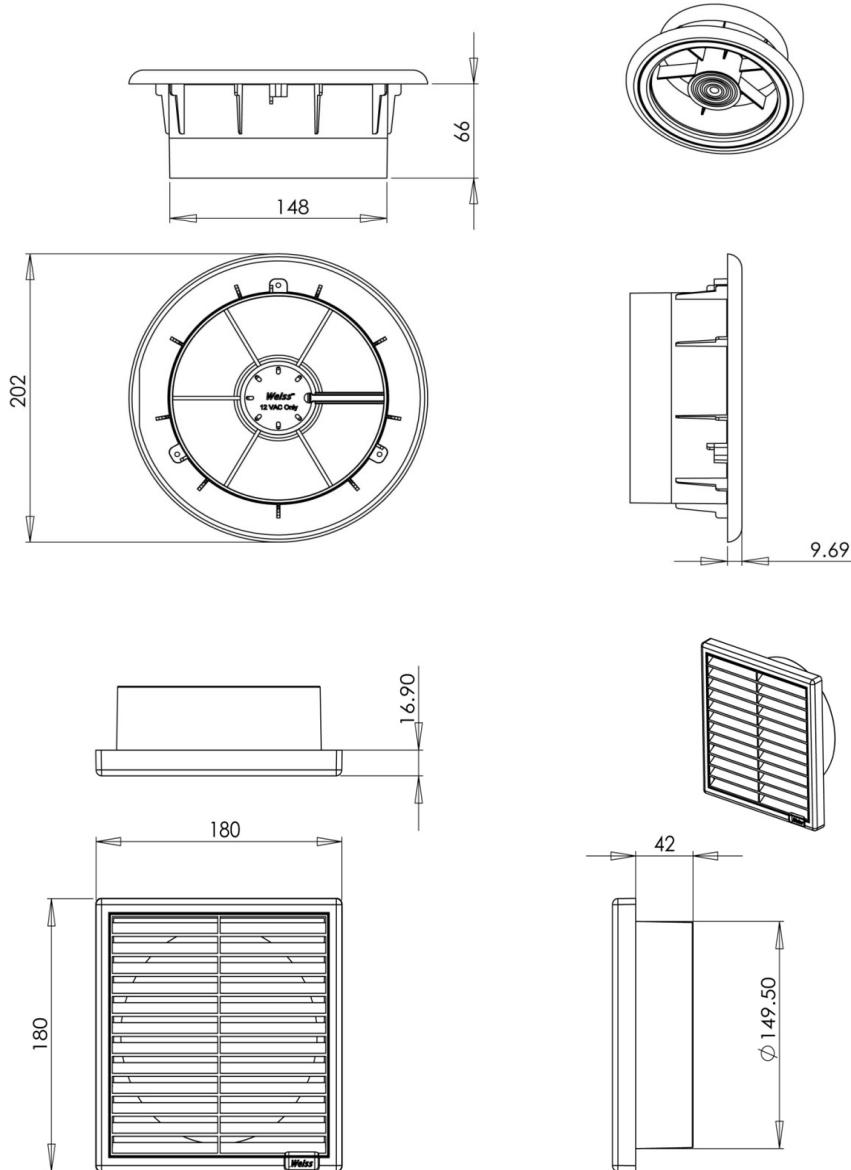
Shower Fan Unit

150mm ducting

WEISS™

Dimensions

Cut-out size for inlet fascia	170mm
Cut out size for outlet vent	155mm



Specifications

Weight	2kg
Colour of front fascia	White
Housing material	ABS

Approval

AS/NZS 3350.2.80:1998 Amdts 1-3 "Electrical Fan"

Features

- Easy to install
- 6 metres of 150mm ducting supplied
- Unique 'no fuss' all in one unit
- Allows moisture to be removed to the outside of your home
- All parts are included
- 3 year extended warranty

Technical Data Sheet

Product Use

The FV130 is used for the extraction of mist and steam

Typical applications:

- Bathrooms
- Toilets
- Laundries

Environmental Conditions

Operation to IEC 721-3-3
Climatic conditions class 3K5
Temperature 0...+50°C
Humidity <95% r.h.

Standards

Test standards	AS/NZS 3350.2.80: 1998 Amdts 1-3 "Electrical Fan"
Test Report no EMC Compliance	SD3190 This is a Level One product with an C frame motor that has a very low risk of causing EMC Interference

General

Free Air Fan Performance 362m³/ hr 100.6L/sec
Installed decibel rating 45DB

Ordering

When ordering please give name and type,
Reference FV130
Barcode 942000490093-8

Technical Data

Power Supply	230 VAC
Power consumption	max. 0.4 Amps
Supply Line fusing	max. 10A
For solid wires	2 x 1.5mm ²
Motor	230-240VAC 50Hz
Motor insulation class	0.4 Amp
Total motor wattage	B1
Motor protection	40 Watts
Total product wattage	Thermally protected 40 watts

Dektite Aluminium

The best solution for stone chip and pressed metal tiles

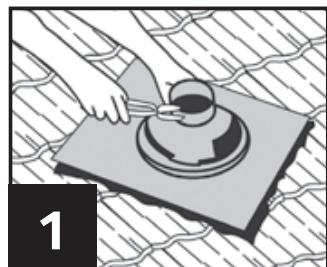
✓ The base is 99.9% pure grade aluminium making it strong, malleable and easy to install.

Environmentally friendly, ideal where potable water is collected.

The best solution for stone chip and pressed metal tiles.

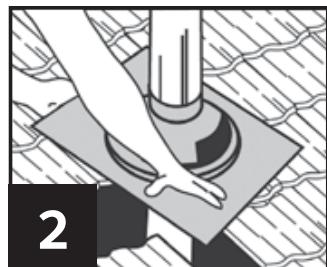
EPDM withstands temperatures from -50°C - 115°C and up to 150°C intermittently.

Installation Instructions:



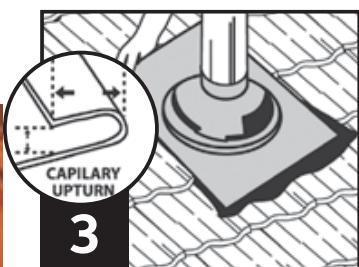
1

Trim Dektite cone to suit pipe size using sharp tin snips.



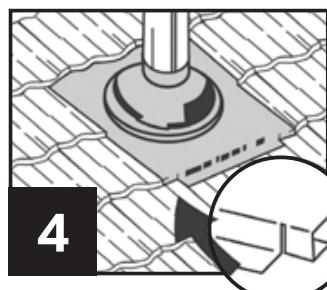
2

After lubricating the flue with water, slide Dektite down to the tile level.



3

Form an anti-capillary fold then place upper edge of base under up-stream tiles.

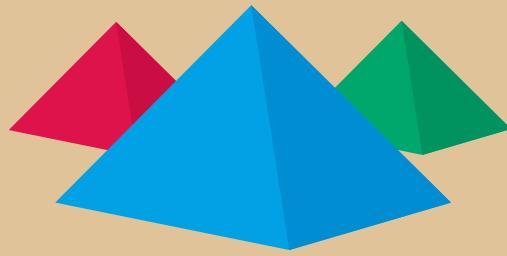


4

Dress base to profile, cut tabs on the bottom corners and fold under to stop wind lift .



COLORCOTE®
TECHNICAL
INFORMATION



COLORCOTE®
PRE-PAINTED METAL PRODUCTS



Technical Information

ColorCote® ZR8™

Conforms to AS/NZS2728: 2007

Product Type 3 (Table 1.1)

Suitable for ISO9223

Atmospheric Classifications C1- C3



Description:

A high durability product designed to give excellent colour retention and high formability at moderate cost.





Specification

Substrate:

Hot dipped aluminium/zinc alloy coated steel coil, AZ150 coating weight.

Manufactured to AS 1397: 2001

Pretreatment:

Corrosion resistant chromate conversion coating.

Primer:

Flexible corrosion resistant chromated primer. Nominal film thickness $5\mu \pm 2\mu$ on the top side and $5\mu \pm 2\mu$ on the reverse.

Finish Coat:

Flexible exterior acrylic, polyester or modified polyester coating. Nominal film thickness $18\mu \pm 2\mu$.

Note: the finish coat can be applied to one or both sides of the sheet in the same or different colours. Colours outside the standard range may be available depending on colour and quantity.

Backing Coat:

Shadow Grey (Standard Colour) wash coat, $5\mu \pm 2\mu$ nominal thickness.

Gloss:

Typical gloss levels are 23% measured in accordance with ASTM D523-89 (60 degrees). Non standard gloss levels may be available on application.

Strippable Film:

Products can be supplied with an optional strippable protective film at extra cost. This material has a relatively short life span when exposed to sunlight and weather. It should be removed either just before, or immediately after installation. If stored indoors strippable film should be removed within 12 months of delivery from Pacific Coilcoaters.

Performance

COLOUR	E HUNTER UNITS
LIGHT COLOURS e.g. Titania, Gull Grey, Bone White	4
INTERMEDIATE COLOURS e.g. Mist Green, Lichen, Terracotta	6
DARK COLOURS e.g. Slate, Ironsand, Karaka	8

Outdoor Durability:

ColorCote® ZR8™, under normal well washed conditions of exposure, can be expected to show no cracking (other than that which may occur during forming), flaking or peeling of the paint film for 15 years from date of installation.

Colour change during product lifetime will depend on the colour chosen, aspect, design of the structure and the environment. Maximum colour change levels of ColorCote® ZR8™ colours in moderate (C2) environments after 10 years of service are given in the table above.

Colour change is measured using an instrumental colour spectrophotometer, according to ASTM D-2244-93, and determined on clean surfaces, free of all dirt, chalk, oxidized film, oil, grease, and other foreign contaminants.

Some chalking may occur. A maximum rating of 2 is expected after 20 years exposure, when measured in accordance with AS/NZS 1580.481.1.11: 1998. Scale is between 0 and 5 with a lower number indicating less chalking.

The above are subject to minimum maintenance requirements.

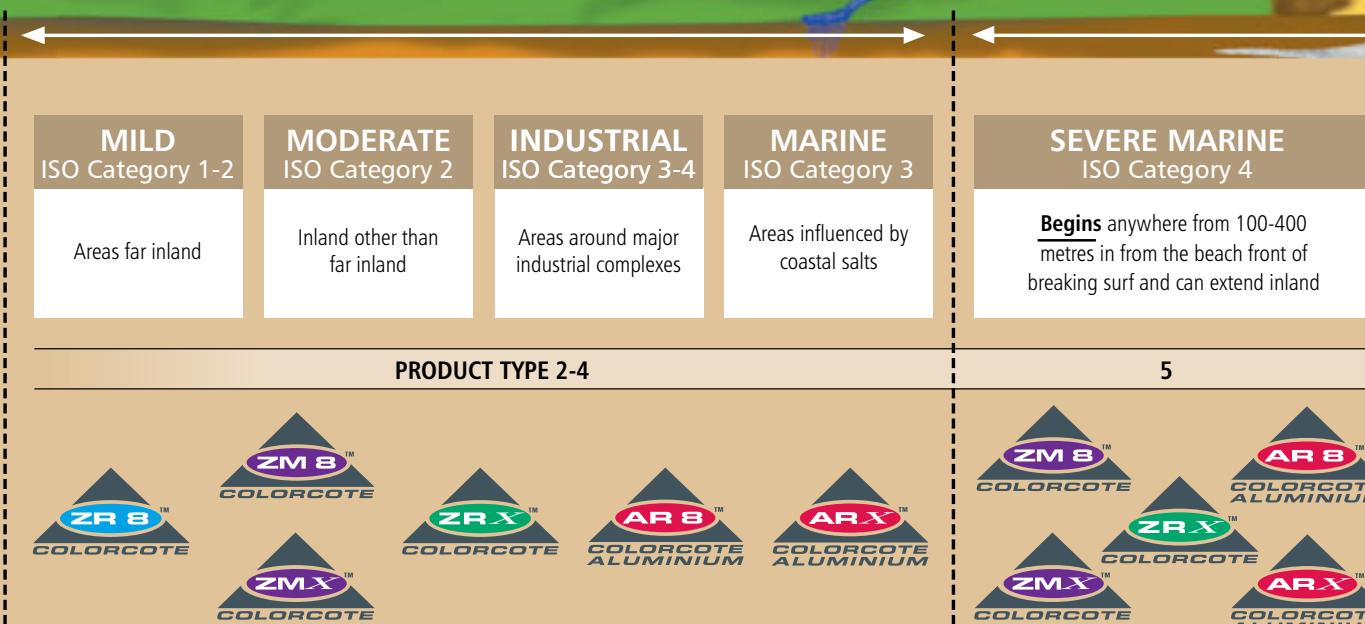


Atmospheric Environments

U S A G E G U I D E

These are general guidelines only.
Building location, design & aspect also need
to be taken into consideration.

