DESTINATION ROTORUA	**Building Consent File – Front Cover**	Ref: TP 03 – FP 04 Ver: 01 Issued:30 May 2007 Doc No: IT-639924 1 of 1

BC No. 37021 **Valuation No.** 07040/123/19

Owner: Yeoman **Property No.** P31815

Date Received: 28/8/06 **CCC Date:** 5/5/08

Pukehangi Road

PROJECT DESCRIPTION / COMMENTS: Dwelling/Garage
THIS BUILDING CONSENT RELATES TO BC No :

NB: The inspection cards are kept with the inspection file in the Building Services offices.

Any pertinent information regarding inspections will be with this file and can be viewed during the hours of 8am – 4.30 pm week days.

BC 37021

LARGE PLANS HELD IN PLAN TUBE ☐

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

Pim 37020

BUILDING SERVICES – BUILDING CONSENT

APPLICATION NO: 37021 **VALUATION NO:**

OWNER: Yeoman **PROPERTY NO:** P31815

PROJECT LOCATION: Pukehangi Rd

DESCRIPTION OF WORK: Dwelling & garage

CHECK APPLICATION - BUILDING OFFICER:

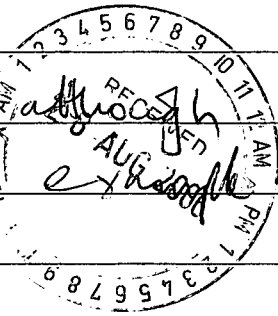
DATE RECEIVED:	DUE DATE:
28·08·06	25·09·06
DATE SUSPENDED: ~~[illegible]~~ Invalid 6/06	**DATE ISSUED:** 12·10·06

PROCESSING	REVIEW	DATE	TIME TAKEN	APPROVED	DATE
Hazard	Vegetation / Fill / Bld Rest / Water / Easement -				
Administration	ZP	30·08·06	20		
Building	D-Ly	15·9·06	2hrs 40	CW	2-10-6
Resource Engineers					
Geothermal					
Hazardous Substances					
Environmental Health					
Disabled Persons					

Stormwater disposal plan certified by a CPE.

Lot 6 soil o.k. W25 3604.

Cedar to portico is easily replaceable although N253602 does not consider this a problem o.k. to use cedar in this case



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NOTES AND CONDITIONS: (Please circle appropriate code for checkboxes)

200 a b c d e g h i j k
l m n o p q r s t u
v w x y f

201 a b c d e g f

202 a b f

203 a f

204 f

205 a b f

206 a b c f

207 a f

208 a b f

209 a f

210 a b c f

211 a b c f

212 a f

213 a b c d e g h i j k l
m n o p q r s f

214 a b f

215 a b c f

216 a f

217 a b f

218 a b c d e g h i j k f

219 f

220 a b c d f

221 a b c d e g h i j k l
m n f

222 a b c d e g h i j k l
m n o p q r s t u v w
x f

FREE TEXT:

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BC 37021

BUILDING SERVICES – PROJECT INFORMATION MEMORANDUM

APPLICATION NO: 37020 **VALUATION NO:**

OWNER: Yeoman **PROPERTY NO:** P31815

PROJECT LOCATION: Pukehangi Rd

DESCRIPTION OF WORK: Dwelling & garage

CHECK APPLICATION - BUILDING OFFICER:

DATE RECEIVED:	**DUE DATE:**
28-08-06	25-09-06
DATE SUSPENDED:	**DATE ISSUED:**
	19.9.06

PROCESSING	REVIEWED BY	TIME TAKEN	DATE RECEIVED	DATE PROCESSED
Administration			30-08-06	19.9.06
Hazard Vegetation | Fill | Bldg Rest | Water | Easement – SL		20		
Graphic Solutions				
Planning (Rural B1)	Jeanne	4h	31.08.06	1.09.06
Resource Engineers	BK	30		7.9.06
Pollution Control				
Geothermal				
Hazardous Substances				
Environmental Health				
Recreation and Community				
Building				

PIM FEE	DATE PAID	RECEIPT NO.	DATE RECEIVED STAMP
$450.00	05.09.06	R 54605	RECEIVED 28 AUG 2006

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NOTES AND CONDITIONS: (Please circle appropriate code for checkboxes)

300 a b c d (e) g h i j k l f
302 a b c d e g h i j k l m
n o p q r s t u (v) (w) x (f)
304 a b c f
306 a b c d e g h i j k l
m n o f
308 a b (c) d e f
310 a f
312 a b c d e g f
314 a b (c) d e g (f)
316 a b c (d) e f
318 a b c d e g h i f
320 a (b) c d (e) g h f
322 a b f
324 a b c d e g h i j f
326 a b c d e g h i j k f
328 a b c d e g h i j k l m
n f
330 a b c d f
332 a b c d e g h i j f
334 a b c d e g h i f
336 a b f
338 a b c d e g h i f
340 a b c f
342 a b f
344 a b c f
346 a f
348 a b c d e g h i j k
l m n o p q r s t u
v w x y z f
350 a b c d e g f
352 a b c f
354 a b c f
356 a b (c) d e g h (f)
358 (a) b c d f
360 a b c d f
362 a f
364 a f
366 a b c d f
368 a b f
370 a b c f
372 a b f f
374 a b f

FREE TEXT:

356 (f) • A controlled activity resource consent is required for the proposed plan in accordance with R 10.1.1.18 as the building is over 5.0m high in the Rural B1 Zone.

• Also please note that it would appear that the proposed earth bund wall is in close proximity to the revegetation areas. Please confirm that the bund wall will not negatively effect the plantings as stipulated in Part ii) of the Revegetation Management Plan (see Consent Notice attached).

• The building must comply with the Performance Standards for reflectivity, lighting and glare in the Rural B1 Zone otherwise a Resource Consent will be required. Further information is required as to the specifications so that Council can assess if the proposal complies as a Permitted Activity (see Performance Standards attached).

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5 May 2008

Mr P Yeoman
6/275 Pukehangi Road
Westbrook
ROTORUA 3015

File Ref: P31815
Building Consents no: 37021

Dear Sir,

CODE OF COMPLIANCE CERTIFICATE
BUILDING CONSENT NO: 37021

Please find attached your copy of the Code Compliance Certificate that has been issued in relation to the above building consent.

This is an important document and should be retained by you as it specifies the work carried out under the Consent has been completed, and meets the requirements of the Building Code supporting documents.

If in future you should desire to sell your property, your solicitor may ask you to produce this Certificate to prove that your building complies with the Building Code to the extent required by the above Building Consent. A copy is also placed on your property file.

Yours faithfully

Wendy Dale
Administration Officer - Building

Encl.

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DESTINATION ROTORUA

ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua Mail Centre
Rotorua 3046
New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

Code Compliance Certificate: 37021

Section 95, Building Act 2004

Issued: 05 MAY 2008

The Building

Property ID:	31815
Street Address:	PUKEHANGI ROAD
Valuation number	07040 123 19
Legal Description::	LOT 6 DP367422
Intended Use	NEW BUILDING
Description of Work:	DWELLING AND GARAGE

The Owner

Name of Owner:	YEOMAN, MR PHILLIP HAROLD
Contact Person:	YEOMAN, MR PHILLIP HAROLD
Mailing Address:	YEOMAN, MR PHILLIP HAROLD THE PARKLAND YEO YEO FMLY TRST C/O 5 HARATUA PLACE SPRINGFIELD ROTORUA

First point of contact for communications with Council Building Consent Authority: RDC BUILDING SERVICES

Building Work

Building Consent no:	37021
Issued by:	Rotorua District Council

Code Compliance

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

(a) the building work complies with the building consent.

Council Charges

The Council's total charges payable on the uplifting of this code compliance certificate in accordance with the attached details are:

$0.00

This is a final code compliance certificate issued in respect of all of the building work under the above building consent.

Signed for and on behalf of the Council:

Name: Wendy Dale Position: Building Administration

Signed: _____ Date:05 MAY 2008

ROTORUA PARTNER SHAPING ROTORUA

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CONSENT COMPLIANCE ASSESSMENT FORM

BC NO.: 37021

P. File No.: 31815

Address: Pukehangi Rd.

P = Pass, F = Fail, N/A = Not Applicable – Tick appropriate box

Ser	Item	P	F	N/A	Remarks
1	Work complies with the approved BC documentation (sect 94(1))	✓			
2	All the required inspections have been completed	✓			
3	BC conditions have been complied with	✓			
4	PIM requirements have been complied with	✓			
5	Damage deposit can be released			✓	
6	Crossing deposit can be released			✓	
7	All documents have BC number on them	✓			
8	Section 75–77 registered if applicable			✓	
9	Section 72–74 registered on title if applicable			✓	
10	Energy work certificate has been provided (if required) (section 94(3))	✓			Gas & Electrical
11	Specified systems are capable of performing in accordance with performance standards (section 94(1b))			✓	
12	Is a compliance schedule required or requires amending? (Section 100(2))			✓	
13	Any warnings or bans have been applied (section 94(2))			✓	
14	Has the territorial authority received any certificates issued by licensed building practitioners that relate to restricted work? (Section 88(1) and (2))			✓	
15	Check the territorial authority has been advised by a licensed building practitioner that building work carried out under a building consent does not comply with that consent. **Note** A building consent authority may not be aware if a territorial authority has been informed of non-complying work by a licensed building practitioner (section 89)			✓	
16	Any amendments have been issued and whether documentation associated with these has been properly completed.			✓	
	Any outstanding documentation still to be collected such as:				
1	Photographs of elevations/check against elevations	✓			On file
2	Survey certificates – siting, height in relation to boundary, maximum height of building or minimum floor level			✓	
3	Concrete strength			✓	
4	Pile driving			✓	
5	Foundation observation			✓	
6	Ground conditions including compaction			✓	
7	Waterproofing			✓	
8	Structural reviews			✓	
9	Site welding			✓	

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Ser	Item	P	F	N/A	Remarks
10	Home heating (fires)			✓	
11	Glazing			✓	
12	Drainage	✓			
13	Smoke alarms and sprinklers	✓			Noted on check sheet
14	Emergency warning systems	✓			
15	Fire doors			✓	
16	Spread of flame			✓	
17	Backflow			✓	
18	Lifts (electrical and installation			✓	
19	Mechanical ventilation			✓	
20	List of consultants			✓	
21	Exterior plaster systems	✓			
22	Producer Statements are correctly formatted?	✓			
23	Technical Literature is correctly formatted	✓			
24	Form 6 received and complete	✓			
25	Development Contribution Paid (suspend/note in screen if not)			✓	
26	Outstanding Fees paid			✓	
27	Other				

Property file is requested from records and used as a reference when carrying out peer reviews – check elevations against photos.

NOTES

All information and documentation is present and correct. A Code Compliance Certificate can be issued providing all outstanding additional fees and/or development contribution has been paid (Team Leader or Manager Building Services).

Name: D HOLDER

Signature: D Holder

Date: 5·5·08

Date Received *When satisfied all conditions of BC have been met, all supporting documentation & fees have been received (this is the date when the clock starts)*	**Date Approved by TL or MBS** *Date approved by Team Leader or Manager Building Services*	**Date Issued By AAB** *Date when Administration Assistant Building issues CCC*
5·5·08	5·5·08	5·5·08

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Doc No: IT-12403

MR

File No: 37-73-010\14

BUILDING SERVICES

FIELD INSPECTION CARD

Application No: 37021 Date Consent Issued: 12.10.06

OWNER: Yeoman Phone:	BUILDER: S Jeffcoat Phone: 0272564555
SITE: Pukehangi Rd (Parklands Estate)	PLUMBER: T Phone:
VALUATION NO: FILE NO: P31815	DRAINLAYER: Ian Anderson Phone:
LEGAL DESCRIPTION: Lot/~~Sec~~: 6	DPS/~~Blk~~: 367432

DESCRIPTION OF PROPOSED WORK:

Dwelling | garage

DATE	INSPECTION REPORTS	TIME
*	Phil Yeoman to provide the Plasterers Producers	
	statement and licence number before the CCC is issued.	
24-10-06	Footings inspected. 500ff. in places.	40
	Steel plated as per approved plans.	
	2 D12s grouned perimeter of footing with	
	600mm laps and tied. on 50mm cleary.	
	D10s. bars at 600mm c/- starters - tied to	
	bars in footings. Sited as per plan.	
	Told builder to engage engineer to check	
	all footings and Builder to come back to	
	council before pouring footings.	
26.10.06	Check with Bill G re: siting - Builder	
D HOLDER	assured DH that siting had been	
	checked on 24.10.06.	
✓	Sited as per plan.	
26.10.06	Request from builder to have engineer	
D HOLDER	certify remedial work & carry out	30
	inspection - Form sent to B Walshe	
	at B.S.K approving this.	

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DATE	INSPECTIONS	TIME
30/10/6	Testing of Foundations letter from BSK attached.	
8/11/06	Pre Truss - plumbing + drainage 100mm PVCU & under narrow section of dwelling, different from plan amended plan required, 50m vent at end, plus 65mm on side wastes to ensuite + laundry area.	
RL	Water test on OK, OK to continue.	
13/11/06.		
ED.	Pre Floor :. Polythene lapped + taped over compacted sand fill. 40mm Polystyrene placed over polythene. 665 mesh supported on bar chairs. Ryda bottom plate anchors fitted @ 900mm max. OK to pour. Floor is 100 - 120mm thick.	
10.1.07	Ext bracing correct (some wall mixed trusses generally fixed to plan but additional straps req for gables, purlins & outriggers OK. (2 rails). window ties for lintels OK type C to all lintels. steel fixings still req'd for straps to inside walls H1.2 frames. strap bracing over valleys after roof line. (No details on plans). cyclone footings for post holes to good bearing and 1200 deep. OK to wrap building.	
26/2/07.	Brick :. Clean cavity maintained, 40-70 mm cavity. Lacy ties required in some areas. Discussed top flashings for lintel bars (will be as per Brick book). Batten window flashings to extend 150mm below window & extend 200mm past sides. Andy (Builder) will action this OK to continue.	
26/2/07	Plumbing in K2 under pressure : OK	
Ray.	✓ Electrical ceiling wastes in, some changes ✓ re drawn plan reqd.	

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Doc No: IT-12403 File No: 37-73-010\14

BUILDING SERVICES

FIELD INSPECTION CARD

Application No: 37021 Date Consent Issued: 12/10/06

OWNER: Yeoman Phone:	BUILDER: Steve Jeffcote Phone:
SITE: Pukehang, Rd Parklands	PLUMBER: Les Cannon. Phone:
VALUATION NO: FILE NO:	DRAINLAYER: Tom Anderson Phone:
LEGAL DESCRIPTION: Lot/Sec:	DPS/Blk:

DESCRIPTION OF PROPOSED WORK:

DATE	INSPECTION REPORTS	TIME
6/3/07 Ray	Pre line M.C of framing between 13.1% & 15.2% (10 taken).	
	insulation in walls R2.2 & R2.6 in ceiling Bracing elements set out as plan and bolts and fixing in place.	
	angle bracing where required	
✓	OK to line & ceilings and internal walls till brick is completed (approx 80% completed at 6/3.	
	Ok to continue.	
10-4-07 ✓	Brace linings fixed correctly. Ok to Plaster	JD
30/5/07 ED.	Drainage: 100mm PVC drains laid to good falls approx 1:60. bedded in soft clay/pumice mix. 65mm T.V. at head of drain. through the roof. Pre floor insp identified 2x Vents. Plumber to extend 2nd vent before ccc.	
	Drain on water test & holding. As laid	

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DATE	INSPECTIONS	TIME
	plan to come. OK to back fill. Advised the Drainlayer (Shane) that another insp will be required for the S/water when installed.	
17/10/07	Final. FAIL	
8.00 am	Hot Water by gass & solar gass certificate Electrical Certificate Plastic System external under plumbing changes as done - Height of some external concrete paths slabs are high however owner, Phil Yeoman is in wheel chair and has had drain cove place around external wall of house plus a grate channel where necessary. Dwelling is on high rise area and all rear of house between Concrete drain and garden map required etc drainage. NO PRE PLASTER INSPECTION.	RH RH
13/11/07	Final documents recieved.	
Julena		
14/11/07	CCC assessment - FAIL	
DARREL	see attached letter.	
5.5.08	Letter from Plaster Systems taking	
DARREL	responsibility for product & product installation. Council accept this undertaking & will issue CCC	
5/5/08	CCC issued. No Bond Paid.	

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PROPERTY ADDRESS	Patchenga Rd						
BUILDING CONSENT No	34024						
SITING/FOUNDATIONS	**OK**	**NO**	**N/A**	**CONCRETE FOUNDATIONS**	**OK**	**NO**	**N/A**
Street No confirmed				Foundations are 200mm min into ground			
Approved Building Consent documents on site				Bearing is 100 KPA min			
Read conditions of BC & PIM				Foundations are clean, square and to correct dimensions			
Boundary pegs located				Discuss finished floor levels/ 150 or 225 above ground			
Dimensions between pegs				Steel size is correct			
Correct measurements to building				Approved steel being used			
Floor height is correct				Correct grade of steel is used? High tensile or deformed etc			
Building dimensions correct				Steel laps are correct			
Siting by surveyor				Steel has been tied			
Bearing confirmed by Engineer?				Cover of steel is correct			
				Height pegs of correct material			
DRIVEN PILES	**OK**	**NO**	**N/A**	Steel is supported on bar chairs			
Producer statement required?				Steel is clean			
				Starters are tied to horizontal rods			
				Foundation is suitable for fire walls			
PILE FOUNDATIONS	**OK**	**NO**	**N/A**				
Height of profile in relation to top of piles				**PRE-FLOOR PLUMBING**	**OK**	**NO**	**N/A**
Correct treatment to piles				Approved Building Consent documents on site			
Pile spacing correct				Check previous comments			
Excavations are to correct depth and size				Confirm plumbers details are correct			
Bearing is 100 KPA min				Water pipes are run under floor (50 year warranty)			
Floor heights conform to bracing elements provided				Identify system being used, G13, AS3500 Match plans?			
Crawl space/ 450 mm				Correct gradient for wastes and drains			
Layout of bracing matches plan				Fixture discharge pipe sizes are correct			
Pile heights are correct for types				Unvented waste pipe is under 3.5m for G13			
OK TO POUR				2.5m max Length for wastes under AS3500 to FWG			
PRE-FLOOR BUILDING	**OK**	**NO**	**N/A**	Terminal Vent is in correct position/ one fixture min upstream			
Approved Building Consent documents on site				Stacks have two 45 degree bends at base			
Check previous comments				Pipes are protected where they pass through slab			
Compaction is to STD				HWC drain is to correct fall & length and to a visible position at ext.			
Thickenings are in correct position				Additional branch drains over 6m/ 10m to be vented			
Perimeter rod is under starters				Min vent sizes met 50mm AS3500/ 80mm G13			
Mesh is correct type and gauge				80mm W/C pipe max length is 2.5 unvented			
Mesh is cut for expansion joints if required				Soffits of all pipes are level			
Mesh is supported on chairs				One gully is 150mm below lowest fixture trap/ FFL			
Bond beam steel is correct				FWG have concrete support at base			
Polythene is correct thickness and is taped				Test on drains/ AS3500			
Bottom plate connectors are at correct spacing				Correct pipe used			
Floor thickness is correct				Primer used on all joints			
BOND BEAMS	**OK**	**NO**	**N/A**	**STORMWATER**	**OK**	**NO**	**N/A**
Approved Building Consent documents on site				Approved Building Consent documents on site			
Starters are tied together				Check previous comments			
Cleanouts are free from loose particles				Confirm plumbers details are correct (licence)			
Correct steel size and grade is used				Pipe size is correct and is an approved product			
Steel is in the correct place C's				Pipe is glued and primer used			
Subfloor ventilation is allowed for				Bedding material the right type			
Construction joints are in the correct place				Correct falls/ gradients and pipes are laid straight			
Stirrups are tied and at correct C's				Correct fittings / bends are used			
Laps are correct				Soak holes are used			
Greased dowels are in place				Correct lateral is being connected too			
OK TO POUR				As built plan received			
				OK TO BACKFILL			

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COLUMNS	OK	NO	N/A
Approved Building Consent documents on site			
Right size and grade of steel used			
Stirrups are at correct C's			
Laps are correct			
Cover of steel is correct			
OK TO POUR			
PRE-WRAP INSPECTION	OK	NO	N/A
Approved Building Consent documents on site	✓		
Check previous comments	✓		
Timber treatment has been recorded & is correct	✓		
Bottom plate fixings are correct	✓		
Additional 6&12kn fixings are fitted	✓		
Top plate to stud fixings are correct			
Additional lintel fixings are fitted as detailed	✓		
Truss connections (joist hangers fitted) correct			
Truss holding down connections			
Purlin fixings correct	✓		
Space bracing is correct			✓
Plane bracing installed	✓		
Sheet bracing treatment is correct	✓		
Sheet bracing is fixed	✓		
Saddle flashings are installed correctly			
Post beam connections are correct			
Dragon ties			✓
CAVITY BATTENS	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Timber treatment is correct			
Extra restraints fitted to wrap if studs at more than 450C			
Batten is correct thickness			
Battens fixed at 300c where claddings fixed to battens			
Battens are fixed with correct N/All length			
Nogs are to correct fall and length			
Moisture content of battens comply			
PRE PLASTER/ BRICK	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Weep/ ventilation holes to top and bottom + above windows			
Window lintels are galvanised			
Brick bonding is correct			
Mortar joints are correct			
PRE PLASTER/ MONOLITHIC CLADDING (HARDIES)	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Product is correctly fixed with nails that suit battens			
Product has expansion joints as detailed (horizontal & vertical)			
Flashings are installed correctly			
Enclosed deck saddle flashings installed			
Parapets have correct slope			
Junctions between differing claddings flashed			

DRAINAGE INSPECTION	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Confirm plumbers details are correct (licence)			
SEWER			
Correct lateral is being connected to			
Pipe size is correct and is an approved product			
Primer used on all joints			
Bedding material the right type			
Correct falls/ gradients and pipes are laid straight			
Correct fittings / bends are used			
TV fitted if applicable			
Gulley traps are sealed to waste pipes			
Drains will be of sufficient depth to be protected			
Drains are under test and holding			
As built plan received			
OK TO BACKFILL			
SUB-FLOOR	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Bearer/ joist sizes			
Timber treatment			
Connection of bearer to joists			
Anchor pile connections			
Braced pile connections			
Solid blocking to joists			
Insulation			
Crawl space			
Polythene to ground?			
WRAP INSPECTION	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Wrap is as specified/ breathable for non pourus linings			
Additional strapping/ battens fixed for restraint behind cavities			
Wrap is secured properly			
Protector type wrap is fixed in correct manner			
Protector type wrap is fixed in correct position			
Sill flashings are correct			
SOLID PLASTER	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Backing is as detailed on consented plans			
Backing is fixed correctly as detailed			
Reinforcing is spaced off backing			
Reinforcing is correctly fitted around penetrations			
Control joints are installed as required			

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ENCLOSED DECKS	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Substrate is treated to correct level			
Substrates are installed according to specifications			
Tanking is installed according to specifications			
Saddle flashings to handrails are installed			
Thresh hold height is correct/100mm min			
Drains and o/flows installed			
Timber treatment is H3.1 min			
INSULATION	**OK**	**NO**	**N/A**
Approved Building Consent documents on site			
Check previous comments			
Correct R rating of insulation			
Installation is correct (no gaps)			
Insulation to walls including between garage & dwelling			
Insulation to ceilings			
Inter tenancy insulation STC ratings			
Discuss down lights			
POST-LINE	**OK**	**NO**	**N/A**
Approved Building Consent documents on site			
Check previous comments			
Sheet bracing elements are correctly fixed			
Bracing elements in correct position			
No bracing elements behind showers			
PRE-LINE PLUMBING	**OK**	**NO**	**N/A**
Approved Building Consent documents on site			
Check previous comments			
Primer used on waste pipes			
Pipe used complies with plans			
Fixing of (clipping) of pipes complies			
Fixture waste pipes are sized and graded correctly			
TV is in correct position and to air			
AAV is in accessible area			
HWC drain is installed (copper)			
Pipes are under test and holding pressure			
Notches and holes in framing / joists			

BRICK VENEER HALF HIGH INSPECTION	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Rebate is clean			
Clean outs (loose bricks) formed			
Weep holes are formed			
Building wrap is restrained if studs at more than 450C			
Ties are treated for correct durability (corrosion zone)			
Ties at correct centres 600w^350h max			
Bonding is correct			
Jointing is correct			
Flashing details to joinery is correct			
Cavity is sealed from roof space (soffit is blocked off)			
Cavity is a min of 40mm			
Junctions between differing claddings flashed			
WRAP INSPECTION	**OK**	**NO**	**N/A**
Approved Building Consent documents on site			
Check previous comments			
Correct wrap is installed as detailed			
Building wrap is restrained if studs at more than 450C for cavities			
Wrap is returned around windows			
Wrap is free of punctures			
Protecto type wrap is installed correctly			
Window sill trays are fixed/ fitted where required or detailed			
PRE- LINE INSPECTION	**OK**	**NO**	**N/A**
Approved Building Consent documents on site			
Check previous comments			
Building is water tight			
Bottom plate fixings are correct (position and type)			
Timber treatment has been recorded & is correct			
H3.1 min treatment for at risk areas (under/ behind showers)			
Space bracing is correct			
Plane bracing installed			
Floor joists are sized and fixed correctly			
Solid blocking to C of span?			
Holes and notches in framing and joists			
Bottom plate fixings correct for bracing elements			
Framing for ceiling diaphrams			
Fire wall framing / multi-unit dwellings			
Penetrations in fire walls			
STC ratings for multi-unit dwellings			

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CCC BUILDING			
EXTERIOR	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Check conditions of BC			
Check conditions of PIM have been met			
Exterior envelope complete and weatherproof			
Flashings complete and sealed			
Wet area/ kitchen vents to exterior			
Safety glass			
Ground/ paving heights			
Weep/ ventilation holes			
Exterior decorating			
Weathering of penetrations			
Wall cladding fixings/ soakers/ scribers			
Construction of decks/barriers/timber treatment			
Subfloor access/ ponding/insulation/ ventilation			
Roof cladding/ flashing fixings/ roof penetrations			
Landscaping completed?			
Retaining walls constructed?			
INTERIOR	OK	NO	N/A
Ceiling insulation installed clear of down lights			
Fire ratings stopped			
Vents through roof			
SFH flue hasn't compromised structural members			
Bath/ shower linings installed correctly			
Shower screen or curtain fitted			
Wet areas completed			
Impervious floor coverings fitted to correct areas			
Any ducts are through to exterior (including range hood)			
Handrails to stairs comply?			
Barriers correct			
Safety glass to windows/ shower doors			
Heights of window sashes			
All inspections have been carried out			
Smoke alarms are fitted			
PRODUCER STATEMENT FROM ENGINEER			
ENERGY CERTIFICATE FOR GAS			
ENERGY CERTIFICATE FOR ELECTRICAL			
PRODUCER STATEMENT FOR PLASTER			
PRODUCER STATEMENT FOR PLUMBING			
PRODUCER STATEMENT FOR TILES/ TANKING ETC			
CONDITIONS OF BUILDING CONSENT MET			
CONDITIONS OF PIM MET			
DAMAGE DEPOSIT			
VEHICLE CROSSING DEPOSIT			
CCC APPLICATION FORM RECEIVED			
BUILDING WORK MIRRORS CONSENTED DOCCUMENTS			
OK TO ISSUE CCC			

CCC PLUMBING			
EXTERIOR	OK	NO	N/A
Approved Building Consent documents on site			
Check previous comments			
Check conditions of BC			
Check conditions of PIM have been met			
Relevant inspections have been carried out			
ORG is 150mm below lowest fixture			
Waste pipes are sealed to rear of gully			
TV is to open air and clear of all openings			
Downpipes are fixed correctly			
HWC vent is protected against frost			
HWC drain is to exterior			
Drain from high pressure HWC to approved outfall			
Penetrations through roof and walls are flashed correctly			
As layed drainage plan received			
INTERIOR	OK	NO	N/A
HWC securely fixed (seismic restraints)			
HWC vented to exterior/ or TPRV			
Isolating valve to HWC			
Cold water expansion valve			
Tempering valve			
Energy cut off to HWC (resetable overload)			
Tray to HWC			
Traps fitted and holding seal			
Vents continuous in ceiling space			
AAV's accessible			
WC's securely fixed			
Base of WC pans sealed			
Internal WC's or laundries are vented to exterior			
Back of baths/vanity U/stands are sealed			
Producer statement/ tests for "Fusiotherm"			

DESTINATION
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E: mail@rdc.govt.nz
W: www.rdc.govt.nz

Project Information Memorandum No:37020
Section 34, Building Act 2004
Received:28Aug06
Issued:19Sep06

MR PHILLIP HAROLD YEOMAN
IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

IZBA ARCHITECTURE
IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

PROPERTY ID: 31815
STREET ADDRESS: PUKEHANGI ROAD, PUKEHANGI, ROTORUA 3015
LEGAL DESCRIPTION: LOT 6 DP 367422

PROJECT IS FOR: New Work
INTENDED USE(S): DWELLING AND GARAGE
INTENDED LIFE: Indefinite but not less than 50 years
VALUE OF WORK: $560,000.00
NUMBER OF STAGES: 1

COUNCIL'S TOTAL CHARGES FOR THIS PROJECT INFORMATION MEMORANDUM ARE: $450.00
PAYMENTS RECEIVED TO DATE:
Receipt number: 54605 Date: 05Sep06 Amount: $450.00

See attached page(s) for any other conditions.

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1: **PIM STATUS**

The proposed building work may be undertaken, subject to the provisions of the Building Act 2004, and any condition of the Building Consent.

The proposed building work requires a Land Use Resource Consent for which approval must be obtained before the building work may be undertaken.

2:

No information concerning special features of the land has been identified.

No building (or part of its structure) shall be constructed within an easement.

The proposed building work is to be sited on land, which the Council has identified as having been subject to filling, a specific foundation design may be required.

Refer to attached copies of property information notices for detail as easements, filling, building and planning restrictions which affect this property .

3: **ENVIRONMENTAL HEALTH**

During the construction phase of this development the Consent Holder shall ensure that all civil and buiding contractors shall operate their plant and equipment in accordance with NZS 6803P. Measurement and Assessment of Noise from construction, maintenance and demolition work.

These provisions are to be adopted in accordance with the Rotorua District Plan, Appendix K noise standards.

4: **PUBLIC UTILITIES - STORMWATER**

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

Please refer to Item "iv" of the attached consent notice regarding stormwater disposal to a Chartered Professional Engineer designed and certified system. Please provide evidence of compliance with this condition

5: **WATER - URBAN SUPPLY**

The proposed building work is to be sited on land which the Council has identified in its records as being outside a Public Urban Water Supply area administered by the Council.

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6: SEWERAGE

The proposed building work is to be sited on land which the Council has identified in its records as having a connection to a Public Sewerage System administered by the Council and As Built connection details are attached (Services Plan).

There is a public sewer main across this property. The proposed building including eaves and private drains shall be located a minimum of 1.5 metres from the main.

7: POLLUTION CONTROL

This Construction project is required to meet the objective of protecting the environment and the Public Utility Drainage Systems from the effects of construction sediments and contaminats or polluted wastewater discharges on and off site. This includes the likelihood of water overland flow carrying these sediments or contaminants off site or into public drains. Please demonstrate how this construction project is to achieve this objective.

8: LAND USE CONSENTS

A Land Use Consent is required for the proposed building work. The requirements of the Resource Management Act 1991 and the Rotorua District Plan will need to be met.

A controlled activity Resource Consent is required for the proposed plan in accordance with R10.1.1.18 as the building is over 5.0m high in the Rural B1 zone.

** Also please note that it would appear that the proposed earth bund wall is in close proximity to the revegetation areas. Please confirm that the bund wall will not negatively affect the plantings as stipulated in Part ii of the Revegetation Management Plan (see Consent Notice attached). * The building must comply with the Performance Standards for reflectivity, lighting and glare in the Rural B1 zone otherwise a Resource Consent will be required. Further information is required as to the specifications so that council can assess if the proposal complies as a Permitted Activity. (See performance attached).*

9: COMPULSORY PLANNING STATEMENTS

The District Plan does not indicate any proposed road widening, proposed service lane, designations, scheduled sites or protected historic buildings, sites or trees on the land the building work is proposed.

See attached page(s) for any other conditions.

NATURAL GAS CORPORATION

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For information regarding a proposed gas connection or the location of existing gas pipelines as they affect this property, please contact the Natural Gas Corporation. For any building work (as defined by Section 7(2) of the Building Act 1991) that will disturb over and around any gas main or service and prior to the commencement of that work, the applicant will be required to contact the gas centre for authorisation to proceed.

