

57 images
5 plans

BUILDING CONSENT

57683P

PROPERTY ID

023854

 57683P

EXTRA INFORMATION/AMENDMENTS

Charge: \$ _____
Job: _____
Consent No: 57683 Address: 82 Orange St.
N.P.

The changes covered by this amendment are:

ply Bracing to G's brace line

1002 NMT
11/11/04

Formal Declaration – (Please read carefully prior to signing)

This **AMENDMENT** to the abovementioned Building Consent is made by me as **owner** of the property:

Signature: _____ Date: _____

OR I am the applicant **authorised by the owner** to make this **AMENDMENT**:

Signature: RS Gade Date: 10/6/04

Office use only

Approved	Refused
----------	---------

Records	
Building	
<u>BR</u>	<u>10/6/04</u>
Public Health	
District Planning	

B. Calis ok ✓

FRANK
HALLIS 32 ORANGE ST.

For a software version
phone Gib® Information
Helpline 0800 100 442

Please Photocopy

Wall Bracing Calculation Sheet B

Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
A	*	A1	GR1	2.6	75	195		
		A2	BR9	9.00	110	99		
		A3	BR5	1.5	115	172		
		A4	BR9	6.00	110	66		
B		B5	GR2	2m	75	150		
C		B6	GR2	6m	80	480		
		B7	GR2	2.1	75	157		
D	*	C8	BR9	9.00	110	88		
		C9	BR9	9.00	110	99		
E	*	C10	BR5	1.5m	115	172		
		C11	GR1	3m	75	225		

Totals Achieved		W	1900	E	
From Sheet A Totals Required		W	1950	E	936
Wreq/Ereq =					

*If Wreq/Ereq is 1 or less complete E column only
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m W	BUs Achieved (BU/m x L) W	Rating BU/m E	BUs Achieved (BU/m x L) E
M	*	M17	BR9	9.00	110	99		
		M18	BR5	1.3	115	149		
		N14	GR13	1.2	65	78		
N		O15	GR2	3m	80	240		
		O16	GR2	3.0	80	240		
		P17	GR2	3.4	80	272		
O	*	Q18	GR2	2.0	75	150		
		R19	BR5	1.2	115	138		
		R20	GR1	3.0	75	225		
P		R21	GR2	3.4	80	272		
		S22	GR1	6.2	75	465		
Q								

Totals Achieved		W	1934	E	
From Sheet A Totals Required		W	970	E	936
Wreq/Ereq =					

* Changed from Ply Brace to Gib Brace



RIGHTS APPROVED

JUN 2004

57683

Please Photocopy

For a software version
phone GIB* Information
Helpline 0800 100 442

Wall Bracing Calculation Sheet A

Job Details

box 1

Name	FRANK HARRIS		
Street and Number	82 ORANGA STREET		
Lot and DP Number	LOT 1 DP15684		
City/Town/District	NP		
Location of Storey:	☒ single/upper of two/lower of two	Floor load: ☒ 2kPa ☐ 3kPa	
Building height to apex	5 m	Roof weight	☒ light ☐ heavy
Roof height above eaves	2 m	Cladding weights:	
Stud height	2.4 m	Subfloor	light/medium/heavy
Average roof pitch	17.8	Lower Storey	light/medium/heavy
Building length: BL =	17.8 m	Upper Storey	light/medium/heavy
Building width: BW =	9.4 m	Room in Roof Space	Yes ☒ No ☐
		Gross Building	
		Plan Area,	GPA = 130 m ²

Note: When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.

Wind Zone

box 2

Region:	Terrain:	Exposure:	Topography:
R1 0	Inland 0	Sheltered 0	Gentle 0
R2 1	Coastal 1	Exposed 1	Moderate 1
			Extreme 3
Total points			
Wind Zone: ☒ Low (0) ☐ Very high (3)			
☐ Medium (1) ☐ Specific Design (4)			
☒ High (2)			

Earthquake Zone

box 3

From figure EQ1 select Earthquake Zone: ☒ A ☐ B ☐ C

BU's required Wind

box 4

From Table W1A/W1B

W along = 64 BU's/m

W across = 54 BU's/m

Total wind load,

W ALONG:

W along x BW = 601 BU's

W ACROSS

W across x BL = 961 BU's

BU's required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6

E = 5.2 BU's/m²

Note: For a room in the roof space use E + 3

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BU's = 936 BU's

NPDG Approved

17 JUN 2004



EXTRA INFORMATION/AMENDMENTS

Consent No: 57683

Charge: \$

Job: 32 ORANGA ST

Address: NP.

The changes covered by this amendment are:

as per letter 6/1/04
Barry Reed

Flashing & cladding details

Formal Declaration – (Please read carefully prior to signing)

This AMENDMENT to the abovementioned Building Consent is made by me as owner of the property:

Signature: _____ Date: _____

OR I am the applicant authorised by the owner to make this **AMENDMENT**:

Signature: [Signature] Date: 2/4/04

Office use only

Approved	Refused
Records	
Building	
o/b. 801-04	
Public Health	
District Planning	

RECEIVED
22 JAN 2004
CUSTOMER SUPPORT CENTRE

10. 50m Gf.

CHRIS & CHRIS GARNHAM
ARCHITECTURAL DESIGN
AND DRAUGHTING SERVICES
81 BRANCH ROAD N.P.
FAX/PH. 758 6910 N.P.

Adam Barry Read

NP D Council
Building Consent NO 57683
82 ORANGA ST. NP

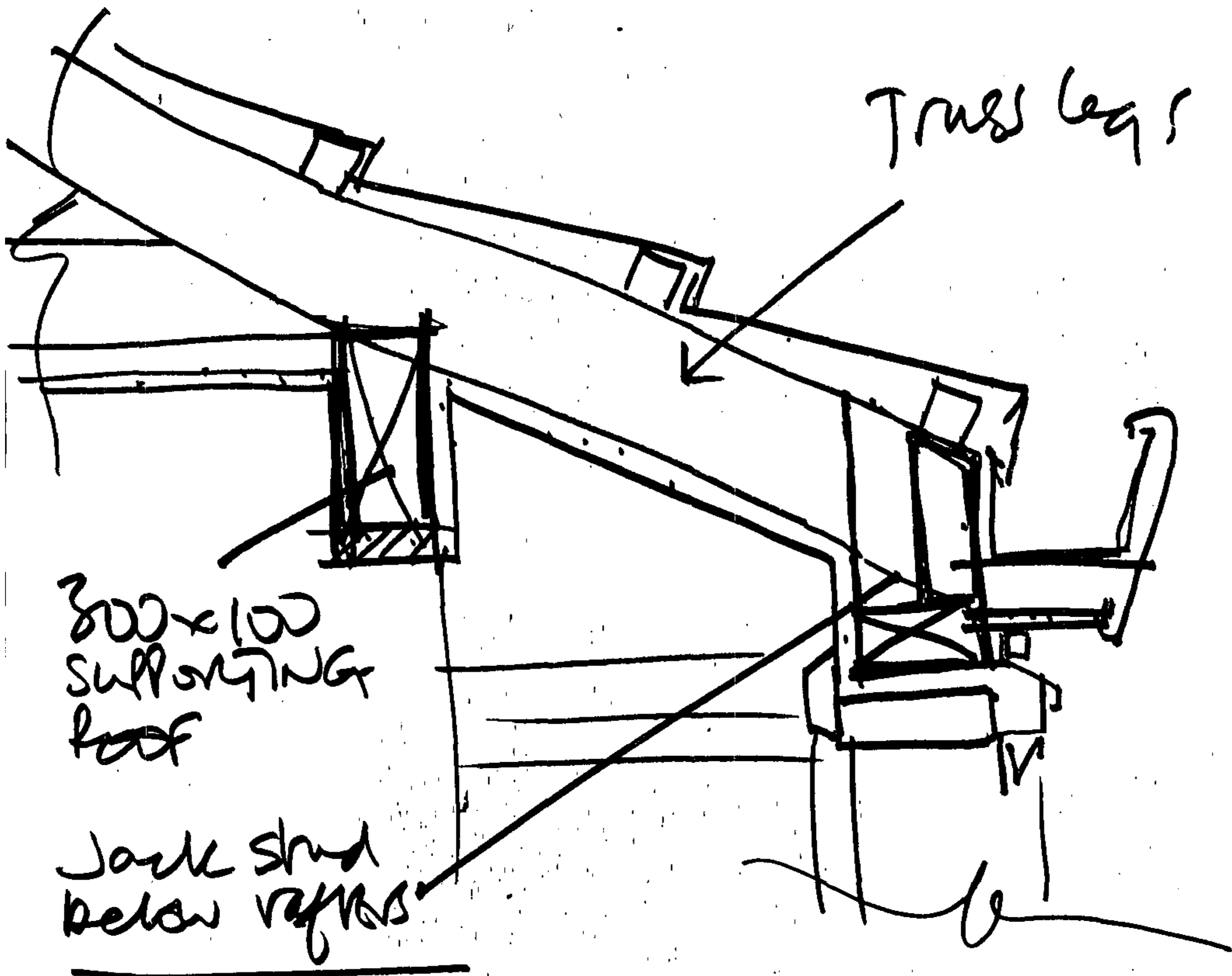
Further info as requested.

1. Truss layout to come
2. Note Beam 300x100 carries weight of roof. corner window is supported off cantilevered rafters. window lintel 200x100 not required.
3. Minimum treatment to timber shall be H1.2
4. Window & lining flashings enclosed with Hardies brochure
5. We confirm that internal wall between garage and house will be insulated. Garage will not be insulated.

Signed Chris Garnham - Designer.

NPDC Approved

30 JAN 2004



KITCHEN WINDOW DETAIL

NO cantilever req'd.

NPDC Approved
30 JAN 2004

LEGL: 055564
BC: 57683

6 January 2003

Mr Chris Garnham
81 Branch Road
NEW PLYMOUTH 4601

Dear Sir

NEW DWELLING & GARAGE – 82 ORANGA STREET, NEW PLYMOUTH

Thank you for your building consent application. Unfortunately we are unable to approve your project at this time and the following information is to be provided to Council so we can complete the plan check. Please submit your amendments at the customer support counter or if appropriate fax to 06 759 6118. If you have any queries regarding these matters please contact the undersigned.

BUILDING:

✓ arrived / ek - 08.01.04.

1. Truss layout and types to be provided.
2. Counter levered beam to the kitchen area is to be re-designed or Engineers calculations are to be provided to support the design.
3. Minimum timber treatment is H1.2 to be shown on the plans.
4. All window and exterior lining flashing details are to be provided.
5. Confirm insulation either between garage and habitable rooms or external walls of garage and ceiling insulated.

To avoid any further delays we would appreciate the requested information being provided within 20 working days from the date of this letter.

Should you envisage difficulty with this could you please contact the Council's Customer Support Section to discuss the matter.

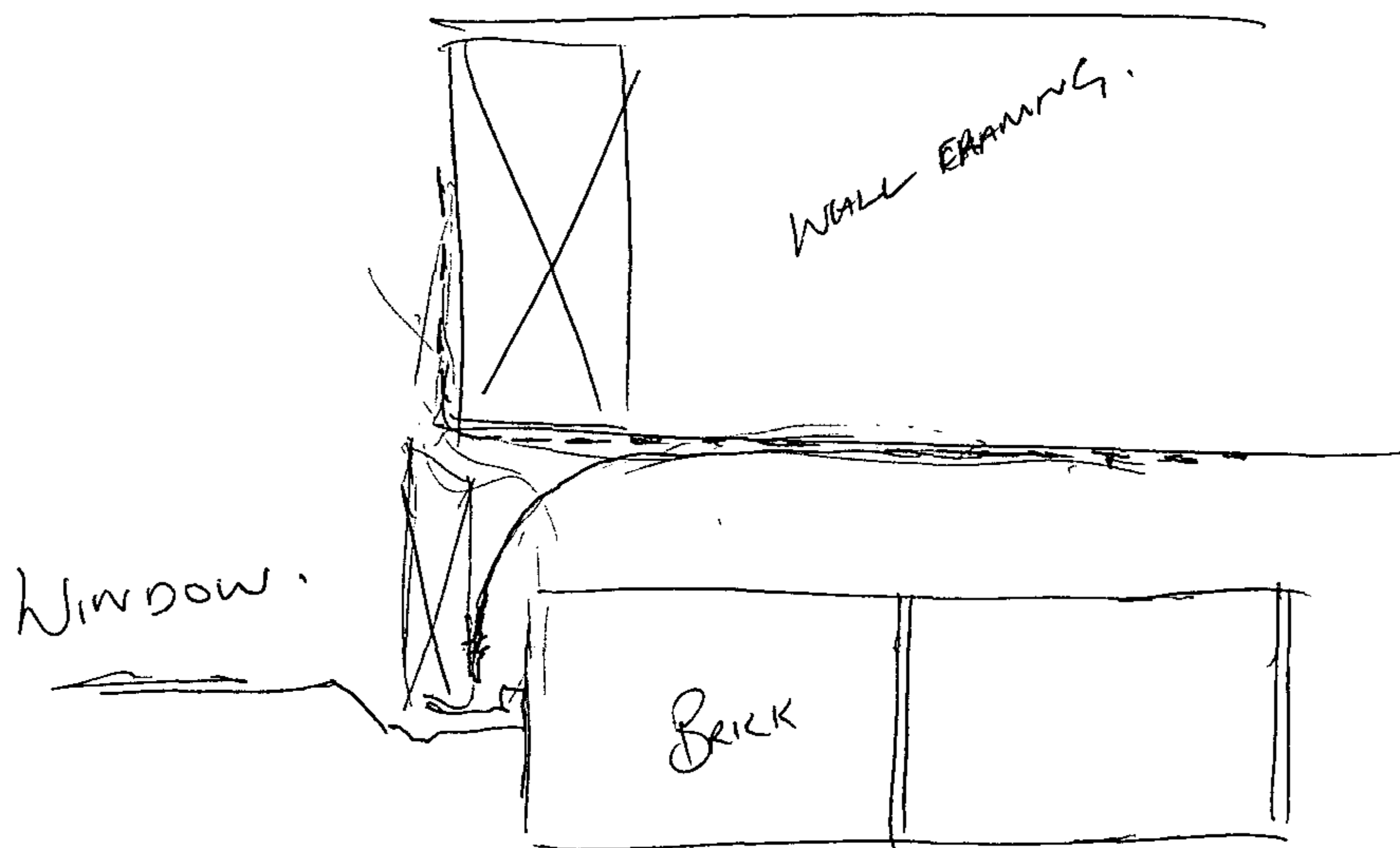
Yours faithfully

Barry Read
BUILDING CONSENTS OFFICER

DM077018



NEW PLYMOUTH DISTRICT COUNCIL
newplymouthnz.com



Please Photocopy.

For a software version
phone GIB® Information
Helpline 0800 100 442

Wall Bracing Calculation Sheet A

Job Details

box 1

Name	FRANK HARRIS		
Street and Number	82 ORANGA STREET		
Lot and DP Number	LOT 1 DP15684		
City/Town/District	NP		
Location of Storey:	single/upper of two/lower of two	Floor load: 2kPa/3kPa	
Building height to apex	5 m	Roof weight	light/heavy
Roof height above eaves	2 m	Cladding weights:	
Stud height	2.4 m	Subfloor	light/medium/heavy
Average roof pitch	17.8	Lower Storey	light/medium/heavy
Building length BL =	17.8 m	Upper Storey	light/medium/heavy
Building width BW =	9.4 m	Room in Roof Space	Yes/No
		Gross Building	
		Plan Area,	GPA = 130 m ²

Note: When the average roof pitch is over 25 degrees, use the eaves length and width to determine BL and BW.

Wind Zone

box 2

Region:	Terrain:	Exposure:	Topography:
R1 0	Inland 0	Sheltered 0	Gentle 0
R2 1	Coastal 1	Exposed 1	Moderate 1
			Extreme 3
Total points:			
Wind Zone:	Low (0)	Very high (3)	
	Medium (1)	Specific Design (4)	
	High (2)		

Earthquake Zone

box 3

From figure EQ1, select Earthquake Zone:	A	B	C
--	---	---	---

BU's required Wind

box 4

From Table W1A/W1B
W along = 64 BU's/m
W across = 54 BU's/m
Total wind load,
W ALONG:
W along x BW = 601 BU's
W ACROSS
W across x BL = 941 BU's

BU's required Earthquake

box 5

From Table EQ1/EQ2/EQ3/EQ4/EQ5/EQ6
E = 5.2 BU's/m ²
Note: For a room in the roof space use E + 3
Total earthquake load,
EQ ALONG and EQ ACROSS
E x GPA BU's = 936 BU's

NPDC Approved

30 JAN 2004



FRANK
HALLIS 32 ORANGA ST.

For a software version
phone Gib® Information
Helpline 0800 100 442

Please Photocopy

Wall Bracing Calculation Sheet B

Along

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m	BUs Achieved (BU/m x L)	Rating BU/m	BUs Achieved (BU/m x L)
A		A1	GB1	2.6	75	195		
		A2	SP1	9.00	100	90		
		A3	SP1	1.5	100	150		
		A4	BR9	6.00	110	66		
B		B5	GB2	2m	75	150		
		B6	GB2	6m	80	480		
C		B7	GB2	2.1	75	157		
		C8	SP2	8.00	85	68		
D		C9	BR9	9.00	110	99		
		C10	SP1	1.5m	100	150		
E		C11	GB1	3m	75	225		

Totals Achieved		W	1930	E	
From Sheet A Totals Required		W	601	E	936
Wreq/Ereq =					

*If Wreq/Ereq is 1 or less complete E column only
If Wreq/Ereq is 1.5 or more complete W column only
Otherwise complete both W and E

Across

Wall or Bracing Line		Bracing Elements Provided			Wind		Earthquake	
1	2	3	4	5	6 W	7 W	6 E	7 E
Line Label	Minimum BUs Required	Bracing Element No.	Bracing Type	Length Element (m) L	Rating BU/m	BUs Achieved (BU/m x L)	Rating BU/m	BUs Achieved (BU/m x L)
M		M12	SP1	9.00	100	90		
		M13	SP1	1.3	100	130		
		N14	GB3	1.2	65	78		
		O15	GB2	3m	80	240		
N		O16	GB2	3.10	80	240		
		P17	GB2	3.4	80	272		
O		Q18	GB2	2.0	75	150		
		R19	SP1	1.2	100	120		
P		R20	GB1	3.0	75	225		
		R21	GB2	3.4	80	272		
Q		S22	GB1	1.2	75	90		

Totals Achieved		W	1938	E	
From Sheet A Totals Required		W	961	E	936
Wreq/Ereq =					

NPDC Approved

30 JAN 2004



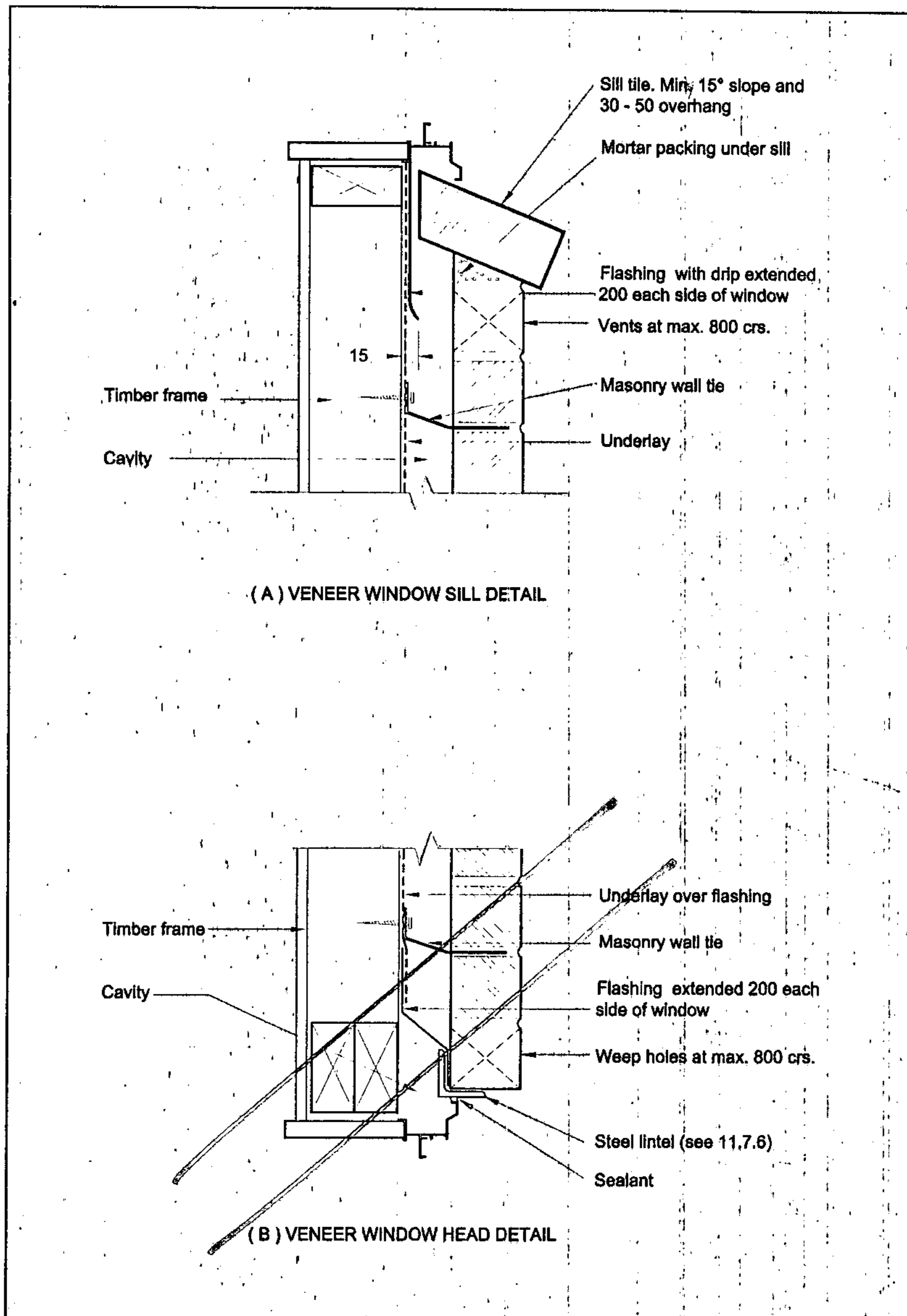
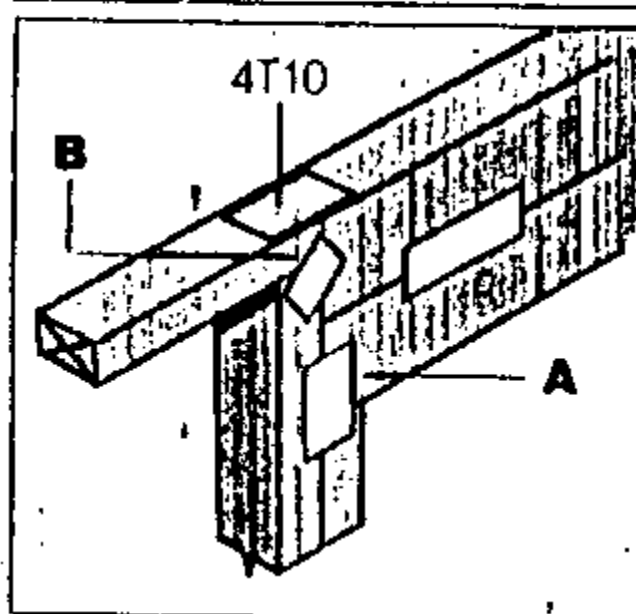


Figure 11.3 - Flashing details - Veneer (see 11.7.7)

N2006 Approved

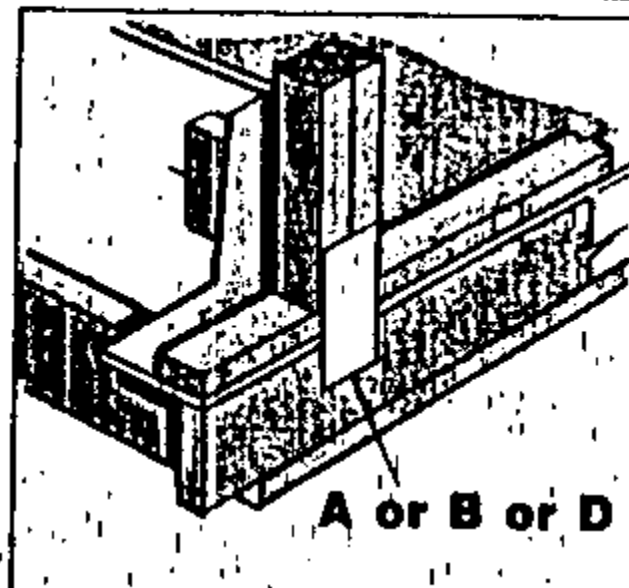
30 JAN 2006

GANGLAM FIXINGS



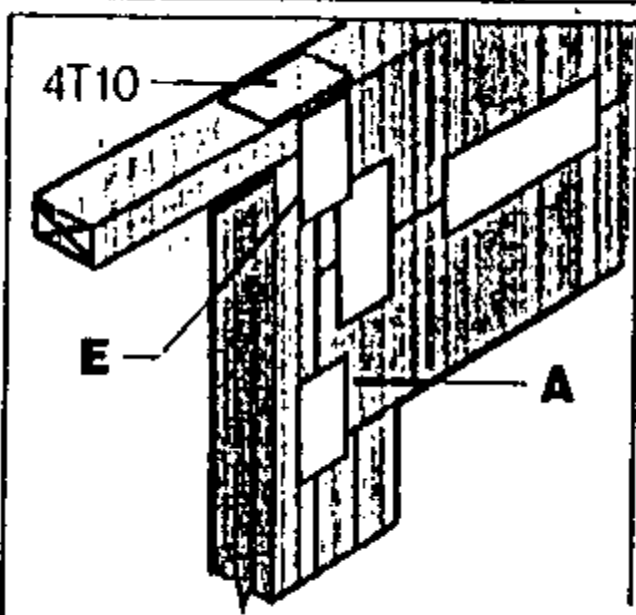
BEAM END — TYLOK

- A** 4T10 both sides
- B** As **A** plus Strap Nail both sides



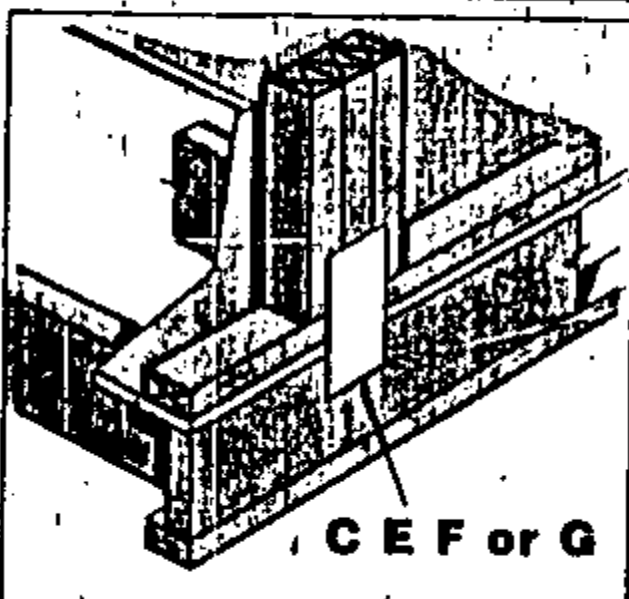
SUPPORT BASE — TWO STUDS ONTO TIMBER

- A** 8T10 one side only
- B** 10T15 one side only
- D** 200 x 110 x 1mm Nailon one side only



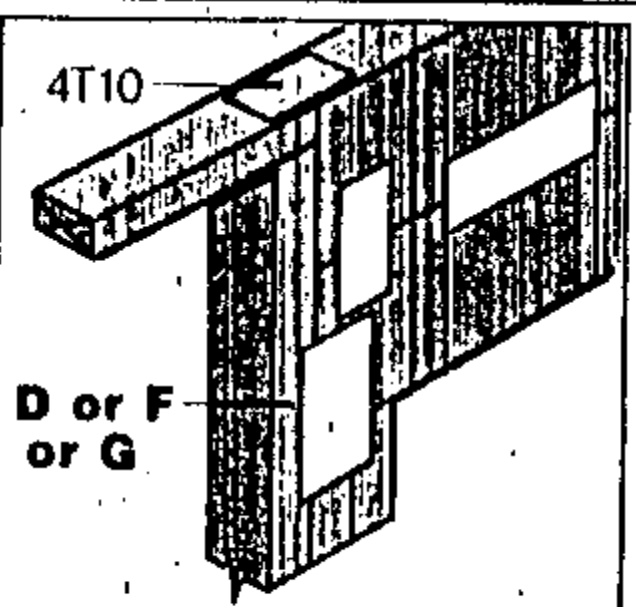
BEAM END — DOUBLE TYLOK

- E** As **A** plus 4T10 both sides



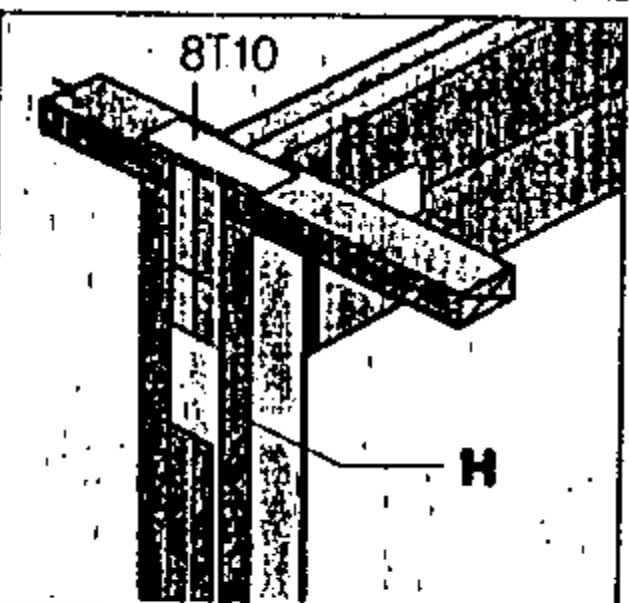
SUPPORT BASE — 3 STUDS ONTO TIMBER

- C** 10T15 one side only
- E** 200 x 110 x 1mm Nailon one side only
- F** 280 x 110 x 1mm Nailon one side only
- G** 360 x 110 x 1mm Nailon one side only



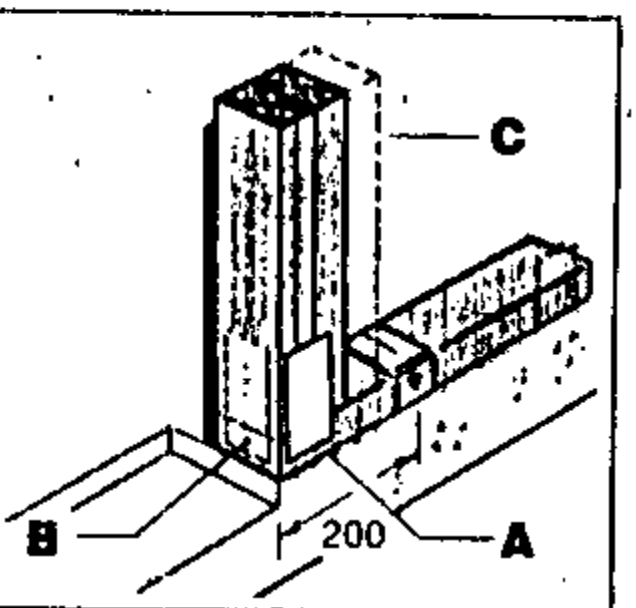
BEAM END — NAILON

- D** 200 x 110 x 1mm Nailon outside plus 4T10 inside
- F** 200 x 110 x 1mm Nailon both sides
- G** 280 x 110 x 1mm Nailon both sides



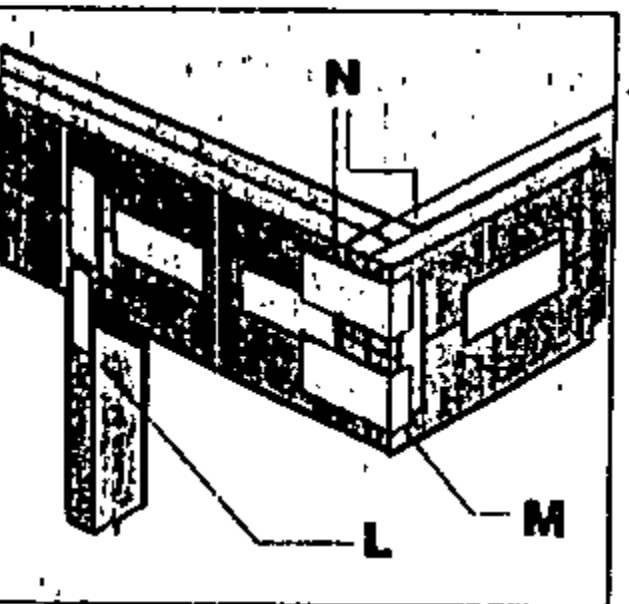
BEAM POCKET

- H** 6T15 TYLOK plate (Typical)



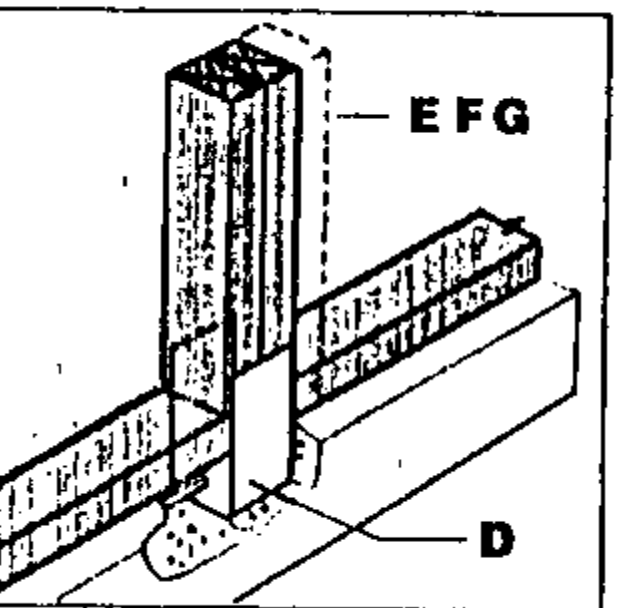
SUPPORT BASE — TYLOK ONTO CONCRETE

- A** 4T10 both sides 1 BOTTOM PLATE FIXING ANCHOR
- B** as **A** plus 4T10 to end stud plus BOTTOM PLATE ANCHOR
- C** as **B** but with double understud to beam



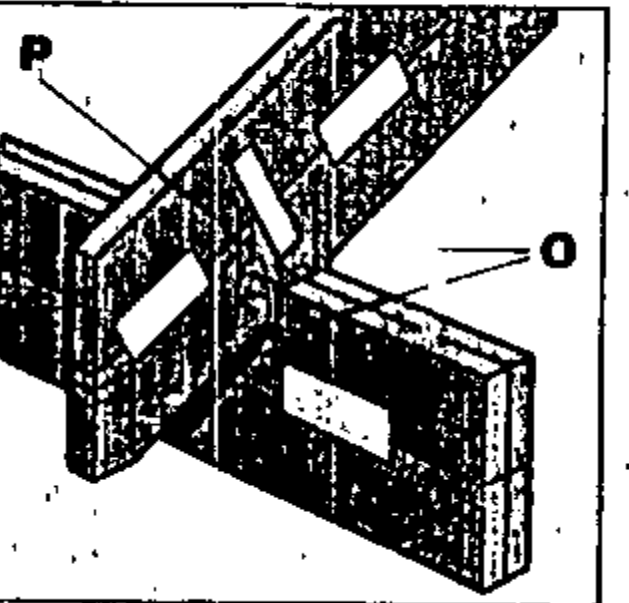
CANTILEVERED BEAM & SUSPENDED LINTEL

- L** 200mm Strapfixing both sides at each support (All cases)
- M** 1/200 x 50 x 110 x 1mm Nailon cleat & Multi-grip inside (Typical)
- N** 2 x **M** on Heavy roof over 200 x 100 suspended Lintel size (Typical)



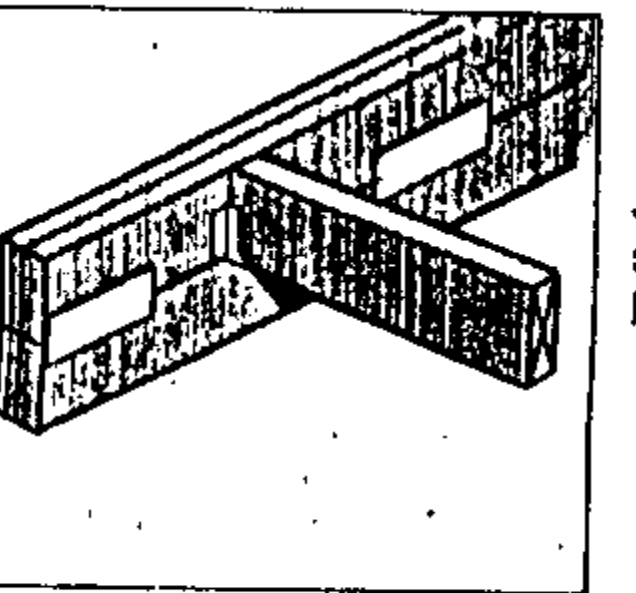
SUPPORT BASE — NAILON U BRACKET ONTO CONCRETE

- D** 210 x 100 x 210 x 1mm Nailon U Bracket under reinforcing steel in concrete
- E** **F** **G** as **D** but with double understud to beam



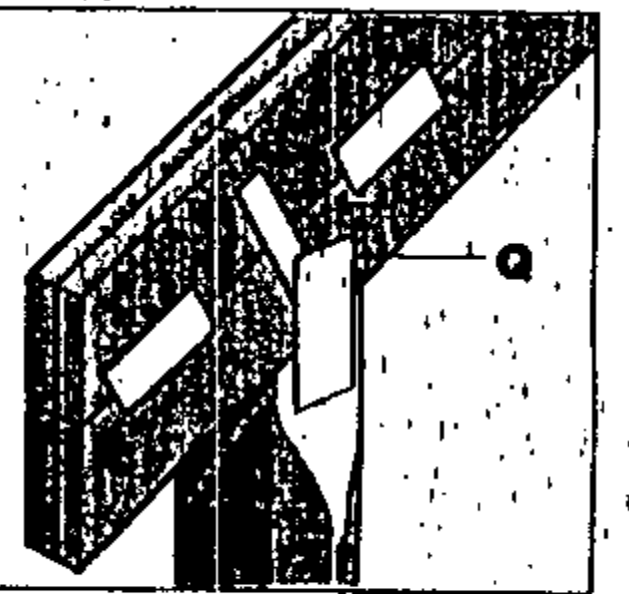
RAFTER TO BEAM

- O** 2 wire dogs with blocking for **A** to **D** index
- P** CT200 with 4 nails each end both sides for **E** to **G** (birdsmouth rafter only)



JOIST OR PURLIN TO GANGLAM

Joist or Purlin fixings may be selected by referring to the Maxspan brochure



POLE TO GANGLAM

- Q** 200 x 110 x 1mm Nailon both sides onto pole cut for bearing and face cut for Nailon

NPDC Approved

30 JAN 2004

Frank Harris
Horse

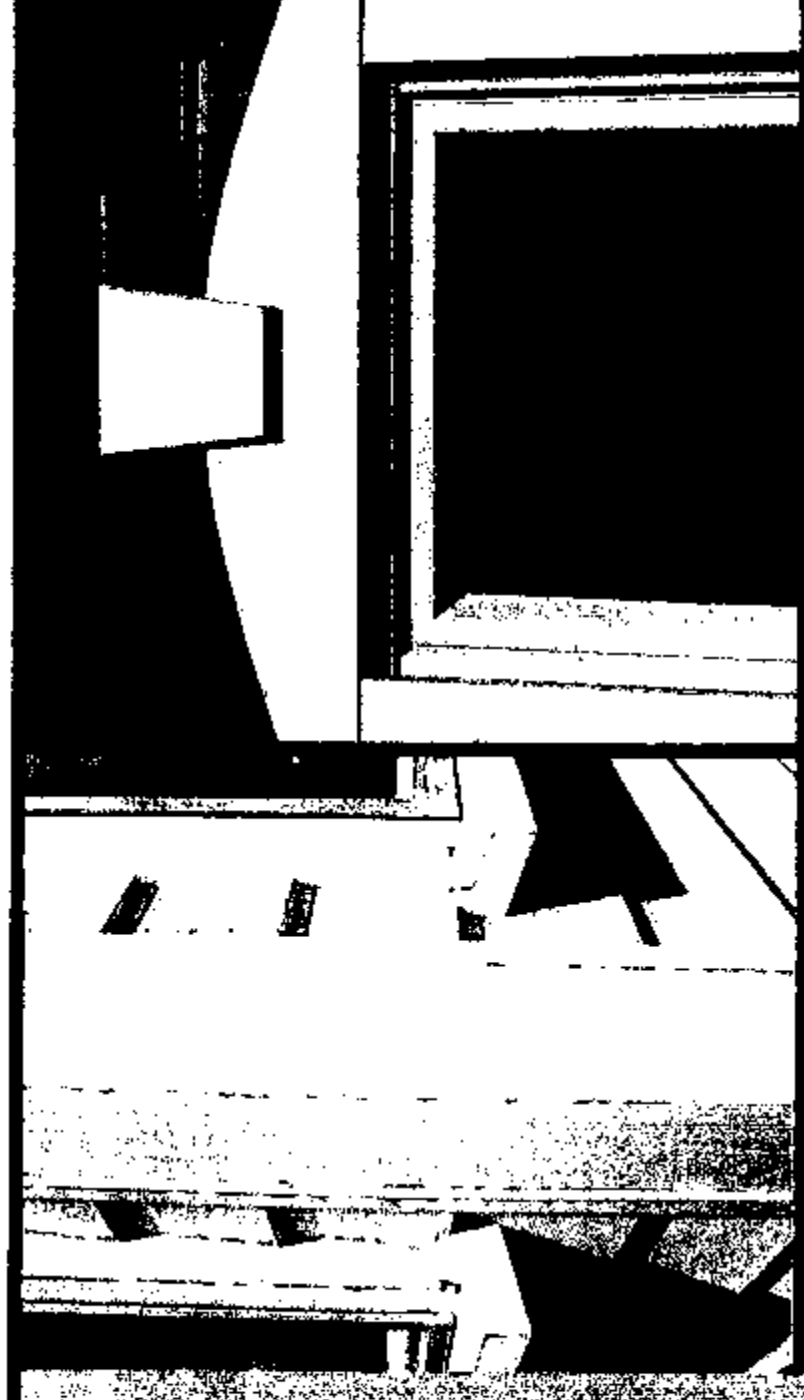
100% 2000000
JAN 2003

TECHNICAL INFORMATION

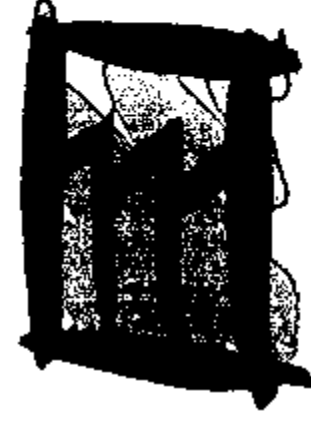
 **Weatherboard** 

TECHNICAL INFORMATION

LINEA 



Weatherboard
Systems



Flashing & cladding details

82 ORANGA ST

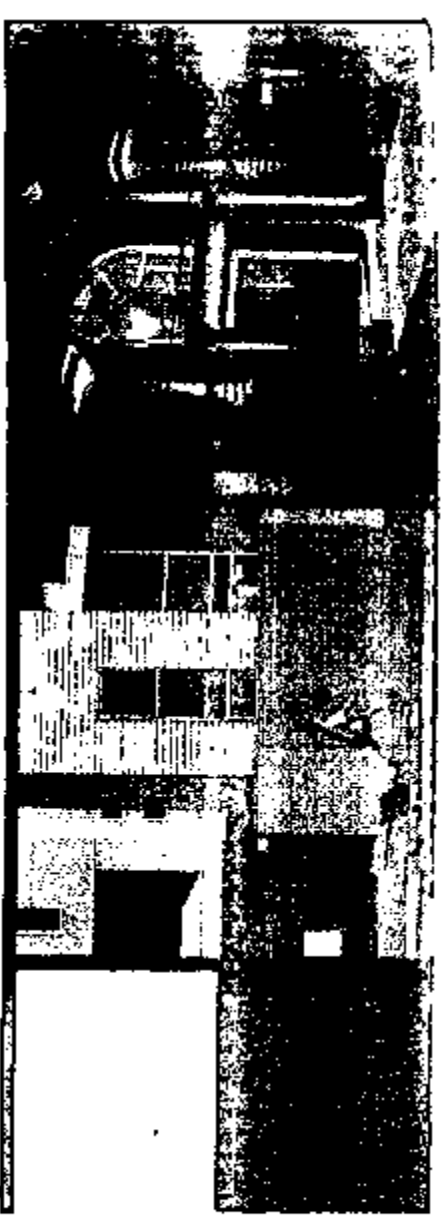
FOR FURTHER INFORMATION CONTACT THE
JAMES HARDIE HELPLINE ON
0800 808 868 TOLL FREE
www.jameshardie.co.nz

AUCKLAND
50 O'Rorke Road, Penrose, Auckland
Phone: 09 579 9919
Fax: 09 579 9919

WELLINGTON
PO Box 30238
Lower Hut
Phone: 04 568 3961
Fax: 04 568 3500

CHRISTCHURCH
PO Box 11106
Christchurch
Phone: 03 342 8890
Fax: 03 342 6176

 **James Hardie**
PO Box 12070
50 O'Rorke Road, Penrose, Auckland
Tel: 0800 808 868 Fax: 0800 808 988
Email: helpline@jameshardie.co.nz
Website: www.jameshardie.co.nz



PREFACE

This Technical Information Manual sets out the requirements for the design and specification of LINEA weatherboard. It includes the specification of component parts of the system and of the complete system. Construction details are provided in a set of Standard Detail Drawings at the back of this manual. This information is available on the Internet at www.jameshardie.co.nz and from James Hardie Customer Services. The Standard Detail Drawings are to be read in conjunction with the system specification, and the LINEA weatherboard Builders' Guide. The Builders' Guide will provide assistance with the construction process.

NEW FEATURES & BENEFITS INCORPORATED IN THE NEW LINEA WEATHERBOARD.

Linea is a reduced density, cellulose cement, bevel back weatherboard system for lightweight construction. This manual covers the use of the system for buildings which fall within the scope of NZS 3604:1999. Specific design and/or detailing may be required if the system is used on buildings which fall outside the scope of NZS 3604:1999 and the published scope in section 1 of this manual.

LINEA weatherboard profiles and accessories provide you the design flexibility to create a range of looks from the traditional with facings and boxed corners to a more contemporary.

James Hardie's breakthrough RDT technology (Reduced Density Technology) enables the manufacture of the thicker profiles and resultant strong shadowlines. The enhanced stability of the RDT technology allows the use of the new tongue & groove easy fit joint and mitre cut corners with confidence. It also delivers:

- extended paint life
- the capability to take dark colours

- enhanced fire ratings
- improved workability and ease of installation
- extra thickness to give a bold shadow line and increased stiffness and straightness on the wall

The LINEA weatherboard system incorporates a Concealed Barrier System and James Hardie Flashing Systems providing a weathertight system and the security of performance.

WE VALUE YOUR FEEDBACK

As a market leader, James Hardie regularly updates its literature to keep up with changing design trends and product and system development. To make our products easier to install, we incorporate into our manuals feedback we receive from the marketplace. Please send any suggestions, including your name, contact details and relevant sketches to: James Hardie Customer Services Fax: 0800 808 988.

© Copyright James Hardie October 2001. This material may not be copied or used for any purpose other than specifying and constructing James Hardie systems without the express written permission of James Hardie New Zealand. It is the designers responsibility to ensure that when only selected parts of this document are copied and used as above, important information is not omitted or other parties misled.

LINEA® weatherboard is a Trademark of James Hardie New Zealand Limited.
ProTek® is a Trademark of James Hardie New Zealand Limited.

CONTENTS

SECTION	PAGE	SECTION	PAGE
Introduction to LINEA weatherboard	2	3.3.9 Opening Flashing and Trim Components	17
Design Options	2	3.3.10 Finishing LINEA weatherboard and Trim	18
New Features	2	3.3.11 Nail Hole Filler	18
LINEA weatherboard Range and Profiles	3	4. LINEA weatherboard System Specifications	20
Architectural Design Options for Openings and Corners	4	4.1 Standard Drawings	20
1.1 Application	5	4.2 Framing Specification and Set-out	20
1.2 Site Requirements	8	4.2.1 General	20
1.3 Structure Requirements	8	4.2.2 Timber Framing Specification	20
1.4 Bracing	8	4.2.3 Special Framing Requirements	20
1.5 Wind Loading	8	4.2.4 Tolerances	21
1.6 Fire Wall Systems	9	4.2.5 Steel Framing	21
1.7 Specific Design and Detailing	9	4.2.6 Curves	21
1.8 Design Considerations	9	4.2.7 Battening Over Other Substrates	21
1.9 The LINEA weatherboard Systems	9	4.3 Wind/Rain Barrier System	21
2.1 LINEA weatherboard Code Compliance	10	4.3.1 LINEA weatherboard Concealed Barrier System	21
2.2 BI Structure	10	4.3.2 James Hardie Flashing System for LINEA weatherboard	22
2.3 Impact Resistance	10	4.3.3 Window and Door Installation Requirements	22
2.4 B2 Durability	10	4.3.4 Insulation	22
2.5 Serviceability	10	4.4 LINEA weatherboard Installation and Fixing	23
2.6 Maintenance	10	4.4.1 LINEA weatherboard Features and Table 7 Accessory Range	23
2.7 C1 Outbreak of Fire	10	4.4.2 LINEA weatherboard End Joints	24
2.8 C3 Spread of Fire	11	4.5 LINEA weatherboard & Trim Installation & Fixing	24
2.9 E2 External Moisture	11	4.5.1 Fixings - Table 8 Fixing Procedures	24
2.10 E3 Internal Moisture	11	4.5.2 Drill Bits	24
2.11 F2 Hazardous Building Materials	11	4.5.3 LINEA weatherboard Set-out	25
2.12 HI Energy Efficiency	11	4.5.4 Fixing LINEA weatherboard	25
2.13 Producer Statements	11	4.5.5 Ground Clearances	25
3.1 The LINEA weatherboard and Trim	12	4.5.6 Balconies Handrails and Parapets	25
3.1.1 LINEA weatherboard Weight	12	4.5.7 Penetrations	25
3.1.2 Testing Procedures	13	4.5.8 Junctions With Other Cladding Types	25
3.2 Wind/Rain Barrier System	13	4.5.9 Sealants	25
3.2.1 Concealed Barrier System	14	4.5.10 Painting	25
3.2.2 ProTek Building Wrap	14	4.5.11 Maintenance	25
3.2.3 ProTek Flashing Tape	15	4.5.12 Cutting and Working LINEA weatherboard	25
3.3 James Hardie Flashing System Components	16	5. LINEA weatherboard Conventional Detailing	27
3.3.1 General	16	5.1 Applications	27
3.3.2 Sill Flashing, Corner Soaker and Jamb Flashing	16	5.2 Compliance	27
3.3.3 Head Flashings	17	6. Accessories Supplied by James Hardie	28
3.3.4 The Boxed Corner Under Flashing	17	Accessories Not Supplied by James Hardie	32
3.3.5 LINEA Trim Facing	17	7. Standard Detail Drawings	36
3.3.6 Packers	17		
3.3.7 Inseal 3109	17		
3.3.8 Sill Flashing, Jointers and Sill Packer	17		

INTRODUCTION TO LINEA WEATHERBOARD

DESIGN OPTIONS

THE RANGE OF PROFILES AND ACCESSORIES AND THE SOPHISTICATION OF THE LINEA SYSTEM PROVIDES DESIGN FLEXIBILITY:

- Strong shadowline and horizontal definition from the thick profile
- Complete freedom of colour choice including the ability to take dark colours
- A choice of stainless steel and copper external corner soakers for contrasting architectural effect
- Chromate-treated aluminium external soakers to paint to match the weatherboards
- Mitred corners for a very clean look and an aluminium box corner for a minimalist aesthetic
- An innovative, easy fit, tongue and groove end joint detail to provide an unobtrusive joint
- A range of trim profiles and design details to create the traditional look with facings at windows and doors, boxed corners, frieze boards and plinth details
- LINEA weatherboards can be used for home extensions as the profiles match the common timber bevel back weatherboard profiles.

Refer to section 5

THE WEATHERTIGHT LINEA SYSTEM INCORPORATES:

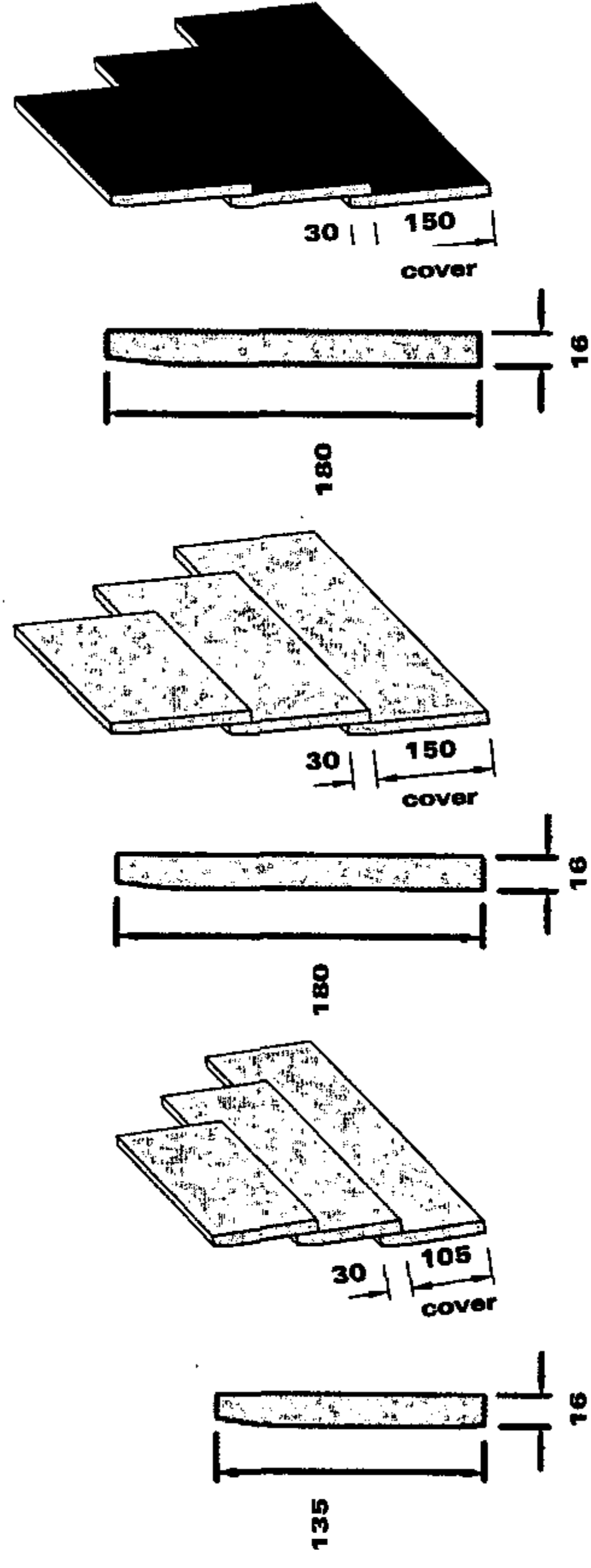
- A Concealed Barrier System that comprises high performance ProTek wrap and ProTek Flashing Tape
- A comprehensive Flashing System to provide a weathertight solution around window and door openings
- The innovative use of compressible inseat tape to provide a weathertight seal at openings and corners – eliminating the need to use scribes to achieve weathertightness

A TESTED SYSTEM

- The LINEA weatherboard system has undergone structural, durability and weather testing at BRANZ, James Hardie NATA accredited Sydney Laboratories and the Telarc registered Architectural Profiles Limited Hamilton Laboratories.