If in doubt contact Pacific Coilcoaters for specific advice.



Typical Properties

Mar Resistance:

Good

Scratch Resistance:

Good

Impact Resistance:

AS/NZS2728:2007 Table 2.2 and Appendix E – Greater than 10 Joules.

Pencil Hardness:

AS/NZS1580.405.1 – F minimum

Bend Test:

AS/NZS2728:2007 section 2.6.1 and Appendix F – No loss of adhesion or paint cracking when bent around a diameter equal to five times the thickness of the sheet.

Heat Resistance:

Suitable for continuous service up to 100 degrees C. Continuous service at higher temperatures may cause some colour change and damage to the paint film.



PRE-PAINTED METAL PRODUCTS

SDC - Approved Building Consent Document - BC220881 - Pg 100 of 134 - 30/05/2022 - craigz



Accelerated Corrosion Tests

Tests are conducted on a flat panel.

Pacific Coilcoaters as a New Zealand manufacturer and supplier of pre-painted metal products for roofing and cladding conducts testing in New Zealand environmental conditions. Test sites are at Penrose, Auckland, and Muriwai Beach, northwest of Auckland.



Salt Spray

Meets the requirements of AS/NZS2728:2007 Sections 2.8 and 2.10.

Humidity Resistance

Meets the requirements of AS/NZS2728:2007 Sections 2.8 and 2.9.

QUV Resistance

Meets the requirements of AS/NZS2728:2007 Sections 2.8 and Table 2.4.

Recommended End Uses

ZR8™ has very good colour and gloss retention and is suitable for roofing, cladding, and rainwater goods. ZR8™ is ideal for interior uses, and exterior environments where corrosion levels are moderate. It is also suitable for fencing applications.

For information concerning product use in areas not covered by ColorCote® ZR8™ refer to the ColorCote® ZRX™ and/or ARX™ technical information brochures or contact Pacific Coilcoaters for details.

Roof Pitch

Do not use a pitch less than three degrees (eight degrees for corrugated profile) to avoid ponding and premature degradation of the coating system.

ColorCote® ZR8™ Is Not Suitable For Use In The Following Situations:

- a) **Animal shelters** where excessive ammonia fumes can accumulate due to inadequate venting, or where direct contact with animal effluent can occur.
- b) **Water tanks** or areas where a constantly wet environment is maintained.
- c) **In direct contact with concrete** or where lime deposits are evident.
- d) **In contact with soil.** (Allow a 75mm run off below cladding sheets to ground level).

Handling & Roll-Forming

To avoid damaging the paint surface the material must be handled carefully during transport and roll-forming.

Pacific Coilcoaters does not recommend the use of roll-forming lubricants on ColorCote® products.

The use of roll-forming lubricants will affect performance of pre-painted metal and will lead to staining and uneven premature fading.

Storage Of Coil

On no account should coils be allowed to get wet. Rain or condensation is drawn between the surfaces by capillary action, and then cannot evaporate normally. This can cause deterioration of the coating leading to a reduced life expectancy and poor appearance. The same applies for finished roofing and cladding sheets.

Roll-forming performance may be affected if coils are stored for more than 12 months.

Site Practice

If nestable profiles become wet while closely stacked, formation of wet storage stain or 'white rust' is inevitable.

To minimise the possibility of inadvertent damage:

- a) **Inspect deliveries on arrival.** If moisture is present, individual sheets should be dried immediately with a clean rag and then stacked to allow air to circulate and complete the drying process.
- b) **Well ventilated storage is essential.** Always store metal products under cover in clean, well ventilated buildings.
- c) **Cross stack or fillet sheets** where outside storage is unavoidable and make provision for a fall to allow water to run off. Cover the sheets.

It is the responsibility of the roofing contractor to avoid damaging the roof sheeting during its installation and fixing. Never drag sheets from a pile. Remove by 'turning off' the stack. Lift sheets onto a roof, and do not drag over the eaves or the purlins. Use clean footwear. Remove swarf and other contaminants regularly. Refer to the MRM Code of Practice for further information.

Installation

Refer to the MRM Code of Practice for correct installation guidelines, particularly in regard to underlays/building papers, penetrations, flashings, fasteners, pitch, etc.



Touch Up Paint

ColorCote® is a baked on paint system which has different weathering characteristics to standard air drying paints. Do not use touch-up paint on ColorCote® products. Minor scratches should be left alone.

Clean Up

Installation procedures involving self drilling screws, drills and hacksaws, etc, will leave deposits of swarf and metal particles. These particles including blind rivet shanks, nails and screws should be swept and washed from the roof regularly. Refer to the MRM Code of Practice for further information.

Dissimilar Metals

When dissimilar metals come into contact with each other, the electric potential difference between the metals establishes a corrosion cell, and accelerated corrosion can occur.

To avoid this problem the following precautions should be observed:

- a) **Avoid** discharges of water from brass or copper pipes on to ColorCote® ZR8™.
- b) **Do not use** non-galvanised steel, copper, brass, lead, stainless steel or monel metal in direct contact with ColorCote® ZR8™.
- c) **Do not use** lead flashings in contact with ColorCote® ZR8™ products. Soft edge aluminium or notching of flashings are the best solutions.
- d) **Do not use** tanalised timber in direct contact with ColorCote® ZR8™ products. Use PVC tape or similar barrier to isolate potential problem points of contact between materials.

Fastenings

Match corrosion resistance of the fastenings with the service life of the ColorCote® ZR8™ product.

Class 4 coated screws are recommended and will give the best service life with ColorCote® ZR8™ products. Galvanised nails with pre-painted ZR8™ washers can be used.

Do not use stainless steel or monel fasteners on ColorCote® ZR8™ products.

In all cases ensure the fasteners are installed correctly with the ColorCote® ZR8™ product.

For further details refer to the MRM Code of Practice or consult your fastening supplier.

Sealing & Jointing

Where sealed joints are required, use only neutral cure silicon rubber sealant together with mechanical fasteners such as aluminium rivets.

Do not weld or solder ColorCote® ZR8™ products.

Cut Edge Sealing

Applying Coil-on clear cut edge protection lacquer will enhance the cut edge performance of ColorCote® ZR8™.

Unwashed Areas

These are typically those areas that are not washed by natural rainfall, such as the underside of eaves, sheltered roofs or wall cladding, etc. These areas are excluded from warranty. Pacific Coilcoaters recommends the exclusion of unwashed areas by design wherever possible.

In cases where this is not possible, then a regular washing programme should be put in place. Airborne contaminants should be removed by mechanical washing with water and a soft bristle brush at least every six months, or more frequently if contaminant build-up keeps occurring.





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www.colorcote.co.nz

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Pacific Coilcoaters is a trading division of Fletcher Steel Limited a Fletcher Building Limited Business.

June 2011



ARDEX WPM 001

(Superflex Bathroom and Balcony Premixed)

Single component undertile waterproofing membrane

Low VOC content – meets Green Building Council
of Australia Green Star IEQ-13 requirements

Fast drying one part acrylic membrane

Class III membrane, conforms to the requirements
of AS4858:2004 Wet Area Membranes

ARDEX WPM 001

(Superflex Bathroom and Balcony Premixed)

Single Component Undertile Waterproofing Membrane

PRODUCT DESCRIPTION

ARDEX WPM 001 (Superflex Premixed) is a tough, ready to use waterproofing membrane specifically designed for use under tiles. ARDEX WPM 001 has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. ARDEX WPM 001 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification once cured.

ARDEX WPM 001 is flexible, safe to use, low in odour, and is fully compatible with polymer modified tile adhesives. ARDEX WPM 001 is one of the fastest drying one part acrylic membranes on the market – normally ready to tile in 48 hours @ 23°C.

WPM 001 meets the Green Building Council of Australia Green Star IEQ-13 requirements for Architectural Sealant when tested in accordance with SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168.

FEATURES/BENEFITS

- Fast drying ARDEX WPM 001 can be tiled over in 48 hours in non critical areas*.
- Fibre reinforced: Excellent strength, eliminates need for reinforcing mat.
- Flexible: Accommodates normal building movement class 3 membrane as per AS 4858: 2004 Wet Area Membranes.
- Advanced acrylic: Will not re-emulsify once cured.
- Designed for tiling – Fully compatible with ARDEX tile adhesive systems.
- Water based, safe to use, low odour and easy cleaning.
- Conforms to the requirements of Australian Standards 4858: 2004 Wet Area Membranes.

*Critical areas include areas where the membrane is applied at greater than 0.5mm or over impermeable substances such as over bond breakers or incorporating other reinforcement. Longer drying times are necessary in these areas.

APPLICATION RANGE

Performance levels

Commercial and residential.

Location

Internal wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

Surfaces

Walls and floors.

Substrates

Concrete	Cured for min. 28 days or sealed when set with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. External wet concrete should be allowed to dry thoroughly or sealed with one coat of ARDEX HydrEpoxy WPM 300 as above.
Renders and screeds	Cured for min. 7 days or sealed when set with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of ARDEX HydrEpoxy WPM 300 as above.
Fibre cement	Wet area grade fibre cement.
Plasterboard	Wet area grade only.
Plywood	Structural plywood (PAA branded), marine grade or other wet area grade only. Special preparation is required – contact ARDEX. Not recommended for external use (refer ARDEX).
Particleboard	Wet area grade, internal use only (special preparation is required – contact ARDEX). Not recommended for external use (refer ARDEX).
Permanent Immersion	In conditions of permanent immersion, it is recommended that ARDEX WPM 002 (Superflex Two Part) is used. Must be covered with tiles for full immersion.
	Contact ARDEX for use over existing membranes, covering materials, and any other substrates not listed.

SPECIFICATION CLAUSE

ARDEX WPM 001 (Superflex Premixed)

The waterproofing membrane shall be ARDEX WPM 001: a one part acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

PACKAGING

Single component: 20kg (approx 15 litres) or 6.5kg (approx 5 litres).

SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Use remaining contents from part used containers within 3 months.