ELECTRICITY

Under the Electrical Supply Regulations 1976 it is an offence to erect any building or structure within certain prescribed distances of an overhead electrical line. To enquire about these retrictions, contact your local electricity distributor.

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Signed for and on behalf of the Council:

Name: L Tetenburg Position: Administration - Building

Signed: pp _____ Date: 19/9/06

See attached page(s) for any other conditions.

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Building Consent No:37021
Section 51, Building Act 2004

Issued:13Oct06

The Building

Street Address of building: PUKEHANGI ROAD, PUKEHANGI, ROTORUA 3015
Legal Description of land where building is located:
LOT 6 DP 367422
Building Name: DWELLING AND GARAGE

The Owner

Name of owner: MR PHILLIP HAROLD YEOMAN
Mailing Address: IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

Contact Person: IZBA ARCHITECTURE
Mailing Address: IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

Street address/registered office: PUKEHANGI ROAD
PUKEHANGI
ROTORUA 3015
Phone number: (Bus.)
(Pvt.)
Facsimile number:
Email address:
Website:

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

Building Work

The following building work is authorised by this consent:
Project: New Work
Intended Use: DWELLING AND GARAGE

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

This building consent also does not permit the construction, alteration,

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demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

1: THE APPROVED CONSENT DOUCUMENTS MUST BE ON SITE DURING ALL INSPECTIONS.

Inspections will not be performed if Documents are not on site and an invoice for reinspection will be sent out.

Notice to be given by owner or agent that building work is ready for inspection shall be given to the Rotorua District Council at least 1 (one) working day in advance of covering in any of the following work:

At the completion of the work authorised by this Building Consent.

Please arrange the booking of inspections and direct enquiries regarding this consent to the Building Services Department, phone (07) 348 4199.

Excavation for foundations. ✓

Reinforcing steel for foundations. ✓

Prior to slab placement, hardfill, damp proofing (if required), ✓ reinforcement etc.

Plumbing under concrete floors. ✓

Bracing and fixing of framing members prior to any insultaion being placed. ✓

Pre-wrap (Wind ties and external braces) ✓

Post-wrap (Weather tape, flashing and cavity battens). ✓

Pre-plaster (stucco, bricks and EIFS) * See letter from plaster systems

Framing timber required to have a specificed moisture content. ✓

Thermal insulation material. ✓

Fixing of linings for bracing elements. ✓

The fixing of framing members prior to any lining being fixed. ✓

Masonry/Brick veneer work. 1/2 height inspection. ✓

All foul water and stormwater drainage in ground before backfilling. ✓

The fitting and fixture of ALL FLASHINGS as is required to meet the requirements of the Building Code.

Any other building work in respect of which such notice is required as a special condition of this Building Consent.

Plumbing work within any wall cavity, eg timber or blockwork. ✓

2: Hot Water Control

The hot water supply to sanitary fixtures used for personal hygiene is to be fitted with tempering valves or other approved devices to limit the water temperature to 55 C.

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3: Stormwater

All stormwater runoff from roof, driveways and pave areas shall be collected and piped to an approved soakhole or approved connection.

4: Code Compliance Certificate

The owner or agent shall as soon as practicable, advise the Rotorua District Council that all building work has been completed to the extent required by this Building Consent.

SECTION 93(2)(b)(i) BUILDING ACT 2004

The owner or agent must apply for a Code Compliance Certificate within 2 years after the date on which the Building Consent for the building work was granted.

5: Standard Conditions

This building consent is permission to undertake building work in accordance with the approved plans and specifications. All work must comply with the provisions of the Building Code. Any alterations from the original plans and specifications must have prior approval from the Building Control Manager.

Endorsement on Plans and Specifications form part of this approval.

If the work is not commenced within six months and/or reasonable progress has not been made within twelve months a written extension of time can be granted on application to the Council.

The owner of the property is responsible for the correct siting of buildings or additions in relation to boudary pegs.

Any deficiency not specifically drawn to the attention of the builder or owner by the Building Officer shall not be deemed to have been approved.

The use is limited to that stated on the Building Consent. Any change of use would require a separate approval.

Plumbing and drainage work to be carried out by licensed tradesperson only.

Any Monolithic Style Exterior Cladding must be a recognised system. It must be used as a complete system. NO MIX AND MATCH.

6: Standard Statement

THIS BUILDING CONSENT IS ISSUED SUBJECT TO ALL OTHER OUTSTANDING CONSENTS HAVING BEEN APPROVED. WORK SHALL NOT COMMENCE AND INSPECTIONS WILL NOT BE UNDERTAKEN UNTIL THOSE OUTSTANDING CONSENTS HAVE BEEN COMPLIED WITH.

A CODE COMPLIANCE CERTIFICATE MAY NOT BE ISSUED IF ALL FLASHINGS HAVE NOT BEEN INSPECTED PRIOR TO THE COVERING UP OR CLOSING IN OF BUILDING WORK.

SECTION 52 BUILDING ACT 2004 (LAPSE OF BUILDING CONSENT)

A Building Consent lapses and is of no effect if the building work to which it relates does not commence within 12 months of the date of issue unless prior arrangements are made with the Building Consent Authority

TYPE 1 DOMESTIC SMOKE ALARM SYSTEM - CLAUSE F7 WARNING SYSTEMS:

* Requires that an appropriate means of detection and warning for fire must be provided within each household unit.

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* Smoke alarms shall be located on the escape routes on all levels within household units.
* On all levels containing the sleeping spaces, the smoke alarms shall be located either:

a) in every sleeping space; or
b) within 3 metres of every sleeping space. In this case, the smoke alarms must be audible to sleeping occupants on the other side of closed doors.

These will be required on all new dwellings and retrospectively fitted in dwellings when, and if, a Building Consent for additions or alterations is applied for.

A CODE OF COMPLIANCE CERTIFICATE WILL NOT BE ISSUED UNTIL THE SMOKE ALARMS HAVE BEEN INSTALLED AND SEEN OPERATING.

Compliance Schedule

A compliance schedule is not required for the building.

M Petersburg
Signature

ADMINISTRATION ASSISTANT
Position

On behalf of: ROTORUA DISTRICT COUNCIL

Date: 13 Oct 2006

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DESTINATION ROTORUA ROTORUA DISTRICT COUNCIL	ROTORUA DISTRICT COUNCIL BUILDING CONTROL FACSIMILE MESSAGE	BC-ENG

Request for Engineer to Conduct Inspection

Permission is given for a Chartered Professional Engineer to conduct a Building Inspection on behalf of the Rotorua District Council. A report is required within 3 working days of the inspection.

TO: BRETT WALSHE ORGANISATION: B.S.K.

FAX NO: 3482311 LOCATION: ROTORUA

From: SENDER:	Building Inspections Team	DESIGNATION:	D HOLDER DMBC
ORGANISATION:	Rotorua District Council		
Date:	26·10·06	No. of Pages (including this page):	1

INSPECTION BOOKING FOR:	
CONSENT NUMBER:	37021
ADDRESS:	Rukehangi Rd Parklands Estate
INSPECTION TYPE REQUIRED:	Footing
DATE REQUIRED:	27·10·06
WHO REQUESTED	Builder - D Geoffcoat
REASON FOR INSPECTION	R.D.C not available to certify renedial work is compliant.

Notes:

Signed: D Holder

Position: DMBC

Date: 26·10·06

OW-66498 37-15-010\02

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69-01-236
I-156067

bsk Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

TELEPHONE
07 348 5394

FACSIMILE
07 348 2311

EMAIL
bsk.144@clear.net.nz

ROTORUA DISTRICT COUNCIL
Referred to: ..... B\Dg .....
Rec'd 30 OCT 2006
Copy to.....
Instructions .....

27 October 2006

Building Control Manager
Rotorua District Council
Private Bag RO3029
ROTORUA 3046

BC 37021
P 31815.

Dear Sir

RE: TESTING OF FOUNDATIONS FOR NEW HOUSE FOR P YEOMAN AT LOT 6, PARKLANDS ESTATE

Purchaser to **OUR REF: 16038C**

At the request of the client we have inspected the excavated subgrade on this project and found it to be of low bearing capacity in some areas. The following remedial action has been implemented:

- Excavated to a depth of 1m below ground level.
- Replaced with pumice/hardfill compacted in layers of 200mm maximum thickness.

We re-tested the compacted subgrade on the afternoon of 25/10/06 and found it to have an Ultimate Bearing Capacity of 300 kPa, which is in accordance with our design assumptions.

Please contact the undersigned if you have any queries on this matter.

Yours faithfully

BC Walshe

B C Walshe
BE Civil (Hons), MIPENZ (Structural), CPEng, IntPE
BSK CONSULTING ENGINEERS LTD

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Rotorua Mail Centre, Rotorua 3046
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RECEIVED
13 NOV 2007
B.C.No. 37021

Form 6

APPLICATION FOR CODE COMPLIANCE CERTIFICATE

Section 92, Building Act 2004

THE BUILDING CONSENT

Building consent number: 37021

Issued by [name of building consent authority that granted building consent]: Rotorua District Council

*THE OWNER

Name of owner [include preferred form of address, eg, Mr, Miss, Dr, if an individual]:
P & B Yeoman

†Contact person: Phil Yeoman

Mailing address: 6/275 Pukehangi Rd

Street address/registered office:

Phone number: Landline: _____ Mobile: 0274 925479

Daytime: 348069 After hours: _____

Facsimile number: 3476653

Email address: _____ Website: _____

The following evidence of ownership is attached to this application: [copy of certificate of title, lease, agreement for sale and purchase, or other document showing full name of legal owner(s) of the building]

‡AGENT

‡Name of agent [only required if application is being made on behalf of the owner]:

§Contact person:

Mailing address:

Street address/registered office:

Phone number: Landline: _____ Mobile: _____

Daytime: _____ After hours: _____

Facsimile number: _____

Email address: _____ Website: _____

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

First point of contact for communications with the council/building consent authority [Contact details must be in NZ]:

Full name:

Mailing address:

Phone number(s):

Facsimile number(s):

Email address(es):

APPLICATION

All building work to be carried out under the above building consent was completed on:

The personnel who carried out the building work are as follows [list names, addresses, phone numbers, and (where relevant) registration numbers]:

The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent:

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.
The code compliance certificate should be sent to [state which address, and whether owner or agent]:

6/275 Pukehangi Rd

Signature of [owner/agent on behalf of and with the authority of the owner]:

Name of person signing: Philip Yeoman

Date:

ATTACHMENTS

The following documents are attached to this application:

- ☐ Certificates from the personnel who carried out the work
- ☐ Certificates that relate to the energy work
- ☐ Evidence that specified systems are capable of performing to the performance standards set out in the building consent

*Delete this section if details have not changed from the building consent.
†Delete if owner is an individual.
‡Delete this section if the application is not being made on behalf of the owner.

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DESTINATION ROTORUA

Inspection Checklist: Domestic Final

Ref:TP 04–TF 01.19
Ver: 3
Issued: 27 Aug 07
Doc No: IT-639940

BC N° 37021 **Address** Pukeiarangi Rd

Contractor on site: Steve Tellocate

Date Inspected	Inspection Comments / Notes: *(Include comment on any alternative solutions identified, site observation statements, warranties or 'As Laid's to be provided, if applicable)*	Inspector
11/10/07		RL
8:00		
	Letter received from Plastec Systems certifying Insulclad instalation - Accepted as they will stand by product & workmanship	

PASS if all works comply with the Consented documents and a Code Compliance Certificate can be issued please sign and date below.

Date: 5.5.08 Inspector's signature: L Stobbler

If Inspection Result = FAIL then complete below

Notices / Site Instructions

Date Issued:	Site Instruction / N.T.F No.	If site inspection fails, record below reason(s) and reference to any site instruction or notice issued	
11/10/07	06148	1/ glass cert ✓ ✓	
		2/ Electrical cert ✓ Supplied ✓	
		3/ PS for Plaster systems ✓	
		4/ as built for under floor ✓	✓
		P+D change. ✓	
		5/ PS for Solar Panel ✓	✓
		6/ Form 6 ✓ ✓	

Date:	Re-inspections:	Inspector:
14/11/07	All above items supplied as required	DARRELL
14/11/07	Items above have been received and OK however	
	There is no record of Pre Plaster inspection	RL

Final Inspection – Domestic- inspection result: 'Pass' ***(Refer to checklist)***

F = Fail = Non-compliance with approved plans & documentation
P = Pass = Compliance with approved plans & documentation.
N/A = Means that Building officer feels that this portion of the prompt sheet is not relevant

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	Building Consent Documentation	Comments	P, F, N/A
1	Has a Form 6 been completed/submitted?	No	F
2	Approved Building Consent documents on site	Yes	P
3	Have conditions of PIM been met?		P
4	Have all inspections referenced in BC document been undertaken?	Pre Plaster on poly not done	F
5	Check conditions of BC have been fulfilled.		P
6	Check instructions/commentary from previous inspection (have all outstanding instructions been complied with?)	info to come	P
7	Sec 269 – Does the application involve any certified building methods or products? If so check registers to ensure that these are current.	NO	P
8	Sec 364 – Is the building a household unit being constructed by or on behalf of a property developer for the purpose of sale? If so ensure that a condition is applied requiring the developer to obtain CCC before on-selling or allowing occupation of the property.	NO	P
Kitchen			
9	Is food prep area layout as per the approved plans & specification? *The food preparation surface shall have the minimum dimensions shown in Figure 1, G3/AS1A drainer integral with and draining to the sink is acceptable.*	Yes	P
10	Bench top sealed at junction with wall linings	yes	P
11	Is sink provided capable of containing cylinder of 300 mm dia & 125 mm depth? *Utensil washing and food rinsing facilities shall have a sink with free draining surfaces with continuous falls to the outlet. The sink shall be capable of fully containing a solid cylinder of 300 mm diameter and 125 mm depth.*	Yes	P
12	Is hot & cold supply provided to sink? *Hot and cold water supply shall be provided to the sink as required by NZBC G12 "Water Supplies".*	yes	P
13	Trap & waste fitted to sink? *Plumbing and drainage for waste water from the sink shall be provided as required by NZBC G13 "Foul Water".*	yes	P
14	Energy supply provided for cooking? *A cooker with an oven and a hot plate, or a wall oven and a separate hob, shall be provided for cooking.*	Gass + electricity	P
15	Has space & power been provided for refrigerator or ventilation for food safe? *The food storage space shall provide for either refrigeration, or ventilation to the outside air.*	yes	P
16	Energy source as specified for cooking		P
17	Impervious, easily cleaned wall finishes been provided as per approved plans & specifications? *Wall linings adjacent to appliances and facilities shall have surfaces that can be easily maintained in a hygienic condition. Stainless steel, decorative high pressure laminate, tiles, wallboards with painted or applied impervious coatings or films, are examples of suitable materials for these surfaces.*		P

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Laundry			
18	Are laundering facilities provided as per approved plans & specification? *If no, issue NTF & request amended plans if facilities differ from approved.*		P
19	Laundry tub installed adequate? *G2/AS1, cl 1.0.2 A laundry tub shall: a) have a capacity to spill-level of no less than 35 litres, and b) be capable of fully containing a solid cylinder of 400mm diameter and 200mm depth*		P
20	Have service connections been provided? *A min of a cold water supply provided for tub or cold water and electric power supply to a washing machine?*		P
21	Is the laundry tub securely fixed?		P
22	Is the laundry tub correctly trapped?		P
23	Has splash protection been provided to floor and wall linings? *E3/AS1 cl 3.1.1 'Floors' & 3.1.2 'Walls'. Floor and Wall linings and finishes must satisfy the performance for impervious and easily cleaned surfaces in areas exposed to water splash.*	yes	P
Wet areas / WCs			
24	Has the specified waterproofing membrane been applied in accordance with the manufacturer's specifications? *Ensure the specified waterproof membrane has been applied in accordance with the manufacturer's technical specification. If required ensure applicator provides a Producer Statement - Construction (PS3)*	yes	P
25	Are joints in impervious surfaces as detailed? *Jointing of impervious surfaces as specified i.e. PVC jointer, flexible sealant etc.*	yes	P
26	Has flexible sealant been provided at the floor/wall junction of the tiled floor? *Refer E3.2(C)'Buildings shall be constructed to avoid the likelihood of damage to building elements being caused by the use of water'.*	yes	P
27	Safety glazing as specified for shower screens, doors & windows been installed and clearly labeled. *NZS 4223*	yes	P
28	Shower cubicle watertight?	yes	P
29	Has hot water been tempered to 55 degrees Celsius maximum at all personal hygiene fixture? *Record actual temperature readings:*	53-6°C	P
Ventilation			
30	Natural ventilation to occupied space in accordance with the approved plans and specification? *Refer G4, Clause 1.2 'Natural Ventilation'.*		P
31	Is all mechanical ventilation operational and ducted to outside air? *Refer G4, Clause 1.3 'Mechanical Ventilation".*		P

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Version: 1, Version Date: 12/03/2009

Insulation			
32	Is the ceiling insulation installed correctly & as per the approved plans & specification? *If the insulation installed differs from that approved, ensure that the substitution complies & obtain written confirmation from the owner that they have approved the substitution.*	yes R 2.6	P
33	Is a loose fill insulation barrier / boundary required / provided around flue/s of domestic solid fuel appliance installations? *Check NZS 4721 or AS/NZS 2918 or manufacturer literature.*		N/A
34	Is the ceiling insulation clearance around light fittings appropriate for the type of fitting?		P
35	Is subfloor insulation protection provided? *Subfloor insulation in exposed locations such as under raised floor of a pole house may require protection.*	Concrete with 40 mm polystyrene under	P
Glazing			
36	Does glazing comply with NZS 4223 Part 3? *Check that all glazing within 2m of floor level is of appropriate size and that safety glass is clearly labeled.*		P
P & D			
37	Are seismic restraints fitted to the water storage cylinder?		P
38	Discharge wastes correctly sized and vented and terminate outside the building clear of openings?		P
39	Waste pipe penetrations sealed at the back of gully		P
40	Down pipes fixed correctly?		P
41	Overflow relief gully 150mm below lowest fixture trap & FFL and 75mm above finished ground levels		P
42	Drains correctly vented? *Ensure all branch drain 10m or > are vented*	2x TV	P
43	HWC vent protected against frost		P
44	HWC drain to the exterior		P
45	Is the HWC vented to the exterior / or TPRV		N/A P
46	Are all AAV's accessible	in ceiling	P
47	Have all WC pans been securely fixed & sealed?		P
48	Has appropriate mechanical ventilation been provided to all internal laundries, bathrooms, WC's		P
49	Have all bench tops, vanities baths been sealed to stop water penetration?		P
50	Have all shower cubicles been sealed to stop water leaking? *Run shower & check corners*		P

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Stairs / Landings / Handrails			
51	Have complying handrails been installed as per consent documentation? *Ensure handrail provided is graspable & are provided in accordance with the approved plans & specification*		
52	Have light switches been provided for the stairway lighting? Light switches shall be provided at the top & bottom of each stairway.		
53	Does the slip resistance comply? *Slip resistance shall be provided for all walking surfaces such as decks, patios & steps on the approach to the main entrance of the building.*		
54	Do the stairway type, tread & rise comply with the approved plans & specifications? *Ensure all treads & risers for exterior private steps & stairs comply with main private stairway.*	N/A	
55	Barrier installed to all areas where there is a fall height of 1.000 or more can occur from the floor or opening in the exterior envelope of the building, or a change in level. *If yes a barrier is required. Ref NZBC Cl F4*		
Solid Fuel Burner (Free standing/Inbuilt)			
56	Refer Free Standing/Inbuilt sold fuel burner checklist		N/A
Smoke Alarms			
57	Smoke alarms installed <3m of bedroom and in escape paths	yes	P
Swimming pool and fencing			
58	Refer swimming pool checklist		N/A
Exterior			
59	Exterior envelope complete and weatherproof		P
60	Flashings to openings complete and weathertight?		P
61	Elevations match consented documents?		P
62	Wall cladding fixings/soakers/scribers completed?		P
63	Brickwork weep holes/ventilation comply?		P
64	Ground/paving heights comply?		P
65	Decks/barriers/timber treatment/ thresholds comply?		N/A
66	Sub floor access/insulation/ ventilation correct?		N/A
67	Roof cladding/flashing fixings/ roof penetration flashings completed?		P
68	Landscaping completed?	90%	P
69	Retaining wall construction as per approved documentation?		N/A
Effluent Disposal Systems			
70	System installed as per the approved consent?		
71	Producer statement (construction review) supplied from the installer or designer? *If so are they a recognized author?*	N/A	
72	If required, can effluent disposal area be isolated from stock damage, etc? *Measures to keep stock off the disposal area ref to the approved design in the consent documents.*		
Damage Deposit			
73	Is footpath and/or kerb damaged?		P
74	Can damage deposit be refunded? *If no, take photographs for evidence*		P

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Crossing Deposit			
75	Is crossing formed in accordance with RDC requirements?		P
76	Can crossing deposit be refunded? *If no, take photographs for evidence*		P
PHOTOGRAPHS (compulsory)			
77	Photographs taken of all exterior elevations!		P
Producer Statements/Certificates			
78	Energy Certificate for Electrical work		P
79	Energy Certificate for Gas work		P
	Exterior Plaster:		
80	Installers – PS3		P
81	Product/System manufacturer –PS4		NA
	Plumbing:		
82	Fusiotherm Installers – PS3		NA
	Drainage		
83	As built plan provided?		P
	Tiles/Tanking:		
84	Installers – PS3		P
85	Product Manufacturer (Warranty)		NA
	Structural (including precast elements)		
86	PS3 – Construction		
87	PS4 – Construction Review		
	Geothechical:		
88	PS3 – Construction		
89	PS4 – Construction Review		
	ST Ratings:		
90	PS3 – Construction		
91	PS4 – Construction Review		NA
	Glazing:		
92	PS3 – Construction		
93	PS4 – Construction Review		
	Proprietary Systems:		
94	PS3 – Construction		
95	PS4 – Construction Review		

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Version: 1, Version Date: 12/03/2009

ROTORUA
ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua Mail Centre
Rotorua 3046
New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

20 March 2008

File Ref: P31815
BC: 37021

Doc No: OW-101759

Izba Architecture
1 Utuhina Road
ROTORUA

Dear Darren

CODE COMPLIANCE CERTIFICATE FOR YEOMAN AT PARKLANDS ESTATE

Following on from previous correspondence dated 15 November 2007, Council has spoken to Mr Yeoman and indicated we may accept a statement and junction certification from the product manufacturer.

A statement has been received from the applicator, however due to his cavalier attitude; Council is unwilling to accept this as certification of compliance.

Please provide manufacturer's acceptance of junctions as constructed for appraisal prior to reconsideration of Code Compliance Certificate issue.

I look forward to an early outcome on this matter.

Yours faithfully

DS Holder

Darrell Holder
Manager, Building Services

I hope this is enough to conclude this Matter now.

Please Phone me to Confirm.

Phil Yeoman
WK 3480-169
Mob 0274 925479

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

plaster systems ltd
a Nuplex Group Company

RECEIVED
05 MAY 2008
B... No. 37021

17 April 2008

RE – LOT 6 PARK LANDS ESTATE, ROTORUA

TO WHOM IT MAY CONCERN

I have inspected the house of Mr Yeoman's of the above address. It has been done according to Plaster Systems Specification.

The date of completion on the producers statement, is when our standard warranty starts from.

If you have any questions, please don't hesitate to call me.

Regards,

Matt Ellery
Area Manager - Central North Island
Unit 4/58 Newton Road
Mount Maunganui

E: matthewe@plastersystems.co.nz
M: 021 541 415
P: (07) 575 8525
F: (07) 572 3335

http://www.plastersystems.co.nz/ http://www.nuplex.co.nz/

plaster systems ltd
a Nuplex Group Company

nuplex

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

DESTINATION ROTORUA — Rotorua District Council	**PRODUCER STATEMENT** **PS1/PS2/PS3/PS4** (descriptions overleaf) *Please delete as applicable*	V 01 IT-642370 Issued: 27 Aug 07

Issued by: Colour-Tex Coatings Ltd

To: Rotorua District Council

Building Consent Number: 370211

TECHNICAL LITERATURE

Legal Description:

Working being undertaken: Exterior plastering

Work Completed by: Colour-Tex Coatings Ltd
(Incl qualifications to carry out work)

Product Name and Specification: To plaster over brick with Plaster Systems, system

Relevant Part(s)/Clause(s) of Building Code:

See attached

Provisional Indemnity Insurance:
(Copy of policy attached)

Name: Colour-Tex Coatings **Signature**

Date: 7-11-07

Registration No.: 056

Qualifications: BCITO

Address: P.O Box 1389 Rotorua

Membership of Professional Organisation: Plaster System

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

plaster systems ltd
a Nuplex Group Company

14042

RECEIVED
14 NOV 2007
C. No. 37021

PRODUCER STATEMENT

WORK COMPLETED BY: Colour-Tex Coatings Ltd (056)
(Licensed Plaster Systems Contractor Name & Licence No.)

TO: Phil Yeoman
(Owner)

TO BE SUPPLIED TO: Rotorua District Council
(Territory Authority)

IN RESPECT OF: 40 mm Cavity Based Insulclad
(Description of cladding system installed)

CLADDING SYSTEM BRANZ APPRAISAL No.: 257 B
(Appraisal Certificate No.)

AT: Parklands Estate
(Address of site)

DATE OF COMPLETION OF WORK: July 2007

TECHNICAL LITERATURE

The Plaster Systems Licensed Contractor certifies that this project has been completed with materials that meet Plaster Systems Limited specifications and that all the work has been carried out in accordance with Plaster Systems Limited installation instructions and current BRANZ Appraisal Certificate.

If the Insulclad System is used and installed in accordance with the statements and conditions of the Insulclad Systems Appraisal Certificate the following NZBC Clauses will be met: B1 Structure; B2 Durability; E2 External Moisture; E3 Internal Moisture; F2 Hazardous Building Materials; and H1 Energy Efficiency.

This Producer Statement does not cover the suitability or stability of the site or the products or systems applied by trades other than those of the Licensed Plaster Systems Contractor.

NAME: Colour-Tex Coatings Ltd

SIGNED: [signature] **DATE:** 8-11-07

Building Consent 37021.

TECHNOLOGY TRANSFORMING TRADITION

HEAD OFFICE: 121-123 Diana Drive, Auckland. Telephone (0800) 11 44 00 Facsimile (09) 444 9561

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

20 March 2008

File Ref: P31815
BC: 37021

Doc No: OW-101759

Izba Architecture
1 Utuhina Road
ROTORUA

Dear Darren

CODE COMPLIANCE CERTIFICATE FOR YEOMAN AT PARKLANDS ESTATE

Following on from previous correspondence dated 15 November 2007, Council has spoken to Mr Yeoman and indicated we may accept a statement and junction certification from the product manufacturer.

A statement has been received from the applicator, however due to his cavalier attitude; Council is unwilling to accept this as certification of compliance.

Please provide manufacturer's acceptance of junctions as constructed for appraisal prior to reconsideration of Code Compliance Certificate issue.

I look forward to an early outcome on this matter.

Yours faithfully

Darrell Holder
Manager, Building Services

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

FAXED

15 November 2007

File Ref: P31815

Doc No: OW-94292

Izba Architecture
1 Utuhina Road
ROTORUA

Dear Darren

CODE COMPLIANCE CERTIFICATE FOR YEOMAN AT PARKLANDS ESTATE

During Code Compliance assessment review, it has been discovered no pre-plaster inspection was called for during construction as conditioned on the Building Consent.

Council is therefore unable to satisfy itself on reasonable grounds that the building work complies with the consented documents as required under section 91(1)(a).

Due to the critical nature of the junctions between the different building elements and the fact Council was unable to inspect them, a Code Compliance Certificate will not be issued.

Please contact the undersigned to discuss options to progress this issue.

Yours faithfully

D Holder

Darrell Holder
Manager, Building Services

Owner rang DH suggested a statement from product manufacturer may be sufficient?

D Holder

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

bsk Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

TELEPHONE
07 348 5394

FACSIMILE
07 348 2311

EMAIL
bsk.144@clear.net.nz

RECEIVED
14 NOV 2007
B.C. No. 37021

11/10/07

27 September 2006

Building Control Officer
Rotorua District Council
Private Bag RO3029
ROTORUA 3046

Dear Sir

RE: DISPOSAL OF STORMWATER AT LOT 6, PARKLANDS ESTATE FOR P YEOMAN

OUR REF: 16038

Please find attached our design and supporting calculations for stormwater disposal on this project. The soakholes are all into sands, with a minimum soakage rate of 7950mm/hr. To cope with a 1 hour duration, 10% AEP rainfall event, the following is required.

House Stormwater	5 No. 600mmø x 3000mm deep soakholes
Deck & Paved Area	2 No. 600mmø x 3000mm deep soakholes
Driveway	2 No. 600mmø x 3000mm deep soakholes

All soakholes should be lined with a permeable precast concrete liner. Soakholes serving the paved area and driveway should have a cesspit upstream of the soakhole to collect grit, ease maintenance and extend the life of the soakhole. Approximate positions are shown on the attached sketch.

Yours faithfully

B C Walshe
BE Civil (Hons), MIPENZ (Structural), CPEng, IntPE
BSK CONSULTING ENGINEERS LTD

№0037021

ACENZ

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

OSK Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

TELEPHO
07 348 53
FACSIM
07 348 23

YEOMAN, LOT 6	JOB REF: 16038
STORMWATER.	DATE 27/9/06
	SHEET 1 OF

BH1, S_r = 7950mm/hr

BH2 S_r = 20947 mm/hr

House Area = 371m² C=0.9

Pond Area = 2.5×12.5 = 120m² C=0.85

Drive = 3×45 = 135m². C=0.85

R_C = 10CIA I = 45mm/hr (1 hour duration, 10% AEP)

House R_C = 10×0.9×45×371/10000 = 15m³

Paving R_C = 10×0.85×45×120/10000 = 4.6m³

Drive R_C = 10×0.85×45×135/10000 = 5.2m³

$V_{stor} = R_C - V_{soak}$. $V_{soak} = A_{sp} S_r/1000$

If 600 Ø, A_{sp} = 0.2827m² House, V_{soak} = 0.2827×7950/1000 = 2.24m³

If 3m deep, V_{stor} = 0.2827×2.6 = 0.74m³ ∴ V = 2.24+0.74 = 3m³/hole

∴ 5 holes O.K.

Pond Area 2 N° 600 Ø holes × 3m

Drive 2 N° 600 Ø hole × 3m.