INTRODUCTION TO LINEA WEATHERBOARD

FIGURE 1. LINEA WEATHERBOARD & TRIM RANGE & PROFILES



135 Classic

- A smooth faced pre - primed board which can be painted or stain finished
- Available in 4200mm lengths

180 Classic

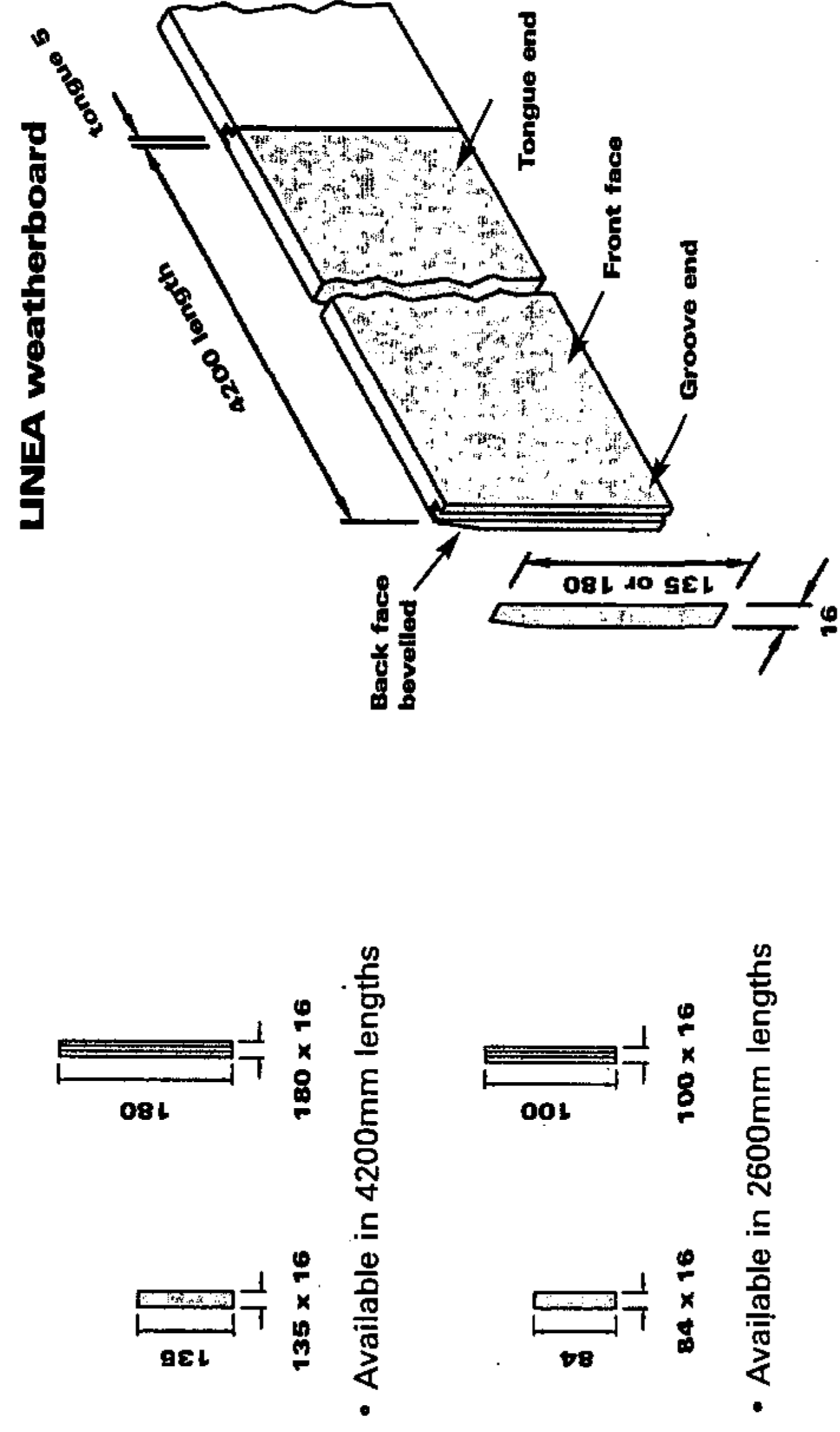
- A smooth faced pre - primed board which can be painted or stain finished
- Available in 4200mm lengths

180 Reeded

- A texture faced pre - primed board which can be painted or stain finished
- Available in 4200mm lengths

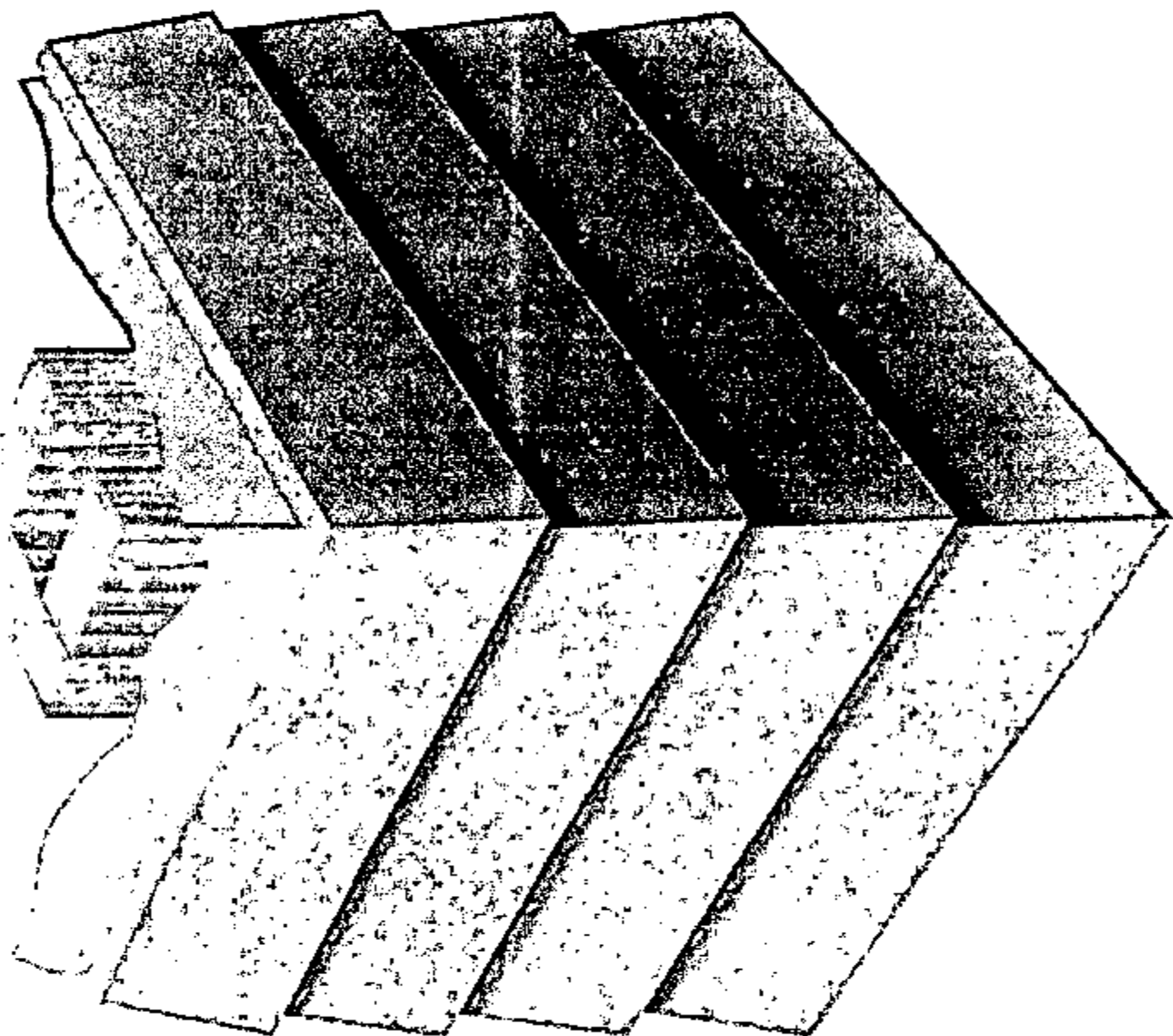
LINEA Trim Profiles

The LINEA trim incorporates RDT (Reduced Density Technology) for ease of handling, cutting and fixing and is pre-primed with acrylic primer. The trim is used for box corner, trim around windows and doors and special architectural features. The range of LINEA trim available is the following:

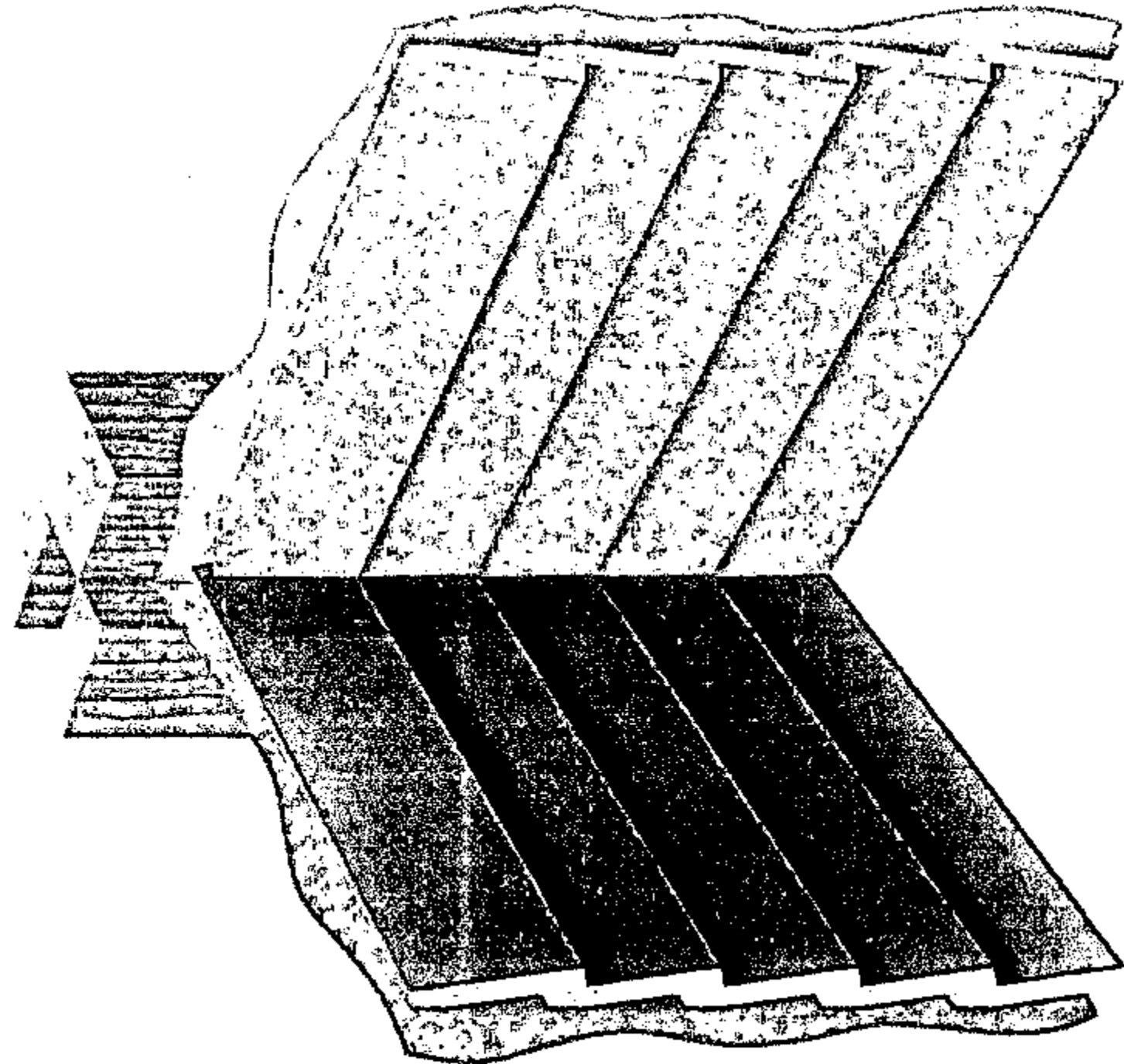


INTRODUCTION TO LINEA WEATHERBOARD

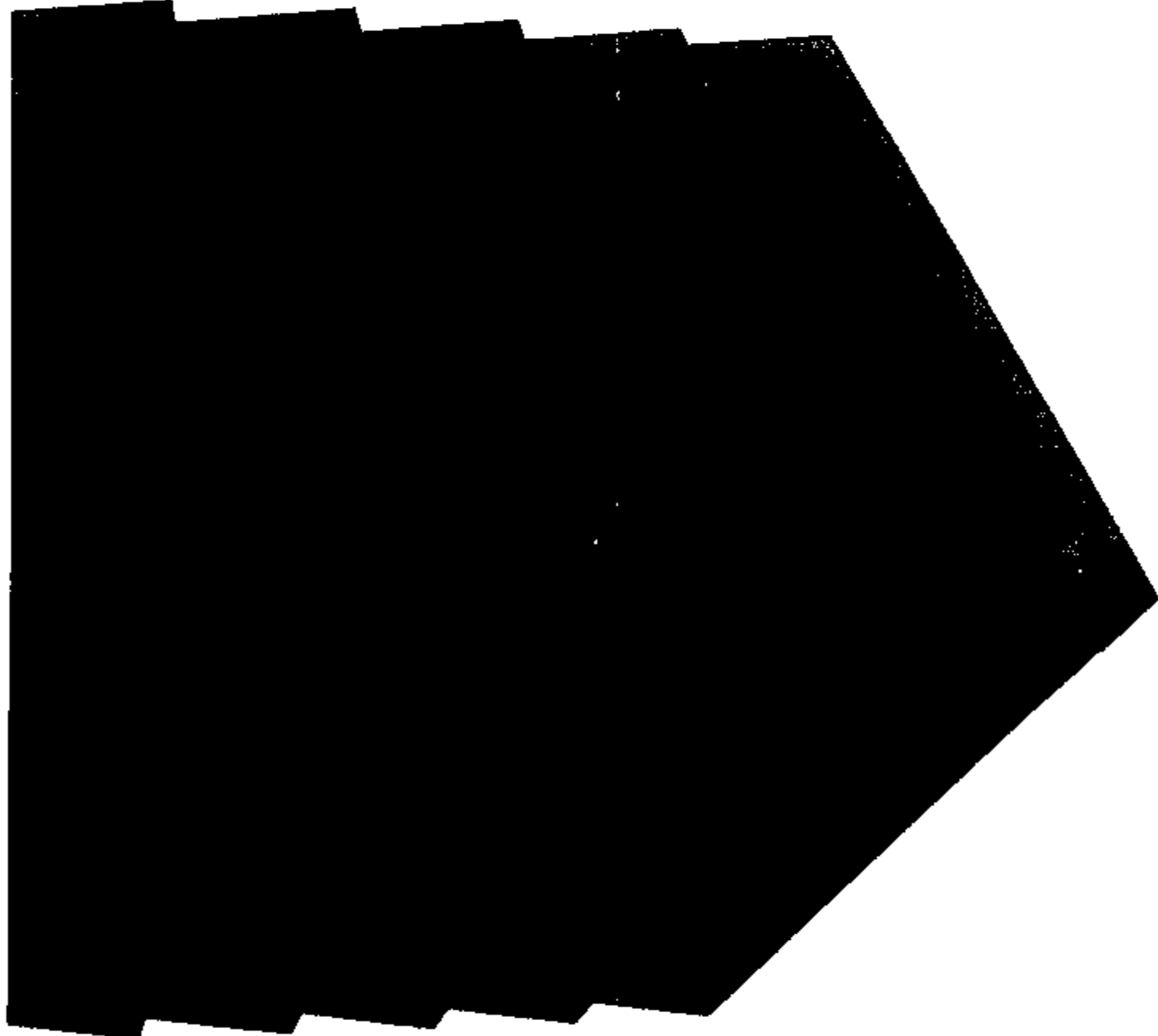
ARCHITECTURAL DESIGN OPTIONS FOR OPENINGS AND CORNERS



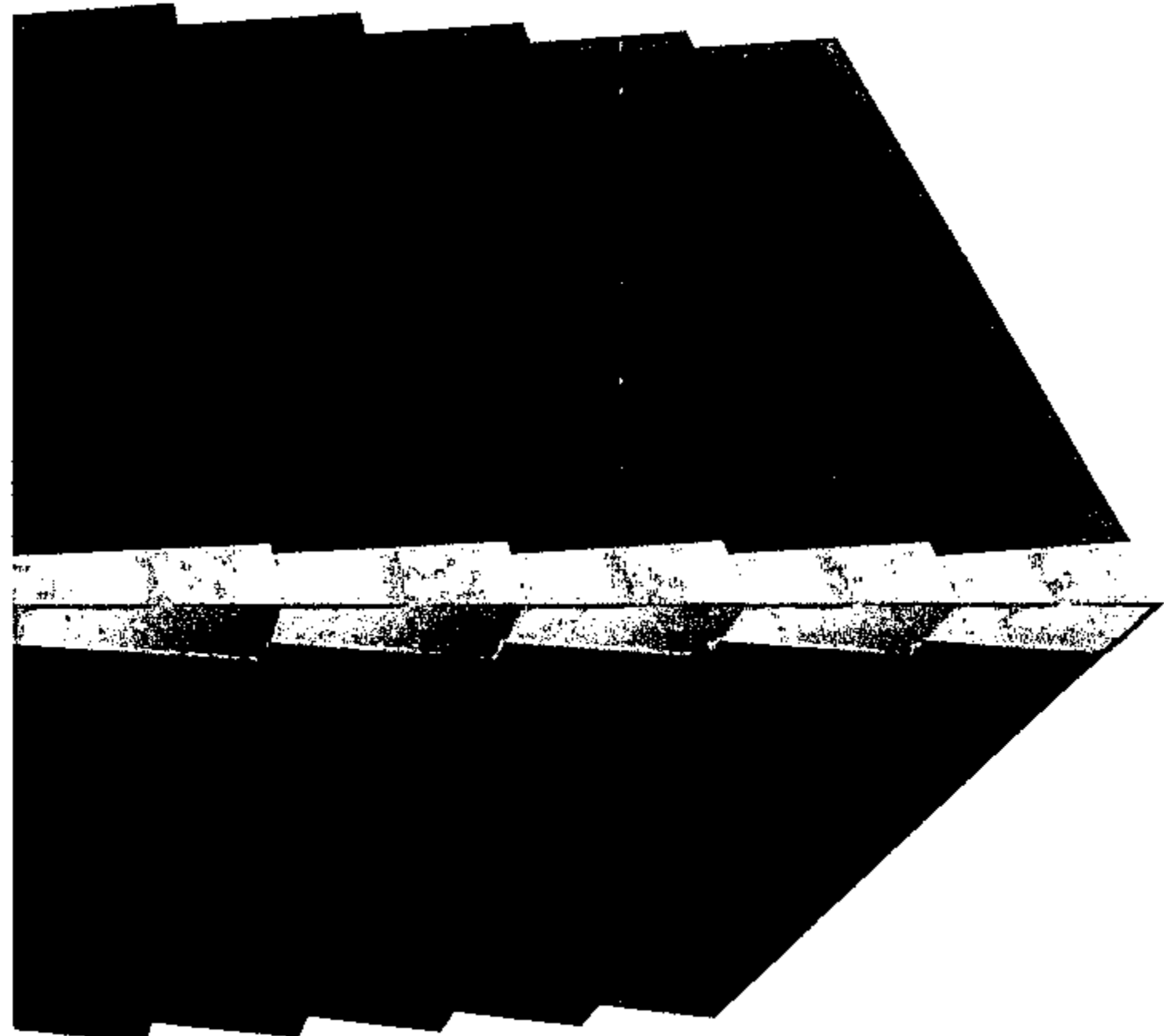
External Mitre Corner



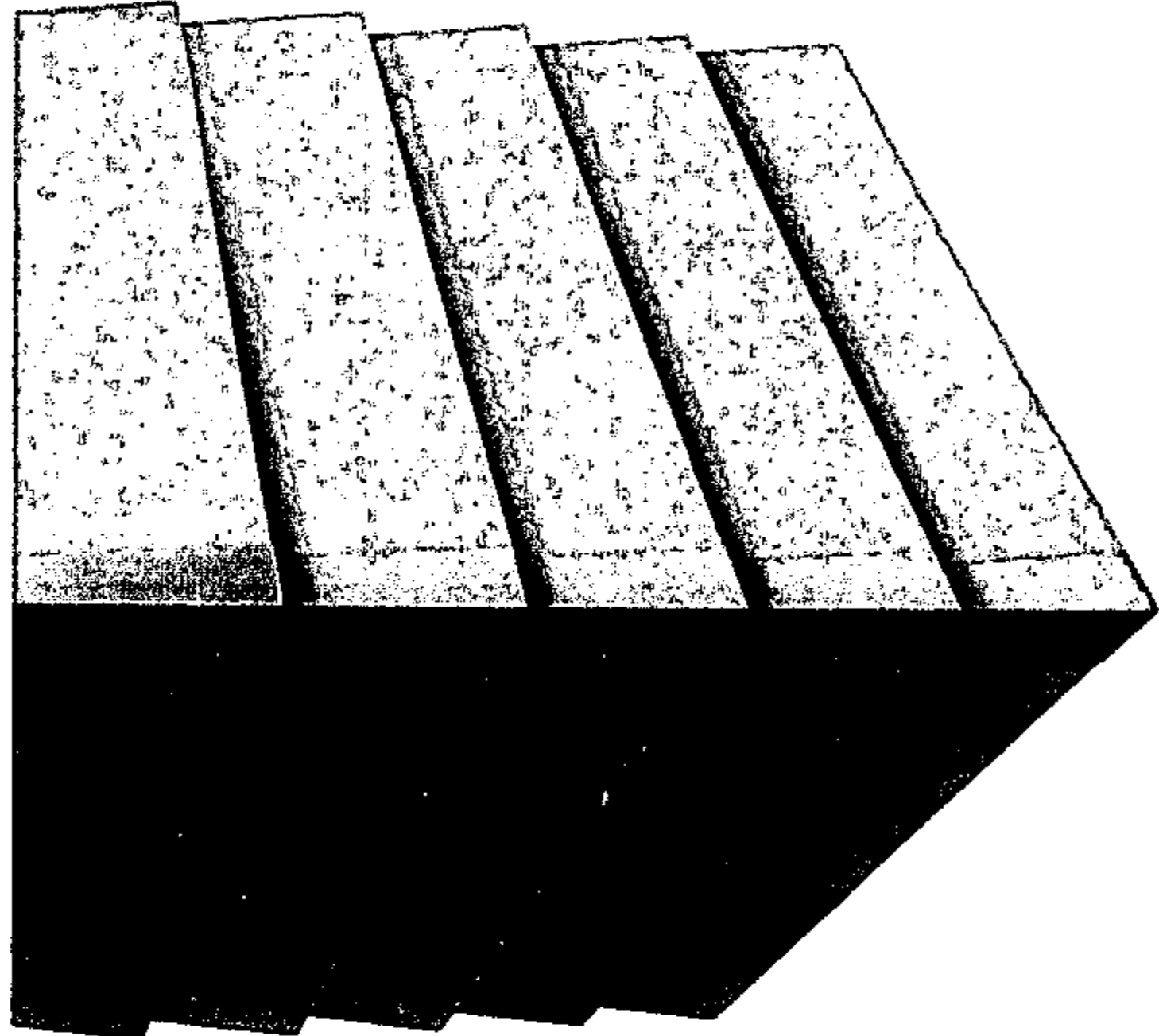
Internal Scribed Corner



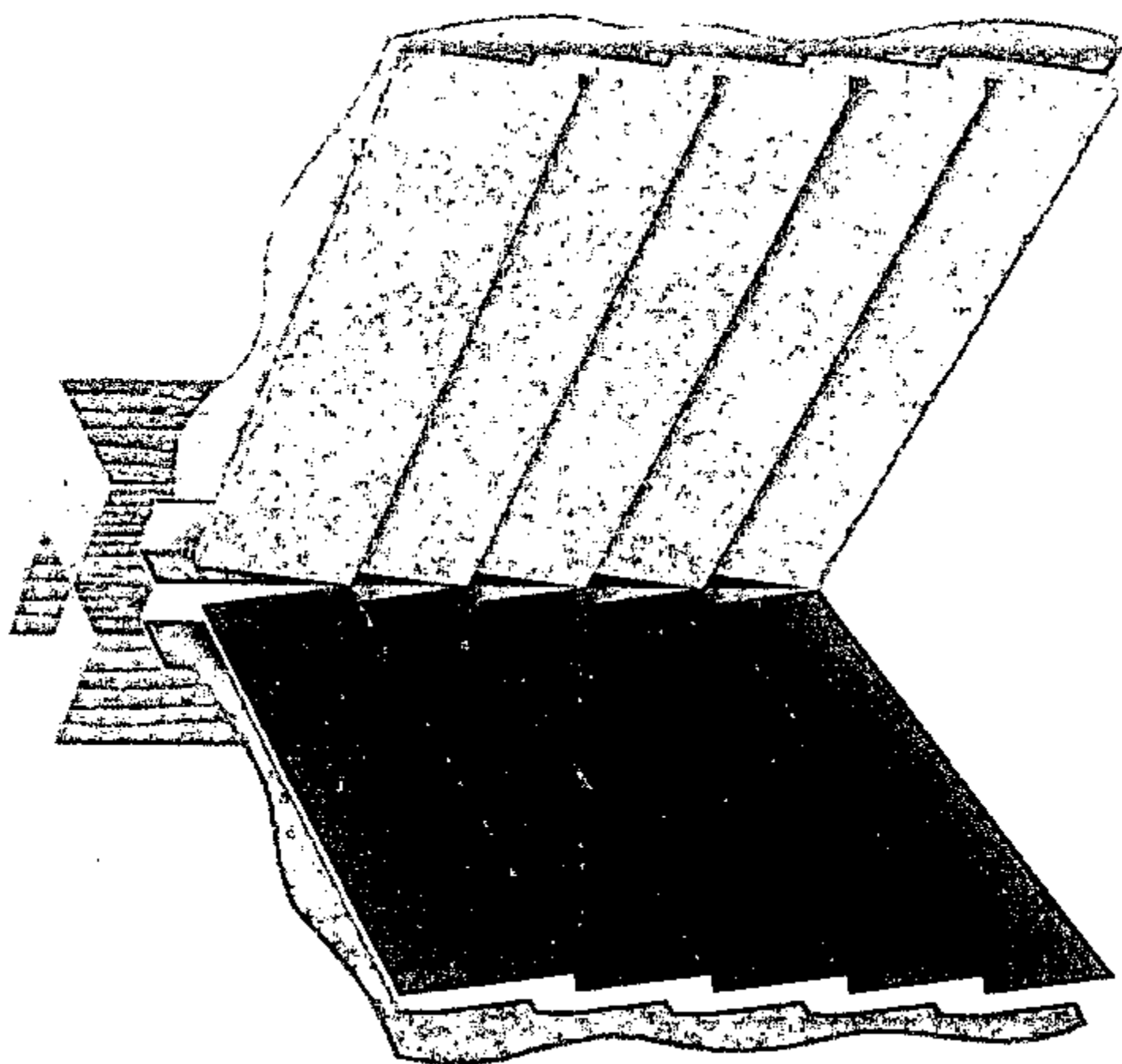
Copper Soakers



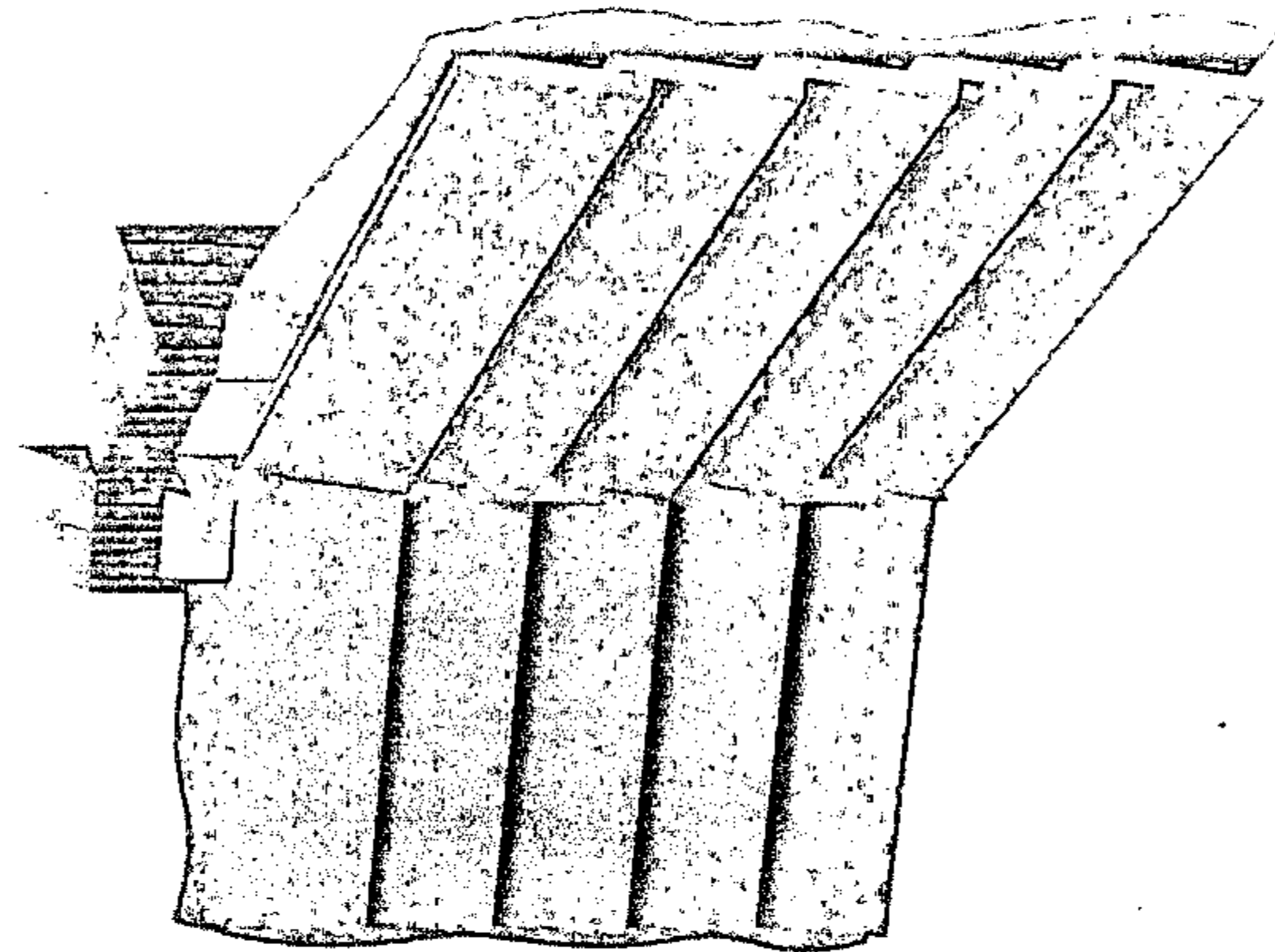
Stainless Steel Soakers



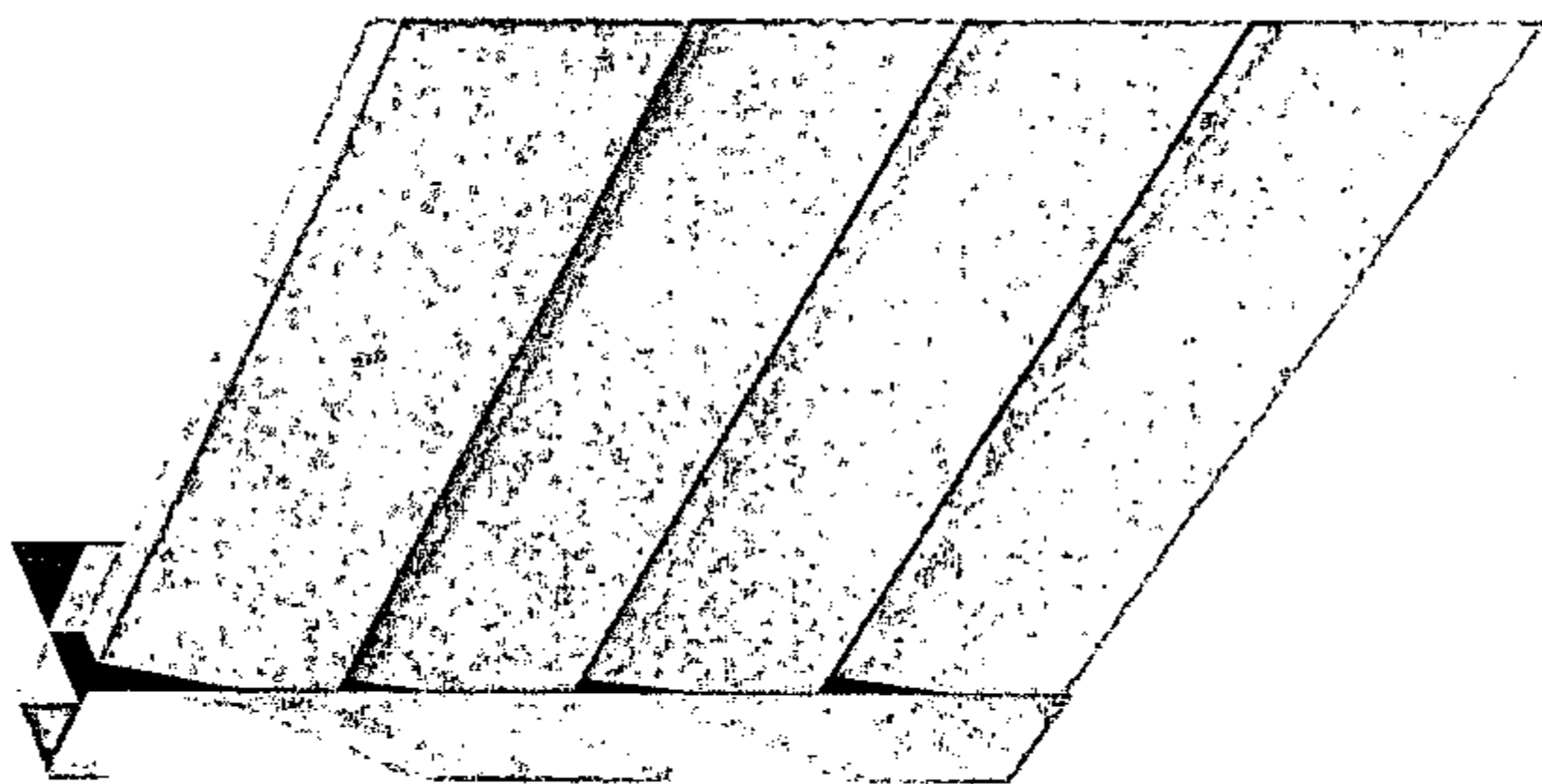
Site Painted Aluminium Soakers



Internal W 90° Aluminium Corner

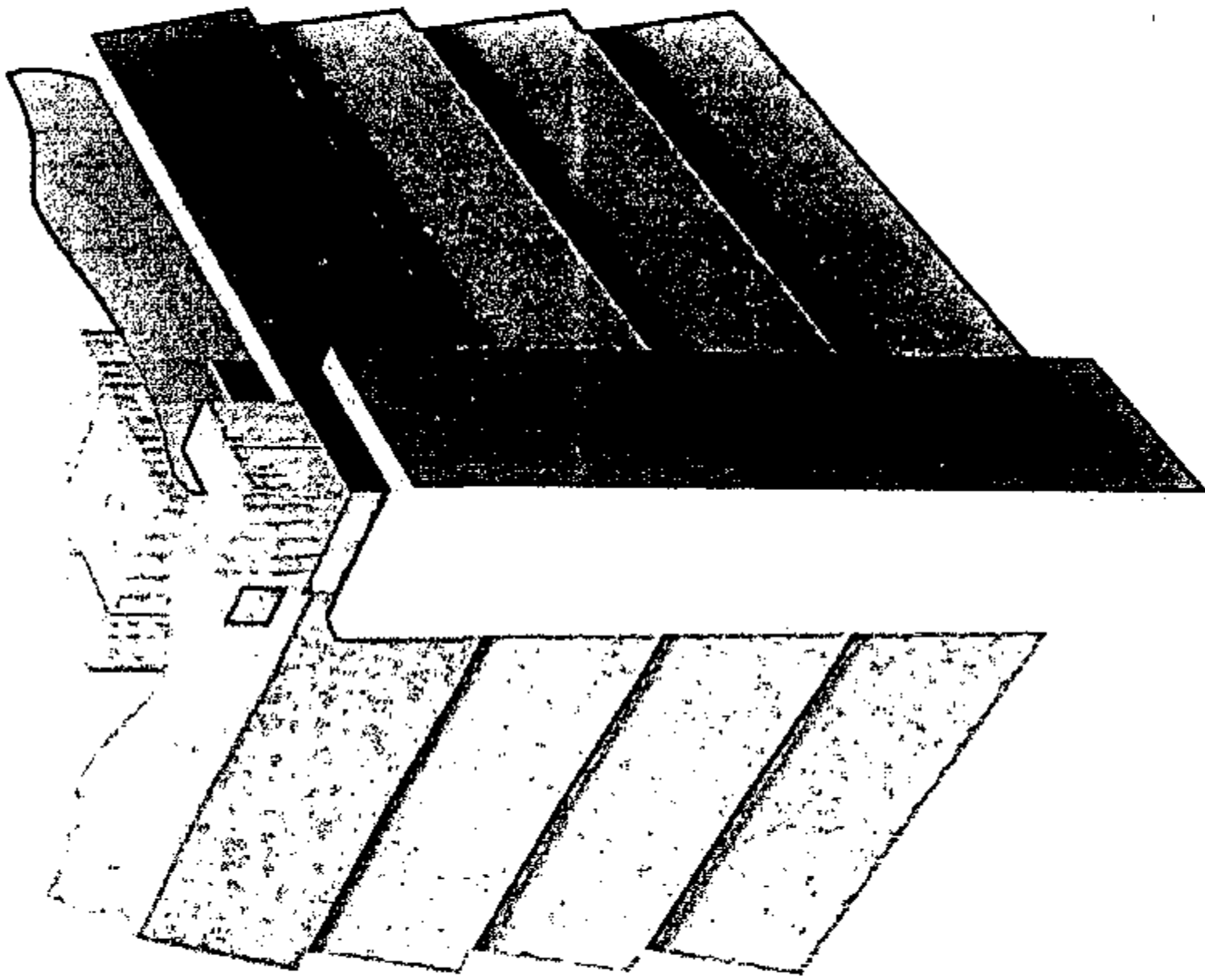


Internal 135° Aluminium Corner

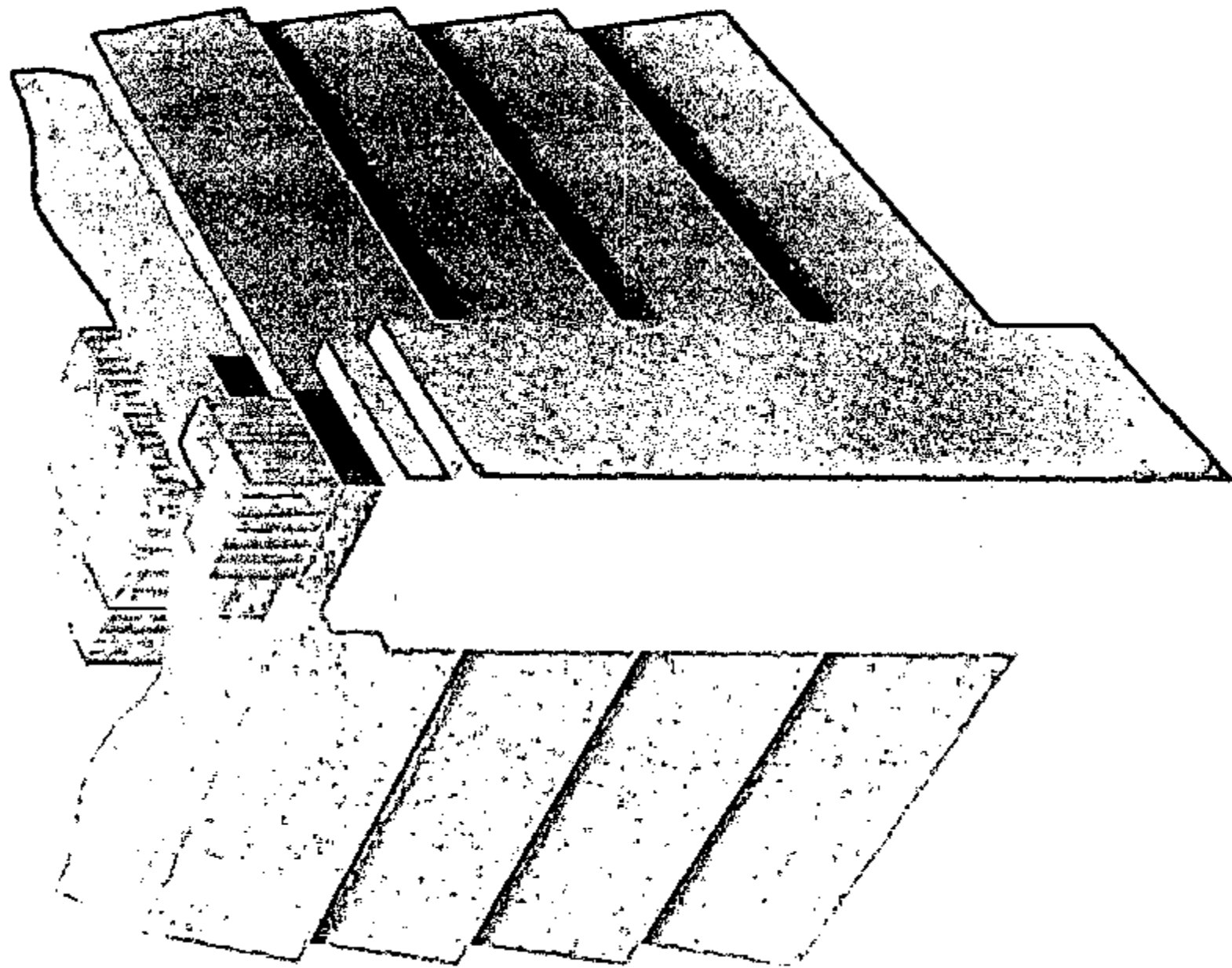
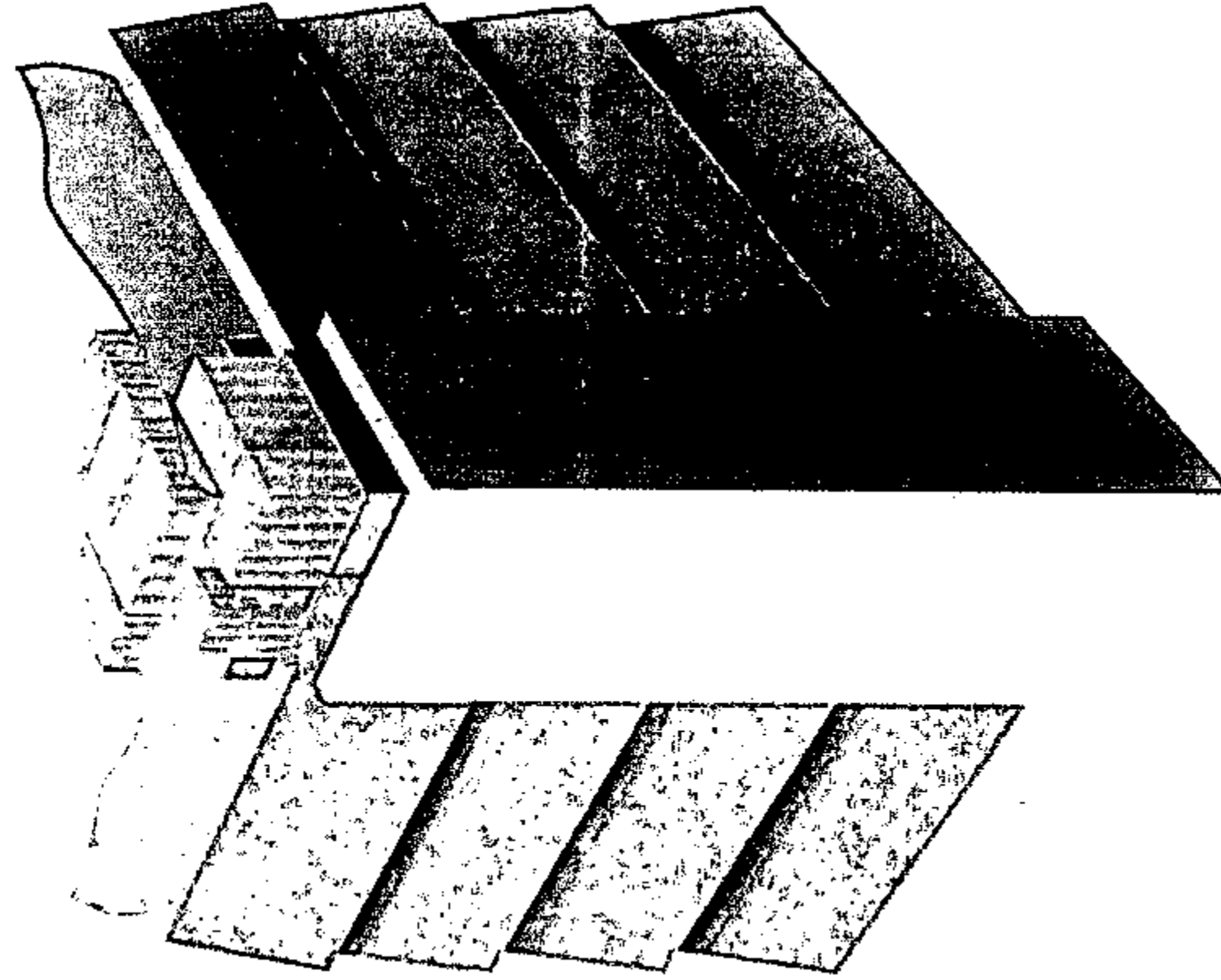


External 90° Aluminium Box Corner

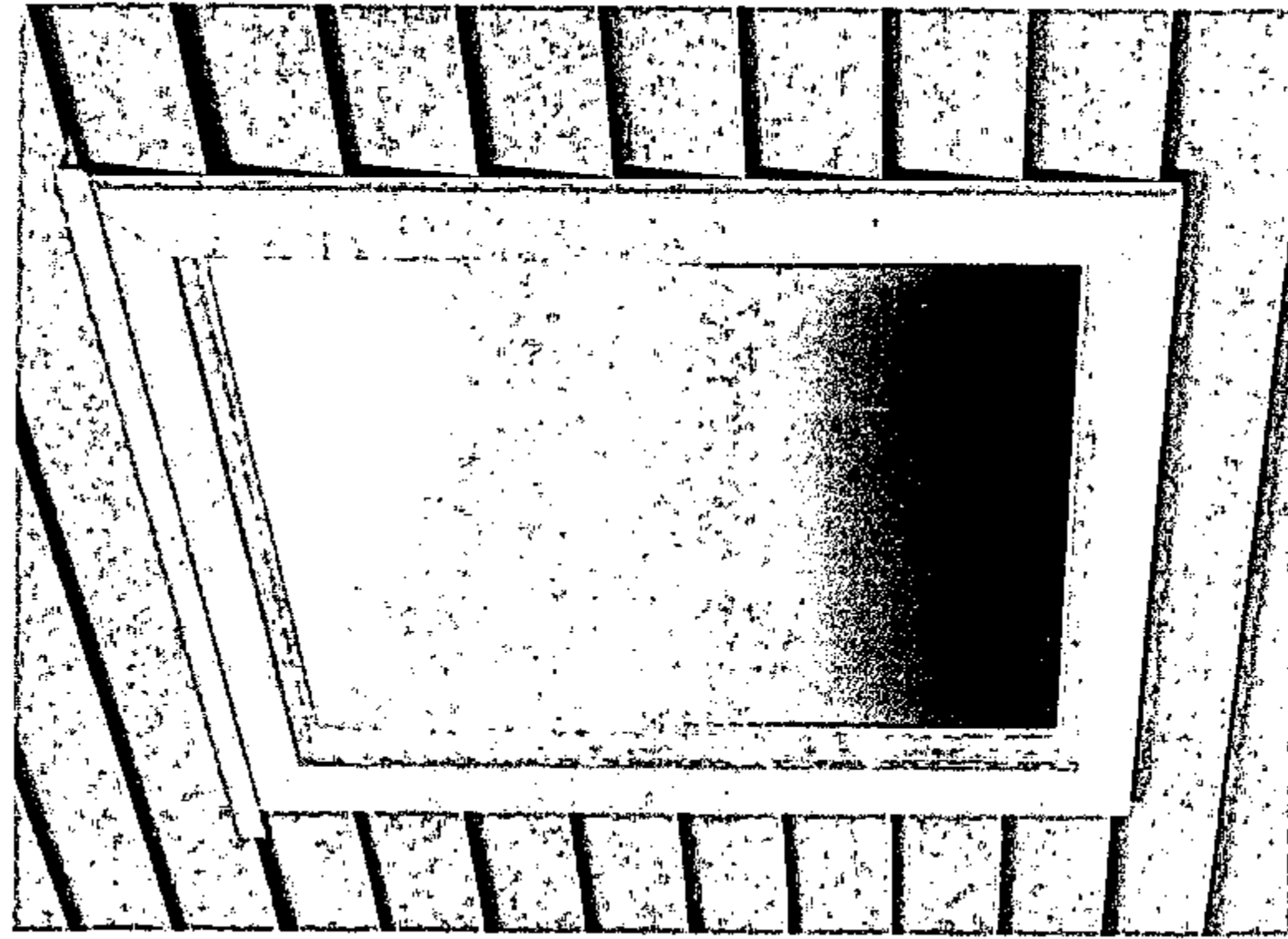
INTRODUCTION TO LINEA WEATHERBOARD



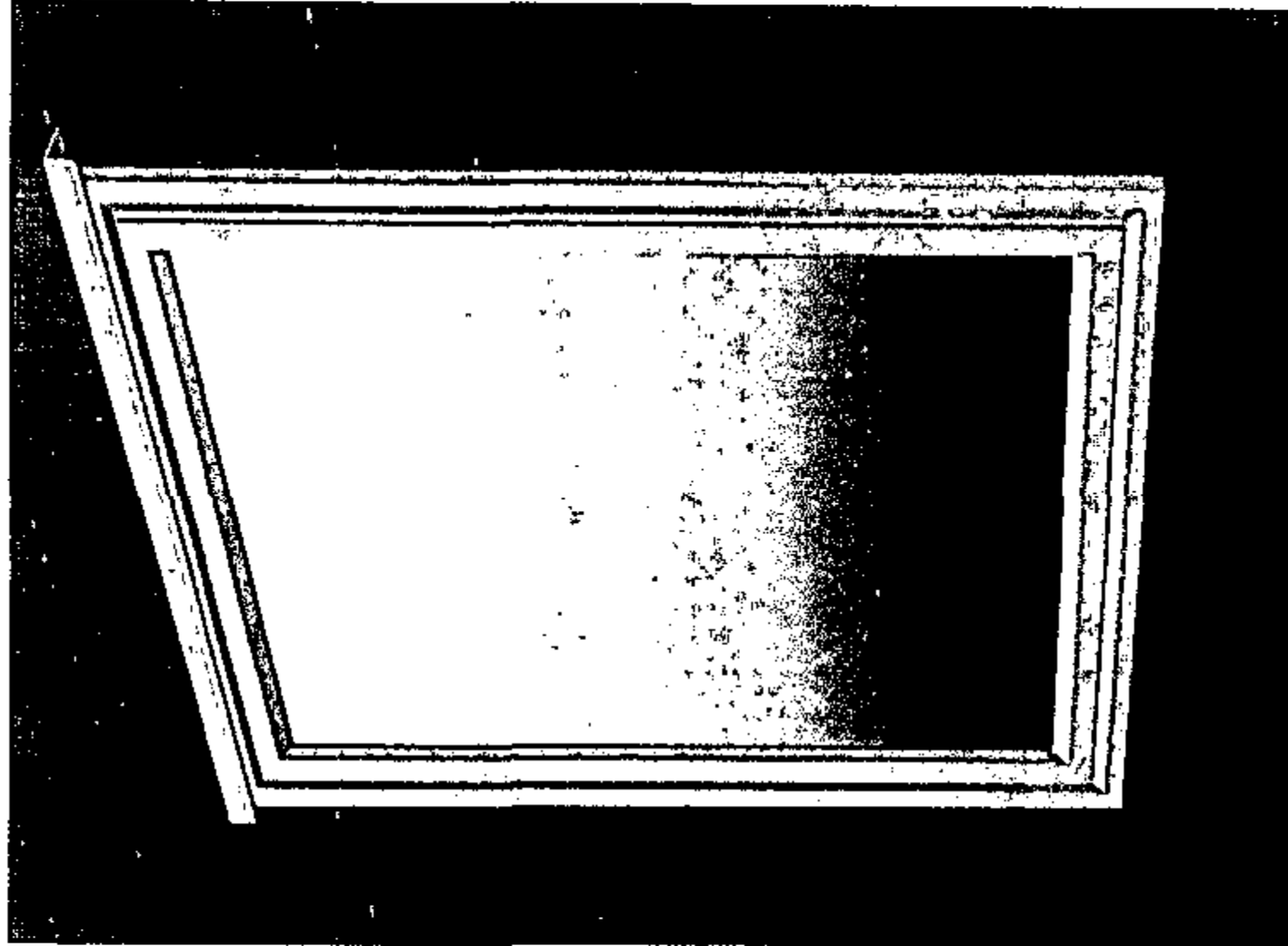
Linea Trim Box Corner 100 x 100 x 16 Linea Trim Box Corner 151 x 135 x 16



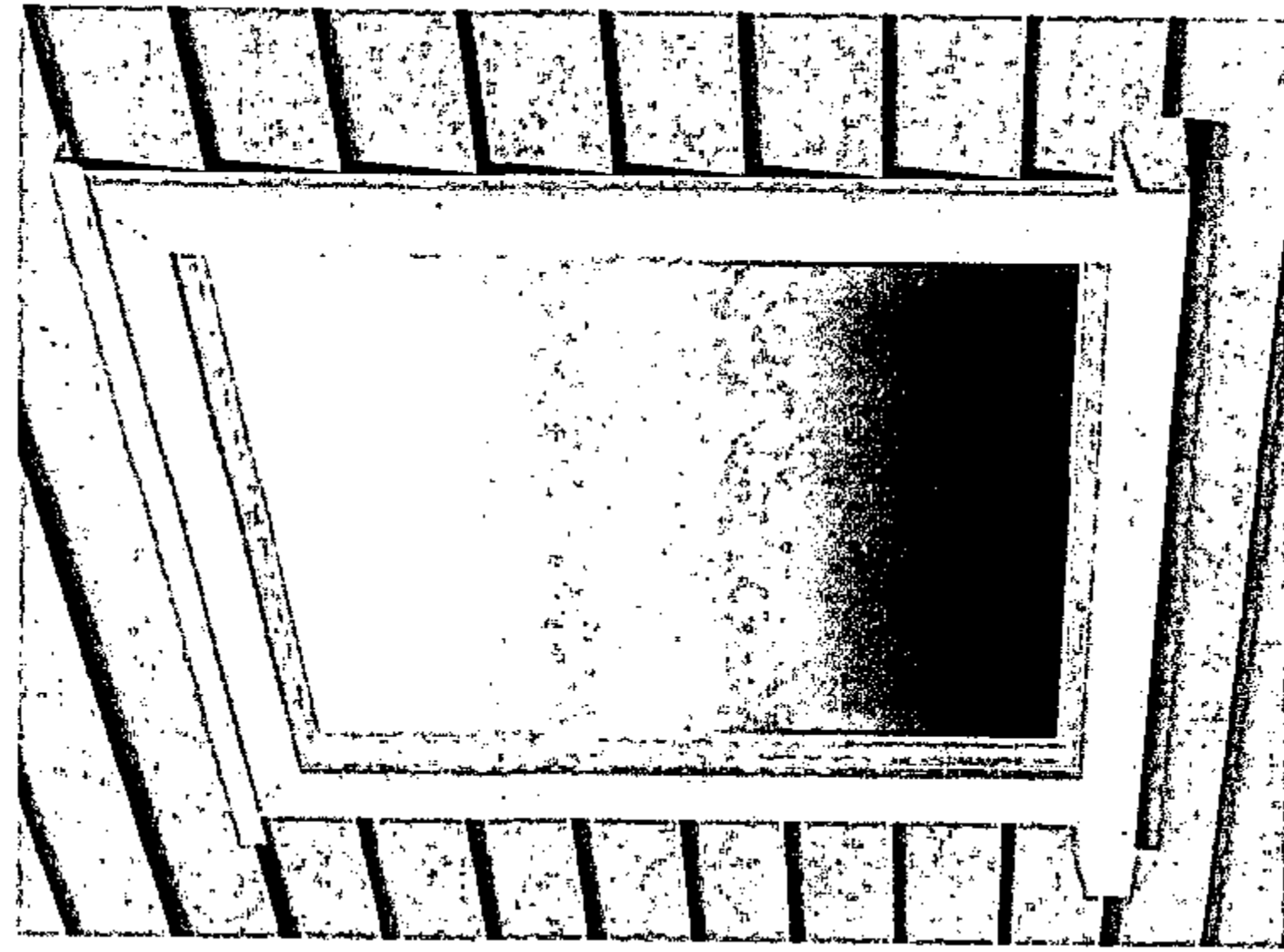
Linea Trim Box Corner 116 x 116 x 32 Window-Linea Trim Facing All Round



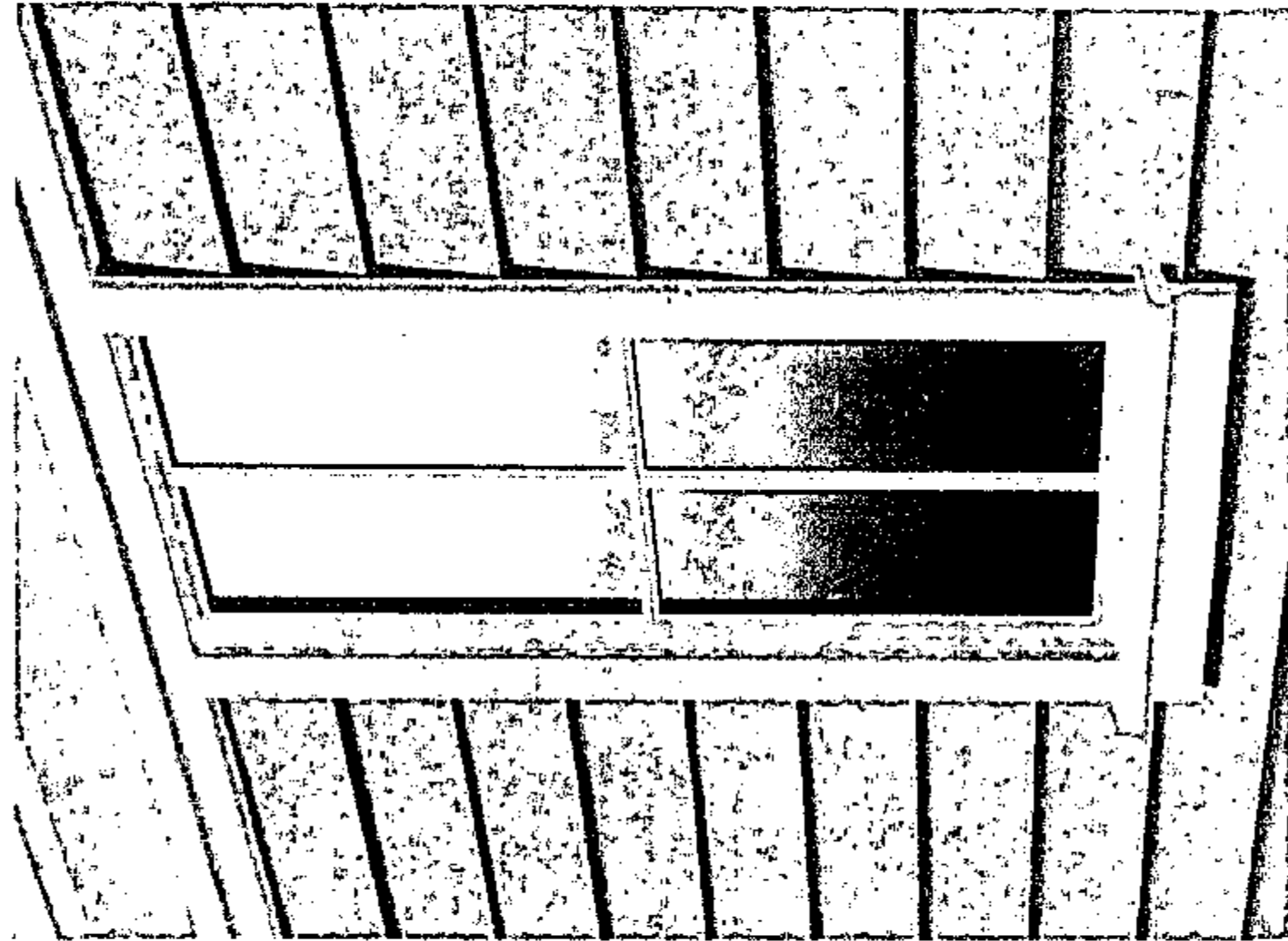
INTRODUCTION TO LINEA WEATHERBOARD



Window-Aluminium Without Trim



Window-Linea Trim & Planted Still



Window-Linea Trim & Frieze Board

SCOPE AND LIMITATIONS OF THE USE OF LINEA WEATHERBOARD

1.1 APPLICATION

LINEA is a new generation, thick weatherboard for lightweight cladding construction for buildings which fall within the scope of NZS 3604:1999 (refer Section 1, NZS 3604:1999).

LINEA weatherboard comprises a number of components detailed in Section 3, which must be used in accordance with Section 4 of this manual, and the LINEA weatherboard Standard Detail Drawings. A Builders' Guide is available as a site reference document to accompany the Standard Detail Drawings.

1.2 SITE REQUIREMENTS

- The site on which the building [to be clad with LINEA weatherboard] is situated must comply with the requirements of NZBC Acceptable Solution E1/AS1
- Ground clearances to the bottom of the cladding must comply with the requirements of NZS 3604:1999
- Foundation design, in all cases, must be either timber or concrete pile, or post or concrete slab in accordance with NZS 3604:1999

1.3 STRUCTURE REQUIREMENTS

- LINEA weatherboard must be fixed directly to either timber or steel framing, or fixed over battens on concrete or masonry walls
- Design of structural frames and walls for load bearing is outside the scope of this document. However minimum requirements for timber member size and spacing are specified. LINEA weatherboard can be used without specific design for those structures which fall within the scope of NZS 3604:1999
- Timber frame buildings must be designed in accordance with NZS 3604:1999.
- Steel frame specifications are not included within the LINEA weatherboard literature and are the subject of specific design. Steel frame manufacturers design information and specifications must be sought in all cases

1.4 BRACING

- The LINEA weatherboards have not been tested for bracing solutions to NZS 3604:1999 and therefore are not to be used as bracing panels

1.5 WIND LOADING

- LINEA weatherboard is suitable for use in wind zones up to and including VH
- The LINEA weatherboard system has been tested structurally at BRANZ and meets all the requirements for wind zones up to and including Very High (VH) as set out in NZS 3604
- The LINEA weatherboard system has also been fully tested at the Telarc accredited laboratories of Architectural Products Limited, Hamilton. The tests are for weather-tightness on wind loads up to and including Very High (VH) as defined by NZS 3604:1999. The system was tested and met the requirements of a water penetration test by static pressure requirements of AS/NZS 4284:1995

SCOPE AND LIMITATIONS OF THE USE OF LINEA WEATHERBOARD

1.6 FIRE WALL SYSTEMS

- When LINEA weatherboard is used as per the specifications and details outlined for weatherboards in the James Hardie Fire and Acoustic Technical Information Manual, it will provide the published performance levels for fire rating

1.7 SPECIFIC DESIGN AND DETAILING

- For use of LINEA weatherboard outside this published scope, specific design may be necessary
- The Architect, Engineer, Designer, Builder or other responsible party to the project is to be responsible for specific design which falls outside this published scope. James Hardie however can provide technical advice, contact James Hardie Customer Services phone 0800 808 868

1.8 DESIGN CONSIDERATIONS

LINEA weatherboard will provide a quality finished cladding, however the following aspects are important to achieving an acceptable result.

KEY FACTORS IN ACHIEVING THE BEST WEATHERBOARD INSTALLATION ARE:

- A true, straight, dry timber frame before any building wrap or weatherboards are installed
- Correct lap dimensions and fixing methods so the weatherboards achieve an unobtrusive joint detail
- Making sure the tongue and groove end joints are tightly fitted to give minimal visual appearance
- Ensure the weatherboard ends are cut to the correct length to achieve a weathertight seal
- Keep to the correct set out modules and make sure all openings are considered at the design stage so the opening suits the weatherboard module.

- The LINEA weatherboard system has been developed specifically for aluminium joinery using standard 19mm liners
- If thicker liners are required, the designer must provide an adequate weathertight detail
- LINEA weatherboards may also be used with timber joinery using conventional details, subject to specific design, refer Section 5

1.9 THE LINEA WEATHERBOARD SYSTEM

- LINEA weatherboards
- LINEA Trim
- LINEA weatherboard Accessory Range
- James Hardie Wind/Rain Barrier System

THE JAMES HARDIE WIND/RAIN BARRIER SYSTEM COMPRISES THE FOLLOWING:

- The Concealed Barrier System comprising:
 - Pro Tek Building Wrap
 - Pro Tek Flashing Tape
- The James Hardie Flashing System

LINEA WEATHERBOARD & THE NEW ZEALAND BUILDING CODE

2.1 LINEA WEATHERBOARD CODE COMPLIANCE

This section of the document outlines the necessary provisions of the Building Code which are required to be met and details of how the LINEA weatherboard system meets them. In some cases specific requirements of the LINEA weatherboard specification are taken from the BIA Acceptable Solutions.

When used as specified in this Technical Information Manual, the LINEA weatherboard Standard Detail Drawings, and James Hardie safe working practices requirements, LINEA weatherboard will meet the relevant provisions of the NZBC in terms of B1 STRUCTURE; B2 DURABILITY; C1 OUTBREAK OF FIRE; C3 SPREAD OF FIRE; E2 EXTERNAL MOISTURE; E3 INTERNAL MOISTURE; F2 HAZARDOUS BUILDING MATERIALS and H1 ENERGY EFFICIENCY.

2.2 B1 STRUCTURE

When used as directed by this LINEA Technical Information, LINEA weatherboard will meet the provisions of NZBC B1.3.1, B1.3.2 and B1.3.4 for physical provisions (f), (h) and (i) of B1.3.3

2.3 IMPACT RESISTANCE

LINEA weatherboard has adequate resistance to the impacts likely to occur in normal residential use. If greater impact resistance is required specific design will be necessary. Contact James Hardie Customer Services on 0800 808 868.

2.4 B2 DURABILITY

When designed, constructed and maintained in accordance with the specifications in this document and the LINEA weatherboard Standard Drawings, the LINEA weatherboard system will meet the provisions of the NZBC B2.3.1(b) of 15 years in terms of cladding. Refer also to the maintenance section in the Weatherboard Builders' Guide.

2.5 SERVICEABILITY

When properly maintained LINEA weatherboards are expected to have a serviceable life in excess of 50 years.

2.6 MAINTENANCE

The paint systems require maintenance as setout in the maintenance section of the Builders' Guide. Joints, sealants and flashings must be maintained in a waterproof state.

2.7 C1 OUTBREAK OF FIRE

Compliance with the provisions of NZBC C1.3.1 and C1.3.2 will be dependant upon the type of painting system used for a given wall location. In safe paths and some boundary wall applications it may be necessary to check that the painting system is appropriate for the application. Contact the appropriate paint company for details.

2.8 C3 SPREAD OF FIRE

When LINEA weatherboard is used for exterior cladding with a surface coating of not more than 1.0mm in thickness, it will meet the performance provisions of the NZBC C3.3.5 provided James Hardie Fire Resistance Rated systems are used as necessary.

Where paint is greater than 1.0mm thick, the fire performance of the paint needs to be considered in safe paths and some boundary wall applications for the various purpose groups given in Acceptable Solution C/AS1 Appendix C table 7.5. It may be necessary to check that the paint systems are appropriate for the application. Contact the appropriate paint company for details.

ProTek has a flammability index of 2.9 when tested to AS1530.2:1993. ProTek will meet the requirements of C/AS1 Part 7 Table 6.2 for surface finish requirements for suspended flexible fabrics.

2.9 E2 EXTERNAL MOISTURE

When LINEA weatherboard is designed and installed in accordance with this the LINEA Technical Information, Standard Detail Drawings and Builders' Guide then the LINEA weatherboard system will meet the requirements of NZBC E2.3.2.

2.10 E3 INTERNAL MOISTURE

When LINEA weatherboard is constructed to the requirement of this technical brochure, the system will meet the requirements of E3 internal moisture. The weatherboards need to be finish painted within 3 months of installation to fully comply with the requirements of E3. Refer to the paint specification.

LINEA WEATHERBOARD & THE NEW ZEALAND BUILDING CODE

2.11 F2 HAZARDOUS BUILDING MATERIALS

When the LINEA weatherboard components are used and installed in accordance with this Technical Information and the LINEA Builders' Guide, they will not present a hazard to people and the LINEA weatherboard system will meet the requirements of NZBC F2.3.1.

2.12 H1 ENERGY EFFICIENCY

When LINEA weatherboard is designed and installed in accordance with the LINEA Technical Information, Standard Detail Drawings and Builders' Guide then LINEA weatherboard will meet the requirements of H1/VM1 and meet the requirements of H1.3.1(a) for timber frame.

2.13 PRODUCER STATEMENTS

When LINEA weatherboard is used and constructed in accordance with this manual, the Standard Detail Drawings and the LINEA Builders' Guide without substitution of components or alteration, then James Hardie has in the form of this manual presented a producer statement on the performance of the system as specified.

James Hardie recommends that the specifications and details of the LINEA weatherboard system are strictly adhered to in order to avoid building approval difficulty. Details which are not included in this specification should be approved by the Territorial Authority prior to construction.

LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

3.1 THE LINEA WEATHERBOARD AND TRIM

James Hardie New Zealand is an ISO 9002 Telarc certified manufacturer.

James Hardie manufacture LINEA weatherboard and trim specifically for New Zealand's unique environment. James Hardie achieves this by manufacturing to in-house material performance standards, especially developed by James Hardie Research and Development. In addition to the in-house manufacturing standards James Hardie conducts manufacturing and type tests outlined in AS/NZS 1276.1 : 1999, AS/NZS 1530.3: 1999, AS 1530.4:1997, AS/NZS3991.2:1992, AS/NZS3991.3: 1992, AS/NZS3991.4: 1992, AS/NZS3991.5: 1992, AS/NZS3991.6: 1992, AS/NZS 2908.2:2000, AS/NZS 3837:1998, ASTM C1185-99, ASTM D1037:99 and ASTM E96 -00.

The LINEA weatherboard and trim has been developed specifically for this system.

It is a reduced density, formulation incorporating James Hardie patented RDT (Reduced Density Technology) which provides many benefits in the LINEA weatherboard system.

The LINEA weatherboard and trim is lighter, and provides a substrate which is more stable because it is less sensitive to change in moisture content.

The LINEA weatherboard is supplied preprimed in acrylic primer. Site cut weatherboard edges and ends must be primed before installation, refer painting page 19.

The back face of the weatherboard has the name LINEA printed at regular intervals.

LINEA TRIM

The LINEA trim is used for box corners, trim around windows and doors and special architectural features. It is supplied pre-primed with an acrylic primer.

LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

3.1.1 LINEA WEATHERBOARD WEIGHT

LINEA weatherboard is defined as a Light Wall Cladding (not exceeding 30kg/m²) in NZS 3604:1999.

The weight of LINEA weatherboard:

- 180 Classic per metre – 3.5kg
- 180 Classic per length – 14.65kg
- 135 Classic per metre – 2.6kg
- 135 Classic per length – 11.0kg
- 180 Reeded per length – 3.5kg
- 180 Reeded per length – 14.65kg

The weight on the wall for lapped LINEA Weatherboard is:

- 135mm – 25kg per square metre
- 180mm – 23.3kg per square metre

3.1.2 TESTING PROCEDURES

1. Structural testing

The LINEA weatherboards were tested at BRANZ Laboratories to determine the strength under face wind loading. These tests determined the LINEA weatherboard system fixed to this technical information will meet all the wind loading zones up to and including very high as required by the wind loading section of New Zealand's non-specific design standard NZS 3604: 1999 Timber Framed Buildings.