TABLE 1

	Thickness per coat		Total dry film thickness (2 coats)	Theoretical coverage		Per unit
	Dry film	Wet film		Per coat	For 2 coats	
FLOORS	0.5mm	1.0mm	1.0mm	15m ²	7.5m ²	20kg(15L) unit
WALLS	0.25mm	0.5mm	0.5mm	30m ²	15m ²	20kg(15L) unit

COVERAGE

Two coats are recommended for an effective waterproof membrane.

Coverage will vary depending on the porosity of the surface.

One 20kg (15 litre) unit will cover approximately 7.5–15m² (based on two coats) depending on area requirements between wall and floor surfaces to be treated. Refer Table 1.

DRYING TIMES

Recoat time

1–2 hours at (23°C / 50% RH) between first and second coats. Alternatively, if a woven cloth reinforcement mat is used between coats then the second coat can be applied whilst the first coat is still wet.

Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry. ARDEX WPM 001 is totally dry in 48 hours at 23°C / 50% RH, but can take up to 72 hours at 10°C / 50% RH in corners or for thick films.

Fully cured

The shower should not be used until the membrane has reached its full strength. ARDEX WPM 001 membrane is fully cured after 3 days at 23°C, or after 5 days at 10°C.

Drying times will vary depending on humidity, surface temperature and surface porosity.

Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

SAFETY PRECAUTIONS

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with ARDEX HydrEpoxy WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of ARDEX HydrEpoxy WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).
- Where the surface temperature is below 10°C or greater than 35°C.
- All floor areas must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to application of the ARDEX WPM 001.

For substrates or situations other than those listed contact ARDEX.

SAFETY DATA

ARDEX WPM 001 is non-hazardous and non dangerous. In case of skin contact, flush with running water. In case of irritation seek medical advice. If swallowed, immediately give a glass of water.

Additional information is listed in the Material Safety Data Sheet.

QUALITY PRODUCT

ARDEX WPM 001 is manufactured and tested to ARDEX procedures which are maintained in accordance with Quality System Standard ISO 9001.

ARDEX WPM 001

(Superflex Bathroom and Balcony Premixed)

Single Component Undertile Waterproofing Membrane

USER NOTES

The technical details and recommendations contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is the responsibility of the user to ensure that the product is used in accordance with ARDEX instructions and in applications for which they are intended.

APPLICATION

Apply ARDEX WPM 001 by brush or roller. A medium nap (12–15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time.

For best results with a paint brush use a good quality, 50mm long bristle variety.

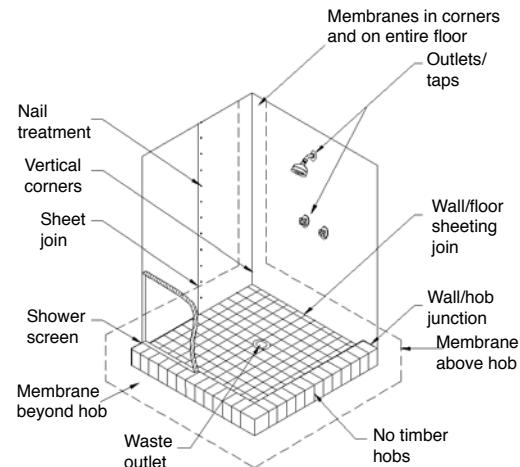
To achieve the required dry film thickness per coat, application must consist of laying the product onto the surface and lightly finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25–40 micrometers wet film thickness while ARDEX WPM 001 needs to be applied at between 0.5 and 1.0mm per coat depending on product and application (Refer Table 1).

Critical areas:

INTERNAL WET AREAS

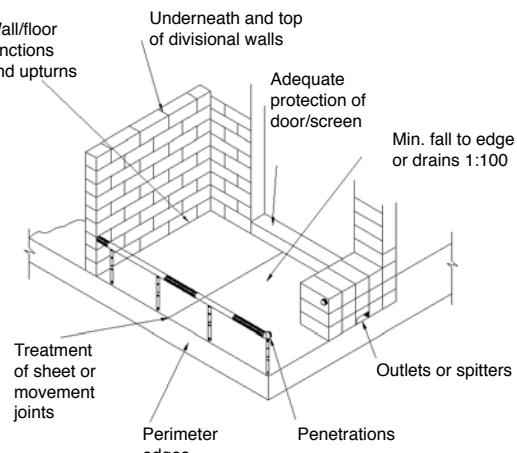
1. Construction should be in accordance with Australian Standards 3740 – 2004 Waterproofing of wet areas within residential buildings.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall and floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber), and that the top of the hob does not slope outwards.

Fig.1 – Shower recess – Critical areas



5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2mtr) before waterproofing. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cure silicone sealant spread approximately 6mm on either side of the joint.
7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls.
11. Waste outlets shall incorporate a puddle flange or similar in accordance with AS 3740 and the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the screed/floor.
12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 100mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Plastic (eg. PVC) fittings should be primed with a solvent based plumbers primer. Prime metal surfaces with a suitable metal primer.
14. Apply the membrane 1800mm up the walls or 80mm above the height of the shower rose within the shower recess.
15. Install the shower screen to inside edge of the hob.

Fig.2 – Balcony – Critical areas



BALCONIES AND DECKS

1. Ensure that the deck is constructed with falls to edge/drains of min 1:100 (ie. 20mm in 2m) or else achieve the fall with a sand/cement screed.
2. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/sliding door.
3. Treat any sheet joints with a neutral cure silicone prior to waterproofing.
4. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.
5. Apply the membrane as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
6. Where possible, apply the membrane prior to building divisional walls.
7. Apply the membrane to the entire balcony floor and at least 100mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
8. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
9. Apply the membrane down over the front edge of the balcony onto the drip rail.
10. Carefully seal any gaps around balcony penetrations with a neutral cure silicone prior to applying the membrane.
11. Apply the membrane down into outlets and drains, ensuring excess material is removed.
12. Ensure all weep holes are above the membrane application area.

APPLICATION NOTES

Surface preparation

- Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.
- Falls to outlets of at least 1:60 or approx. 30mm in 2 metre (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired (leveled) and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.

- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

Priming

The primer is a critical part of the waterproofing system. Apply one coat of ARDEX WPM 265 water based primer by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to completely dry prior to the application of the ARDEX WPM 001 membrane. This will take around 20–30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m² per litre. Plastic (eg. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

GENERAL APPLICATION

Crack preparation

Cracks <2mm:

Clean and remove any loose particles in the crack. Prime the crack and adjacent area carefully with ARDEX WPM 265 water based primer and allow to dry before applying two coats of ARDEX WPM 001 membrane in a band at least 200mm wide equidistantly across the crack and along the length of the crack.

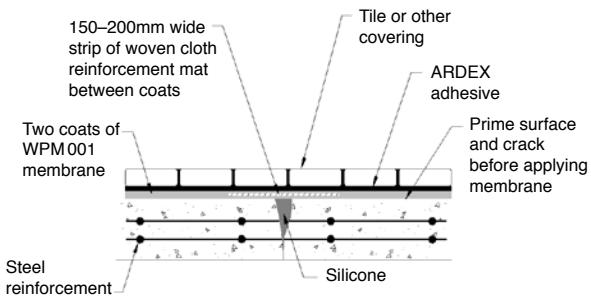
Cracks 2–6mm:

(Refer Fig.3) Prepare and prime the crack as above. Apply a bead of neutral cure silicone into the crack and extend it 6mm either side. Apply a 300mm wide band of ARDEX WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth preferably using a fluted roller, and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Cracks >6mm:

Contact your local ARDEX representative.

Fig.3 – Crack treatments



ARDEX WPM 001

(Superflex Bathroom and Balcony Premixed)

Single Component Undertile Waterproofing Membrane

MOVEMENT/CONSTRUCTION JOINTS

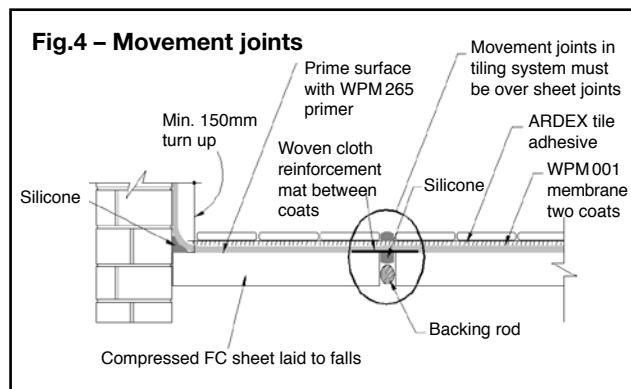
Movement joints (<6mm)

Use same procedure as in crack preparation.

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply a 300mm wide band of ARDEX WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of ARDEX Deckweb woven cloth reinforcement over the applied membrane. Thoroughly wet out the mat and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

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



Corners and coving areas

After priming with ARDEX WPM 265 water based primer and allowing it to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates in coving areas and corners. Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry.

Apply a first coat of ARDEX WPM 001 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be minimum of 1.0mm). Alternatively, if a reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with ARDEX WPM 265 water based primer and allowing to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry. Place a 190mm wide band of ARDEX Deckweb woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The ARDEX WPM 001 should be applied to at least 150mm up the wall surfaces as per the recommendations for the application of ARDEX WPM 001 to floors.

Walls

Two coats of ARDEX WPM 001 are required to achieve a minimum total dry film thickness of 0.5mm.

After priming with ARDEX WPM 265 water based primer and allowing to dry, apply two coats of ARDEX WPM 001 (to achieve a minimum dry film thickness of 0.5mm) in two opposite directions. Wall sheet joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

Two coats of ARDEX WPM 001 are required to achieve a minimum total dry film thickness of 1.0mm. The flooring recommendations should be extended at least 150 mm up all perimeter walls.

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

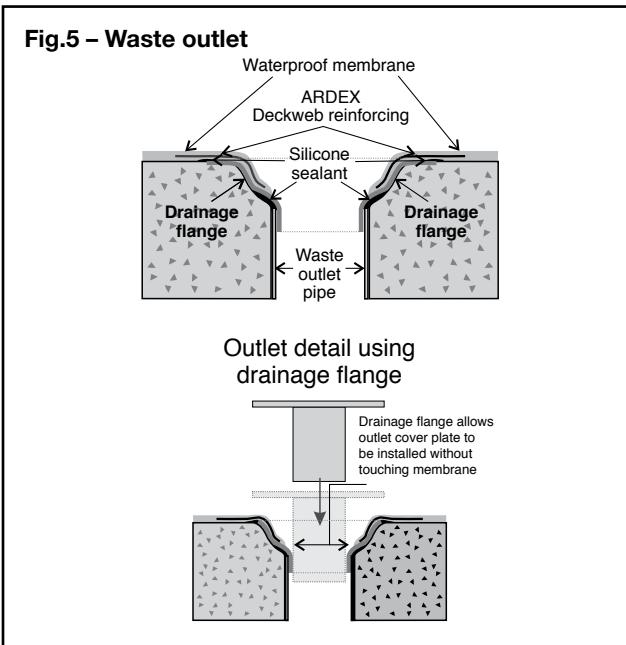
Apply the first coat over the primed surface and allow it to dry (1–2 hours at 23°C, 50%RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible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

Waste outlet

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

Plastic (eg. PVC) fittings should be primed with a solvent based plumbers primer. Prime metal surfaces with a suitable metal primer.