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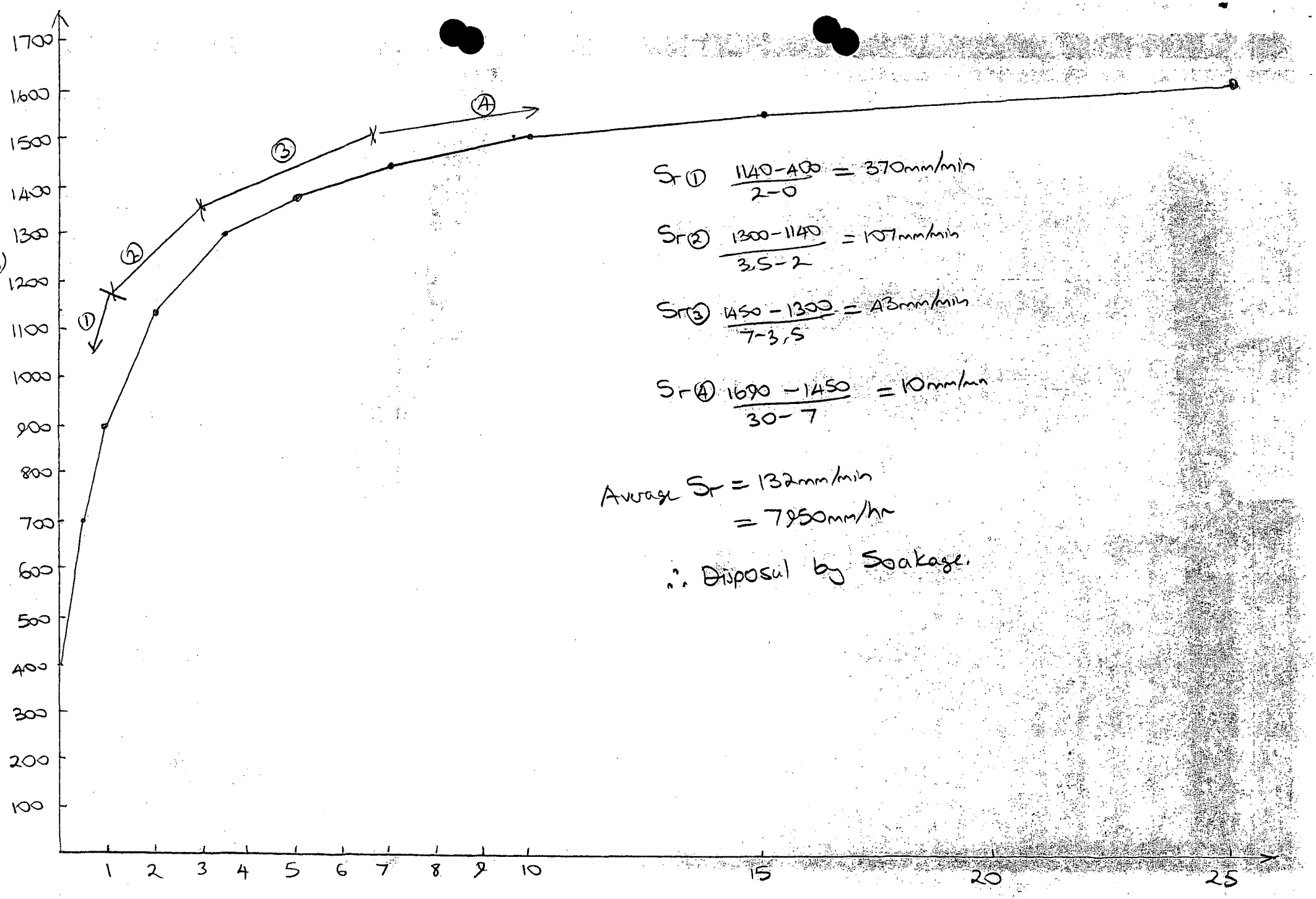
Version: 1, Version Date: 12/03/2009

Document Set ID: 5625589
Version: 1, Version Date: 12/03/2009



Sr ① $\frac{1140-400}{2-0}$ = 370mm/min

Sr ② $\frac{1300-1140}{3.5-2}$ = 107mm/min

Sr ③ $\frac{1450-1300}{7-3.5}$ = 43mm/min

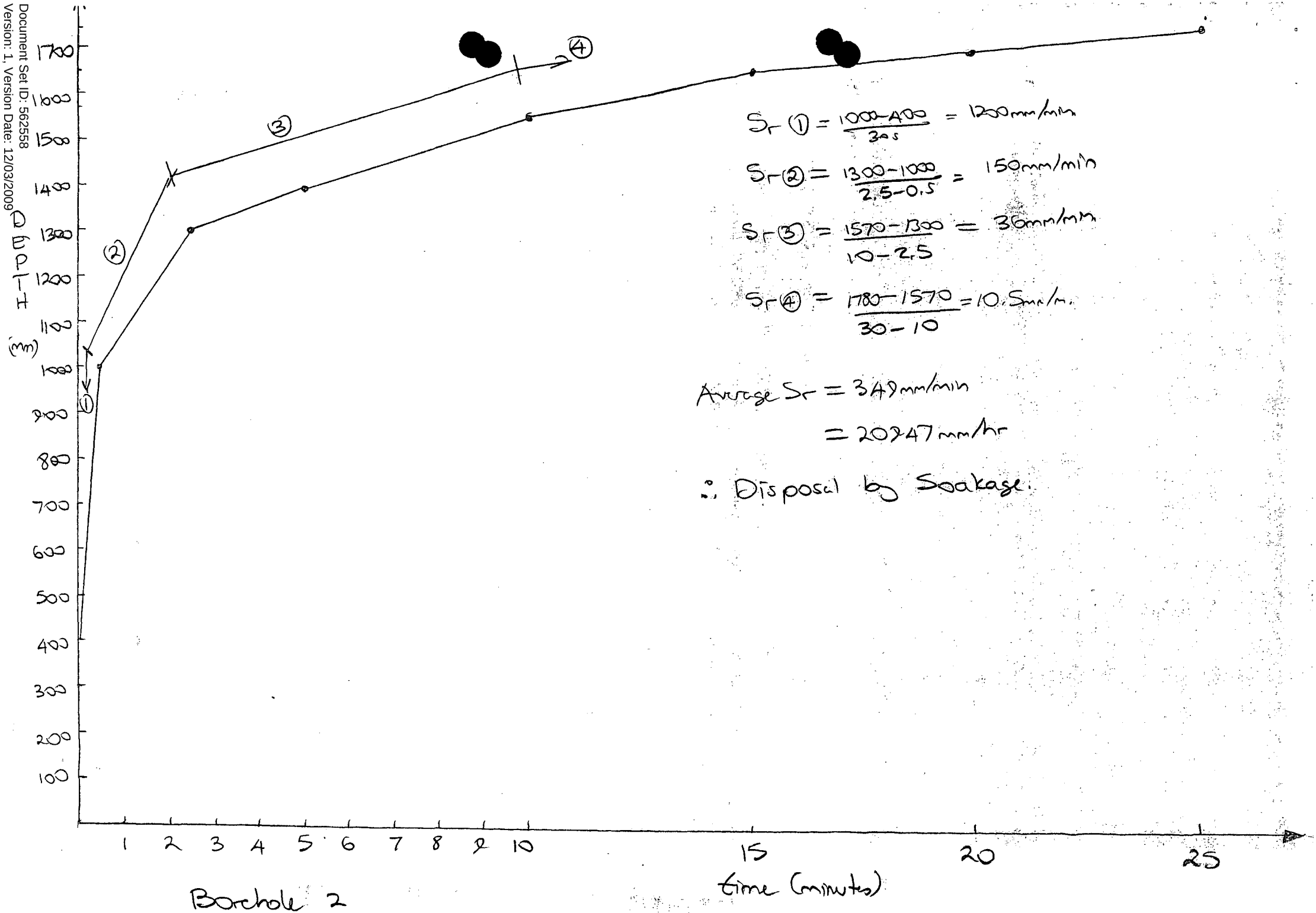
Sr ④ $\frac{1690-1450}{30-7}$ = 10mm/mn

Average Sr = 132mm/min
= 7950mm/hr

∴ Disposal by Soakage.

BOREHOLE 1

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009



S_r ① $= \frac{1000-400}{30s} = 1200$ mm/min

S_r ② $= \frac{1300-1000}{2.5-0.5} = 150$ mm/min

S_r ③ $= \frac{1570-1300}{10-2.5} = 36$ mm/min

S_r ④ $= \frac{1700-1570}{30-10} = 10.5$ mm/min

Average $S_r = 349$ mm/min

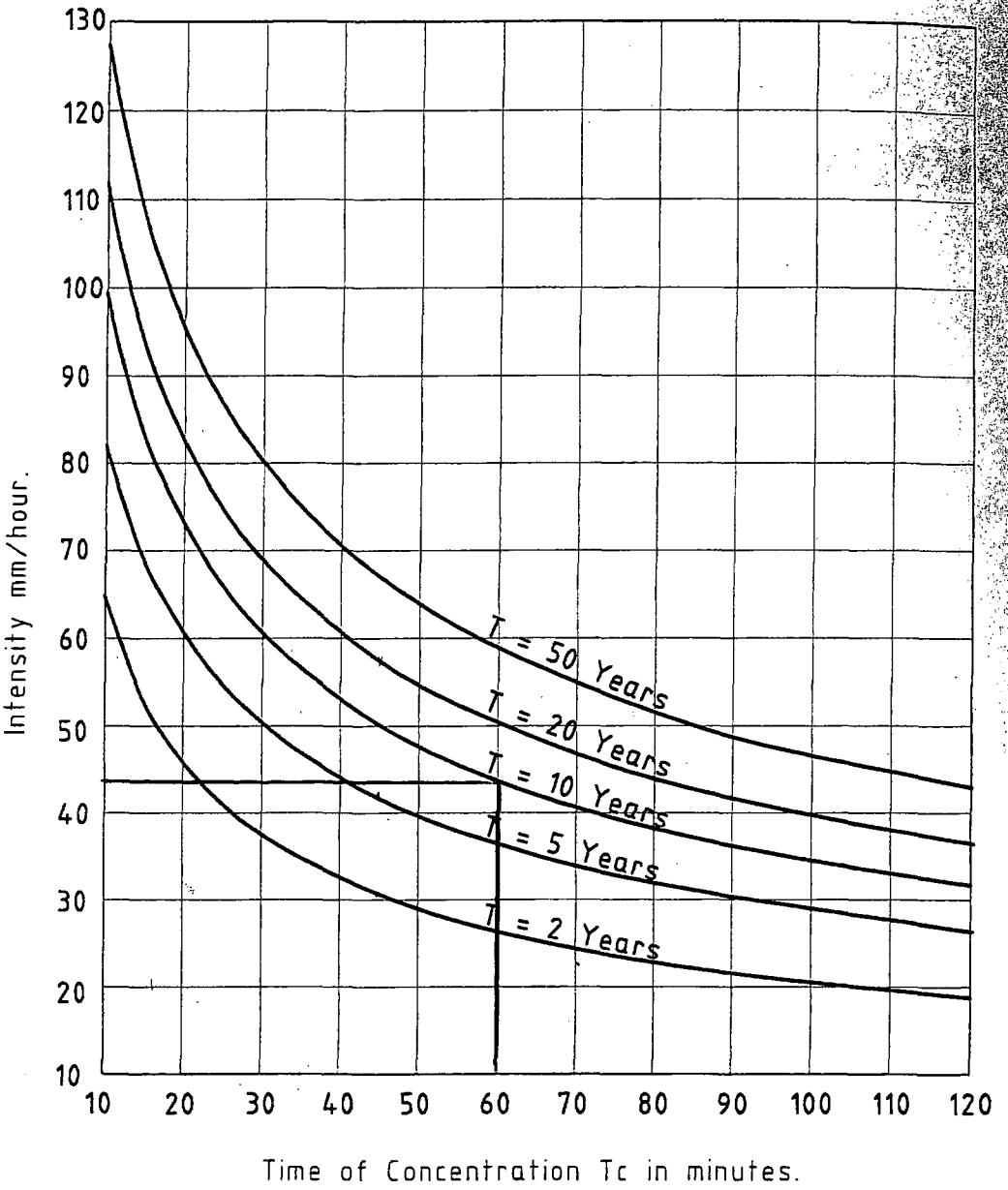
$= 20947$ mm/hr

∴ Disposal by Soakage.

Borehole 2

Rotorua Rainfall

1966 - 1989



ROTORUA DISTRICT COUNCIL

STANDARD DRAWING- STORMWATER & LAND DRAINAGE

THIS DWG REVISED JULY 2001

RAINFALL INTENSITIES

SD 01

NOT TO SCALE

ROTORUA CIVIL ENGINEERING INDUSTRY STANDARD

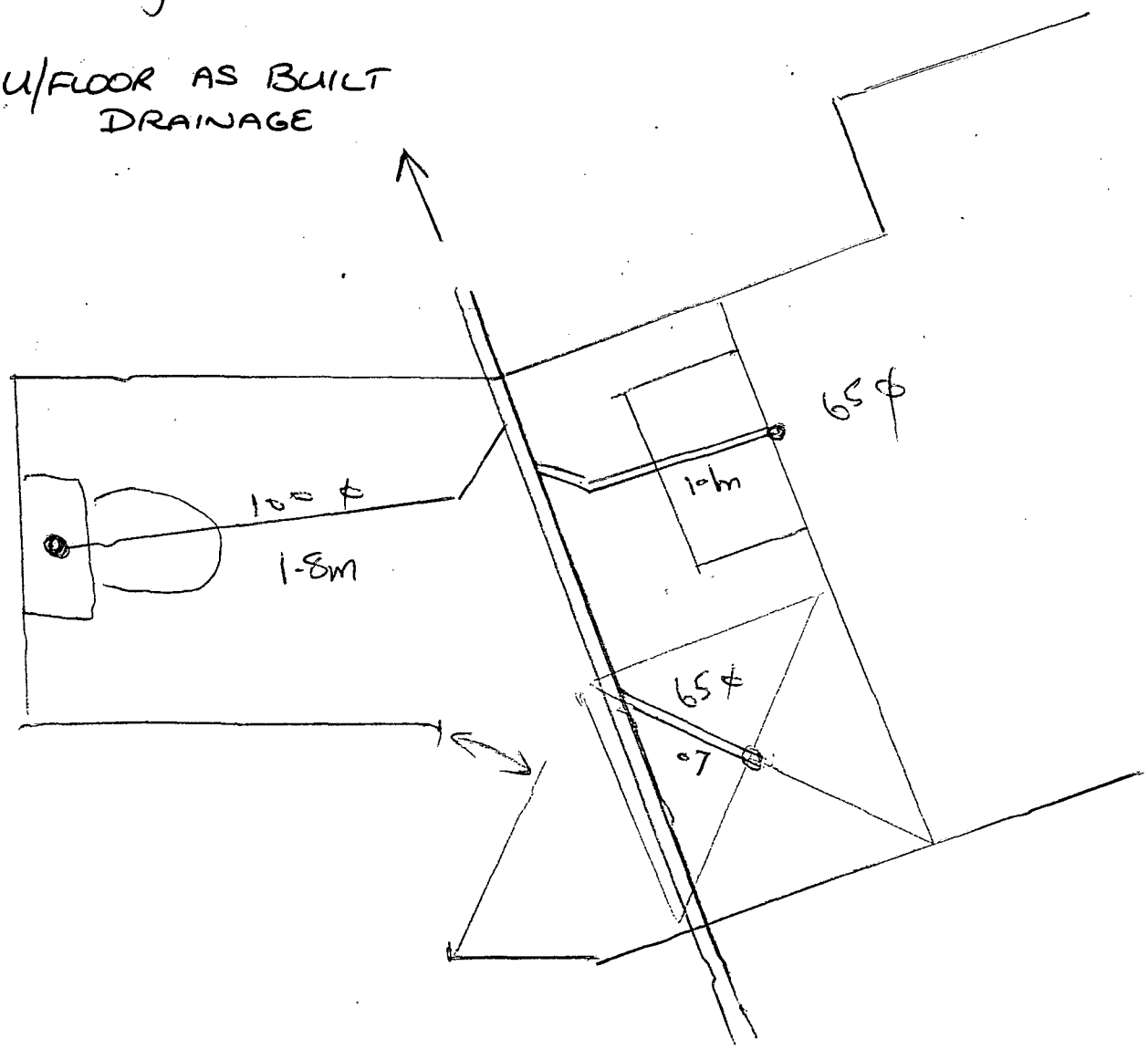
SD 01 - Rainfall Intensities

Document Set ID: 562538
Version: 1, Version Date: 12/03/2009

Licensed Building Consent:

RECEIVED
14 NOV 2007
B.C. No. 37021

U/FLOOR AS BUILT DRAINAGE



100 Sewer Drain to AS NZ 3500

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

ELECTRICAL WORKERS REGISTRATION BOARD

Safety • Competency

No. 2339228

Mr and Mrs Yeaman

Lot 6 Ernest Davis Way, Parklands Estate, Katikati

91

60

1

1

x

✓

Description Wire new dwelling to electrical supply system.

RECEIVED
14 NOV 2007
B.C. NO. 37021

If necessary attach any pages with sketches of work done

It is recommended that test results be recorded here:

Visual Examination ✓

Earth Continuity ✓

Bonding ✓

Polarity ✓

Insulation Resistance 200+ Mohm

Other

Scott Christie

E16510

Laser Electrical Katikati

J. [signature]

2-7-07

346 0506

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

This form is approved by the Electrical Workers Registration Board (PO Box 10-156, Wellington; Freephone 0800 66 1000) for the purposes of the Electricity Regulations 1997.

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

37021 11

P.I.M. No.....
Building Regulation Clause(s) ...B1...

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on the reverse side)

RECEIVED
05 MAY 2008
B.C. No. 37021

ISSUED BY: ..... Brett C. Walshe.....
(Suitably qualified Design Professional)

TO: ...P Yeoman .....
(Owner)

TO BE SUPPLIED TO: ... . Rotorua District Council.... .....
(Territorial Authority)

IN RESPECT OF:...Garage Roof Beam (180PFC) & Laundry Truss Strengthening as per calculations for new house
(Description of Building Work)

AT: Parklands Estate, Pukehangi Road

.....
(Address)

LOT 6..... **DP** ..... **SO** .....

BSK Consulting Engineers Ltd have been engaged by ...P Yeoman.....
(Design Firm) *(Owner/Developer/Contractor)*

to provide ..... Structural Design ..... services in respect of the
(Extent of Engagement)

requirements of Clause(s) .....B1..... of the Building Regulations 1992 for

☐ All ☑ Part only as specified

of the building work. The design has been prepared in accordance with ..... B1/VM1.....
(verification method(s)/acceptable solutions(s))

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

... BSK Consulting Engineers Ltd drawings titled As Above and numbered Job Ref 16038
(Design Firm)

sheets SK1 - 4 and the specification and other documents according to which the building is proposed to be constructed.

As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of $200,000. **I BELIEVE ON REASONABLE GROUNDS** that subject to:

(i) the site verification of the following design assumptions -

..... Refer to notes on the above drawings .....

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

..... B C Walsh ..... Date ...15 December 2006.....
(Signature suitably qualified Design Professional)

.....B.E. Civil (Hons) MIPENZ(Structural) CPEng IntPE..... .....
(Professional Qualifications)

Member
ACENZ ☑
IPENZ ☑ ☐ NZIA

.....P O Box 23 Rotorua.....
(Address)

This form to accompany Form 3 of the Building Regulations 1992 for the application of a Building Consent.

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

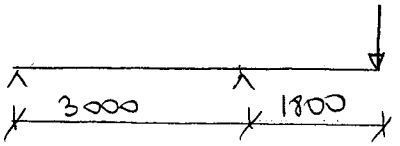
TELEPHONE
07 348 5394
FACSIMILE
07 348 2311

YEOMAN, LOT 6, PARKLANDS	JOB REF: 16038
	DATE 15/12/06
	SHEET R1 OF

GARAGE CANTILEVER

Find Load from 200x100 $G = 0.35 \times 4.6 \times 1.3 = 2.1 kN$ $R_U = 4.9 kN$

$Q = 0.25 \times 4.6 \times 1.3 = 1.5 kN$



If 180 PFC, δ_G = 4mm $2 \times 1800/4 = 900$

150 PFC δ_G = 7m $2 \times 1800/7 = 514$

From Microstran, Double Studs O.K

6kN tie down at rear end.

Connection to 200x100 $R_U = 4.9 kN$

2M12 Bolts? $\phi Q_n = 0.7 \times 0.8 \times 2 \times 6.97 = 7.8 kN$

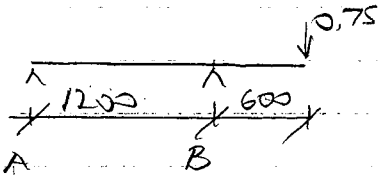
LAUNDRY BEAM SUPPORT

200x100 Load $G = 0.35 \times 0.9 \times 1 = 0.32 kN$ $R_U = 0.75 kN$

$Q = 0.25 \times 0.9 \times 1 = 0.23 kN$ $R_S = 0.8 kN$

Try 140x45 bolted to truss top chord. $M^* = 0.75 \times 0.6 = 0.45 kNm$

$\phi M_{bx} = 0.8 \times 0.8 \times 14.8 \times 147 = 1.4 kNm$



$R_{UA} = 0.38 kN \downarrow$

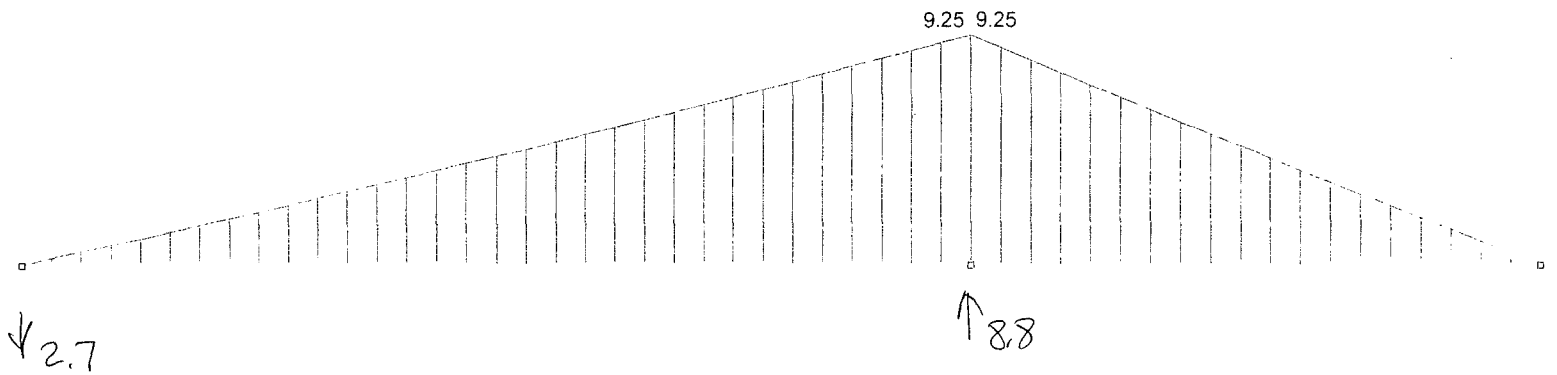
$R_{UB} = 1.13 kN \uparrow$

$$\delta = \frac{PL^3}{3EI} = \frac{0.8 \times 0.6^3}{3 \times 5.4 \times 10.3} = 0.001m = 1mm.$$

Document Set ID: 562
Version: 1, Version Da

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

Load Cases:
3 C 1.2G + 1.6Q



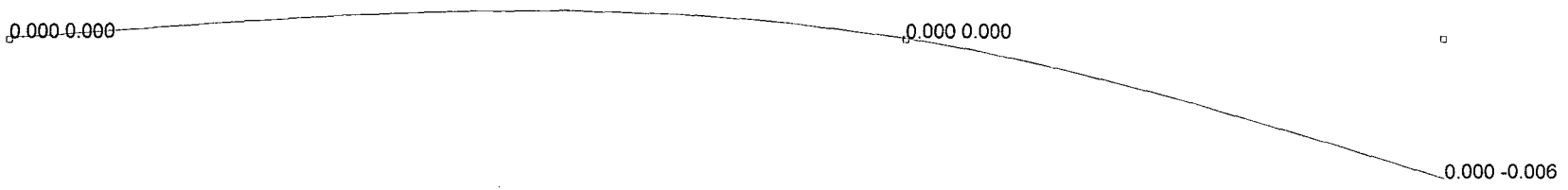
Y
Z X
theta: 270 phi: 0

Bending Moment, Mz

R2

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

Load Cases:
4 C G +0.7Q



Y
Z X
theta: 270 phi: 0

Displaced Shape

R3

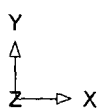
Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

Microstran V8

BSK Consulting Engineers Ltd
Job: 16038 Yeoman Garage
16038 Yeoman Garage

15 Dec 2006
09:34 AM

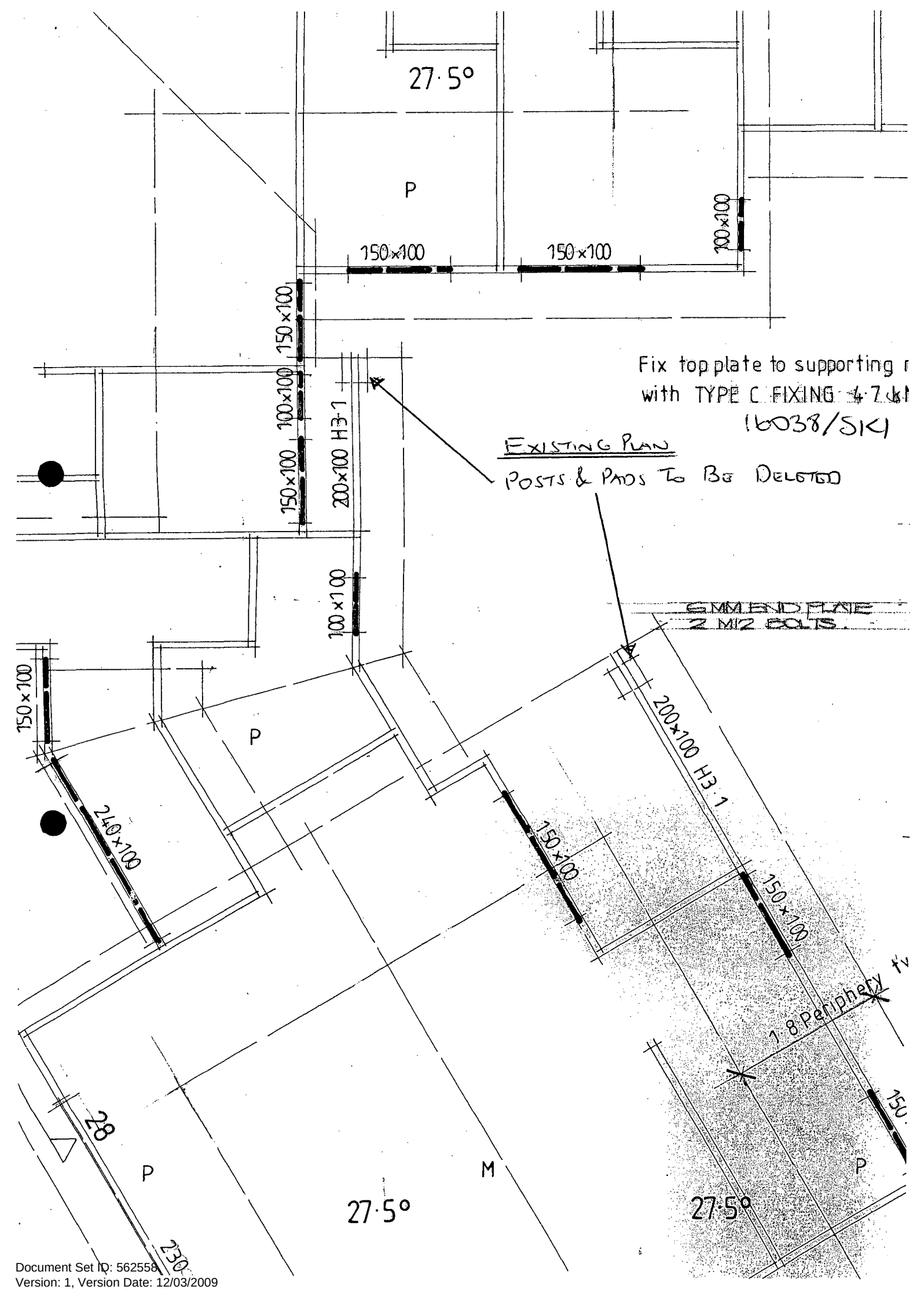
Load Cases:
1 P G Dead (gy=-9.81)



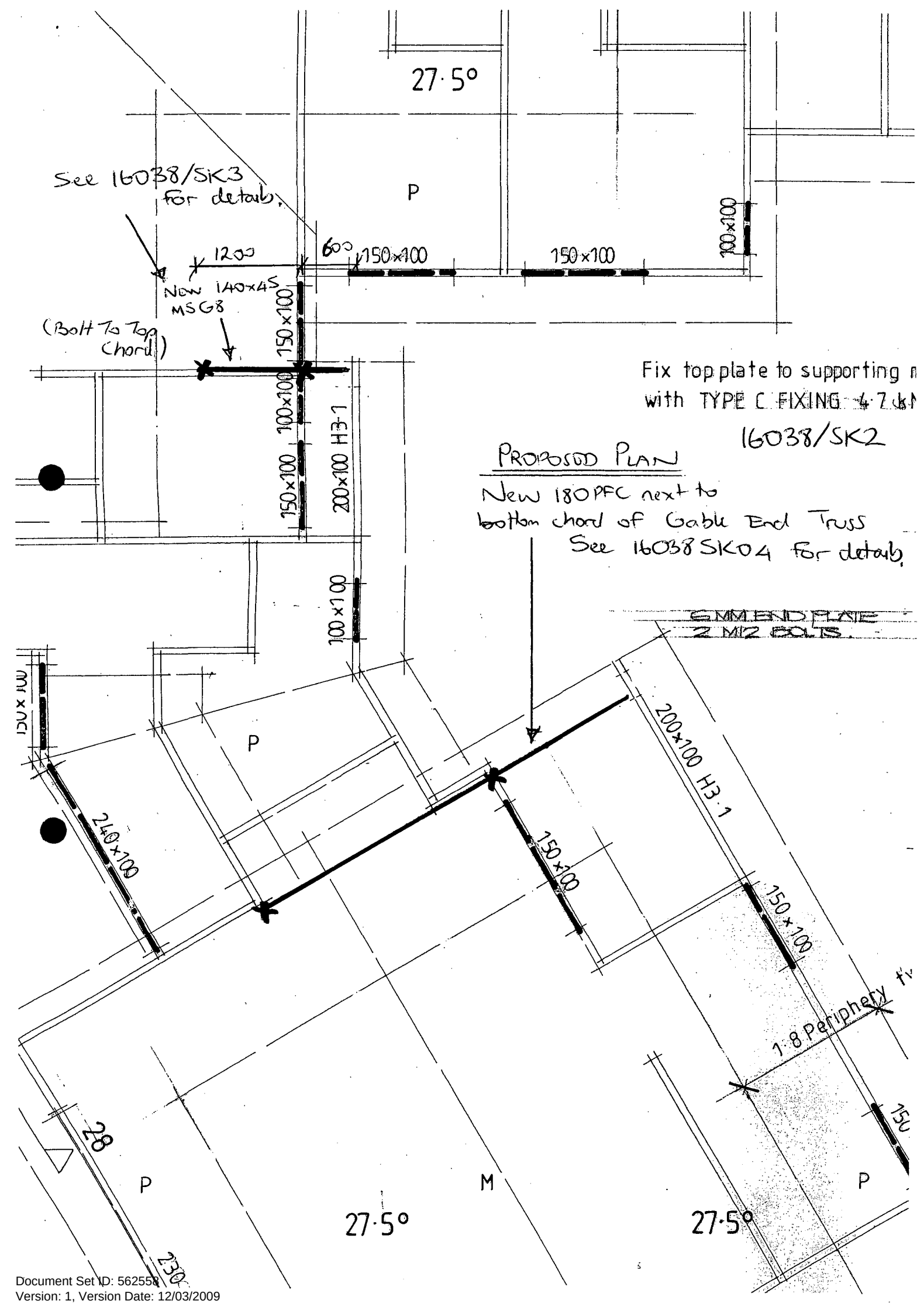
theta: 270 phi: 0

Displaced Shape

R4



Document Set ID: 562558
Version: 1, Version Date: 12/03/2009



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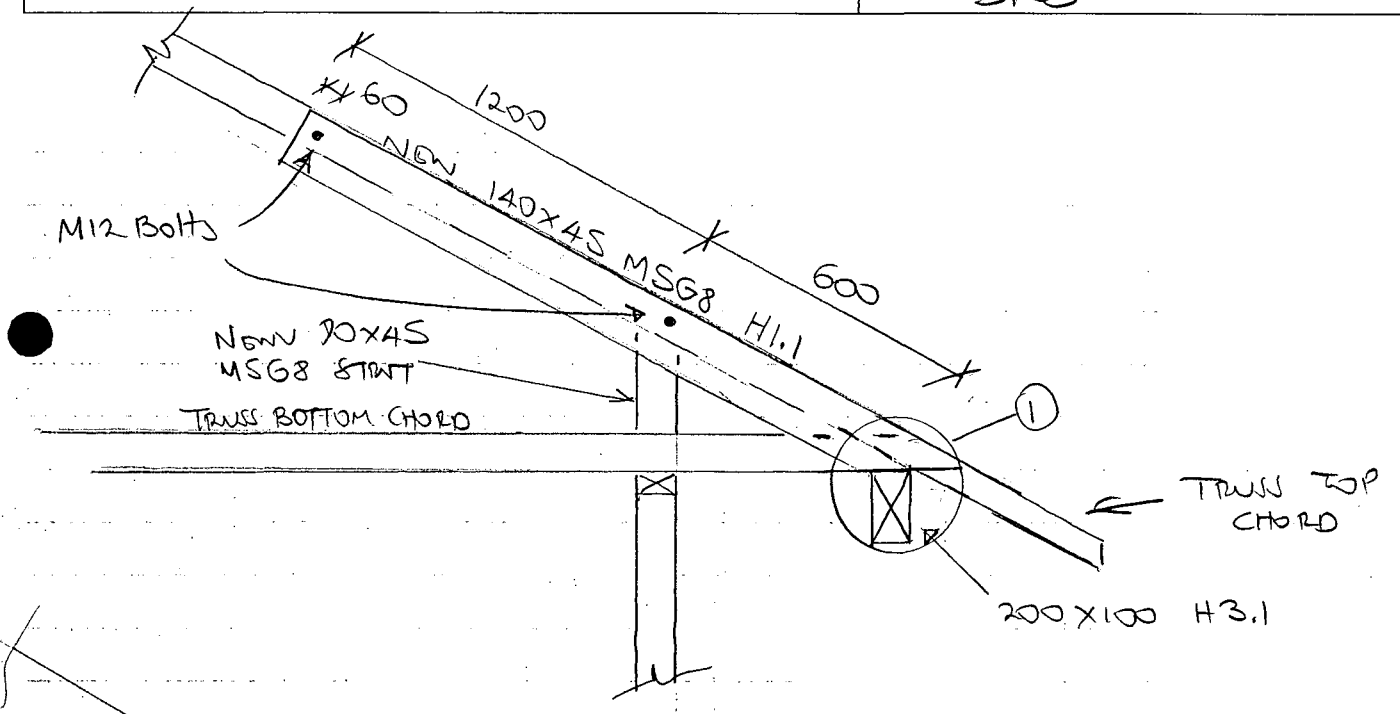
Version: 1, Version Date: 12/03/2009

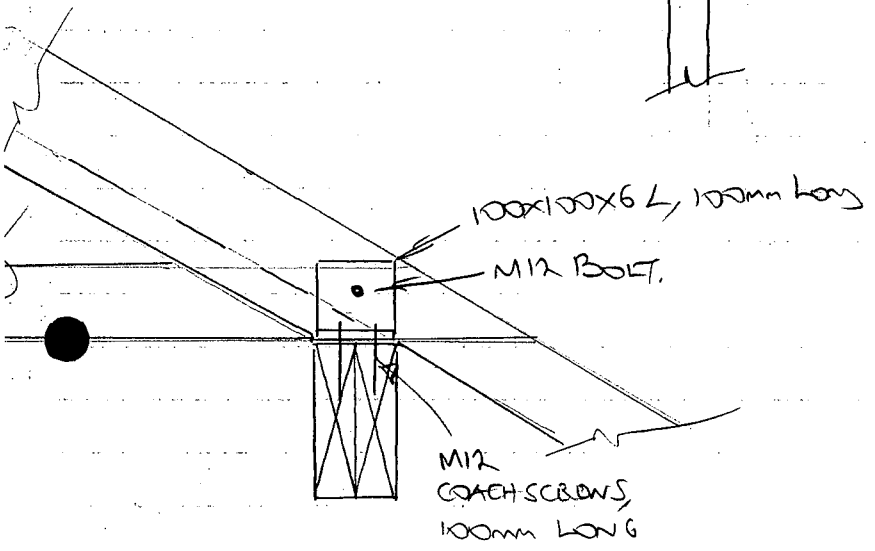
Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

TELEPHONE
07 348 5394
FACSIMILE
07 348 2311

YEOMAN, LOT 6, PARKLAND	JOB REF: 16038
	DATE 15/12/06
	SHEET SK3 OF





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LAUNDRY ROOF BEAM DETAILS.