2. Weather Testing

The LINEA weatherboard and all the corner, opening and joint systems have been tested at the Telarc registered Architectural Profiles Limited (APL) Hamilton Laboratories. These test walls were subjected to a combined testing regime taken from AS/NZS 4284: 1995 (static and cyclic loading) and NZS 4211: 1985. These tests confirmed the LINEA weatherboard system exceeded all pressure levels required by NZS 3604: 1999 (up to 1.5 kPa) therefore the system can be confidently used in all wind zones up to and including very high as required by NZS 3604: 1999.

3. Durability Testing

Accelerated durability testing was carried out at James Hardie's NATA accredited Sydney Laboratories. These tests showed the LINEA weatherboard system passed all durability testing.

4. Fire Resistance Rating

LINEA weatherboard is suitable for use in a James Hardie fire resistance rated system in accordance with AS1530: 1997. The substitution of LINEA weatherboard in any current James Hardie fire rated wall, would not be detrimental to its published fire resistance.

	LENGTH (MM)	WIDTH (MM)	EFFECTIVE COVER (MM)	THICKNESS NOMINAL (MM)	END DETAILS
135mm Classic LINEA weatherboard	4200	135	105	16	T & G
180mm Classic LINEA weatherboard	4200	180	150	16	T & G
180mm Reeded Textured LINEA weatherboard	4200	180	150	16	T & G
135mm LINEA Trim	4200	135	-	16	T & G
180mm LINEA Trim	4200	180	-	16	T & G
84mm LINEA Trim	2600	84	-	16	Square
100mm LINEA Trim	2600	100	-	16	Square

Refer Figure 1 for LINEA profile.
Length is 4200mm plus 5mm for the T & G making the length 4205mm overall.

LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

3.2 THE JAMES HARDIE WIND/RAIN BARRIER SYSTEM

COMPONENTS

- The Concealed Barrier system comprising:
 - ProTek Building Wrap
 - ProTek Flexible Flashing Tape
- The James Hardie Flashing Systems

3.2.1 THE CONCEALED BARRIER SYSTEM

During construction, especially in winter, timber frames get wet, often taking valuable time to dry out before cladding can take place. Short term wetting and drying prior to cladding installation presents no problems, other than drying time. However, if the frame becomes continuously wet or is not able to dry out to below 18% moisture content then stability and durability issues arise.

To protect of timber framing from moisture, James Hardie have incorporated The Concealed Barrier System, comprising ProTek Building Wrap and ProTek Flashing Tape for use with LINEA weatherboard. The Concealed Barrier System provides temporary protection to the timber frame during construction and in conjunction with the LINEA weatherboard provides a

'drainage plane' in service and thus enhanced durability of the system should moisture intrusion occur behind the exterior cladding face.

The Concealed Barrier System also provides an air barrier which restricts the amount of air which can pass through the cladding system at penetrations. This limits the amount of moisture which can be driven into the wall along with moving air. It improves insulation performance by reducing draughts through cladding systems. A good air barrier will not only reduce wind driven moisture at penetrations but also reduce draughts contributing to comfort and satisfaction for homeowners.

The Concealed Barrier System provides full cover for the frame prior to the installation of the cladding.

The Concealed Barrier System when installed to this brochure complies as a wind barrier for bevel back weatherboards in very high wind zones as required by clause 11.5.2.6 of NZS 3604.

Components			
	Aluminium Windows	Timber Windows	
Very High	Yes (mandatory)	Yes (mandatory)	Not applicable
High	Yes (mandatory)	Yes (mandatory)	Not applicable
Medium	Recommended Alternative building wraps complying with AS/NZS4200 can be used	Yes (mandatory)	Not applicable
Low	Recommended Alternative building wraps complying with AS/NZS4200 can be used	Yes (mandatory)	Not applicable

LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

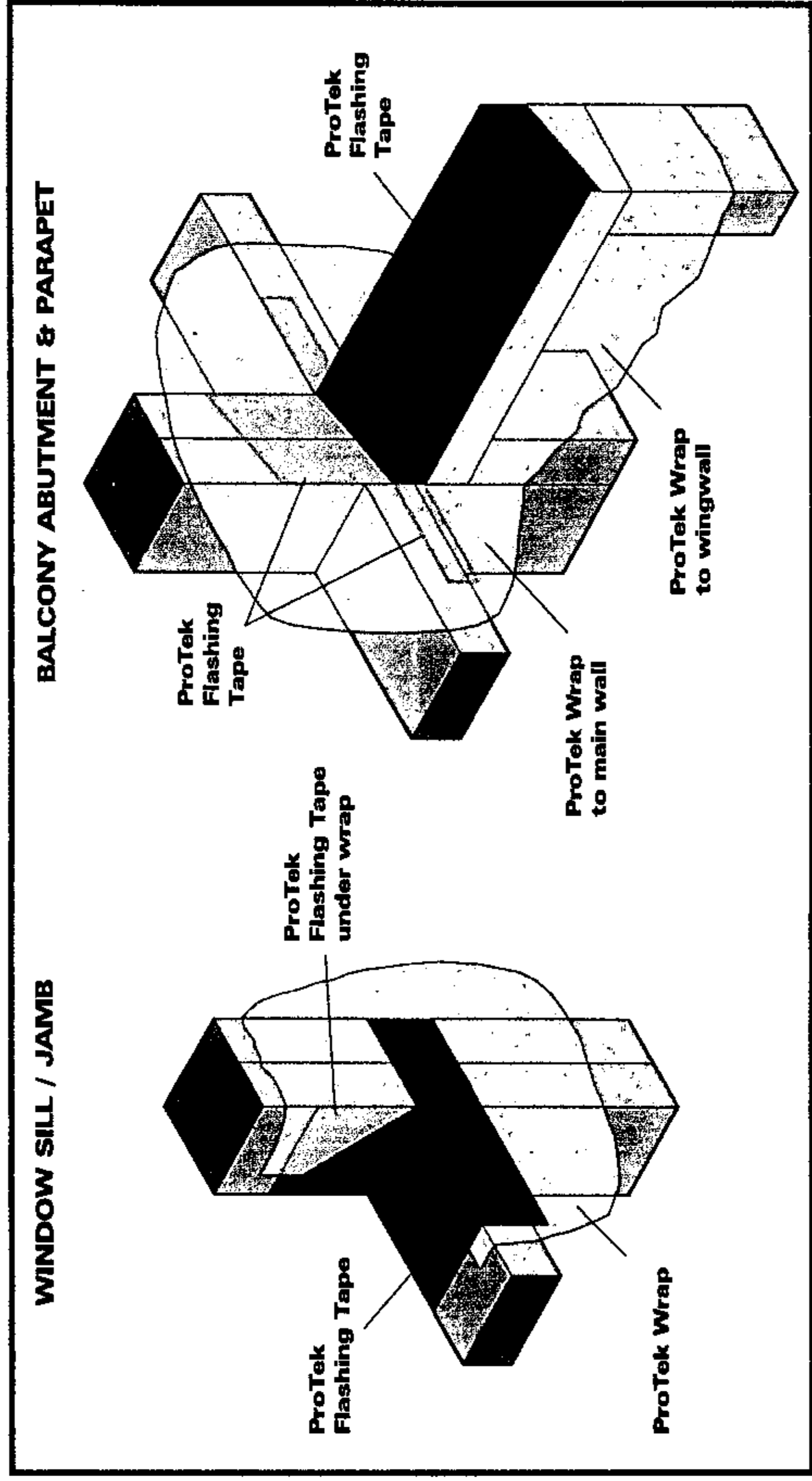


Figure 2. Concealed Barrier

3.2.2 PROTEK BUILDING WRAP

ProTek Building Wrap is a non-perforated, non-woven polyolefin. It is a waterproof, yet breathable material, preventing the passage of liquid water but allowing water vapour to pass. It has been tested in accordance with and passes the requirements of AS/NZS 4200.1:1994 and conforms to the requirements of NZS 3604:1999 for non-rigid wall claddings with the exception of surface absorption.

ProTek is non absorbent, a property which is not required for LINEA weatherboard or any James Hardie cladding solution because James Hardie cladding sheets are absorbent. ProTek must not be used behind non-absorbent claddings such as steel, PVC and aluminium.

ProTek has a flammability index of 2.9 when tested in accordance with AS 1530.2:1993, which means it may be used in the walls of all buildings with no restrictions. ProTek meets the requirements of Acceptable Solution C/AS1 Table 4 for the surface finish requirements for suspended flexible fabrics. ProTek must be separated from flues, chimneys and fuel burning appliances. Acceptable Solution C1/AS1 gives methods of achieving this separation.

LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

Testing of James Hardie cladding systems with ProTek Building Wrap has shown that ProTek has excellent air barrier properties. Independent testing conducted in the United States showed that it outperformed the closest competition in air penetration resistance tests.

ProTek has also undergone further testing in addition to that required by AS/NZS 4200.1:1994; 90 day real-time exposure and cyclical heat ageing. The results showed that both had negligible effect on water permeability, water vapour permeability and strength.

ProTek Building Wrap is available in a roll 2.74m wide x 45.7m long being (125m²). The 2.74m roll height reduces time in wrapping the frame.

The product is beige in colour and identified by branding on its face in large print with the following;

PROTEK
BUILDING WRAP BY James Hardie

3.2.3 PROTEK FLASHING TAPE

ProTek Flashing Tape is used in conjunction with the wrap to provide a complete water resistant barrier prior to fixing the cladding. The tape is used at changes of plane and at vulnerable areas such as sills and handrails, details for its use are given in the LINEA weatherboard Standard Detail Drawings. ProTek Flashing Tape must not be exposed to the exterior environment during its service life after installation of the cladding.

The product is a highly conformable, adhesive coated, low-density black polyethylene with a thin blue release liner to allow cutting and positioning prior to adhering in place. It is 0.9mm thick with a working temperature range of between - 1 and 60°C.

ProTek flashing tape is available in a roll of nominal size 150mm x 30m long.

PROTEK
FLASHING TAPE BY James Hardie

3.3 JAMES HARDIE FLASHING SYSTEM COMPONENTS

3.3.1 GENERAL

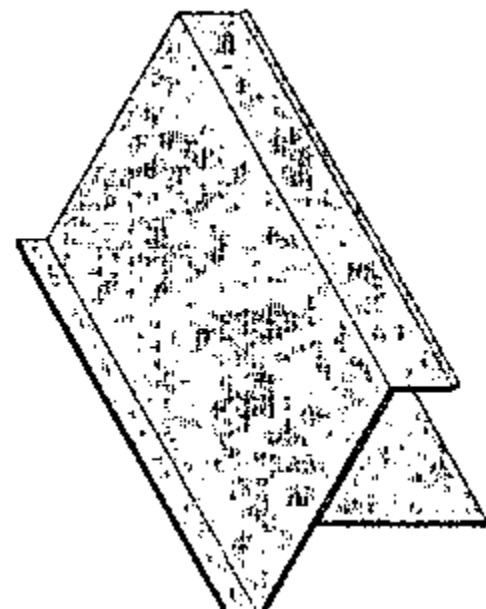
A full perimeter window flashing kit has been developed specifically for use with LINEA weatherboard. It has been developed and tested to NZS 4211:1983 and AS/NZS 4284:1995 to exceed the requirements of NZS 3604:1999 in terms of wind zone VH for external moisture intrusion.

James Hardie Flashings Systems components are manufactured from aluminium and grey uPVC packed in polythene bags with the following branding on the outside of the packaging.

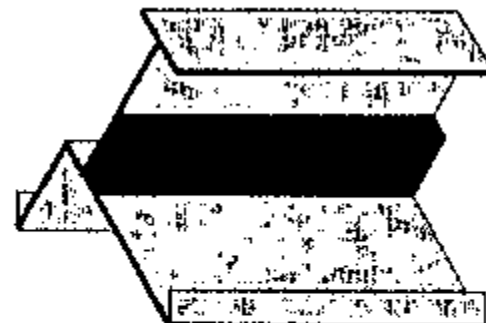
FLASHING
SYSTEMS BY James Hardie

3.3.2 SILL FLASHING, JAMB FLASHING AND CORNER FLASHINGS

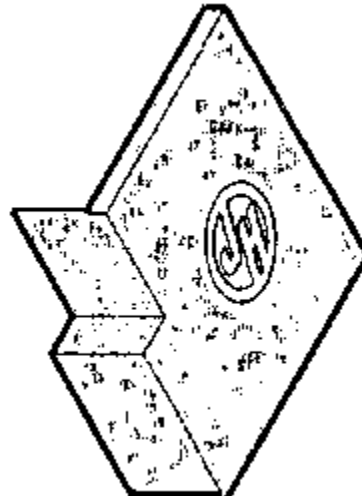
These components when used together ensure that any ingress of water is diverted to the outside of the cladding at window and door penetrations. The corner soaker is a pivotal component in providing a 'join' between the sill and the jamb flashings.



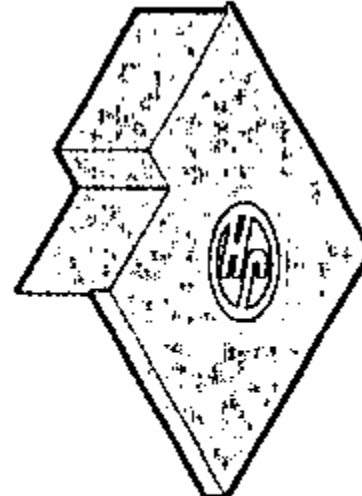
Sill Flashing



Jamb Flashing



LH Corner Flashings



RH Corner Flashings

LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

3.3.3 HEAD FLASHINGS

Head flashings are an imperative component in diverting water to the outside of the building envelope.

A choice of one and two part flashings have been developed for the LINEA weatherboard system, refer Table 3.

LINEA WEATHERBOARD HEAD FLASHING SYSTEM			
Without trim	One piece	Chromate treated aluminium	Site painted to match weatherboard
	Two piece	uPVC base aluminium push in outer	Outer piece power coated or anodised to match joinery
With trim	One piece	Chromate treated aluminium	Site painted to match weatherboards

3.3.4 BOX CORNER Z FLASHING

A uPVC under flashing is available for weathering under LINEA trim box corners.



Box corner Z flashing

3.3.7 INSEAL 3109

2 sizes of Inseal are available, 10 x 9mm for sealing the window to the jamb flashing and 5 x 3mm for sealing the LINEA trim facings to the windows.

3.3.8 SILL FLASHING JOINTERS AND SILL PACKER

In order to make the use of this flashing system easier round long windows, purpose made joiners for the sill flashings have been provided. Specific details for their use are included in the Standard Detail Drawings.

In order to pack the window above the lip on the sill flashing, a standard uPVC packer is also provided.

3.3.5 LINEA TRIM FACING

These are available 16mm thick in 84mm, 100mm, 135mm and 180mm widths for box corners and facings around windows and doors.

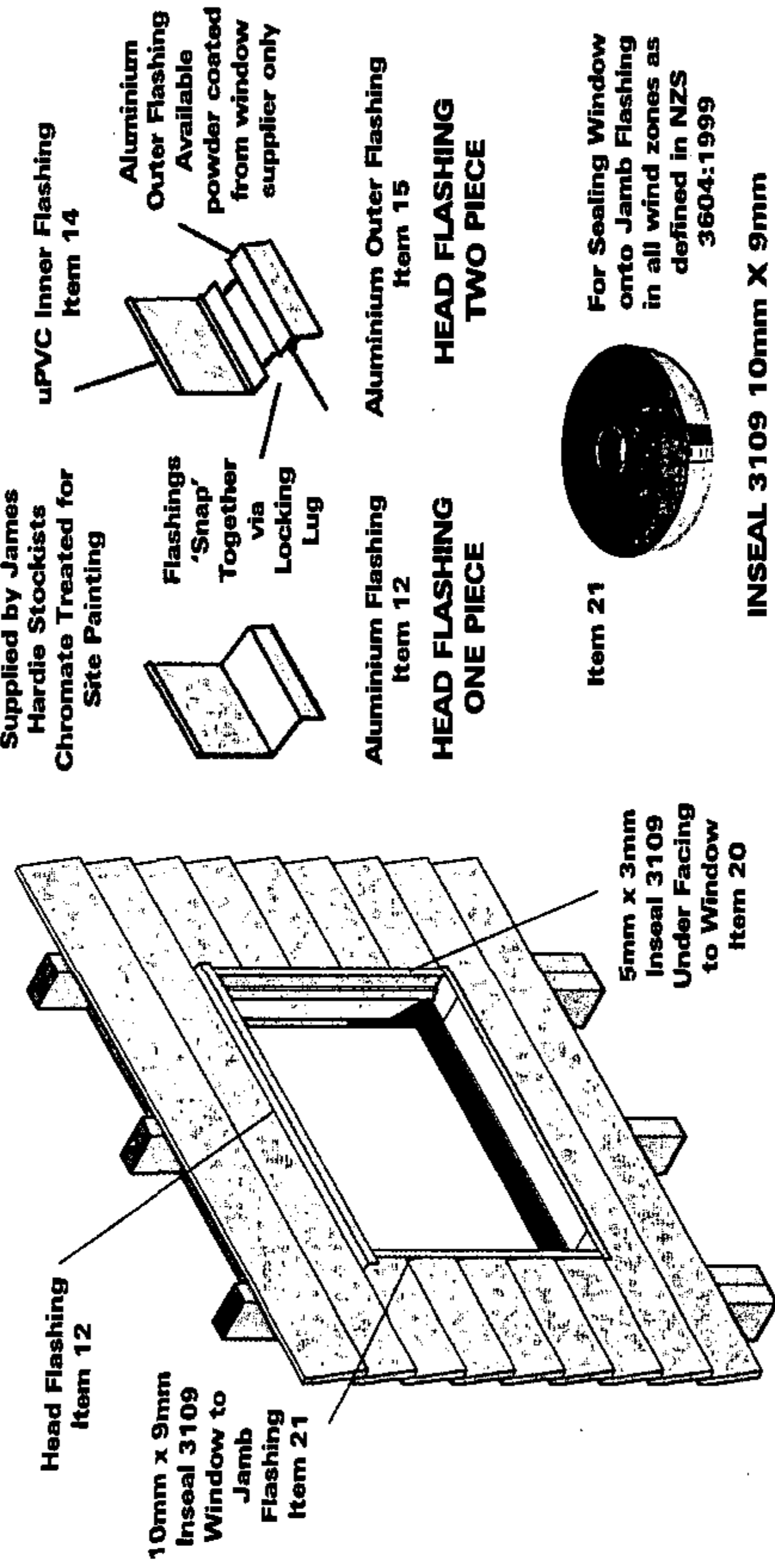
3.3.6 PACKER

A 70mm x 7.5mm Hardiflex packer is also available.

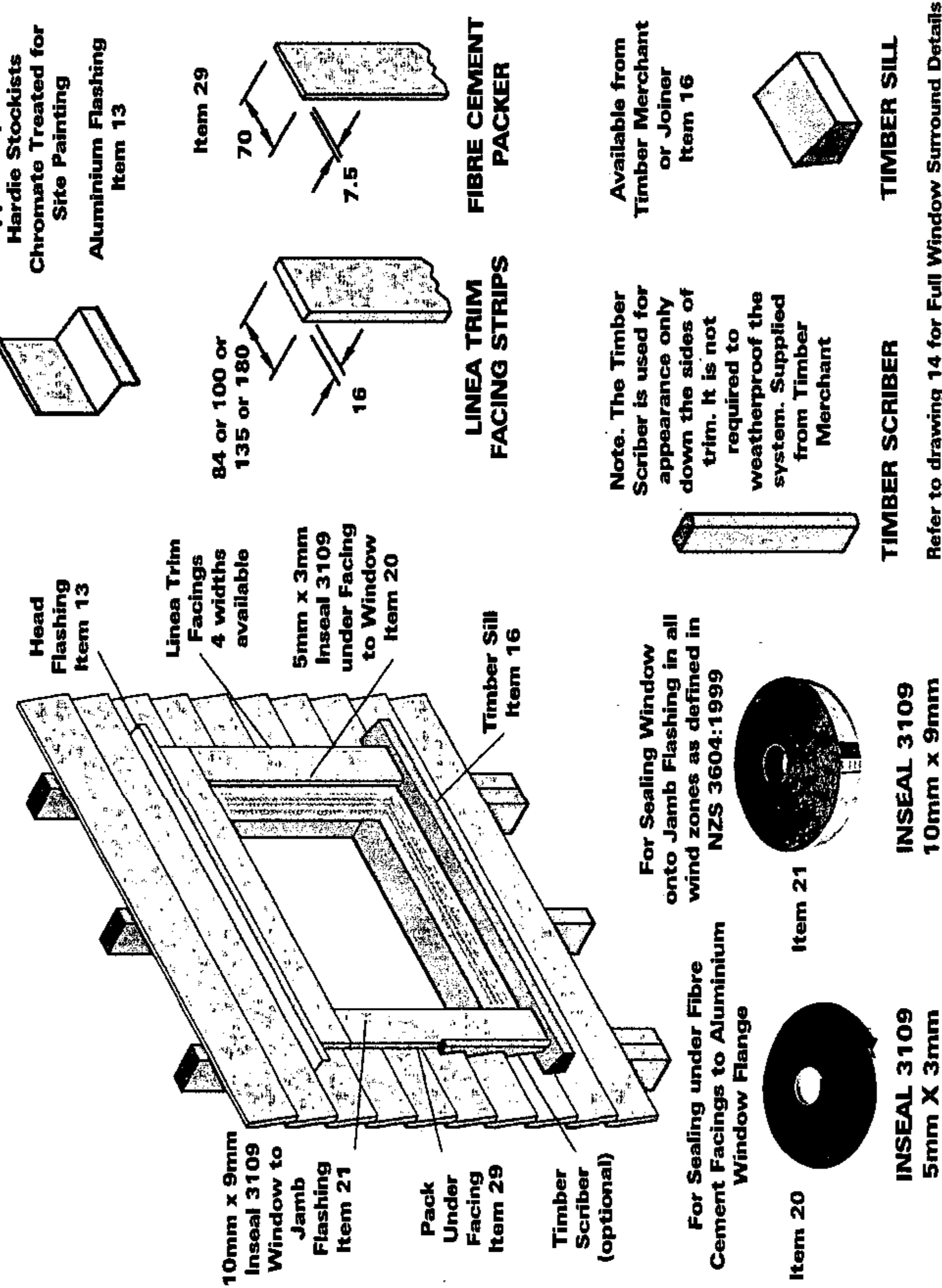
LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

3.3.9 OPENING FLASHING & TRIM COMPONENTS

OPENINGS WITHOUT LINEA TRIM FACINGS



OPENINGS WITH LINEA TRIM FACINGS



LINEA WEATHERBOARD COMPONENT SPECIFICATIONS

3.3.10 FINISHING LINEA WEATHERBOARD AND TRIM

- LINEA weatherboard and trim is best finished with painting systems from the partner paint manufacturers shown in table 4
- LINEA weatherboards must be kept dry and under cover whilst in storage prior to fixing
- LINEA weatherboards must be dry before commencing painting
- LINEA weatherboards must be painted within 3 months of fixing

Paint Manufacturer	System/Brand	First Coat	Second Coat	Warranty/Expected Life
Dulux available in Gloss, Semi Gloss and Low Sheen	Weathershield X 10	Weathershield X 10	Weathershield X 10	10 year Warranty
Resene Gloss finish	Resene Hi-Glo	Resene Hi-Glo Gloss acrylic	Resene Hi-Glo Gloss acrylic	Expected Life
Resene Semi-Gloss finish	Resene Sony X 101	Resene Sony X 101 Semi-gloss acrylic	Resene Sony X 101 Semi-gloss acrylic	Refer to Resene One Line Specification Manual (IV) durability of paint systems
Resene Satin finish	Resene Lumberside	Resene Lumberside Satin acrylic	Resene Lumberside Satin acrylic	12 year Warranty
Wattyl available in Gloss, Semi-Gloss and Low Sheen	Wattyl Solaguard	Wattyl Solaguard	Wattyl Solaguard	10 year Warranty
Taubmans available in Gloss and Satin	Taubmans Sun-Proof	Taubmans Sun-Proof	Taubmans Sun-Proof	10 year Warranty

* Solvent based paint systems are also suitable – refer to relevant paint manufacturers specification.

Paint Manufacturer	System Brand
Dulux	Dulux Weathershield X 10 or Dulux Primercryl
Resene	Resene Quick Dry Acrylic Primer Undercoat
Wattyl	Wattyl Solaguard water down 20%

3.3.11 NAIL HOLE FILLERS

Exposed jolt head nails are to be punched a minimum of 2mm below the surface. Fill with CRC Builders Fill or other approved filler. Allow to cure, smooth off ready for painting.

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

4.1 STANDARD DRAWINGS

This system specification must be read in conjunction with a full set of standard A3 size drawings included at the back of this manual. For detailed information on installation of the system refer to the LINEA weatherboard Builders' Guide.

4.2 FRAMING SPECIFICATION AND SET-OUT

4.2.1 GENERAL

It is important to ensure that one considers weatherboard module set out at the time of frame set out. Efficient layout of the LINEA weatherboard will ensure cutting of weatherboards are kept to a minimum. *James Hardie recommends that the timber frame is setout for the cladding to ensure minimum cutting and wastage.*

4.2.2 TIMBER FRAMING SPECIFICATION

- Use of timber framing must be in accordance with framing manufacturers specifications
- All timber framing sizes setout and type must comply with NZS 3604:1999, and with stud and nog centres and timber dimensions required by this section
- Kiln dried, (machine stress graded) Radiata pine framing timber is recommended
- H3 Radiata pine framing timber must be used on walls which are exposed to the exterior on both sides (e.g. balcony walls)
- Timber frame moisture content must not exceed 24% moisture content, including the bottom plate prior to fixing the weatherboards
- Timber frame moisture content must not exceed 18% including the bottom plate prior to painting the weatherboard
- 35mm or 45mm studs may be used for all framing. 45mm studs maybe required for fixing some accessories

- Studs must be provided at a maximum 600mm centres extending between the top and bottom plates
- Nogs must be provided at 1200mm centres maximum
- Sill trimmers must be level
- Framing must overhang a concrete slab by 6mm to provide an anti capillary gap at bottom
- *James Hardie recommend that all opening size and set-out is confirmed at the design stage, to enable correct set out of framing at prenailing stage. For the sizing and positioning of windows and doors refer to the Standard Details 5 to 10, Drawings 3, 4 and 5*
- *Prenail framing is recommended, to minimise the time of exposure to wet weather conditions during the construction process*
- *James Hardie recommend that the roof be fixed before commencing work on the exterior wall cladding, this is to keep the framing protected from exposure to wet weather conditions*

4.2.3 SPECIAL FRAMING REQUIREMENTS

The following are special framing requirements. Refer Detail 1 Standard Detail Drawing 2.

- Double studs at corners and sides of openings
- Extra depth lintels may be necessary for head flashing with trim
- Extra packers at external corners for use with LINEA Trim boxed corners
- Extra studs for aluminium internal corner sections

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

4.2.4 TOLERANCES

In order to achieve a flat wall finish it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604:1999. Recommended framing tolerances are shown in table 5. Nogs must be made flush with studs, and studs must be flush with top and bottom plates and double studs must be made flush to one another and be securely spiked together.

TABLE 5: TIMBER FRAMING TOLERANCES	
Straight Edge	Tolerances
600	1 – 2mm
1200	2 – 3mm
3000	3 – 4mm

4.2.5 STEEL FRAMING

Steel framing systems in New Zealand are all proprietary, supported by individual manufacturers and are the subject of specific design. Specific details and information should be sought from the respective manufacturers.

4.2.6 CURVES

LINEA weatherboard cannot be bent around a radius wall. The slope of the board on the wall prohibits this.

4.2.7 BATTENING OVER OTHER SUBSTRATES

- When fixing to either concrete or masonry timber battens are required
- Battens must be a minimum of 40mm thick to provide adequate nail penetration depth
- When fixing to concrete or masonry a DPC (Damp Proof Course) between the timber and the wall must be provided, timber must be H3 treated in accordance with the requirements of NZS 3602: 1995
- Batten spacing and widths must comply with those for timber framing in section above
- Fixings specification to fix the battens to the structure is subject to specific design

4.3 WIND/RAIN BARRIER SYSTEM

4.3.1 LINEA WEATHERBOARD CONCEALED BARRIER SYSTEM

- The Concealed Barrier System comprises two components; ProTek Building Wrap and ProTek Flashing tape
- The ProTek Building Wrap must be fixed horizontally to the exterior of the frame extending to 25mm below the bottom of the framing and flush to the top of the top plate of the frame
- ProTek must be installed immediately subsequent to erection of timber framing in order to protect the framing from wet weather exposure
- ProTek must be fixed to timber framing with 8mm staples with or without strapping. For extreme or extended exposure time, use 30mm galvanized clout nails with strapping. Adequate fixing is required to withstand conditions anticipated prior to cladding installation
- Horizontal and vertical lap joints of ProTek Building Wrap must be 150mm minimum. Ends of wrap must be joined over studs or plates. For convenience overlap the width of the stud centres to enable fixing onto a stud
- ProTek Flashing Tape must be provided at all horizontal surfaces such as sill trimmers, parapet tops and balcony handrails, and other penetrations in the wall envelope. It must be fixed in principle as a concealed flashing in order to provide a secondary level of protection to the timber frame in the event of incidental moisture ingress
- Pipes and services which penetrate the cladding must be sealed to the wrap with either black polythene tape or ProTek Flashing Tape
- For superior air barrier performance in high and very high wind zones as NZS 3604:1999 James Hardie recommend taping laps with 48mm polythene black tape and sealing all opening penetrations such as windows with an air seal refer clause 4.3.3

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

- Repair tears and damage to wrap with ProTek Flashing Tape or 48mm polythene black tape
- ProTek must not be exposed to the weather for more than 2 months before the installation of the LINEA weatherboard cladding or be exposed to strong oxidizing agents such as free halogens, and chemicals such as petrol, oil and chlorinated hydrocarbons
- For full installation diagrams of the Concealed Barrier System refer to Details 27 to 29 Drawing 11

4.3.2 JAMES HARDIE FLASHING SYSTEMS FOR LINEA WEATHERBOARD

- Generally the flashings must be installed before the LINEA weatherboard
- Sills at door and window openings must be level and free of debris and protrusions prior to the installation of flashings for the LINEA weatherboard system
- The flashings for LINEA weatherboard must be installed in accordance with the LINEA weatherboard Standard Detail Drawings and the LINEA weatherboard Builders' Guide
- The sill flashing must be cut 18mm longer than the sill opening width and cut around the jambs at each end
- PVC solvent cement must be used to adhere the corner soaker to the sill flashing
- Jamb flashings must extend to the underside of head flashing. Refer to Drawings 12, 13 and 14 for these details

- Head flashings must extend 35mm beyond jamb flashing without facing and 40mm past the facing edge with facings
- Door sills may need to be recessed to reduce them to a level to accommodate the sill flashing so the sill reveal is at a desired level on the interior. This requires prior planning in the case of concrete floors
- Sill flashing jointers are provided for 180° joins in the sill flashing. 90° and 135° joints in the sill flashing must be glued with shaped uPVC to suit

4.3.3 WINDOW AND DOOR INSTALLATION REQUIREMENTS

- Inseal 10 x 9mm must be used to seal the joinery jamb flanges to the jamb flashing at the opening, refer Detail 38, Drawing 13
- At the sill, a 2 - 3mm gap must be left between the window flange and the sill flashing to allow the egress of moisture. Do not apply Inseal between the window flange and the sill flashing, refer Detail 43, Drawing 15
- Joinery jambs must not be fixed directly to jamb studs, ensure window is centrally placed across the opening and tightly packed before fixing
- An air seal must be provided at the rear of the flashing system. Refer accessory list Section 6. James Hardie recommends the products as scheduled in the accessories Section 6 of this manual for this purpose
- Windows and doors must be packed 7.5mm above the sill, in order to raise them just clear (approximately 1.5mm clear) of the lip at the rear of the sill flashing. It is important that the window is clear. *This means that the window opening size needs to allow a 7.5mm clearance around the perimeter of the window. It will be necessary to inform the preinstalling supplier, and the window supplier*
- A sill packer is provided to pack the window above the flashing, it is specially designed to prevent water tracking over the lip of the sill flashing

4.3.4 INSULATION

The R-Value of walls constructed using LINEA weatherboard in accordance with this Manual, when calculated in accordance with the calculation method outlined in NZS 4214:1977, will exceed the minimum R-value requirements as outlined in NZS 4218:1996, section 3.1, Schedule Method. The calculation is based on a framing member size of 90 x 35mm or 90 x 45mm and internal linings of either James Hardie Villaboard, plasterboard or timber.

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

The following table 6 shows R-Values and cavity insulation infill requirements.

4.4 LINEA WEATHERBOARD INSTALLATION AND FIXING

4.4.1 LINEA WEATHERBOARD FEATURES

- All weatherboards have end tongue and groove joints for ease of end joining
- All weatherboards have the top rear edge bevelled and providing they are fixed to this specification the top fixing will provide tight laps
- There is a wide selection of accessories to achieve various architectural effects. This selection is as shown in table 7:

TABLE 6: CAVITY INFILL INSULATION REQUIREMENTS			
Climate Zone*	R-Value Requirement	Cavity Insulation Infill Requirement	
1 and 2	1.5 m ² °C/W	R1.8 Fibreglass batts	
3	1.9 m ² °C/W	R2.2 Fibreglass batts Eg. Pink Battis	

* Climate Zones as defined in NZS4218:1996

TABLE 7: ACCESSORY RANGE			
EXTERNAL CORNERS	INTERNAL CORNERS	END JOINTS	FINISHING AROUND OPENINGS
1. 90° corner soaker in aluminium, copper or stainless steel. Refer Detail 17	Scribed corner in weatherboard. Refer Detail 18	T & G joint only option. Refer Detail 21	Without LINEA trim facings. Refer Details 35 and 41
2. 135° soaker in aluminium, copper or stainless steel. Refer Detail 17	90° Aluminium W mould. Refer Detail 19		With LINEA trim facings. Refer Details 42 to 45
3. LINEA trim for box corners various size options available. Refer Details 11 to 14	135° Aluminium W mould. Refer Detail 20		
4. Mitre corners in weatherboards. Refer Detail 15			
5. Aluminium box corner. Refer Detail 16			

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

4.4.2 WEATHERBOARD END JOINTS

All weatherboard end joints where they abut openings, internal or external corners have a common seal joint. This joint to be effective requires the weatherboard to be finished into the Inseal 5mm to seal the end junction. To achieve this, the dimension between the flashing face is accurately measured and the weatherboard then accurately square cut 8mm less than this dimension. The weatherboards are then pushed into place. Refer Drawing 6 for full procedure.

4.5 LINEA WEATHERBOARD AND TRIM INSTALLATION AND FIXING

4.5.1 FIXINGS

LINEA weatherboard must be either nail or screw fixed to timber and must be screw fixed to steel. Fixings required for timber are shown in Table 8.

4.5.2 DRILL BITS

The drill bits recommended for site drilled nail holes are Titanium coated high speed steel. These are available from stockists of James Hardie products.

TABLE 8: FIXINGS	
CONCEALED FIXINGS WEATHERBOARD	EXPOSED FIXINGS WEATHERBOARD AND TRIM
Hand Nails Use 40 x 2.8mm Hardiflex nails finished flush with the board surface. These fixings do not need predrilling and can be hammered straight through the boards. Nail Guns Alternatively these nails can be driven flush with an air driven nail gun. Suitable air driven guns are: • Hitachi model NV65AD3 65mm coil nail gun • Stanley Bostik N88WW stick fed pneumatic nailer by Sifco • Paslode impulse cordless framing nailer These nail guns generally use stainless steel nails. Some models have galvanised nails available. Check with the suppliers. Screws Use 40 x 2.8mm diameter self-drilling, self-embedding 316 stainless Titan screws finished flush with the surface of the board. These screws are available collated or loose.	Weatherboards Use 60 x 2.8mm jolt head nails for double thickness weatherboard. These nails generally drive through both thicknesses without predrilling for galvanised jolt heads. Stainless steel jolt heads will require predrilling with a 3.0mm Titanium coated drill bit. Punch 2mm below the surface and fill before painting. Refer painting section for filling specification. <i>Special Note:</i> Any fixing within 50mm of the end of the board must be predrilled with a 3mm Titanium coated drill before nail driving. LINEA Trim Facings • For single thickness facings use 50mm jolt heads • For double thickness facings use 60mm jolt heads • Punch 2mm below the surface and fill before painting For single thickness facings over double thickness LINEA weatherboard use 75 x 3.15mm Jolt heads. These fixings must be predrilled using a 3mm diameter Titanium coated drill bit. Punch and fill before painting.

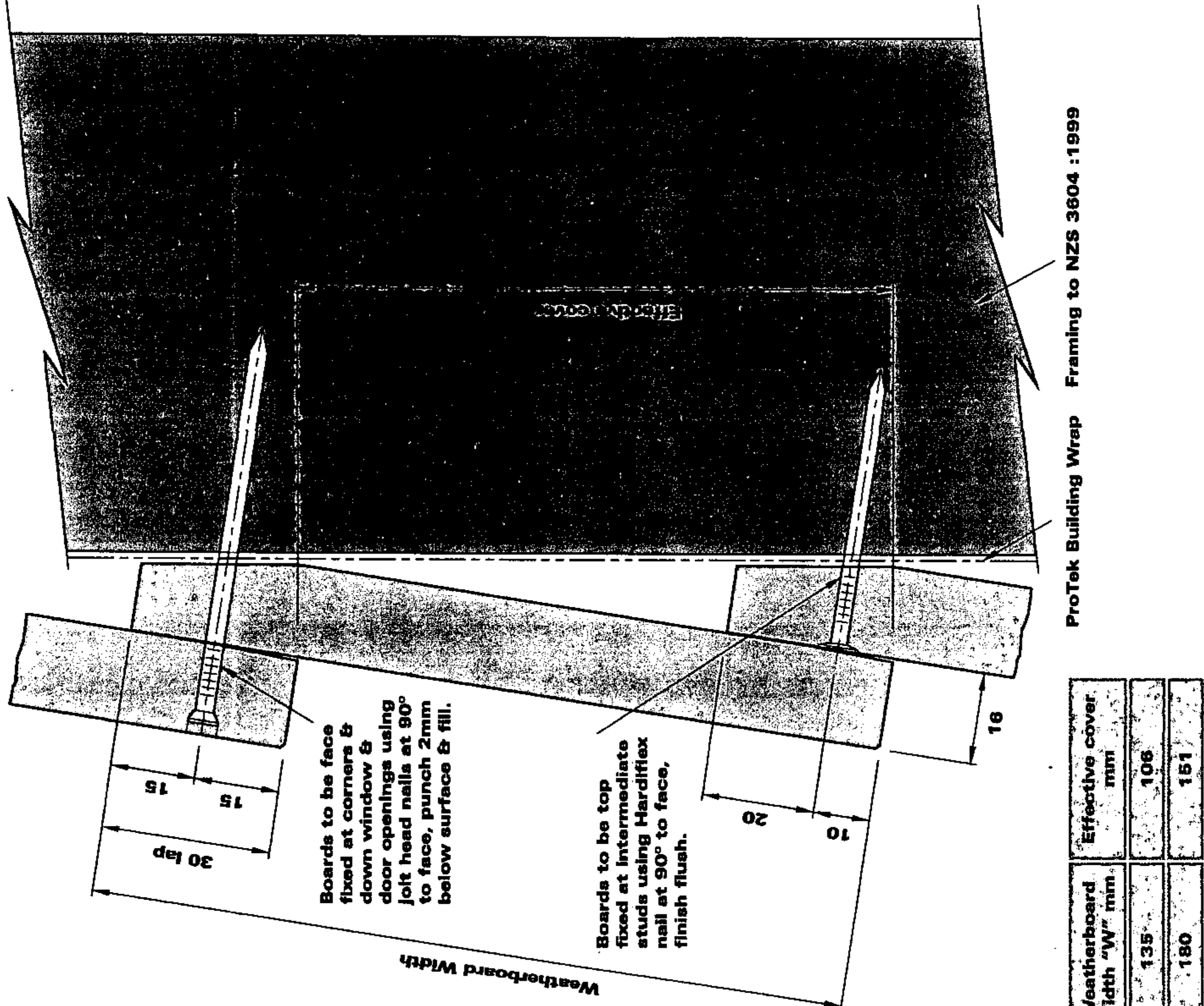
Fixing Durability

Sea Spray zones, Zone 1 and thermal areas as defined by NZS 3604: 1999 requires fixings to be 316 stainless steel. This includes flush finished concealed and punched and filled exposed fixings in weatherboards and LINEA trim facings. All other fixings in zones 2, 3 and 4 as defined by NZS 3604:1999 are to be hot dipped galvanised or when superior durability is required the 316 stainless steel fixings may be used.

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

4.5.3 LINEA WEATHERBOARD SETOUT

Figure 3. LINEA weatherboard Setout



ProTek Building Wrap Framing to NZS 3604 :1999

4.5.4 FIXING LINEA WEATHERBOARDS

The fixing of the LINEA weatherboard to an intermediate stud is a single top fixed nail or screw. Refer Detail 2, Drawing 2. At the corners and down the sides of windows and

doors, LINEA weatherboards are exposed-fixed through both thicknesses of the weatherboard to the inner stud with jolt head nails, refer Details 3 and 4, Drawing 2.

LINEA WEATHERBOARD SYSTEM SPECIFICATIONS

4.5.5 GROUND CLEARANCES

- The floor must have a minimum clearance to paved or unprotected ground as required by NZS 3604:1999
- The LINEA weatherboard must overhang the bottom plate on a concrete slab by a minimum of 50mm, refer Detail 25 Drawing 10
- The LINEA weatherboard must be spaced a minimum of 6mm away from a concrete slab in order to prevent capillary action as required by NZS 3604:1999
- In all circumstances the bottom edge of the LINEA weatherboard must be a minimum of 50mm above paved or unprotected ground

4.5.6 BALCONIES HANDRAILS AND PARAPETS (ROOFS)

- H3 framing must be used for balustrade and parapet walls
- Balcony handrail tops are small roofs
- Balcony tops must be capped as shown in the LINEA weatherboard Standard Detail Drawings, refer to Detail 51
- Parapet tops may be mechanically flashed as shown in the Standard Detail Drawings refer Detail 51 and 53
- Do not fix to or penetrate the top of balcony walls or parapets
- Handrails must be fixed to side of balcony walls
- Balcony and parapet walls must be vented refer to Standard Detail Drawings
- On balcony walls the 6mm anti-capillary gap must be provided at the bottom of the weatherboard refer to Standard Detail Drawings. Ensure adherence with sheet ground clearance requirements

4.5.7 PENETRATIONS

- Pipe penetrations must be adequately sealed. Provide a bond breaker behind sealant if necessary. The wrap must be taped to the pipe to provide a seal prior to lining. Flanges must be provided to all pipe penetrations. Refer Detail 56, Drawing 17

- Penetrations of the claddings must be detailed to prevent water entry. Provide ProTek Flashing Tape at the opening at the framing/wrap stage
- Electrical meter boxes must be treated as a window opening

4.5.8 JUNCTIONS WITH OTHER CLADDING TYPES

- Junctions to other cladding types or roofs must be detailed to prevent water entry
- Contact James Hardie for assistance and approval of details. Standard Details are available on request

4.5.9 SEALANTS

- Sealants if painted must be compatible with the paint system
- Where used in a weatherproof joint, a bond break must be provided behind the sealant
- Application and use of sealants must comply with manufacturers instructions
- *James Hardie recommend the use of Bostik or other James Hardie approved product*
- Weatherboard must be dry prior to sealant application

4.5.10 PAINTING

- Painting systems specifications and products are dependant on the painting company chosen. Refer to the paint manufacturer for specific information. Refer also to partner paint schedule Table 4

4.5.11 MAINTENANCE

- Regular re-painting of coating systems is required. Refer to your paint manufacturer
- A comprehensive maintenance guide is included in the LINEA weatherboard Builders' Guide

4.5.12 CUTTING AND WORKING LINEA WEATHERBOARD

- For full details refer to the LINEA weatherboard Builders' Guide

LINEA WEATHERBOARD CONVENTIONAL DETAILING

5.1 APPLICATIONS

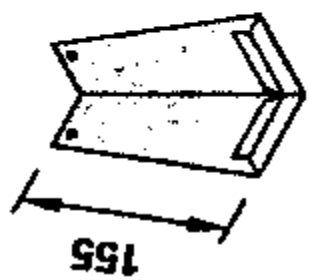
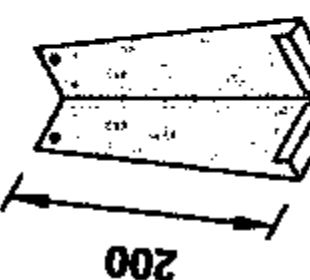
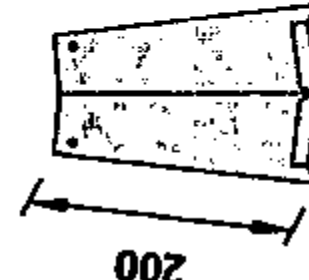
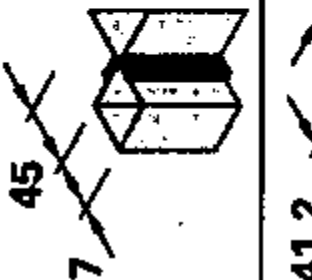
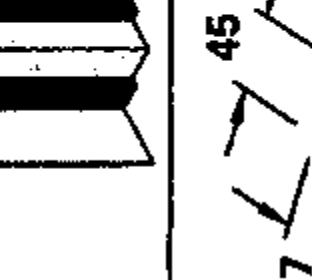
This allows the LINEA weatherboards to be used in applications with timber joinery using conventional details subject to specific design.

Areas of use will be:

- Alterations and additions to existing buildings with timber weatherboards and timber joinery
 - New buildings using timber joinery
- The principle method of weathering would be the traditional timber facing with a well fitted timber scribe.
- When aluminium joinery is used in either the alteration and addition or for new construction, refer to Table 2 for the use of the James Hardie Wind/Rain Barrier System.
- All design and construction must comply with the relevant sections of the New Zealand Building Code:
 - B1 Structure
 - B2 Durability
 - E2 External moisture
 - E3 Internal moisture
 - F2 Hazardous Building Materials
 - The building paper used must comply with AS/NZS 4200

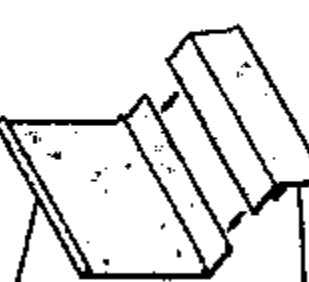
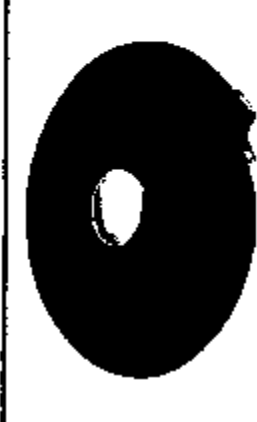
ACCESSORIES FOR LINEA WEATHERBOARDS

ACCESSORIES FOR LINEA WEATHERBOARDS

EXTERNAL CORNERS					
	135mm external corner soaker 90° Aluminium Copper Stainless Steel	LAS135 LCS135 LSS135	For 135mm weatherboards: Chromate treated Aluminium. Copper. 304 Stainless Steel.	For site painted external corners. For architectural effect external corners. Refer to detail 17.	
	180mm external corner soaker 90° Aluminium Copper Stainless Steel	LAS180 LCS180 LSS180	For 180mm weatherboards: Chromate treated Aluminium. Copper. 304 Stainless Steel.	For site painted external corners. For architectural effect external corners. Refer to detail 17.	
	135mm external corner soaker 135° Aluminium Copper Stainless Steel	L135AS135 L135CS135 L135SS135	For 135mm weatherboards: Chromate treated Aluminium. Copper. 304 Stainless Steel.	For site painted external corners. For architectural effect external corners. Refer to detail 17.	
	180mm external corner soaker 135° Aluminium Copper Stainless Steel	L135AS180 L135CS180 L135SS180	For 180mm weatherboards: Chromate treated Aluminium. Copper. 304 Stainless Steel.	For site painted external corners. For architectural effect external corners. Refer to detail 17.	
	External Slimline box 90° corner mould LSLB27		Chromate treated Aluminium. 2700mm lengths.	Refer to detail 16.	
	Boxed corner 'Z' flashing LZP27		Grey uPVC. 2700mm lengths.	Flashing under fibre cement boxed corner. Refer to details 12, 13 & 14.	
INTERNAL CORNERS					
	Internal 'W' mould 90° corner LIAM27		Chromate treated Aluminium. 2700mm lengths.	For 90° site painted internal aluminium corners. Refer to detail 19.	
	Internal 'W' mould 135° corner LIAM13527		Chromate treated Aluminium. 2700mm lengths.	For 135° site painted internal weatherboard corners. Refer to detail 20.	

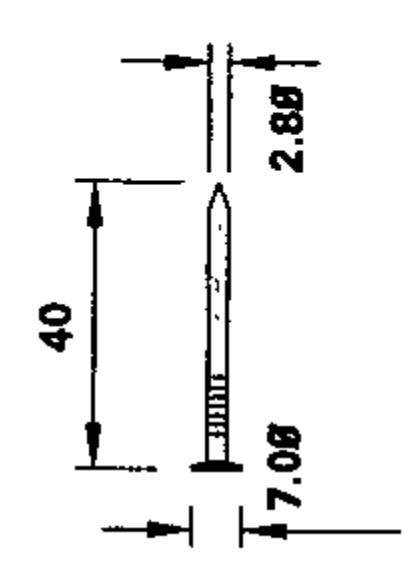
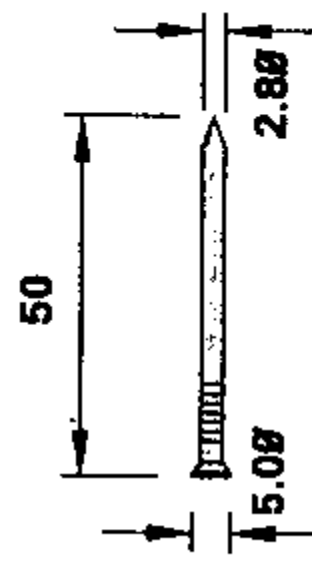
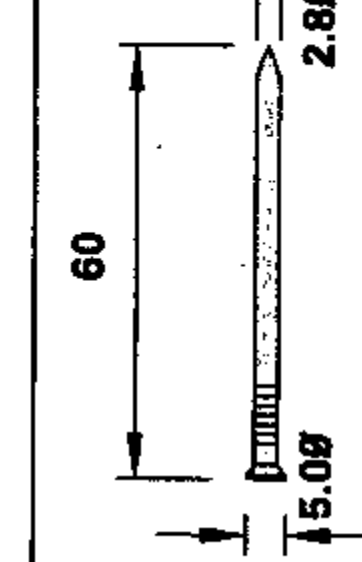
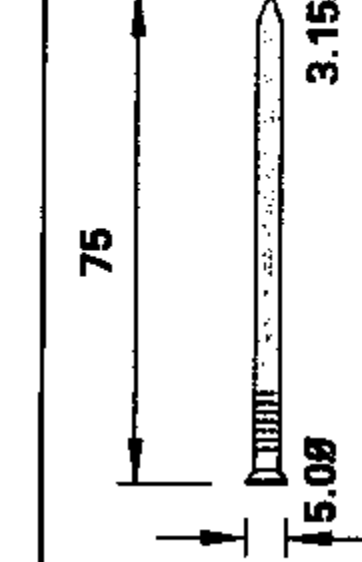
ACCESSORIES FOR LINEA WEATHERBOARDS

WINDOW & DOOR FLASHINGS

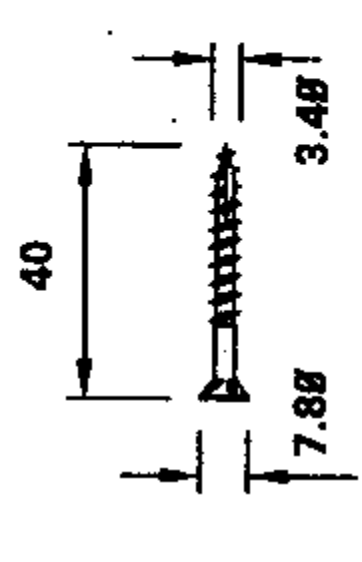
ITEM 14 	Two piece head flashing base only HFR	Base - white uPVC, 2500mm lengths. Push - in piece powder coated to window colour.	Available from James Hardie stockists. Outer available from window supplier only. Refer to detail 39.
ITEM 15 	Planted sill	Treated H3 timber. Available as standard item from timber merchants.	Alternatively cut on site by builder. Refer to detail 43.
	James Hardie ProTek Building Wrap PBW	2.743m x 45.72m (125.4m/5/roll). Translucent, non perforated, non woven polyolefin.	A superior building wrap for use behind Linea weatherboard.
	James Hardie ProTek Flashing Tape PFT	152.4mm x 30.4m, 0.9mm thick black polyethylene, blue polyethylene liner.	Adhere to sill as flashing.
	Inseal 3109 Foam Tape 16mm x 9mm INS16	Black inseal self adhesive tape highly compressible.	For weather sealing ends of weatherboards.
	Inseal 3109 Foam Tape 5mm x 3mm INS5	Black inseal self adhesive tape highly compressible.	For sealing Linea trim facings to windows.
	Inseal 3109 foam tape 10mm x 9mm INS9	Black inseal self adhesive tape highly compressible.	Refer to details 44 & 45. For sealing windows to jamb flashings. Refer to detail 38 & 45.

ACCESSORIES FOR LINEA WEATHERBOARDS

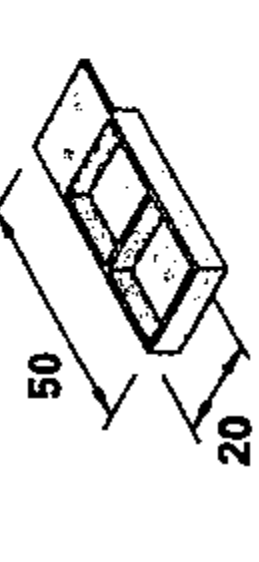
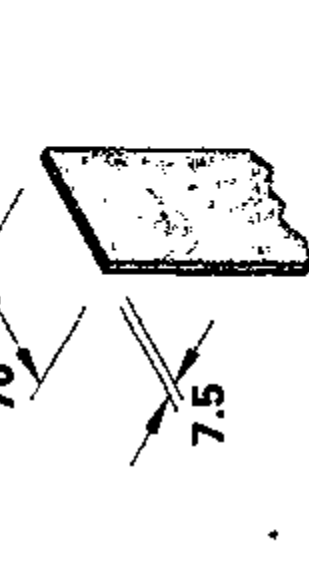
NAIL FIXINGS

	Hardiflex nails, galvanised or 316 Stainless Steel flat head.	2.8mm Ø x 40mm long Hot Dip Galvanised or 316 Stainless Steel. Note, these nails are stocked by NZ Nail, Cyclone or Hurricane Wire products distributors.	Alternative fixing for single thickness weatherboard concealed fixing. Refer to figure 3.
	Jolt head nail galvanised or 316 Stainless Steel SSNAIL50	2.8mm Ø x 50mm long 316 Stainless Steel available James Hardie stockists. Hot dip galvanised available all nail stockists.	For fixing single thickness Linea trim facings over timber frame. Refer to detail 11.
	Jolt head nail galvanised or 316 Stainless Steel SSNAIL60	2.8mm Ø x 60mm long 316 Stainless Steel available James Hardie stockists. Hot dip galvanised available all nail stockists.	For fixing double thickness Linea weatherboard trim facings over timber frame. Refer to details 3, 4 & 11.
	Jolt head nail galvanised or 316 Stainless Steel SSNAIL75	3.15mm Ø x 75mm long 316 Stainless Steel available James Hardie stockists. Hot dip galvanised available all nail stockists.	For fixing double thickness weatherboards with facings. Refer to detail 25.

SCREW FIXINGS

	Titan wood screw. TWS405C TWS40 TWS405	3.4mm Ø x 40mm long 316 Stainless steel. Collated 1000 pack. 1kg pack. 5kg pack.	Self drilling self embedding timber screw for single thickness weatherboard concealed fixing. Refer to detail 2.
	Titanium coated high speed drill bit DRILL3	3.0mm Ø drill bit.	For drilling nail holes in Linea weatherboard & trim.

PACKERS

	James Hardie Sill Packer FSP	Grey uPVC. 7.5mm x 25mm x 61mm	For packing window under sill jamb. Refer to detail 33.
	Packer LPS	Hardiflex. 70mm x 7.5mm. 2400mm lengths.	Packer under Linea facings around windows & doors. Refer to details 42 & 44.

ACCESSORIES NOT SUPPLIED BY
JAMES HARDIE

Sealants for joints and between box corner layers	Sika Sikaflex 11FC Bostik Stick 'N' Seal HB Fuller Building Fillers	Building Merchant
Air seal between window liner and frame opening	PEF Rod 10mm diameter Fosroc Ltd Ramset NZ Ltd Building	Building Merchant
PVC flashing jointing	Marley MCS uPVC Solvent Cement Marley GOLD uPVC Solvent Cement Building	Building Merchant
Aluminium flashing jointing	Holdfast acrylic	Building Merchant
Nails for concealed top fixing weatherboards	40 x 2.8 Hardiflex Nails (Galvanised or 316 Stainless)	Building Merchant
Tape wrap at laps (not mandatory)	Sealtape PVC BG Black Tape 48mm wide	Building Merchant
Strapping for fixing wrap in high and very high wind areas	19mm polypropylene strapping tape	Building Merchant
Galvanised flat head nails for fixing strapping	30mm long galvanised flat heads	Building Merchant
Staples for fixing wrap in low and medium wind areas	8mm staples	Building Merchant
Outer push in section of aluminium 2 piece head flashing	Supplied powder coated to match joinery colour	Window Supplier
Phosphor bronze or copper nails for copper soakers	30mm long flat heads	Building Merchant
Joint head nails hot dip galvanised for exposed fixing	50mm x 2.8mm 60mm x 2.8mm 75mm x 3.15 mm	Building Merchant
Planted timber sill	H3 treated timber	Timber Merchant
Stainless steel nails for air driven nail guns	40mm, 50mm & 60mm x 2.8mm flat head nails collated Hitachi, Paslode, Sifco	Building Merchant
Filler for punched nail holes	CRC Builders Fill, Turbo Builders Bog HB Fuller Building Fillers	Building Merchant

LINEA WEATHERBOARD
STANDARD DETAIL DRAWINGS

JH-LINEA WB - 001	GENERAL SPECIFICATION	
JH-LINEA WB - 002	WEATHERBOARD FRAME SETOUT & FIXING	1 - 4
JH-LINEA WB - 003	OPTIONAL FRAME & OPENING SETOUT WITHOUT FACINGS	5 - 8
JH-LINEA WB - 004	OPTIONAL FRAME & OPENING SETOUT WITH FACINGS	9 - 10
JH-LINEA WB - 005	FRAME & OPENING SETOUT WITH & WITHOUT FACINGS	
JH-LINEA WB - 006	WEATHERBOARD FITTING BETWEEN CORNERS OR OPENINGS	
JH-LINEA WB - 007	WEATHERBOARD BOXED CORNER	11 - 14
JH-LINEA WB - 008	WEATHERBOARD EXTERNAL CORNER	15 - 17
JH-LINEA WB - 009	WEATHERBOARD INTERNAL CORNER & JOINT	18 - 21
JH-LINEA WB - 010	WEATHERBOARD INTERNAL & EXTERNAL SOFFIT & BASE	22 - 26
JH-LINEA WB - 011	WEATHERBOARD CONCEALED BARRIER SYSTEM	27 - 29
JH-LINEA WB - 012	WINDOW & DOOR FLASHINGS	30 - 34
JH-LINEA WB - 013	FLASHING INSTALLATION ONE PIECE WITHOUT FACINGS	35 - 38
JH-LINEA WB - 014	FLASHING INSTALLATION TWO PIECE WITHOUT FACINGS	39 - 41
JH-LINEA WB - 015	FLASHING INSTALLATION ONE PIECE WITH FACINGS	42 - 45
JH-LINEA WB - 016	FLASHING INSTALLATION DOORS WITH & WITHOUT FACINGS	46 - 51
JH-LINEA WB - 017	ALTERNATIVE WINDOW FACINGS WALLS TO ROOF OR DECK & PIPE PENETRATIONS	52 - 57
JH-LINEA WB - 018	ARCHITECTURAL MOULDINGS	58 - 59
JH-LINEA WB - 019	ARCHITECTURAL MOULDINGS	60 - 61

SPECIFICATION

Timber Framing

- Use of timber framing must be in accordance with framing manufacturers specifications.
- All timber framing sizes setout & type must comply with NZS 3604:1999, and with stud and nog centres and timber dimensions required by this section.
- Kiln dried (Machine Stress Graded) Radiata pine framing timber is recommended.
- H3 Radiata pine framing timber must be used on walls which are exposed to the exterior on both sides (e.g. balcony walls)
- 35mm or 45mm wide studs may be used for all framing. Studs 45mm wide will be required for fixing accessories.
- Studs must be provided at a maximum 600mm centres extending between the top and bottom plates.
- Nogs must be provided at 1200mm centres maximum.
- Sill trimmers must be level.
- Framing must overhang concrete slab by 6mm minimum to provide an anti capillary gap at bottom.
- Fix Linea® Weatherboard with Galvanised or Stainless Steel 40 x 2.8 Hardiflex Nails or Stainless Steel Titan Screws for concealed flush fixings. Power driven stainless Hardiflex nails can also be used. Stainless steel or Hot Dip Galvanised jolt head nails are used for exposed weatherboard fixings & Linea® Trim.
- Timber frame moisture content must not exceed 24 %, including the bottom plate prior to fixing the Weatherboards.
- Timber frame moisture content must not exceed 18 %, including the bottom plate prior to painting the Weatherboards.

Special Framing Requirements

The following are special framing requirements. Refer to Detail 1 Standard Detail Drawings.

- Double studs at corners & sides of openings.
- Extra depth lintels may be necessary for head flashing with Linea® trim.
- Extra packers at external corners for use with Linea® Trim boxed corners.
- Extra studs for aluminium internal corner sections.

Tolerances

In order to achieve a flat wall finish it is imperative that framing is straight & true.

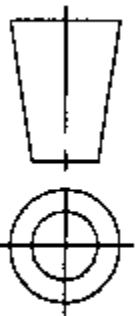
- Framing tolerances must comply with the requirements of NZS 3604:1999.
- Nogs must be made flush with studs, and studs must be flush with top and bottom plates and double studs must be made flush to one another & be securely spiked together.
- Recommended frame straightness tolerances are as follows.

Straight Edge	Tolerances (mm)
600	1 - 2mm
1200	2 - 3mm
3000	3 - 4mm

Linea® Weatherboard Setout

- Before commencing the vertical setout of the Linea® weatherboards check the vertical position & also the size of the windows or doors. This is to ensure the best setout of the weatherboards is achieved at the top & bottom of openings. This setout should be considered at the design stage of the building. Refer to details 5 to 10 for this setting out procedure.
- Measure the height of the wall to be clad & calculate the number of Linea® weatherboards required for the wall allowing a minimum overlap of 30mm.
- First course of Linea® weatherboards to be full length i.e. 4200mm.
- Next course of Linea® weatherboards to be cut so the tongue & groove joint does not coincide with the first course.
- Subsequent courses to be cut so tongue & groove joints are staggered 600mm minimum. All tongue & groove joints to be preferably 100mm minimum from the stud centre line.
- When fitting weatherboards between selected accessories the ends must be neatly cut square (i.e. cut away tongue & groove) & 8mm shorter than the accessory face dimension. Refer to detail drawings for full installation.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECTS
DRAWINGS.