Apply ARDEX WPM 001 over the adjacent floor surface extending down into the waste outlet flange overlapping the edge of flange by at least 30 mm. Place ARDEX Deckweb woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig.5)



Balcony penetrations (Refer Fig.6)

All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 12mm bead of neutral cure silicone around the perimeter of the penetration. Apply the first coat of ARDEX WPM 001 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.0mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

Tiling systems

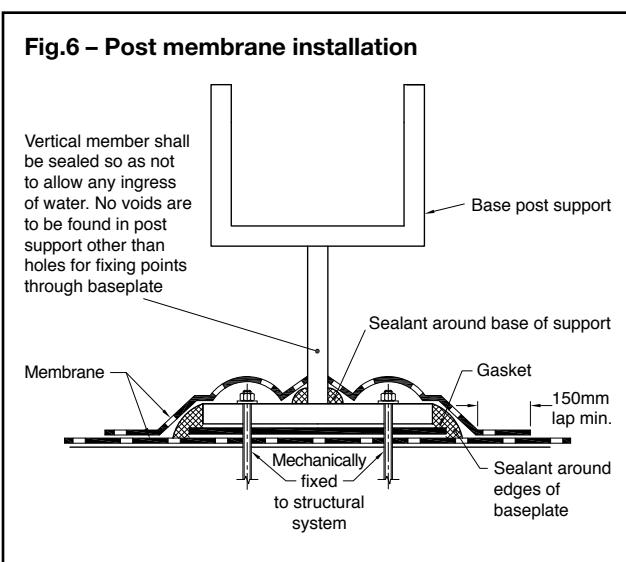
It is advisable to conduct a flood test of the waterproofed area once the membrane has cured (normally after 72 hours), and before the tiling commences. A broad range of ARDEX tile adhesives can be used over ARDEX membranes. Contact ARDEX or your nearest ARDEX stockist for advice on the most suitable system.

TECHNICAL DATA

ARDEX WPM 001 (Superflex Premixed) Characteristics of liquid

Form and colour	Blue viscous paste
Type	Single part
Specific gravity	Approx. 1.3kg/litre
pH of liquid	8.5
Tensile strength 7 days dry AS1145	1.04 MPa
Full cure	1.92 MPa
Elongation at break 7 days dry AS1145	780%
Conforms to requirements of class 3 membrane of AS/NZ 4858: 2004 Wet Area Membranes.	
VOC content	18g/L

NOTE: Most of the tests have been carried out in the ARDEX laboratory under standard conditions ($23\pm2^\circ\text{C}$, $50\pm5\%$ R.H.).



DISCLAIMER

The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable Australian Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program.

Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may effect specific installation recommendations.

The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

ARDEX Australia Pty Ltd

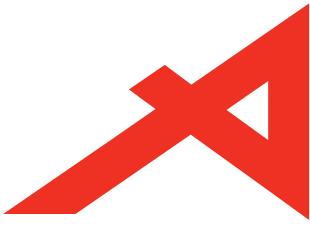
Technical Services Toll Free: 1800 224 070

New South Wales	Ph (02) 9851 9100	Fax (02) 9838 7970
Queensland	Ph (07) 3817 6000	Fax (07) 3881 3188
Victoria/Tasmania	Ph (03) 8339 3100	Fax (03) 9308 9332
South Australia	Ph (08) 8406 2500	Fax (08) 8345 3207
Western Australia	Ph (08) 9256 8600	Fax (08) 9455 1227

ARDEX New Zealand Ltd

Technical Services Toll Free: 0800 227 339

Auckland	Ph (09) 580 0005	Fax (09) 579 9963
Wellington	Ph (04) 568 5949	Fax (04) 568 6376
Christchurch	Ph (03) 373 6900	Fax (03) 384 9779



BRANZ Appraised

Appraisal No. 472 [2017]

BRANZ

ARDEX UNDERTILE INTERNAL LIQUID WATERPROOFING MEMBRANES

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Product

- 1.1 ARDEX Undertile Liquid Membranes are premixed and two-part liquid-applied waterproofing membranes for use under ceramic or stone tile finishes in internal wet areas.

Scope

- 2.1 ARDEX Undertile Liquid Membranes have been appraised for use as waterproofing membranes for the internal wet areas of buildings, within the following scope:
 - on floor substrates of concrete, flooring grade particleboard, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
 - when protected from physical damage by ceramic or stone tile finishes; and,
 - where floors are designed and constructed such that deflections do not exceed 1/360th of the span.
- 2.2 The use of ARDEX Undertile Liquid Membranes on concrete slabs where hydrostatic or vapour pressure is present from below is outside the scope of this Appraisal.
- 2.3 Movement and control joints in the substrate must be carried through the membrane and tile finish. The design and construction of the substrate and movement and control joints is specific to each building, and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The ceramic or stone tile finishes are outside the scope of this Appraisal.
- 2.5 The membranes must be installed by trained installers, approved by ARDEX New Zealand Limited.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, ARDEX Undertile Liquid Membranes, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:
 - Clause B2 DURABILITY:** Performance B2.3.1 [b] 15 years and B2.3.2. ARDEX Undertile Liquid Membranes meet these requirements. See Paragraph 9.1.
 - Clause E3 INTERNAL MOISTURE:** Performance E3.3.6. Internal wet area floors and walls incorporating ARDEX Undertile Liquid Membranes meet this requirement. See Paragraphs 11.1-11.6.
 - Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. ARDEX Undertile Liquid Membranes meet this requirement and will not present a health hazard to people.





BRANZ Appraised
Appraisal No. 472 [2017]

BRANZ Appraisal
Appraisal No. 472 [2017]
17 January 2018

ARDEX UNDERTILE INTERNAL
LIQUID WATERPROOFING
MEMBRANES

Technical Specification

- 4.1 Materials supplied by ARDEX New Zealand Limited are as follows:
- ARDEX WPM 001 is a one part, polymer-based, ready-to-use, liquid-applied membrane containing micro-fibres. It is supplied as a light blue thixotropic paste 20 kg (approximately 15 litres) pails.
 - ARDEX WPM 002 is a fast drying, two part, flexible, cementitious-based, liquid applied membrane containing micro-fibres. It is supplied as ARDEX WPM 002 Part A Liquid in 20 kg pails and ARDEX WPM 002 Part B Powder in 10 kg multi-wall bags. When dry, the membrane is light grey in colour.
 - ARDEX WPM 155 Rapid is a one part, water-based polyurethane-acrylic, ready-to-use, liquid applied, rapid setting membrane. It is supplied as blue/grey colour in 4 and 15 litre pails.
 - ARDEX STB Tape is an uncured butyl tape with a fleece layer that is used in the ARDEX WPM 155 Rapid under tile waterproofing system.
 - ARDEX Multiprime is a water-based primer used to seal substrates and enhance the adhesion of the membranes. It is supplied as a red coloured liquid in 1, 4 and 20 litre plastic containers.

Handling and Storage

- 5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and freezing conditions. The membrane products have a shelf life of 12 months from date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the ARDEX Undertile Liquid Membranes. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 ARDEX Undertile Liquid Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.
- 7.2 ARDEX WPM 002 and ARDEX WPM 155 Rapid are designed to be used where a quicker curing time is required, such as in cool or humid conditions.
- 7.3 The membrane must be protected from physical damage by the application of ceramic or stone tile finishes.
- 7.4 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ Good Practice Guide - Tiling.
- 7.5 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.



BRANZ Appraised
Appraisal No. 472 [2017]

BRANZ Appraisal
Appraisal No. 472 [2017]
17 January 2018

ARDEX UNDERTILE INTERNAL
LIQUID WATERPROOFING
MEMBRANES

Substrates

Plywood

- 8.1 Plywood must be a minimum of 17 mm thick complying with AS/NZS 2269, CD Grade Structural with the sanded C face upwards and treated to H3 (CCA treated). LOSP treated plywood must not be used.
- 8.2 The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction, fixed with 10 g x 50 mm stainless steel countersunk head screws at 150 mm centres along the sheet edges and 200 mm centres through the body of the sheets.

Fibre Cement Compressed Sheet/ Fibre Cement Sheet Tile Underlay

- 8.3 Fibre cement compressed sheet and tile underlay must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area membrane substrate. Installation must be carried out in accordance with the instructions of the manufacturer.

Particleboard

- 8.4 Particleboard must be specified for the end use in accordance with Nzs 3602.

Concrete and Concrete Masonry

- 8.5 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to Nzs 3101, concrete slab-on-ground to Nzs 3604 or Nzs 4229, and concrete masonry to Nzs 4229 and Nzs 4230.

Wet Area Wall Linings

- 8.6 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.
- 8.7 Fibre cement sheet must be suitable for use in wet areas and comply with AS/NZS 2908.2.
- 8.8 Installation of plasterboard or fibre cement wall linings must be carried out in accordance with the instructions of the manufacturer.

Durability

Serviceable Life

- 9.1 ARDEX Undertile Liquid Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design serviceable life of 15-25 years.

Maintenance

- 10.1 No maintenance of the membrane will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grout and sealant.
- 10.2 In the event of damage to the membrane, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.
- 10.3 Drainage outlets must be maintained to operate effectively, and tile finishes must be kept clean.



BRANZ Appraised
Appraisal No. 472 [2017]

BRANZ Appraisal
Appraisal No. 472 [2017]
17 January 2018

ARDEX UNDERTILE INTERNAL
LIQUID WATERPROOFING
MEMBRANES

Internal Moisture

- 11.1 ARDEX Undertile Liquid Membranes are impervious to water, and when appropriately designed and installed will prevent water from penetrating behind linings or entering concealed spaces.
- 11.2 Surfaces must be finished with ceramic or stone tiles. A means of compliance with NZBC Clause E3.3.3 and E3.3.4 is given in NZBC Acceptable Solution E3/AS1 Paragraph 3.1.1 [b], 3.1.2 [b] and 3.3.1 [b].
- 11.3 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1500 mm out from the shower rose. Floor wastes and drainage flanges must be provided and the floor must fall to the outlet.
- 11.4 ARDEX Undertile Liquid Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of compliance for overflow is given in NZBC Acceptable Solution E3/AS1, Section 2.
- 11.5 The waterproofing membranes must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, BRANZ Good Practice Guide - Tiling, and the flooring and wall lining manufacturers.
- 11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must overlap the membrane a minimum of 30 mm.

Installation Information

Installation Skill Level Requirement

- 12.1 Installation of the membranes must be completed by trained installers, approved by ARDEX New Zealand Limited.
- 12.2 Installation of substrates must be completed by, or under the supervision of, licensed Building Practitioners with the relevant Licence Class, in accordance with instructions given within the ARDEX New Zealand Limited Technical Literature and this Appraisal.

Preparation of Substrates

- 13.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.
- 13.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 585.
- 13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have reinforcements installed as set out in the Technical Literature.
- 13.4 Substrates must be primed with ARDEX Primer and allowed to dry fully before the membrane is installed.



BRANZ Appraised
Appraisal No. 472 [2017]

BRANZ Appraisal
Appraisal No. 472 [2017]
17 January 2018

ARDEX UNDERTILE INTERNAL
LIQUID WATERPROOFING
MEMBRANES

Membrane Installation

- 14.1 Installation must not be undertaken where the substrate surface temperature is below 10°C or above 35°C.
- 14.2 ARDEX WPM 002 liquid and dry components must be mixed and left to stand for 5 minutes before re-mixing, then applying. ARDEX WPM 001 and ARDEX WPM 155 Rapid must be thoroughly stirred before application.
- 14.3 The membranes must be applied in a minimum of two coats at the rates set out in the Technical Literature to give a total finished thickness of 1.0 - 1.5 mm. Subsequent coats must be applied at an opposite direction to the previous coat.
- 14.4 Application can be made by roller [medium/long nap], brush [long bristle], or a flat steel trowel.
- 14.5 Reinforcement fabric is bedded into the wet layer between coats to provide movement protection at wall/wall and wall/floor junctions, and at any other areas such as joints in the flooring substrate, floor cracks or around penetrations in the membrane. ARDEX STB Tape must be used with ARDEX WPM 155 to take advantage of the rapid/fast drying features.
- 14.6 Clean up may be undertaken with water.