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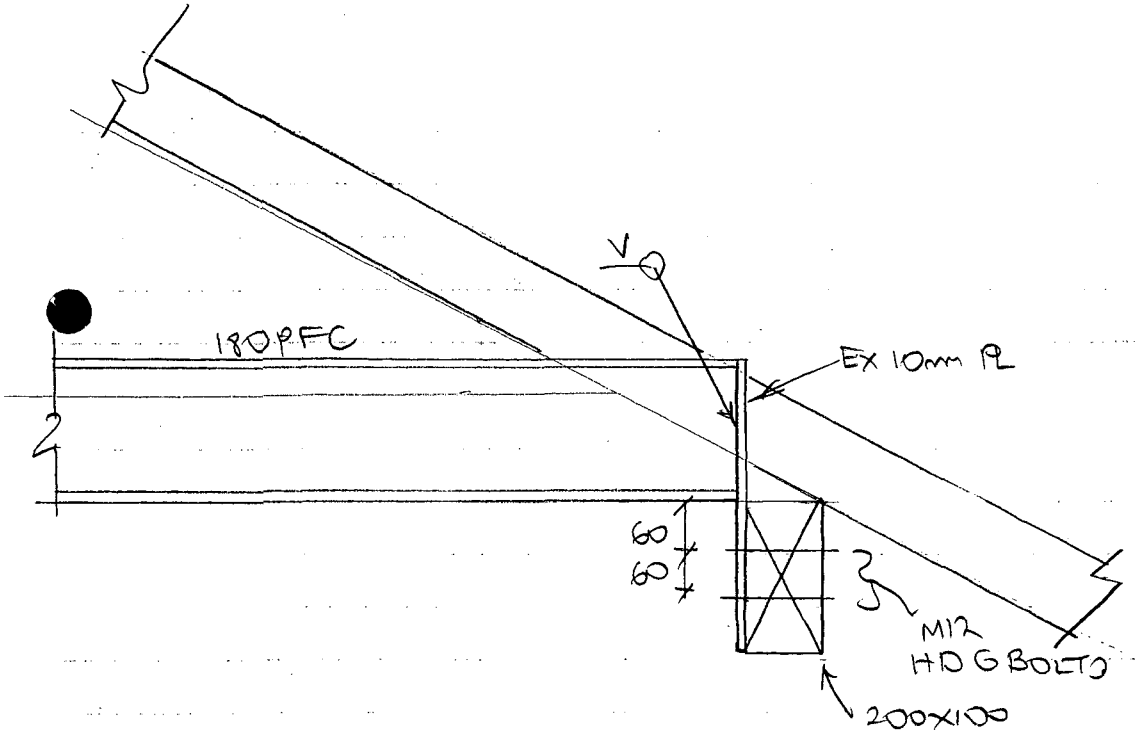
Version: 1, Version Date: 12/06/2009

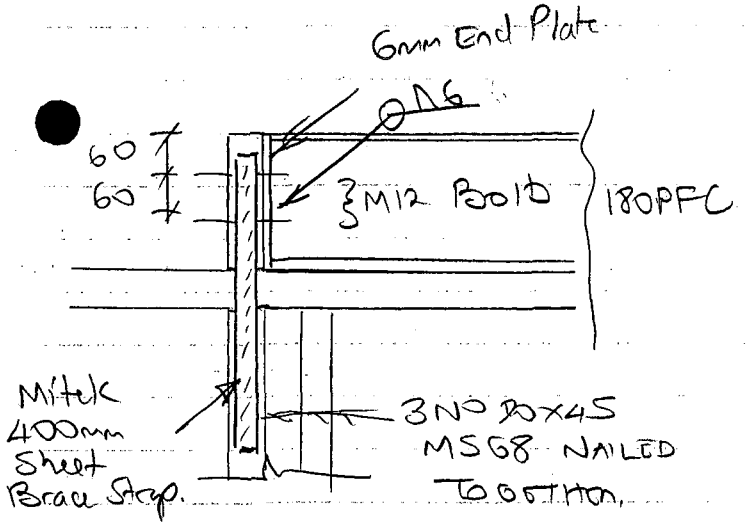
bsk Consulting Engineers Limited

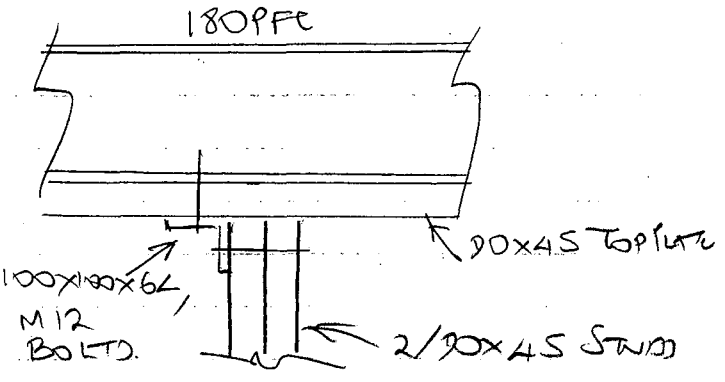
ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

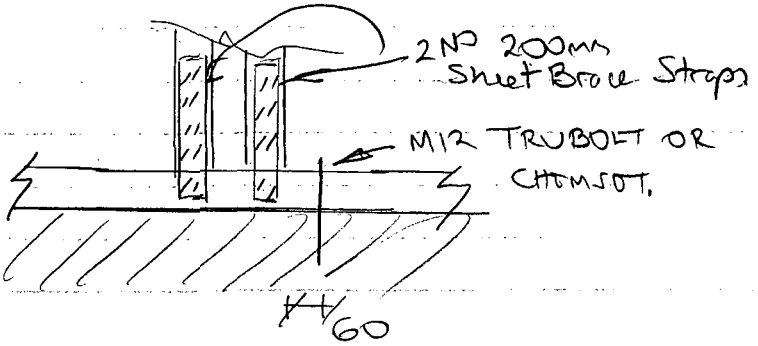
TELEPHONE
07 348 5394
FACSIMILE
07 348 2311

YEOMAN, LOT 6, PARKLANDS	JOB REF: 16038
	DATE 15/12/06
GARAGE BEAM DETAILS	SHEET SK4 OF









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14 NOV 2007
B.C. No. 837821

11/10/07

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Version: 1, Version Date: 12/03/2009

APPLICATOR'S PRODUCER STATEMENT

I/We
___JOS_LAZET_TILERS_____

Of _10_COURTENAY_PLACE_ROTORUA_____Address)

Being an Applicator

Confirm that we have applied __DRIBOND_FLEXIBLE SEALER_____(Product)

At __LOT_6_PARKLAND ESTATE__ROTORUA_____

Completed _11-06-2007_____ for __PHIL_YEOMAN_____

in accordance with the manufacturers written application instructions, AS3740-2004 and clauses E2, E3 and B2 of the current NZ Building Code.

I/We are satisfied that the substrate over which this system has been applied has been suitably prepared, and the materials have been correctly installed, including 50mm wide Bond Breaking Tape or Neutral-Cure Silicone , Reinforcing Tape 140mm minimum and Reinforcing Matting 970mm as required.

This work has been certified by
___CONSTUCTION_CHEMICALS_AND_TILE_WAREHOUSE_ROTORUA_____

Signed _____ Date 11-06-07

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Property File : _____

As Built - Drainage Plan

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B.C. No. 37021

ED

INATION
RUA
UA DISTRICT
OUNCIL

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Version: 1, Version Date: 12/03/2009

As Built - Drainage Plan

Drainage Plan for :

Address LOT 6 PARKLANDS ESTATE PUKEHANGI ROAD.

Lot _____ D.P. _____

Owner YEOMAN.

Inspector ED Date of Inspection 9

Drainlayer ANDERSEN DRAINAGE Licence No. 16874.

Building Consent No. _____

Note : Plan to be drawn in black and red ballpoint on graph opposite

Plan to include :

1 The correct position of the drains in relation to the building and boundaries.

2 The position of the street frontage

3 Depth of drains at connection point.

4 Both wastewater and stormwater drains to be drawn.

5 Clearly define all inspection openings, with accurate measurements from two points.

6 Clearly define all buildings and boundaries.

7 Refer to example drain plan back page.

DESTINATION ROTORUA
ROTORUA DISTRICT COUNCIL

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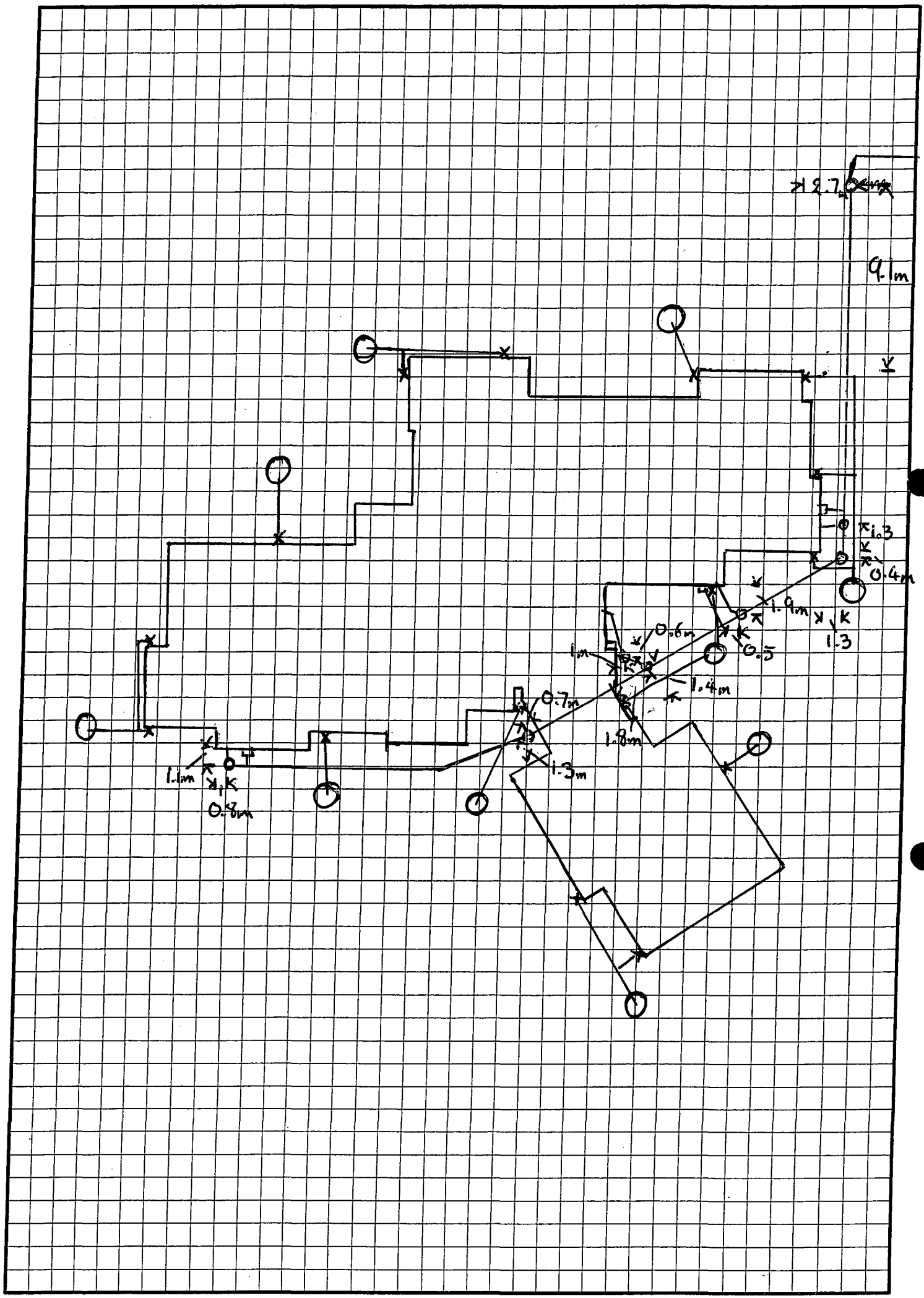

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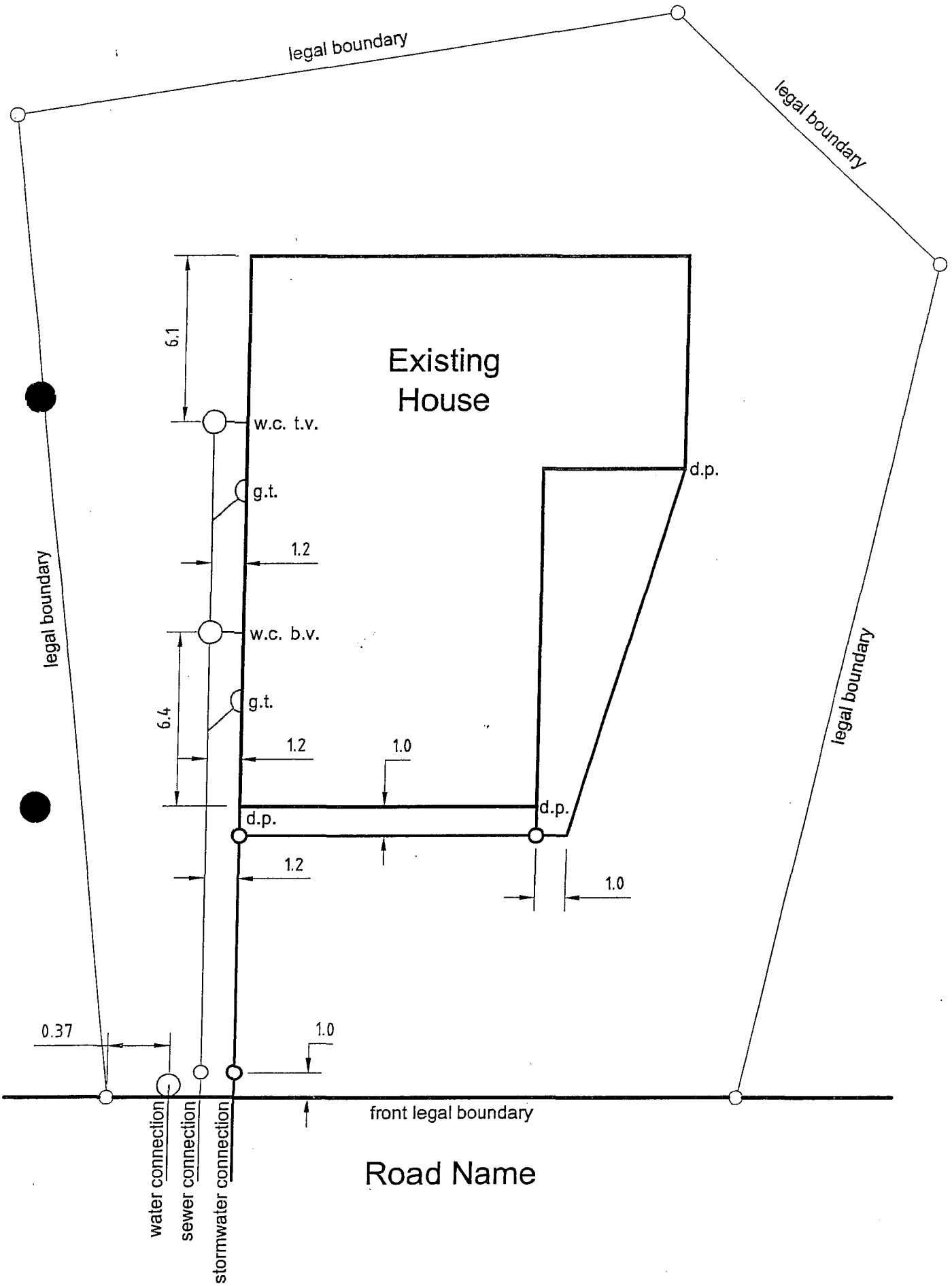
Version: 1, Version Date: 12/03/2009

Plan Example



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Version: 1, Version Date: 12/03/2009

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14 NOV 2007
P.O. No. 37021

11/10/07

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

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14 NOV 2007
B.C. NO. 37821

11/10/07

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11/12/07

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B.C. No. 37021

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

CONSUMERS COPY

Plumbers, Gasfitters and Drainlayers Board

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14 NOV 2007
B.C. No. 37021

PLUMBERS, GASFITTERS AND DRAINLAYERS BOARD

GASFITTING CERTIFICATION CERTIFICATE

(Pursuant to the Gas Act 1992 and the Gas Regulations 1993 and amendments)

ENERGY WORK CERTIFICATE

(Pursuant to the Building Act 1991)

Certificate No 436512

9th Floor, 70 The Terrace
PO Box 10655
WELLINGTON
Tel 04 494 2970
Fax 04 494 2975
website www.pgdb.co.nz

THIS CERTIFICATE IS NOT TRANSFERABLE

Installation address: Please complete in block letters

(Box No's not acceptable) (Number) (Street name)

6/275 Pukehangi RD

(Suburb)

Pukehangi
Rotorua.

(Town/City)

Consumer: MR P Yeoman

(Title) (Initials) (Family/Business name)

Category

- [ ] Domestic
- [ ] Commercial
- [ ] Industrial
- [ ] Temporary
- [ ] Other

Type (Regulation 24(1))

- [x] New
- [ ] Addition
- [ ] Extension
- [ ] Replacement
- [ ] Alteration
- [ ] Repair following damage

Gas Type [x] NG [ ] LPG [ ] TLP

Name of Gas Supplier Genesis

Pipework Installed (attach pipework diagram) [x] YES [ ] NO

DESCRIPTION OF GASFITTING TO WHICH THIS CERTIFICATE APPLIES

	Appliance				Flue		Ventilation	
Qty	Type	Location	Make/model	Input rate	Type	Location	Type	Location
1	Hob	kitchen	Delonghi D 926 GWF	40	Unflued		Adventious	
	Boiler	Boiler Room Pipework only	Radiant RK25B	26kw	By others		By others.	

Test Results

5	min	Duration
3.6	kPa	Test pressure
0	kPa	Loss/gain
2.3	kPa	Working pressure

Other Testing

Combustion: [ ] Yes [x] No

Ventilation: [ ] Yes [x] No

Test Date 13/6/07

I certify that:

- All appliances and fittings worked on by me or by persons working under my supervision are as stated and that all work carried out was in accordance with all applicable requirements of the Gas Act 1992 and Gas Regulations 1993 as amended.
- The gasfitting to which this certificate applies does not make other parts of the installation unsafe or otherwise non-compliant with the Gas Act 1992 and Gas Regulations 1993 as amended.
- Gasfitting work to which this certificate applies
  [x] **does** [ ] **does not** include work on an appliance or fitting imported or manufactured by a person for their own use.

Certifiers Name S Brickland

Address 57 Tallyho St
Rotorua.

Registration No 12550

Signature

Date 13/6/07

Registered Gasfitter/s Supervised by certifier

Name

Registration No

Name

Registration No

Certificate owner

Registration No

On behalf of

Address

(If other than certifying gasfitter)

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12 OCT 2007
B.C. No. 37021

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Version: 1, Version Date: 12/03/2009

Plumbing & Solar

ICM
INDUSTRIAL • COMMERCIAL • MAINTENANCE

PO Box 781 TAURANGA
0800 4 HOT H2O
Phone/Fax: 07 5786819
Tauranga Office Ph: 07 578 6846
www.maintenance.co.nz

Solahart BOP and **ICM** are divisions of
Coxhead Plumbing Ltd
incorporated in 1986

Solahart BOP LTD

TECHNICAL LITERATURE

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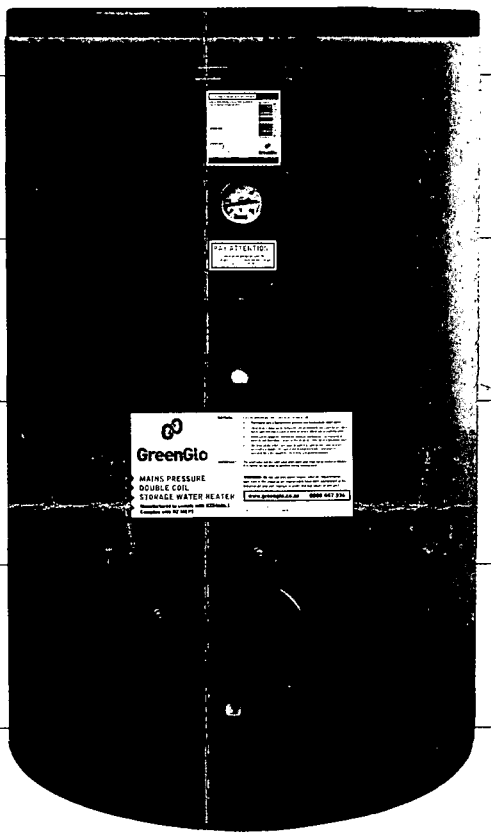
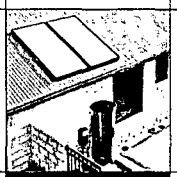
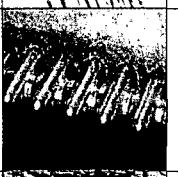
THE GREENGLO INTEGRATED SYSTEM

A HOME ENERGY SYSTEM THAT GIVES YOU UNLIMITED OPTIONS IN THE FUTURE

The cylinder range includes single or double electrical elements and a single or double coil. In this way it is possible to integrate different heat sources to deliver energy consistently for all heating requirements, safely and economically.



ELECTRICITY					HOT WATER
SOLAR PANELS		plus OPTION			RADIATORS
WETBACK		plus OPTION			UNDER FLOOR HEATING
GAS/DIESEL HEAT PUMP		plus OPTION			SPA POOLS

GreenGlo

A MAINS PRESSURE CYLINDER THAT FUTURE PROOFS THE HOME'S ENERGY NEEDS.

WHY LIMIT THE HOMEOWNER'S OPTIONS?

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Solahart BOP LTD

FAXED

RECEIVED
14 NOV 2007
B.C. No 37021

0800 4 HOT H2O
Phone/Fax: 07 578 6819
PO Box 781, Tauranga
www.solahartbop.co.nz

Building Consent

TECHNICAL LITERATURE

PRODUCER STATEMENT

SOLAR HOT WATER SYSTEM.

JOB NAME: GREENGLO 400 Litre TANK S/No. 0901015 3001 WITH 3 BT PANELS DATE: 10th Sept 2007.

SITE ADDRESS: Mr & Mrs P & B Yeoman
6/275 PUKEHANGI ROAD, ROTORUA.

TO WHOM IT MAY CONCERN THE ABOVE JOB HAS HAD PLUMBING INSTALLED IN ACCORDANCE WITH ALL MANUFACTURERS INSTRUCTION. ALL WORKS HAVE BEEN TESTED AND PASSED.

NAME OF PLUMBER CONCERNED: COXHEAD PLUMBING

CRAFTSMEN PLUMBER/REG No 10353
REGISTERED DRAINLAYER

SIGNED MANAGING DIRECTOR

DAVE COXHEAD

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12 OCT 2007
B.C. No. 87021

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Version: 1, Version Date: 12/03/2009

FIELD INSPECTION COMPLIANCE

File No: P31815 Appln No: 37021

Owner: Yeoman Contractor:

Lot/~~See~~: 6 DPS/~~Blk~~: 367422

Site Address: Pukehangi Rd (Parklands Estate)

Proposed Work: Dwelling / garage

- ***Please clearly define boundaries before calling for the first inspection.***
- ***Building Consent documentation must be on site at all times.***

Initial Inspection	First		Second		Complies	
	Owner	RDC	Owner	RDC	Owner	RDC
1. Site Formation						
2. Footings/Piles						24/10/06 BMJ
3. Bond Beams & Columns						
4. Under Floor Plumbing/Drainage						8-11-06
5. Concrete Floor						13/11/06
6. Pre-wrap (Wind ties & Ext Braces)						10-1-07
7. Post-wrap (Weather tape, flashings & cavity battens)						
8. Half Height Bricks (Ties/Weep Holes)						26/2/07
9. Pre-plaster (Stucco, Bricks, EIFS)						
10. Pre-lining (Moisture & Int Braces)						
11. Pre-lining (Plumbing/Drainage)						10/4/07
12. Pre-lining (Insulation)						
13. Post-lining (Bracing - Fixing of Gib)						10-4-07
14. Drain Test (Plumbing/Drainage)						
15. Solid Fuel Heaters						
16. Vehicle Crossing/Damage Deposit						
17. Other (Please Note)						
18. Final Inspection **(All Work To Be Completed)**						

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IMPORTANT

THIS CARD MUST BE PRODUCED ON THE SITE AT EVERY INSPECTION EITHER BY THE OWNER OR THEIR AGENT

As the holder of a Building Consent, the **OWNER** or their **AGENT** is required to:
(GIVE 24 HOURS NOTICE FOR ANY INSPECTION ON SITE)

- Footings - reinforcing steel to be in place. Pile excavations complete. No concrete to be poured. *Note:* Boundary pegs should also be identified at this stage. (See 4 below).
- Under Floor Drainage - Drains exposed and water test on.
- Concrete Floor Slabs - When moisture barrier and steel is in place.
- Pre-wrap - Building framed, trusses on, all straps and braces installed.
- Wrap Inspection - Wrap around buildings - flashings prior to windows and window wrap. Cavity battens installed.
- Pre-lining Inspection 1 - When the structure is completely closed in and all bracing and straps are fitted.
- Pre-lining - Plumbing/Drainage - When all wastes, vents, hot and cold water pipes installed and under test.
- If applicable, check for correct facilities for Disabled Persons.
- Post-line - When all gib is fixed prior to stopping or trim being fitted.
- Linings and fittings - when all linings are fixed, plumbing fittings in place and before any decoration is done.
- Water Supply - Back flow presenters in place.
- Drains fully laid and ready on test - sewer and stormwater.
- Final -when the building is ready for occupancy, but before occupancy takes place.

For all the above inspections, the OWNER or their AGENT, is required to be on site at the time of the inspection and they shall have a set of the stamped, approved drawings for the job on-site.

PLEASE NOTE: Additional charges may be made for the following if the Building Officer arrives and:

1. The work is not ready for the inspection.
2. Owner/agent/plans not on site.
3. Inspection not cancelled.
4. Boundaries not located or proved/no footing/foundation inspection.

It is important to note that should the necessary inspection not be done, a **CODE COMPLIANCE CERTIFICATE** will not be issued.

Owners should have regard to consequence of occupying or selling a non-complying building.

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Bosspipe
> THE FUTURE OF TOUGH.

302(F)

Refer to attached copies of property information notices for detail on easements, filling, building and planning restrictions which affect this property.

314(F) Please refer to item "iv" of the attached consent notice regarding storm water disposal to a Chartered Professional Engineer designed and certified system. Please provide evidence of compliance with this condition.

Bosspipe is proudly manufactured by Waters & Farr. For more information, visit our website: **www.watersandfarr.co.nz**
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DESTINATION ROTORUA
ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua, New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

Building Consent No:37021
Section 51, Building Act 2004

Issued:13Oct06

The Building

Street Address of building: PUKEHANGI ROAD, PUKEHANGI, ROTORUA 3015
Legal Description of land where building is located:
LOT 6 DP 367422
Building Name: DWELLING AND GARAGE

The Owner

Name of owner: MR PHILLIP HAROLD YEOMAN
Mailing Address: IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

Contact Person: IZBA ARCHITECTURE
Mailing Address: IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

Street address/registered office: PUKEHANGI ROAD
PUKEHANGI
ROTORUA 3015
Phone number: (Bus.)
(Pvt.)

Facsimile number:
Email address:
Website:

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

Building Work

The following building work is authorised by this consent:
Project: New Work
Intended Use: DWELLING AND GARAGE

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

This building consent also does not permit the construction, alteration,

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demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

1: THE APPROVED CONSENT DOUCUMENTS MUST BE ON SITE DURING ALL INSPECTIONS.

Inspections will not be performed if Documents are not on site and an invoice for reinspection will be sent out.

Notice to be given by owner or agent that building work is ready for inspection shall be given to the Rotorua District Council at least 1 (one) working day in advance of covering in any of the following work:

At the completion of the work authorised by this Building Consent.

Please arrange the booking of inspections and direct enquiries regarding this consent to the Building Services Department, phone (07) 348 4199.

Excavation for foundations.

Reinforcing steel for foundations.

Prior to slab placement, hardfill, damp proofing (if required), reinforcement etc.

Plumbing under concrete floors.

Bracing and fixing of framing members prior to any insultaion being placed.

Pre-wrap (Wind ties and external braces)

Post-wrap (Weather tape, flashing and cavity battens).

Pre-plaster (stucco, bricks and EIFS)

Framing timber required to have a specificed moisture content.

Thermal insulation material.

Fixing of linings for bracing elements.

The fixing of framing members prior to any lining being fixed.

Masonry/Brick veneer work. 1/2 height inspection.

All foul water and stormwater drainage in ground before backfilling.

The fitting and fixture of ALL FLASHINGS as is required to meet the requirements of the Building Code.

Any other building work in respect of which such notice is required as a special condition of this Building Consent.

Plumbing work within any wall cavity, eg timber or blockwork.

2: Hot Water Control

The hot water supply to sanitary fixtures used for personal hygiene is to be fitted with tempering valves or other approved devices to limit the water temperature to 55 C.

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3: Stormwater

All stormwater runoff from roof, driveways and pave areas shall be collected and piped to an approved soakhole or approved connection.

4: Code Compliance Certificate

The owner or agent shall as soon as practicable, advise the Rotorua District Council that all building work has been completed to the extent required by this Building Consent.

SECTION 93(2)(b)(i) BUILDING ACT 2004

The owner or agent must apply for a Code Compliance Certificate within 2 years after the date on which the Building Consent for the building work was granted.

5: Standard Conditions

This building consent is permission to undertake building work in accordance with the approved plans and specifications. All work must comply with the provisions of the Building Code. Any alterations from the original plans and specifications must have prior approval from the Building Control Manager.

Endorsement on Plans and Specifications form part of this approval.

If the work is not commenced within six months and/or reasonable progress has not been made within twelve months a written extension of time can be granted on application to the Council.

The owner of the property is responsible for the correct siting of buildings or additions in relation to boudary pegs.

Any deficiency not specifically drawn to the attention of the builder or owner by the Building Officer shall not be deemed to have been approved.

The use is limited to that stated on the Building Consent. Any change of use would require a separate approval.

Plumbing and drainage work to be carried out by licensed tradesperson only.