LINEA®

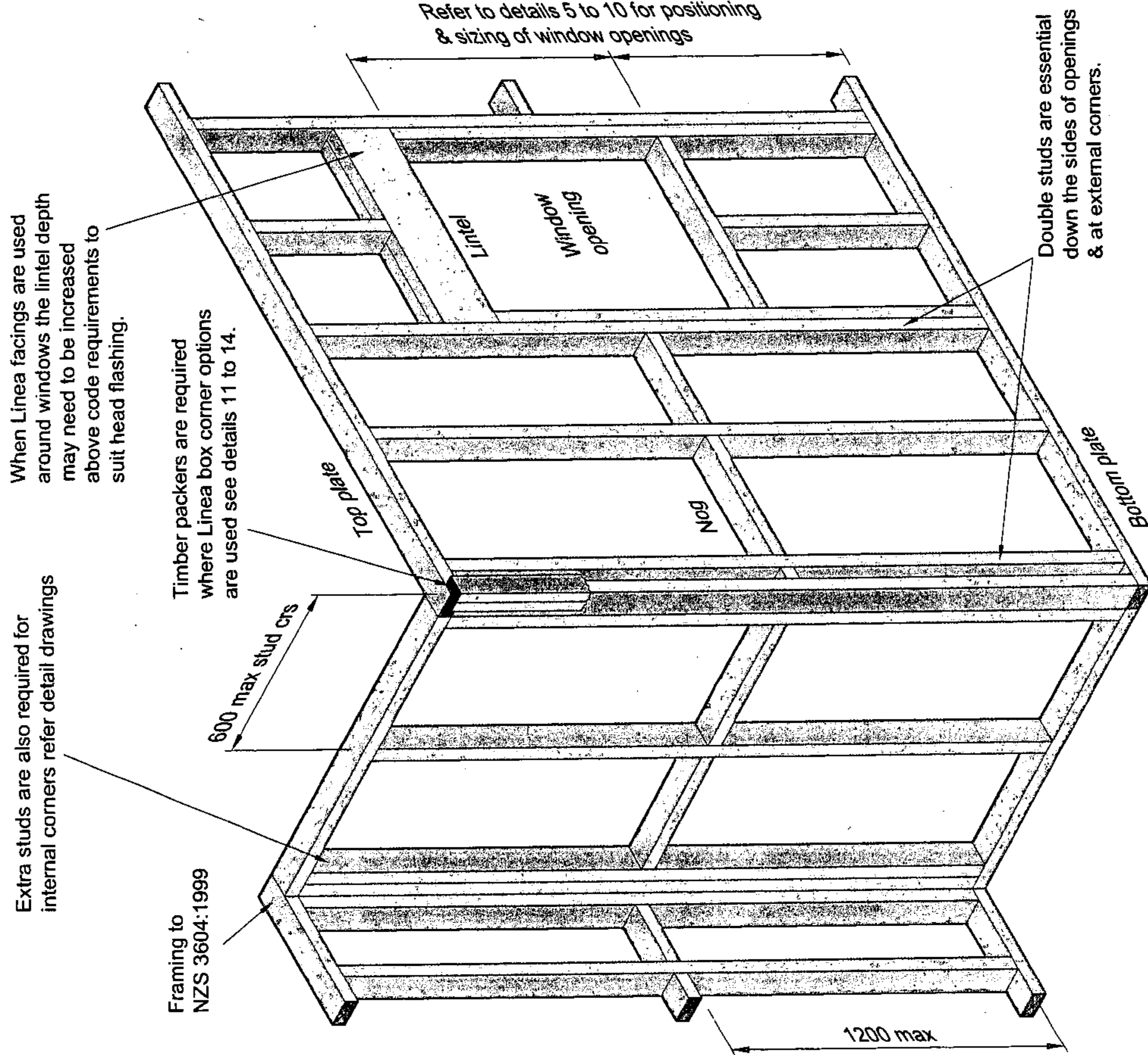


James Hardie

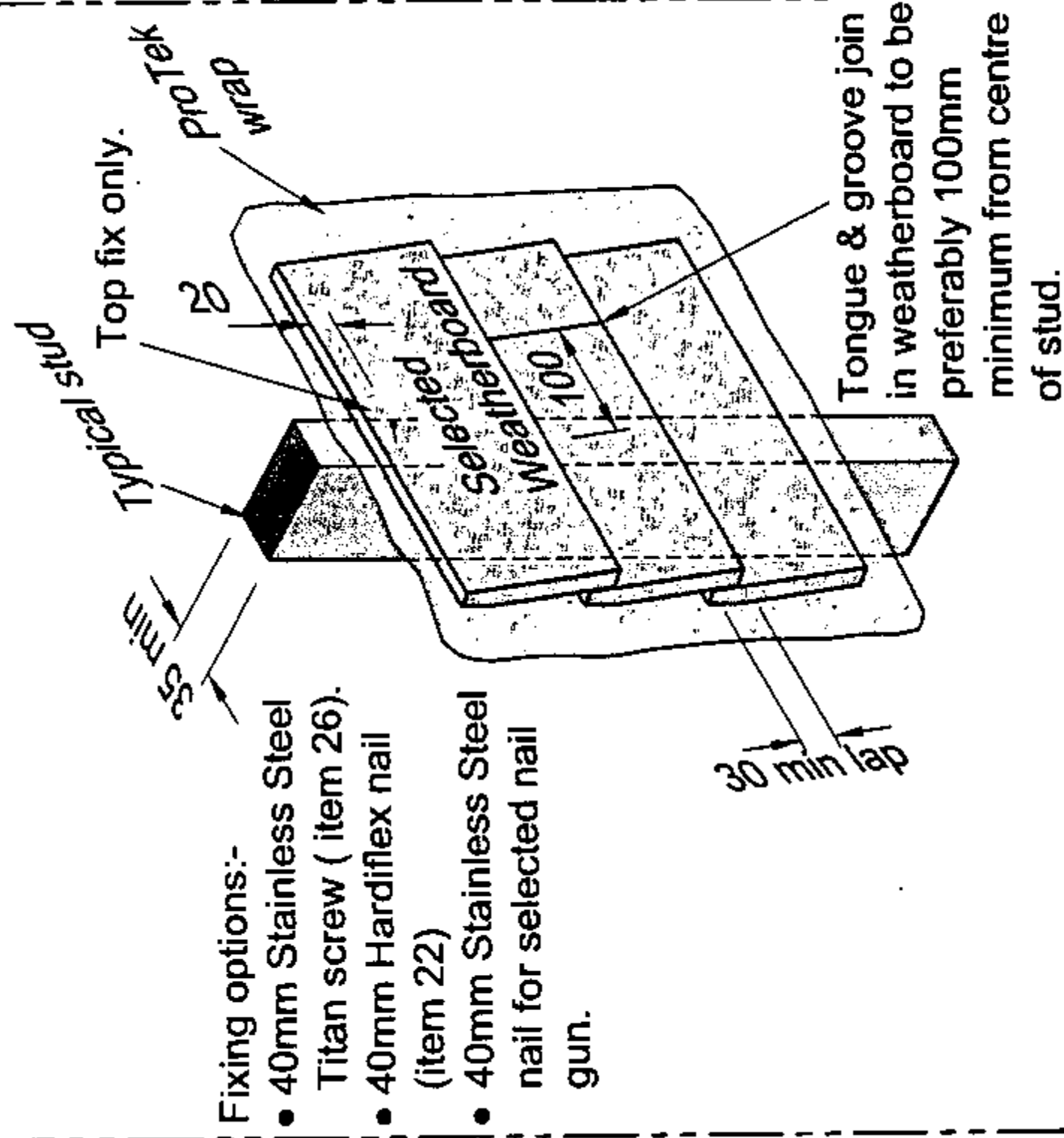
50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

GENERAL SPECIFICATION

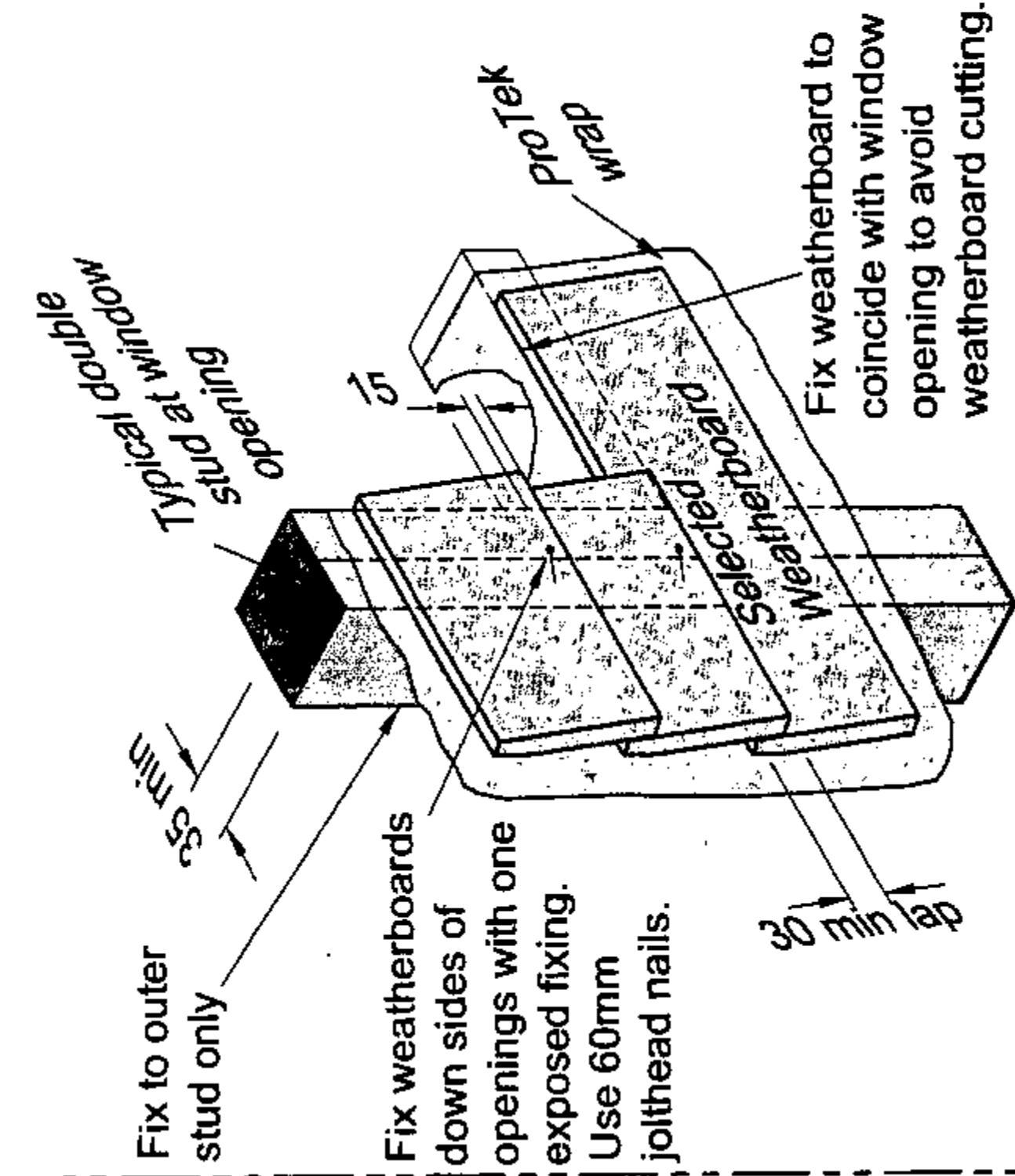
Rev	Description	Date
Scale	Original size	Date
N/A	A3	20.08.01
Drawing No.		
JH-LINEA WB-001		



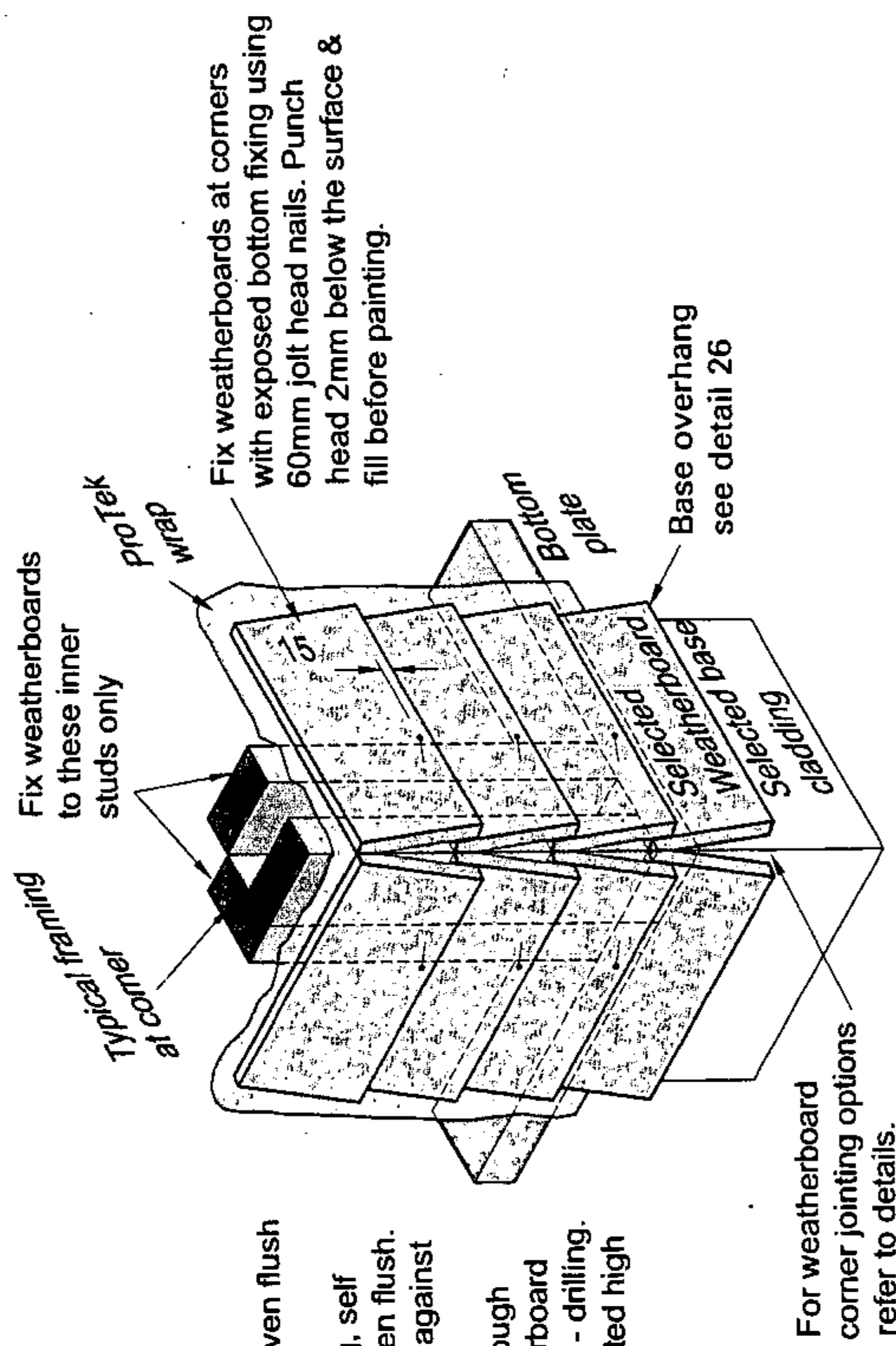
Detail 1 Typical wall framing
Scale 1:20



Detail 2 Fixing at Stud
Scale 1:10



Detail 3 Fixing at Opening
Scale 1:10



Detail 4 Fixing at Corner
Scale 1:10



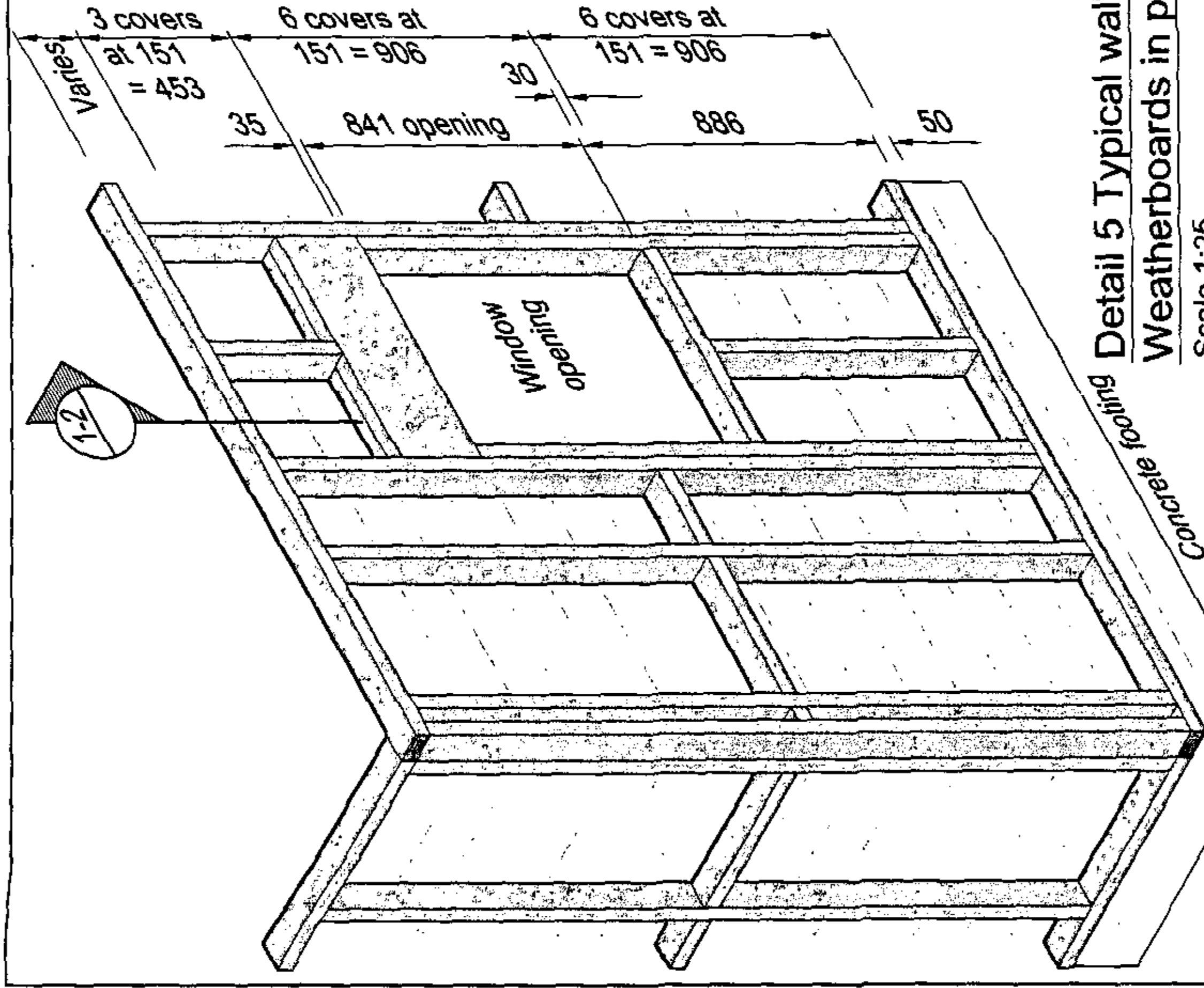
50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.

WEATHERBOARD FRAME SETOUT & FIXING DETAILS 1 TO 4

Rev	Description	Date
As ntd	Original size	20.08.01
Drawing No. JH-LINEA WB-002		



Position Windows without Facings

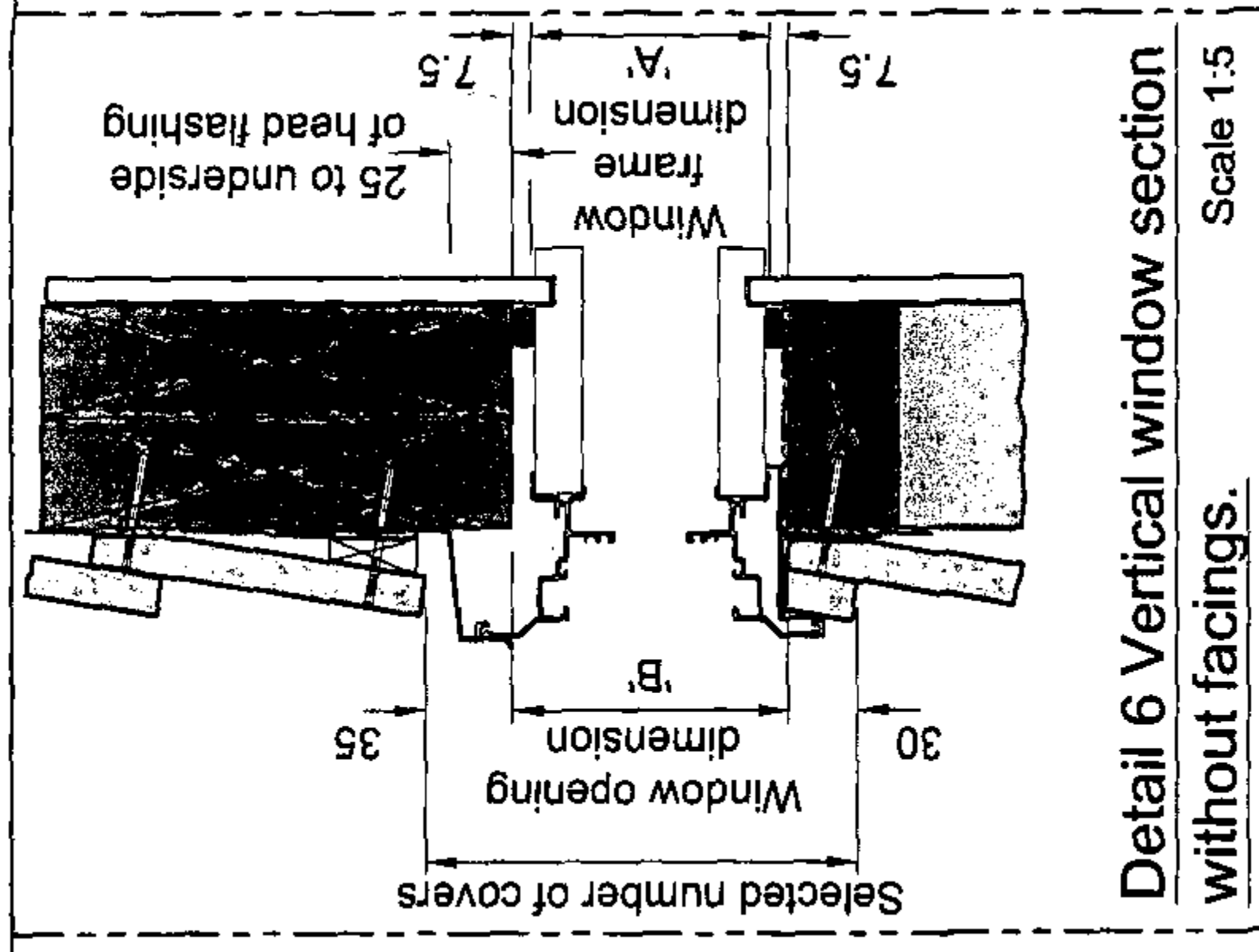
- The following procedure sets out how to calculate
- The window frame dimension 'A' (o/all the jamb liner).
 - The window opening dimension 'B' (frame opening height).
 - The dimension from the underside of the bottom plate to the top of the sill framing dimension 'C'.

Step 1

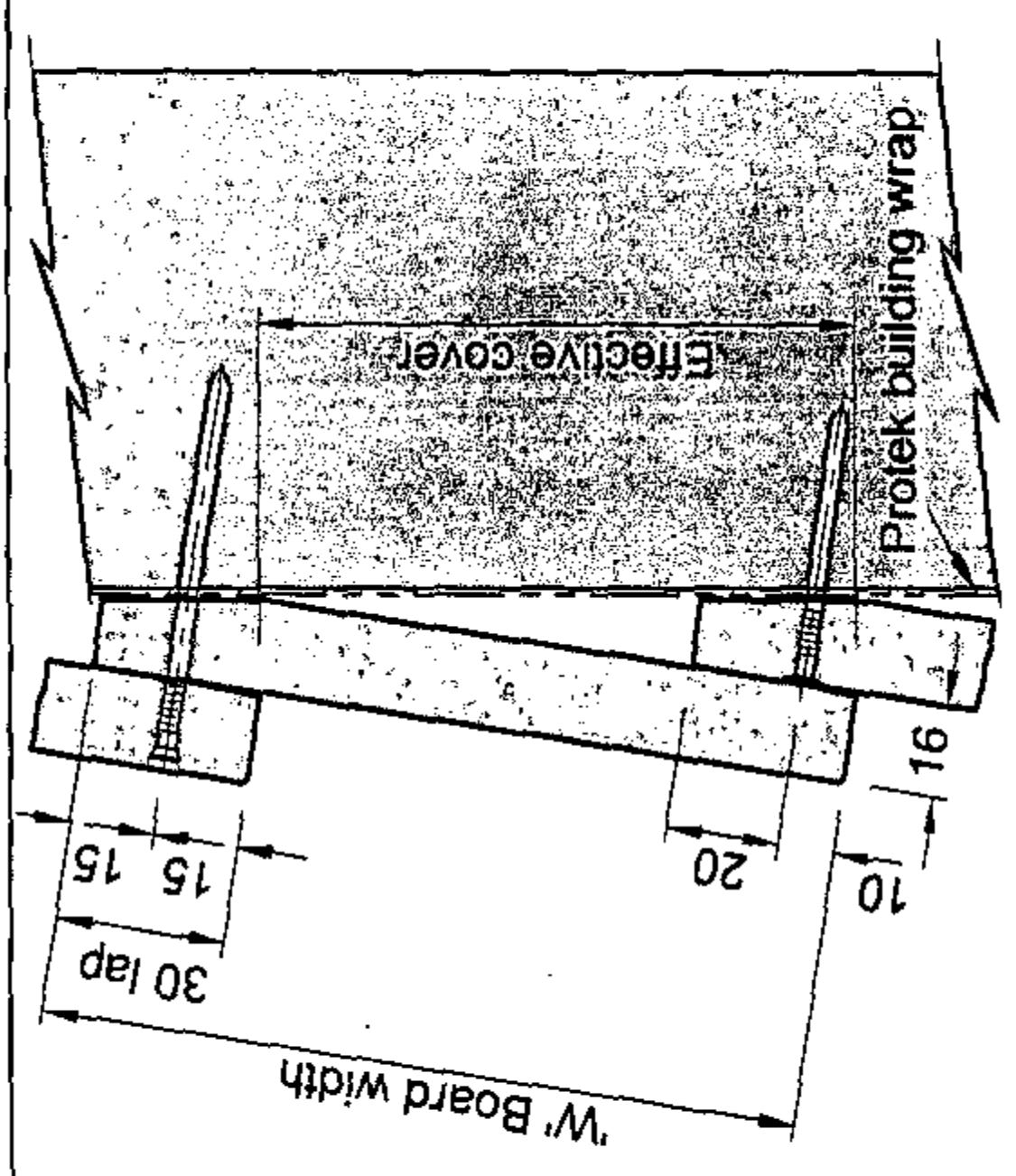
Always ensure the window vertical position dimension 'C' & window opening dimension 'B' is modulated to suit full Weatherboard covers refer Detail 6 & Section 1 Detail 8. This will eliminate cutting the Weatherboard to depth & give full width Weatherboards at the sill & head.

Step 2

- Refer to Detail 6 which shows section through the window & Weatherboards.
- This shows 35mm from underside of Weatherboard to underside of lintel.
 - It also shows 30mm from top of sill frame to underside of weatherboard cover below.
 - For cover dimension refer Detail 7.



Detail 6 Vertical window section without facings. Scale 1:5



Detail 7 Weatherboard effective cover dimension. Scale N.T.S.

Step 3

To calculate window frame dimension 'A' using 180mm weatherboard example.

Cover dimension refer Details 5 & 6.	6 covers at 151 =	906mm
Clearance dimensions, weatherboard to framing refer Detail 6.	35mm	
	30mm	
Window clearance at head refer Detail 6.	7.5mm	
Window clearance at sill refer Detail 6.	7.5mm	
Total	80mm	
Window frame dimension 'A' =		826mm

Note this is the ordering height of the window.

Step 4

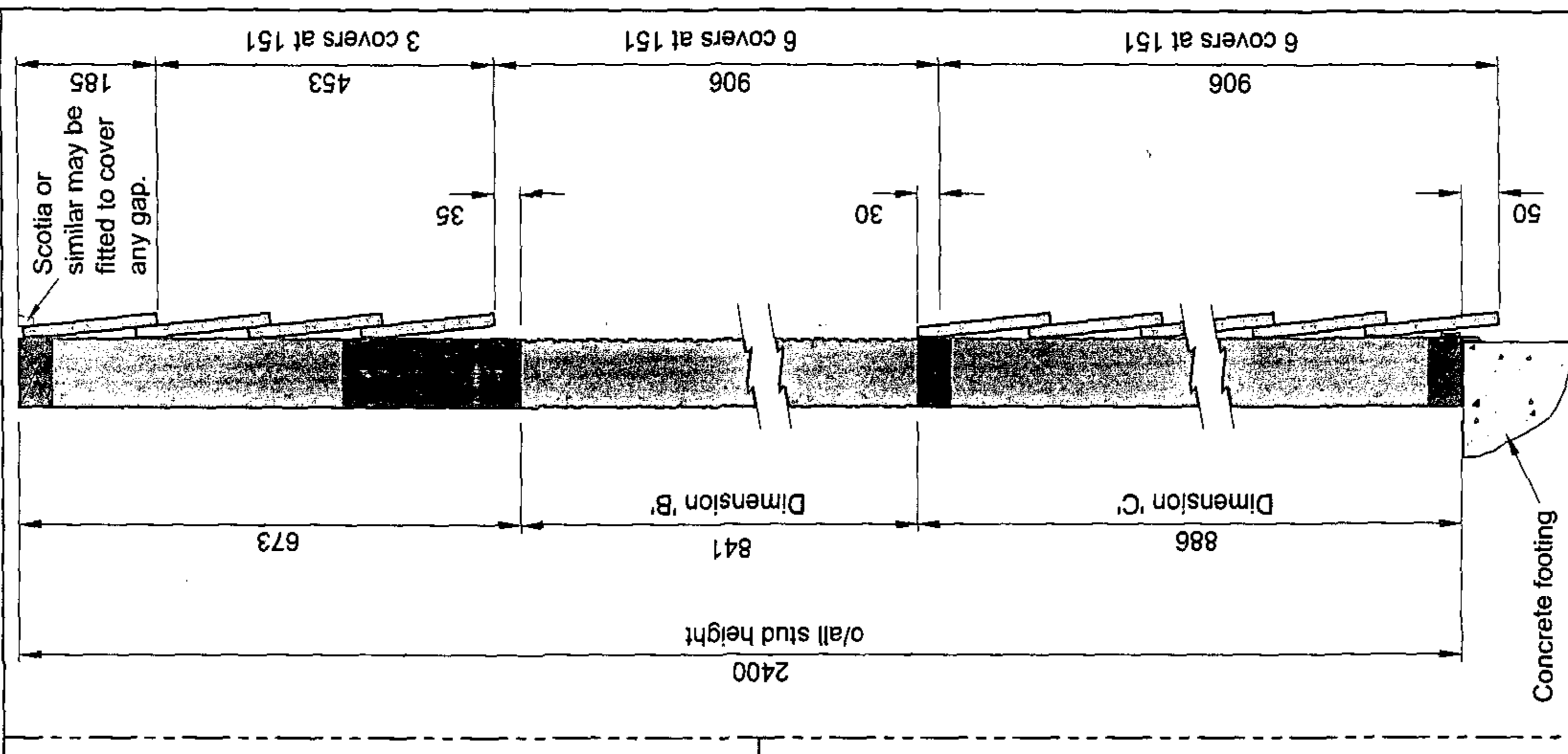
To calculate window opening dimension 'B'.

Window frame dimension 'A' refer Details 5 & 6.	From Step 3 =	826mm
Window clearance at head refer Detail 6.	7.5mm	
Window clearance at sill refer Detail 6.	7.5mm	
Total	15mm	
Window opening dimension 'B' =		841mm

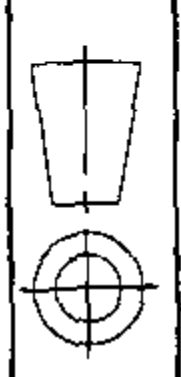
Step 5

To calculate position of window from underside of bottom plate dimension 'C'.

Cover dimension refer Detail 5.	6 covers at 151 =	906mm
Add clearance dimension to framing.	30mm	
Weatherboard overhang at base	50mm	
Dimension 'C'.		886mm



Detail 8 Typical Wall Section 1 at Window without facings. Scale 1:10



LINEA
James Hardie

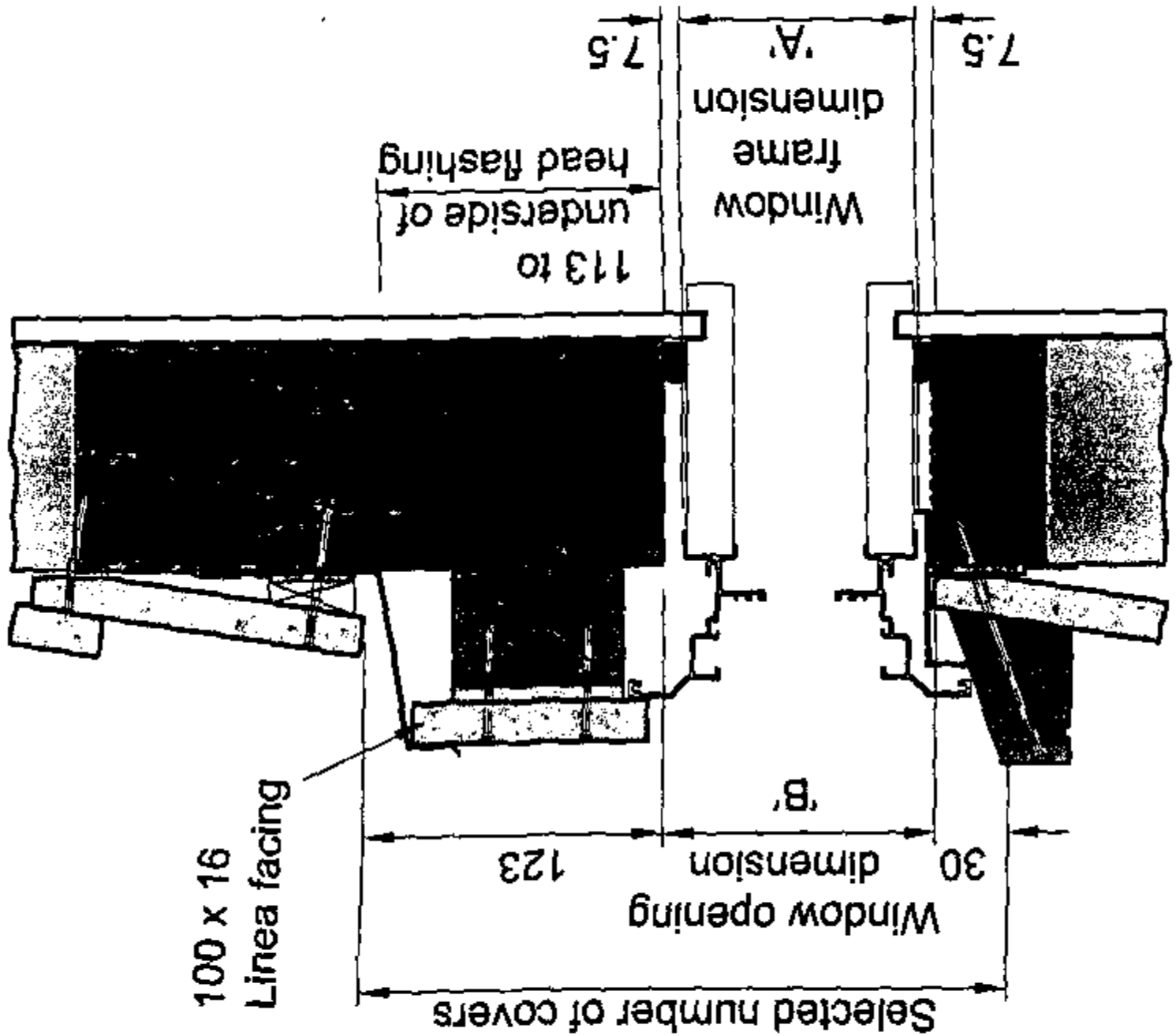
50 O'Rourke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 888
Fax: 0800 808 988

DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.

**OPTIONAL FRAME & OPENING
SETOUT WITHOUT FACINGS
DETAILS 5 TO 8**

Rev	Scale	Description	Original size	Date
As ntd	A3			20.08.01
Drawing No.	JH-LINEA WB-003			



Covers Table

Profile	1 Cover	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
135	106	212	318	424	530	636	742	848	954	1060	1166	1272	1378	1484	1590	1741
180	151	302	453	604	755	906	1057	1208	1359	1510	1661	1812	1963	2114	2265	2416

Detail 9 Vertical window section with facings. Scale 1:5

Notes

- The window manufacturer can fabricate the window exactly to the height calculated to suit cover module.
- Width of window can be any dimension required.

Position Windows with Facings & Planted Sill

The following procedure sets out how to calculate

- The window frame dimension 'A' (o/all the jamb liner).
- The window opening dimension 'B' (frame opening height).
- The dimension from the underside of the bottom plate to the top of the sill framing dimension 'C'.

Step 1

Always ensure the window vertical position dimension 'C' & window opening dimension 'B' is moduled to suit full weatherboard covers refer Detail 9 & Section 2 Detail 10. This will eliminate cutting the weatherboard to depth & give full width weatherboards at the sill & head.

Step 2

Refer to Detail 9 which shows section through the window, weatherboards & facings.

- This shows 123mm from underside of weatherboard to underside of lintel.
- It also shows 30mm from top of sill frame to underside of weatherboard cover below.
- For cover dimension refer Detail 7.

Step 3

To calculate window frame dimension 'A' using 180mm weatherboard example.

Cover dimension refer Details 9 & 10.	6 covers at 151 =	906mm
Clearance dimensions, weatherboard to framing refer Detail 9.	123mm	
Window clearance at head refer Detail 9.	30mm	
Window clearance at sill refer Detail 9.	7.5mm	
Total		168mm
Window frame dimension 'A' =		738mm

Note this is the ordering height of the window.

Step 4

To calculate window opening dimension 'B'.

Window frame dimension 'A'	From Step 3 =	738mm
Window clearance at head refer Detail 9.	7.5mm	
Window clearance at sill refer Detail 9.	7.5mm	
Total		15mm
Window opening dimension 'B' =		753mm

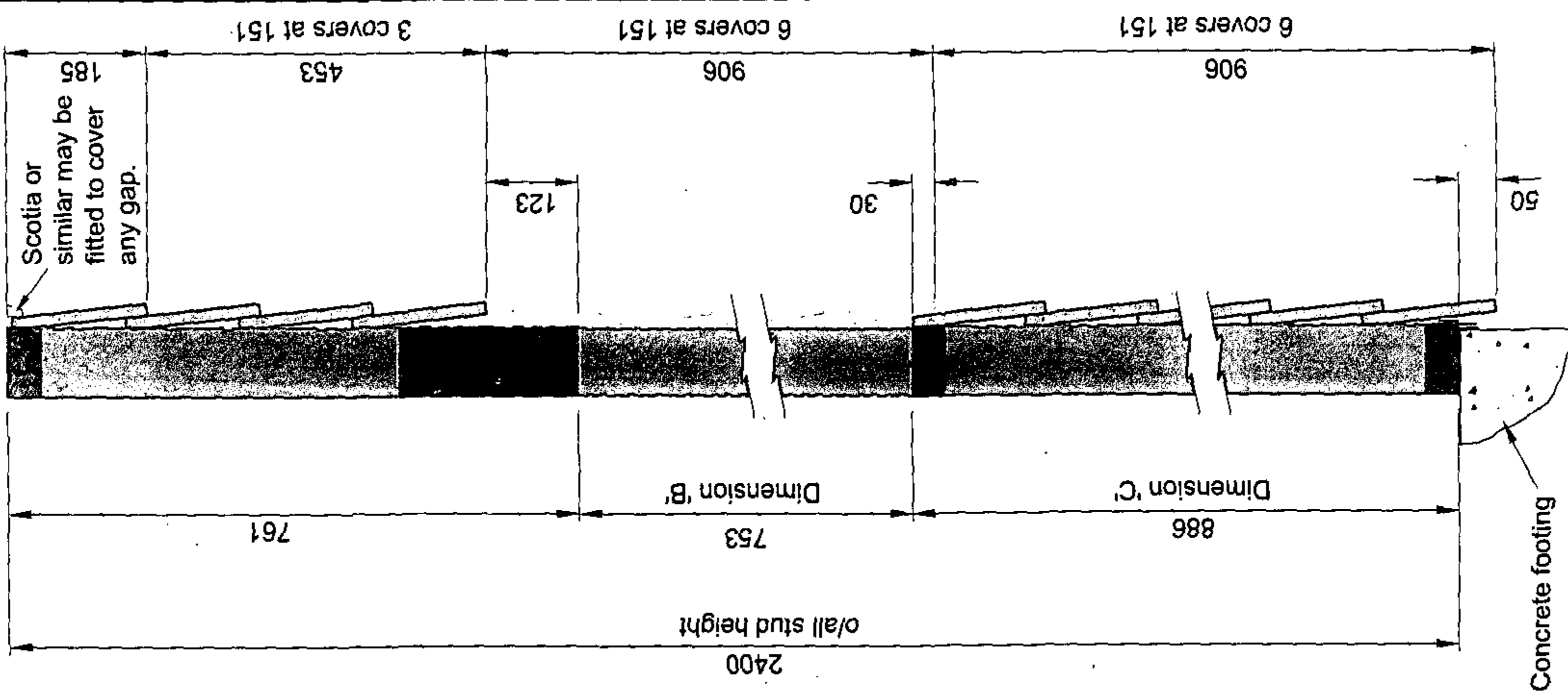
Add total 15mm to dimension 'A'

Step 5

To calculate position of window from underside of bottom plate dimension 'C'.

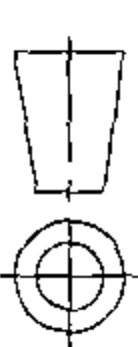
Cover dimension refer Detail 9.	6 covers at 151 =	906mm
Add clearance dimension to framing.	30mm	
Weatherboard overhang at base.	50mm	
Dimension 'C'.		886mm

Subtract 50mm from 936mm



Detail 10 Typical Wall Section 2 at Window with facings. Scale 1:10

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



LINEA
DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

James Hardie
50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

OPTIONAL FRAME & OPENING
SETOUT WITH FACINGS
DETAILS 9 TO 10

Rev	Description	Scale	Original size	Date
As ntd		As ntd	A3	20.08.01

Drawing No.
JH-LINEA WB-004

The following tables setout typical examples of window opening for 2400mm stud height & common sill & window heights.

Table 1: 135 x 16 Linea weatherboard without facings

No. of covers	Window frame Dim 'A' opening Dim 'B' frame Dim 'C'	Floor to sill frame Dim 'C'	Cover Dim 'D'	Cover Dim 'E'	Clearance Dim 'F'
6	556	1464	1484	636	35
7	662	1358	1378	742	35
8	768	1252	1272	848	35
9	874	1146	1166	954	35
10	980	1040	1060	1060	35
11	1086	934	954	1166	35
12	1192	828	848	1272	35
13	1298	722	742	1378	35
14	1404	616	636	1484	35
15	1510	510	530	1590	35
16	1616	404	424	1696	35
17	1722	298	318	1802	35
18	1828	192	212	1908	35
19	1934	86	106	2014	35
20	2027.5	N/A	N/A	2120	35

Ordering height of window = window frame dim 'A'

Table 3: 180 x 16 Linea weatherboard without facings

No. of covers	Window frame Dim 'A' opening Dim 'B' frame Dim 'C'	Floor to sill frame Dim 'C'	Cover Dim 'D'	Cover Dim 'E'	Clearance Dim 'F'
5	675	1339	1359	755	35
6	826	1188	1208	906	35
7	977	1037	1057	1057	35
8	1128	886	906	1208	35
9	1279	735	755	1359	35
10	1430	584	604	1510	35
11	1581	433	453	1661	35
12	1732	282	302	1812	35
13	1883	131	151	1963	35
14	2021.5	N/A	N/A	2114	35

Table 5: Setout datum calculation

135 x 16 without facings	135 x 16 with facings	180 x 16 without facings
2027.5 + 7.5 = 2035 (table 1)	2045.5 + 7.5 = 2053 (table 2)	2021.5 + 7.5 = 2029 (table 3)

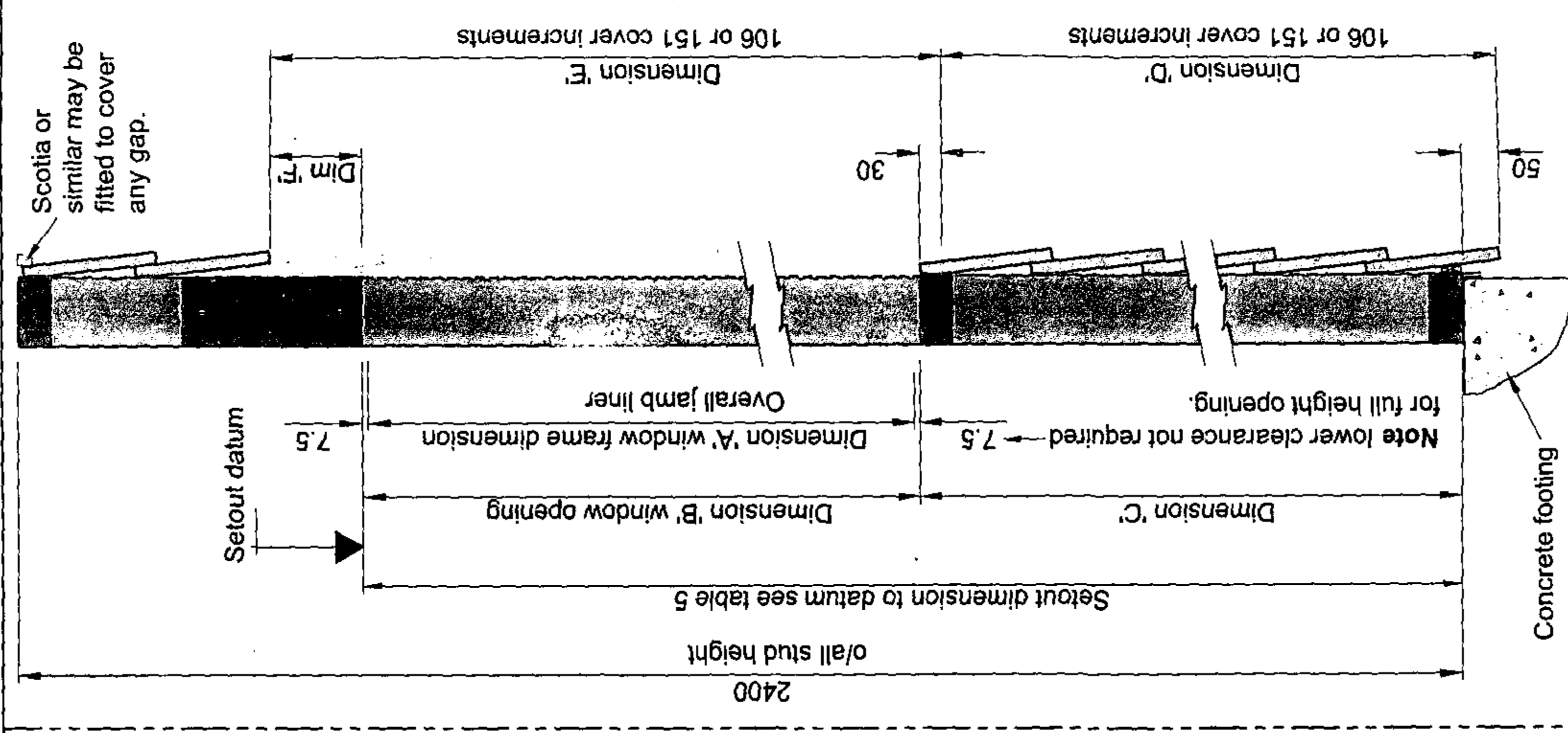
The setout datums to the underside of the lintel are based upon a typical sliding door height (overall the jamb liner) plus 7.5mm clearance at head only. Note bottom of door frame flush with floor refer to details 50 & 51.
Note: for stud heights greater than 2400mm increase datum height in cover dimension increments.

Table 2: 135 x 16 Linea weatherboard with facings

No. of covers	Window frame Dim 'A' opening Dim 'B' frame Dim 'C'	Floor to sill frame Dim 'C'	Cover Dim 'D'	Cover Dim 'E'	Clearance Dim 'F'
6	468	1570	1590	636	123
7	574	1464	1484	742	123
8	680	1358	1378	848	123
9	786	1252	1272	954	123
10	892	1146	1166	1060	123
11	998	1040	1060	1166	123
12	1104	934	954	1272	123
13	1210	828	848	1378	123
14	1316	722	742	1484	123
15	1422	616	636	1590	123
16	1528	510	530	1696	123
17	1634	404	424	1802	123
18	1740	298	318	1908	123
19	1846	192	212	2014	123
20	1932	86	106	2120	123
21	2045.5	N/A	N/A	2226	123

Table 4: 180 x 16 Linea weatherboard with facings

No. of covers	Window frame Dim 'A' opening Dim 'B' frame Dim 'C'	Floor to sill frame Dim 'C'	Cover Dim 'D'	Cover Dim 'E'	Clearance Dim 'F'
5	587	1490	1510	755	123
6	738	1339	1359	906	123
7	889	1188	1208	1057	123
8	1040	1037	1057	1208	123
9	1191	886	906	1359	123
10	1342	735	755	1510	123
11	1493	584	604	1661	123
12	1644	433	453	1812	123
13	1795	282	302	1963	123
14	1946	131	151	2114	123
15	2084.5	N/A	N/A	2265	123



Typical Wall Section at Window.

Scale 1:10

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



LINEA
James Hardie



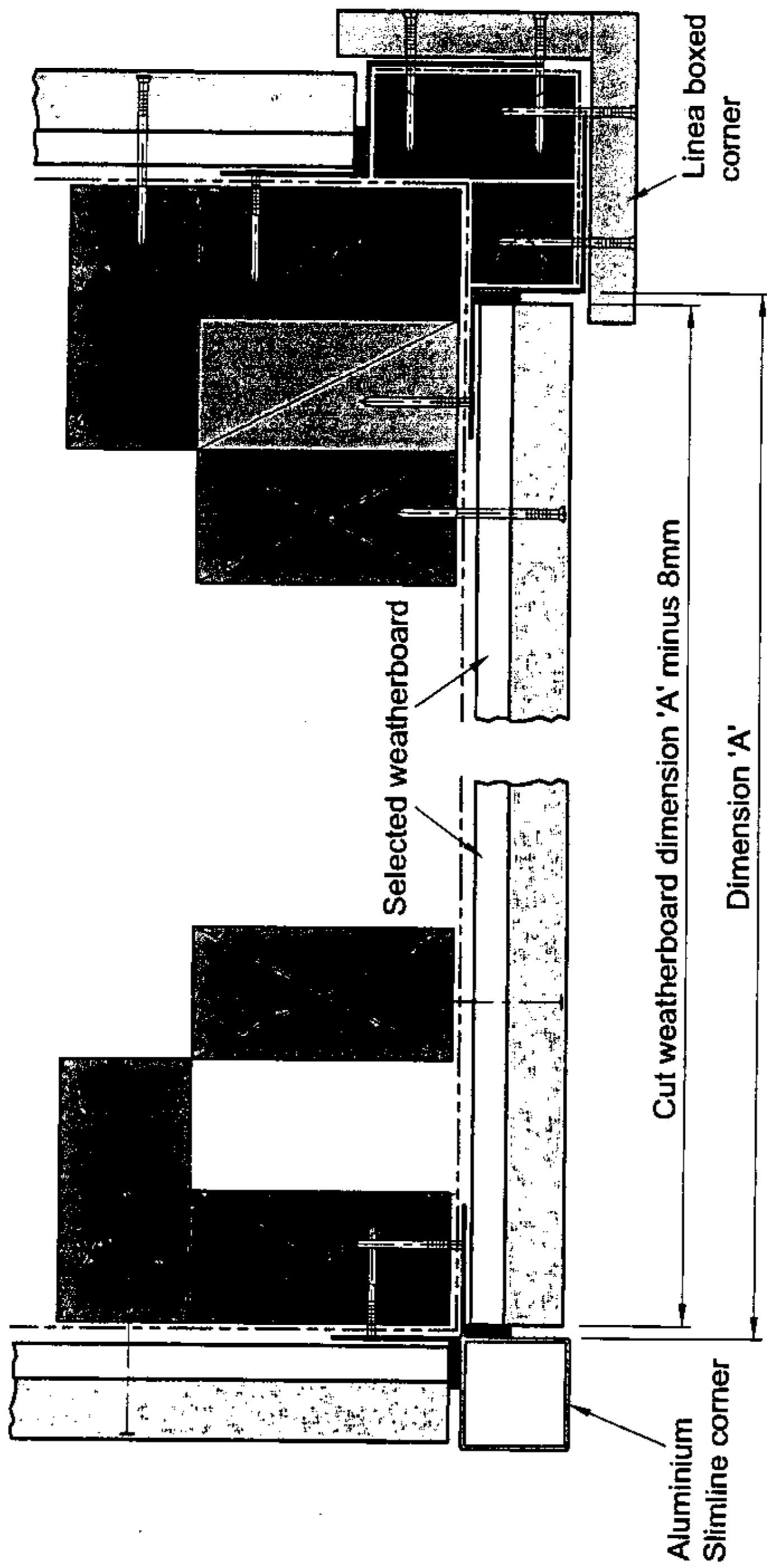
50 O'Rourke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

**FRAME & OPENING SETOUT
WITH & WITHOUT FACINGS**

Scale
As ntd
Original size
A3
Date
20.08

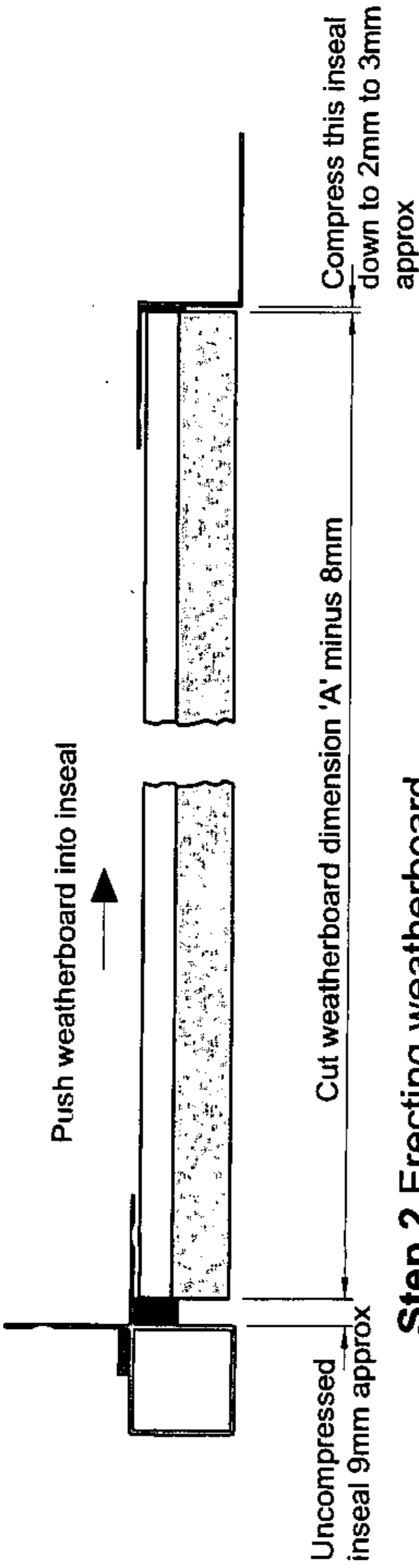
Drawing No.

JH-LINEA WB-005



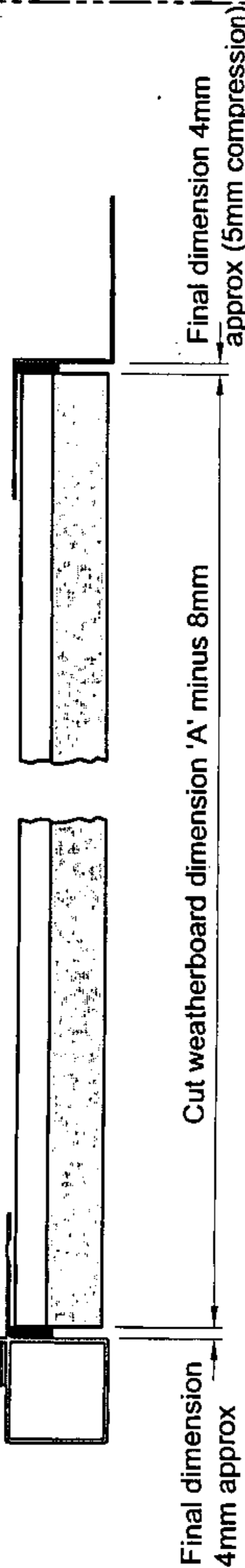
Step 1 Measuring weatherboard.

- Accurately measure distance between accessories Dimension 'A'.
- Neatly square cut both ends of weatherboard to Dimension 'A' minus 8mm.

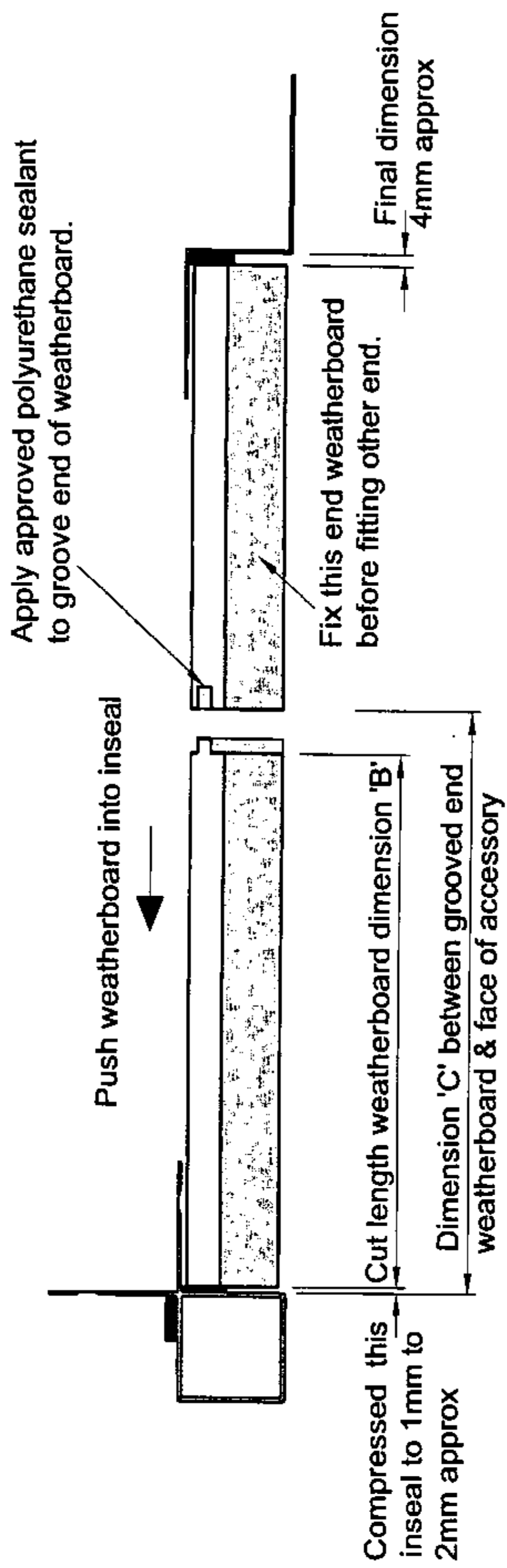


Step 2 Erecting weatherboard.

Centralise weatherboard between flashings to equalise compression

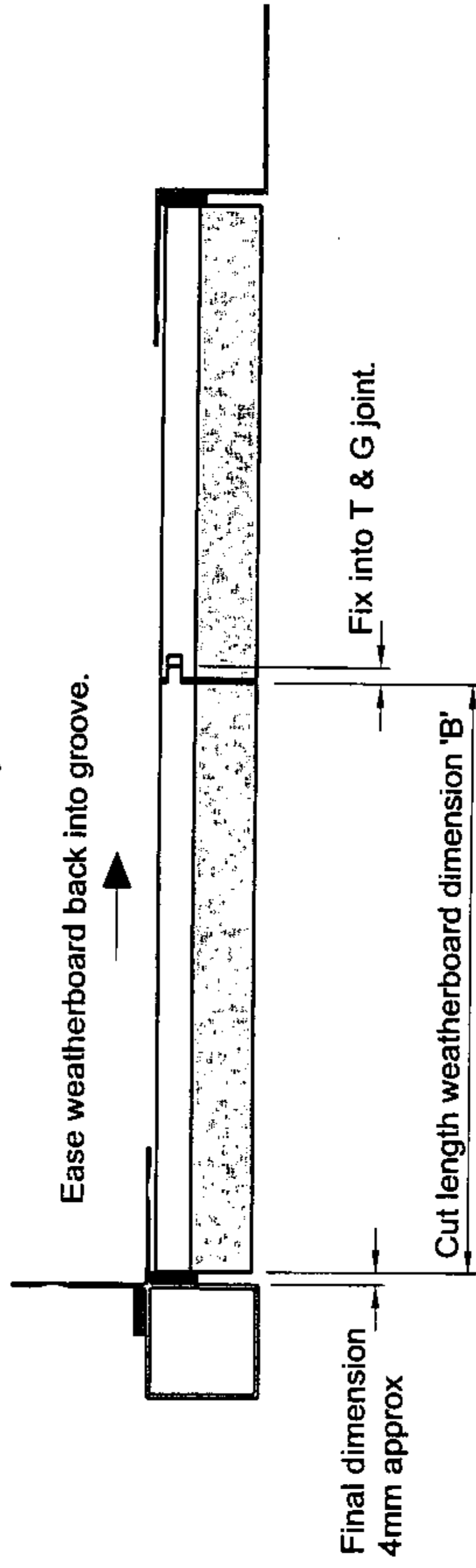


Step 3 Final fitting weatherboard.



Step 4 Fitting weatherboard between T & G joint & corner.

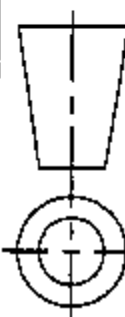
- Accurately measure distance between end of fitted board & face of accessory Dimension 'C'.
- Dimension 'B' = Dimension 'C' minus 8mm.
- Push weatherboard into inseal at accessory end.



Step 5 Final fitting of weatherboard.