Tiling

- 15.1 The membrane must be fully cured before tiling. The cured membrane must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.
- 15.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide - Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or ARDEX New Zealand Limited.

Inspections

- 16.1 Critical areas of inspection are:
 - Construction of substrates, including crack control and installation of bond breakers and movement control joints.
 - Moisture content of the substrate prior to the application of the membrane.
 - Acceptance of the substrate by the membrane installer prior to application of the membrane.
 - Installation of the membrane to the supplier's instructions, particularly installation to the correct thickness and use of reinforcement.
 - Membrane curing and integrity prior to the installation of tiles including protection from mechanical damage during curing and prior to tile installation.

Health and Safety

- 17.1 Safe use and handling procedures for the membrane are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.



Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 18.1 The following testing of ARDEX WPM 001 and ARDEX WPM 002 has been undertaken by ARDEX Australia Pty Ltd research and development laboratory: water vapour transmission; water absorption; tensile strength and elongation before and after UV exposure, immersion in bleach, immersion in industrial detergent and immersion in water. Test methods and results were reviewed by BRANZ and found to be satisfactory.
- 18.2 The following testing of ARDEX WPM 001 was undertaken by the Commonwealth Scientific Industrial Research Organisation [CSIRO] Australia:
 - In accordance with ANSI A118.10 for ICBO Evaluation Service - dimensional stability; waterproofness; shear strength to ceramic tile and cement mortar; and fungal and micro-organism resistance.
 - In accordance with AS 1145 - behaviour under cyclic strain.
- 18.3 Testing of ARDEX WPM 001 and ARDEX WPM 002 has been undertaken by BRANZ for low temperature flexibility and peel adhesion after heat/humidity aging.
- 18.4 The following testing of ARDEX WPM 155 Rapid was undertaken by various organisations:
 - Durability testing to AS/NZS 4858 Appendix A including effect of heat aging, bleach, detergent and water on tensile strength and elongation.
 - Cyclic movement resistance requirements of AS/NZS 4858:2004 Appendix B.
 - Water Vapour Transmission using both wet and dry cup methods from ASTM E96.
 - Water transmission behaviour following the procedures of AS/NZS 4858 Appendix C.
- 18.5 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 19.1 An assessment was made of the durability of the ARDEX Undertile Liquid Membranes by BRANZ technical experts.
- 19.2 Site inspections have been carried out by BRANZ to examine the practicability of installation.
- 19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of the membrane has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 20.2 The quality management system of membrane's manufacturer has been assessed and found to be satisfactory.
- 20.3 The quality of supply of the membrane system materials to the market is the responsibility of ARDEX New Zealand Ltd.
- 20.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and substrate.
- 20.5 Quality on site is the responsibility of the trained installers, approved by ARDEX New Zealand Ltd.
- 20.6 Building owners are responsible for the maintenance of the ceramic or stone tiles in accordance with the instructions of ARDEX New Zealand Ltd.



BRANZ Appraised
Appraisal No. 472 [2017]

BRANZ Appraisal
Appraisal No. 472 [2017]
17 January 2018

ARDEX UNDERTILE INTERNAL
LIQUID WATERPROOFING
MEMBRANES

Sources of Information

- AS 3740 – 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 2007 Ceramic Tiles - Guide to the installation of ceramic tiles.
- AS/NZS 1170: 2002 Structural design actions
- AS/NZS 2908.2: 2000 Cellulose-cement products - flat sheet.
- AS/NZS 4858 - 2004 Wet area membranes.
- AS/NZS 2269: 2012 Plywood - Structural.
- Good Practice Guide - Tiling, BRANZ, April 2015.
- NZS 3101: 2006 Concrete Structures Standard.
- NZS 3602: 2003 Timber and wood-based products for use in buildings.
- NZS 3604: 2011 Timber framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 2004 Code of practice for the design of masonry structures.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



BRANZ Appraised
Appraisal No. 472 [2017]

BRANZ Appraisal
Appraisal No. 472 [2017]
17 January 2018

ARDEX UNDERTILE INTERNAL
LIQUID WATERPROOFING
MEMBRANES



craigz

BRANZ

craigz

In the opinion of BRANZ, **ARDEX Undertile Internal Liquid Waterproofing Membranes** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **ARDEX New Zealand Limited**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. ARDEX New Zealand Limited:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by ARDEX New Zealand Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to ARDEX New Zealand Limited or any third party.

For BRANZ

Chelydra Percy

Chief Executive

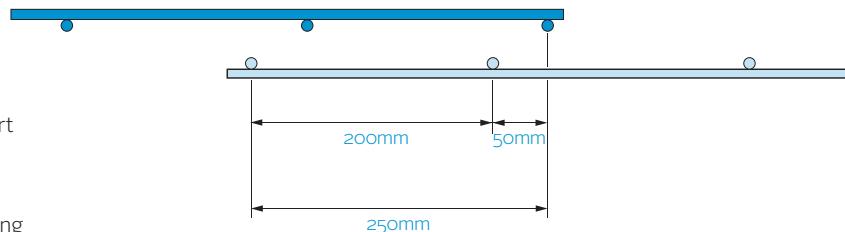
Date of Issue:

17 January 2018

DUCTILE PLUS RESIDENTIAL MESH

Designed to meet the Department of Building & Housing (DBH) new B1 Compliance standard, with equivalent mass to 2.27kg/m². Weld strength improved by 22% (for 6.1mm) and 100% (for 7.5mm) compared to the 5.3mm wire used for 665 mesh.

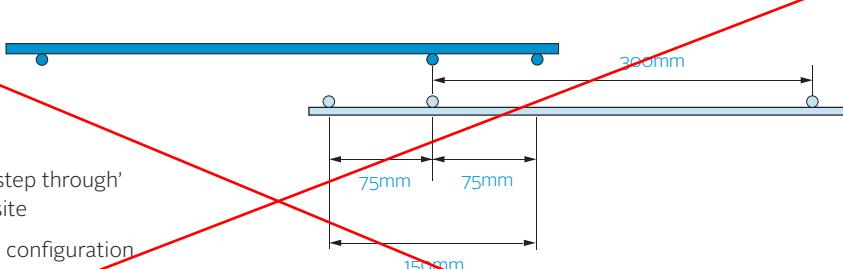
Ductile Plus 62 & 62L Mesh



- SE62 Plus — Easy to transport size 5.03 x 2.02
- SE62L— Larger 6.05 x 2.42 mesh size to maximise handling and lapping

*Diagram not to scale

Ductile Plus 73DE, 73LDE Mesh



- 300mm Bar spacing for easy 'step through' while placing and working on site
- Easy lapping with double edge configuration

Ductile Plus 73LDE only:

- Large 14.49m² nett cover for less wastage in lapping = cheaper per square metre

*Diagram not to scale

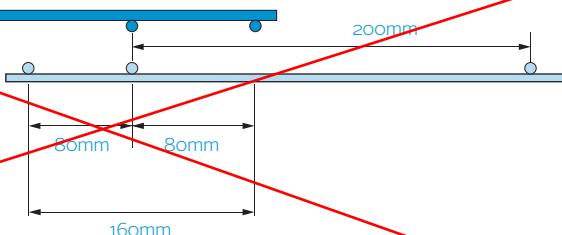
MESH PROPERTIES

- All construction meshes have double edge bars to optimise the net cover of the sheets
- The required lap as per AS/NZS 3101:2006 Clause 8.6.2 (square + 50mm: with 150mm lap as min)
- Sheets individually tagged
- Test certificates available
- Independently tested to verify compliance to AS/NZS 4671:2001 Ductility 500E standards
- Grade 500E (seismic) as per AS/NZS4671
- Tensile Ratio (R_m/R_e) 1.15 to 1.40
- Uniform elongation (A_{gt}): min 10%

DUCTILE PLUS CONSTRUCTION MESH

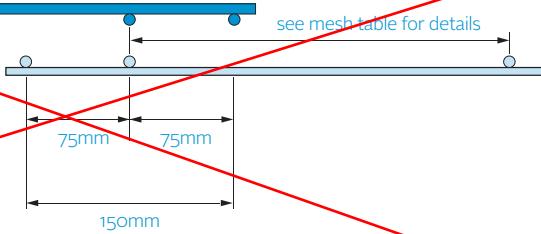
Our range of construction meshes are based on the specifications of the list in AS/NZs 4671:2001 with some additional meshes to fill some gaps.

Ductile Plus 92DE Mesh



*Diagram not to scale

Ductile Plus 72DE & 82DE & 93DE Mesh



*Diagram not to scale

MESH TABLE

Choice of wire and sheet sizes in the Ductile Plus range

	Main Wire Diameter	Edge Wire Diameter	Bar Spacing	Edge Wire Spacing	Length	Width	Nett Coverage	KN per metre width	Mass per m ²	Sheet weight
RESIDENTIAL	SE62	6.1mm	-	200mm	-	5.05m	2.02m	8.31m ²	73.1	2.30kg/m ²
	SE62L	6.1mm	-	200mm	-	6.05m	2.42m	12.363m ²	73.1	2.30kg/m ²
	SE73DE	7.5mm	5.5mm	300mm	75	5.00m	2.27m	10.08m ²	73.6	2.31kg/m ²
	SE73LDE	7.5mm	5.5mm	300mm	75	7.10m	2.27m	14.49m ²	73.6	2.31kg/m ²
CONSTRUCTION	SE72DE Plus	7.0mm	5.5mm	200mm	75	6.40m	2.37m	13.64m ²	96.2	3.02kg/m ²
	SE82DE Plus	8.0mm	5.5mm	200mm	75	6.40m	2.37m	13.64m ²	125.7	3.95kg/m ²
	SE92DE Plus	9.0mm	6.1mm	200mm	80	6.41m	2.38m	13.64m ²	159.0	4.99kg/m ²
	SE93DE Plus	9.0mm	6.1mm	300mm	75	6.80m	2.27m	13.86m ²	106.0	3.33kg/m ²
										54.95kg