Any Monolithic Style Exterior Cladding must be a recognised system. It must be used as a complete system. NO MIX AND MATCH.

6: Standard Statement

THIS BUILDING CONSENT IS ISSUED SUBJECT TO ALL OTHER OUTSTANDING CONSENTS HAVING BEEN APPROVED. WORK SHALL NOT COMMENCE AND INSPECTIONS WILL NOT BE UNDERTAKEN UNTIL THOSE OUTSTANDING CONSENTS HAVE BEEN COMPLIED WITH.

A CODE COMPLIANCE CERTIFICATE MAY NOT BE ISSUED IF ALL FLASHINGS HAVE NOT BEEN INSPECTED PRIOR TO THE COVERING UP OR CLOSING IN OF BUILDING WORK.

SECTION 52 BUILDING ACT 2004 (LAPSE OF BUILDING CONSENT)

A Building Consent lapses and is of no effect if the building work to which it relates does not commence within 12 months of the date of issue unless prior arrangements are made with the Building Consent Authority

TYPE 1 DOMESTIC SMOKE ALARM SYSTEM - CLAUSE F7 WARNING SYSTEMS:

* Requires that an appropriate means of detection and warning for fire must be provided within each household unit.

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* Smoke alarms shall be located on the escape routes on all levels within household units.
* On all levels containing the sleeping spaces, the smoke alarms shall be located either:

a) in every sleeping space; or
b) within 3 metres of every sleeping space. In this case, the smoke alarms must be audible to sleeping occupants on the other side of closed doors.

These will be required on all new dwellings and retrospectively fitted in dwellings when, and if, a Building Consent for additions or alterations is applied for.

A CODE OF COMPLIANCE CERTIFICATE WILL NOT BE ISSUED UNTIL THE SMOKE ALARMS HAVE BEEN INSTALLED AND SEEN OPERATING.

Compliance Schedule

A compliance schedule is not required for the building.

M Petersburg
Signature

ADMINISTRATION ASSISTANT
Position

On behalf of: ROTORUA DISTRICT COUNCIL

Date: 13 Oct 2006

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DESTINATION
ROTORUA
ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua, New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

Project Information Memorandum No:37020
Section 34, Building Act 2004
Received:28Aug06
Issued:19Sep06

MR PHILLIP HAROLD YEOMAN
IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

IZBA ARCHITECTURE
IZBA ARCHITECTURE
1 UTUHINA ROAD
ROTORUA

PROPERTY ID: 31815
STREET ADDRESS: PUKEHANGI ROAD, PUKEHANGI, ROTORUA 3015
LEGAL DESCRIPTION: LOT 6 DP 367422

PROJECT IS FOR: New Work
INTENDED USE(S): DWELLING AND GARAGE
INTENDED LIFE: Indefinite but not less than 50 years
VALUE OF WORK: $560,000.00
NUMBER OF STAGES: 1

COUNCIL'S TOTAL CHARGES FOR THIS PROJECT INFORMATION MEMORANDUM ARE: $450.00
PAYMENTS RECEIVED TO DATE:
Receipt number: 54605 Date: 05Sep06 Amount: $450.00

See attached page(s) for any other conditions.

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DESTINATION
ROTORUA
ROTORUA DISTRICT COUNCIL

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F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

1: **PIM STATUS**

The proposed building work may be undertaken, subject to the provisions of the Building Act 2004, and any condition of the Building Consent.

The proposed building work requires a Land Use Resource Consent for which approval must be obtained before the building work may be undertaken.

2:

No information concerning special features of the land has been identified.

No building (or part of its structure) shall be constructed within an easement.

The proposed building work is to be sited on land, which the Council has identified as having been subject to filling, a specific foundation design may be required.

Refer to attached copies of property information notices for detail as easements, filling, building and planning restrictions which affect this property .

3: **ENVIRONMENTAL HEALTH**

During the construction phase of this development the Consent Holder shall ensure that all civil and buiding contractors shall operate their plant and equipment in accordance with NZS 6803P Measurement and Assessment of Noise from construction, maintenance and demolition work.

These provisions are to be adopted in accordance with the Rotorua District Plan, Appendix K noise standards.

4: **PUBLIC UTILITIES - STORMWATER**

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

Please refer to Item "iv" of the attached consent notice regarding stormwater disposal to a Chartered Professional Engineer designed and certified system. Please provide evidence of compliance with this condition

5: **WATER - URBAN SUPPLY**

The proposed building work is to be sited on land which the Council has identified in its records as being outside a Public Urban Water Supply area administered by the Council.

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DESTINATION ROTORUA
ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua, New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

6: SEWERAGE

The proposed building work is to be sited on land which the Council has identified in its records as having a connection to a Public Sewerage System administered by the Council and As Built connection details are attached (Services Plan).

There is a public sewer main across this property. The proposed building including eaves and private drains shall be located a minimum of 1.5 metres from the main.

7: POLLUTION CONTROL

This Construction project is required to meet the objective of protecting the environment and the Public Utility Drainage Systems from the effects of construction sediments and contaminats or polluted wastewater discharges on and off site. This includes the likelihood of water overland flow carrying these sediments or contaminants off site or into public drains. Please demonstrate how this construction project is to achieve this objective.

8: LAND USE CONSENTS

A Land Use Consent is required for the proposed building work. The requirements of the Resource Management Act 1991 and the Rotorua District Plan will need to be met.

A controlled activity Resource Consent is required for the proposed plan in accordance with R10.1.1.18 as the building is over 5.0m high in the Rural B1 zone.

** Also please note that it would appear that the proposed earth bund wall is in close proximity to the revegetation areas. Please confirm that the bund wall will not negatively affect the plantings as stipulated in Part ii of the Revegetation Management Plan (see Consent Notice attached). * The building must comply with the Performance Standards for reflectivity, lighting and glare in the Rural B1 zone otherwise a Resource Consent will be required. Further information is required as to the specifications so that council can assess if the proposal complies as a Permitted Activity. (See performance attached).*

9: COMPULSORY PLANNING STATEMENTS

The District Plan does not indicate any proposed road widening, proposed service lane, designations, scheduled sites or protected historic buildings, sites or trees on the land the building work is proposed.

See attached page(s) for any other conditions.

NATURAL GAS CORPORATION

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For information regarding a proposed gas connection or the location of existing gas pipelines as they affect this property, please contact the Natural Gas Corporation. For any building work (as defined by Section 2(1) of the Building Act 1991) that will disturb over and around any gas main or service and prior to the commencement of that work, the applicant will be required to contact the gas centre for authorisation to proceed.

ELECTRICITY

Under the Electrical Supply Regulations 1976 it is an offence to erect any building or structure within certain prescribed distances of an overhead electrical line. To enquire about these retrictions, contact your local electricity distributor.

DESTINATION ROTORUA
ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua, New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

Signed for and on behalf of the Council:

Name: L Tetenburg Position: Administration - Building

Signed: pp _____ Date: 14/9/06

See attached page(s) for any other conditions.

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PIM / APPLICATION No. 37020/21

DATE RECEIVED _____

DATE ISSUED _____

SITE FILE No. 31815 · 176713.

Form 2

APPLICATION FOR PROJECT INFORMATION MEMORANDUM AND/~~OR~~ BUILDING CONSENT

Section 33 or section 45, Building Act 2004

THE BUILDING

Street address of building:
[for structures that do not have a street address, state the nearest street intersection and the distance and direction from that intersection]

PUKEMANGI ROAD ·
PARKLAND ESTATES ·

Legal description of land where building is located:
[state legal description as at the date of application and, if the land is proposed to be subdivided, include details of relevant lot numbers and subdivision consent]

Subdivision Consent *(if applicable)* _____

Valuation No. 0654/177.00 **Lot No.** 6 ·

DPS 36742 **Section** _____

Block _____ **Survey District** _____

Building name: _____

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

Number of levels: 1 ·
[include ground level and any levels belowground]

Level/unit number: _____
[insert level/unit number if applicable]

Area: 371·0 m²
[total floor area; indicate area affected by the building work if less than the total area]

Current, lawfully established, use:
[include number of occupants per level and per use if more than 1]

Year first constructed: _____
[insert year, approximate date is acceptable e.g: c1920s or 1960-1970]

Expected completion date: MARCH 07.
[insert month year]

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THE OWNER

Name of owner:
[include preferred form of address, eg, Mr, Miss, Dr, if an individual]
P. & B YEOMAN

Contact person:
[insert contact name]
IZBA ARCHITECTURE.

Mailing address:
[insert mailing address]

Street address/registered office:
[insert street address/registered office]

Phone numbers:
Landline: Daytime:
Mobile: After Hours:

Facsimile number:
Email address:

Website:
[website address if applicable]

The following evidence of ownership is attached to this application:
[current copy of certificate of title, lease, agreement for sale and purchase, or other document showing full name of legal owner(s) of the building]

AGENT

Name of agent:
[include preferred form of address, eg, Mr, Miss, Dr, if an individual]
IZBA ARCHITECTURE.

Contact person:
[insert contact name]

Mailing address:
[insert mailing address]
1 UTUHINA ROAD.
ROTORUA.

Street address/registered office:
[insert street address/registered office]

Phone numbers: 3463862.
Landline: Daytime:
Mobile: After Hours:

Facsimile number: "
Email address:

Website:
[website address if applicable]

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

First point of contact for communications with the council/ building consent authority:
[all invoices and refunds related to this application will be directed to this person in all instances]
IZBA ARCHITECTURE.

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THE PROJECT

Description of the building work:
[provide sufficient description of building work to enable scope of work to be fully understood]

NEW DWELLING & GARAGE.

Will the building work result in a change of use of the building?

Yes ☐ No ☐

If Yes, provide details of the new use:
[provide description of new use]

List building consents previously issued for this project (if any):
[list who issued the consent, the date of issue and the consent number]

Intended life of the building if less than 50 years: _____

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

[state estimated value as defined in section 7 of the Building Act 2004] $ 560000.00.

Number of Toilet Pans: _____
(Commercial properties only)

BUILDING PRACTITIONERS

Builder:

Business/name: T.B.A. Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Designer/Architect:

Business/name: KBA ARCHITECTURE Address: 1 UTUHINA ROAD. ROTORUA.

Phone: 3463862. Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Plumber/Gas Fitter:

Business/name: T.B.A Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Drainlayer:

Business/name: T.B.A Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Electrician:

Business/name: T.B.A. Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

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BUILDING PRACTITIONERS

Structural Engineer:

Business/name: B.S.K Address: P.O.BOX 23 ROTORUA.

Phone: 3485394 Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Engineer (identify practice college):

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Head Contractor/Site Manager

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Other:

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Other:

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Other:

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Other:

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

Other:

Business/name: _____ Address: _____

Phone: _____ Mobile: _____ After hours: _____ Facsimile: _____

Email: _____ Registration/qualification: _____

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The building work will comply with the building code as follows: *[Delete this section if this is an application for a PIM only]*

Clause *[which of the following clauses will be involved in the proposed building work?]*		**Means of compliance** *[refer to the relevant compliance document(s) or detail of alternative solution in the plans and specifications]*	**Proposed inspections** [state means of inspection. Note PS4 or certification may be required]
☑ B1	Structure	☑ B1/AS2 ☑ NZS 3604 ☐ NZS 4203 ☐ NZS 4229 ☐ Other _____ *[Specify]*	☑ Council ☐ Engineer ☐ Other _____ *[Specify]*
☑ B2	Durability	☑ B2/AS1 ☐ NZS 3101 ✓ NZS 3602 ☑ NZS 3604 ☐ Other _____ *[Specify]*	☑ Council ☐ Engineer ☐ Other _____ *[Specify]*
☐ C1- 4	Fire	☐ C1/AS1 ☐ Other _____ *[Specify]*	☐ Council ☐ Engineer ☐ Other _____ *[Specify]*
☑ D1	Access Routes	☑ D1/AS1 ☐ NZS 4121 NZS 4121 ☐ Other _____ *[Specify]*	☑ Council ☐ Engineer ☐ Other _____ *[Specify]*
☐ D2	Mechanical installations for access	☐ D2/AS1 ☐ NZS 4332 EN 81 ☐ EN 115 ☐ Other _____ *[Specify]*	☐ Engineer ☐ Other _____ *[Specify]*
☑ E1	Surface water	☑ E1/AS1 ☑ AS/NZS3500.3 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☑ E2	External moisture	☑ E2/AS1 ☐ Specific design & testing	☑ Council ☐ Other _____ *[Specify]*
☑ E3	Internal moisture	☑ E3/AS1 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☐ F1	Hazardous substances etc	☐ F1/AS1 ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ F2	Hazardous building materials	☐ F2/AS1 ☐ NZS 4223 ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ F3	Hazardous substances	☐ F3/AS1 ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ F4	Safety from falling	☐ F4/AS1 ☐ FSP Act ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ F5	Construction and demolition hazards	☐ F5/AS1 ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ F6	Lighting for emergency	☐ F6/AS1 ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ F7	Warning systems	☐ F7/AS1 ☐ AS/NZS 1668 ☐ NZS 4512 ☐ NZS 4515 ☐ Other _____ *[Specify]*	☐ Council ☐ Engineer ☐ Other _____ *[Specify]*
☐ F8	Signs	☐ F8/AS1 ☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☑ G1	Personal hygiene	☑ G1/AS1 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*

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☑ G2	Laundering	☑ G2/AS1	☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☐ G3	Food preparation and prevention of contamination	☐ G3/AS1	☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☑ G4	Ventilation	☑ G4/AS1	☐ AS/NZS 1668.2 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☑ G5	Interior environment	☑ G5/AS1	☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☐ G6	Airborne & impact sound	☐ G6/AS1	☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☑ G7	Natural light	☑ G7/AS1	☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☑ G8	Artificial light	☑ G8/AS1	☐ NZS 6703 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☑ G9	Electricity	☑ G9/AS1	☐ Other _____ *[Specify]*	By certification only
☐ G10	Piped services	☐ G10/AS1	☐ NZS 5261 ☐ Other _____ *[Specify]*	By certification only
☑ G11	Gas as an energy source	☑ G11/AS1	☐ Other _____ *[Specify]*	By certification only
☑ G12	Water supplies	☑ G12/AS1	☐ AS/NZS 3500.1 ☐ AS/NZS 3500.4 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☑ G13	Foul water	☑ G13/AS1	☑ AS/NZS 3500.2 BS 5572 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*
☐ G14	Industrial liquid waste	☐ G14/AS1	☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☐ G15	Solid waste	☐ G15/AS1	☐ Other _____ *[Specify]*	☐ Council ☐ Other _____ *[Specify]*
☑ H1	Energy efficiency	☑ H1/AS1 ☐ ALF Design Manual ☐ NZS 4214	☐ NZS 4218 ☐ NZS 4243 ☐ Other _____ *[Specify]*	☑ Council ☐ Other _____ *[Specify]*

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HAVE YOU PROVIDED ALL THE FOLLOWING INFORMATION?

(Strike out where not applicable)

NOTE TO APPLICANTS Please use this check sheet to ensure all the information required to be supplied with your application has been provided. If required information has not been provided your application may not be accepted and you will experience delays in obtaining your consent.

GENERAL	Yes	No	N/A
Plans and specifications of an acceptable standard (Reference BRANZ Bulletin 365 Acceptable Plans and Specifications)	☑	☐	☐
Plans, elevations, cross sections of the proposal in duplicate	☑	☐	☐
Certificate of Title (recent search copy less than 6 months old)	☐	☑	☐
Wind Zone classification	☑	☐	☐
Earthquake Zone classification	☑	☐	☐
Corrosion Zone classification	☑	☐	☐
Presence of natural hazards eg. Flooding, falling debris, erosion	☐	☐	☑

BULK & LOCATION	Yes	No	N/A
Site Plan: Fully dimensioned, scaled, showing all buildings and easements (proposed/existing)	☑	☐	☐
Site boundaries nominated	☑	☐	☐
Site area per unit indicated	☑	☐	☐
Site coverage and plot ration calculations %	☐	☐	☑
Shared access ways/other areas	☐	☐	☑
Foulwater (sewer) drains	☑	☐	☐
Stormwater drains and soakholes	☑	☐	☐
Water service details	☑	☐	☐
Site levels and finished floor level indicated	☑	☐	☐
Vehicle crossing position indicated on plan	☑	☐	☐
Vehicle access manoeuvre and parking areas indicated	☑	☐	☐
Street trees, poles, sumps, manholes, traffic islands affecting vehicle access	☐	☐	☑
Hill sites: indicate contours, drive gradients and building heights	☐	☑	☐
Landscaped areas indicated and planting plan produced	☑	☐	☐
Earthworks: identify proposal for cut and/or fill where cut is more than 1.5m deep or 20 cubic metres.	☐	☐	☐

OTHER MISCELLANEOUS	Yes	No	N/A
Demolition details	☐	☐	☑
Swimming pool: design, fence and discharge	☐	☐	☑
Backflow prevention	☐	☐	☑
Notable and protected trees indicated	☐	☐	☑
Heritage site or building affected	☐	☐	☑
Resource Consent application	☐	☐	☑
Subdivision details	☐	☐	☑

ADDITIONAL INFORMATION

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CONSTRUCTION DETAILS	Yes	No	N/A
Products and designs match selected earthquake, wind and corrosion zones	☑	☐	☐
Timber treatment specifications	☑	☐	☐
Foundation plans and design included. Plans to show details on reinforcing, all fixings and subfloor bracing for timber floors.	☑	☐	☐
Floor slab details including location of expansion joints	☑	☐	☐
Geotechnical reports on ground condition as required	☐	☐	☑
Floor plans with fire partitions, common walls & dividing walls & identification of all rooms & their intended uses	☐	☑	☐
Elevations with maximum height and daylighting recession planes	☑	☐	☐
Beam designs including fixings, design charts for manufactured beams where used	☑	☐	☐
Roof plan complete with truss design statement and details	☑	☐	☐
Details to resist roof uplift	☑	☐	☐
Bracing calculations and layout plans	☑	☐	☐
Brace fixing details	☑	☐	☐
Blockwork design, including cover to reinforcing, locations and detail of expansion joints, fixings.	☑	☐	☐
Retaining walls: design, heights, position, subsoil drainage and safety barriers	☐	☑	☐
Windows: opening and fixed windows indicated, cantilevered lintel details included where appropriate	☑	☐	☐
Glazing: safety glass specifications included	☑	☐	☐
Sound insulation indicated	☑	☐	☐
Location of smoke detectors	☑	☐	☐
Claddings and weathertightness details provided for all claddings, including risk matrix or equivalent	☑	☐	☐
Stairs/steps/landings/balconies: dimensions, handrail and barrier details	☐	☑	☐
Decks: membrane specifications (especially compatible substrates), threshold details, position and size of overflows, gutter size calculations,	☐	☑	☐
Solid fuel heater: make, model & location	☐	☑	☐
Accurate layout of plumbing & drainage systems	☑	☐	☐

Full details of alternative solutions if used	Yes	No	N/A
Producer Statement: specific design details for work outside the scope of acceptable solutions and non specific design codes.	☐	☐	☑
Fire Safety Summary or Fire Design statement	☐	☐	☑
Drainage and/or plumbing	☐	☐	☑
Lifts, escalators, moving walkways	☐	☐	☑
Acoustic and thermal insulation	☐	☐	☑
HVAC systems	☐	☐	☑
Energy	☐	☐	☑
People with disabilities access & facilities	☐	☐	☑
Independent peer review for specialist design above	☐	☐	☑
Compliance Schedule details	☐	☐	☑

ADDITIONAL INFORMATION

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MATERIALS USED *(identify materials used. Required for Department of Building and Housing records)*

What materials will be used for the:

Floor

1 ☐ Timber 2 ☑ Concrete 3 ☐ Wood Products

4 ☐ Other Specify: _____

Framing

1 ☑ Timber 2 ☐ Concrete 3 ☐ Steel 4 ☐ Aluminium

5 ☐ Other Specify: _____

Roof

1 ☑ Steel sheeting 2 ☐ Steel tiles 3 ☐ Concrete tiles 4 ☐ Shingles

5 ☐ Aluminium 6 ☐ Other Specify: _____

Internal

1 ☑ Plaster board 2 ☐ Fibrous Plaster 3 ☐ Wood Products

4 ☐ Other Specify: _____

External Cladding

1 ☑ Brick 2 ☐ Concrete 3 ☐ Concrete block 4 ☐ Cement board

5 ☑ Plaster 6 ☐ Timber 7 ☐ Steel 8 ☐ Aluminium

9 ☐ XPS 10 ☐ Other Specify: _____

Energy

Energy source ELECTRICAL

Cooking: ELECTRICAL

Insulation FIBREGLASS BATTS.

Connection to ~~or disconnection~~ from:

☐ Council water supply *(Please attach "Application for Water Connection" form.)* ☑ Council sewerage

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COMPLIANCE

The specified systems for the building are as follows: *[specified systems are defined in regulations]*

The following specified systems are being altered, added to, or removed in the course of the building work: *[specify]*

There are no specified systems in the building. ☐

PROJECT INFORMATION MEMORANDUM

The following matters are involved in the project

- ☐ Subdivision
- ☐ Alterations to land contours
- ☐ New or altered connections to public utilities
- ☐ New or altered access for vehicles
- ☑ Disposal of stormwater and wastewater
- ☑ New or altered locations and/or external dimensions of buildings
- ☐ Building work over or adjacent to any road or public place
- ☐ Building work over any existing drains or sewers or in close proximity to wells or water mains
- ☐ Other matters known to the applicant that may require authorisations from the territorial authority: *[specify]*

BUILDING CONSENT

The following plans and specifications are attached to this application:

ARCHITECTURAL DWGS SHTS. 1-9
SPECIFICATION.

ATTACHMENTS

The following documents are attached to this application:

- ☐ Certificate attached to project information memorandum
- ☐ Plans and specifications *[list]*
- ☐ Project information memorandum
- ☐ Development contribution notice

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WAIVER/MODIFICATION TO NZ BUILDING CODE REQUIRED FOR FOLLOWING PARTS OF CODE:

APPLICATION

I request that you issue a †[~~project information memorandum~~/project information memorandum and building consent~~/building consent~~] *[delete which is not applicable]* for the building work described in this application

Signature of *[owner/agent on behalf of and with the authority of the owner]*

Date: 28.8.09

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COUNCIL USE ONLY

CONSENT CONDITIONS / COMMENTS

BCO	P&D	CONSULTANT	PLANNER	EHO	NZFS

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COUNCIL USE ONLY

ESTIMATED TOTAL VALUE OF WORK

$ 560,000. gst inclusive Project floor area 371. m²

FEE PAYABLE

Consent deposit

Project Information Memorandum	$ 450.00
Building Administration	$ 900.00
Technical Processing	$ 1170.00
Industry Levy (DBH)	$ 1103-20.
Industry Levy (BRANZ)	$ 560 —
Developmental Contribution	
_____	$ _____
_____	$ _____
_____	$ _____
_____	$ _____
Certificate of Title	$ 15.00
Producer Statements	$ _____
Compliance Schedules	$ _____
Rural Number	$ _____
Vehicle Crossing	$ — (Private)
Street Damage	$ —
Water Connection	$ _____
Sewer Connection	$ _____
Other(s) CCC	$ 75.00
Total consent deposit	$ _____

Granted by _____

Signature C Wiggins 2-10-06

Date _____

Issued by _____

Signature _____

Date _____

Consent fee balance

Inspections	$ _____
Other(s)	$ _____
Total balance payable	$ 2833.00
Lodgement deposit	$ 1440.00
Date paid	05-09-06
Receipt No.	R54605
Consent fee balance	$ 2835.20
Date paid	10.11.06
Receipt No.	2915288

Please complete

Forward any refunds or further invoices to:

_____

_____

_____

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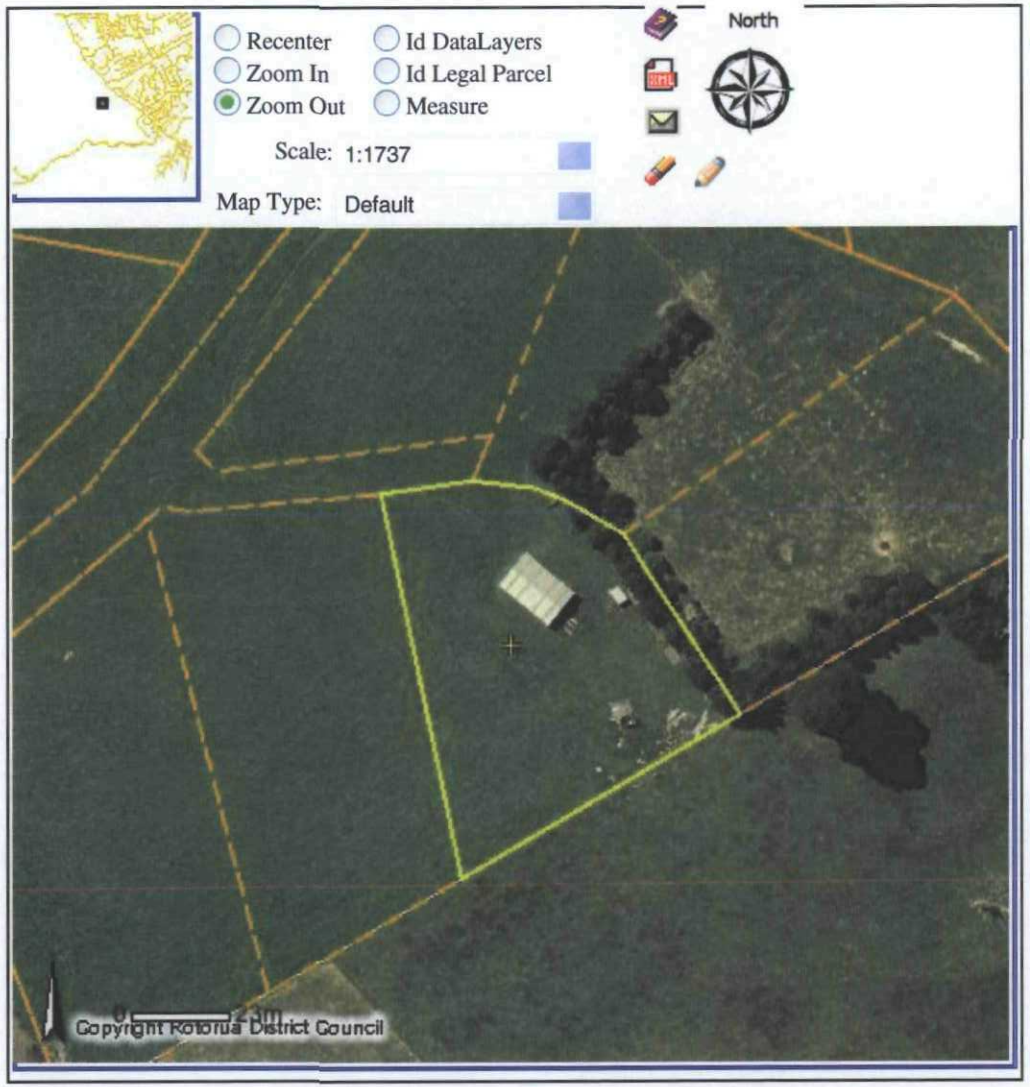

Parcel results

- Subdividing Legal Parcel - File: 31815 (LOT 6 DP 367422)
  - Pukehangi Road, Pukehangi, Rotorua,
  - Legal description: LOT 6 DP 367422Check for Title Plans?...
  - Header_Id:84054
  - District Plan Zone: Not available via CV parcel query
  - Parcel Reference: 6305075LOT06
  - Display subdivision parcel....
  - Classification details...
  - Open occupancies on this parcel in a new window....
  - Legal Parcel - File: 11719 (LOT 2 DP 343069)
- Definitions of terms used .....
- Data as at 2006-08-28 01:50

#0037021

Wall Bracing Calculation Sheet A

MARCH 2006

Please Photocopy

Job Details

box 1

Name YEOMAN RESIDENCE (RESIDENCE).

Street and Number LOT 6 PARKLAND ESTATES.

Lot and DP Number

City/Town/District ROTORUA.

Location of Storey: (single)/upper of two/lower of two

Floor load: 2kPa/3kPa

Building height to apex	5.0 m	Roof weight	(light)/heavy
		Cladding weights:	HEAVY.
Roof height above eaves	3.0 m	Subfloor	light/medium/heavy
		Lower Storey	light/medium/heavy
Stud height	2.7/2.55 m	Upper Storey	light/medium/heavy
Average roof pitch	27.5°	Room in Roof Space	Yes / No
Building length BL =	30.0 m	Gross Building	
Building width BW =	17.6 m	Plan Area,	GPA = 277.0 m²

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

BUs required Wind

box 4

From Table W1A/W1B

W along = 87 BUs/m

W across = 87 BUs/m

Total wind load,

W ALONG:
W along x BW = 1531.2 BUs

W ACROSS
W across x BL = 2610. BUs

BUs required Earthquake

box 5

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

E = 5.6 BUs/m²

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

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 1663.2 BUs

#0037021

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Wall Bracing Calculation Sheet B

MARCH 2006

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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	170.		BLP	.99	117.4	116.2	117.4	116.2
			BLP	.99	117.4	116.2	117.4	116.2
			9P1	1.2	94	112.8	94	112.8
B	70.		BL9	2.4	122.2	244.4	108.1	259.4
C	264.		9P1	1.2	94	112.8	94	1128
			BL9	2.4	114.4	274.5	101.2	2428.
			9P1	1.2	94	112.8	94	112.8
D	70.		BL9	2.4	122.2	2932	108.1	259.4
			BL9	2.4	114.4	274.5	101.2	2428
E	142.		9P1	1.2	94	1128	94	112.8
			9P1	1.2	94	112.8	94	112.8
Totals Achieved					W	1883.0	E	1800
From Sheet A		**Totals Required**			W	531.2	E	1663.2
Wreq/Ereq =			*					

*** If Wreq/Ereq is 1 or less complete E column only**
If Wreq/Ereq is 1.2 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	80.		9P1	1.1	84	92.4		
			9P1	1.0	84	84.0.		
	70.		BL9	2.4	122.2	2932		
N	70.		BL9	2.4	122.2	293.2		
	166		BL9	2.4	122.2	2932		
			BLP	1.8	127.6	229.6		
O	70.		BL9	2.4	122.2	2932		
			BL9	2.0	114.4	228.8		
P	70.		BL9	2.4	122.2	293.2		
			BL9	2.4	122.2	293.2		
	70.		9P1	1.2	94	112.8.		
Q	76.		9P1	1.2	94	112.8		
			9P1	1.2	94	112.8.		
Totals Achieved					W	2732.4.	E	
From Sheet A		**Totals Required**			W	2610.0	E	1663.2
Wreq/Ereq =			*					

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Site Inspection Calculation Sheet

Client	YEOMAN
Address	[redacted] HAUGHANGI RD

Consent Number	37021

Inspection	Number Required	Time Required	Totals
Processing Hours - Admin			~
Processing Hours - Building Process	@ 65 for 1/2hrs		~
Replies to Requests for Further Information	@ 65 for 1/2hrs		~
Site Formation - Siting	1	0.5	65
Footings/Piles	1	0.5	65
Bond Beams & Columns	1	0.5	65
Under Floor Plumbing/Drainage	1	0.5	65
Concrete Floor	1	0.5	65
Pre-wrap (Wind ties & Ext Braces)	1	1.0	130
Post-wrap (Weather tape, flashings & cavity battens, Wall Insulation)	1	1.0	130
Half Height Bricks (Ties/Weep Holes)	1	0.5	65
Pre-plaster (Stucco, Bricks, EIFS)	1	0.5	65
Pre-lining (Moisture & Int Braces)	1	1.0	130
Pre-lining (Plumbing/Drainage)	1	0.5	65
Post-lining (Bracing - Fixing of Gib)	1	0.5	65
Drain Test (Plumbing/Drainage)	1	0.5	65
Solid Fuel Heaters	1	0.5	~
Vehicle Crossing/Damage Deposit	1	0.5	~
Other (Please Note)	1	0.5	~
Other (Please Note)	1	0.5	~
Final Inspection - CCC	1	1.0	130
Total			1170
Money Received			0
Totals to Invoice (Excluding PIM and Levies)	Total - Money Received		1170

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Wall Bracing Calculation Sheet A

MARCH 2006

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Job Details

box 1

Name YEOMAN RESIDENCE. (GARAGE).

Street and Number LOT 6 PARKLAND ESTATES.

Lot and DP Number

City/Town/District ROTORUA.