- Ease weatherboard back into groove.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

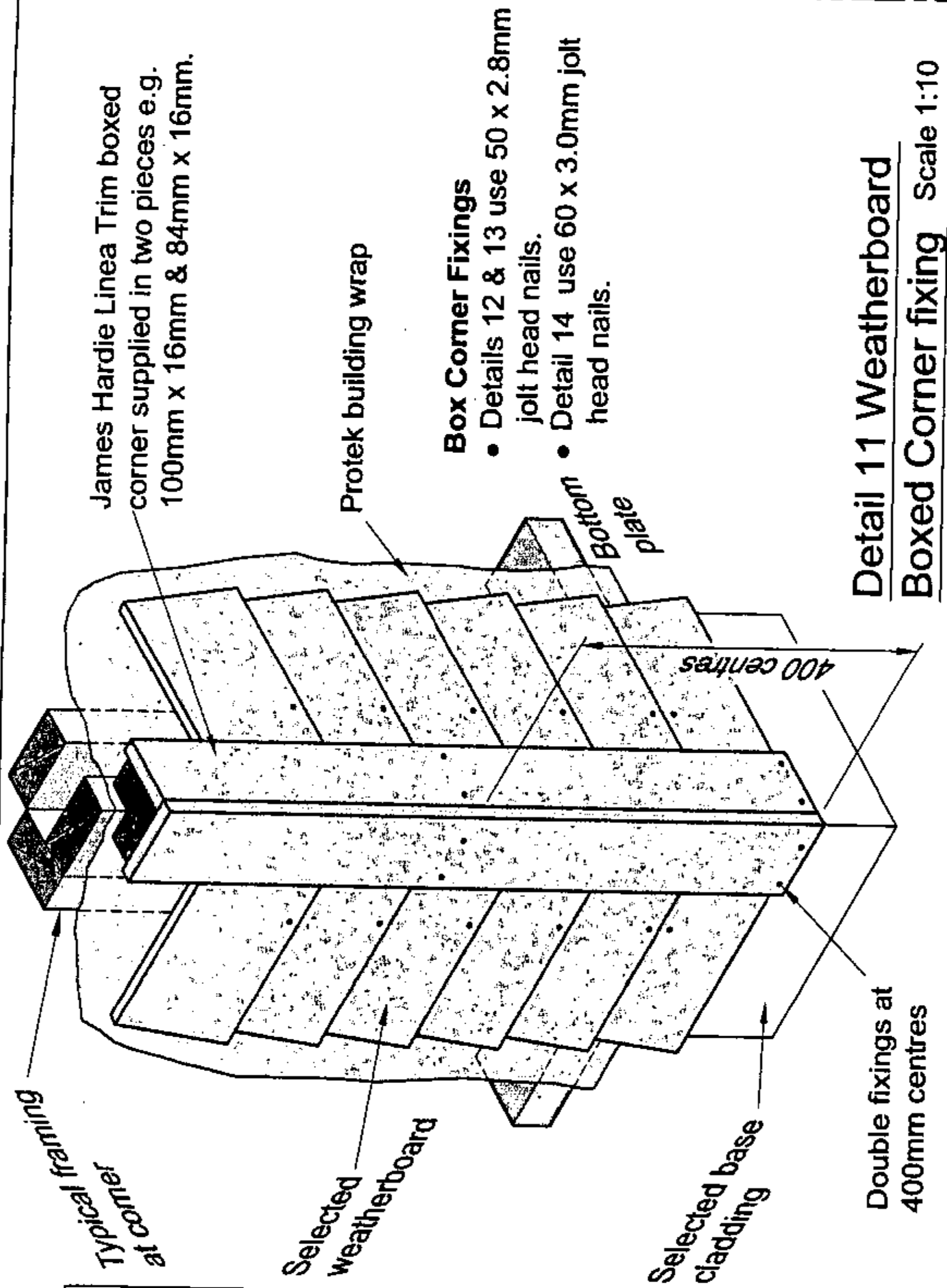
LINEA
James Hardie

50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

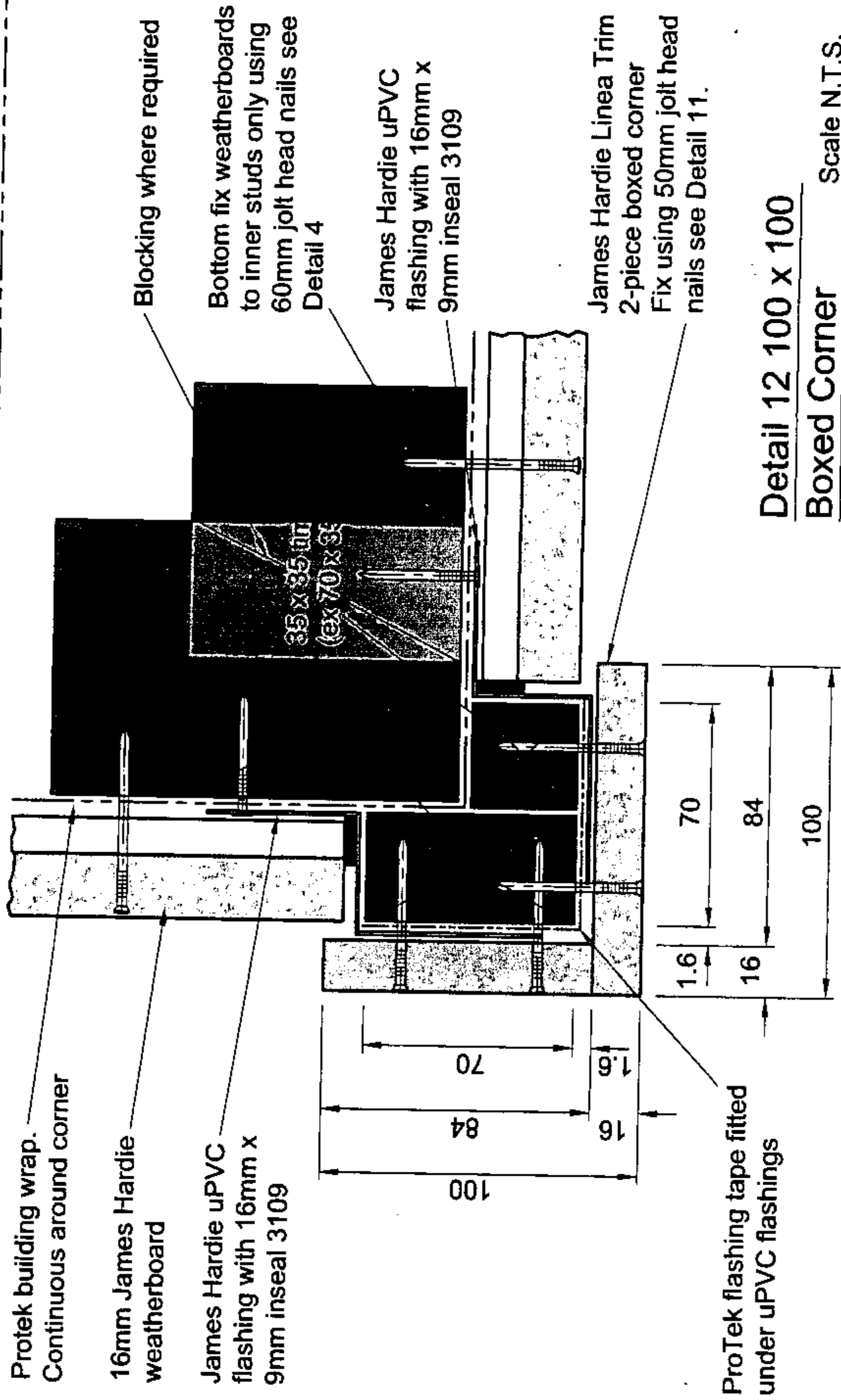
**WEATHERBOARD FITTING
BETWEEN CORNERS OR
OPENINGS**

Rev	Description	Date
Scale	Original size	Date
N.t.s.	A3	20.08.01
Drawing No.	JH-LINEA WB-006	

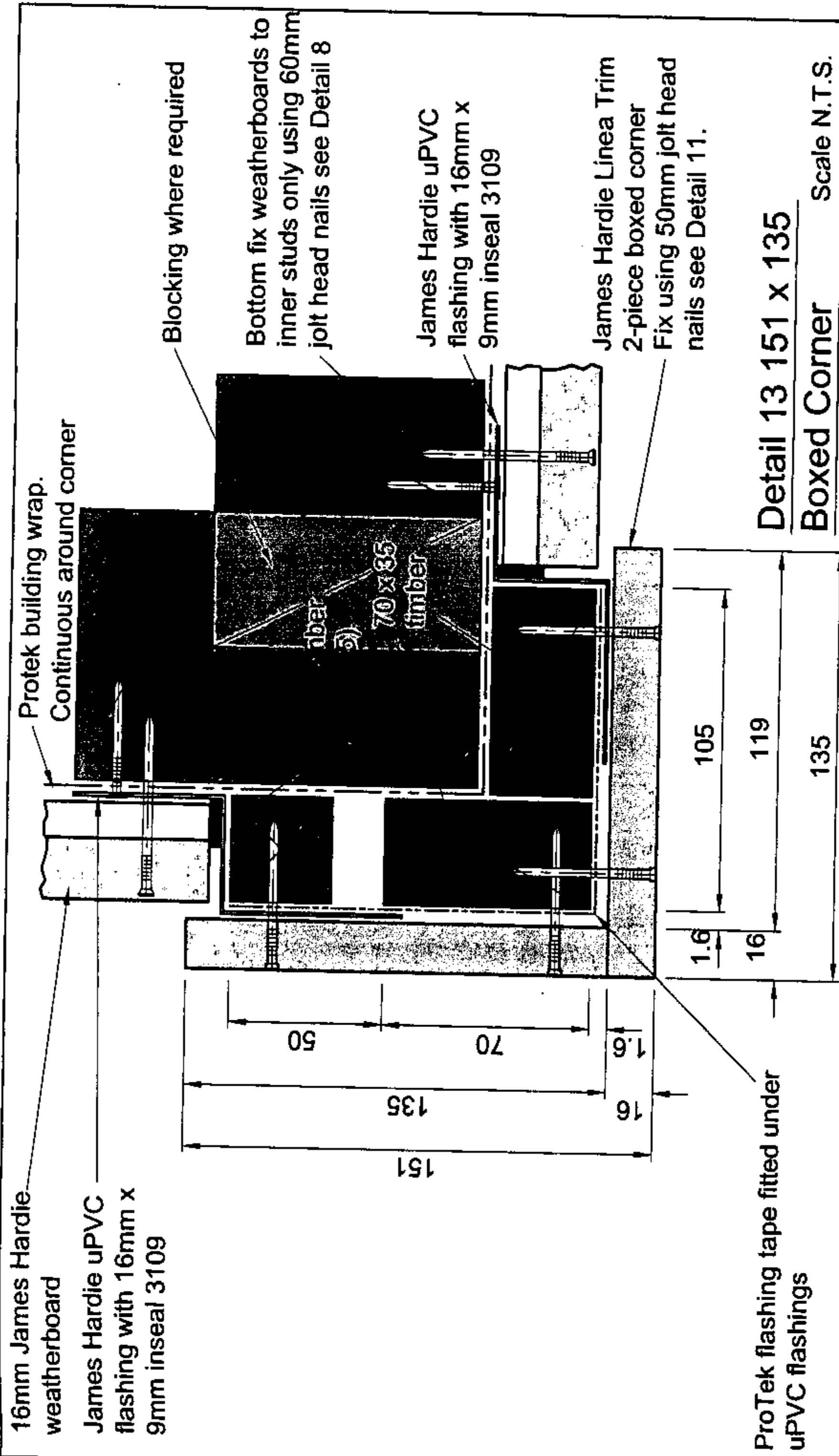
Linea Trim Schedule.	
Detail 12	1-100 x 16 1- 84 x 16
Detail 13	2-135 x 16
Detail 14	1- 84 x 16 2-100 x 16 1-116 x 16 cut from 135



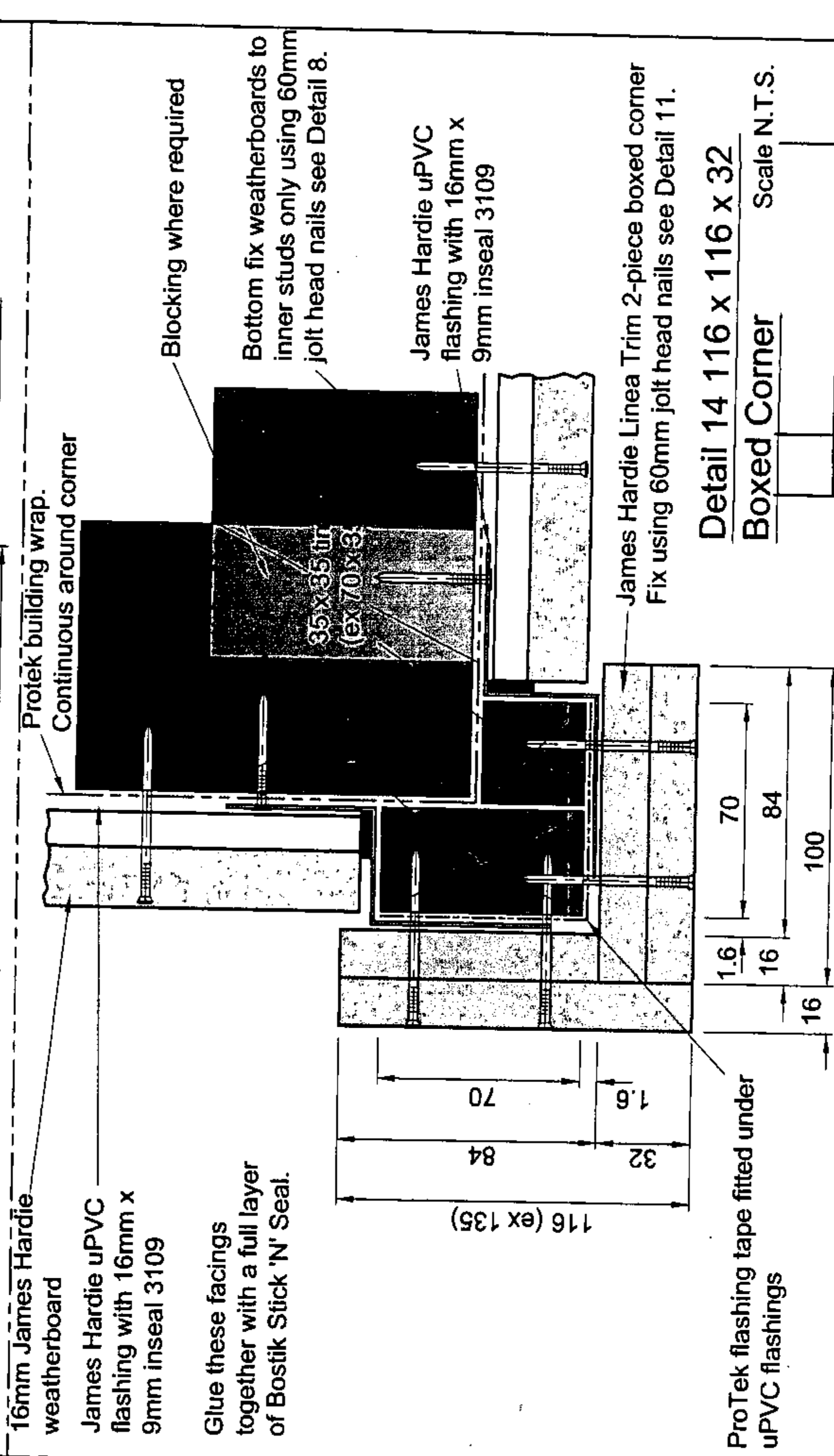
Detail 11 Weatherboard Boxed Corner fixing Scale 1:10



Detail 12 100 x 100 Boxed Corner Scale N.T.S.



Detail 13 151 x 135 Boxed Corner Scale N.T.S.



Detail 14 116 x 116 x 32 Boxed Corner Scale N.T.S.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR BY ANY OTHER MEANS AND MUST NOT BE PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF THE TECHNICAL MANAGER.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

LINEA

James Hardie

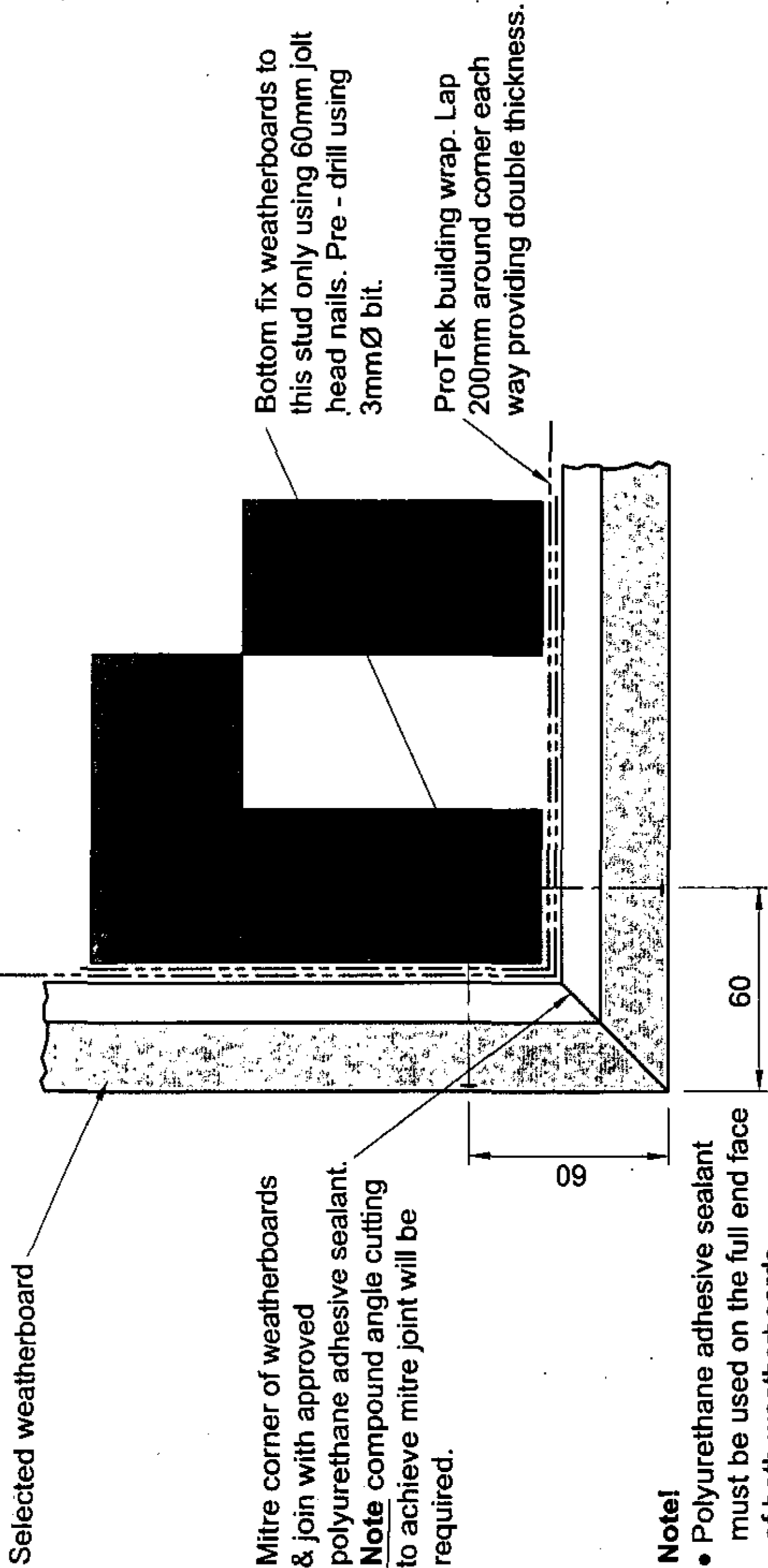
50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

**WEATHERBOARD
BOXED CORNER
DETAILS 11 TO 14**

Rev	Description	Date
Scale	Original size	Date
As ntd	A3	20.08.01

Drawing No.

JH-LINEA WB-007

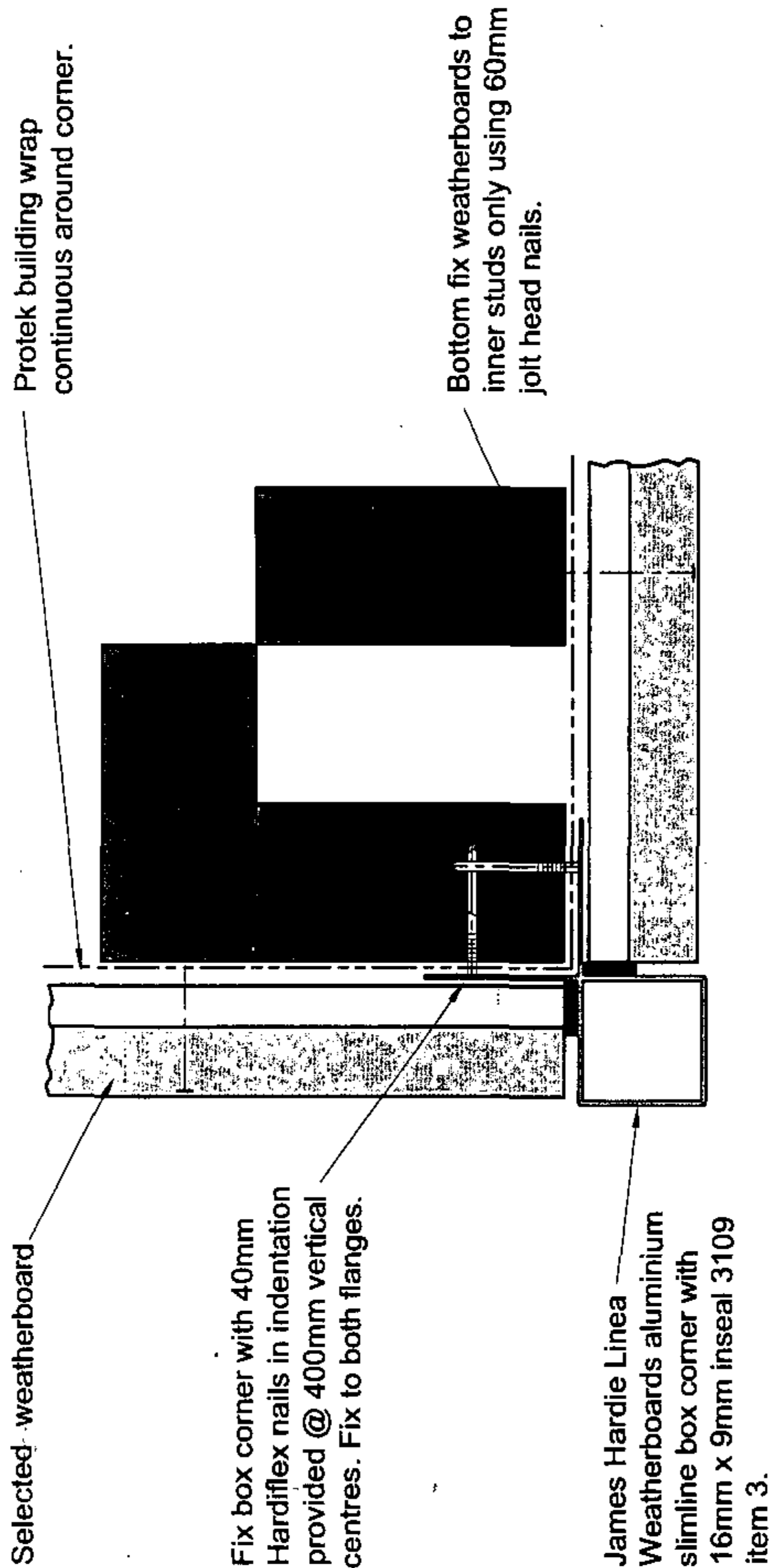


Note!

- Polyurethane adhesive sealant must be used on the full end face of both weatherboards. Push tightly together & wipe off excess polyurethane.

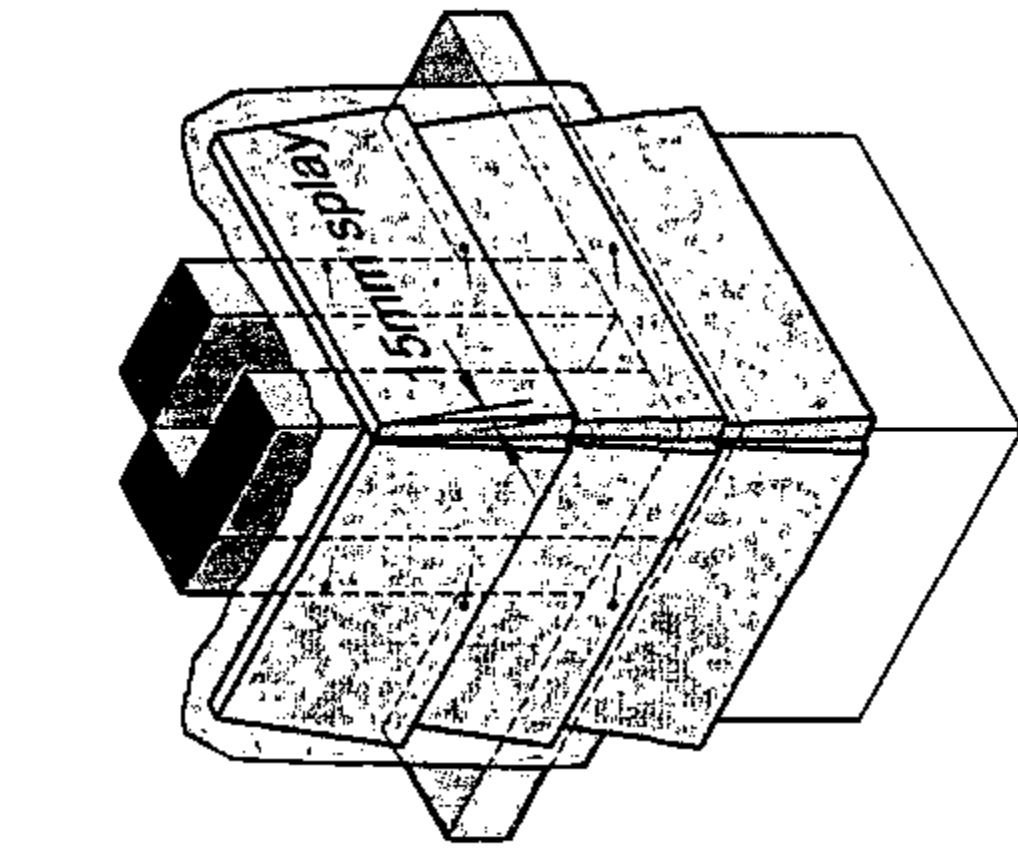
Detail 15 Weatherboard Mitre Corner fixing

Scale N.T.S.



Detail 16 Slimline Aluminium Box Corner

Scale N.T.S.



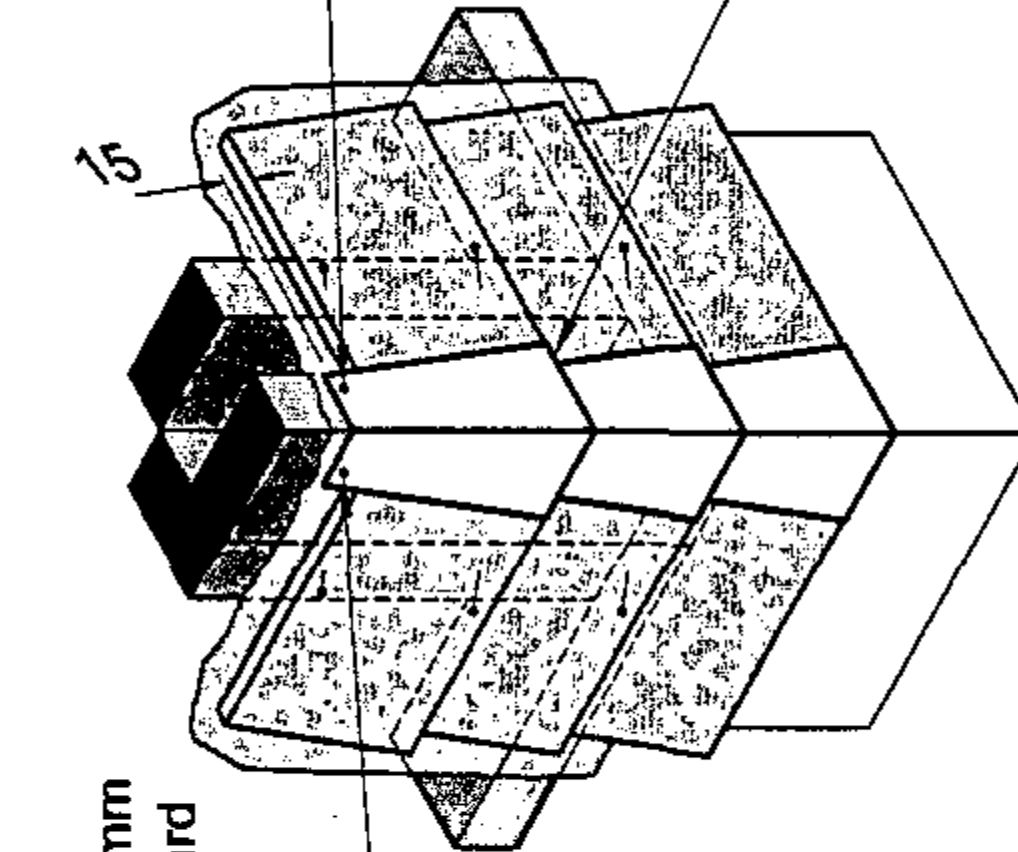
Step 1

Soaker availability

- Chromate treated aluminium 0.7mm thk for site painting.
- Copper 0.55mm thk for architectural effect.
- 304 Stainless Steel 0.45mm thk with 2B finish for architectural effect.
- These finishes are available in two sizes to suit all weatherboards, refer to accessory listing. They are available in 90° & 135°.

End of weatherboard preparation

- Splay cut end of boards as shown.
- Fit closely together at corner lapping ends of boards.
- Use sealant bead as shown on fitting soaker when Linea Reeded weatherboard is selected.



Step 2

End of board splay cutting

Scale 1:10

Detail 17 External Corner with Soaker

Scale 1:10



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.



50 O'Rourke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

**WEATHERBOARD
EXTERNAL CORNER
DETAILS 15 TO 17**

Drawing No.

JH-LINEA WB-008

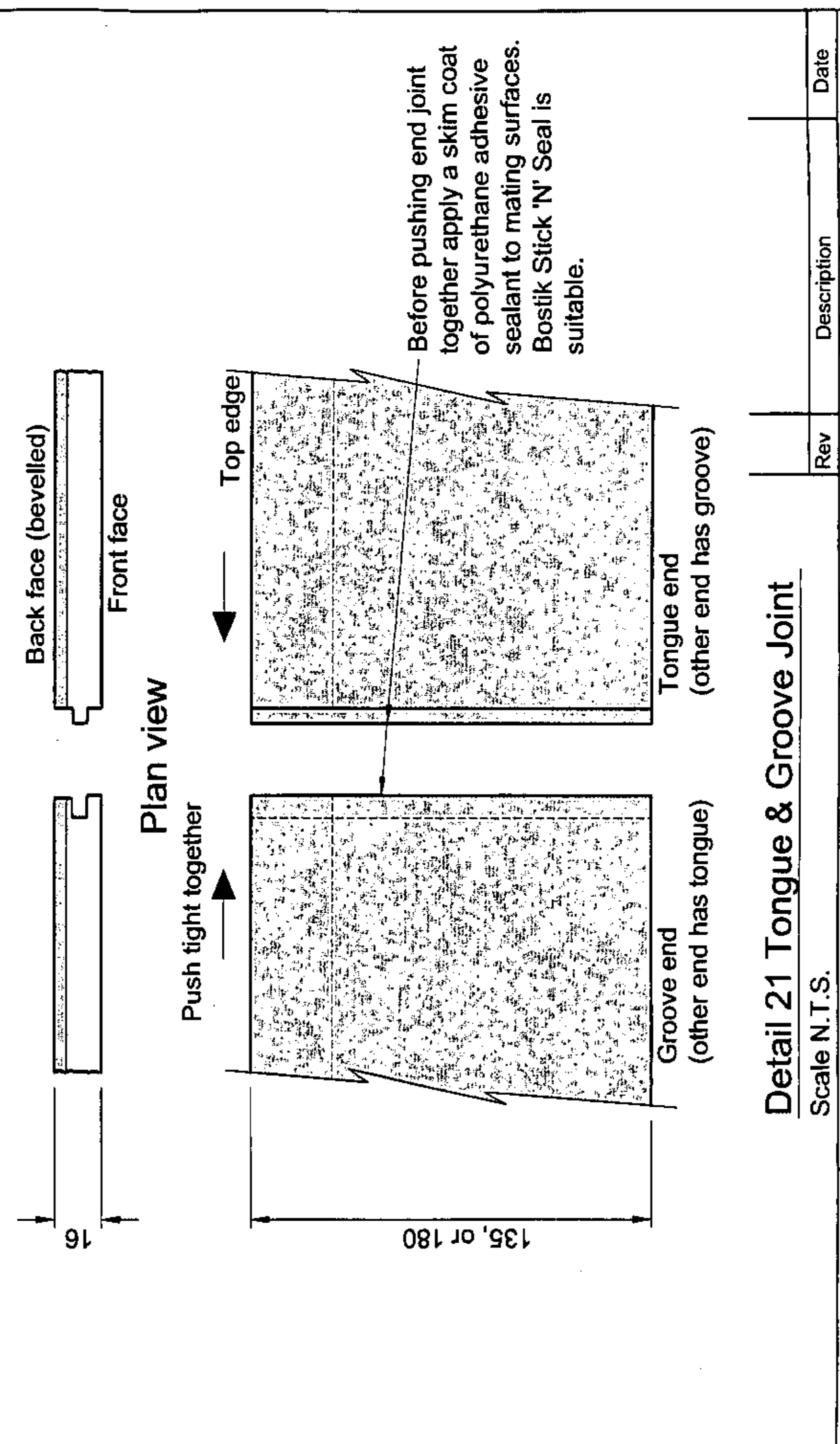
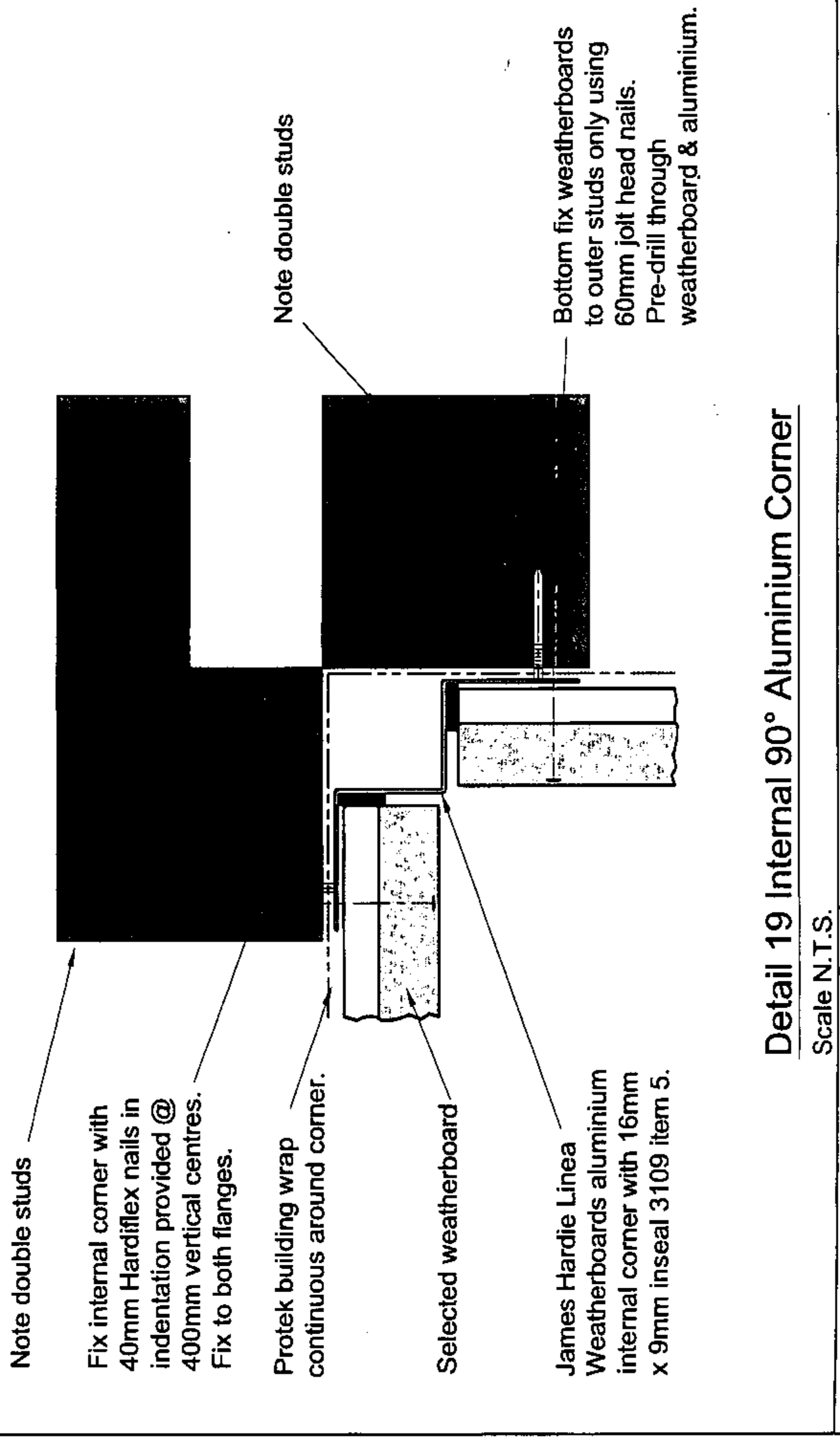
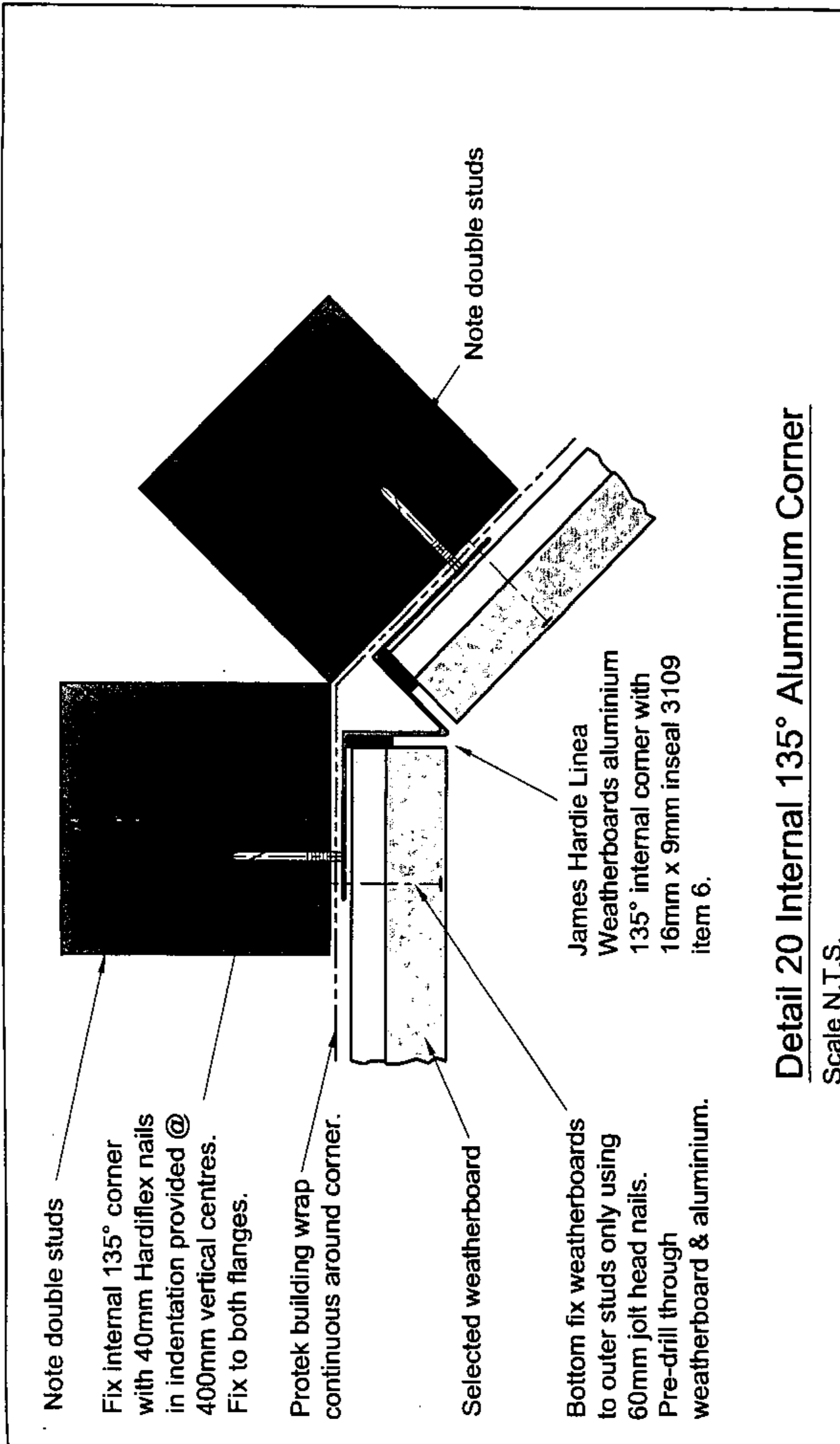
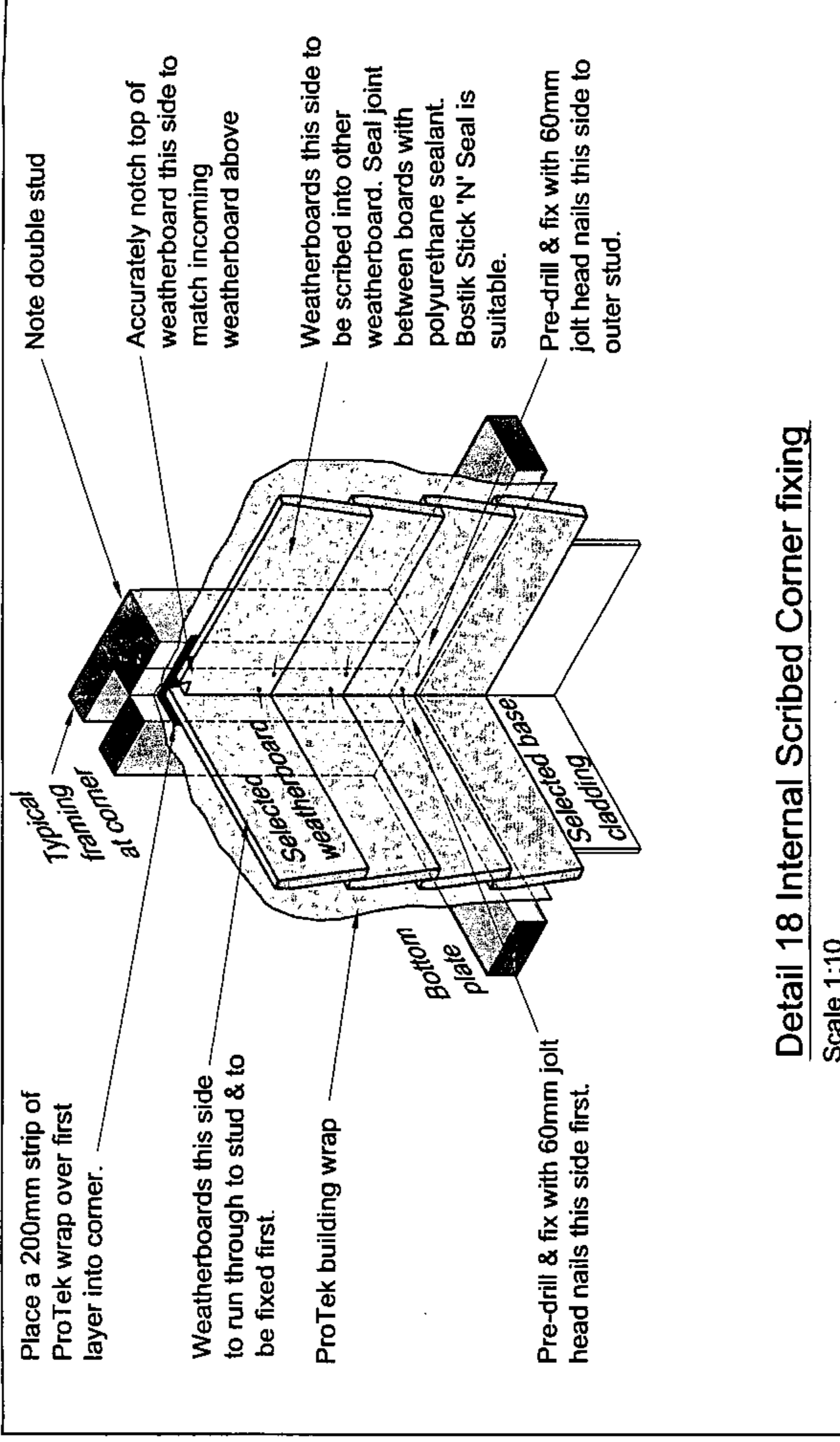
Rev Scale

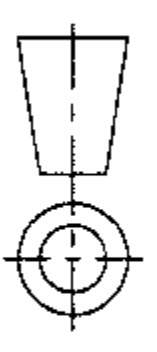
Description

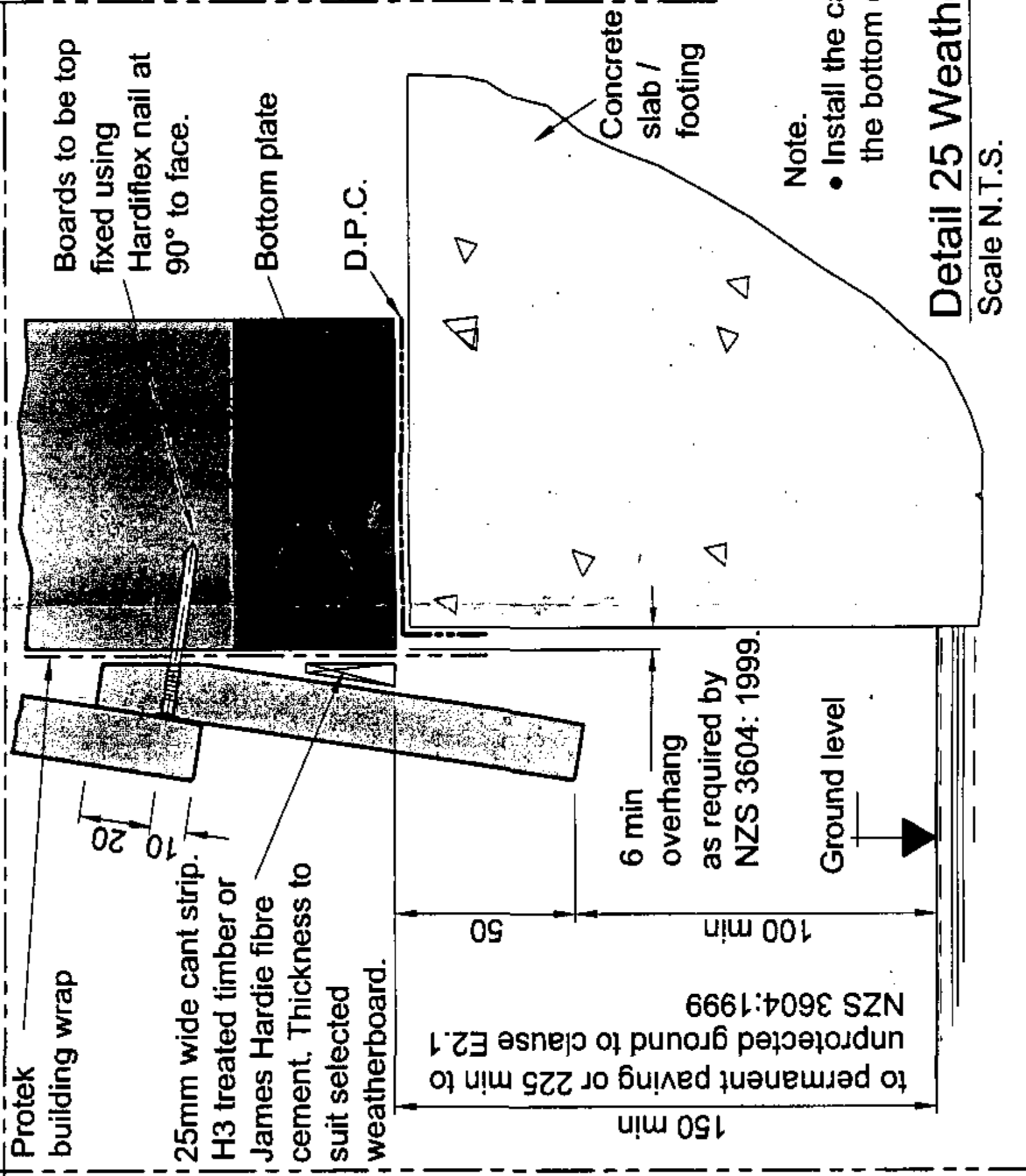
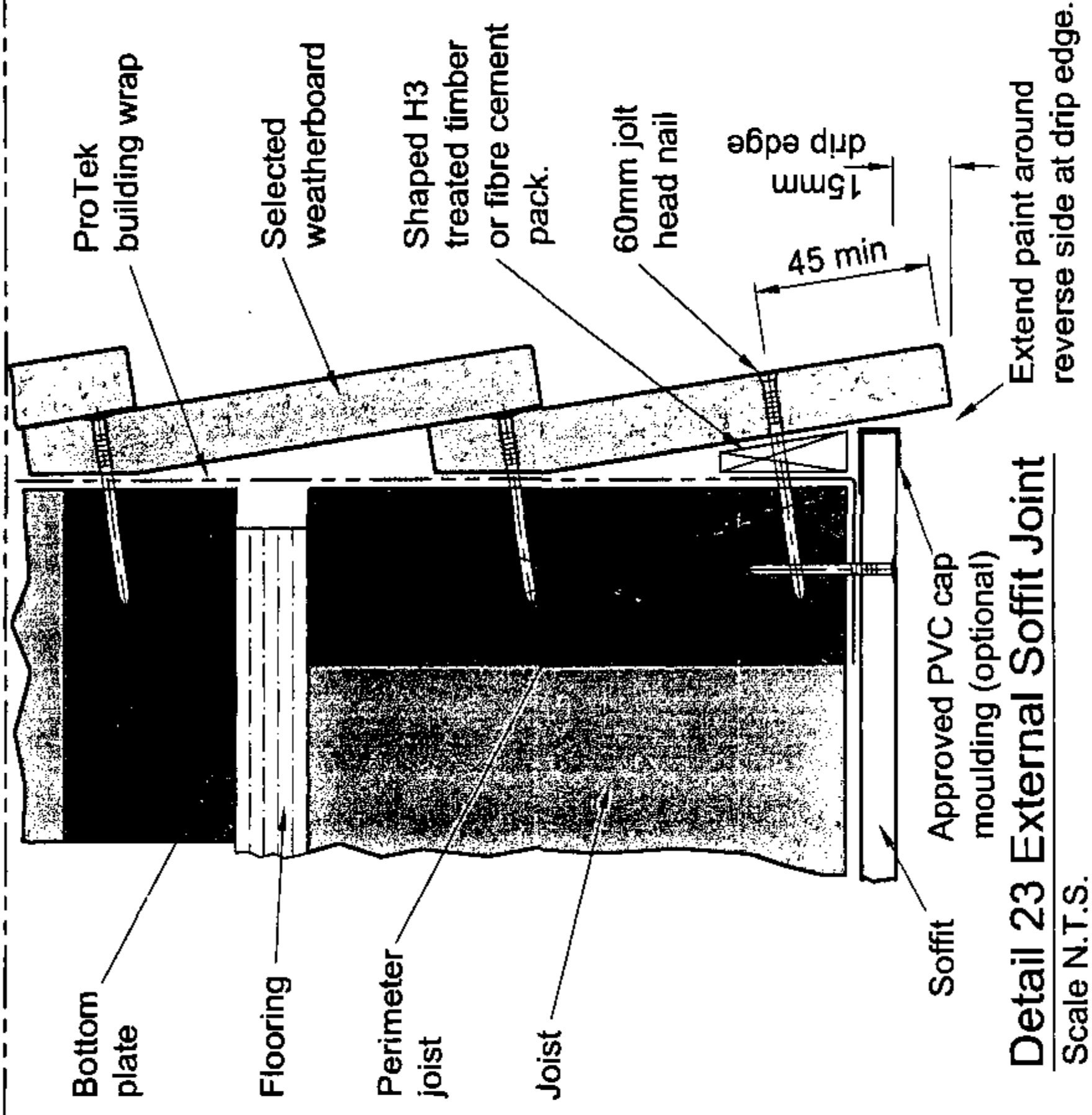
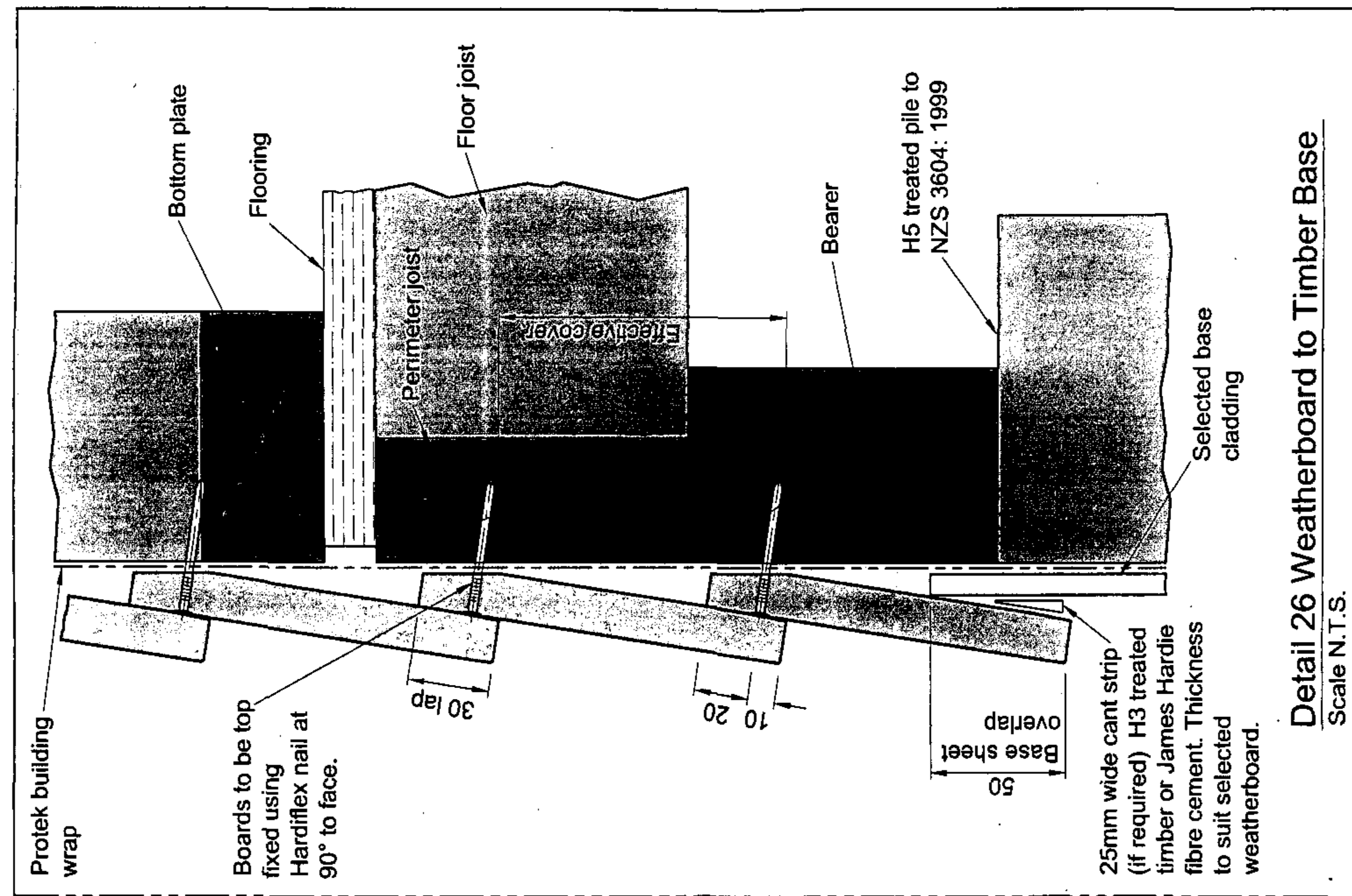
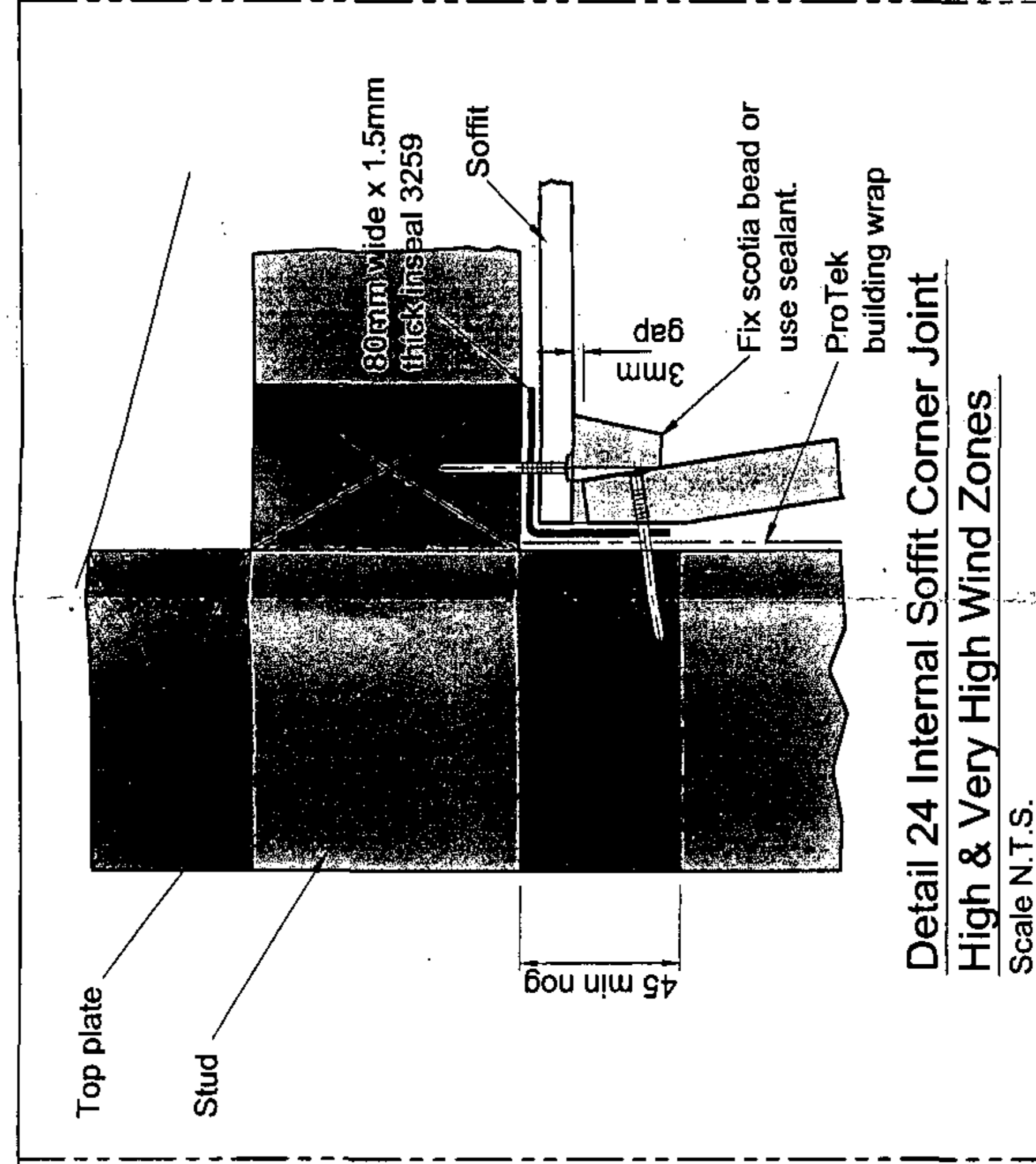
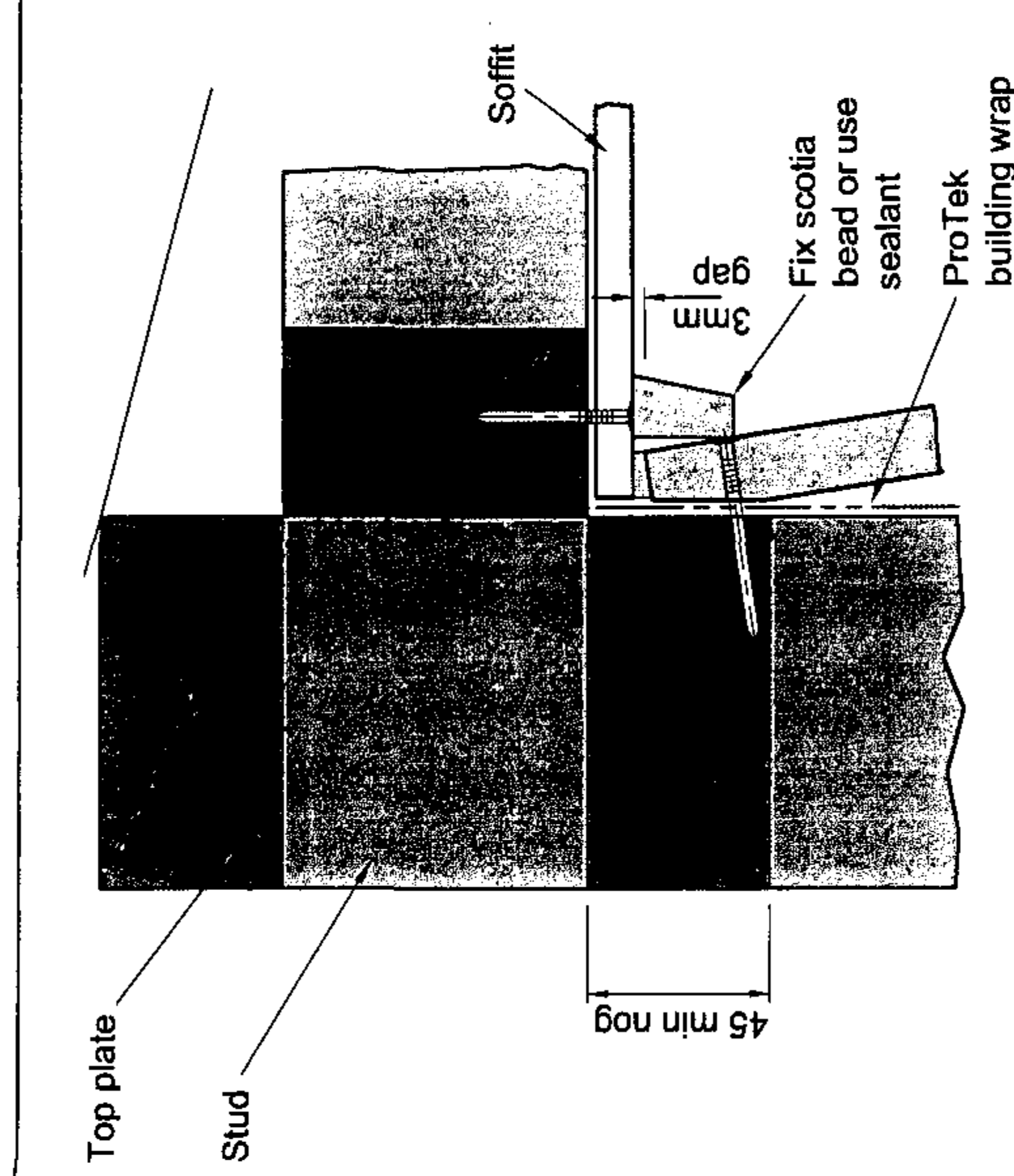
Original size

Date

As ntd A3 20.08.01



COPYRIGHT THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR BY ANY OTHER MEANS AND MUST NOT BE PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF THE TECHNICAL MANAGER.		 LINEA James Hardie		50 O'Rourke Road, Penrose, Auckland, New Zealand. Tel: 0800 808 868 Fax: 0800 808 988	
DIMENSIONS IN mm FOR STRUCTURAL LAYOUT REFER TO ARCHITECT'S DRAWINGS.		WEATHERBOARD INTERNAL CORNER & JOINT DETAILS 18 TO 21		Detail 21 Tongue & Groove Joint Scale N.T.S.	
		As ntd		Rev	Date
		A3		Scale	Original size
		20.08.01		As ntd	Date
		JH-LINEA WB-009		Drawing No.	