LUMBERLOK®

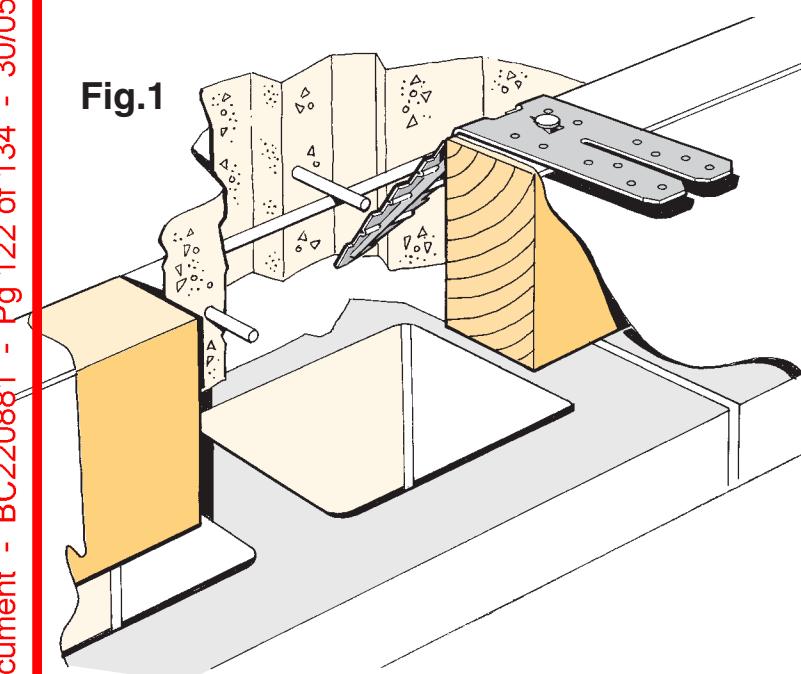
07/2011

BOTTOM PLATE FIXING ANCHOR

- ★ Eliminates the drilling of bottom plates
- ★ Makes the fixing of timber framework easier and quicker
- ★ Saves hand trowelling around cast-in anchor bolts or rods
- ★ Use at 900mm centres max.
- ★ Complies with Clause 7.5.12.2 NZS 3604:2011

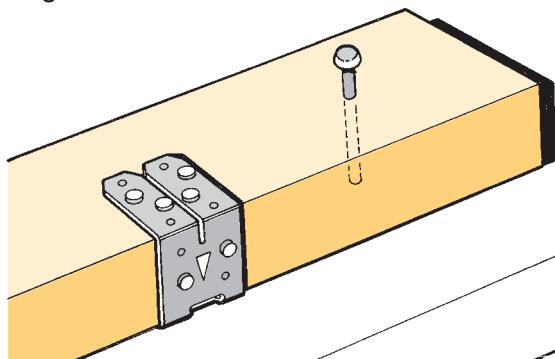
SDC - Approved Building Consent Document - BC220881 - Pg 122 of 134 - 30/05/2022 - craigz

Fig.1



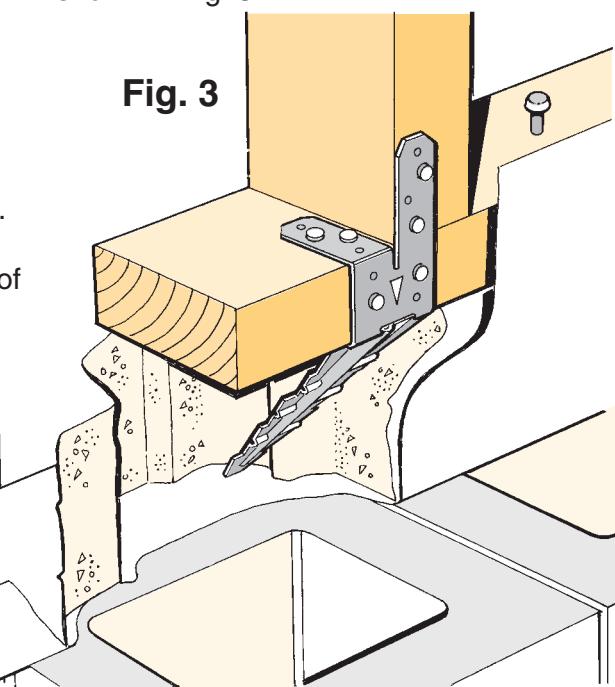
4. A 75mm x 4 dia. concrete nail must be fixed adjacent to each Fixing Anchor, through the bottom plate into the concrete, at no less than 70mm from the concrete edge. When used as a Bracing Wall hold-down, a Fixing Anchor must be positioned within 150mm from the end of that wall. Bracing wall must not exceed 70 BU/m.

Fig. 2

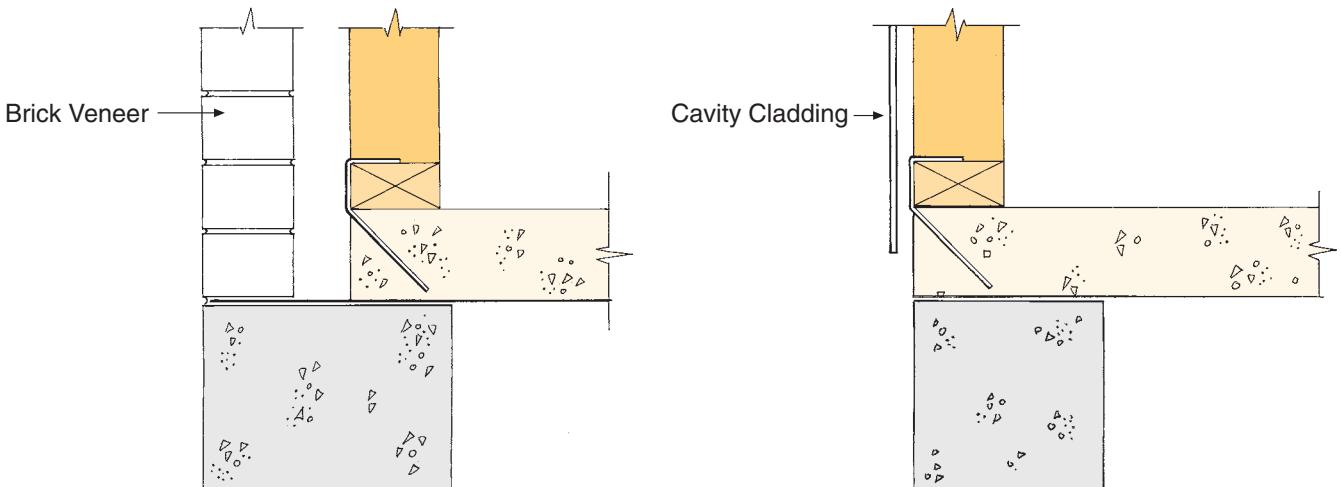
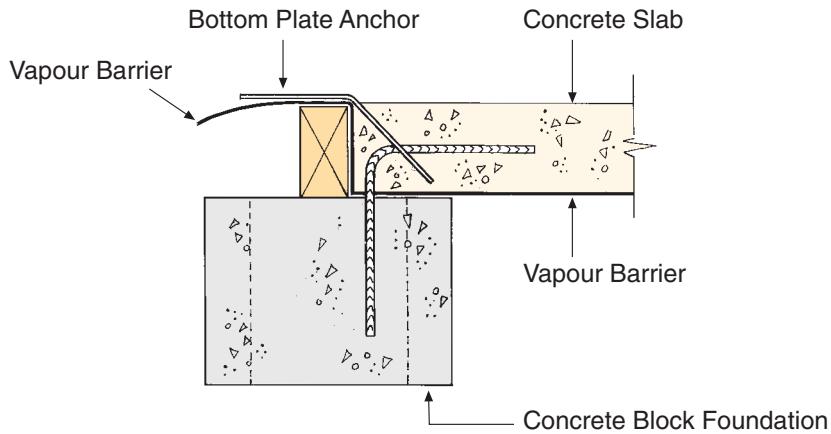


1. Bottom Plate Fixing Anchors shall be fixed at 900mm centres max. to the boxing for concrete floor slabs, over a continuous vapour barrier. Each Fixing Anchor is nailed prior to concrete pour, and shall be left undisturbed until concrete has hardened ready for timber frames to be installed. (Fig. 1).
2. When timber framing is in place, the Fixing Anchors are folded up and over the bottom plate. (Fig. 2).
3. Two LUMBERLOK Product Nails 30mm x 3.15 dia. shall then be driven into the side of the bottom plate and two additional nails applied through each of the lugs. Should a stud coincide with the position of a Fixing Anchor, nail as shown in Fig. 3.

Fig. 3



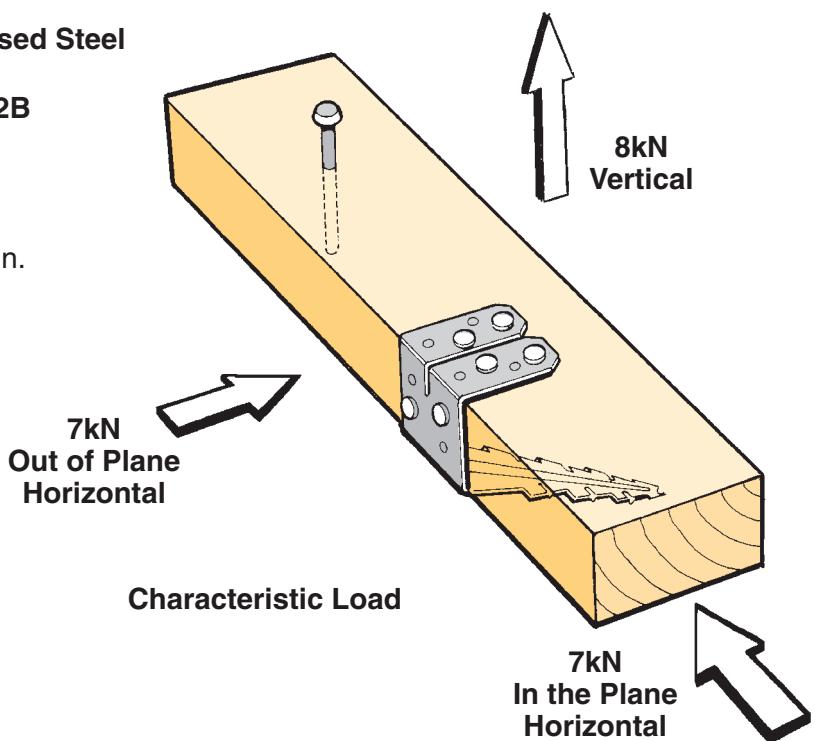
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throughout New Zealand


BRICK VENEER
CAVITY CLADDING

Code: BPA
 Material: 0.95mm G300 Z450 Galvanised Steel
 Code: SSBPA
 Material: 0.9mm Stainless Steel 304-2B
 Packaged: 50 per carton

Design Loads

Concrete compressive strength 20 MPa min.