Location of Storey: (single)/upper of two/lower of two — Floor load: 2kPa/3kPa

Building height to apex	5.0 m	Roof weight	(light)/heavy
		Cladding weights:	~~HEAVY~~
Roof height above eaves	3.0 m	Subfloor	light/medium/heavy
		Lower Storey	light/medium/heavy
Stud height	2.7 m	Upper Storey	light/medium/heavy
Average roof pitch	27.5°	Room in Roof Space	Yes / No
Building length BL =	10.8 m	Gross Building	
Building width BW =	9.2 m	Plan Area,	GPA = 74.2 m²

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

BUs required Wind

box 4

From Table W1A/W1B

W along = 87 BUs/m

W across = 87 BUs/m

Total wind load,

W ALONG:
W along x BW = 800.4 BUs

W ACROSS
W across x BL = 939.6 BUs

BUs required Earthquake

box 5

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

E = 56 BUs/m²

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

Total earthquake load,

EQ ALONG and EQ ACROSS

E x GPA BUs = 455. BUs

A0037021

GIB® BRACING SYSTEMS

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Wall Bracing Calculation Sheet B

MARCH 2006

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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	68.		BLP	.89	1276	1135		
			BLP	.89	1276	1135.		
B	70.		BLP	2.4	1276	3062		
C	77.		BLP	2.4	1276	3062		
D								
E								
Totals Achieved					W	6394	E	
From Sheet A		**Totals Required**			W	8004	E	4155
Wreq/Ereq =			*					

*** If Wreq/Ereq is 1 or less complete E column only**
If Wreq/Ereq is 1.2 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	62		BLP	20	1276	2552		
N	70.		BLP	20	1276	2552		
O	70.		BLP	2.4	1276	3062		
P	70.		BLP	2.4	1276	3062		
Q								
Totals Achieved					W	1122.8	E	
From Sheet A		**Totals Required**			W	939.6	E	
Wreq/Ereq =			*					

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DESTINATION ROTORUA

ROTORUA DISTRICT COUNCIL

Rotorua District Council
1061 Haupapa Street
Private Bag 3029
Rotorua, New Zealand
P: 07 348 4199
F: 07 346 3143
E: mail@rdc.govt.nz
W: www.rdc.govt.nz

File No: 37-04-001

Doc No: OW-13507

TO: ALL BUILDING OWNERS & BUILDING CONTRACTORS

DEFINITION OF BOUNDARIES

This is to confirm that in all instances of undertaking building work which is outside the original footprint of an existing building, it is a requirement of every Building Consent, and in particular the First Footing Inspection that the owner of the property identifies the boundaries of the property.

Identifying means finding and exposing the boundary pegs or, alternatively, at least having the boundaries redefined by a Registered Surveyor.

Please note that failure to undertake this work will probably result in the Building Officer being unable to undertake the first inspection because he cannot determine where the boundaries to the property are located.

Help us to help you.

Ensure that this is undertaken before the First Inspection.

John Kardas
Building Control Manager

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

IZBa
house of design
1 Utuhina Road
Rotorua
phone/fax: (07) 346 3862
mobile: (021) 676 361

26 September 2006

Rotorua District Council
Private Bag 3029
ROTORUA

ARCHITECTURE
29 SEP 2006

ATTENTION: COLIN WIGGINS – BUILDING OFFICER

RE: YEOMAN RESIDENCE – PARKLAND ESTATES
PUKEHANGI ROAD – CONSENT NO. 37021 / FILE NO. P31815

Further to your letter of 19 September 2006 regarding the above residence, I provide you with additional information in regards to the items raised.

1. The risk matrix is detailed on sht 3A.
2. Stutex stone installation details / specification is attached.
3. Stormwater disposal plan by B.S.K Engineers is attached.
4. Thermaclad specification was submitted with the consent application.
5. The steel brackets detailed are for pergola beam connections.
6. Phil Yeoman will provide the Rotorua District Council with the plasterers producer statement and license number on completion of their work.
7. Sewer connection details are noted on sht 1A.
8. The gutter board detail requested is for a concrete tile roof. This project has a colorsteel corrugate roof and has been detailed with the first sheet of roofing flashed with an abutment flashing, then overlayed with a second sheet of roofing extended to the ridge. Refer detail 23 sht 7.

Regards,

Darren Peacock

R0037021

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bsk Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

TELEPHONE
07 348 5394

FACSIMILE
07 348 2311

EMAIL
bsk.144@clear.net.nz

27 September 2006

Building Control Officer
Rotorua District Council
Private Bag RO3029
ROTORUA 3046

Dear Sir

RE: DISPOSAL OF STORMWATER AT LOT 6, PARKLANDS ESTATE FOR P YEOMAN

OUR REF: 16038

Please find attached our design and supporting calculations for stormwater disposal on this project. The soakholes are all into sands, with a minimum soakage rate of 7950mm/hr. To cope with a 1 hour duration, 10% AEP rainfall event, the following is required.

House Stormwater	5 No. 600mmø x 3000mm deep soakholes
Deck & Paved Area	2 No. 600mmø x 3000mm deep soakholes
Driveway	2 No. 600mmø x 3000mm deep soakholes

All soakholes should be lined with a permeable precast concrete liner. Soakholes serving the paved area and driveway should have a cesspit upstream of the soakhole to collect grit, ease maintenance and extend the life of the soakhole. Approximate positions are shown on the attached sketch.

Yours faithfully

B C Walshe
BE Civil (Hons), MIPENZ (Structural), CPEng, IntPE
BSK CONSULTING ENGINEERS LTD

RC 0037021

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

Consulting Engineers Limited

ADDRESS
1364 Hinemoa Street
PO Box 23
Rotorua
New Zealand

TELEPHONE
07 348 5394
FACSIMILE
07 348 2311

YEOMAN, LOT 6	JOB REF: 16038
STORMWATER.	DATE 27/9/06
	SHEET 1 OF

BH1, S_r = 7950mm/hr

BH2 S_r = 20947 mm/hr.

House Area = 371m². C=0.9

Road Area = 2.5×12.5 = 120m² C=0.85

Drive = 3×45 = 135m². C=0.85

R_C = 10CIA I = 45mm/hr (1 hour duration, 10% AEP)

House R_C = 10×0.9×45×371/10000 = 15m³

Paving R_C = 10×0.85×45×120/10000 = 4.6m³

Drive R_C = 10×0.85×45×135/10000 = 5.2m³

$V_{stor} = R_C - V_{soak}$. $V_{soak} = A_{sp} S_r/1000$

IF 600 Ø, A_{sp} = 0.2827m² House, V_{soak} = 0.2827×7950/1000 = 2.24m³

IF 3m deep, V_{stor} = 0.2827×2.6 = 0.74m³ ∴ V = 2.24+0.74 = 3m³/hole

∴ 5 holes O.K.

Paved Area 2 N° 600 Ø holes × 3m

Drive 2 N° 600 Ø hole × 3m.

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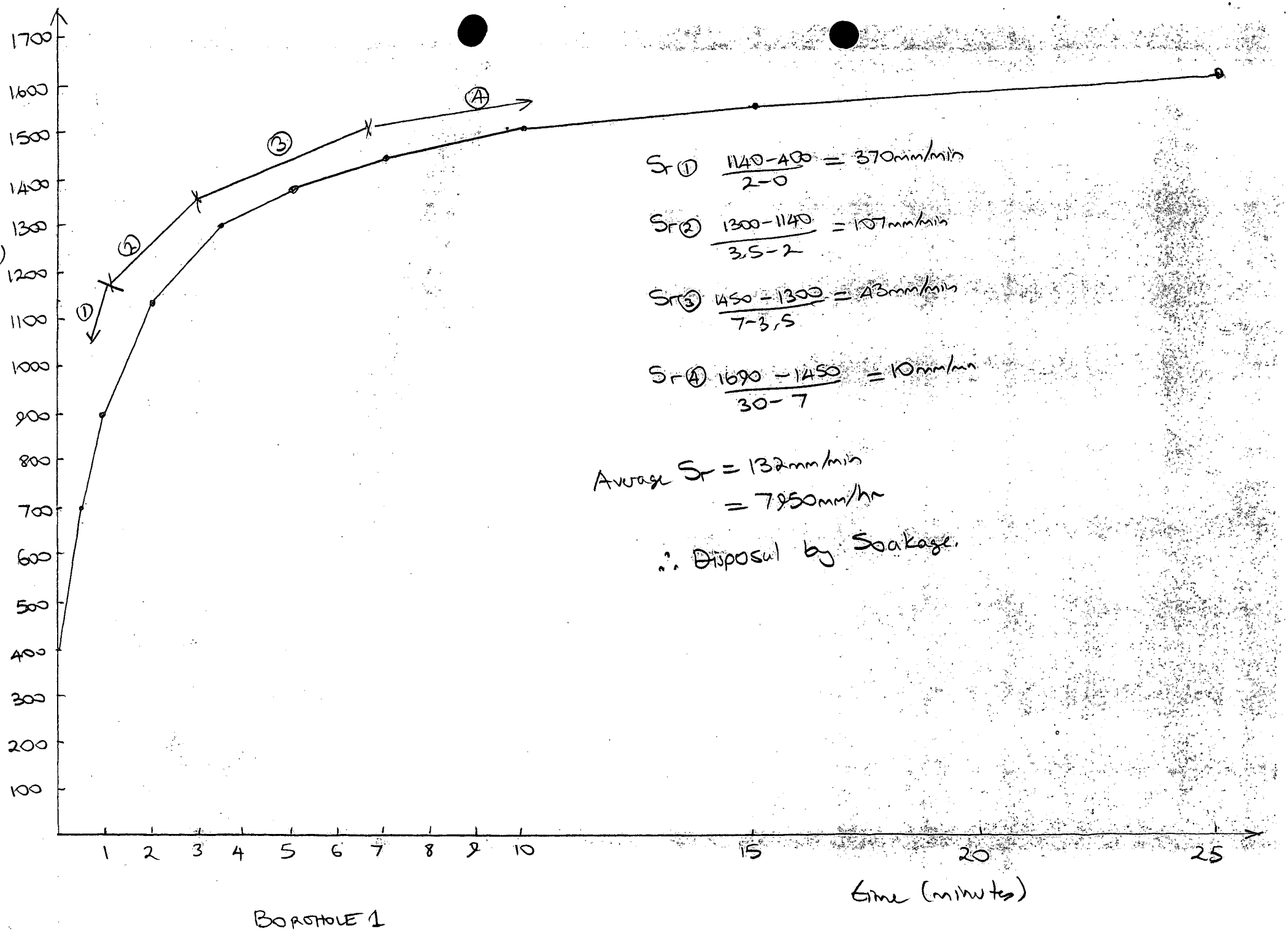

Sr ① $\frac{1140-400}{2-0}$ = 370mm/min

Sr ② $\frac{1300-1140}{3.5-2}$ = 107mm/min

Sr ③ $\frac{1450-1300}{7-3.5}$ = 43mm/min

Sr ④ $\frac{1690-1450}{30-7}$ = 10mm/min

Average Sr = 132mm/min
= 7950mm/hr

∴ Disposal by Soakage.

BOREHOLE 1

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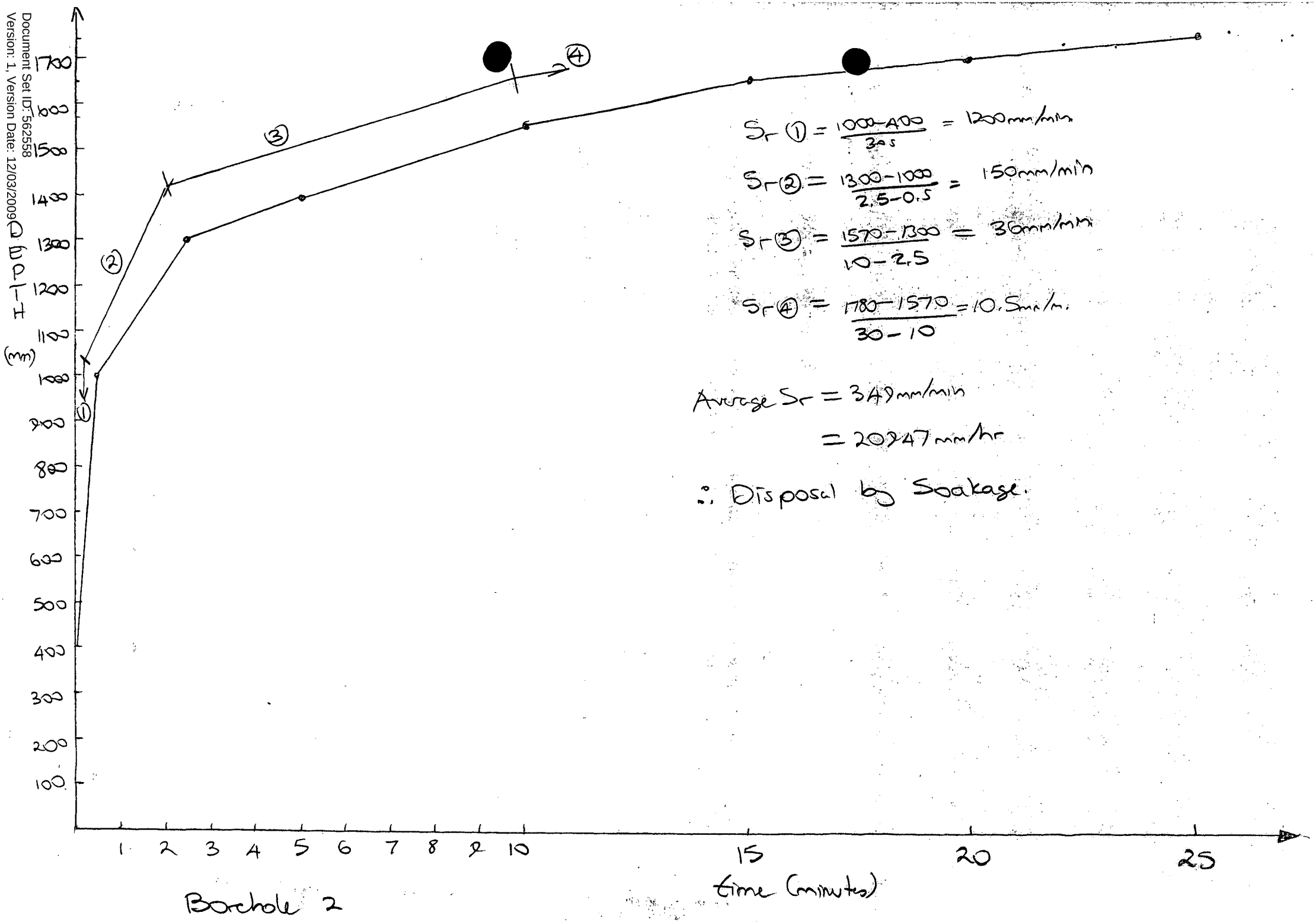


Borehole 2

S_r ① $= \frac{1000-400}{30s} = 1200\,mm/min$

S_r ② $= \frac{1300-1000}{2.5-0.5} = 150\,mm/min$

S_r ③ $= \frac{1570-1300}{10-2.5} = 36\,mm/min$

S_r ④ $= \frac{1780-1570}{30-10} = 10.5\,mm/m.$

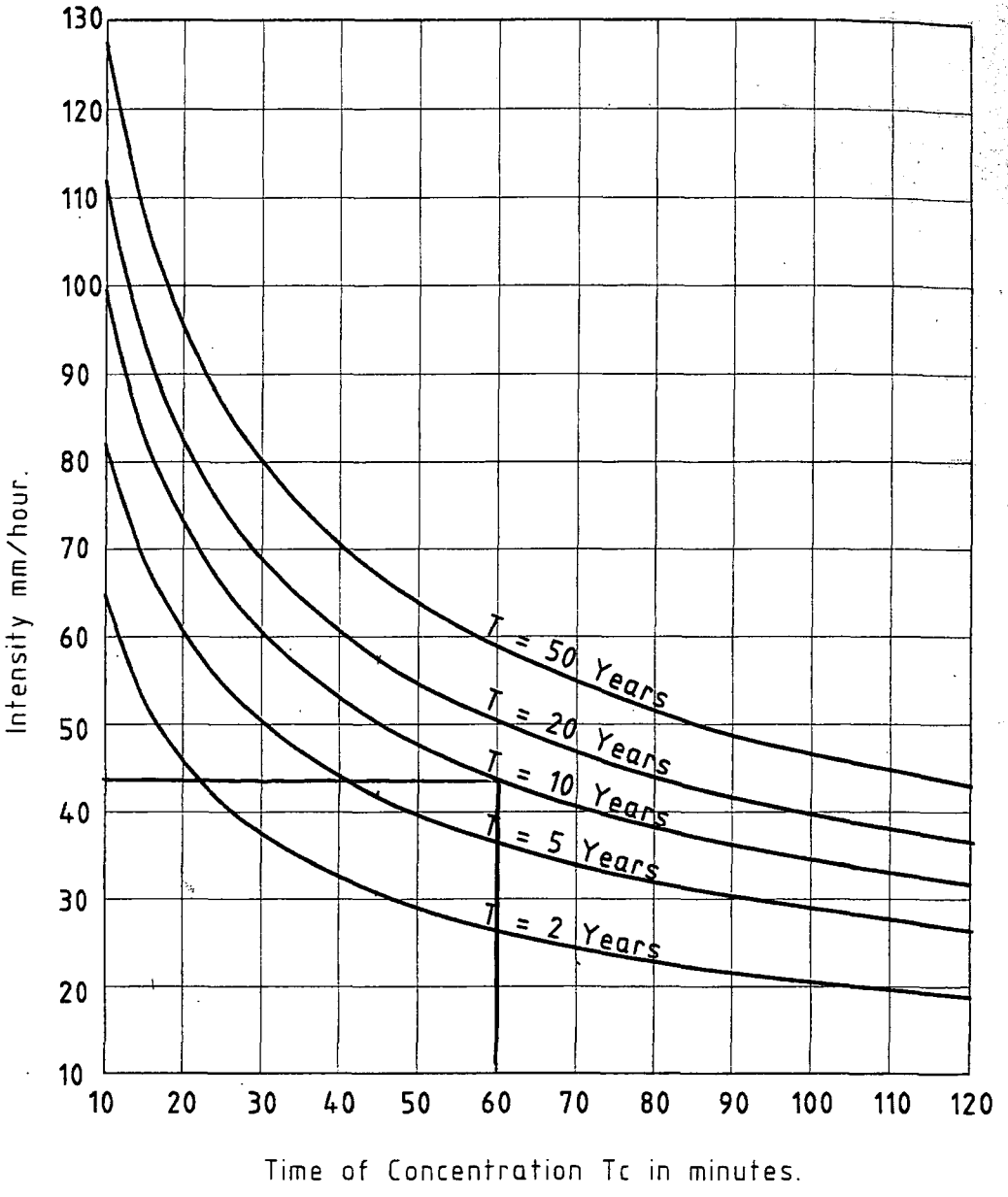
Average $S_r = 349\,mm/min$

$= 20947\,mm/hr$

∴ Disposal by Soakage.

Rotorua Rainfall

1966 - 1989



ROTORUA DISTRICT COUNCIL

STANDARD DRAWING- STORMWATER & LAND DRAINAGE

THIS DWG REVISED JULY 2001

RAINFALL INTENSITIES

SD 01

NOT TO SCALE

ROTORUA CIVIL ENGINEERING INDUSTRY STANDARD

SD 01 - Rainfall Intensities

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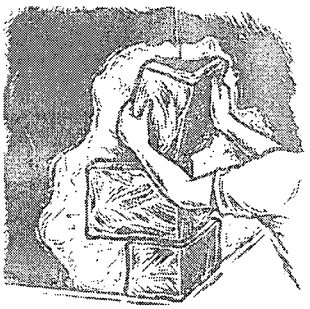
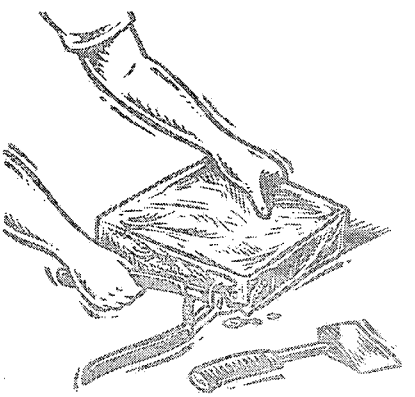


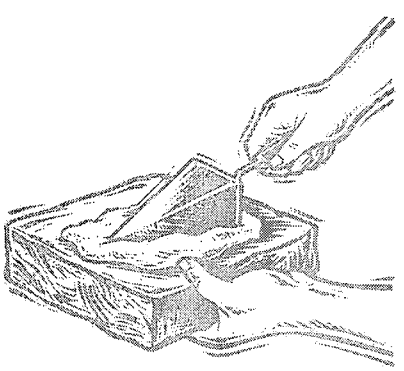
HARD AS ROCKS

ELDORADO STONE®



Construction Guide

Construction Guide



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Introduction

The New Zealand building industry is lucky to be well served with a huge variety of options and products available for external cladding; Timber, metal, plaster, stone, fibre cement products and glass are just a few of these options available to architects and home builders. However, with the recent 'leaky house' problems and the insurgence of cheap Asian imports it is becoming increasingly important for architects, builders and home owners to wade through all the options and select and specify quality, 'tried and proven' methods and products that will stand the test of time and not just provide a 'cheaper option'. Many of these new products offer lifetime guarantees but have only been around for 5 years or so. When it comes to stone veneers be sure to specify a product that has as established reputation for quality and a history of standing the test of time. Cheaper versions often use inferior oxides, weaker aggregates and cheaper cement in the manufacturing process. Don't get caught out by using a product that fades under our harsh UV rays, or breaks down under our extreme weather conditions just to save a few dollars.

Eldorado Stone began in 1969 with the objective of creating The Most Believable Architectural Stone Veneer In The World. It had to be easy to install and less expensive than real stone but, more importantly, it had to look like the real thing - something not always true of other manufactured stone.

Eldorado Stone is manufactured from Portland Cement, high quality permanent iron oxide pigments and lightweight aggregates. It is this lightweight characteristic that enables this product to be used effectively where the shear weight of real stone would restrict the application capabilities. Eldorado Stone is classified as a 'medium weight slip' and its veneer style installation allows it be used in existing buildings and applied to any timber framed building covered by NZS 3604 (timber frame buildings), so there is no need for special foundation or framing designs. This also enables the product to be used extensively above windows and roof lines and on second floor applications over standard timber framing.

Eldorado Stone is generally applied as a decorative slip over an approved fibre cement board system, but can also be applied over brick, concrete blocks and even some plaster applications. Eldorado Stone is fixed to the wall using specialty mortar mixes or tile adhesives that carry flexibility, waterproofing and bonding capabilities.

Eldorado Stone should be treated at all times as a decorative finish to suitable substrates, meaning that careful and strict attention should be carried out to fully waterproof the substrate, including all flashing and sealing before the stone is applied. All details, workmanship and waterproofing systems should meet E2 and local authority requirements.

Where possible we encourage the use of corner stones, trim and a few simple rules of application to best replicate the depth, dimension and believability of stone usage, the difference between pasting stone on to a surface and working with stone so that it becomes an integral component of a structure. It doesn't take a trained professional to notice the difference.

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Technical

1. Product: Eldorado Stone is made from lightweight aggregates, Portland cement and high-quality, permanent iron oxide pigments, and carries a 50 year limited Warranty

2. Weight: Average Weight 49kg/m^2

3. Thickness: Ranges from 20 – 75mm, Average 50mm

4. Thermal Resistance: R Factor = 0.6, varies with thickness

5. Combustion: Zero flame spread, zero fuel contributed and zero smoke developed

6. Substrates: Concrete block
   Brick work
   Tilt slab or formed concrete
   Approved fibre cement board vented system:

   - BGC Stonesheet 7.5mm (www.bgc.com.au)
   - VentClad Eterpan (www.pbs.co.nz)

   All fibre cement board applications should meet E2 and building code requirements and all manufacturers' installation specifications.

7. Adhesion: Eldorado Stone can be applied using specialty mortar mix or tile adhesive application. The chosen product should provide a flexible component, waterproofing additive and bonding agent. The chosen adhesive should also be compatible with the sealer used to waterproof the substrate. All adhesives used should strictly adhere to manufacturers specifications and carry specific literature relevant to this type of application.
   Some of the recommended adhesive products are:

   - Primal MC 76LO
   - Kerakoll H40 Flex
   - Cemix Tile Bond Latex
   - FEBond SBR
   - Nu Plex FLC Emulsion

8. Sealing: Eldorado Stone does not require sealing in a standard application, however it may be desirable for attaining deeper colours and for minimizing possible staining. If the installation is in an area where the stone is likely to get dirty such as a fireplace, it is advisable to seal with a penetrating stone sealer to make cleaning easier.

   Eldorado Stone will age in a wet environment in the same way as natural stone. Such applications will void the 50 year manufacturer's guarantee. To reduce these aging effects, it is strongly recommended to use a penetrating stone sealant.

   The sealer should be tested for colour change on several loose stones before application.

9. Cleaning: Cleaning may be required periodically with a soft brush and a granulated type detergent mixed with water. Efflorescence may appear as a white dust on the surface, as does with most masonry products. This can be removed with 5 parts water to 1 part household vinegar mix applied with a soft brush and removed with fresh water.

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Frequently Asked Questions

Frequently Asked Questions

How much does Eldorado stone weigh?
Eldorado is classed as a medium weight slip and weighs on average 45-55kg per square meter on the wall. The weight will vary depending on the thickness of the profile chosen

Can Eldorado Stone be used behind or around a fireplace?
Yes, Eldorado Stone has a zero rated combustion level; however you should not use the product inside the fireplace. Use kiln fired bricks if constructing an outside fireplace or fire pit. If it is an open fire you may need to use a penetrating stone sealer to help protect the surface from soot.

What about corners?
All profiles and colour choices come with a pre-formed 90 degree corner stone. Corners are measured by the lineal meter and come packaged in separate boxes to flat stones. Corner stones can be effectively used to give the appearance of depth as returns into windows or joinery to resemble a solid natural stone wall.

What does Eldorado Stone stick to?
Eldorado stone can be applied to concrete blocks, bricks or an approved sealed fibre cement board. See detail drawings and contacts later in this guide for more information on BGC Fibre Cement Board and VentClad Eterpan.

Does Eldorado Stone come in panels?
In order to create a truly realistic finish and to avoid noticeable panel shaped joints, most stones are individually crafted and coloured to give it its own unique form. The pieces are flat backed to assist with speed and ease of laying but a skilled craftsman is still required to piece together the 'puzzle' and ensure a truly realistic and detailed finish. Stacked Stone and Mountain Ledge have been made in rectanguar panels as the formal square lines of the stone enable the panels to be hidden on the wall. This helps with the speed of laying.

Will the colours fade?
Only permanent mineral oxide colours are used. Eldorado stone offers a 50 year limited guarantee restricted to manufacturing and colouration defects. Unlike other new 'unproven' stone veneers, Eldorado has over 35 years experience in the man made stone business. Be sure to use only the best.

What is Eldorado Stone stuck on with?
Eldorado Stone is fixed with a flexible tile or mortar based adhesive. Care should be taken to use a compatible range of products incorporating the sealing of the substrate and fixing of the stone. E.g. Primal MC-76LO is an additive that when used in standard cement and sand mortar mix (per manufacturers specifications) can offer many solutions including added strength, flexibility, water resistance, a bonding agent and freeze thaw resistance etc. It can also be used to waterproof the substrate. BGC Fibre Cement products have used Primal MC-76LO as a sealer in the manufacturing process making this the ideal additive to use in the mortar mix.

What is Eldorado Stone made from?
Eldorado Stone is manufactured from lightweight aggregates, Portland Cement and Iron oxide pigments.

How is it packaged?
Eldorado Stone is pre packed into convenient sized cardboard boxes and stacked on wooden pallets. Quantities range from 0.9m^2 - 1.3m^2 per box of flats and 3lm - 4.4lm of corners per box. All stone is sold by the box unless specified by your local distributor.

50 YEAR LIMITED WARRANTY

Manufacturer warrants Eldorado Stone® Wall Veneers for a period of 50 years against manufacturing defects when used on structures conforming to local building codes and when installed in accordance with manufacturer's written instructions. Warranty coverage specifically excludes damage resulting from wall movement; settlement of the building; contact with chemicals or paint; and discoloration due to contaminates, staining or oxidation. Warranty coverage is limited to replacement or repair of defective materials only and does not cover labor to remove or replace materials. Warranty coverage is limited to the original purchaser.

ELDORADO STONE®

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BGC Fibre Cement (NZ)

Main Freight Logistics
21 Hobill Avenue
Manukau City
New Zealand
Telephone: (09) 263 507
Facsimile: (09) 263 5091
Email: bgcnz@xtra.co.nz

Postal Address:
PO Box 76695
Manukau City
New Zealand

BGC FIBRE CEMENT (NZ)
STONESHEET 6.0mm & 7.5mm FIBRE CEMENT BACKING SHEET

DATED 01.01.06

TO WHOM IT MAY CONCERN:

BGC Fibre Cement sheets are manufactured with the newest technology and with our special post manufacturing treatments resulting in a sheet with exceptional inter lamina bond strength and substantial permeability reduction with the Stonesheet Durasheet surface Primal Coating.
Due to this proven technology and treatment BGC Fibre Cement (NZ) have no hesitation in warranting their 6.0mm & 7.5mm DURASHEET product as a substrate for Eldorado Stone products up to 60kgs/m2.Over this weight to be specifically designed.

The Primal Coated Stonesheet Durasheet packs are clearly marked STONESHEET.
BGC Durasheet will meet the requirements of NZBC B2 Durability and as such is not susceptible to long term moisture damage and the sheet itself is expected to have a serviceable life of 50 years.

Weathertightness Test:
BGC Fibre Cement (NZ) Cavity system was BRANZ tested on 11 May 2004 and passed all tests confirming its Weathertightness under test certificate number TP1171.

Signed:

Dave Doidge
NZ Branch Manager
BGC FIBRE CEMENT (NZ)

BRANZ APPRAISED
SPECIFY WITH CONFIDENCE

Document Set ID: 562558
Version: 1, Version Date: 12/03/2009

BRANZ APPRAISED

SPECIFY WITH CONFIDENCE

BRANZ APPRAISAL CERTIFICATE No. 391 (2000)

BGC FIBRE CEMENT DURASHEET™

BGC (Australia) Pty Ltd
trading as
BGC Fibre Cement
PO Box 1408
Canning Vale
WA 6155
Australia
Tel +61-8-9334 4900
Fax +61-8-9334 4901
Internet: http://www.bgc.com.au

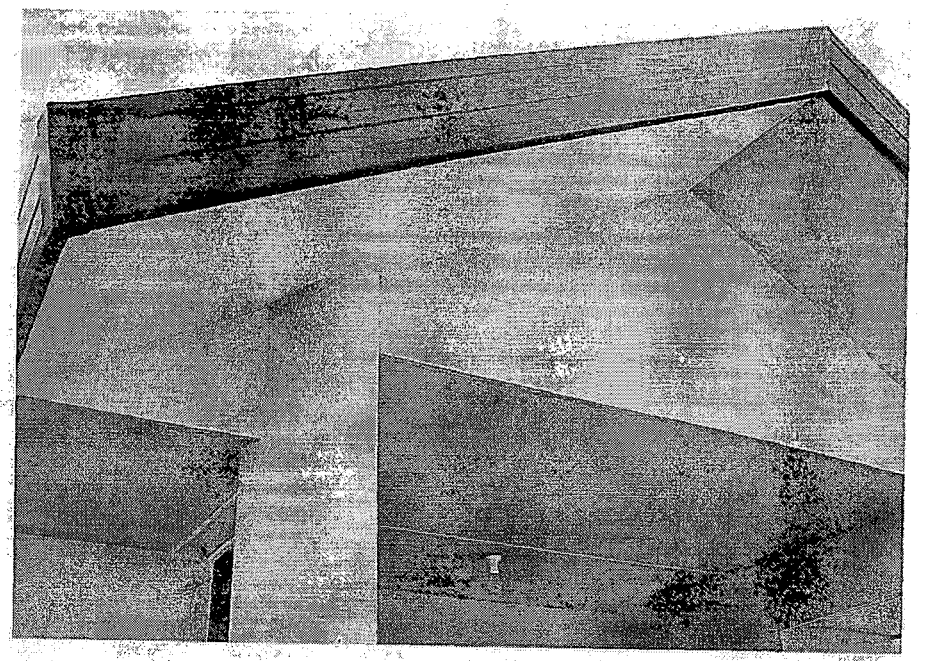
Marketed by
BGC Fibre Cement (NZ)
Shed D Onehunga Wharf
Onehunga
New Zealand
Tel 0-9-634 2180
Fax 0-9-634 2185

Readers are advised to check that this Certificate has not been amended, withdrawn or superseded by a later issue. Refer to the "Valid Certificates Index" in BUILD magazine published by BRANZ, the Certificate Listing on the BRANZ Internet Site, or contact BRANZ.