Rev		Description	Date	
Scale		Original size	Date	
As ntd		A3	20.08.01	
Drawing No.				JH-LINEA WB-010

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED, NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



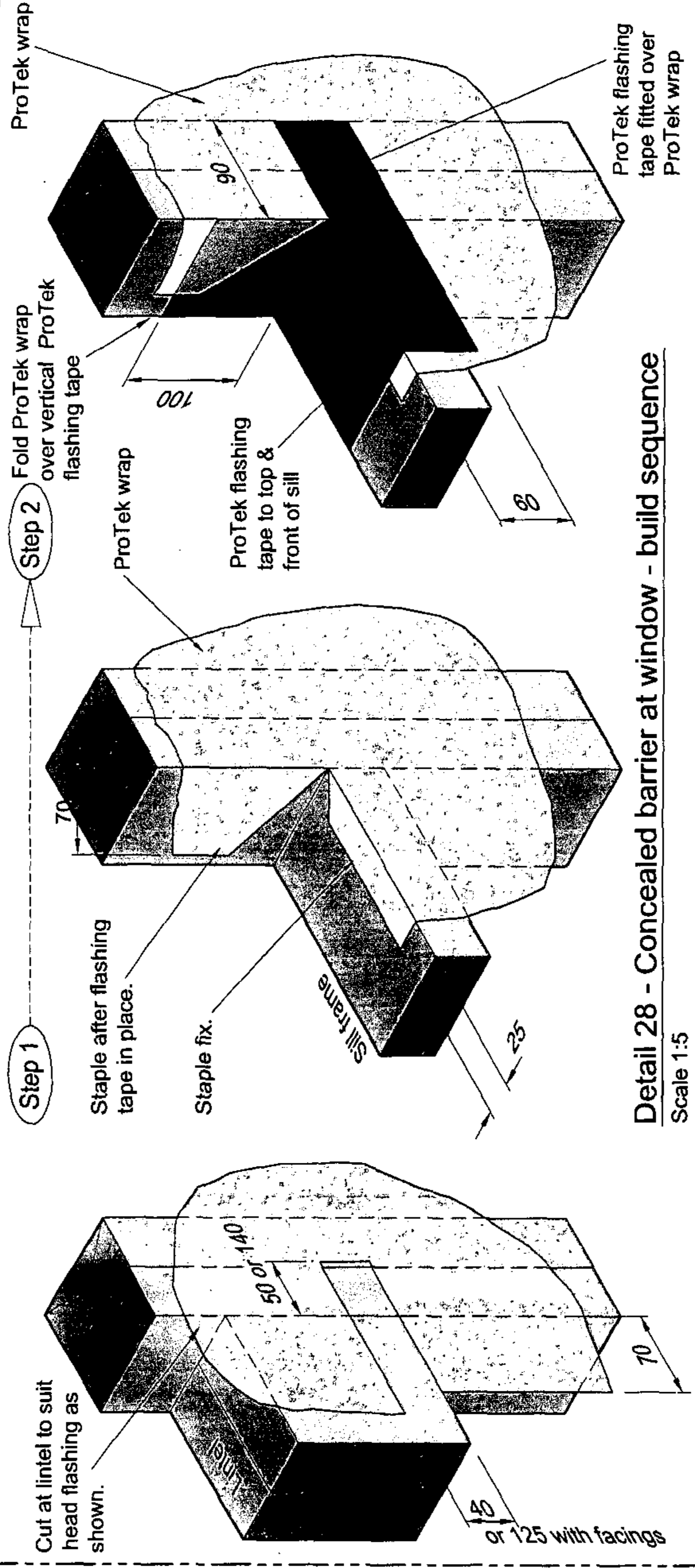
DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

LINEA[®]
James Hardie

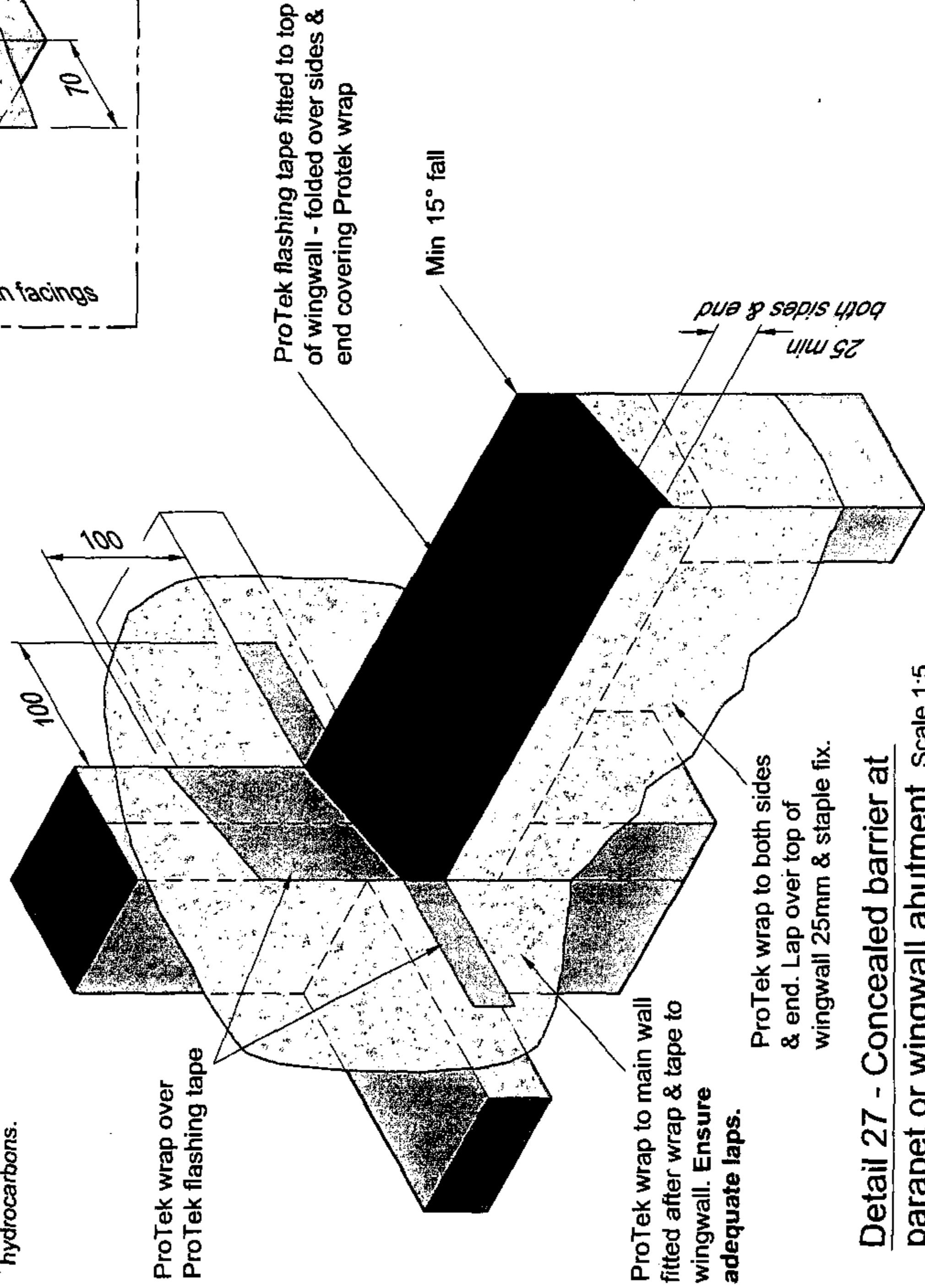
WEATHERBOARD INTERNAL & EXTERNAL SOFFIT & BASE DETAILS 22 TO 26

Concealed Barrier

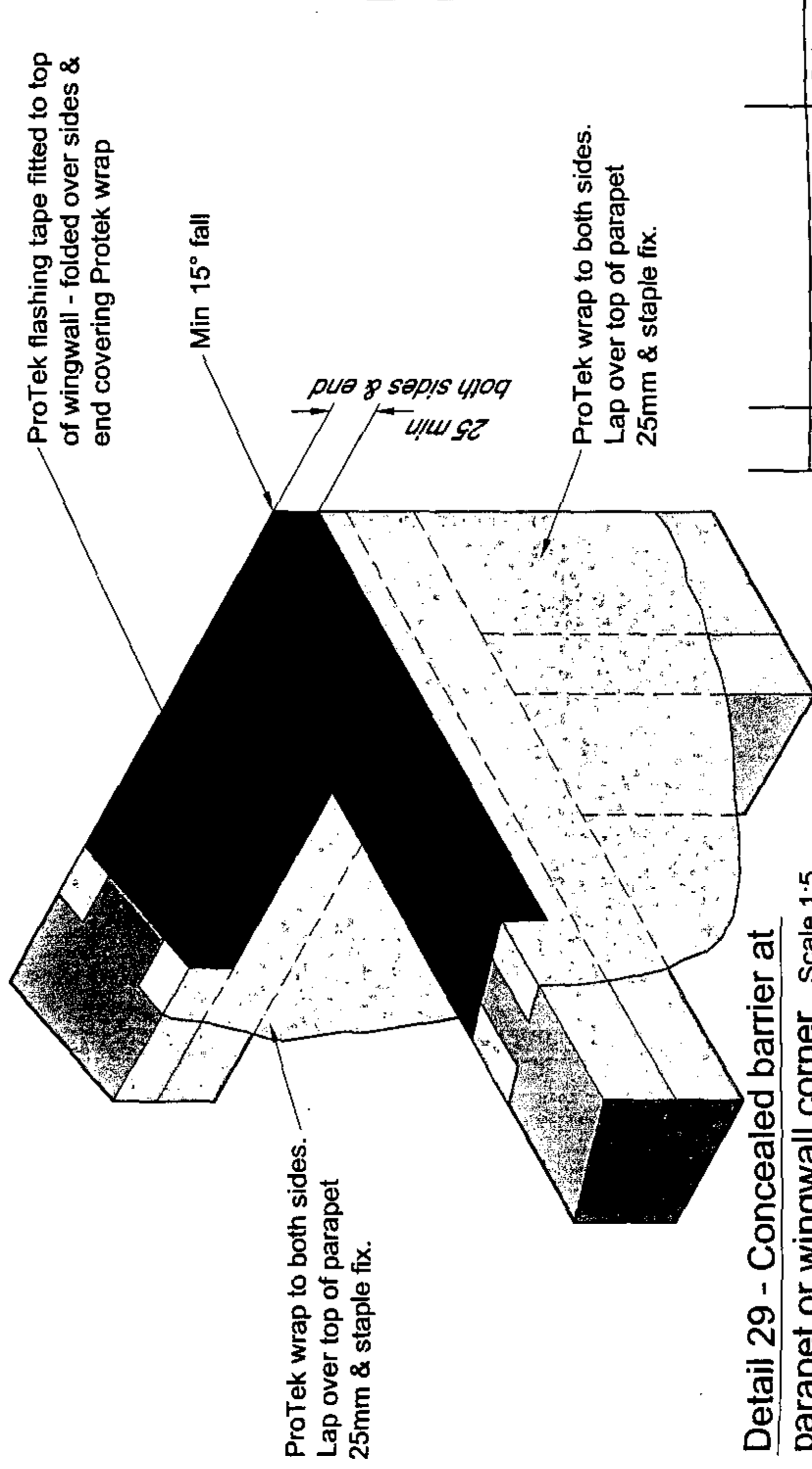
- The ProTek® Building Wrap must be fixed horizontally to the exterior of the frame extending to 25mm below the bottom of the framing and flush to the top of the top plate of the frame.
- ProTek® must be installed immediately subsequent to erection of timber framing in order to protect the framing from wet weather exposure.
- ProTek® must be fixed to timber framing with 8mm staples with or without strapping. For extreme or extended exposure time, use 20mm galvanised clout nails with strapping.
- Adequate fixing is required to withstand conditions anticipated prior to cladding installation.
- Horizontal and vertical lap joints of ProTek® Building Wrap must be 150mm minimum.
- Ends of wrap must be joined over studs or plates. For convenience overlap the width of the stud centres to enable fixing onto a stud.
- ProTek® flashing tape must be provided at all horizontal surfaces such as sill trimmers, parapet tops and balcony handrails, and other penetrations in the wall envelope. It must be fixed in principle as a concealed flashing in order to provide a secondary level of protection to the timber frame in the event of incidental moisture ingress.
- Pipes and services which penetrate the cladding must be sealed to the wrap with either black polythene tape or ProTek® Flashing tape.
- For superior air barrier performance James Hardie recommend taping laps with 50mm polythene black tape.
- Repair tears and damage to wrap with ProTek® flashing tape or 50mm polythene black tape.
- ProTek® building wrap must not be exposed to the weather for more than 2 months before the installation of the Linea® Weatherboard cladding or be exposed to strong oxidising agents such as free halogens, and chemicals such as petrol, oil and chlorinated hydrocarbons.



Detail 28 - Concealed barrier at window - build sequence
Scale 1:5



Detail 27 - Concealed barrier at parapet or wingwall abutment
Scale 1:5



Detail 29 - Concealed barrier at parapet or wingwall corner
Scale 1:5

COPYRIGHT

THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR BY ANY OTHER MEANS AND MUST NOT BE PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF THE TECHNICAL MANAGER.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.



50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

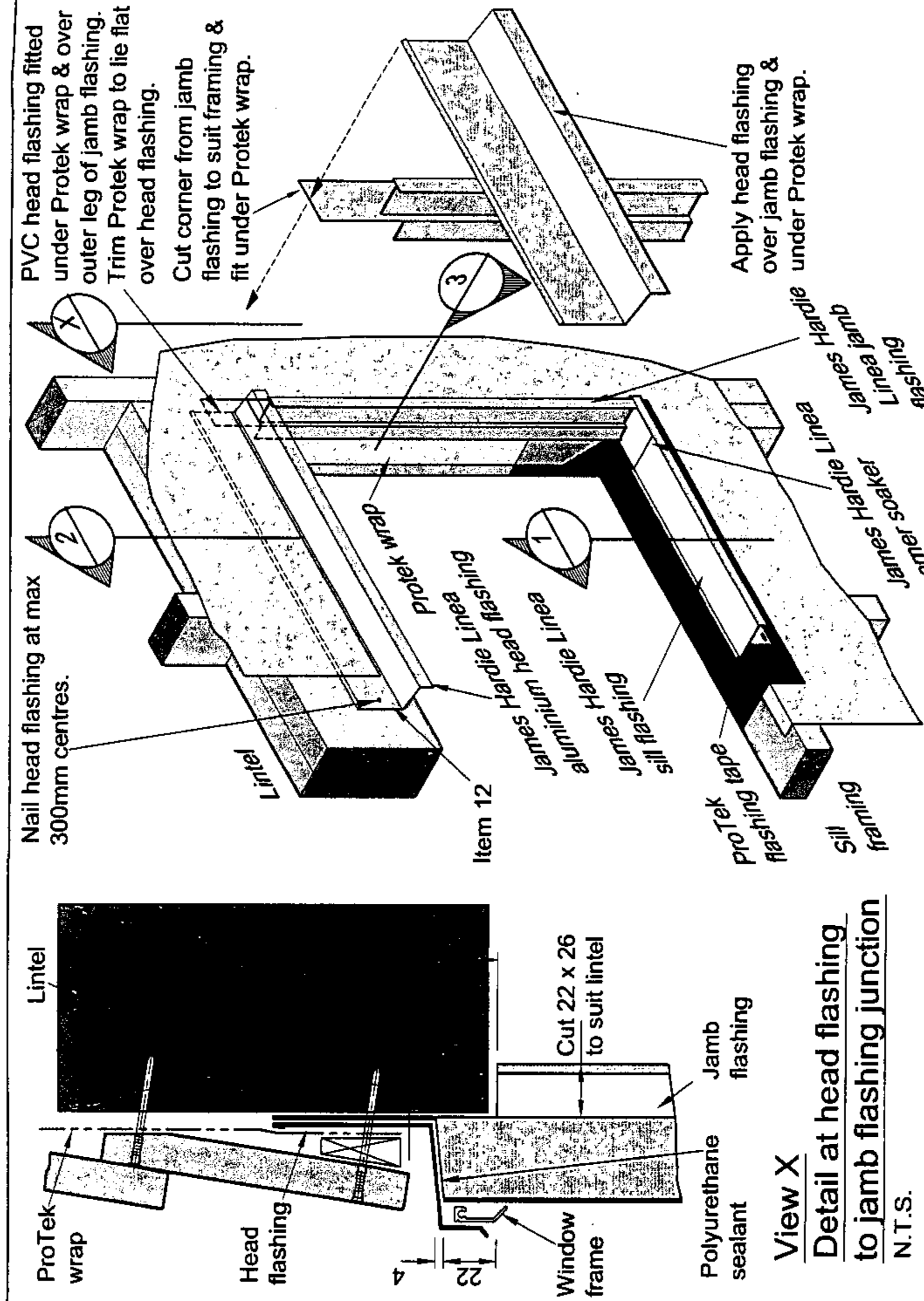
**WEATHERBOARD
CONCEALED BARRIER
SYSTEM DETAILS 27 TO 29**

Rev Scale Description Date

As ntd A3 20.08.01

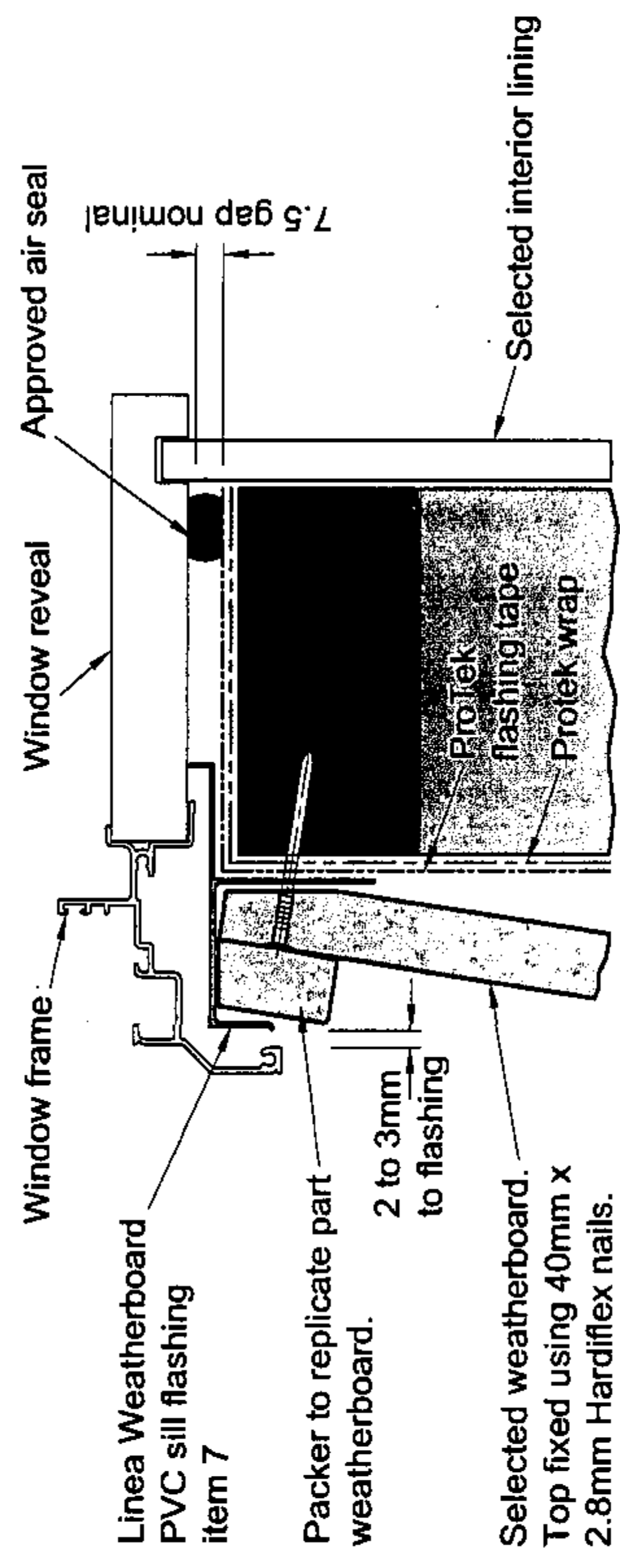
Drawing No.

JH-LINEA WB-011

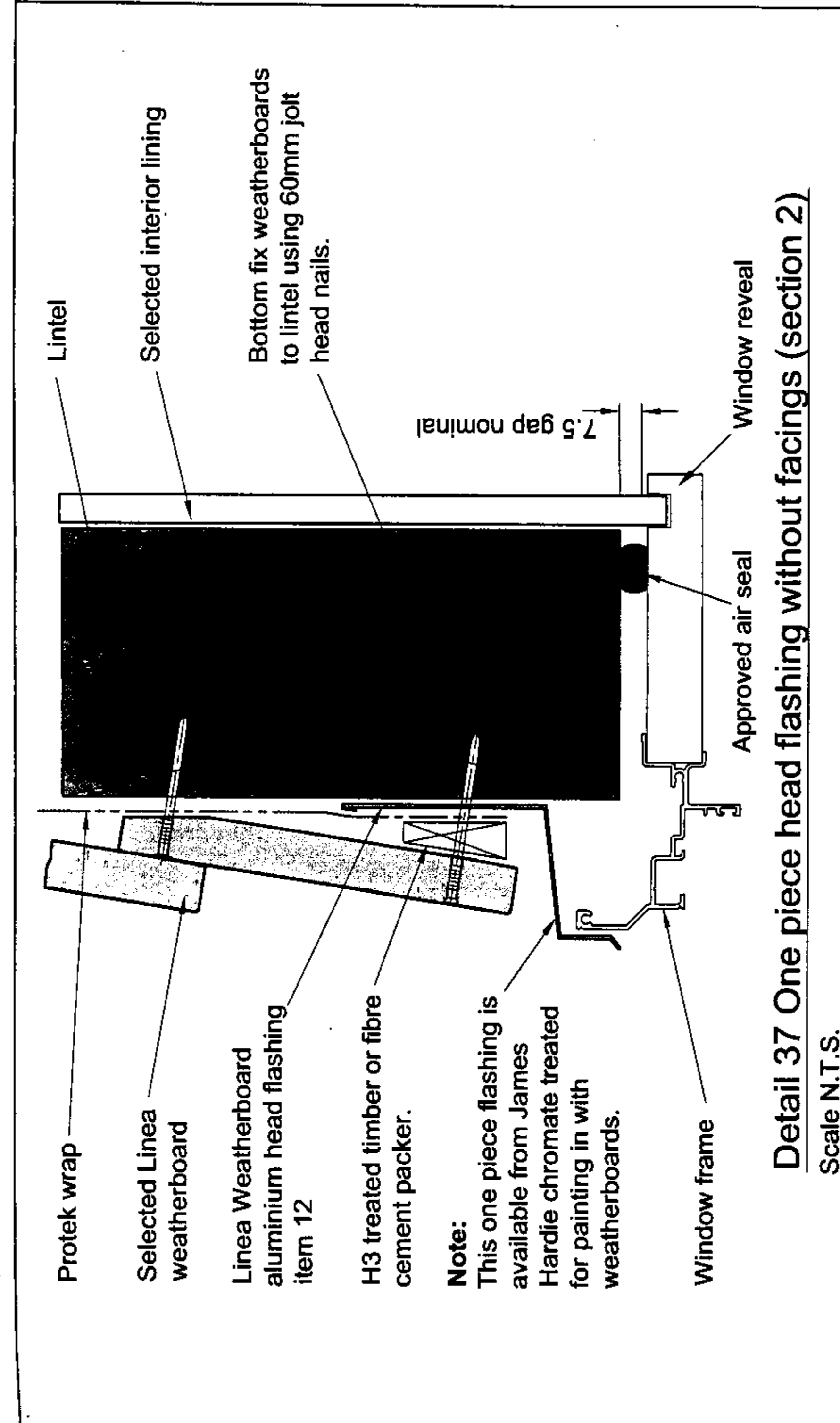


View X
Detail at head flashing to jamb flashing junction
 N.T.S.

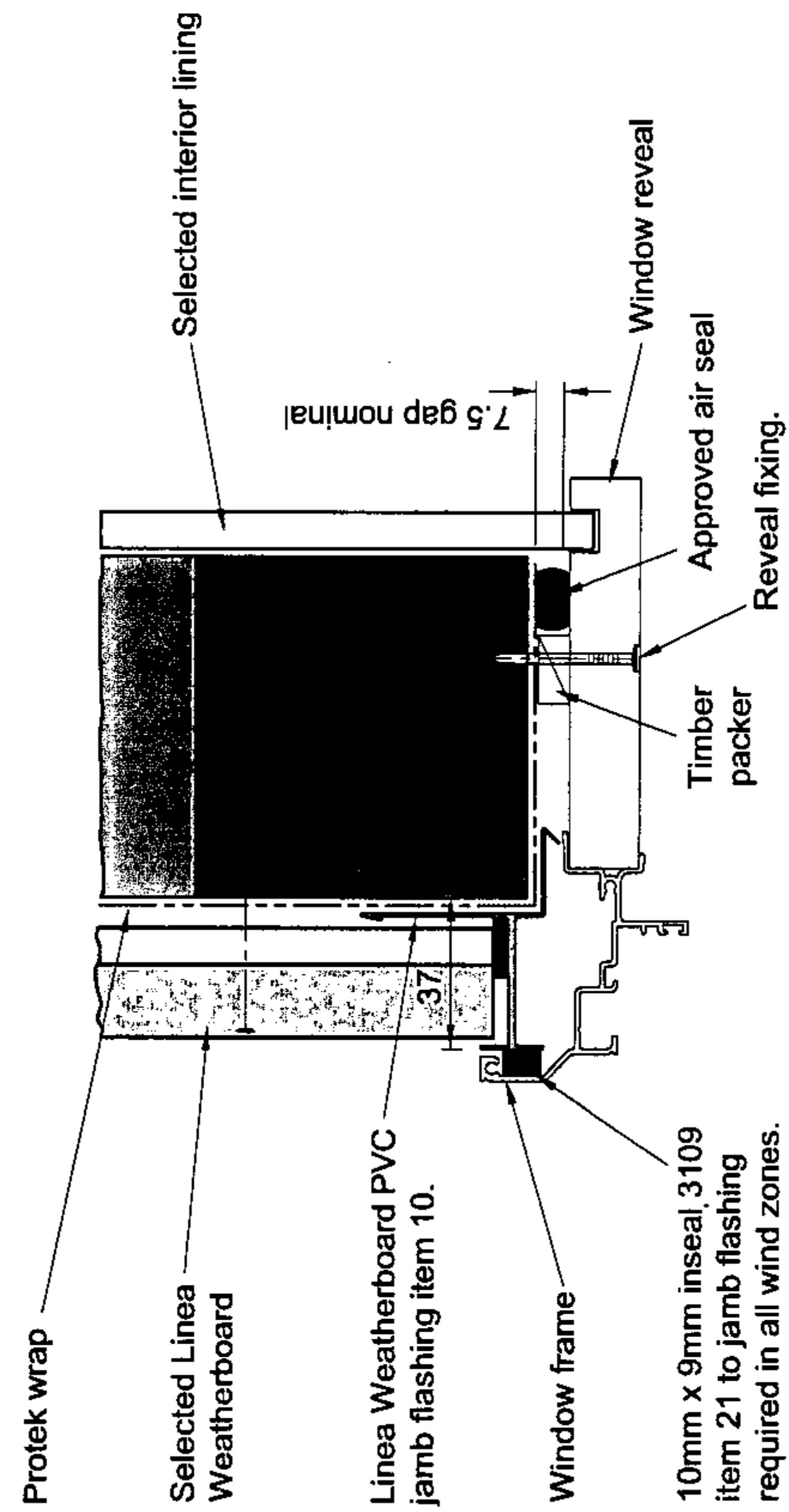
Detail 35 Jamb & head flashing assembly
 Scale N.T.S.



Detail 36 Sill flashing without facings (Section 1)
 Scale N.T.S.



Detail 37 One piece head flashing without facings (section 2)
 Scale N.T.S.



Detail 38 Jamb flashing without facings (section 3)
 Scale N.T.S.

COPYRIGHT
 THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
 OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
 OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
 BY ANY OTHER MEANS AND MUST NOT BE PASSED
 ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
 CONSENT OF THE TECHNICAL MANAGER.



LINEA
James Hardie

50 O'Rorke Road,
 Penrose, Auckland,
 New Zealand.
 Tel: 0800 808 868
 Fax: 0800 808 988

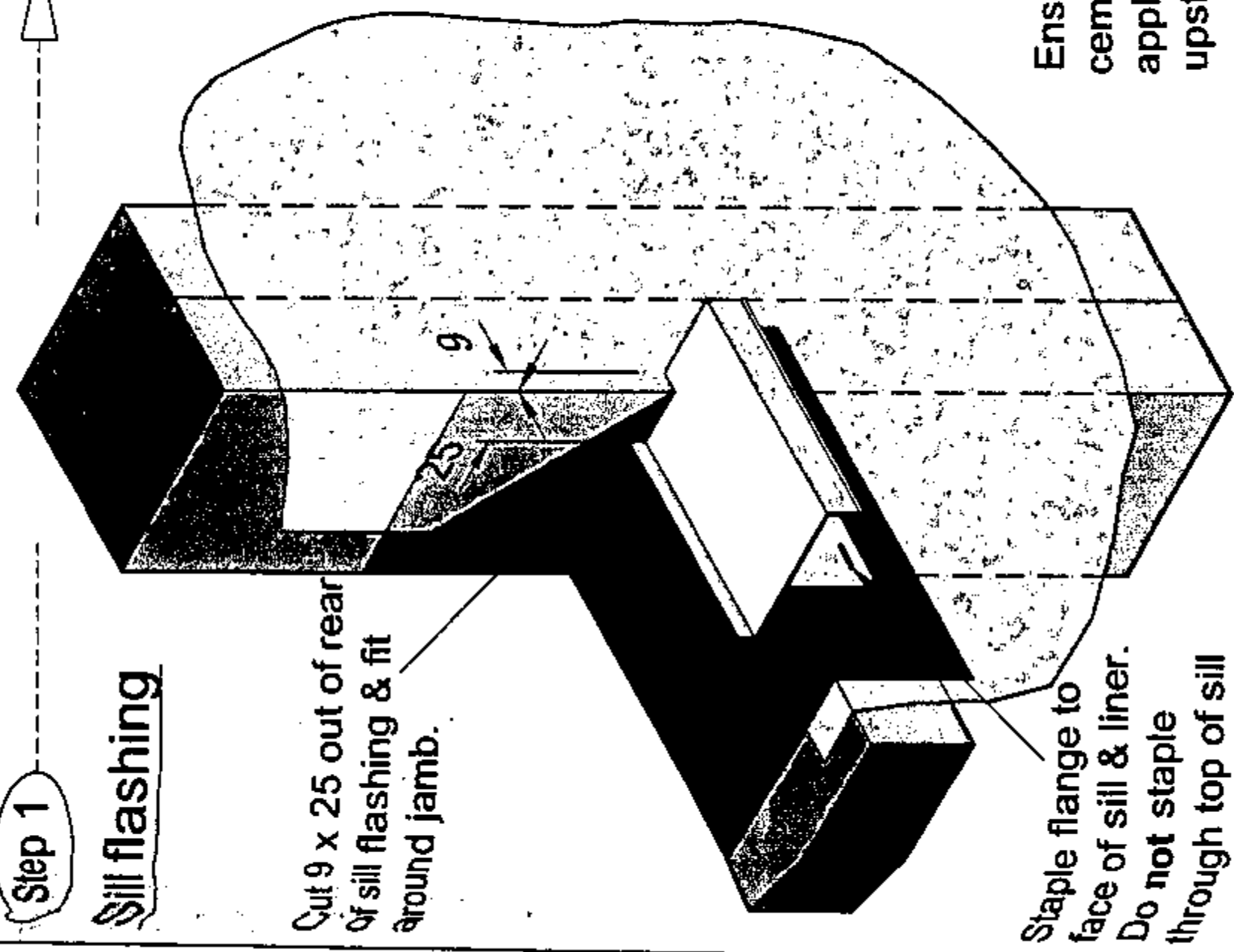
**FLASHING INSTALLATION
 ONE PIECE WITHOUT FACINGS
 DETAILS 35 TO 38**

Rev	Description	Original size	Date
As ntd	A3	06.08.01	

Drawing No.
JH-LINEA WB-013

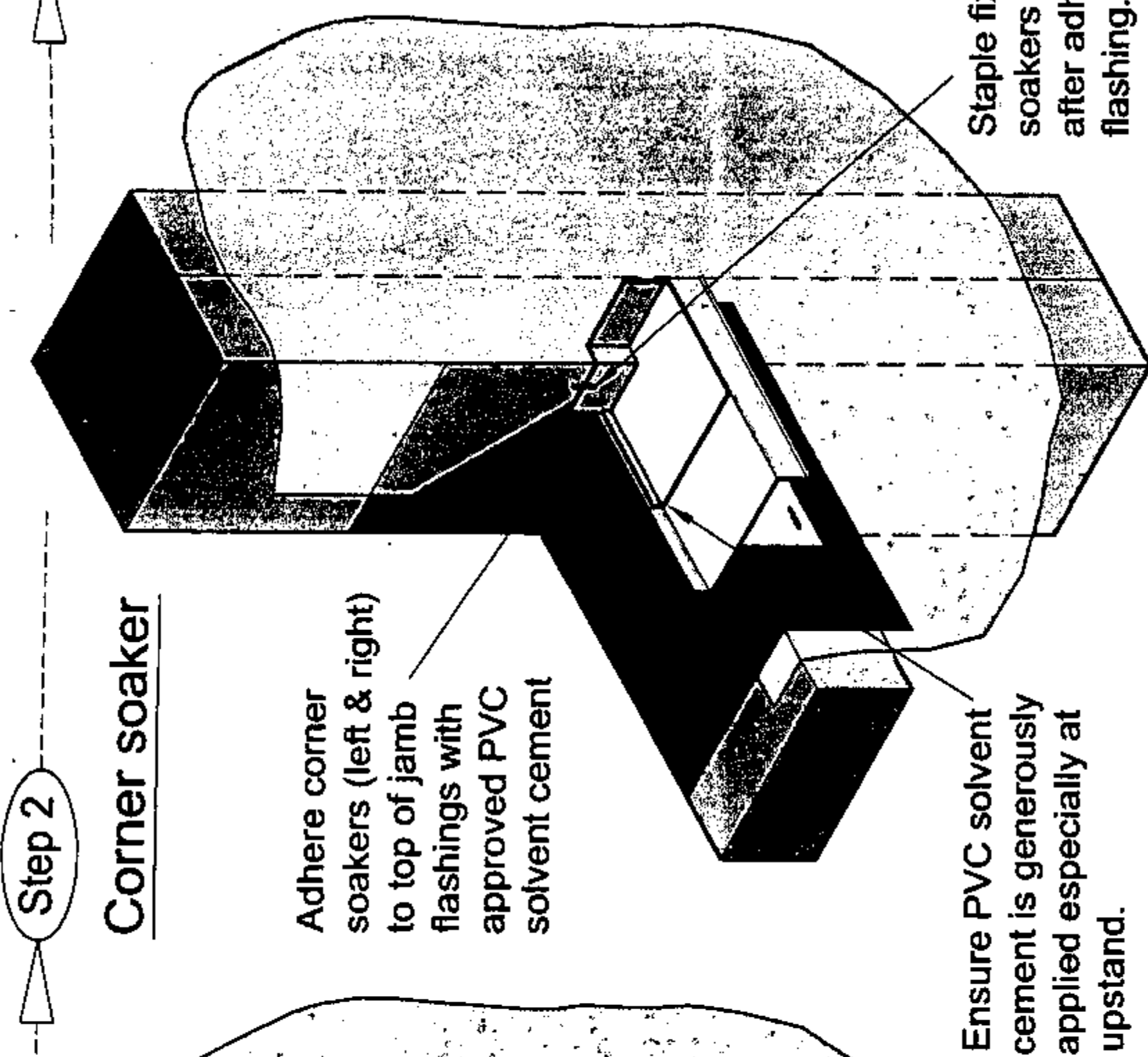
Step 1

Sill flashing



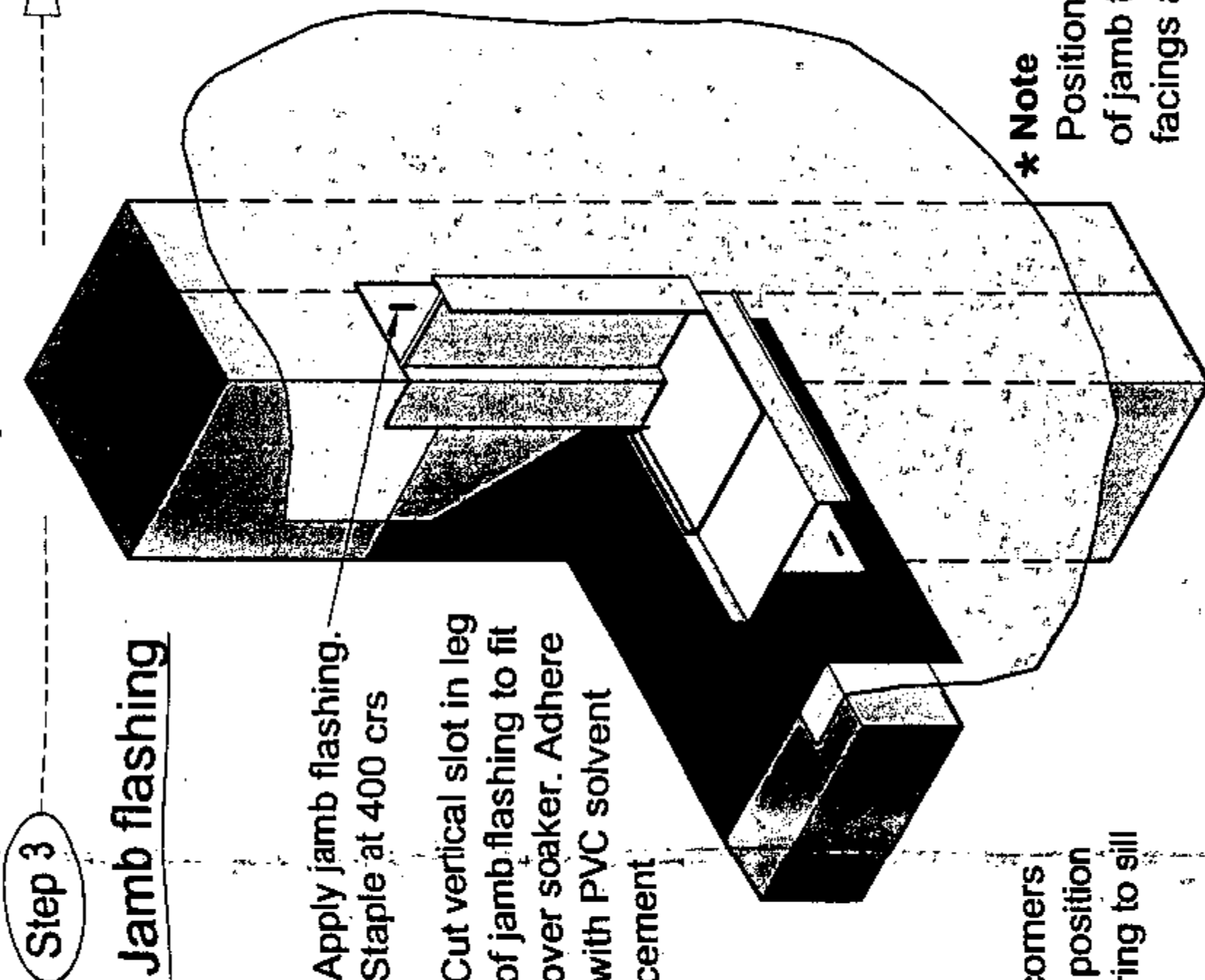
Step 2

Corner soaker



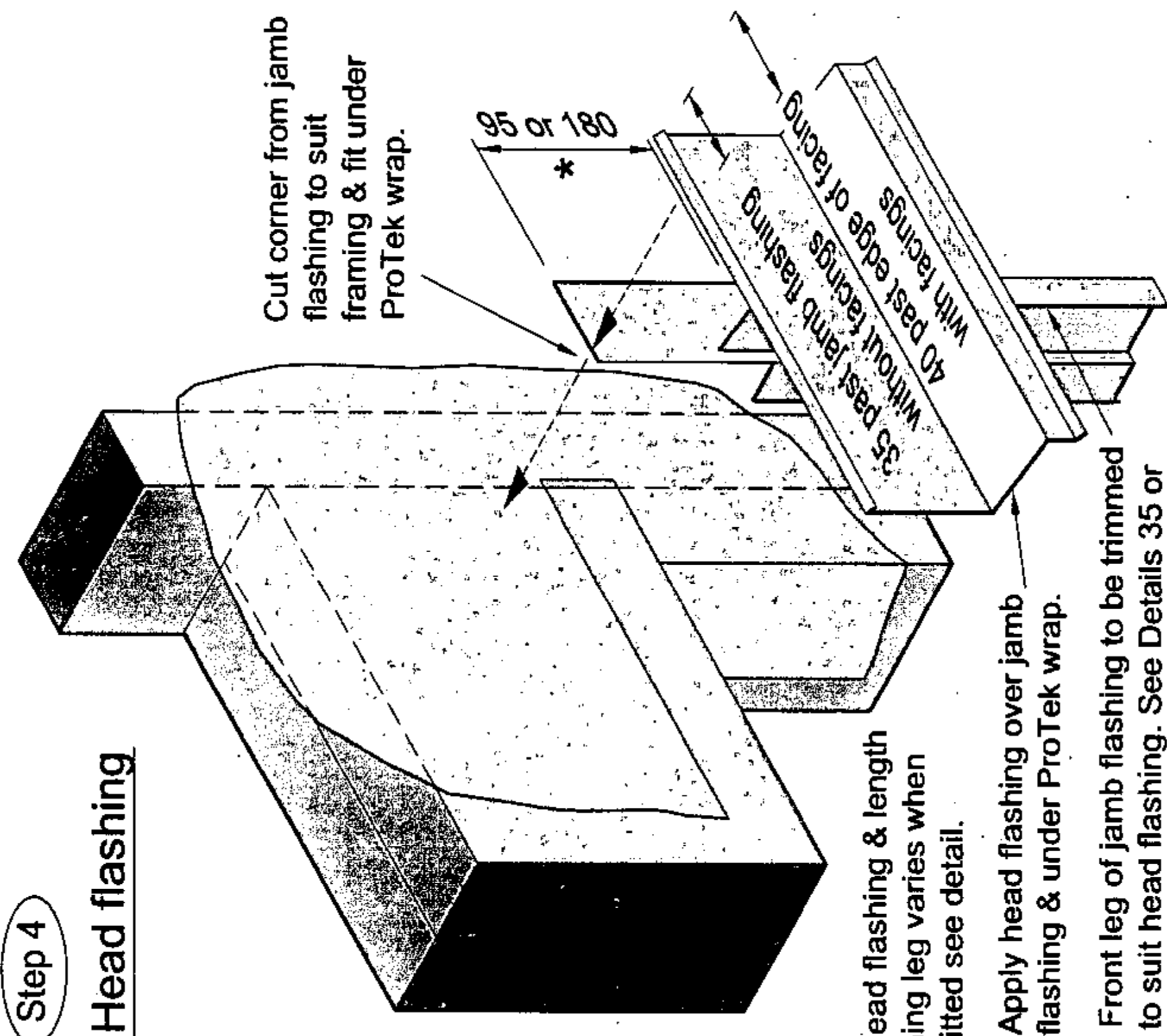
Step 3

Jamb flashing



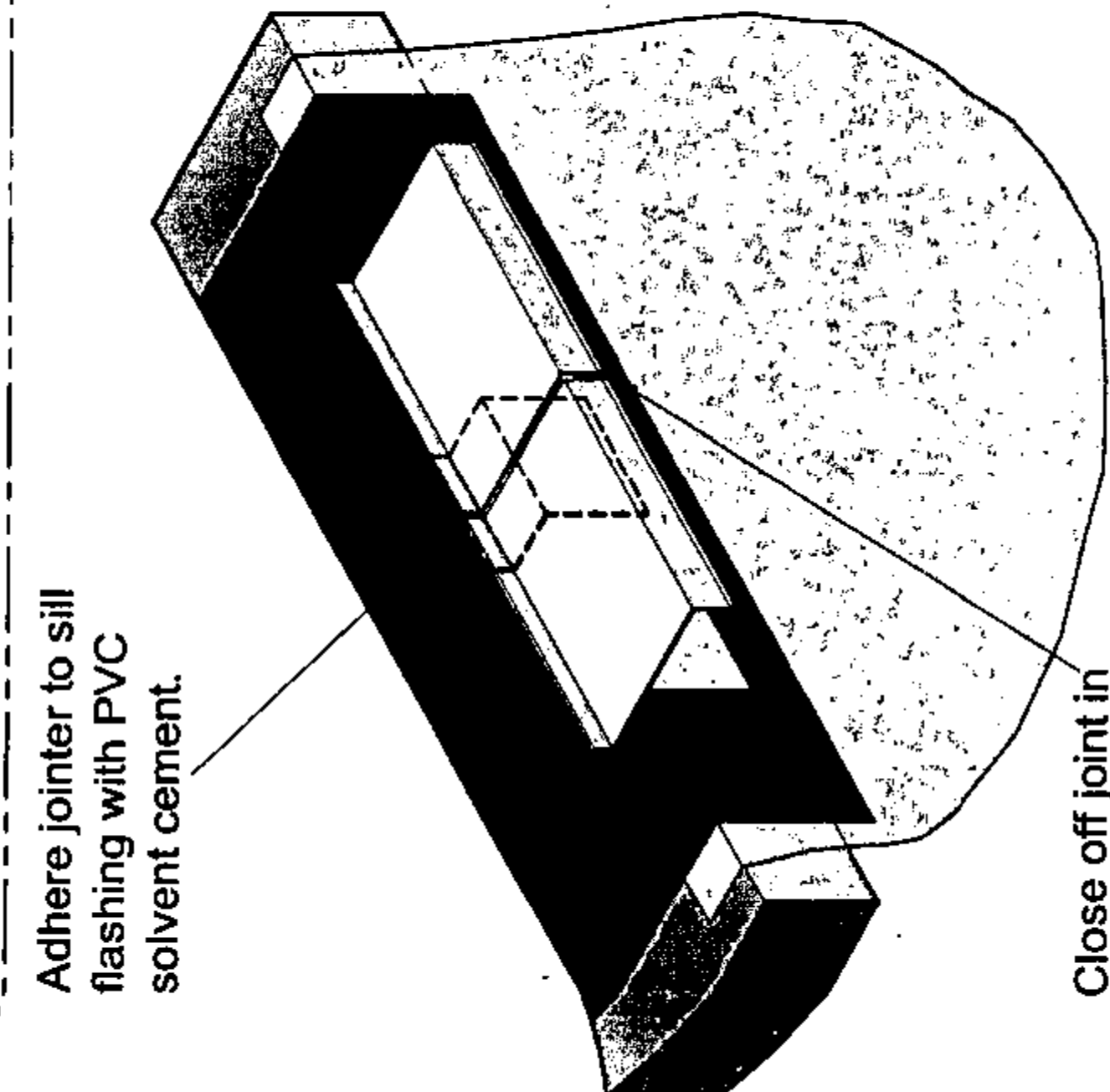
Step 4

Head flashing



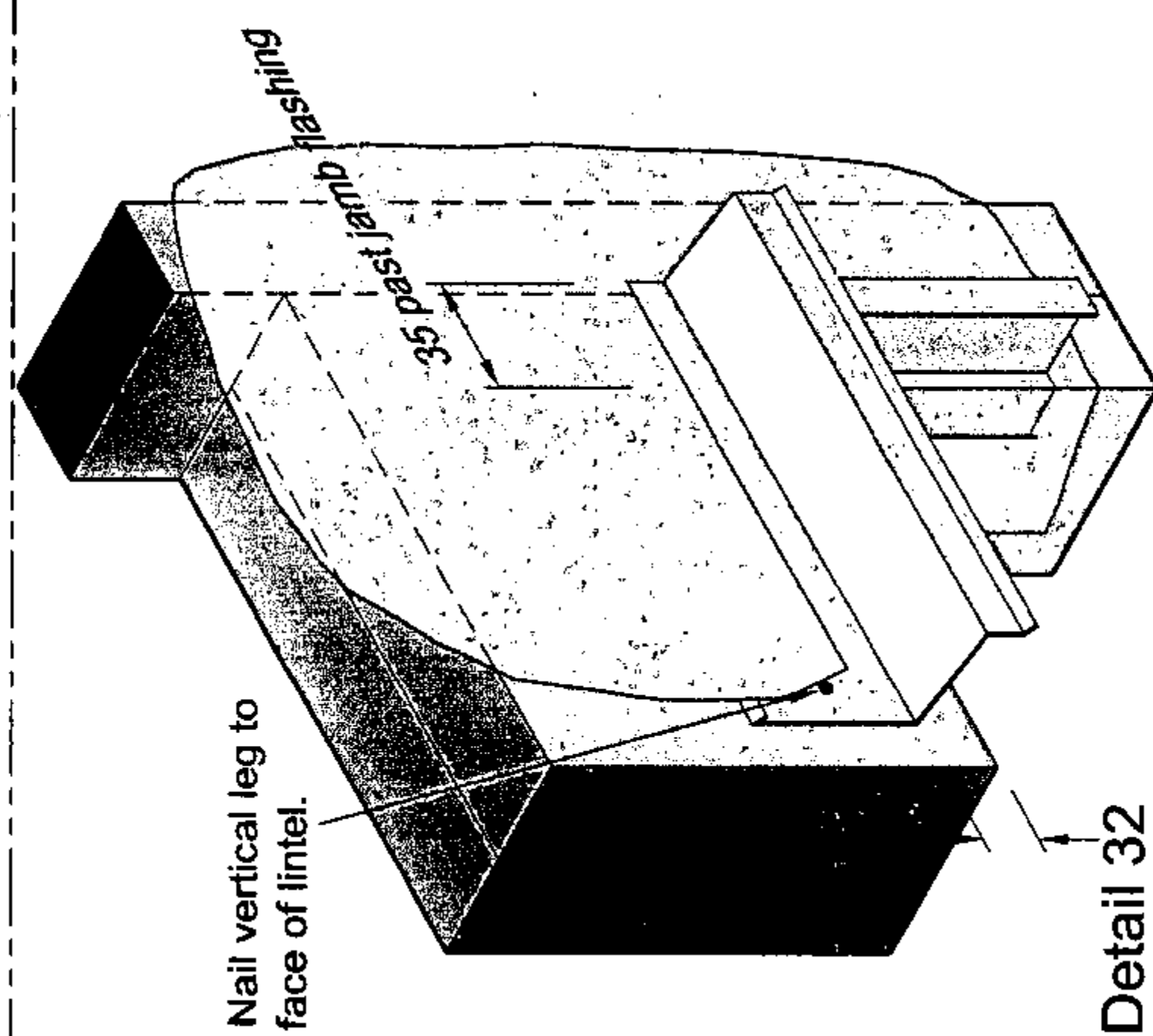
Detail 30 - Window flashings - build sequence

Scale 1:5



Detail 31 - Straight jointer

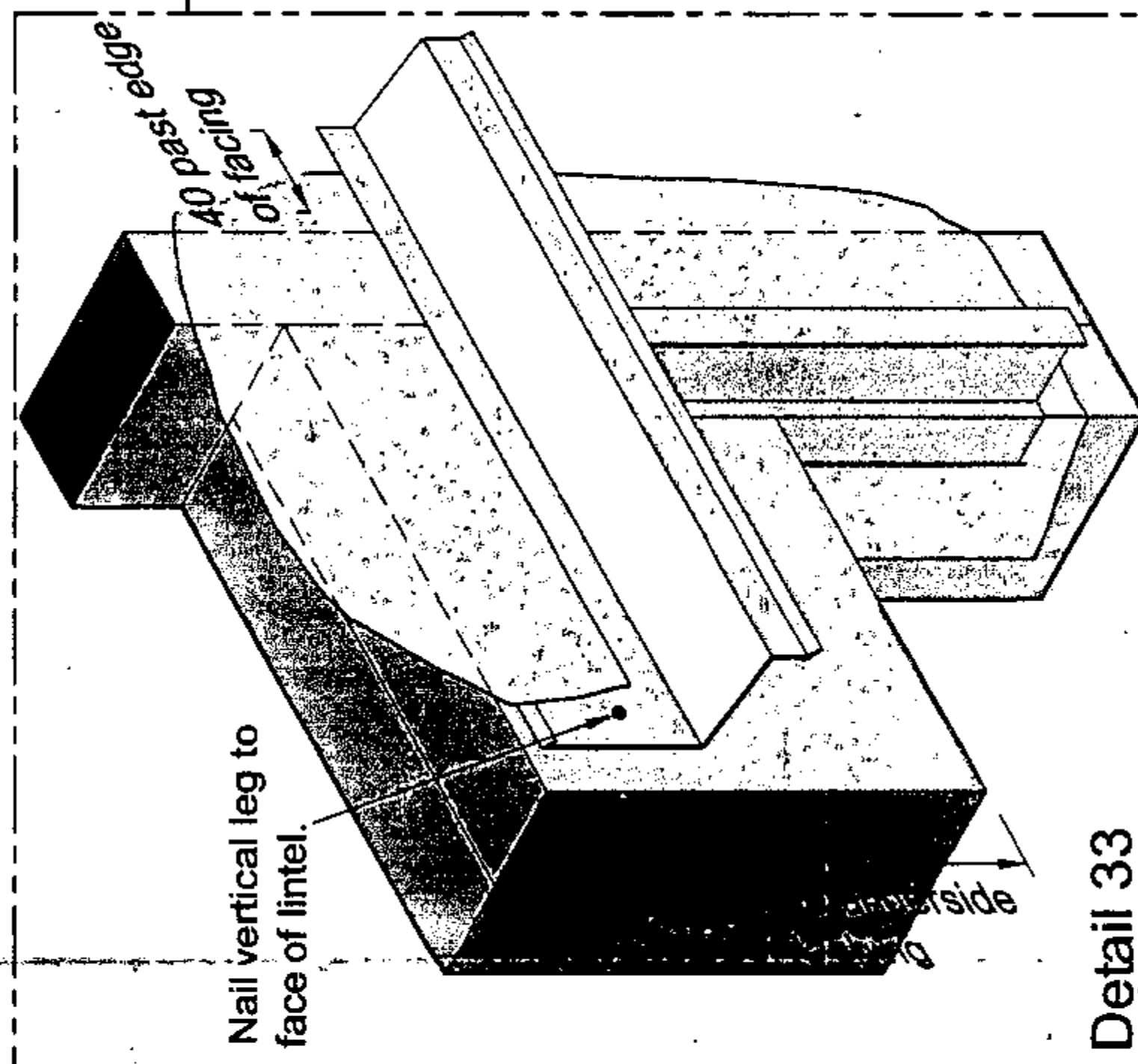
Scale 1:5



Detail 32

Head flashing in place without facings

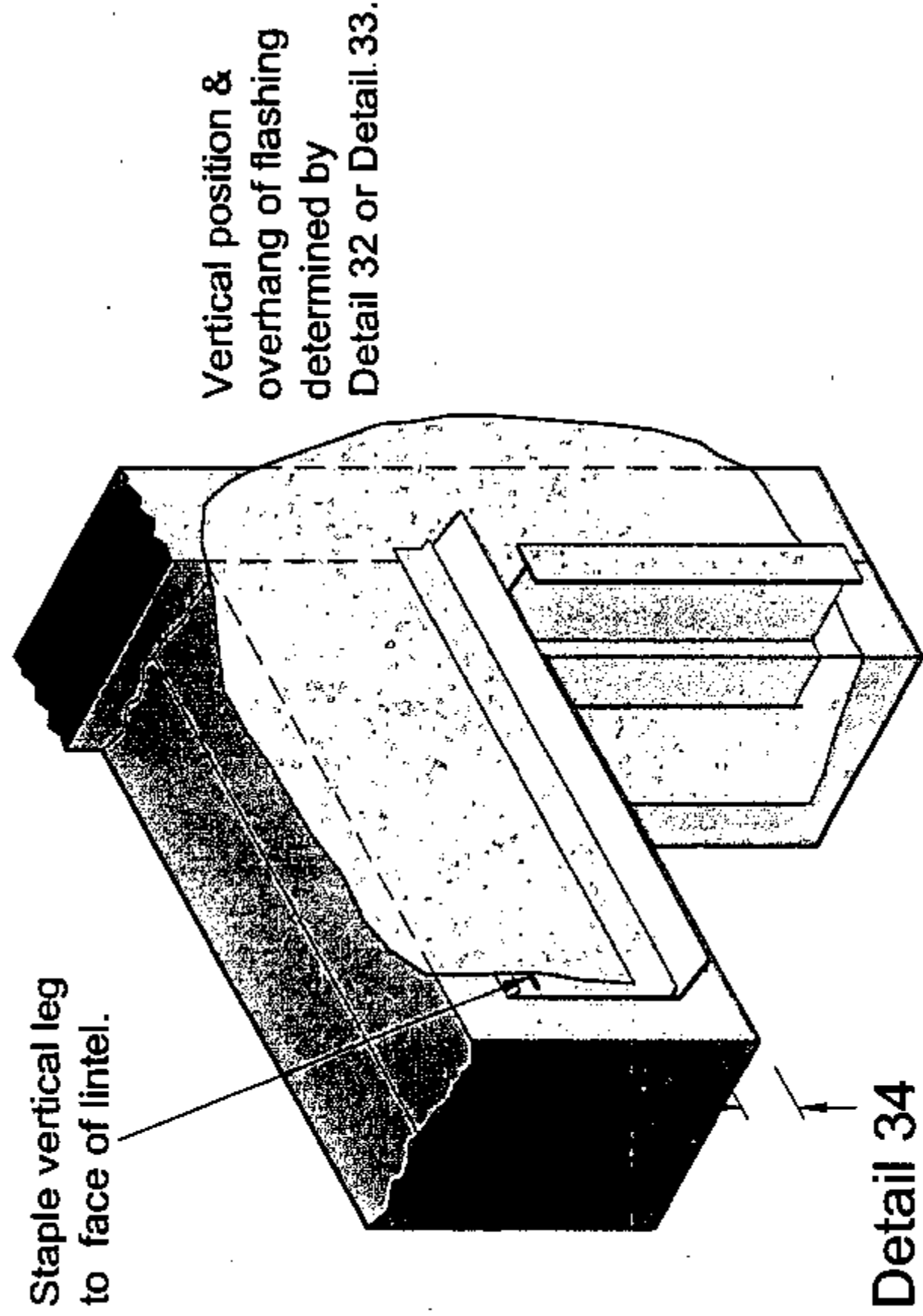
Scale 1:5



Detail 33

Head flashing in place with facings

Scale 1:5



Detail 34

Two piece head flashing in place

Scale 1:5



LINEA
James Hardie

THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR ANY OTHER MEANS AND MUST NOT BE PASSED ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF THE TECHNICAL MANAGER.

50 O'Rourke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

WINDOW & DOOR FLASHINGS DETAILS 30 TO 34

Date
06.08.01

Description

As ntd

Scale

1:5

Rev

As ntd

Original size

A3

Date

06.08.01

Description

As ntd

Scale

1:5

Rev

As ntd

Description

As ntd

Original size

A3

Date

06.08.01

Description

As ntd

Scale

1:5

Rev

As ntd

Description

As ntd

Original size

A3

Date

06.08.01

Description

As ntd

Scale

1:5

Rev

As ntd

Description

As ntd

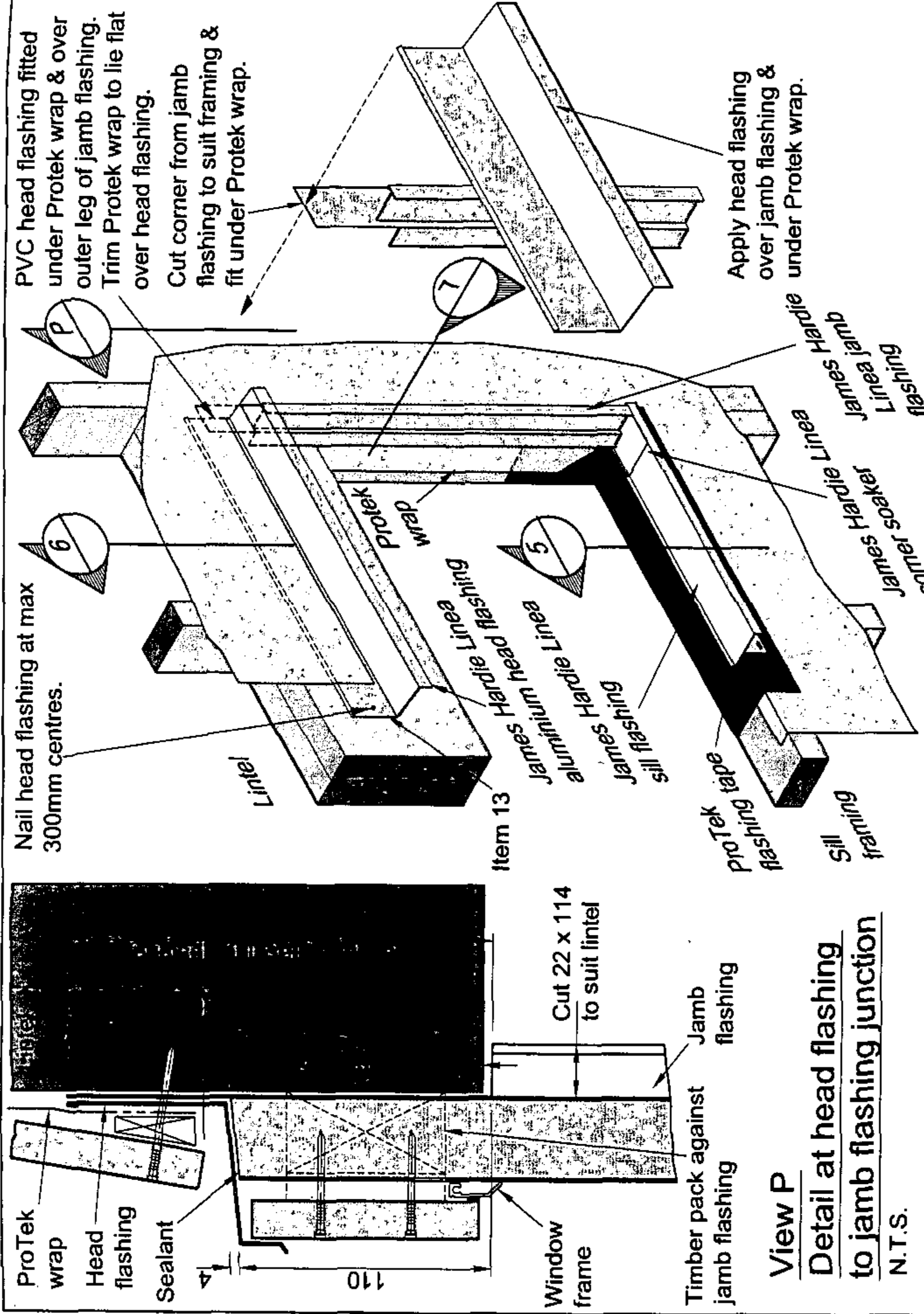
Original size

A3

Date

06.08.01

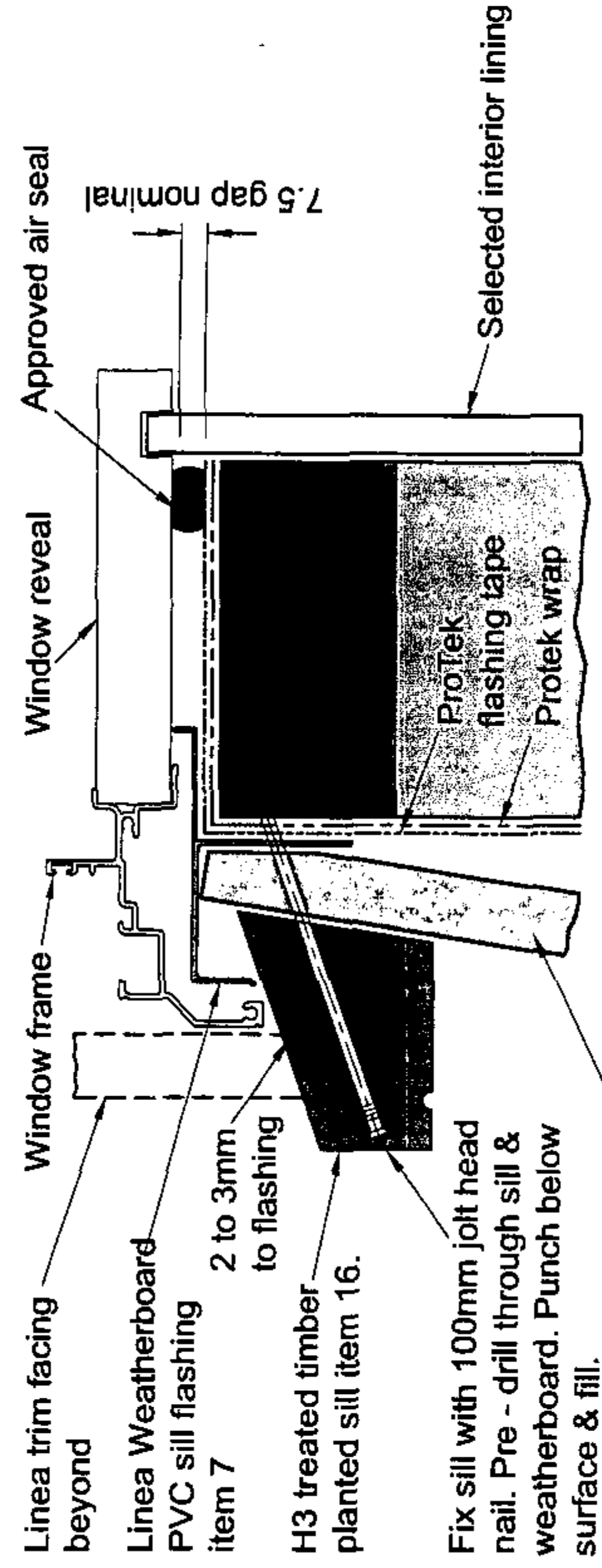
JH-LINEA WB-012



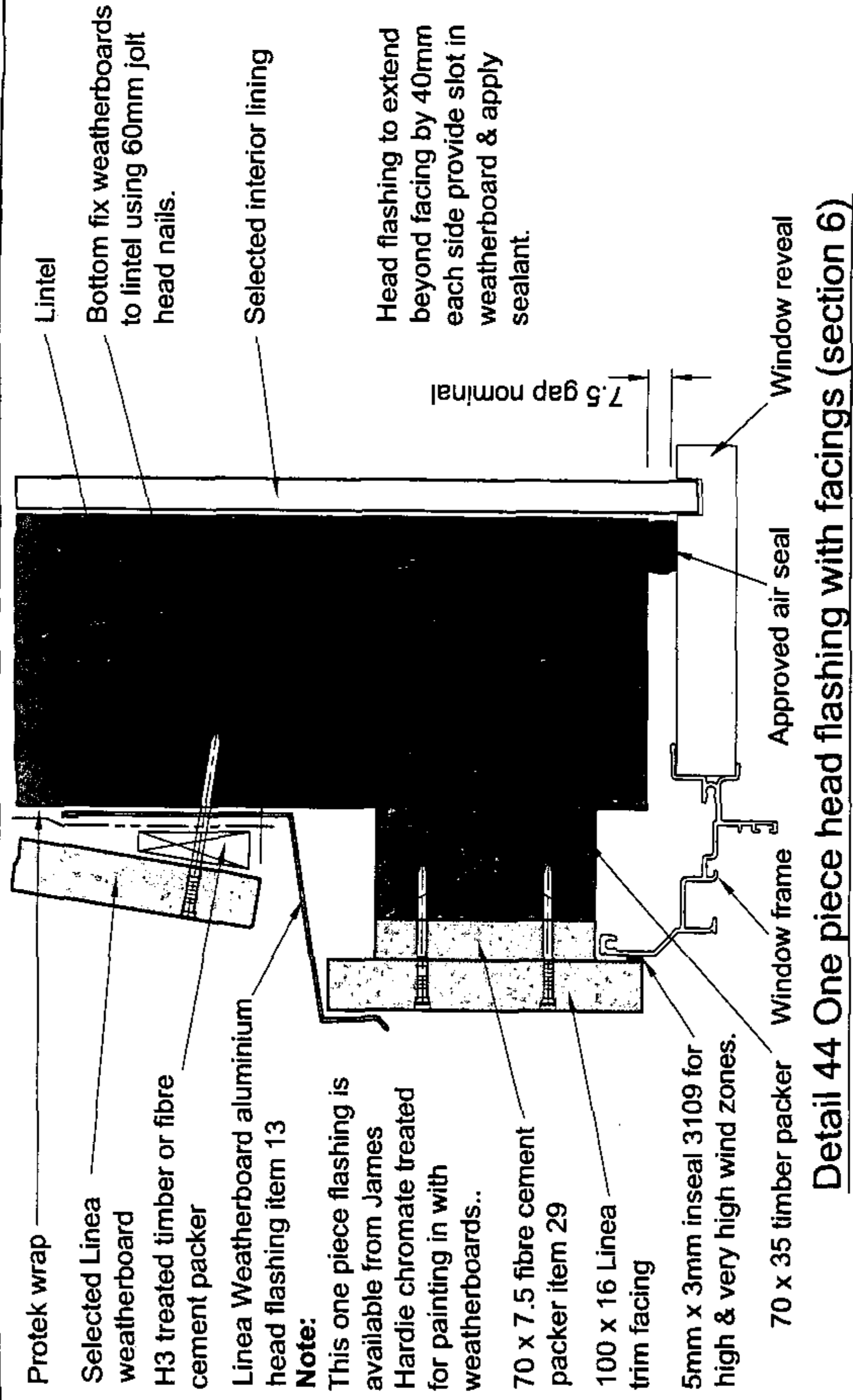
View P

Detail at head flashing to jamb flashing junction
N.T.S.