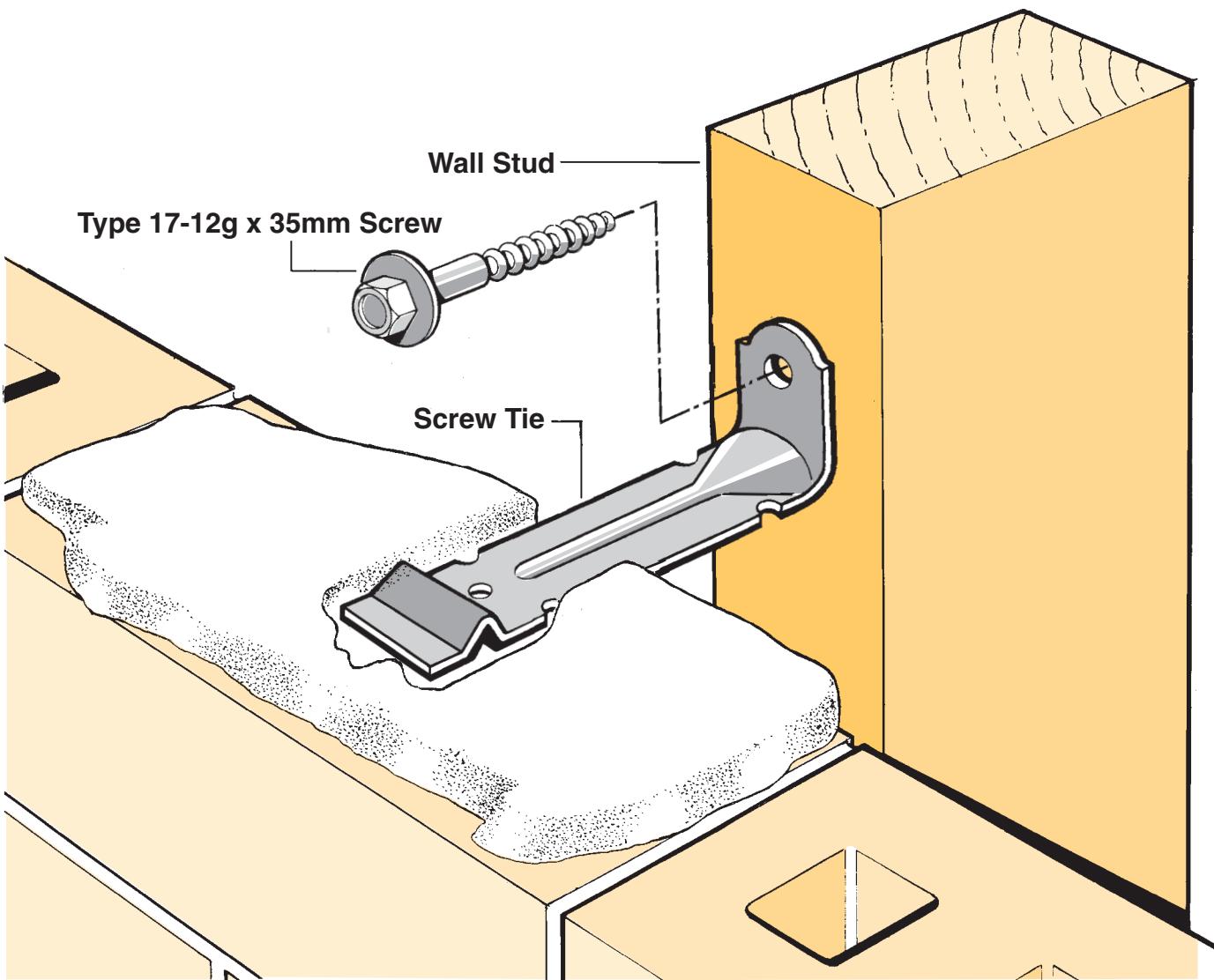




SCREW TIES FOR BRICK VENEER FIXING

SDC - Approved Building Consent Document - BC220881 - Pg 124 of 134 - 30/05/2022 - craigz

- ★ Medium duty (EM) classification
- ★ Tested by BRANZ in accordance with AS/NZS 2699.1:2000
- ★ BRANZ test report No. ST0725 November 2007
- ★ Suitable for both 'dry bedding' and encapsulated mortar
- ★ Hot Dip Galvanised ties for Zones B & C, and Stainless Steel Grade 316 ties for Zone D meet NZS 3604:2011 Sect. 4 Durability
- ★ Available in 85mm and 105mm sizes



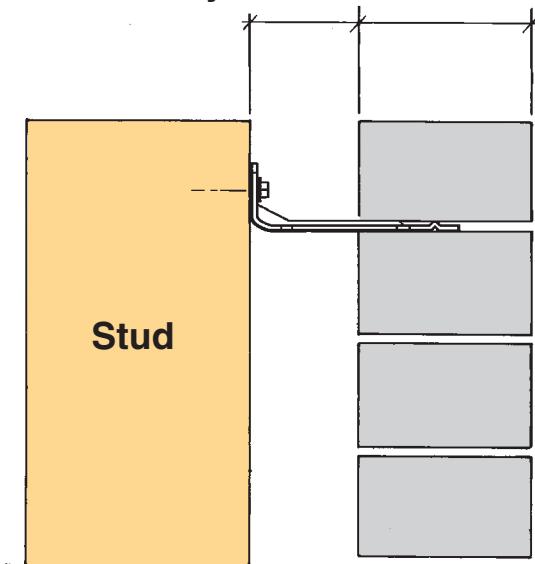
**Available from leading Builders Supply Merchants
throughout New Zealand**



70 SERIES BRICK

Max. Cavity

50 70

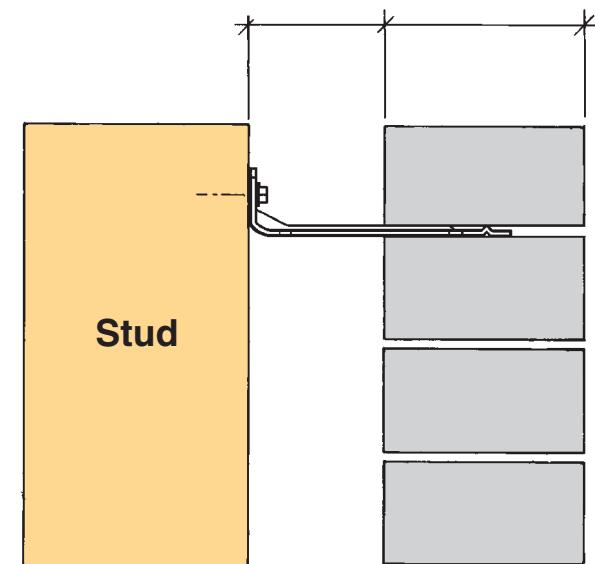


**Screw Tie Short
(85mm)**

90 SERIES BRICK

Max. Cavity

60 90



**Screw Tie Long
(105mm)**

- ★ All brick work must be constructed in accordance with NZS 4210:2001 Masonry Construction:Materials and Workmanship. Screw Ties must be applied accordingly and are not to be hammered into timber framing.
- ★ Water shedding shoulder prevents transfer of the moisture from tie to building.
- ★ Nail hole for Oamaru Stone.
- ★ Angled neck encourages increased tie embedment in mortar.

Material: 1.2mm NZCC-SD Hot Dip Galvanised Steel

Screws: Type 17-12g x 35mm Hex Head Hot Dip Galvanised Screws

Packaging: 250 ties per box including screws

Also available in Stainless Steel Grade 316 for Zone D.

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

PROJECT SUMMARY

Project name

Harry & Jesicca Lo
2 Rapere Street, Rolleston
Joe Jun
18 Squadron Road, Wigram
021 0228 6708
11-Apr

Address

Designer

Address

Phone

Date

Reference number

Climate zone

3: South Island, Taupo and Ruapehu Districts, northern part of Rangitikei District, Stewart Island, Chat

Wall construction type

1: Any wall type

I mixed wall types

0 Percentage of wall area solid timber construction

0 Percentage of wall area high thermal mass construction

100 Percentage of wall area "Any wall type"

I solid timber wall

3: External 90 mm thick solid timber and solid timber internal walls 45 mm thick

Is there just one wall construction R-value (R_{Wall}) and one door (R_{Door})

no

construction R-value (but different to the walls) for the building?

Summary of calculation method heat loss

Element	Area (m ²)	Proposed building heat loss (W/°C)	Reference building heat loss (W/°C)
Roofs/ceilings	217.3	64.5	65.8
Walls	202.2	92.5	102.8
Floors	217.3	167.1	167.1
Vertical glazing	49.7	191.3	294.7
Skylights	0.0	0.0	-
Doors (Attributable)	3.4	0.0	-
Total		515.4	630.5 W/°C

Glazing percentage: 19%

Glazing <50%: Yes

Minimum R-values OK: Yes

Issues to check:

PASS/FAIL

PASS

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

BUILDING ELEMENTS

Roofs/ceilings: Skylights are not included here. Enter them in the skylights table below.

Roof/ceiling element	Description	Area (m ²)	Construction R-value	Heat loss
1	Pressed Metal Tile	217.26	3.37	64.5
2				
3				
4				
5				

Total area 217.3 m²

Total roofs/ceilings heat loss W/°C

Skylights: Skylights are at an angle of 60° or less to the horizontal. If the skylight R-value is not known, use a value of 0.15.

Skylight	Description	Area (m ²)	Construction R-value	Heat loss
1				
2				
3				
4				
	From Skylight Schedule	0.0		0.0

Total area 0.0 m²

Total skylight heat loss W/°C

Walls: Doors are not included here. Enter them in the door table.

Each wall area is the total wall area less the glazing and door area for that wall

Wall element	Description	Area (m ²)	Construction R-value	Heat loss
1	Brick (90mm timber/stud 600/dwang 800/R2.6	175.2	2.20	79.7
2	Oblique (90mm timber/stud 600/dwang 800/R2	27.0	2.10	12.9
3				
4				
5				
6				
7				
8				
9				
10				

Total area 202.2 m²

Total wall heat loss W/°C

Floors: Only include the ground or exterior floors. Intermediate floors not exposed to the exterior are excluded.

S1/2/S1 is not perm

Floor element	Description	Area (m ²)	Construction R-value	Heat loss
1	Concrete slab (Area/perimeter ratio 2.8, no insu	217.3	1.30	167.1
2				
3				
4				
5				

Total area 217.3 m²

Floor heat loss W/°C

Vertical glazing: Vertical glazing only (steeper than 60°), including glazing in doors. Skylights are on the Skylight table.

If the glazing R-value is not known, use a value of 0.15

Glazing element	Description	Area (m ²)	Construction R-value	Heat loss
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
	From Glazing Schedule	49.7		191.3

Total area 49.7 m²

Total vertical glazing heat loss W/°C

Doors: Only the non-glazed area of doors is included. The glazed area of doors must be entered in the Glazing table.

The heat loss of doors is automatically set to 0 if the total door area is ≤ 6m² or 6% of the total wall area.

If the area of doors are above 6m² or 6% of the total wall area then the marginal heat loss needs to be considered.

If the insulation values of the walls are different or the insulation value of the doors are different then

the assignable heat loss due to doors can not be calculated using this tool.

If the R-value of a door is not entered a default value of R 0.18 is automatically used.

Door element	Description	Area (m ²)	Construction R-value	Heat loss
1				0.0
2				0.0
3				0.0
4				0.0
5				0.0

From Door Schedule 3.4 18.9

Total area 3.4 m² Attributable 0.0 0.0 W/°C

BRANZ NZS 4218:2009 CALCULATION METHOD TOOL

Vertical Glazing Schedule

Vertical glazing: Vertical glazing only (steeper than 60°), including glazing in doors. Skylights are on the Skylight table.

If the glazing R-value is not known, use a value of 0.15

ID	Description	Quantity	Height (mm)	Width (mm)	Construction R-value	Area (m ²)	Heat loss
1	D2	1	2130	1800	0.26	3.8	14.7
2	W1	1	1000	900	0.26	0.9	3.5
3	W2	1	1000	600	0.26	0.6	2.3
4	W3	2	1000	1500	0.26	3.0	11.5
5	W4	1	600	2400	0.26	1.4	5.5
6	D3	1	2130	1800	0.26	3.8	14.7
7	W5	1	600	2400	0.26	1.4	5.5
8	D4	1	2130	1800	0.26	3.8	14.7
9	W6	2	1000	600	0.26	1.2	4.6
0	D5	1	2130	1800	0.26	3.8	14.7
1	D6	3	2130	2700	0.26	17.3	66.4
2	D8	2	2130	900	0.26	3.8	14.7
3	W9	1	1000	900	0.26	0.9	3.5
4	D9	1	2130	900	0.26	1.9	7.4
5	D10	1	2130	900	0.26	1.9	7.4
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
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57							
58							
59							
60							
Total area						49.7 m ²	
Total vertical glazing heat loss							191.3

SPC Approved Building Consent Document BC220881 - Rq128 of 134 - 30/05/2022 - craigz

Door Schedule

Doors: Only the non-glazed area of doors is included. The glazed area of doors must be entered in the Glazing table.