BRANZ, Private Bag 50908
Porirua City
New Zealand
Telephone: +64-4-235 7600
Fax: +64-4-235 6070
http://www.branz.org.nz

Product

- ***This Certificate relates to BGC Fibre Cement Durasheet™, which is a range of fibre cement sheets for exterior applications.***
- *The product has been appraised for use as an exterior cladding and lining material when fixed to timber and steel frame buildings. It has also been appraised for use as a bracing material when fixed to walls of timber frame buildings.*
- *The product must be installed, used and maintained in accordance with the manufacturer's technical literature 'BGC Fibre Cement (NZ) Durasheet™' dated March 2000. Unless stated otherwise, reference to 'technical literature' shall be taken as this document.*



Building Regulations

1. New Zealand Building Code (NZBC)

In the opinion of BRANZ, BGC Fibre Cement Durasheet™ if used, installed and maintained in accordance with the statements and conditions of this Certificate, will meet or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4 for the relevant physical conditions of B1.3.3. See Section 7.

Clause B2 DURABILITY: Performance B2.3.1(a) not less than 50 years, and B2.3.1(b), 15 years. See Section 9.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2 and E2.3.6. See Section 10.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The product will not be harmful to people.

2. NZBC Approved Documents

Durasheet™ may, when fixed to timber framing with stainless steel annular groove nails, be used to satisfy the bracing demand determined by Section 5 of NZS 3604:1999, which has been approved as an Acceptable Solution for NZBC B1/AS1 and B2/AS1.

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ROHM AND HAAS PRODUCT DATA

Primal®MC-76LO

100% acrylic emulsion for two-pack cement-based formulae, especially suited for 'low-odour' applications

Key features and benefits to formulators

- 'Fourth-generation', low viscosity emulsion developed specifically for enhancing the strength, durability and adhesion of cement-based products.
- Suitable for the formulation of conventional and lightweight renders and coatings, waterproofing systems, patching and repair mortars, underlayments and commercial flooring.
- Provides dramatic improvements in bonding liquid applications, especially under wet conditions.
- Low-odour formulation ensures reduced worker discomfort during mixing and installation.
- Formulated systems display the typical '100% acrylic' benefit on exterior exposure: no degradation or colour development.

Physical properties

The following are typical, but should not be considered as specifications:

Appearance	**Milky emulsion**	**Glass transition temperature (Tg), DSC (onset), °C:**	**5**
Ionic charge	**Nonionic**	**Minimum film formation temperature, °C**	**11**
Solids, by mass, %	**47.0**	**pH**	**9.3**
Solids, by volume, %	**43.8**	**Viscosity, cps**	**20**
Density @ 25°C, kg/litre	**1.06**		

Additional information

Contact your local representative for samples of Primal® MC-76LO and of representative formulae.

The product detailed in this bulletin will be supplied preferentially from a manufacturing facility within the Asia-Pacific Region. Conformance to the requirements of ISO 9002 or to local equivalent quality protocols ensures consistently high standards, immaterial of the source, although the pack size and method of packaging may differ.

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FEB FEBOND SBR FEB

MULTI-PURPOSE ADMIXTURE FOR CEMENTITIOUS SYSTEMS. WATERPROOFS AND GREATLY IMPROVES MORTARS. EXCELLENT BONDING AGENT

Description:

FEBOND SBR is a styrene-butadiene co-polymer latex specifically designed for use with cement compositions.

It is used in mortar and concrete as an admixture to increase water resistance, wear resistance and durability.

It is used with cement as a reliable water-resistant bonding agent.

Primary Uses:

- Concrete repair.
- Floor screeds and toppings.
- External rendering.
- Waterproofing and tanking.
- Fixing brick slips and tiles.
- Corrosion protection of steel.

Typical Applications:

Concrete Repair:
Spalled concrete, repairing floors, beams and pre-cast slabs.

Floor Screeds and Toppings:
Abrasion resistant and non-dusting floors, underlay for special finishes, mild chemical and effluent-resistant floors.

External Rendering:
Waterproof, weatherproof and frost resistant render.

Waterproofing and Tanking:
Basements, lift pits, inspection pits, water towers, liquid tanks, effluent tanks, swimming pools.

Other Typical Applications:
Bedding tiles, fixing or re-fixing slip bricks, bonding new concrete to old.

Advantages:

FEBOND SBR modified cement-based mixes have the following advantages:—

- Earlier hardening.
- Greatly improved flexibility.
- Tensile strength normally doubled.
- Greatly reduced shrinkage.
- Prevents bleeding.
- Lower water-cement ratio.
- Increased durability and toughness.
- High resistance to water penetration.
- Good abrasion resistance.
- Good frost resistance and resistance to salt permeation.
- Good resistance to many chemicals and to mineral oil.
- Excellent adhesion to steel and concrete (increased by up to 25 times.). Sticks well to brick, glass, asphalt, wood, expanded polystyrene and most building materials.
- Prolonged corrosion protection.
- Proven performance.
- Similar thermal expansion and modulus properties to concrete (unlike resin mortars and primers).
- Non-toxic. Can be used with potable water.
- More economical than epoxy or polyester resin mortar.

Action:

The use of FEBOND SBR synthetic latex in cement-based slurries and mortars compensates for many deficiencies in the mixes without detracting from their inherent strength and properties.

FEBOND SBR has been developed specifically for use with Portland Cement. As ordinary mortar dries out, voids are left which make it permeable and weaker. When SBR is added, the SBR particles bind together to form continuous films and strands — these stitch the opposite sides of the voids together and block up the spaces, thus increasing strength and resistance to water penetration.

FEBOND SBR combined with cement produces an excellent adhesive; each component complements the properties of the other in this respect.

Composition:

FEBOND SBR is a milky, white liquid, produced from styrene and butadiene by high pressured emulsion polymerisation. The latex contains microscopic particles of synthetic rubber, dispersed in an aqueous solution. FEBOND SBR modified mixes may be slightly darker than corresponding unmodified mixes.

Properties:

Typical properties of FEBOND SBR modified cement and sand mix are given below. Unless otherwise stated, these are based on a "3 parts sand to 1 part cement" mix in which 10 litres of FEBOND SBR per 50kg of O.P. Cement has been incorporated.

Compressive Strength:	Up to 69N/mm² dependent on cement used and workability.
Tensile Strength:	Up to 6.5N/mm² dependent on cement used and workability.
Flexural Strength:	Up to 13N/mm² dependent on cement used and workability.
Freeze Thaw Resistance:	Excellent.
Water Vapour Permeability:	Less than 4gm/m²/ 24hr. through an 11mm thick test piece*.
Adhesion:	Excellent to concrete, steel, brick, glass, etc.
Coefficient of Thermal Expansion:	
—20° C + 20° C:	12.8 x 10^{-6}.
+20° C to + 60° C:	12.9 x 10^{-6}.
Chemical Resistance:	Resists mild acids, alkalies, sulphates, chlorides, urine, dung, lactic acid, sugar, etc.
Shrinkage During Cure:	0.01% to 0.02%.
Resistance to Water under Pressure — 30m Head:	Excellent — no water penetration through a 15mm thick test piece*.

Directions for Use:

Surface Preparation:
Surfaces to which FEBOND SBR mixes are to be applied should be clean, sound and free of deleterious substances.

Remove all laitance, oil, grease, mould, oil or curing compound from concrete surfaces using wire brush, bush hammer, scabbler or other plant as appropriate. Ensure that reinforcing steel is clean and free from grease or oil; remove scale and rust. When repairing spalled or damaged concrete, ensure that the concrete has been cut back to thoroughly sound material.

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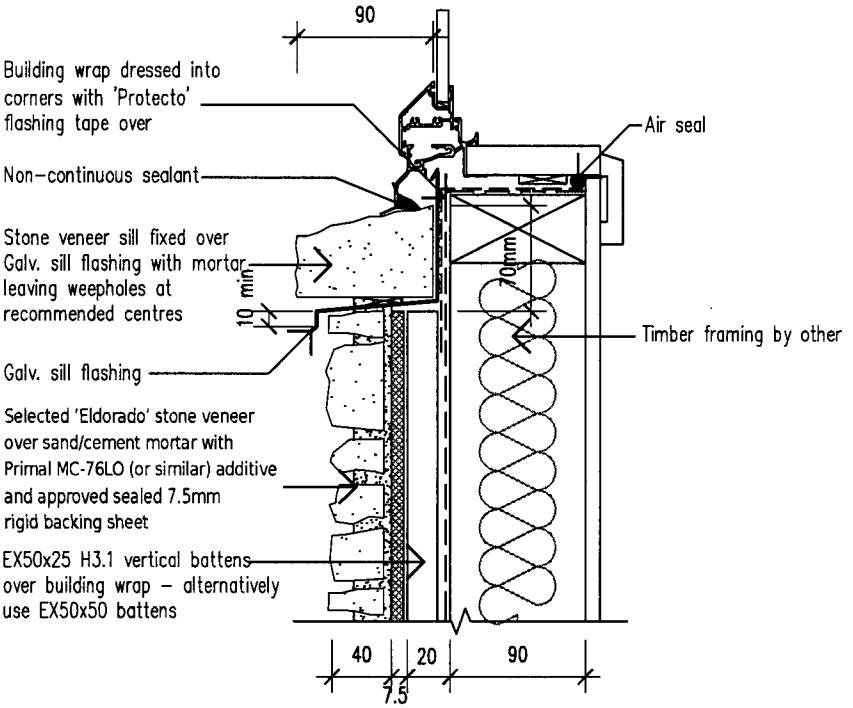


NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

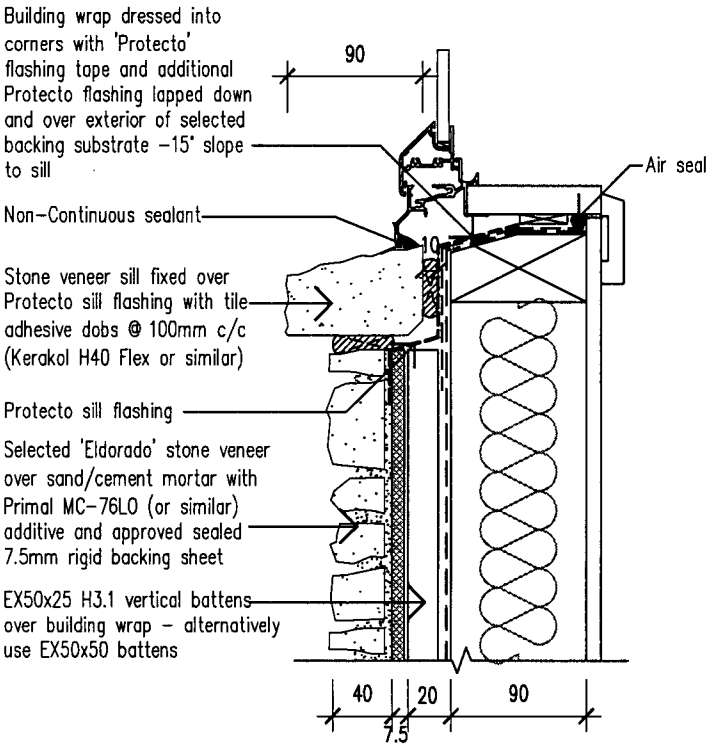
WINDOW SILL - 90mm SILL BLOCK

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

NOTE:
Substrate and adhesives and additives to be in strict accordance with manufacturers recommendations and literature



AMMENDED 21/02/06

WINDOW SILL - 90mm SILL BLOCK EX50x25 BATTENS

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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NOTE:
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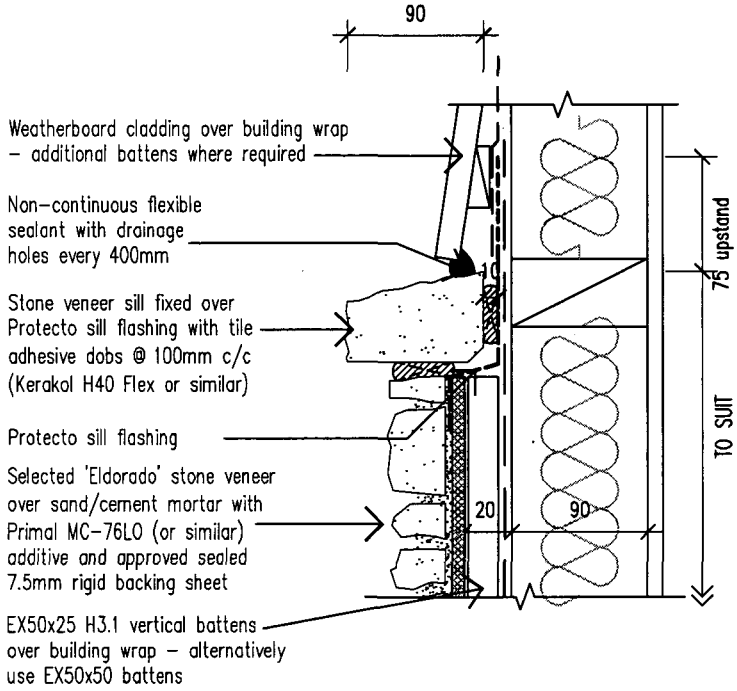


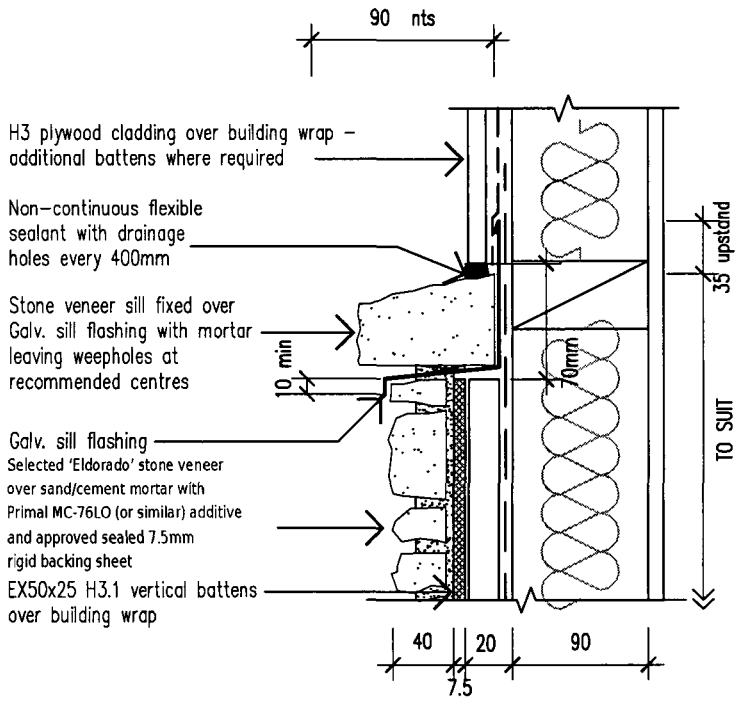
AMMENDED 21/02/06

HORIZ JOINT WITH W/B's EX50x25 BATTENS

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT



NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

HORIZ JOINT WITH PLY CLADDING

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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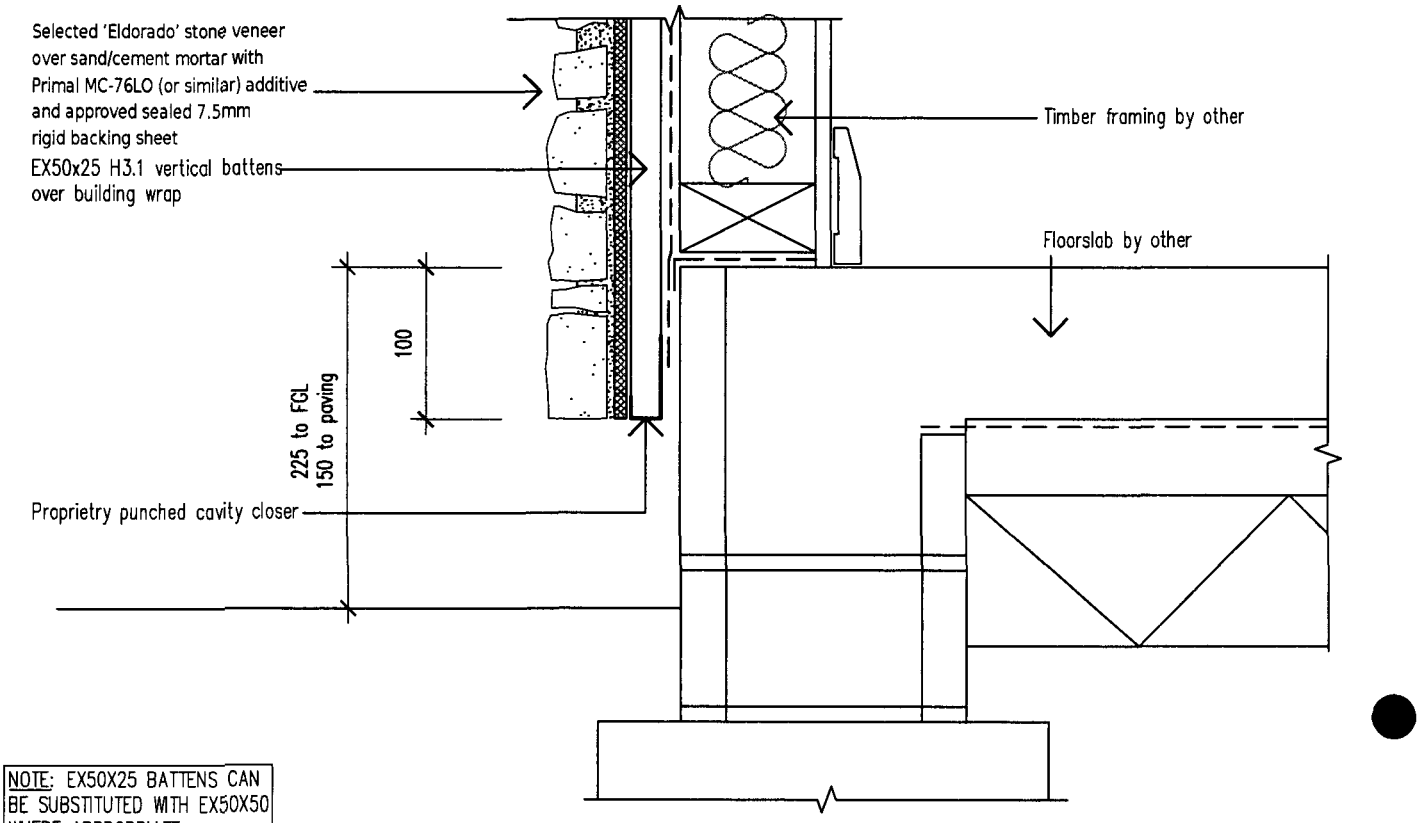


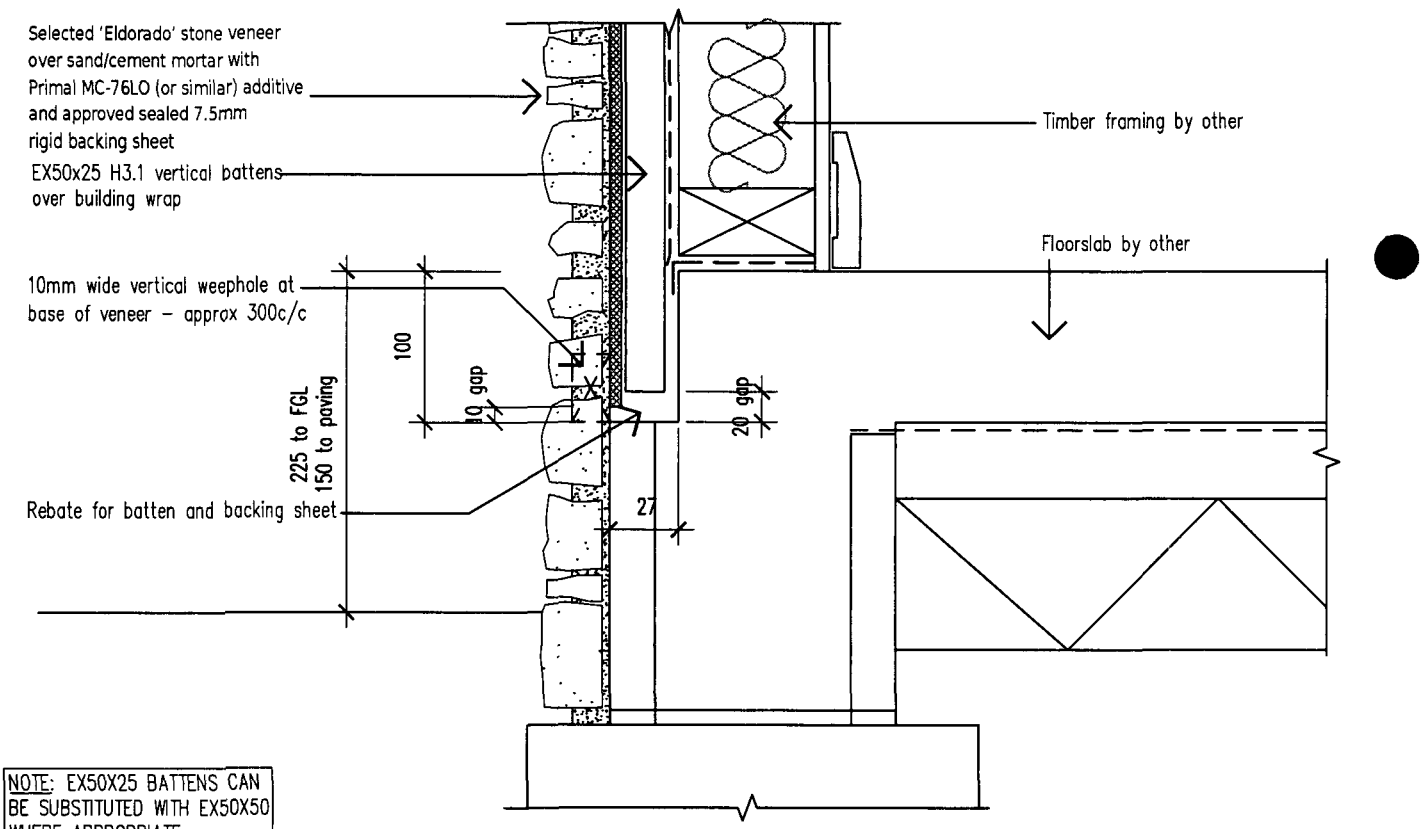
NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

STANDARD SLAB EDGE DETAIL

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT



NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

REBATED SLAB EDGE DETAIL

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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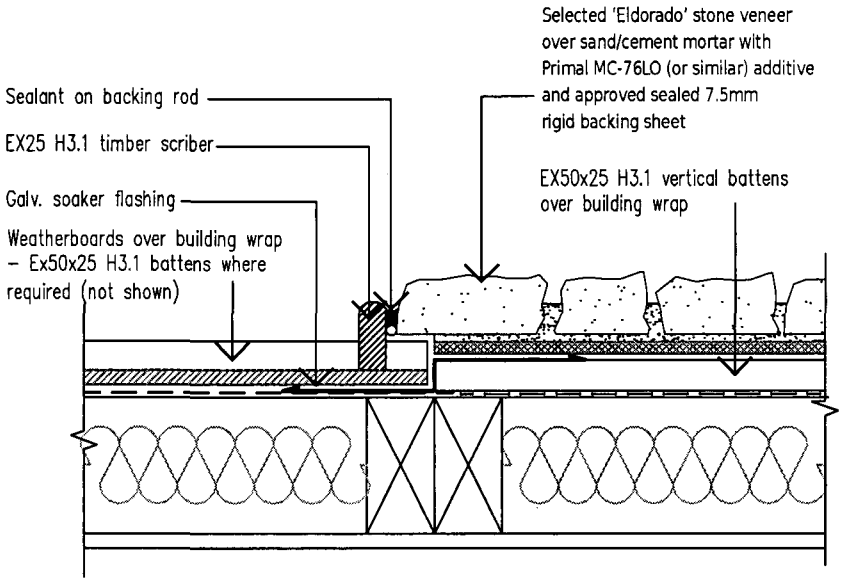

VENEER TO W/B - VERT. JOINT I

SCALE NTS

ELDORADO STONE

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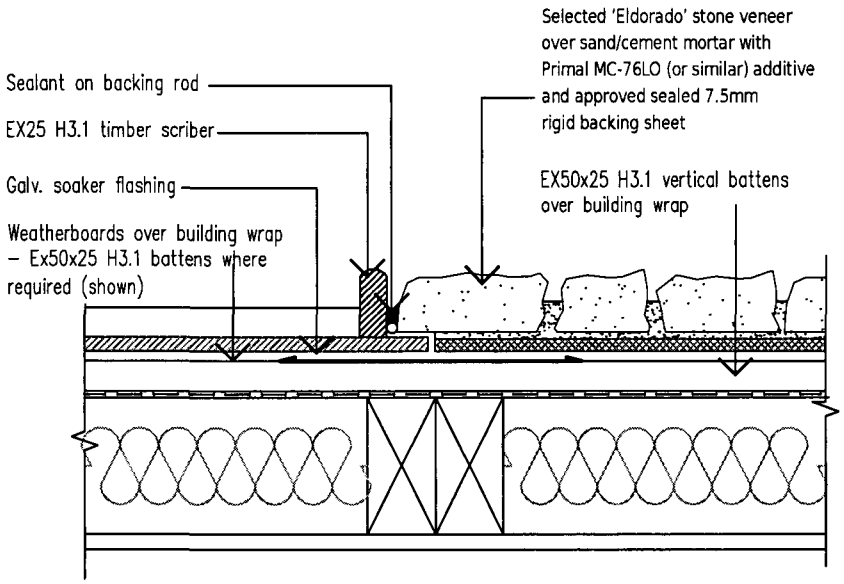

VENEER TO W/B - VERT. JOINT II

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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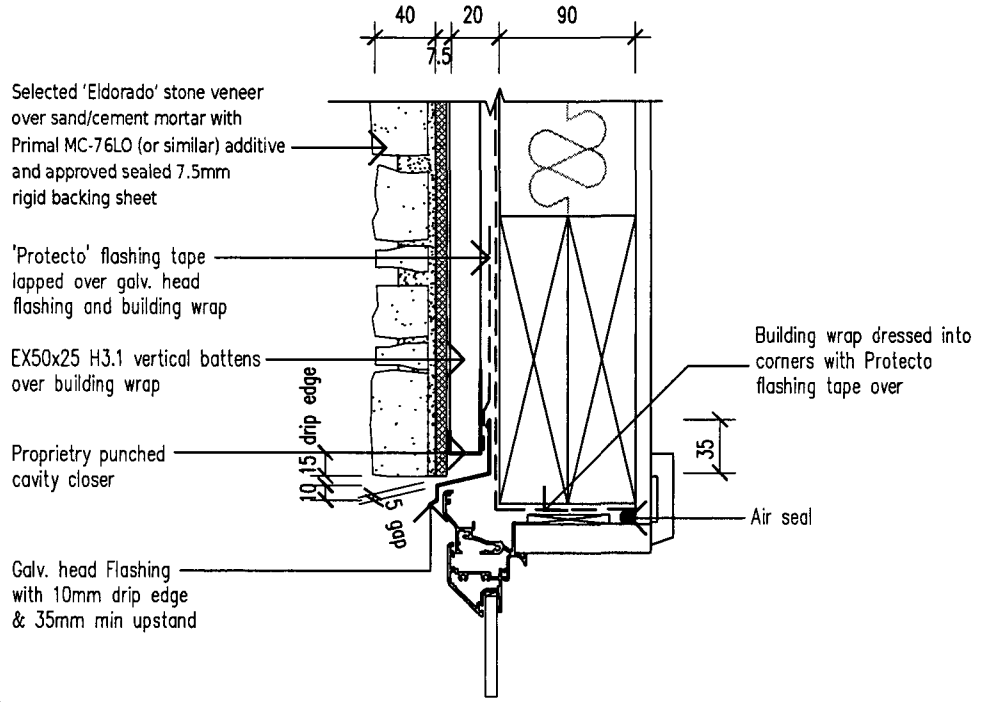

NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

WINDOW HEAD DETAIL

SCALE NTS

ELDORADO STONE

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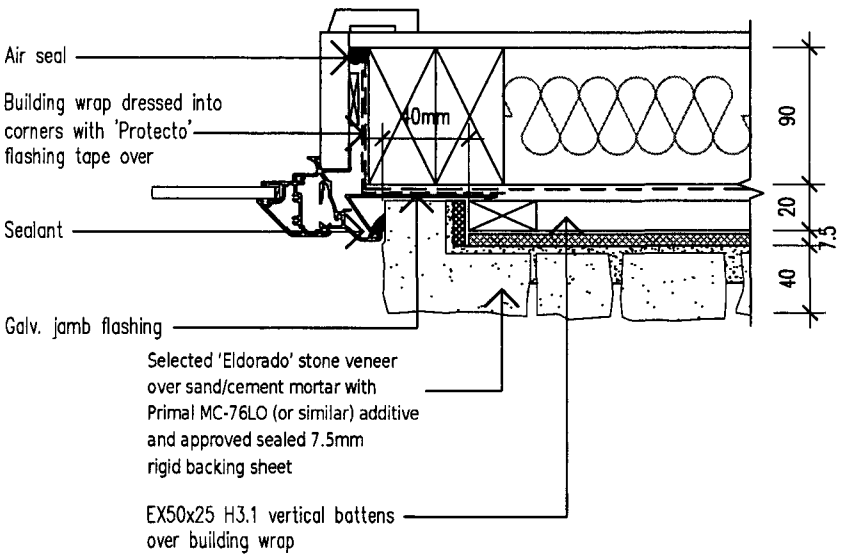

NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

WINDOW JAMB DETAIL

SCALE NTS

ELDORADO STONE

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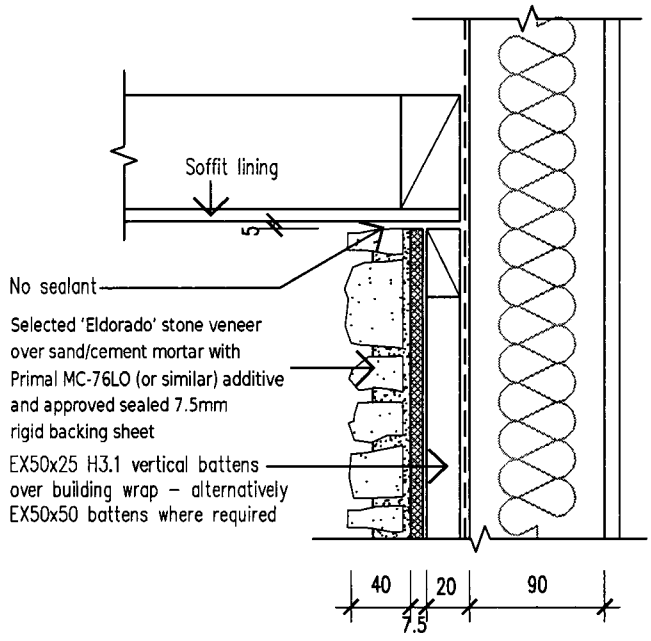
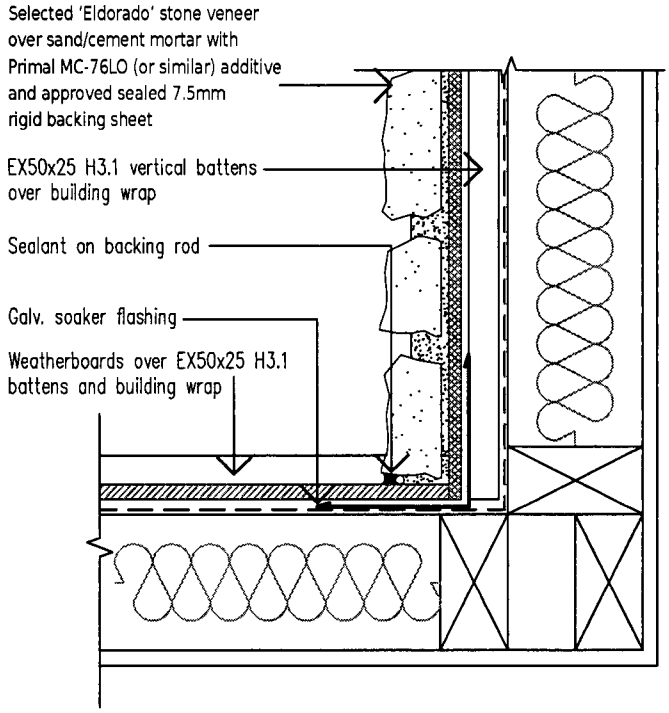