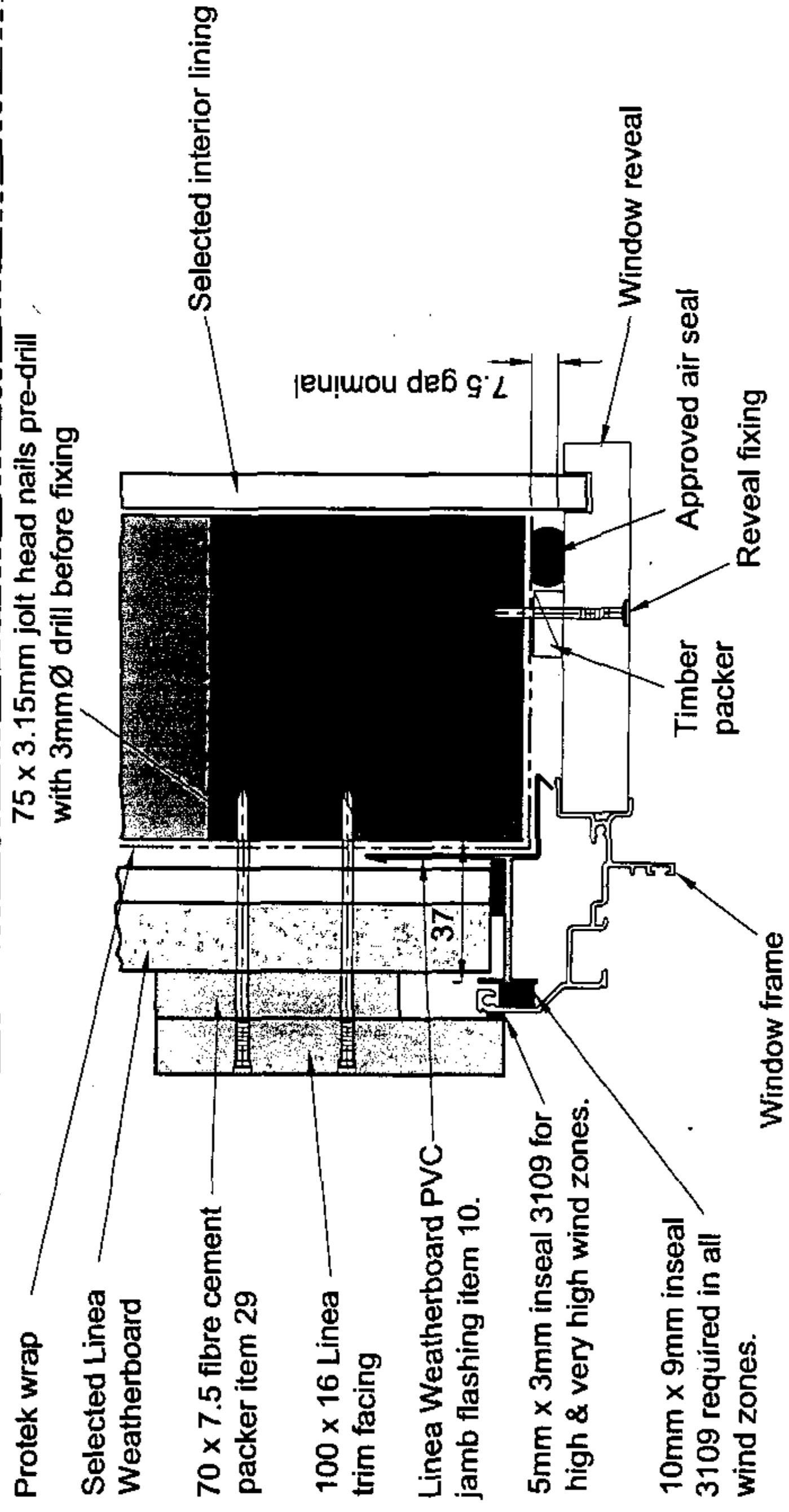
Detail 42 Jamb & head flashing assembly
Scale N.T.S.



Detail 43 Sill flashing with facings (Section 5)
Scale N.T.S.



Detail 44 One piece head flashing with facings (section 6)
Scale N.T.S.



Detail 45 Jamb flashing with facings (section 7)
Scale N.T.S.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.

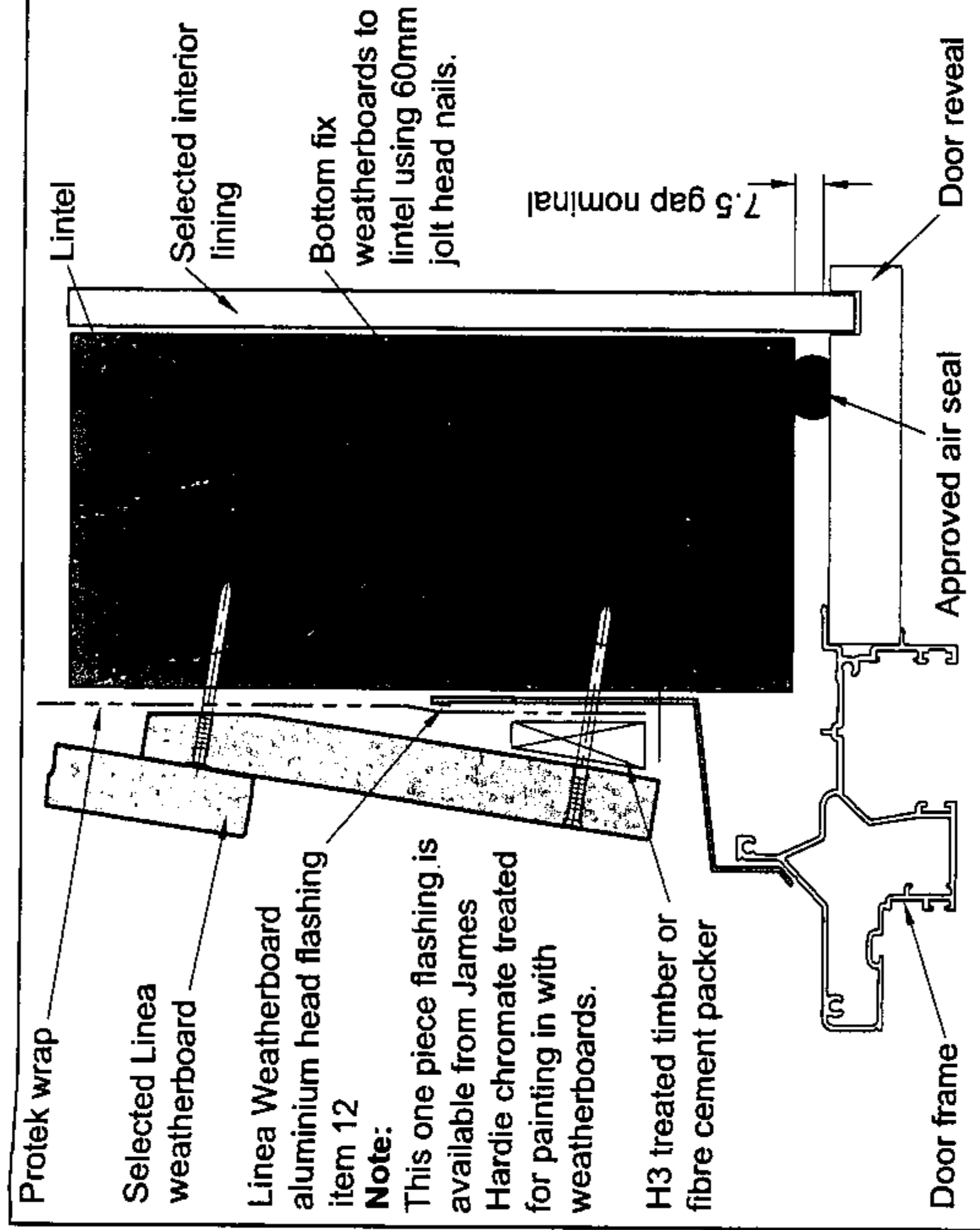
LINEA
James Hardie

James Hardie

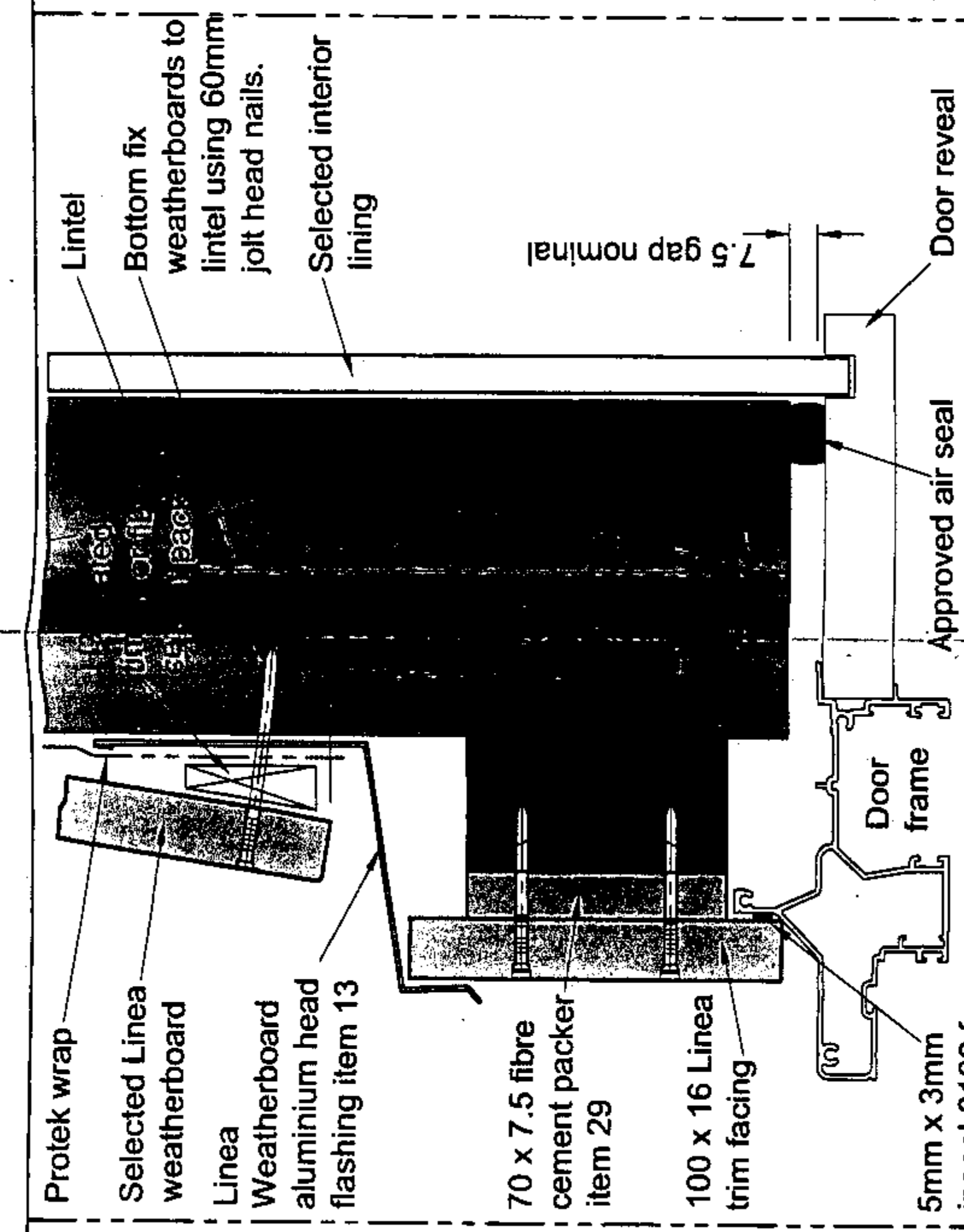
50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

**FLASHING INSTALLATION
ONE PIECE WITH FACINGS
DETAILS 42 TO 45**

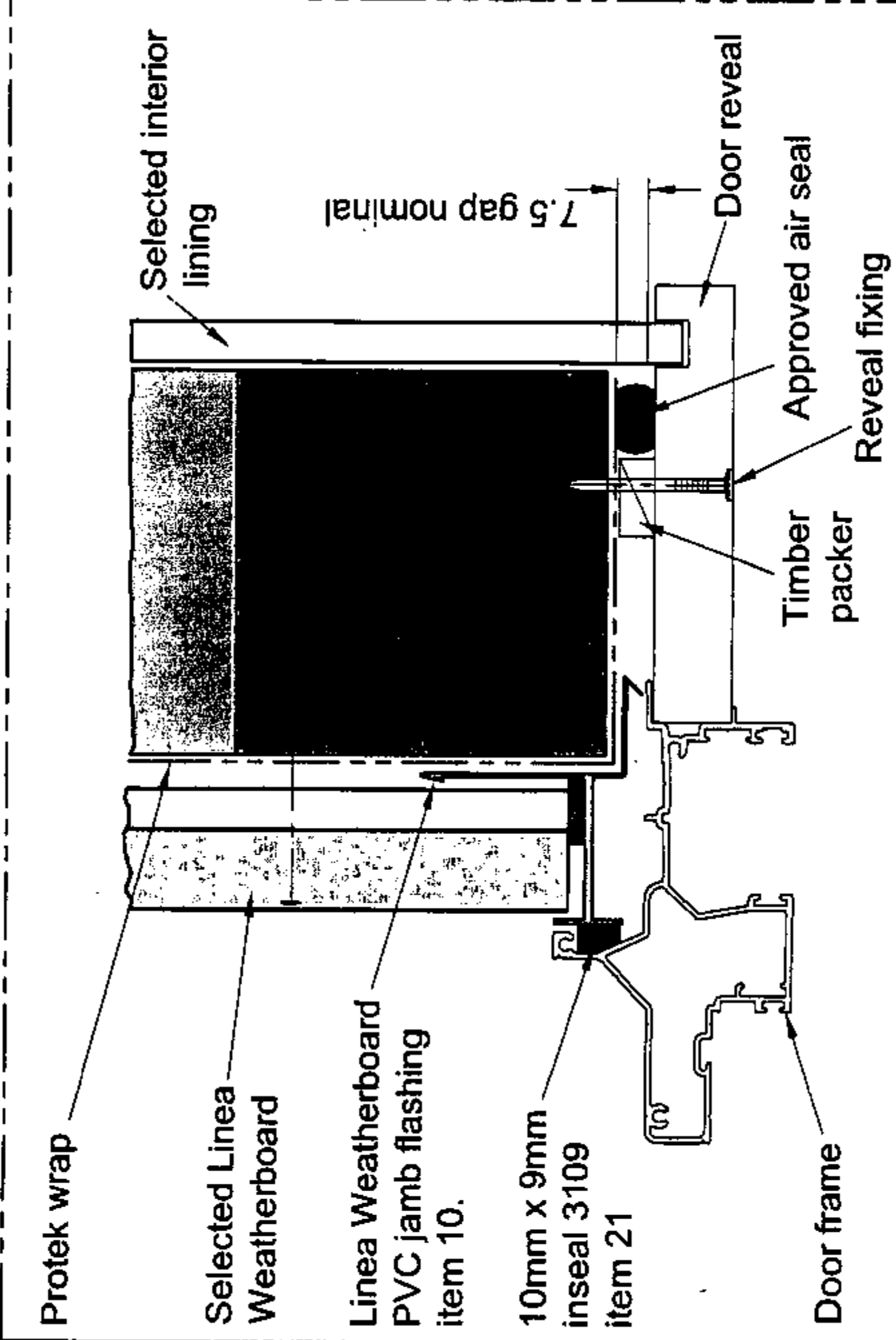
As ntd
A3
06.08.01
JH-LINEA WB-015



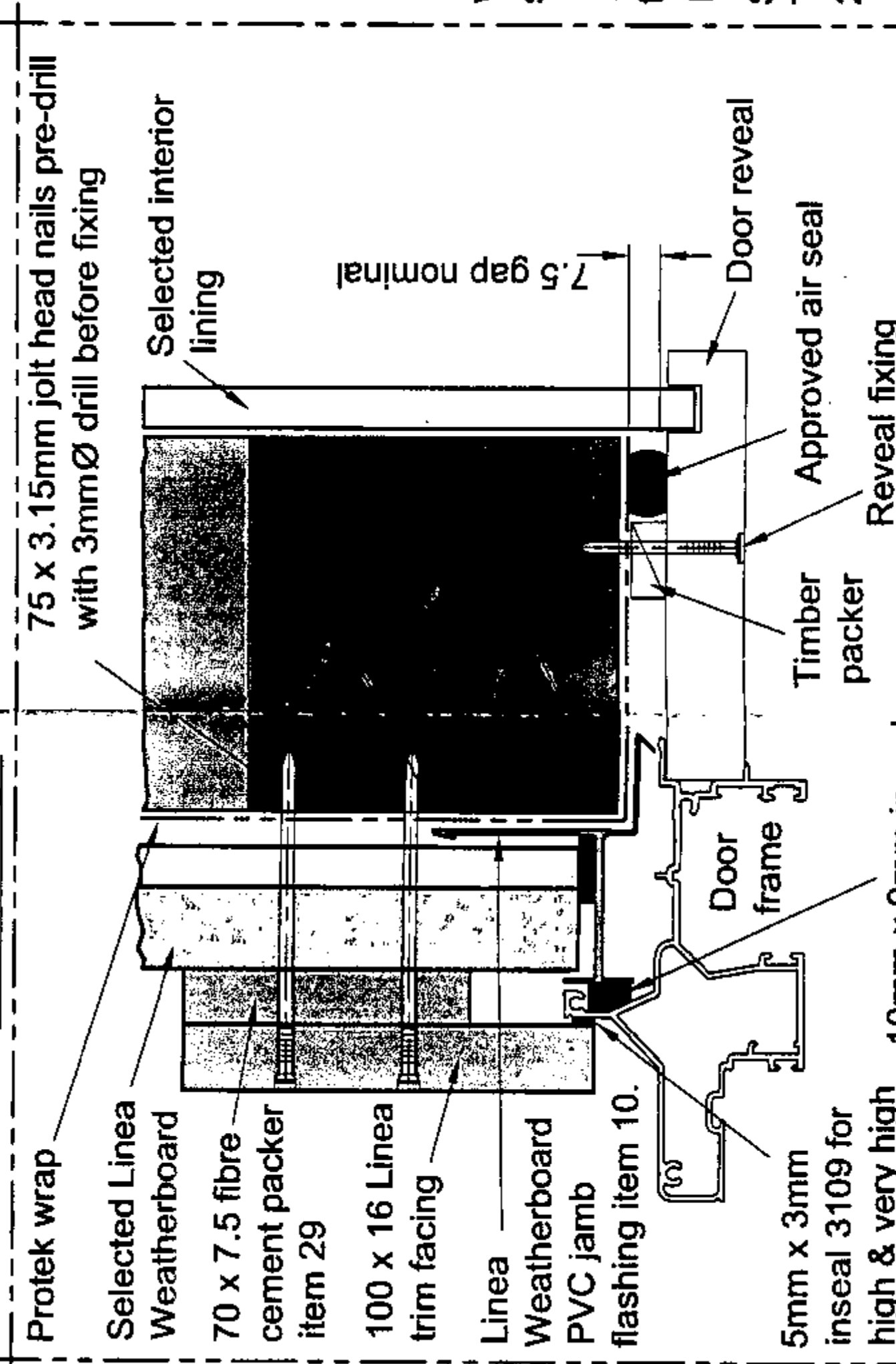
Detail 46 - One piece door head flashing without facings
Scale N.T.S.



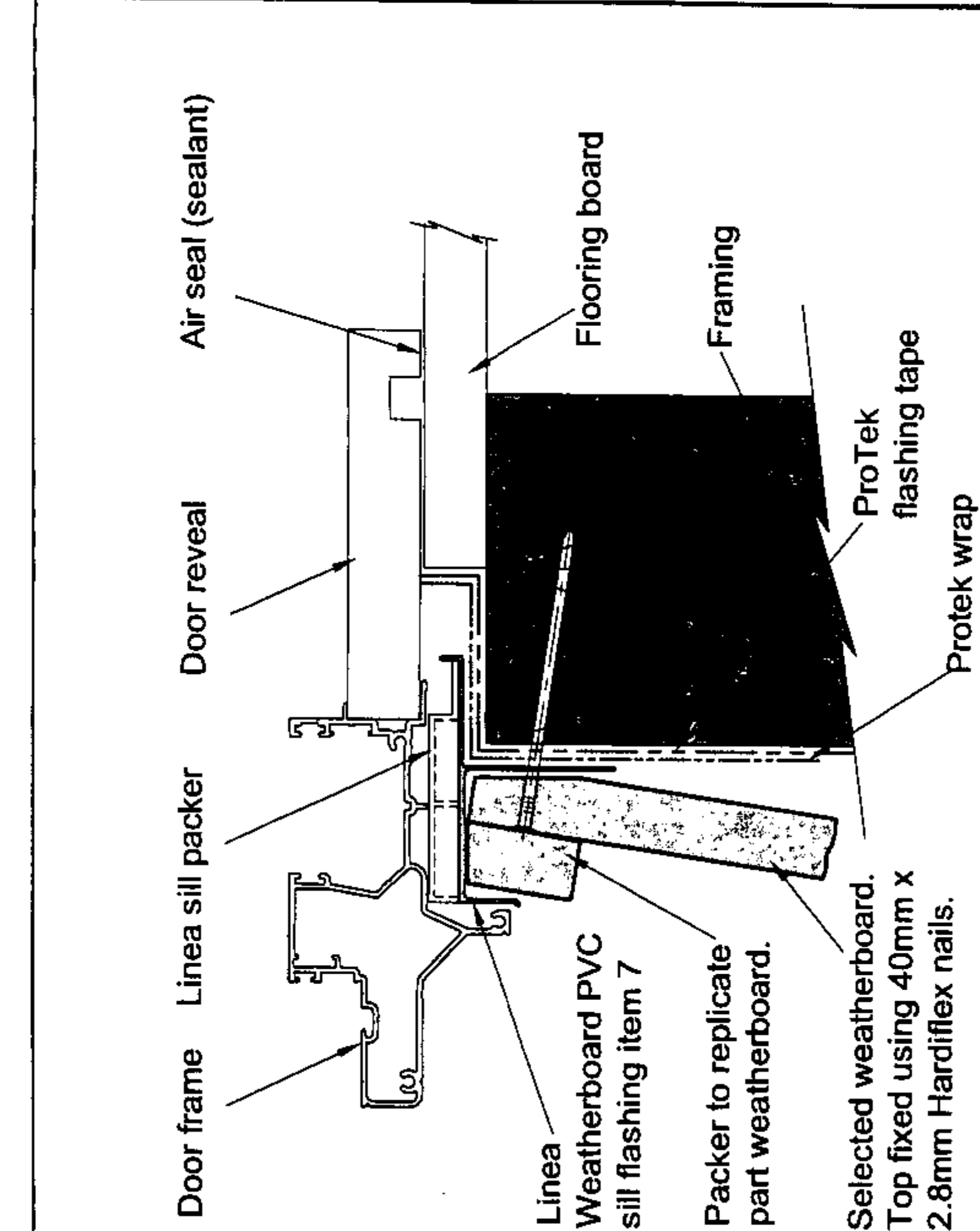
Detail 48 - One piece door head flashing with facings
Scale N.T.S.



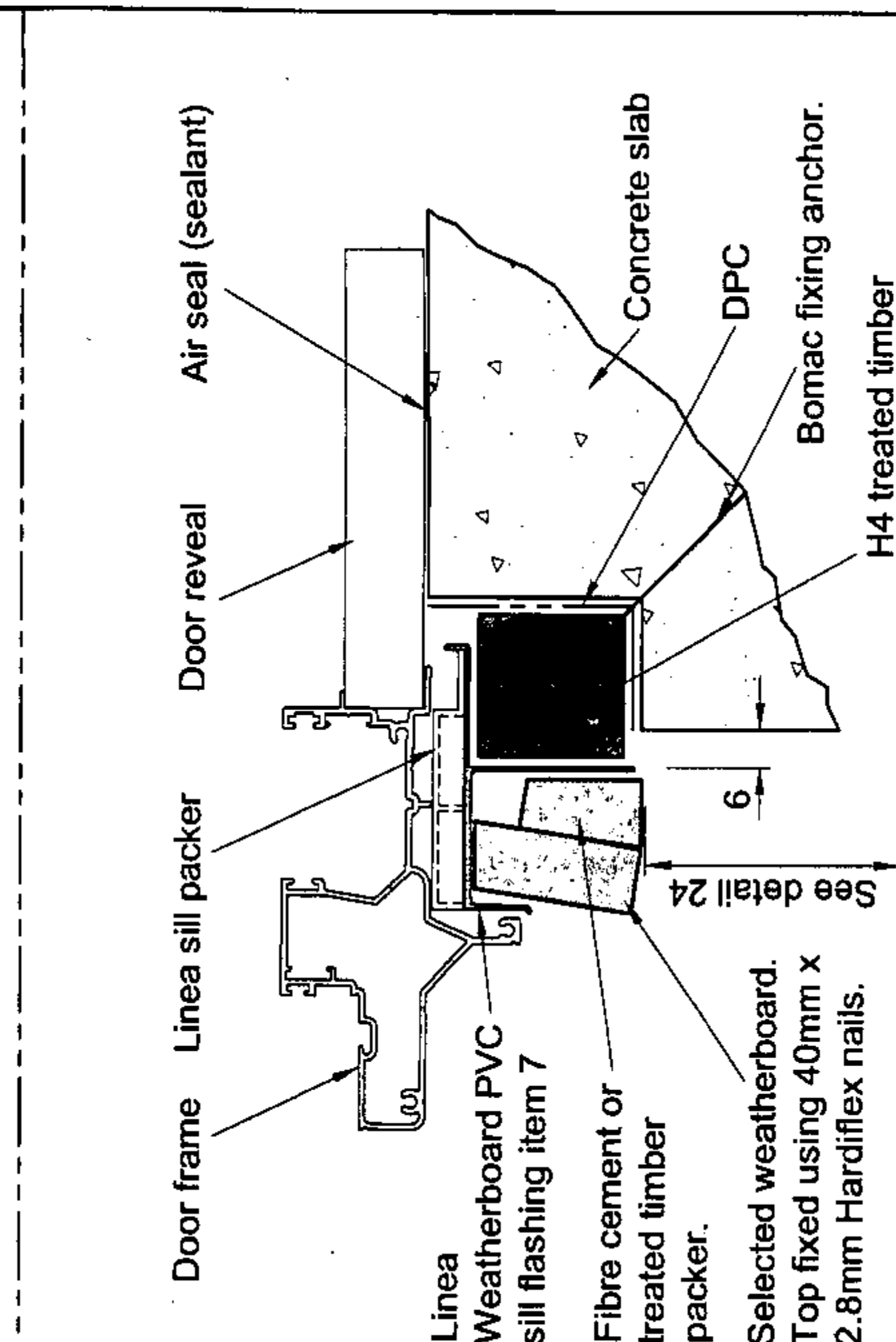
Detail 47 - Door jamb flashing without facings
Scale N.T.S.



Detail 49 - Door jamb flashing with facings
Scale N.T.S.

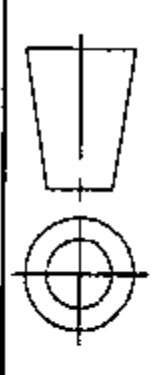


Detail 50 - Door sill flashing for timber floor.
Scale N.T.S.



Detail 51 - Door sill flashing for concrete floor.
Scale N.T.S.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

LINEA

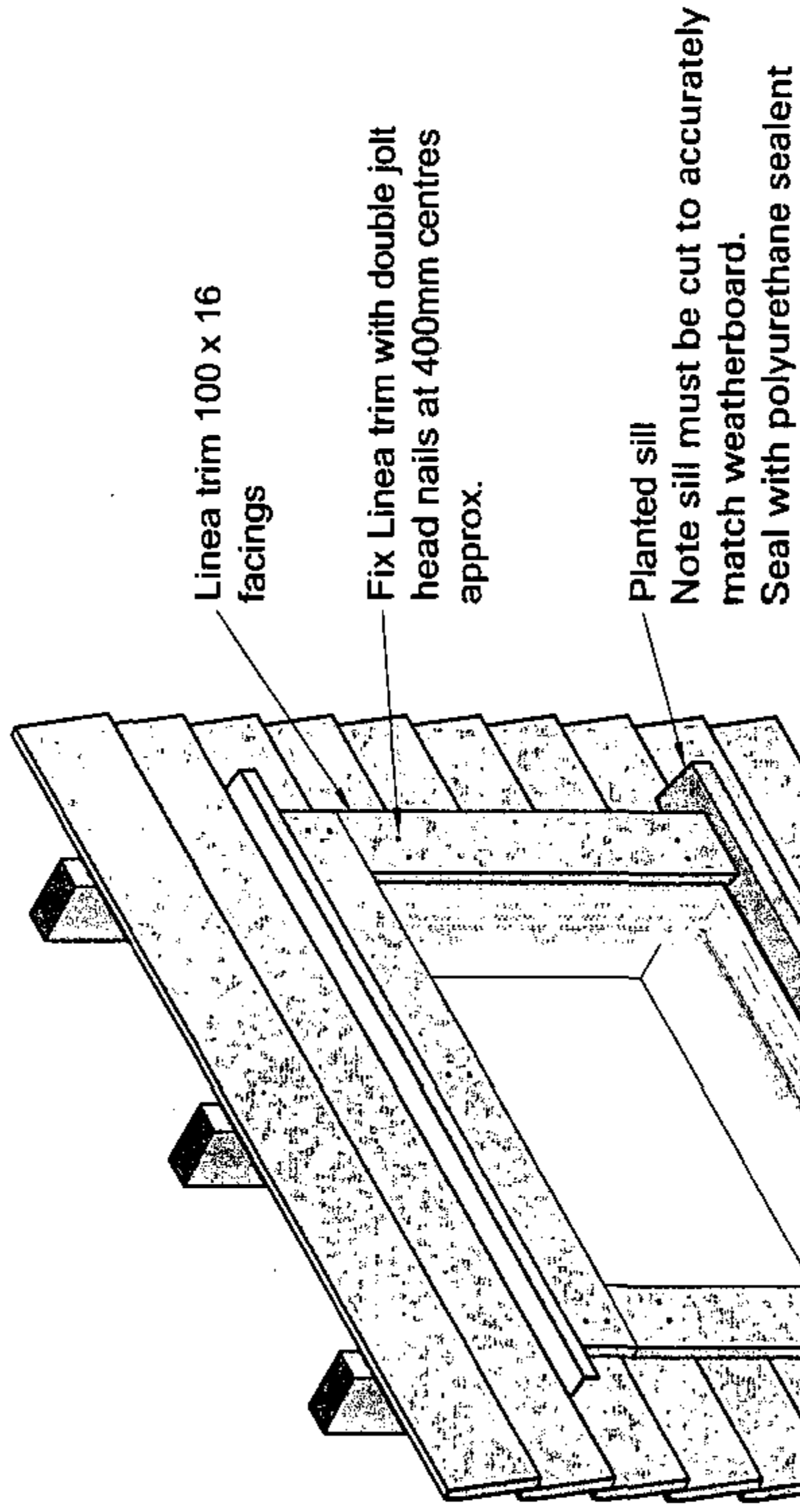


James Hardie

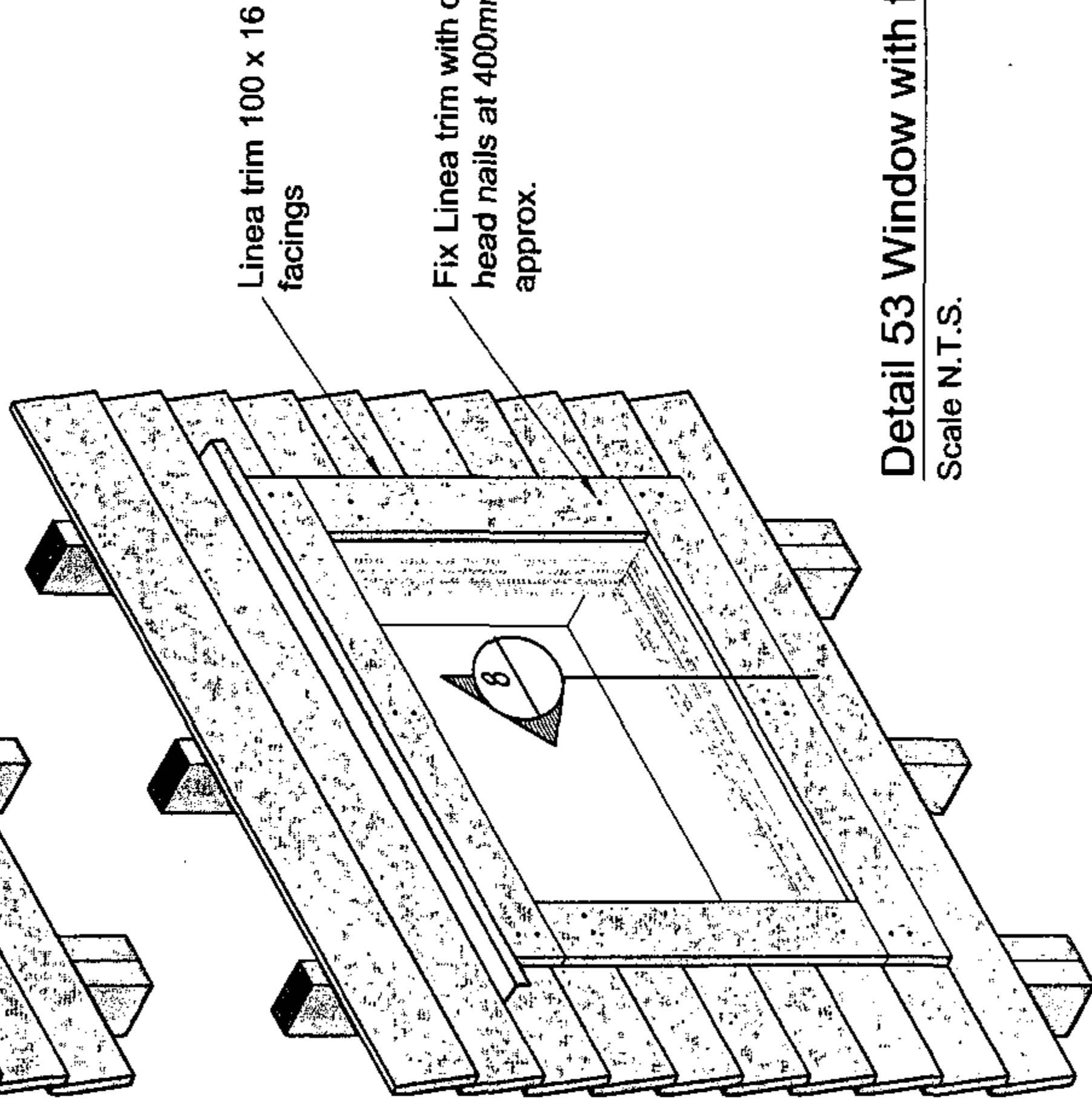
50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

**FLASHING INSTALLATION
DOORS WITH & WITHOUT
FACINGS
DETAILS 46 TO 51**

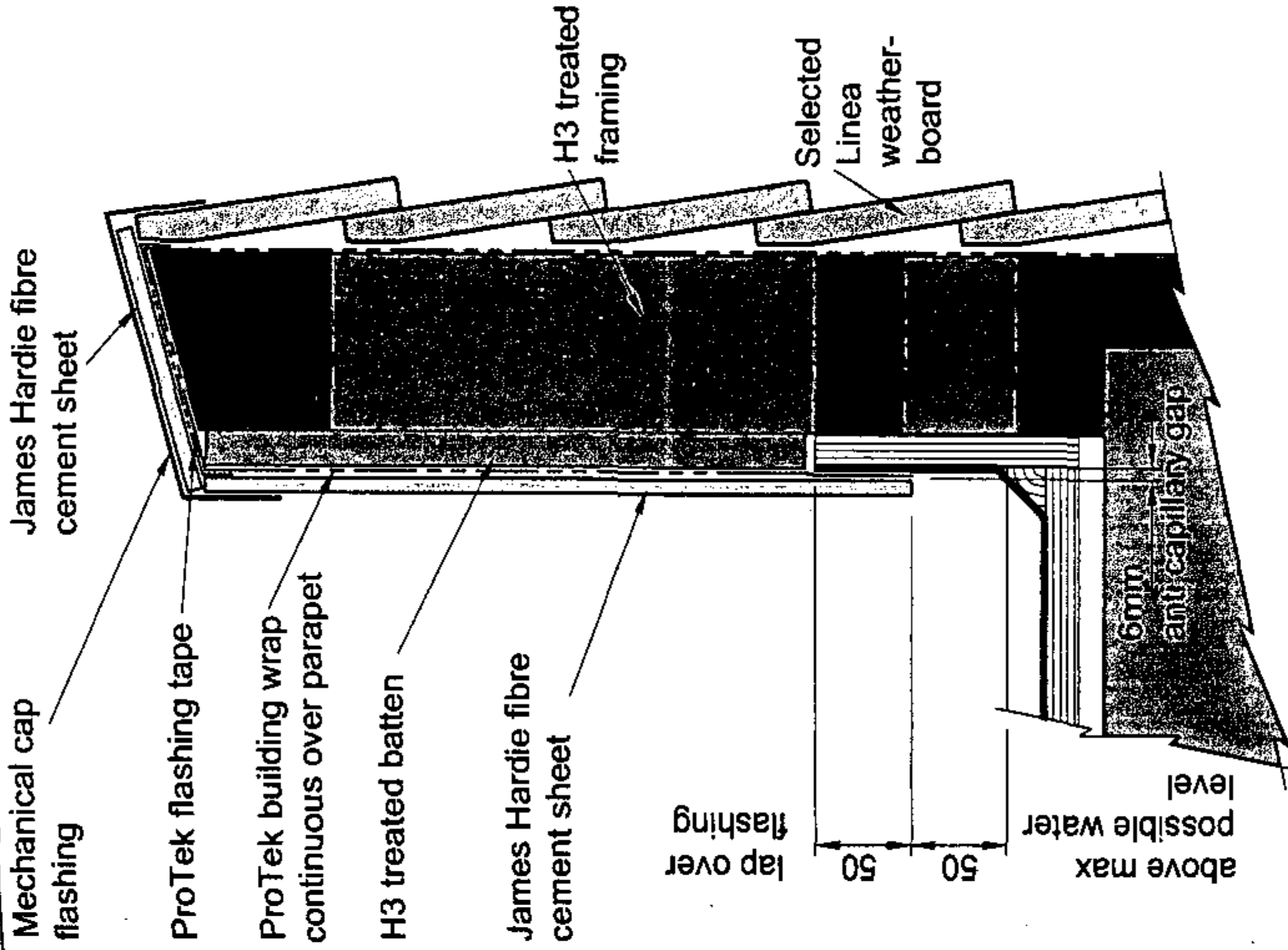
Rev	Description	Original size	Date
As ntd	A3	06.08.01	
Drawing No.		JH-LINEA WB-016	



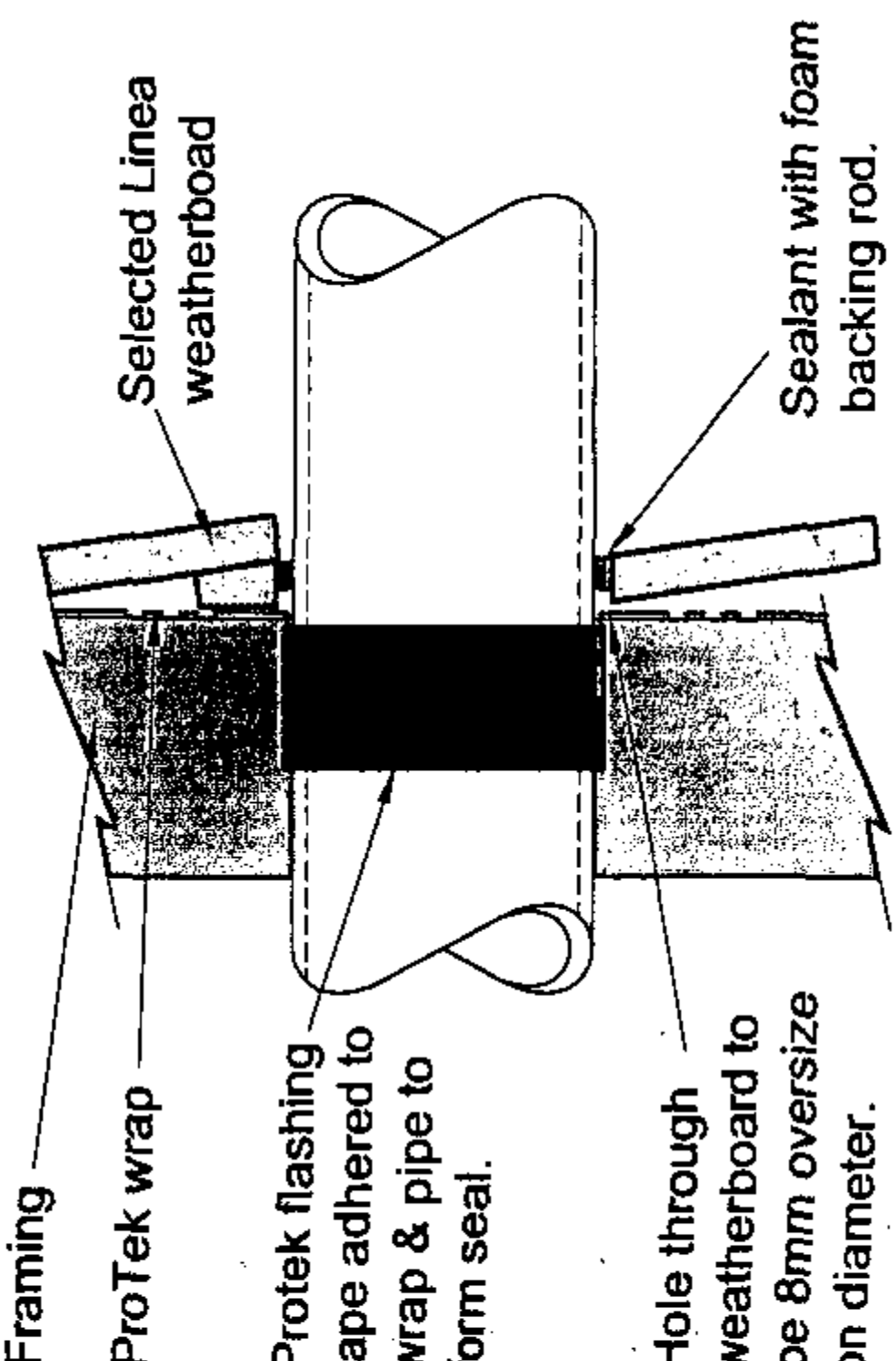
Detail 52 Window with facings & planted sill
Scale N.T.S.



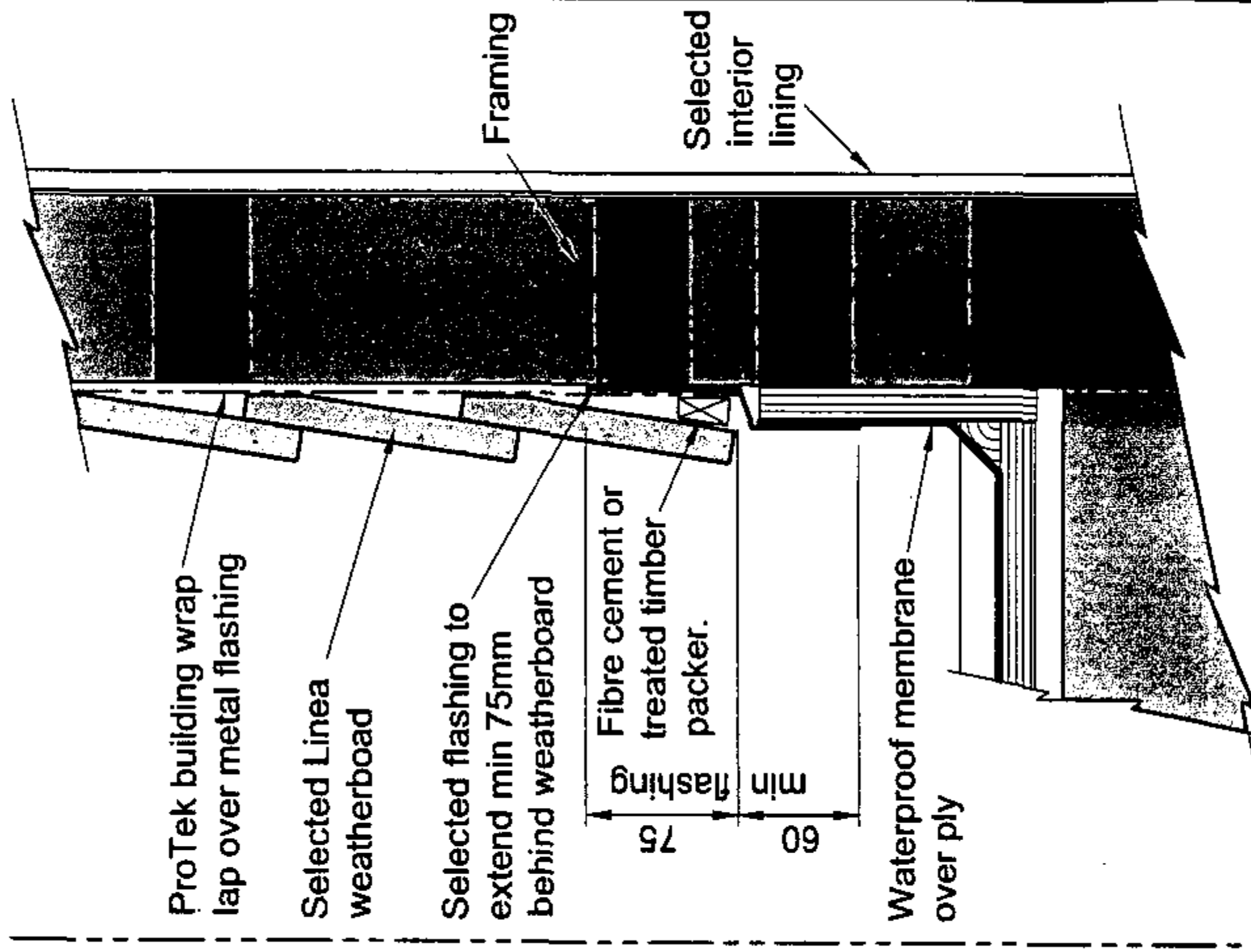
Detail 53 Window with facings all round
Scale N.T.S.



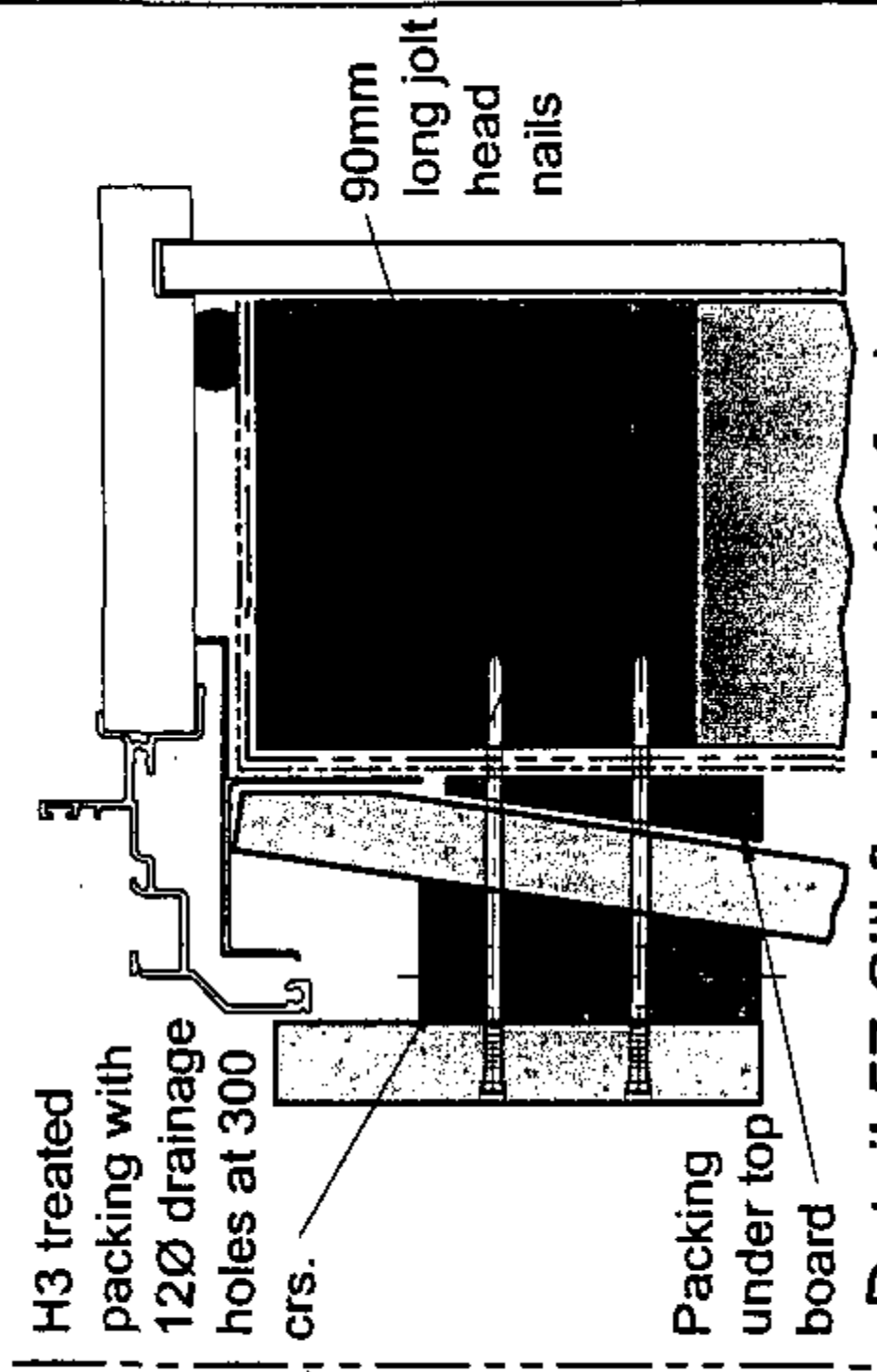
Detail 54 Parapet wall with cap flashing
Scale 1:5



Detail 56 Pipe penetration max 100mm Ø
Scale 1:5



Detail 55 Interior / Exterior wall to roof
Scale 1:5



Detail 57 Sill flashing with facing (section 8)
Scale N.T.S.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECTS
DRAWINGS.

LINEA
James Hardie

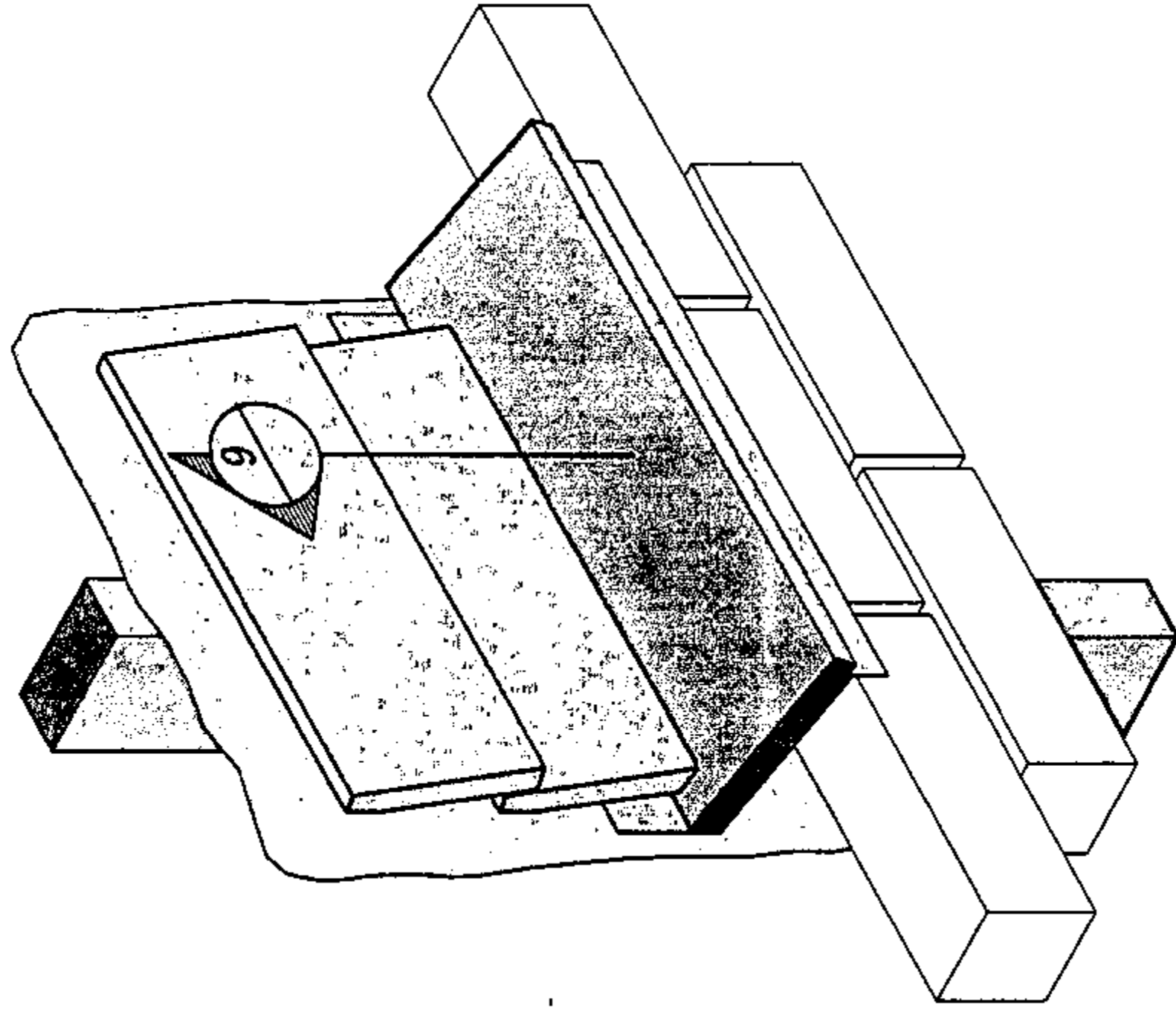
50 O'Rourke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

**ALTERNATIVE WINDOW
FACINGS WALLS TO ROOF OR
DECK & PIPE PENETRATIONS
DETAILS 52 TO 57**

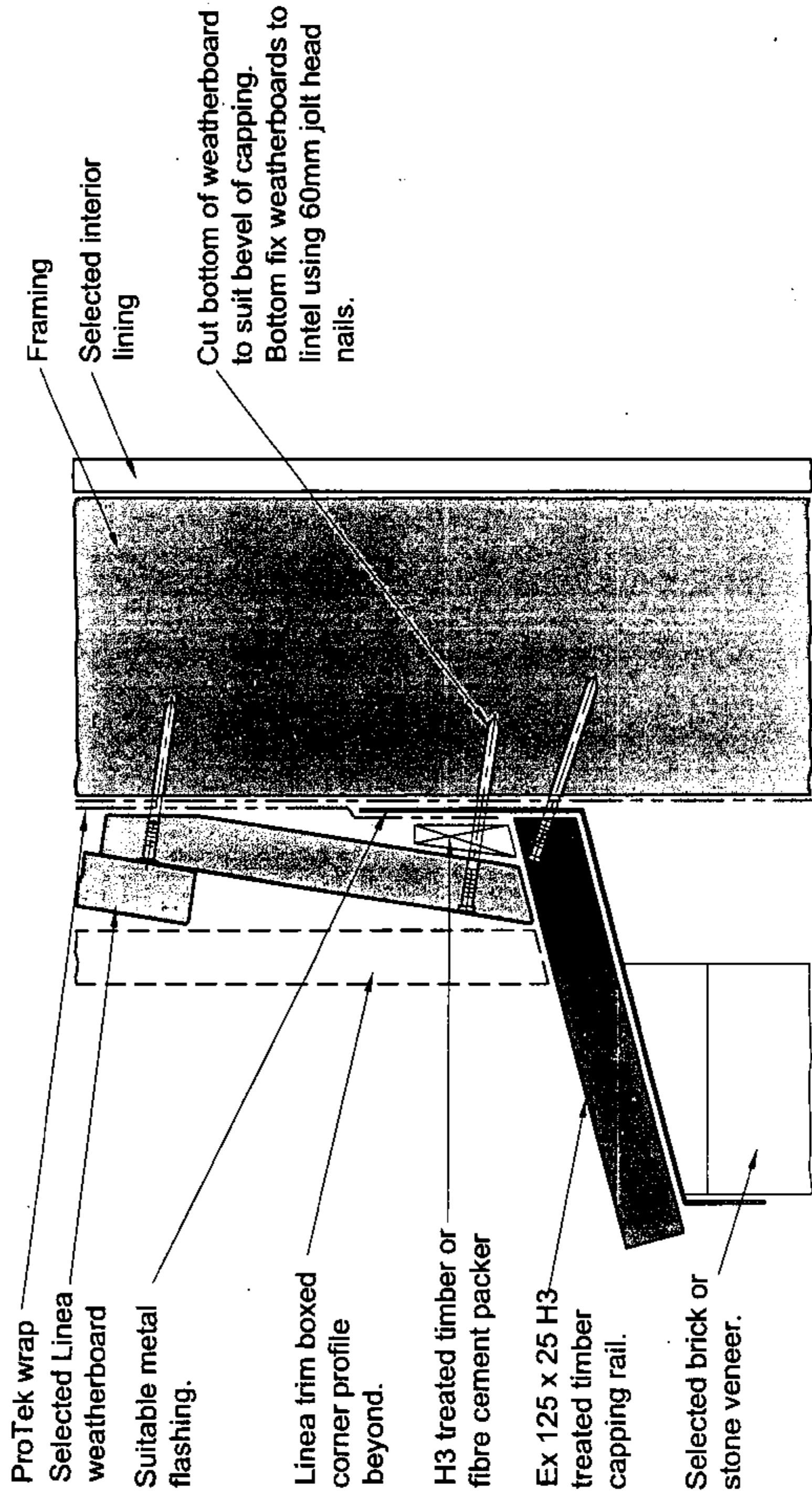
Rev	Description	Original size	Date
As ntd	A3	06.08.01	

Drawing No.