The heat loss of doors is automatically set to 0 if the total door area is $\leq 6\text{m}^2$ or 6% of the total wall area.

If the area of doors are above 6m^2 or 6% of the total wall area then the marginal heat loss needs to be considered.

If the insulation values of the walls are different or the insulation value of the doors are different then

the assignable heat loss due to doors can not be calculated using this tool.

If the R-value of a door is not entered a default value of R 0.18 is automatically used.

ID	Description	Quantity	Height (mm)	Width (mm)	Construction	R-value	Area (m ²)	Heat loss
1	D1	1	2130	1600		0.18	3.4	18.9
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
		Total area	3.4	m ²				
		Total door heat loss					18.9	

Skylight Schedule

Skylights: Skylights are at an angle $\leq 60^\circ$ to the horizontal. If the skylight R-value is not known, use of 0.15.

ID	Description	Quantity	Height (mm)	Width (mm)	Construction	R-value	Area (m ²)	Heat loss
1	BC22088							
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
		Total area	0.0	m ²				
		Total skylight heat loss					0.0	

commercialLVT
kenzie 



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fast & easy installation

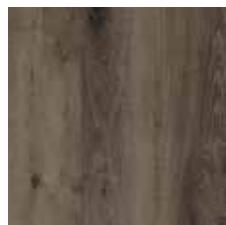
innovation & inspiration

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commercialLVT

grascan oak 1860



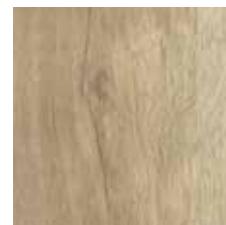
rocco oak 1862



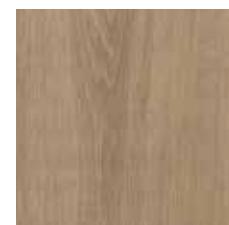
perla oak 540



zane oak 2359



harper oak 1866



avery oak 1858

oxy oak 1611

product
plank size
total thickness
wear layer
wear layer treatment
installation method

kenzie
228.60mm x 1219.20mm
2.5mm
0.55mm
PUR
stick

fire rating ISO 9239.1
planks per box

pass
14 pcs/box (3.902m²)

availability

in stock

Trade
Heavy
Duty
Commercial

Warranty
10 Years
Commercial

Residential Warranty
20 Year
Wear, Stain
& Fade

Fire

Suitable
All Areas

Slip
Resistant

P3

Wear

PUR
Layer
Protection

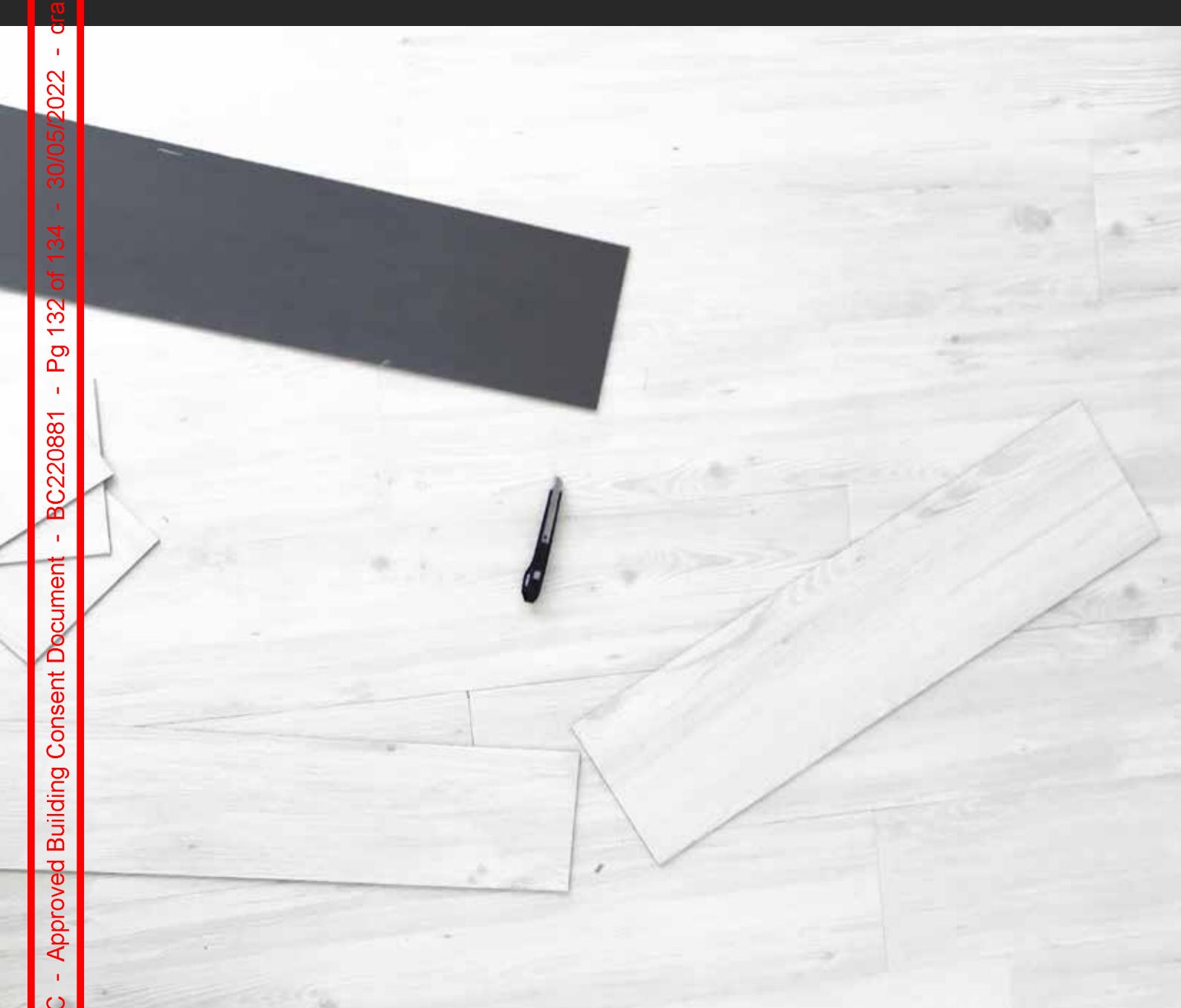
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INSTALLATION GUIDELINES

STICK LVT



STICK LVT

INSTALLATION GUIDELINES

GENERAL CONDITIONS

A good preparation is essential for a smooth installation. Stick LVT can be installed on concrete, timber, ceramic and many other sub-floors which have been suitably prepared.

The effective application of Stick LVT is dependent on suitable site conditions.

Stick LVT must NOT be installed either externally or into unheated locations. It is possible to install Stick LVT flooring over floors incorporating underground heating, but these must be insulated to ensure surface temperature does not exceed 27°C. It is recommended on a new concrete slab that the heating is operational for several days prior to installation to reduce moisture in slab. Three days prior to installation, lower to 18°C. 24 hours post installation, gradually increase in increments of 3°C per day until it reaches the maximum operating temperature of 27°C before being turned back to its normal household temperature.

SUBSTRATE PREPARATION

Careful sub-floor preparation as per current AS/NZS 1884 is vital for an excellent floor appearance and good installation. The sub-floor must be hard, flat, smooth, clean, dry, and free from defects, contaminants and fit for purpose.

A suitable levelling compound should be used to ensure that no irregularities show through to the surface of the finished floor. However, the selection of suitable materials, including smoothing and levelling compounds and any ancillary products is dependent upon the end use of the completed flooring, and must be agreed by the supplier of the preparative materials and the installer.

Any proprietary materials used for floor preparation must be used in accordance with the manufacturers' recommended instructions.

In all cases, the sub-floor must be sufficiently dry and the RH (relative humidity) checked to ensure it is not greater than that of any proprietary materials that are being used when tested in accordance with current AS/NZS 1884.

Direct-to-earth concrete and stone sub-floors must have an effective damp proof membrane (DPM). Follow manufacturer's detailed instructions for the installation of a surface DPM and the use of levelling compound.

All particle board substrates require an underlay or underlayment.

The finished appearance of a Stick LVT floor will be as good as the quality of the base over which it is installed. Any irregularities in the sub-floor will show through the finished floor.

ACCLIMATISATION

Stick LVT performs to its specifications when laid at room temperature between 18°C – 28°C. The product should be acclimatised within the room it is to be laid at least 24 hours prior to installation. A constant temperature, fluctuating no more than 3°C per day and not below the required 18°C room temperature and 15°C floor temperature, should be maintained 24 hours before, during and after installation.

It is preferable that the packs are stored lying flat, stacked squarely and away from vents and direct sunlight. It is recommended that you black out windows where direct sunlight streams in onto the floor to allow for continuity across the whole area to be laid.

PRE-INSTALLATION

1	Ensure that all Stick LVT are from the same batch and that there is no damage to the boards or visual defects on the print layer.
2	Before installation, check all panels in daylight for possible defects or discrepancies in colour or sheen.
3	Check the edges of the Stick LVT for damage and straightness
4	For best, results mix at least two packs when fitting to avoid repetitions in the pattern. It is also preferable only to use material from the same batch in a single room. Lay the products in the same direction they come out of the box mixing planks from different boxes.
5	The surface beneath the floor must be sufficiently prepared in advance to guarantee successful fitting of the floor covering.

RECOMMENDED ADHESIVES

Stick LVT is recommended to be installed with solvent free 'hard set' adhesive with a V1 trowel for normal installations.

If you are installing Stick LVT in rooms that have floor to ceiling windows which are exposed to prolonged periods of direct sunlight, we recommend that the use of polyurethane adhesive.

STICK LVT

INSTALLATION GUIDELINES

7. Do not spread adhesive on a section greater than can be processed within the working time.
8. To ensure full contact with adhesive, immediately press every plank or tile with a hand roller.
9. Wipe excess adhesive with a damp cloth.
10. Roll each section with a roller of a minimum 40kg immediately after installation and several times in different directions during the working time.
11. Repeat steps 3 to 10 until the entire installation is completed.

NOTE: It is preferable that planks run parallel to incoming sunlight. It is accepted that this is not always possible given the layout of the job and jobs running over multiple rooms.

During installation we recommend that the temperature be controlled between 18°C – 28°C and vary by no more than 3°C. This environment must be maintained for 24 hours prior, during and after installation.

NOTE: Planks must be installed tight against as walls.

If you are installing Stick LVT in rooms that have floor to ceiling windows which are exposed to direct sunlight, we recommend that the use of polyurethane adhesive, and that windows are blocked out 24 hours prior to, during and after installation to keep the direct sunlight from the floor during the curing process.

PROTECTION

Stick LVT should be protected from heavy traffic for 72 hours after installation so that the planks and adhesive can stabilise at consistent temperature between 18°C – 28°C.

FIRST CONTACT WITH WATER

Prevent the floor from coming into contact with water for the first 72 hours after installation. Hereafter the adhesive is sufficiently resistant to water so that the bonding strength will not be affected.

For any assistance please contact Signature Floors on 1800 150 554.

WARRANTY

Further information is available in our Residential LVT Care & Warranty Guidelines from your place of purchase and Signature Floors website www.signaturefloors.com.au



Stick LVT - Installation Guidelines

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