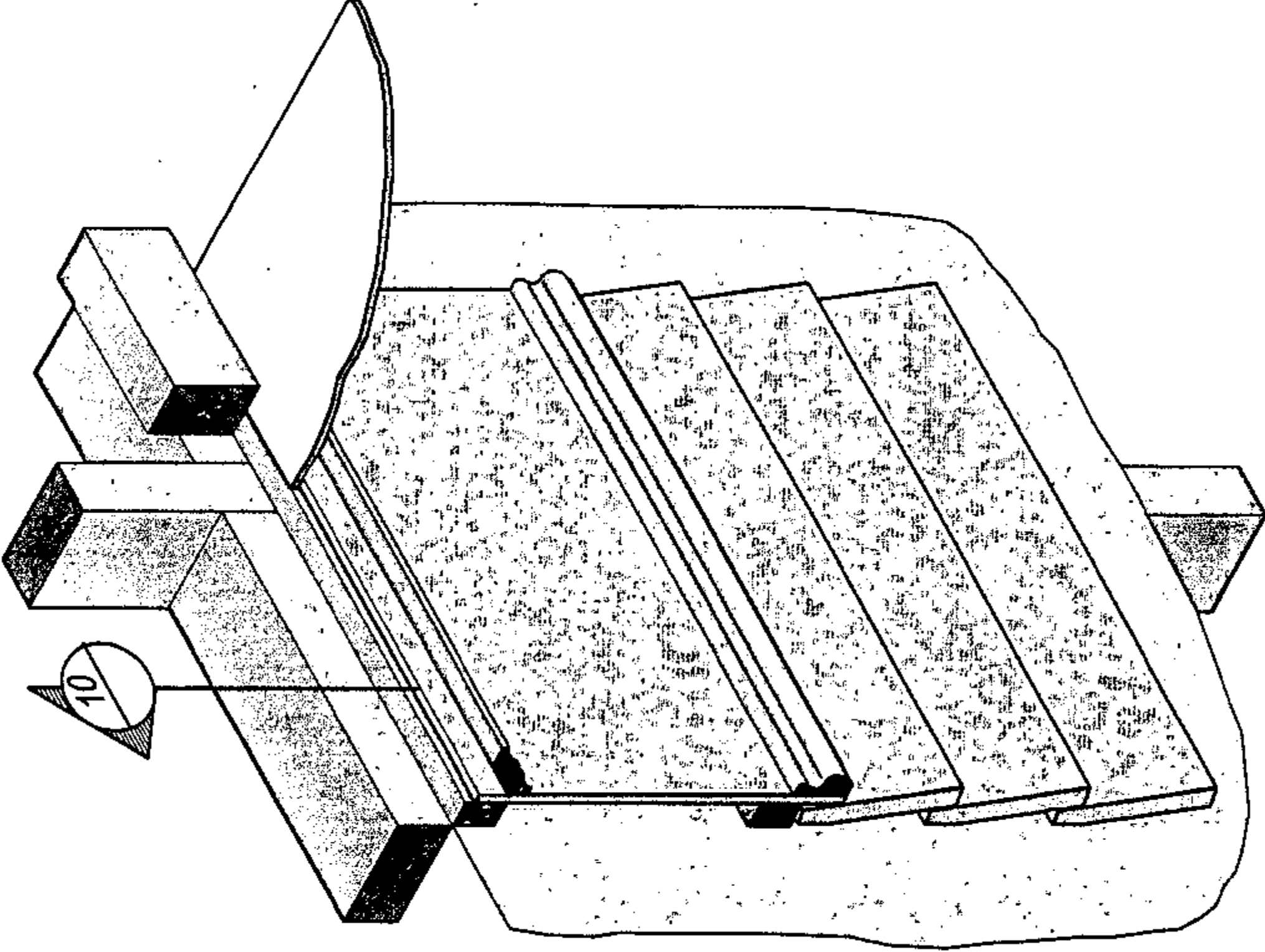
JH-LINEA WB-017



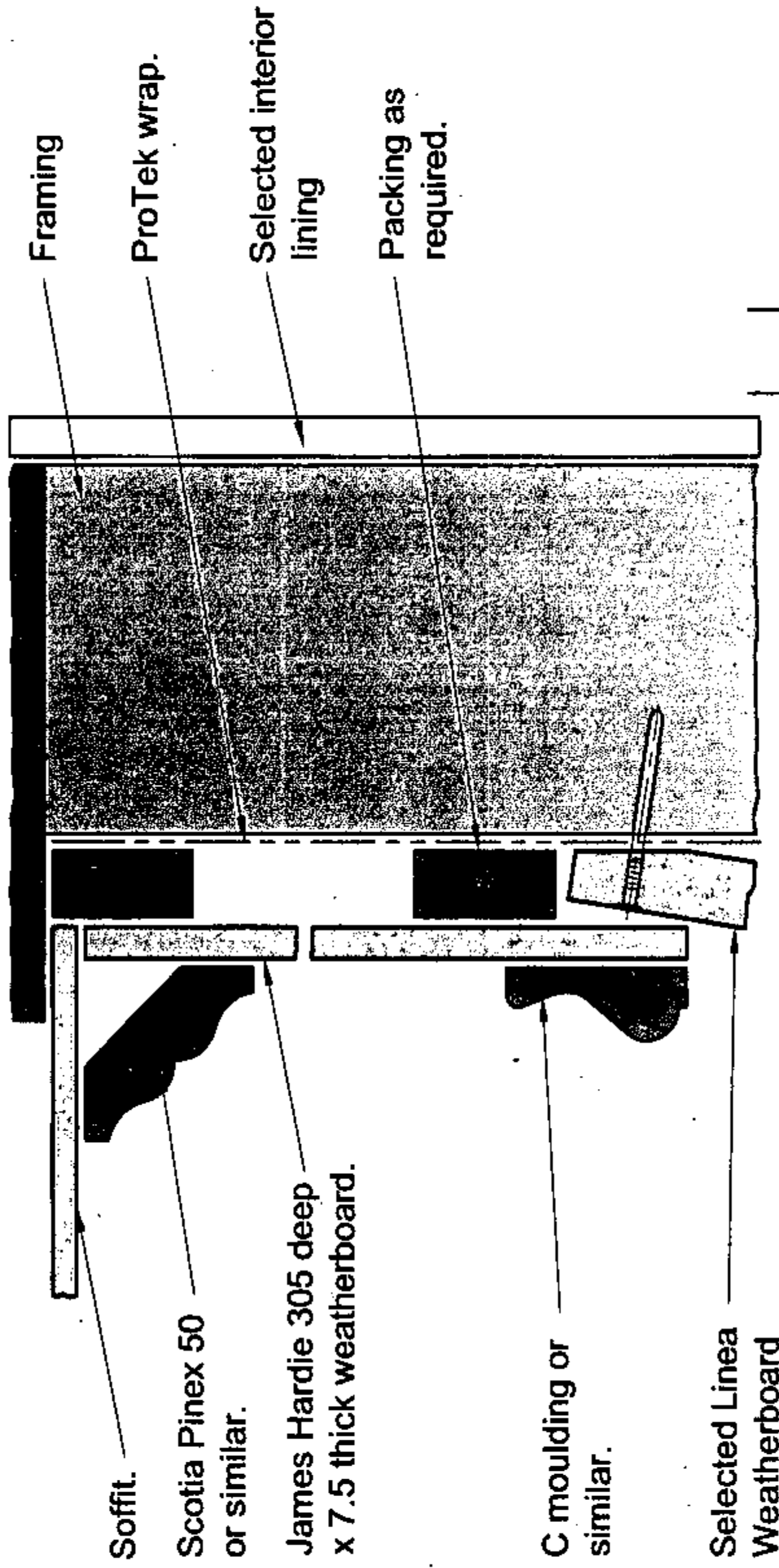
Detail 58 - Linea weatherboard to alternate cladding transition. Scale N.T.S.



Cladding transition Section 9. Scale N.T.S.

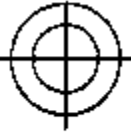


Detail 59 - Alternative weatherboard to soffit detail. Scale N.T.S.



Weatherboard to soffit Section 10. Scale N.T.S.

COPYRIGHT
THE COPYRIGHT OF THIS DRAWING IS THE PROPERTY
OF JAMES HARDIE NEW ZEALAND LIMITED. NO PART
OF IT MAY BE REPRODUCED BY PHOTOCOPYING OR
BY ANY OTHER MEANS AND MUST NOT BE PASSED
ON TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT OF THE TECHNICAL MANAGER.


DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.



50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

ARCHITECTURAL MOULDINGS
DETAILS 58 TO 59

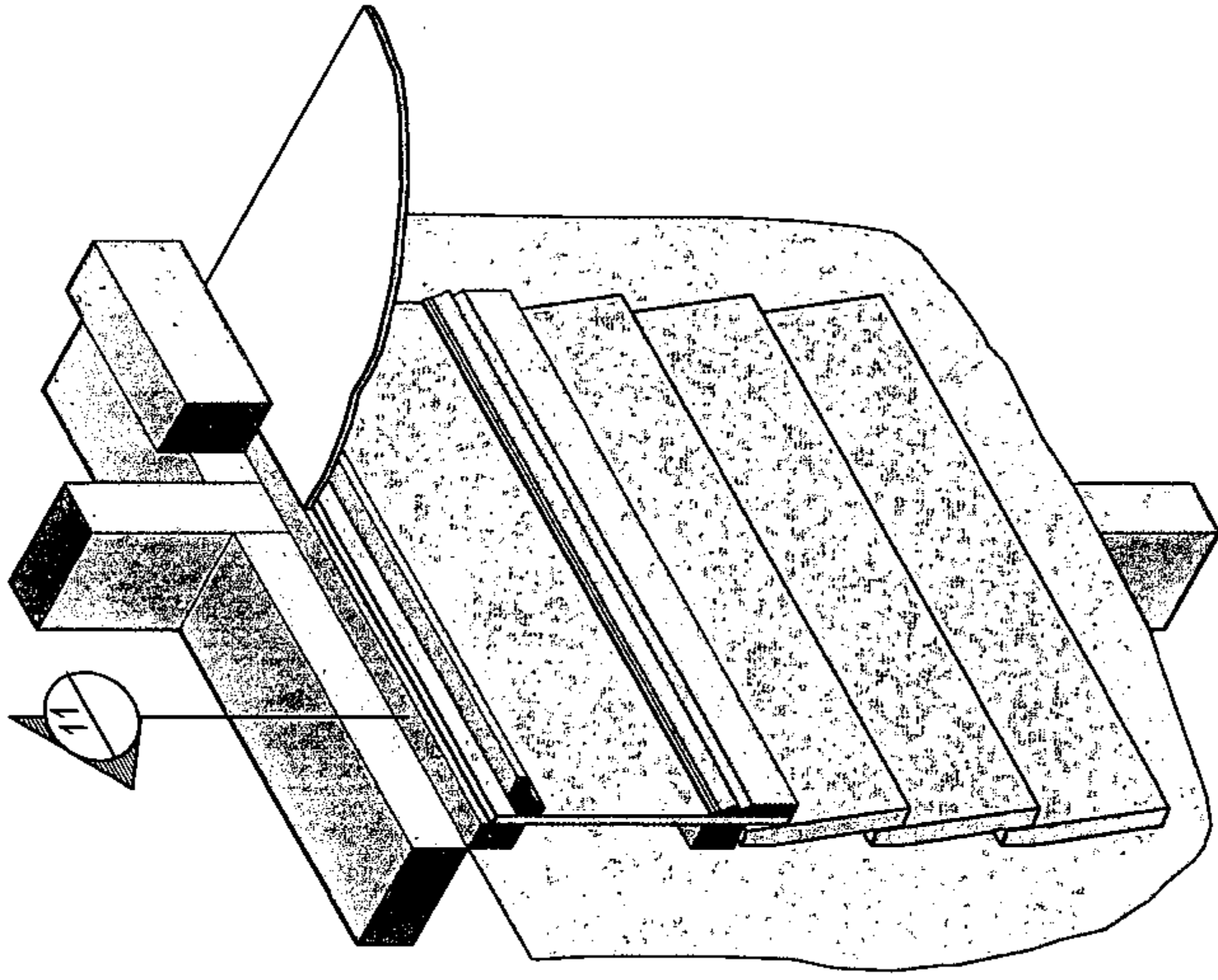
Rev
Scale
As ntd

Description
Original size
A3

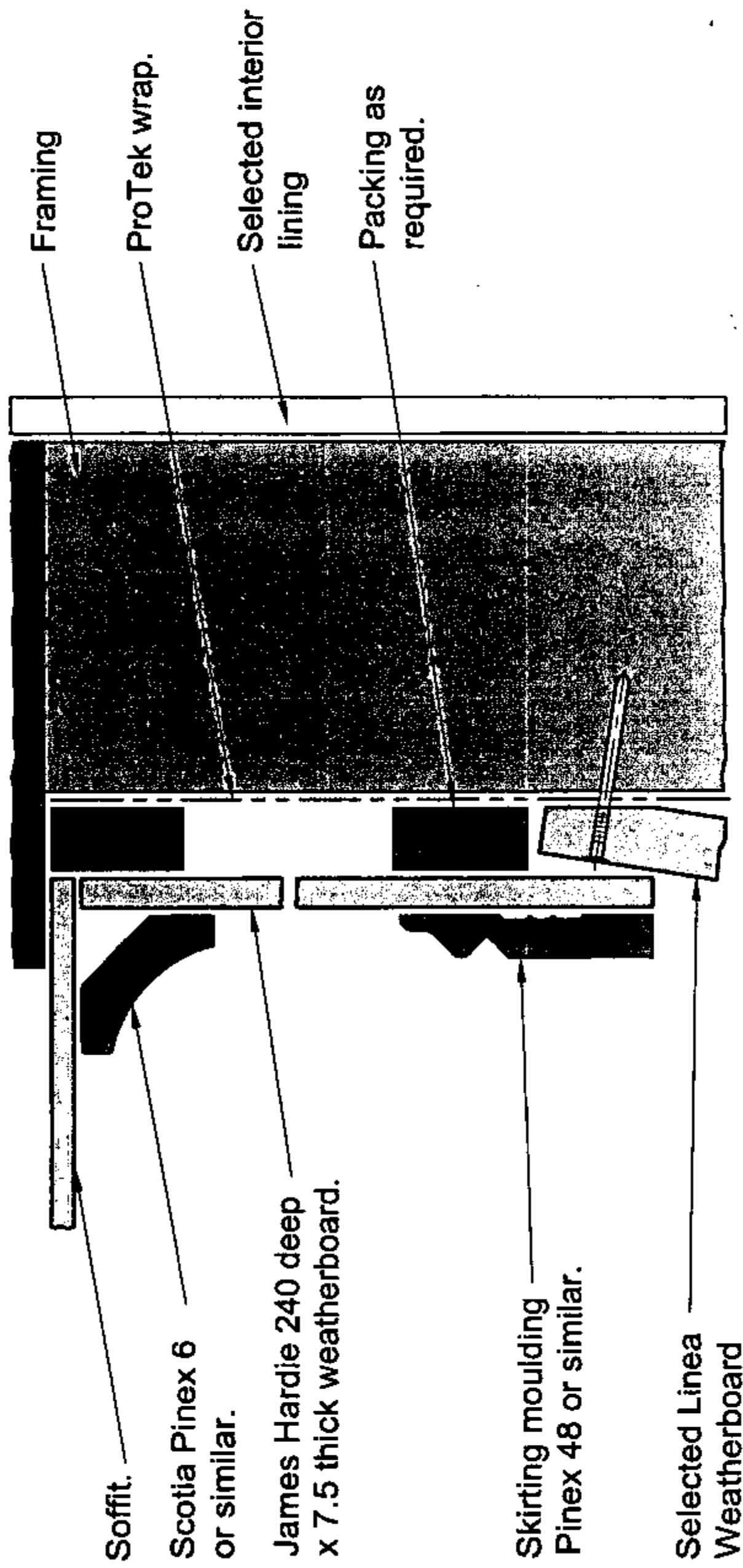
Date
06.08.01

Drawing No.

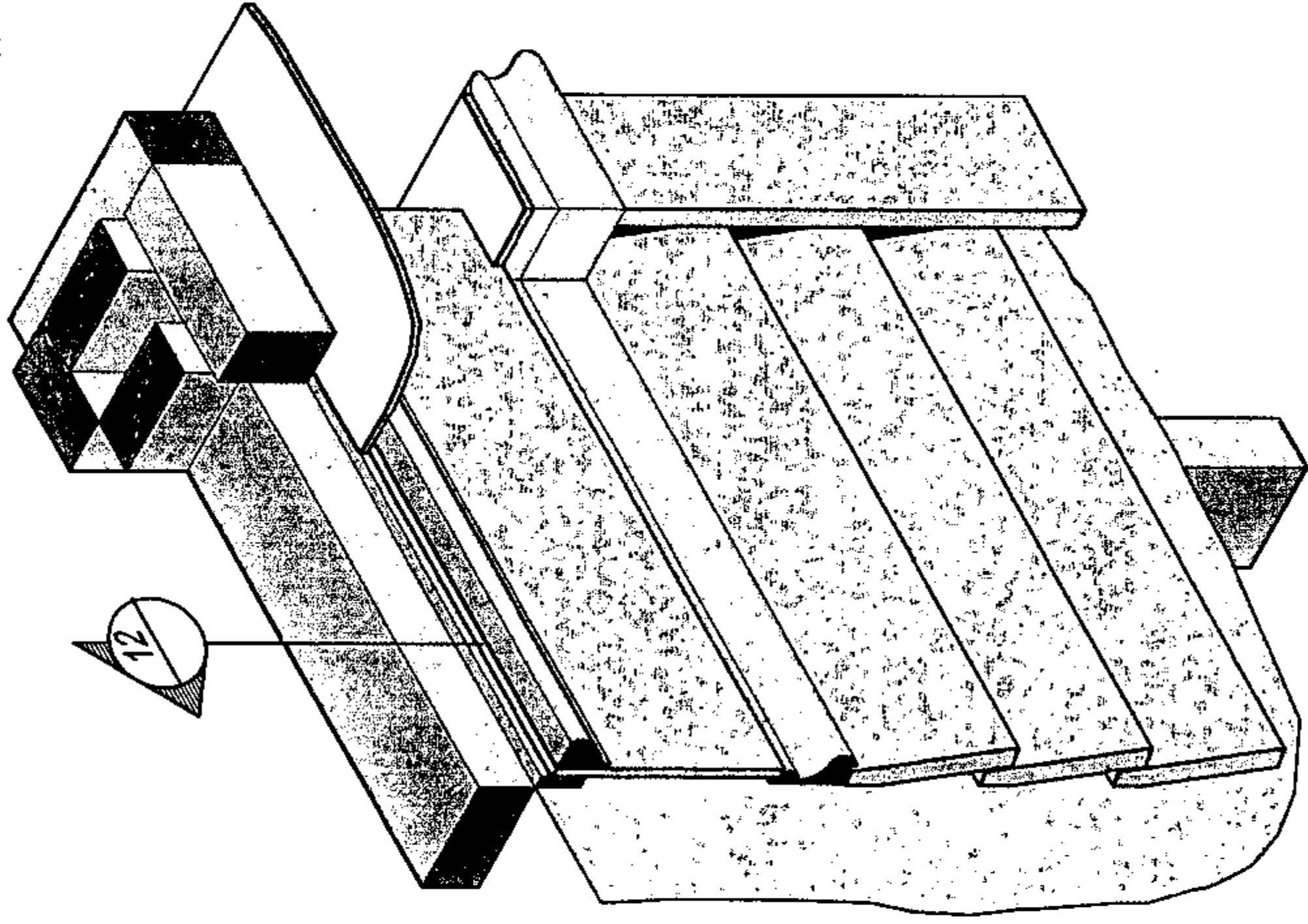
JH-LINEA WB-018



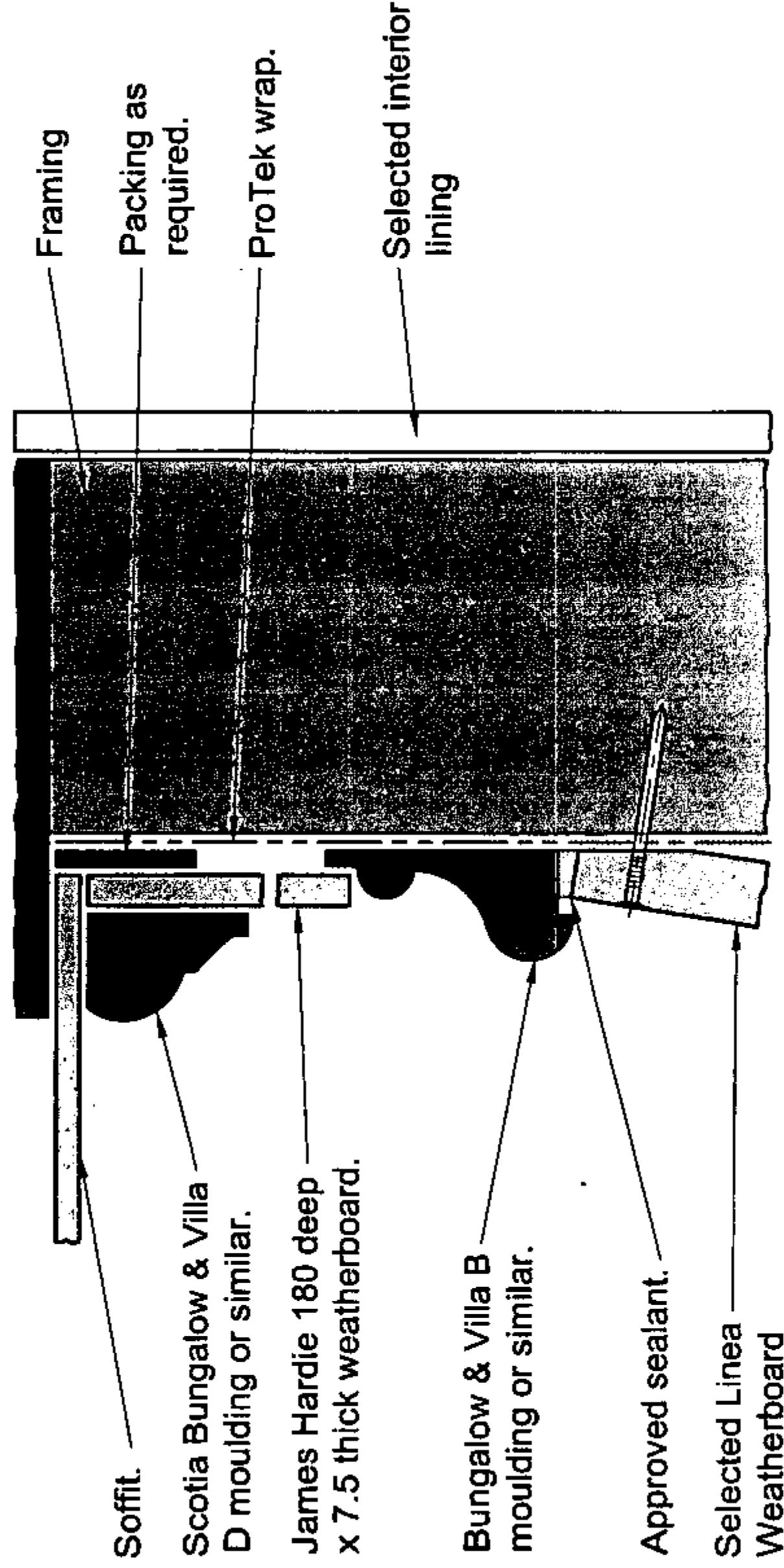
Detail 60 - Alternative weatherboard to soffit detail. Scale N.T.S.



Weatherboard to soffit Section 11. Scale N.T.S.



Detail 61 - Alternative weatherboard to soffit detail with boxed corner. Scale N.T.S.



Weatherboard to soffit Section 12. Scale N.T.S.



DIMENSIONS IN mm
FOR STRUCTURAL LAYOUT
REFER TO ARCHITECT'S
DRAWINGS.

LINEA

James Hardie

50 O'Rorke Road,
Penrose, Auckland,
New Zealand.
Tel: 0800 808 868
Fax: 0800 808 988

ARCHITECTURAL MOULDINGS
DETAILS 60 TO 61

Rev Scale Description Date
As ntd A3 06.08.01

Drawing No.
JH-LINEA WB-019

EXTRA INFORMATION/AMENDMENTS

Charge: \$ _____

Job: _____

Consent No: ~~57959~~ 57688

Address: ~~#3 Harri~~ 82 Oranga Str.
New Plymouth

The changes covered by this amendment are:

Truss lay-out.

Formal Declaration – (Please read carefully prior to signing)

This **AMENDMENT** to the abovementioned Building Consent is made by me as owner of the property:

Signature: [Signature]

Date: 8.1.04

OR I am the applicant authorised by the owner to make this **AMENDMENT**:

Signature: _____

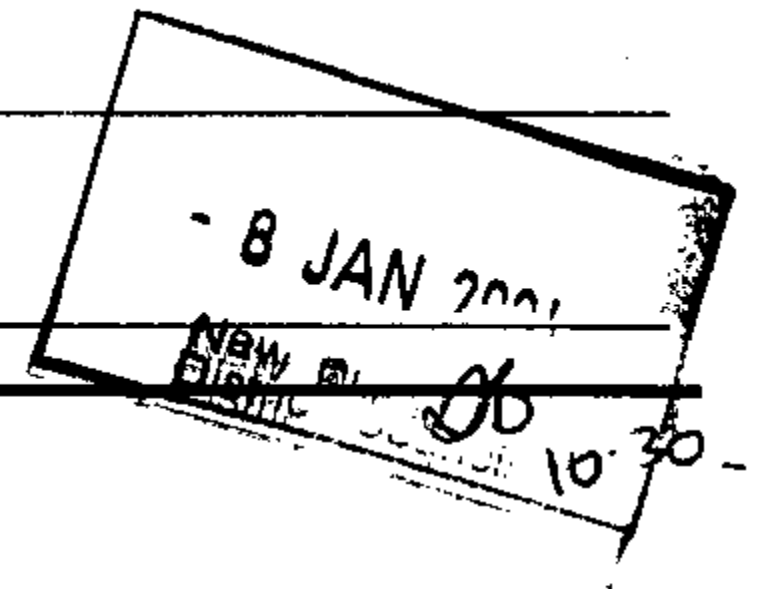
Date: _____

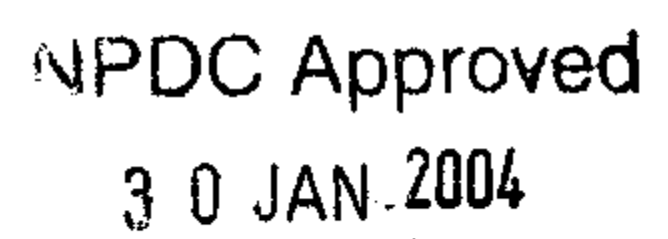
Office use only

Approved	Refused
----------	---------

Records	
Building	
31/9/04	
Public Health	
District Planning	

Truss lay-out. OK ✓

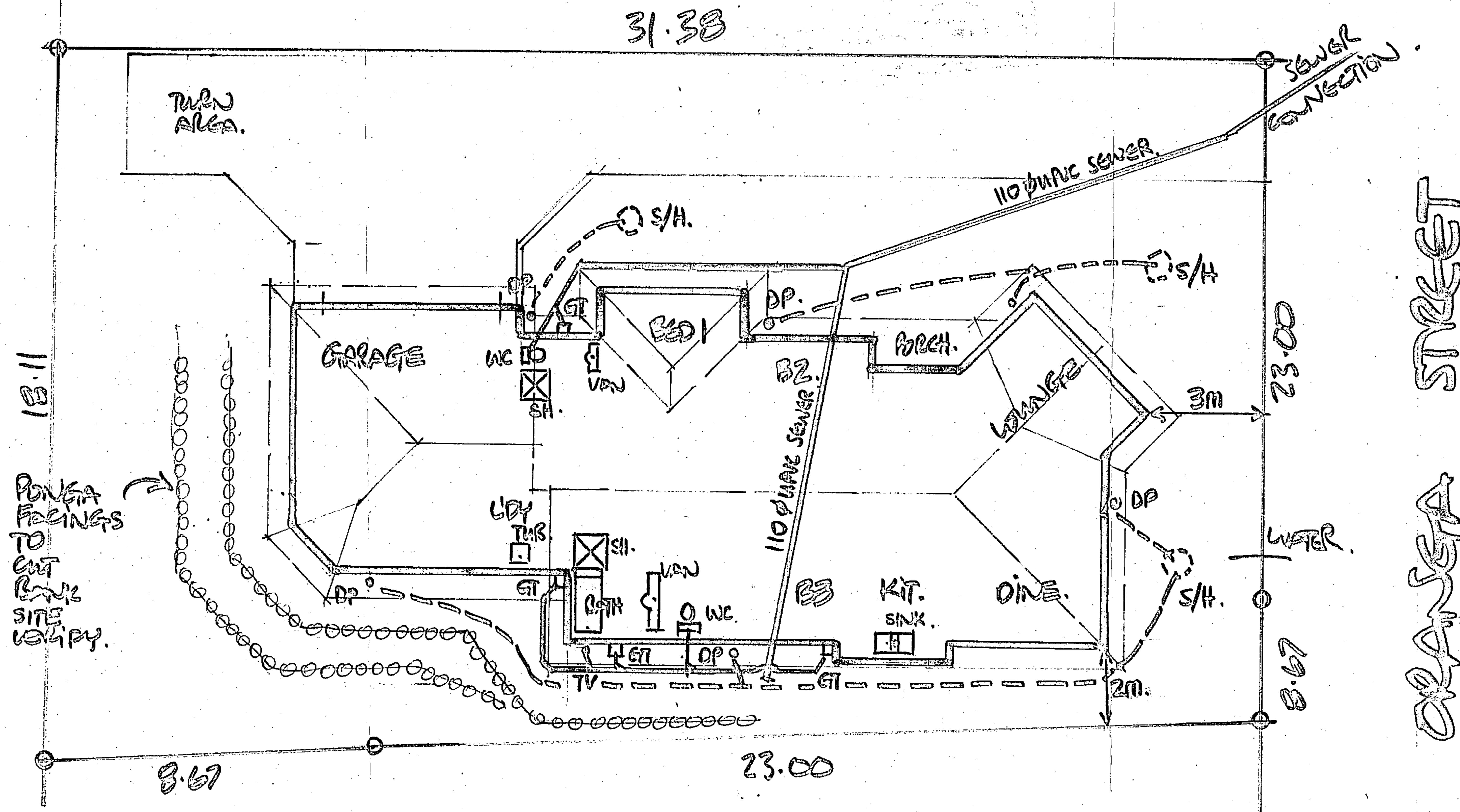




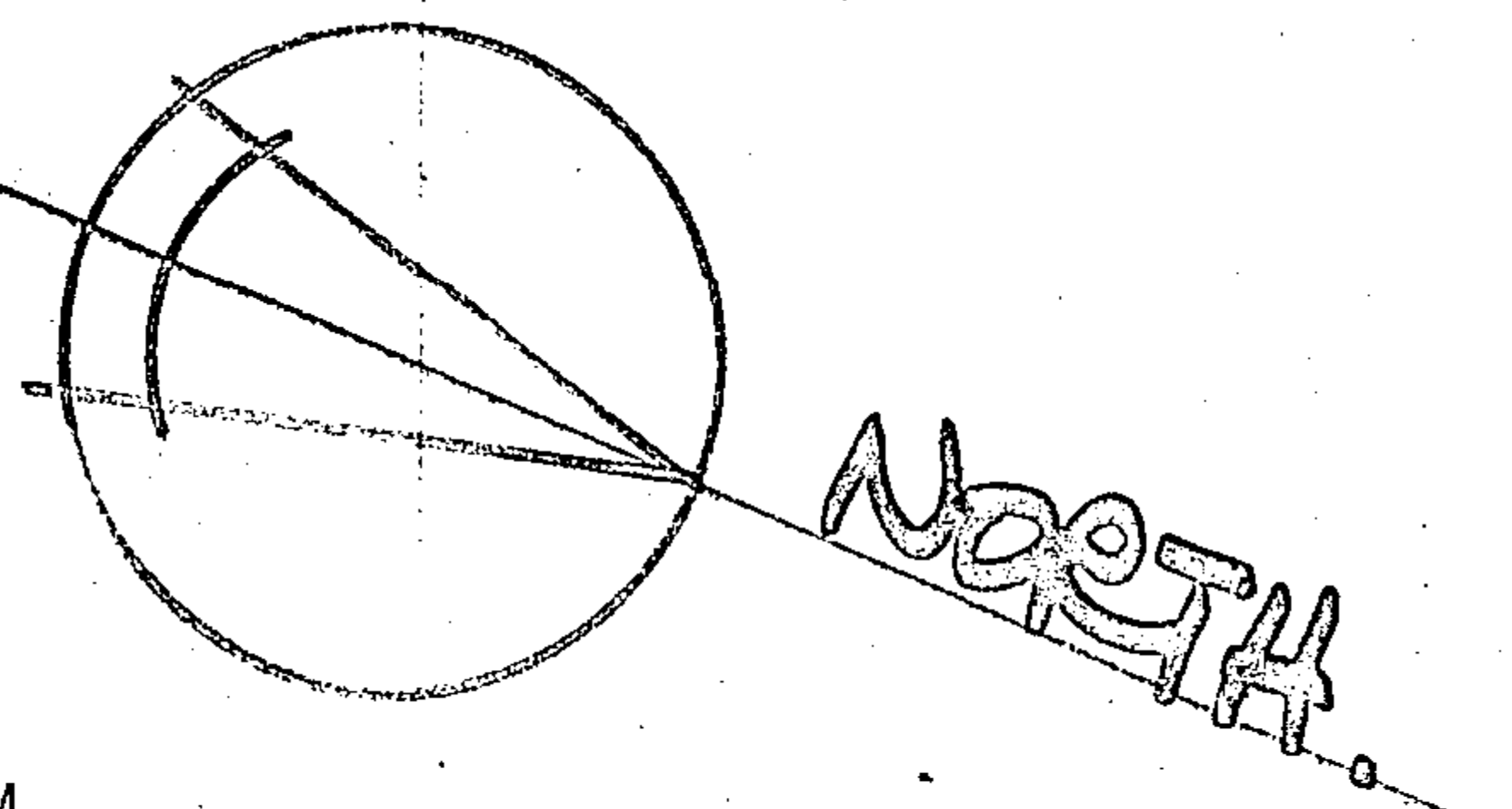
the number of units of production	
Scale 1 100	Date 15/12/2003
	Drawn By:

Smoke detectors
are required as
part of this project

NPDC OFFICE COPY
This Building Consent is approved under the
Building Act and is limited to new work only as
shown on these plans and related specifications
Approved: *[Signature]* Date: 30.1.04
57682/57683



SITE PLAN LOT 1 DP15684 551 M2.
Scale 1:100 VERIFY HOUSE POSITION ON JOB DURING SET OUT.
CUT and Fill = 30M3.

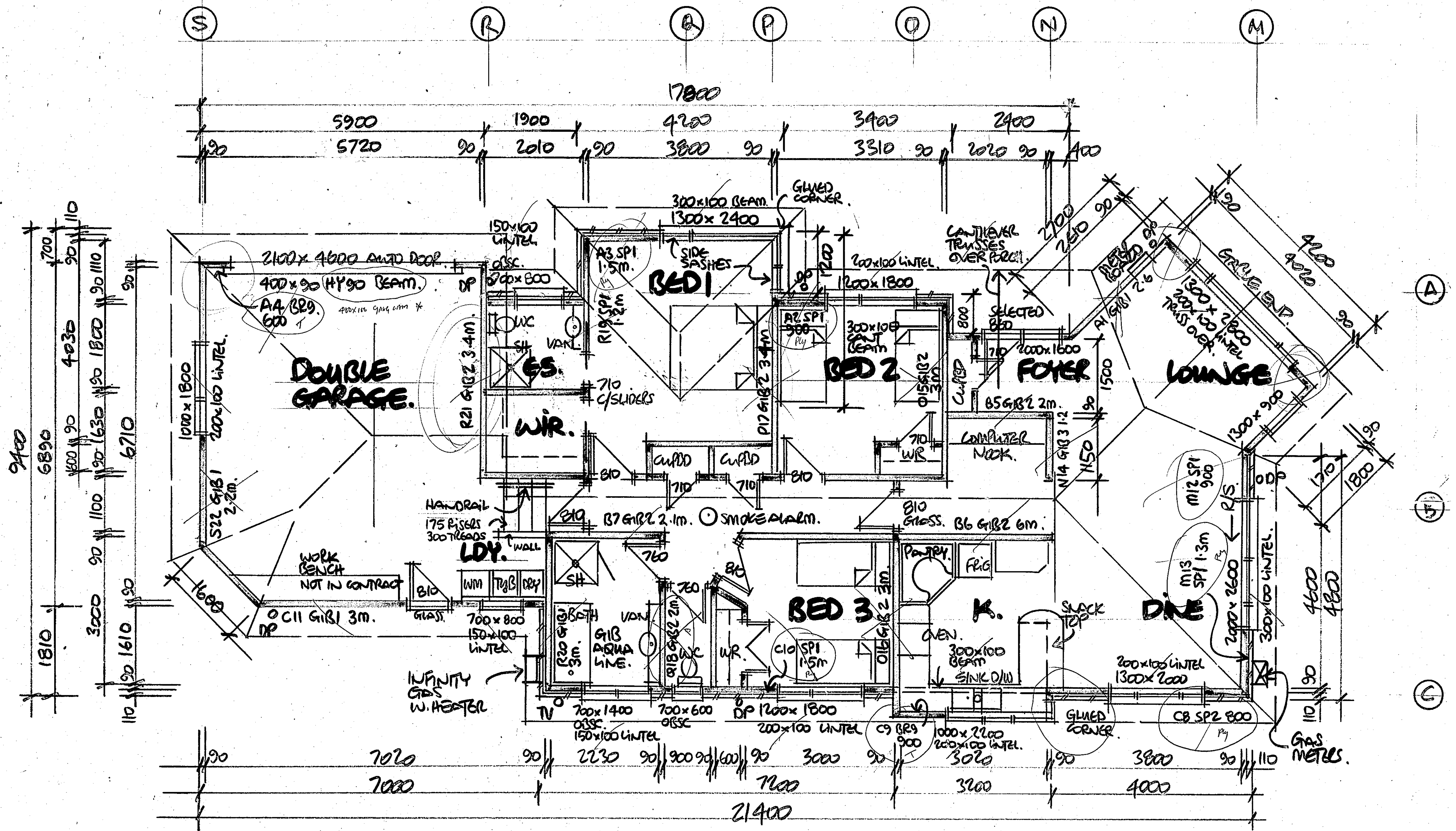


CHRIS & CHRIS GARNHAM
ARCHITECTURAL DESIGN
AND DRAUGHTING SERVICES
81 BRANCH ROAD N.P.
FAX/PH. 758 6910 N.P.

NPDC Approved
30 JAN 2004

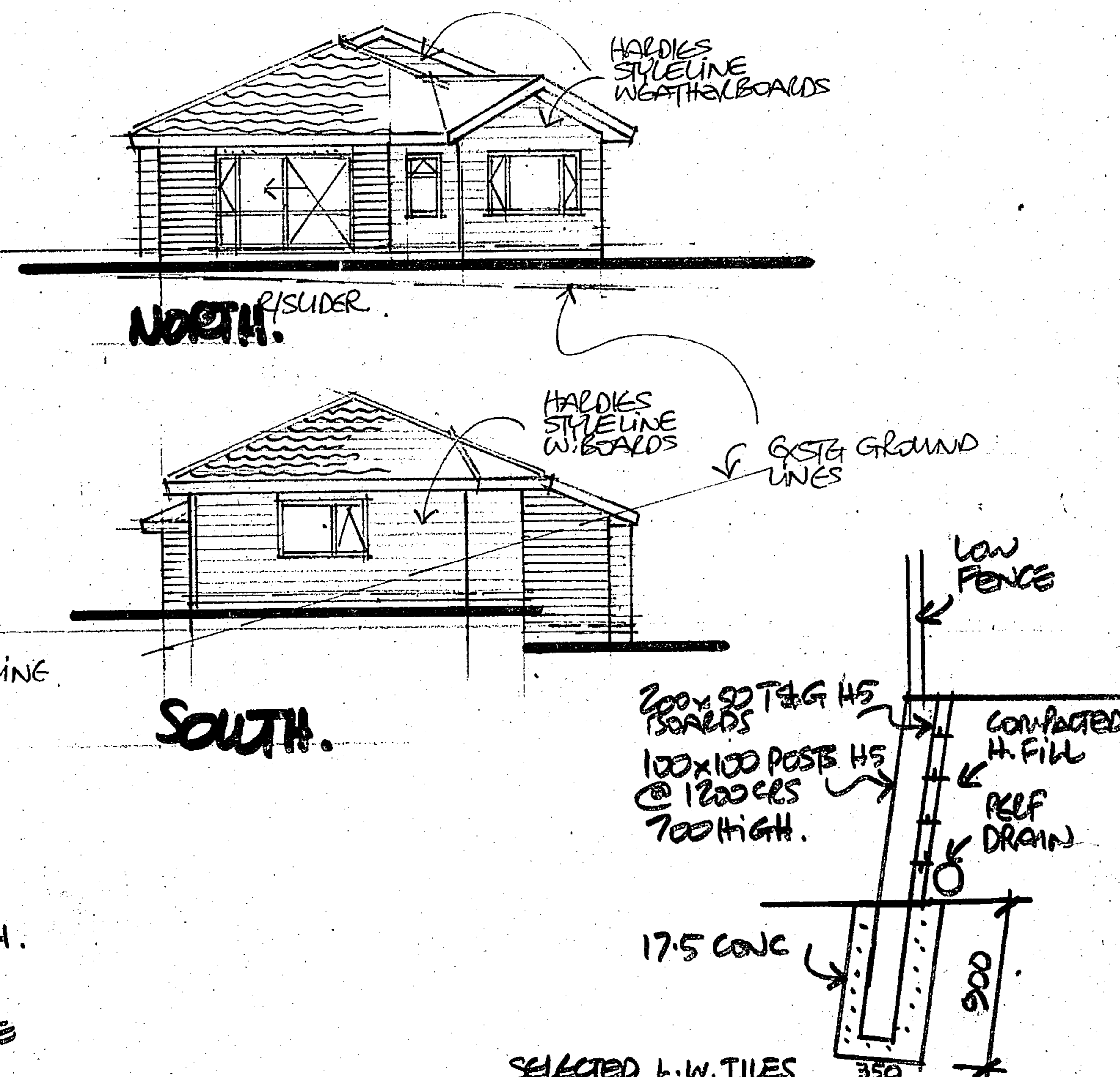
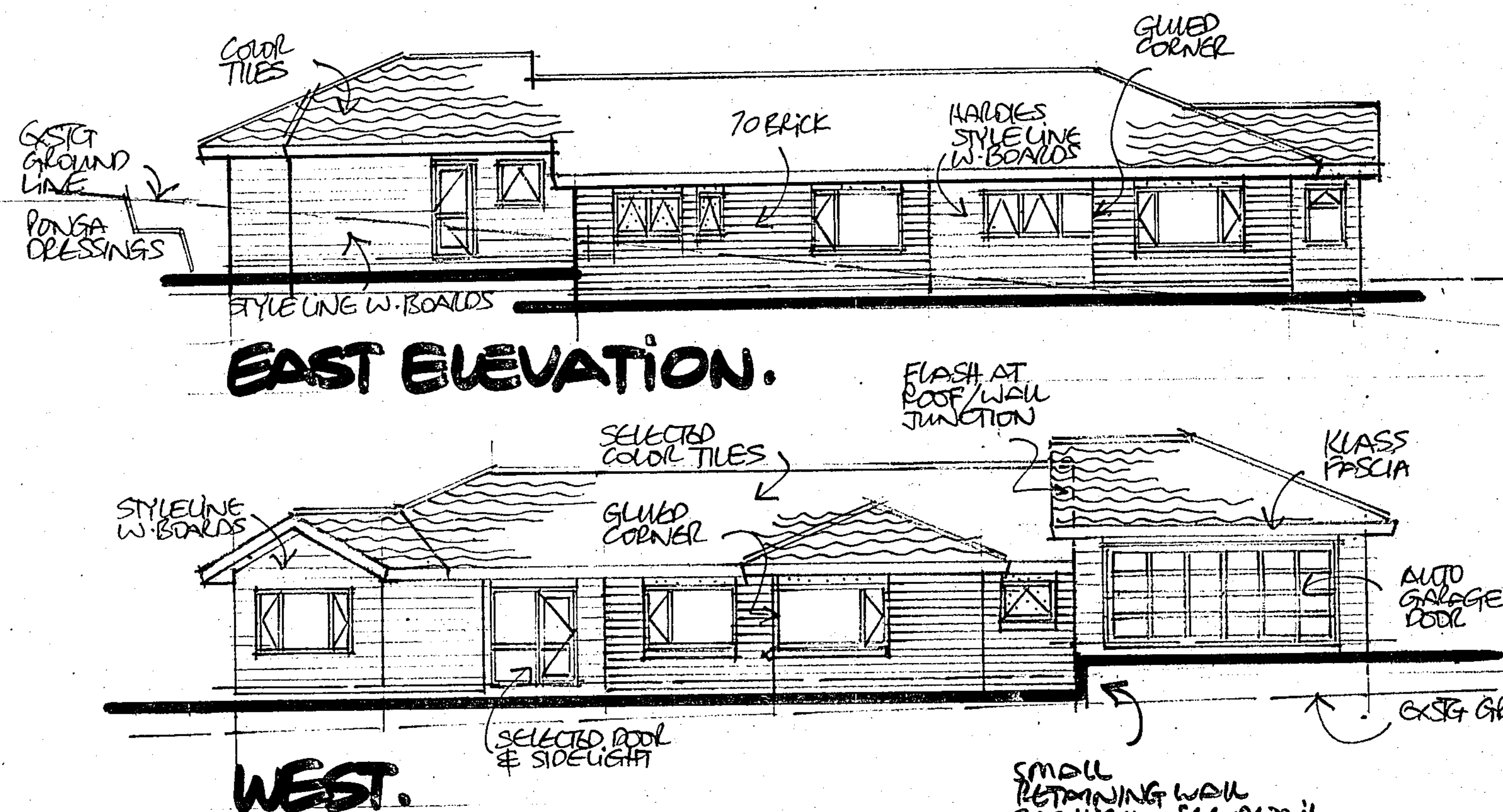
PROPOSED NEW HOUSE FOR FRANK HARRIS at 82 ORANGA STREET, NP.

SHEET
1
IN SET G



NPDC Approved
 3 0 JAN 2004

SHEET
2

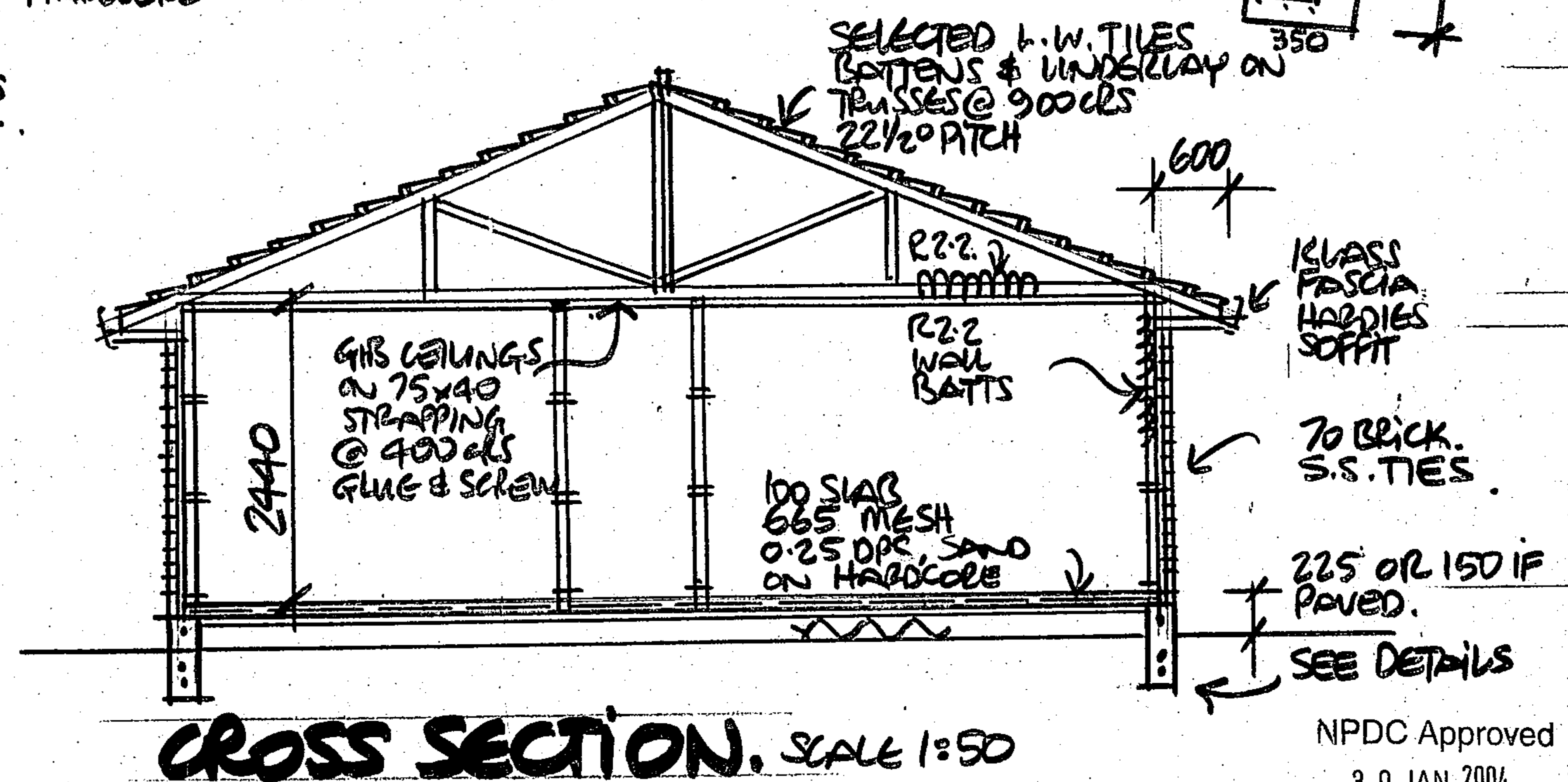
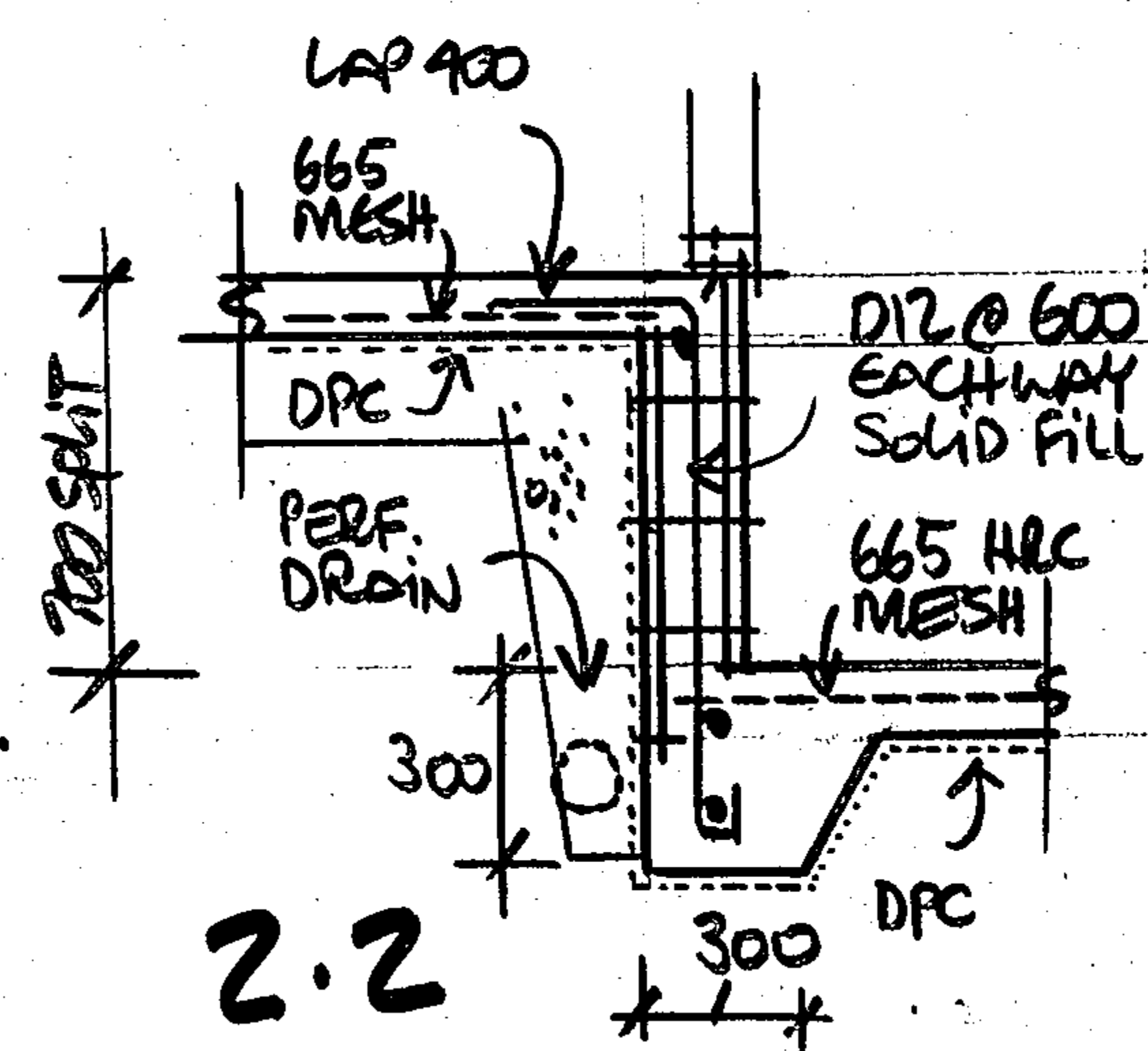
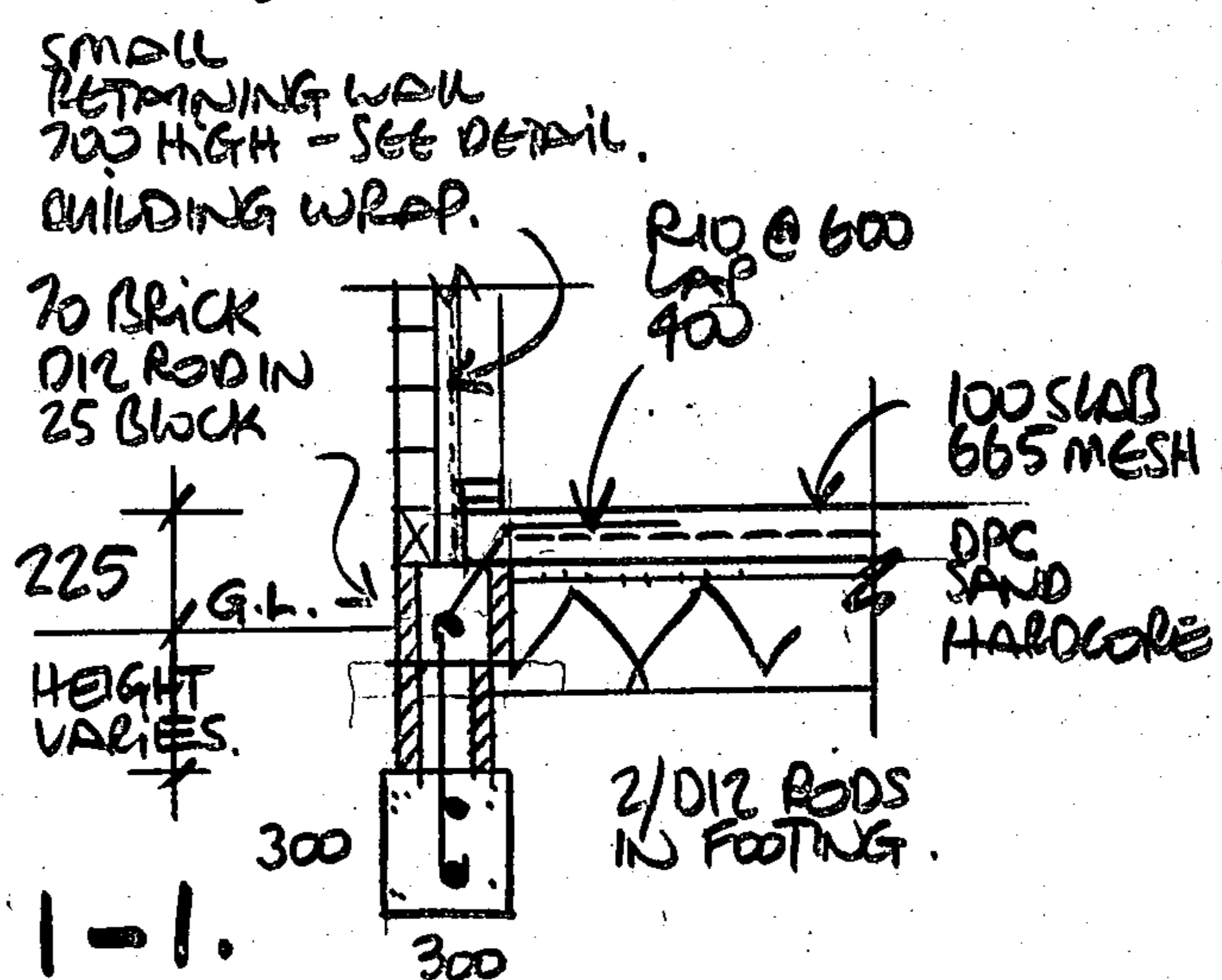


STANDARDS..

ALL CONSTRUCTION SHALL BE STRICTLY TO NZS 3604 1999
BUILDER SHALL HAVE COPY ON JOB.
TIMBER CONTENT AS FOLLOWS -
INTERIOR H1 PLUS OR H3. EXTERIOR H3
IN GROUND TIMBERS TO BE H5.

ALUMINIUM JOINERY TO NZS 4211
GLAZING TO NZS 4223 PTS 1, 2 & 3.
CONCRETE TO NZS 3109-20 MPA @ 28 DAYS.
ROOFWORK TO NZS 4210 & 4230
REINFORCING TO NZS 3402 & MESH TO 3422
PLUMBING & DRAINAGE TO G12 & G13 REGS
COPPER PIPING THRO. OUT WITH PVC WASTES.
GAS HEATING BY INFINITY SYSTEM

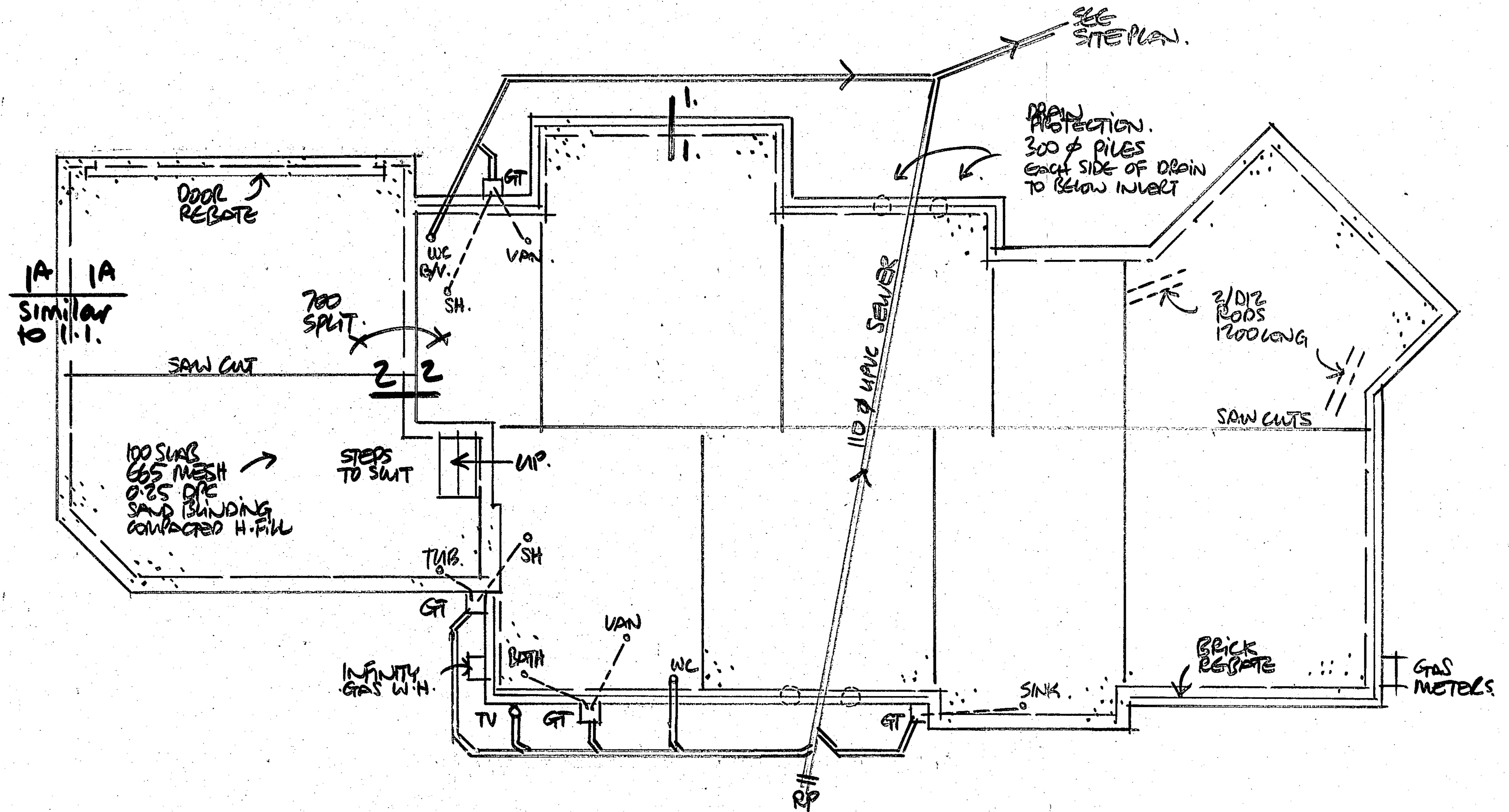
BRACE ALL WALLS AS SHOWN.
LINE WALLS WHERE SHOWN WITH STYLELINE
HARDIES WEATHERBOARDS. FLASH AS PER LINEA. W.B.
BRICKS TO BE SELECTED 70 SERIES
DURABILITY SHALL COMPLY WITH SECTION 4 TABLE 4.1
I.E. COATED GALVANISING OR STAINLESS STEEL.



NPDC Approved
30 JAN 2004

PROPOSED NEW HOUSE for FRANK HARRIS at 82 ORANGA ST. NEW PLYMOUTH.

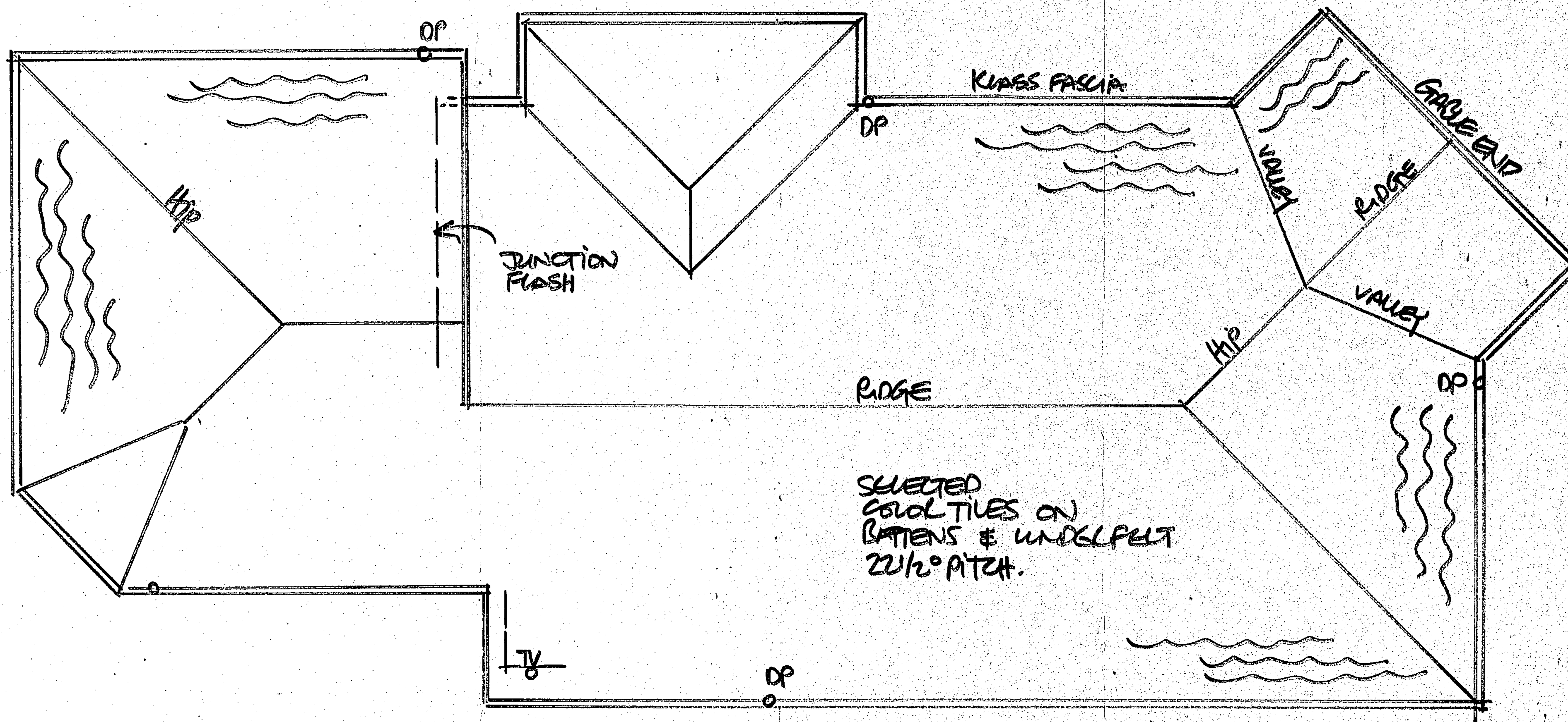
3



FOUNDATION PLAN 1:50.
SEE SHEET 2 FOR DIMENSIONS

NPDC Approved
30 JAN 2004

PROPOSED NEW HOUSE FOR FRANK HARRIS at 82 ORANGA ST. NEW PLYMOUTH. 4



NPDC Approved
30 JAN 2004

ROOF PLAN. 1:50
VERIFY DOWN PIPE POSITIONS ON JOB
WITH PLUMBER / ROOFER.

PROPOSED NEW HOUSE for FRANK HARRIS at 82 ORANGA ST. NEW PLYMOUTH.

SHEET
5