SOFFIT DETAIL

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT



INT. CORNER WITH W/B's

SCALE NTS

ELDORADO STONE

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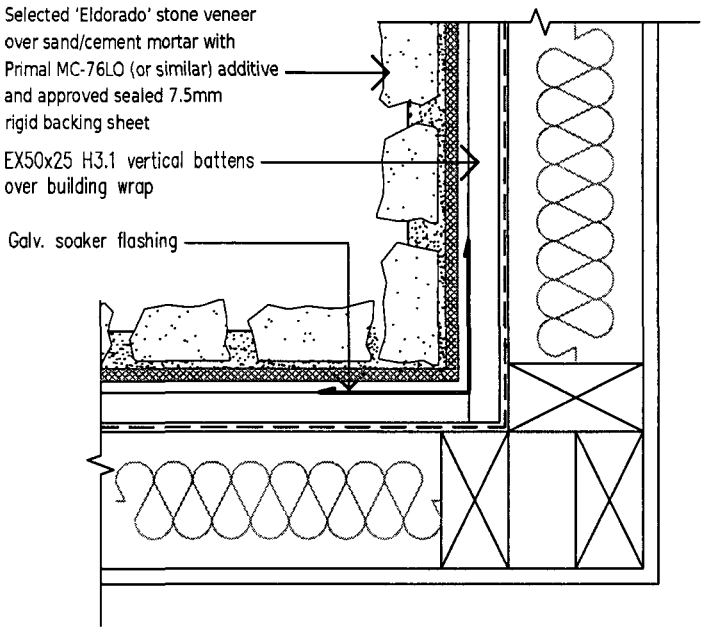

NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

INT. CORNER DETAIL

SCALE NTS

ELDORADO STONE

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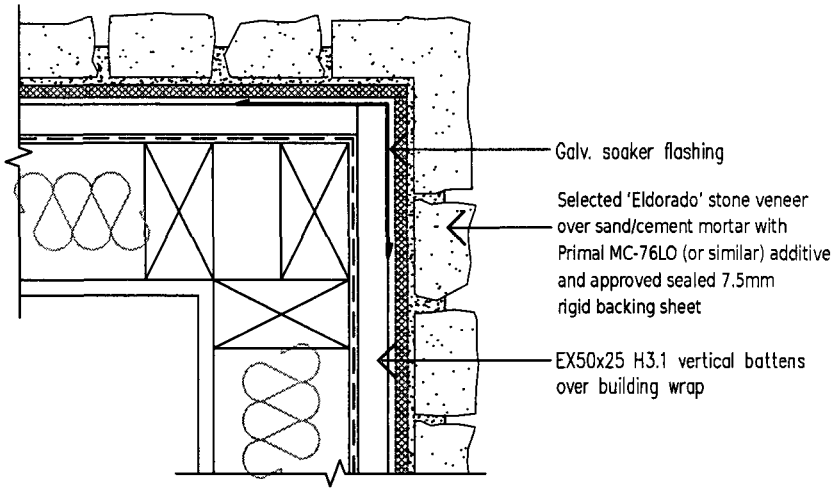

NOTE: EX50X25 BATTENS CAN BE SUBSTITUTED WITH EX50X50 WHERE APPROPRIATE

EXT. CORNER DETAIL

SCALE NTS

ELDORADO STONE

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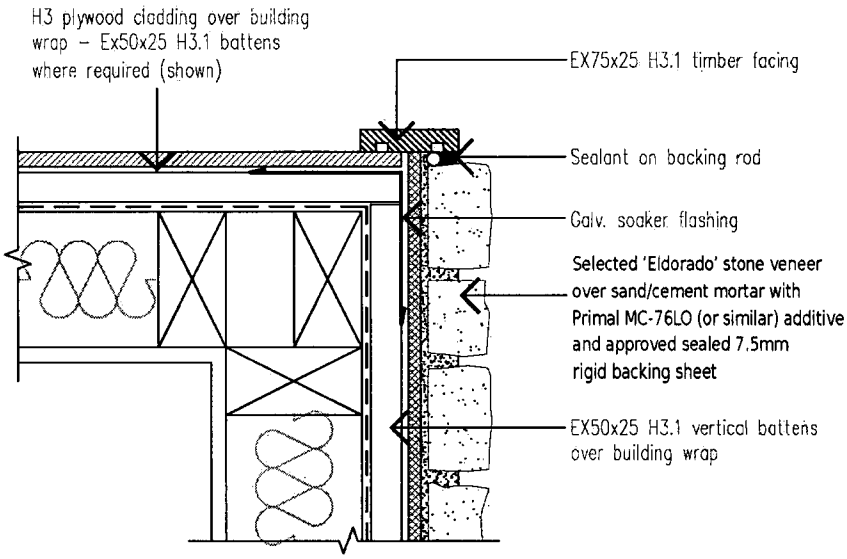

EXT. CORNER WITH PLY CLADDING
I

SCALE NTS

ELDORADO STONE

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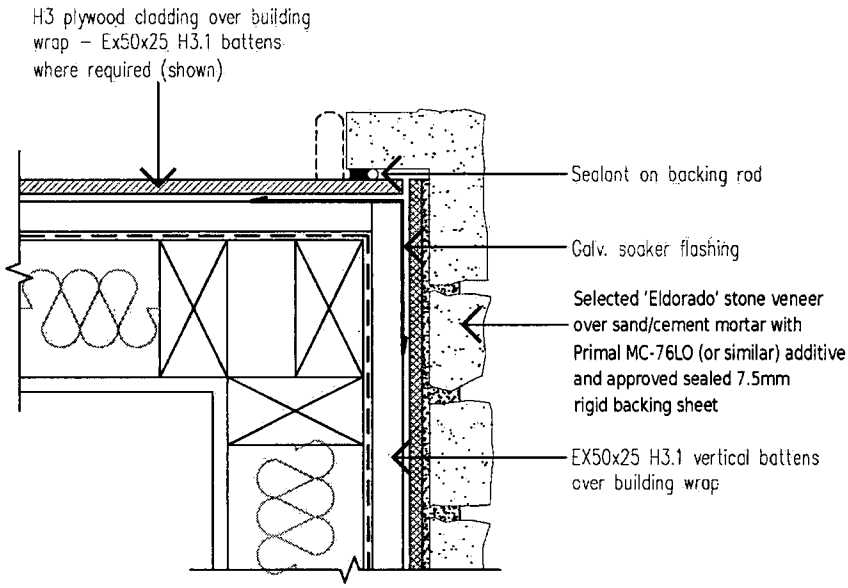

EXT. CORNER WITH PLY CLADDING
II

SCALE NTS

ELDORADO STONE

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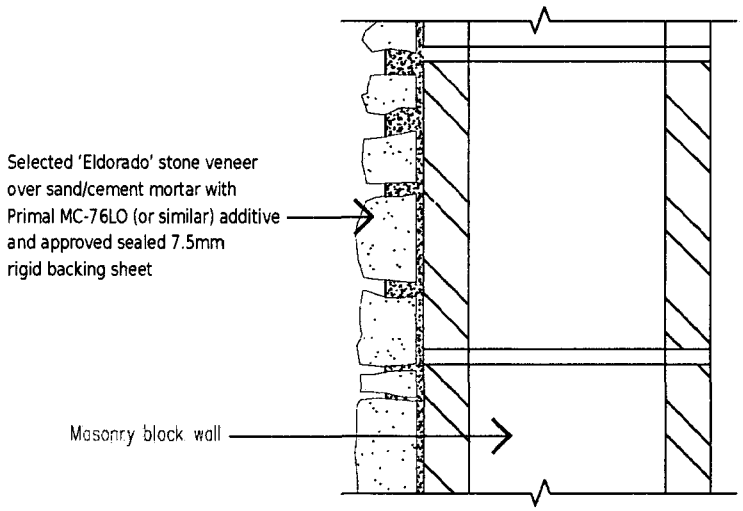
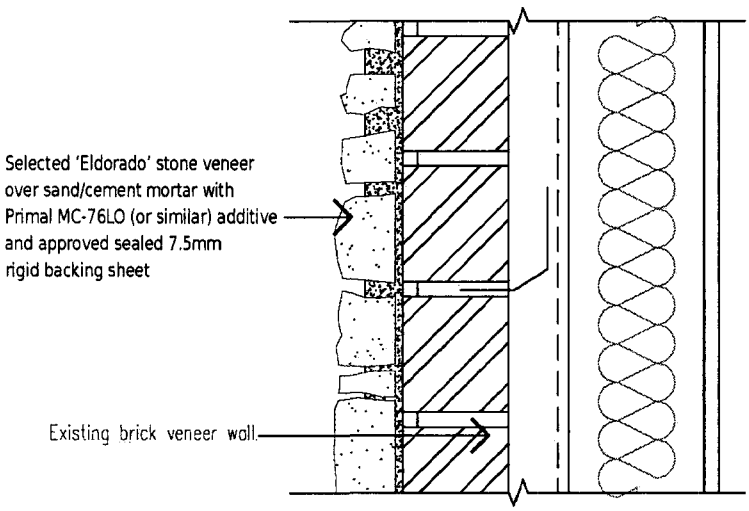


STONE VENEER OVER BLOCK WALL

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT



STONE VENEER OVER BRICKWORK

SCALE NTS

ELDORADO STONE

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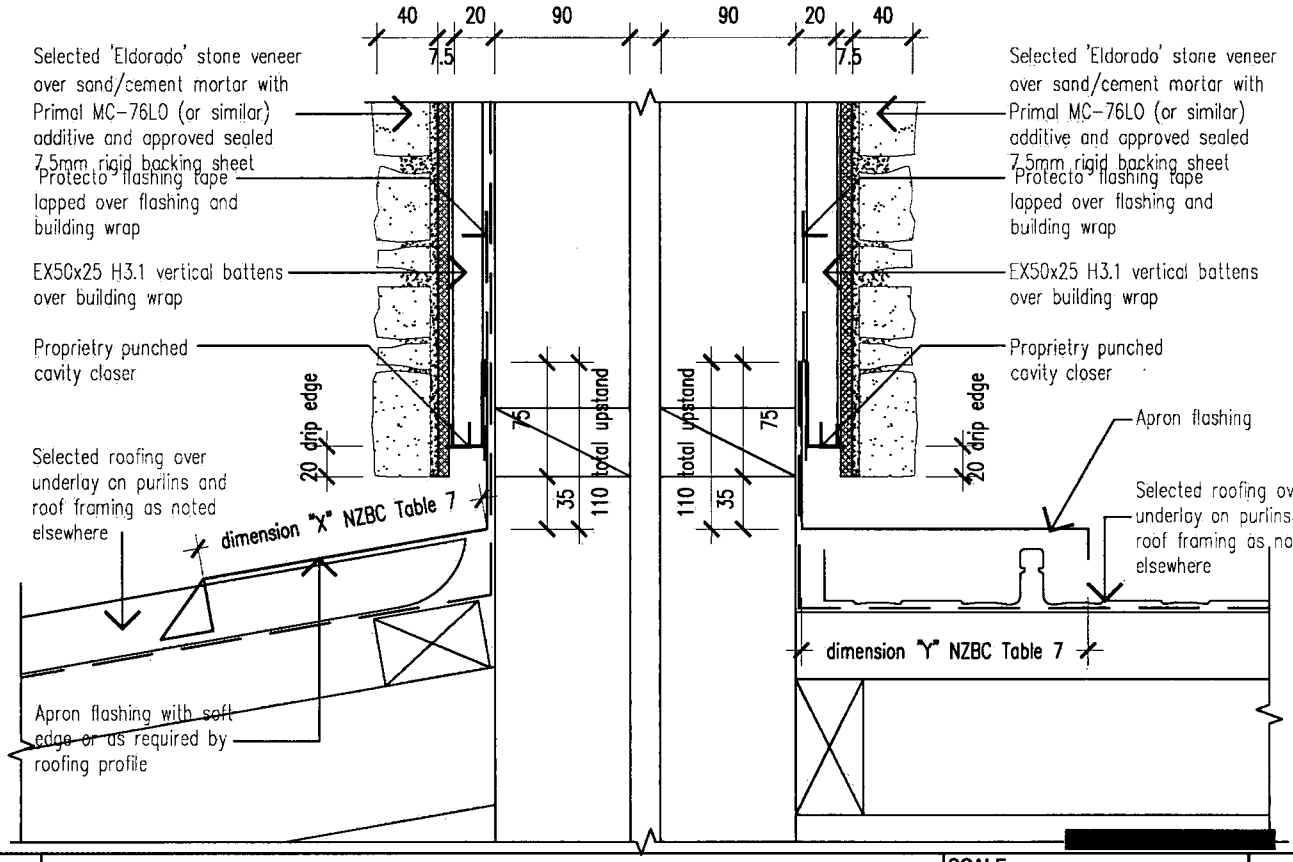

ROOF ABUTMENT DETAIL
EX50x25 BATTENS

SCALE NTS

ELDORADO STONE

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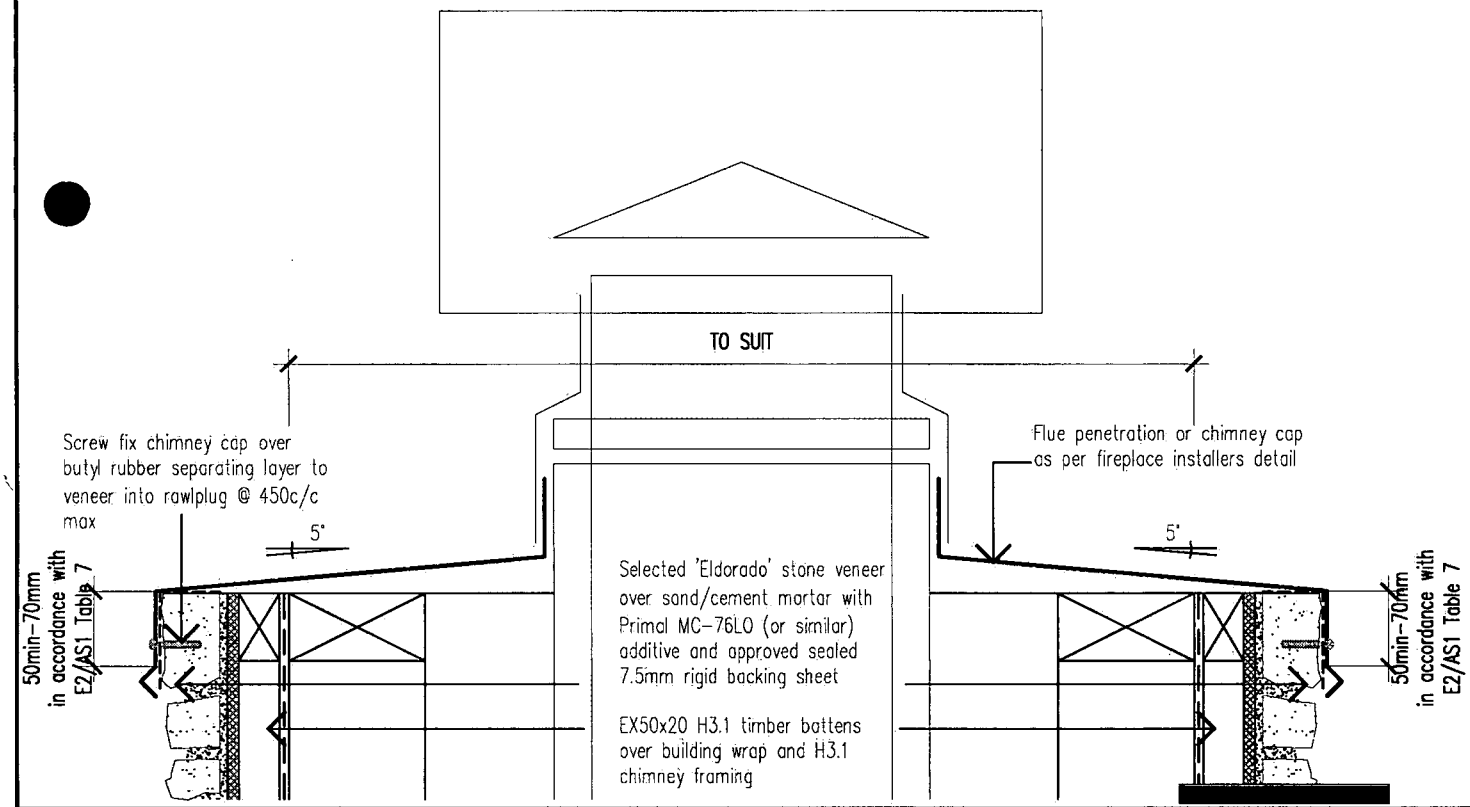

CHIMNEY CAP DETAIL

SCALE NTS

ELDORADO STONE

HARD AS ROCKS SUGGESTED DETAIL ONLY - DETAILS TO BE APPROVED BY LOCAL AUTHORITY & COMPLY WITH NZBC WHERE RELEVANT

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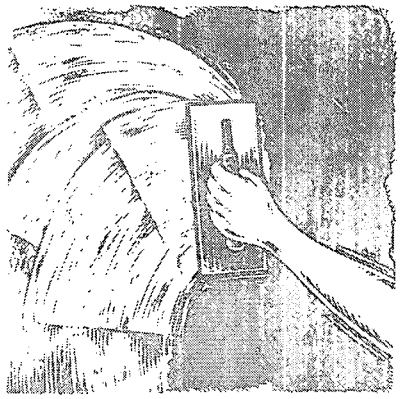
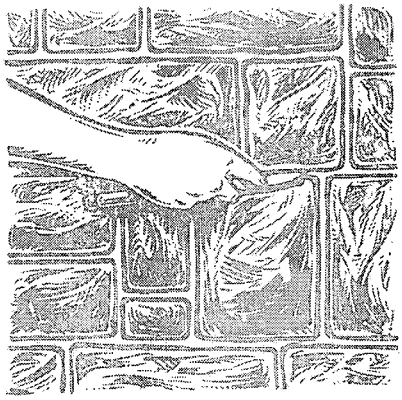


For answers to any questions not covered in this booklet, a list of distributors or prices please call our toll-free number or log on to our website.



Hard as Rocks Limited | PO Box 1706 | Taupo | New Zealand
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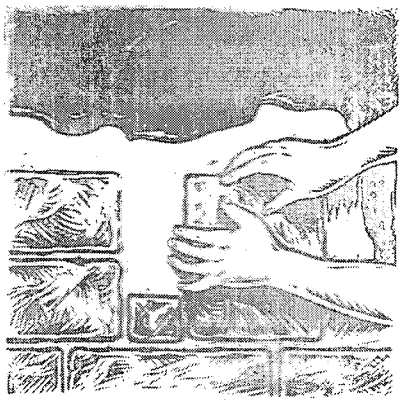

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IZBA ARCHITECTURE
1 Utuhina Road
Rotorua
phone/fax: (07) 346 3862
mobile: (021) 676 361
house of design

SPECIFICATION FOR

YEOMAN RESIDENCE
LOT 6
PARKLAND ESTATES
PUKEHANGI ROAD

P0037021

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INDEX

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7402	SANITARY PLUMBING
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APPENDICES

LOUVRE TEC 180 OPENING ROOF SPECIFICATION

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INTRODUCTION

General

01. This specification is a performance specification only, covering workmanship and standards to be achieved on this project and **is not** a fully detailed specification covering all aspects or specific project requirements.

02. Suppliers, merchants, contractors and sub-contractors should therefore be aware of the above and make all necessary allowances.

03. The owner shall be consulted to ensure the correct selection of materials and finishes.

04. All queries relating to the above shall therefore be directed to the owner.

INDEMNITY AND INSURANCE

General

01. Contractors All-Risk Insurance shall be arranged as per client's specific requirements.

02. All contractors shall have Public Liability Insurance in effect for the sum of **$1,000,00-00 (one million dollars)** and be extended to include liability for vibration and/or removal or weakening of/ or interference with the support of land or buildings up to the policy indemnity of **$1,000,00-00.**

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1201 PRELIMINARIES AND GENERAL

1. THE PROJECT

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

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

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

1.3 PARTIES ASSOCIATED WITH THE PROJECT

Owner:	P & B Yeoman
Address:	C/o 5 Haratua Place Rotorua
Telephone:	(07)
Person:	Phil Yeoman
Designer:	IZBA Architecture
Address:	1 Utuhina Road, ROTORUA
Telephone:	(07) 346 3862
Facsimile:	(07) 346 3862
Person:	Darren Peacock

Territorial authority: Rotorua District Council

Address:	Private Bag Rotorua
Telephone:	(07) 348 4199

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

2. DOCUMENTATION

2.1 SPECIFICATION SECTIONS
The designation and numbering of individual specification sections follows the CBI (Association for Co-ordinated Building Information in New Zealand) system for the co-ordination and classification of construction information. Sections are for reference and convenience only and do not constitute individual trade sections or work elements.

Read all sections together and read 1201 PRELIMINARIES AND GENERAL with all other sections.

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2. INTERPRETATIONS

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

2.3 MANUFACTURER'S RECOMMENDATIONS

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

2.4 DEFINED WORDS

Words defined in the conditions of contract, New Zealand Standards, or other reference documents, to have the same interpretation and meaning when used in their lower case, title case or upper case form in the conditions of contract and in the specification text.

2.5 ABBREVIATIONS

The following abbreviations are used throughout the specification sections:

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

2.6 REFERENCED DOCUMENTS

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

Reference is also made to various Standards produced by Standards New Zealand (NZS, NZMP, AS/NZS, NZS/AS), Transit New Zealand specifications, overseas standards (AS, BS, CSA) and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

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

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents, with the resolution of any variance being confirmed by the owner in writing and then notified to the territorial authority for consent prior to any further work proceeding.

2.7 DOCUMENTS REFERRED TO

Documents referred to in this section are:

Building Act 1991
Building Regulations 1992
Health and Safety in Employment Act 1992
Smoke Free Environments Act 1990

2.8 CODE COMPLIANCE

It is an offence under the Building Act 1991 to carry out any work not in accordance with the building consent. The resolution of matters concerning code compliance to be

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referred to the owner for a direction in writing and then to the territorial authority for consent.

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

2.10 PRODUCER STATEMENTS
When producer statements verifying construction are required, provide copies to both the territorial authority and the owner.

2.11 COMPLIANCE SCHEDULE
Obtain from the owner the list of all systems and features agreed as comprising the compliance schedule when application was made for building consent. Liaise with the owner and supply any further information on each system or feature of the building, as required by the territorial authority prior to their issue of the building consent.

2.12 PROVIDE GUARANTEES
Provide guarantees in favour of the owner and executed by the contractor/subcontractor in respect of, but not limited to, materials, components, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the guarantee in no case negate the minimum remedies available under common law as if no guarantee had been offered.

Provide two copies of all completed guarantees to the owner.

2.13 OVERALL WEATHERTIGHTNESS AND WATERTIGHTNESS
A guarantee is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general guarantee is in addition to any specific guarantees required.

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

2.15 COMMENCE
Commence all guarantees from practical completion.

Maintain their effectiveness for the times stated.

2.16 DELIVER
Deliver executed guarantees to the owner prior to the commencement of the work covered by the guarantee.

2.17 MONETARY ALLOWANCES
Monetary allowances are listed in the: Tender summary

Refer to individual work sections for particular requirements relating to monetary allowances.

3. ESTABLISHMENT

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

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3.2 APPROVALS
Attend on territorial authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

6. CONSTRUCTION

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

1. Concrete quality and finishes (refer to 3101 CONCRETE).
2. Dimensional accuracy of structural column locations (following completion of foundations).
3. All perimeter columns and frames for plumb.
4. Levels of all floors relative to the site datum.
5. Framing timber moisture content (refer to 3801 CARPENTRY).

Where any material, quality or dimension exceeds specified or required tolerances, obtain written confirmation from the owner and when building consent approval is affected, confirm remedial action with the territorial authority.

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

6.2 NUISANCE
Take all reasonable precautions to prevent damage and nuisance from water, fire, smoke, vehicles, dust, rubbish, noise and all other causes resulting from the contract works. Comply with the requirements of the territorial authority and all relevant Acts and Standards.

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

While it remains the contractor's responsibility to set out the works accurately and correctly and to confirm any changes from the approved location with the territorial authority, the contractor to obtain the owner's written confirmation that the owner has sighted the proposed building location, site datum and profiles before commencing any further work.

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

6.5 MATERIALS
Materials to be new unless stated otherwise, the best quality of their respective kinds, and complying with all cited documents.

Substitution of alternative materials, plant or equipment from those specified to be confirmed by the owner in writing, with the substitution then approved by the territorial authority.

6.6 COMPLETE ALL SERVICES
Ensure all building services are complete and operational, with all labelling and service instructions provided.

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6.7 CLEAR AWAY

Clear away all trade debris, unused materials and components from the site and leave the building clean and ready for occupancy, with all services operating and mechanical parts in good working order. Remove all temporary markings, coverings and protective wrappings.

6.8 CLEANING

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

6.9 KEYING AND SECURITY

Provide locksets with temporary keying, or install with the cylinders removed. Complete final keying prior to handing over keys to the owner on completion of the works.

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2201 PREPARATION AND GROUNDWORK

1. GENERAL

SCOPE
The work to be done under this section includes the following:

- Excavate all topsoil and organic material and remove from the building area.

1.1 Provide compacted hard filling between excavated ground level and underside of foundations and floor slabs.

1.2 DOCUMENTS
Documents referred to in this section are:

NZS 3604 Light timber frame buildings not requiring specific design

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

1.3 SITE VISIT
Visit the site and investigate the conditions affecting the works.

1.4 SAFE WORKING CONDITIONS
Provide adequate support for all excavations. Cover holes and fence off open trenches and banks.

2. PRODUCTS

2.1 GRANULAR BASE FOR SLABS
To conform with NZS 3604 appendix E5. Consolidate with a vibrating roller. Blind the surface with coarse sand or sand/cement and roll ready to receive a dampproof membrane.

2.2 GENERAL BACKFILLING
Obtain written confirmation from the owner before using any excavated material. Compact approved backfilling in 150mm layers with the last 200mm in clean topsoil, lightly compacted and neatly finished off.

3. EXECUTION

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

3.2 FIRES
Do not light rubbish fires on site.

3.3 PREPARATION
Comply with NZS 3604 - clause 3.4, Site preparation. Remove all turf, vegetation, trees, topsoil, stumps and rubbish from the area to be built on.

3.4 UNDERGROUND ELEMENTS AND SERVICES
Break out and remove old foundations, slabs, drainage pipes, manholes, tanks, cables and redundant services. Report for instructions when any unexpected voids, made-up ground or services are encountered. Seal off the ends of drains or remove to territorial authority approval.

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3.5 TOPSOIL
Stockpile excavated topsoil on site where directed. Keep separate from other excavated materials. Spread and level where directed before completion of the works.

3.6 SHORING AND UNDERPINNING
Carry out shoring and underpinning shown on the drawings and as necessary to prevent subsidence of adjoining public or private property and to ensure the safety of the public and site personnel. Maintain protection throughout the progress of the works, or until foundations and subgrade structures have been completed and the stability of adjoining public and private property secured.

3.7 GENERAL EXCAVATION
Trim ground to required profiles, batters, falls and levels. Remove all loose material. Protect all cut faces from collapse. Keep all excavations free from water.

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

3.8.1 All excavations are to be into firm undisturbed sub-soils with minimum bearing capacity of 100KPA.

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

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

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.

3.10 SURPLUS MATERIAL
Remove all surplus and excavated material from the site.

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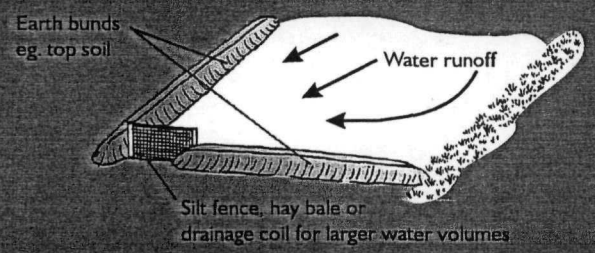
Protecting our Stormwater drainage to our Lake

Sediment Control Methods

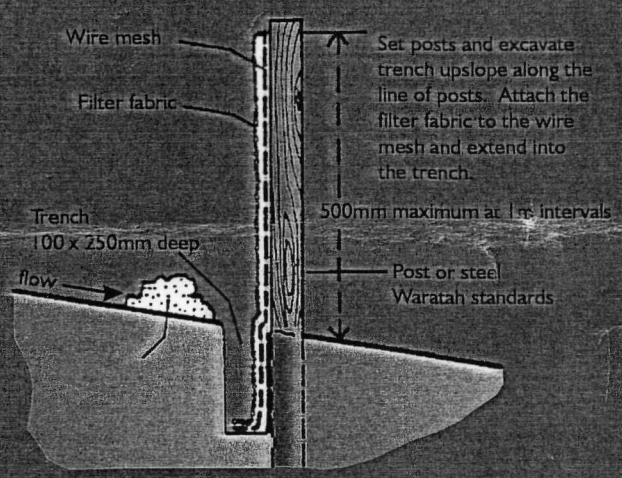
Earth Bunds

a) construct across slope to control and detain runoff
b) use near edge of site to prevent sediment from leaving area
c) can use topsoil from site to create bund



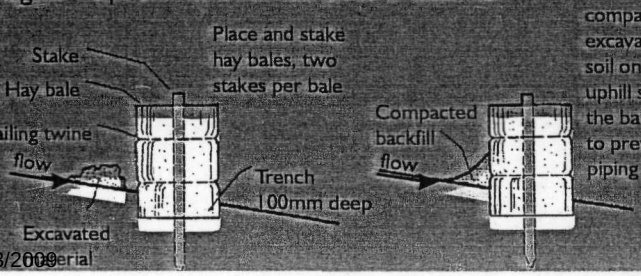
Silt Fences

a) for small disturbed areas or slope angles
b) use more than one on steeply sloping sites
c) decrease spacing between fences with increasing site slope
d) filter fabric is stretched between posts at maximum spacing of 1 metre



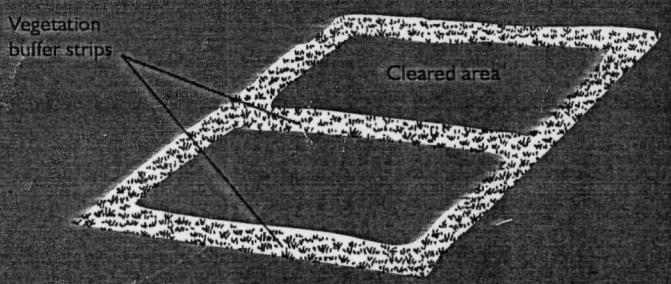
Hay Bales

a) for small sites and short term control
b) Should be dug into ground, tied together and anchored by staking
c) Regular inspection and maintenance is essential



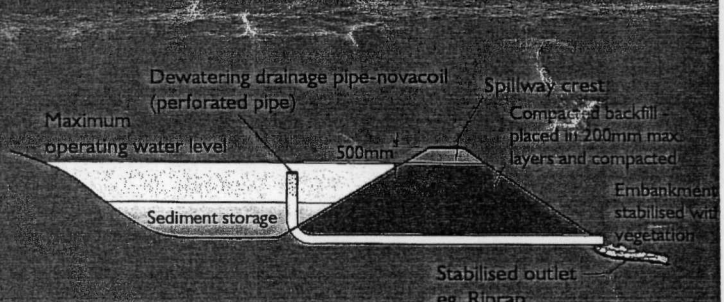
Vegetation Buffer Strips

a) should always be provided along watercourses
b) to filter sediment from overland flow where runoff rates are low and not concentrated
c) use more than one buffer strip on steep slopes
d) decrease buffer stip spacing with increasing slope
e) to keep machinery away from watercourses



Sediment Ponds

a) do not construct in streams
b) size at 1-2% of site area (ie. 1-2m^3/100m^2)
c) clean out sediment regularly
d) must have dewatering/drainage facility



For more information, please contact:

Pollution Control Officers
Rotorua District Council
Engineering Department
1061 Haupapa St
Rotorua
Ph (07) 348 4199
Fax (07) 350 0204

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Sediment Control Methods

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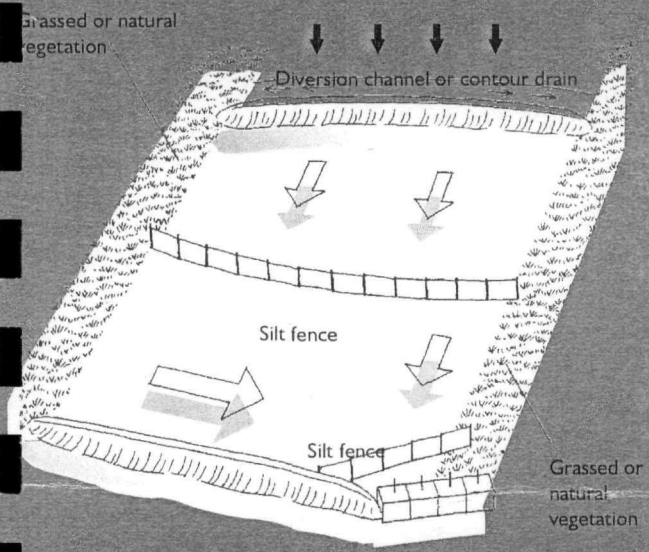
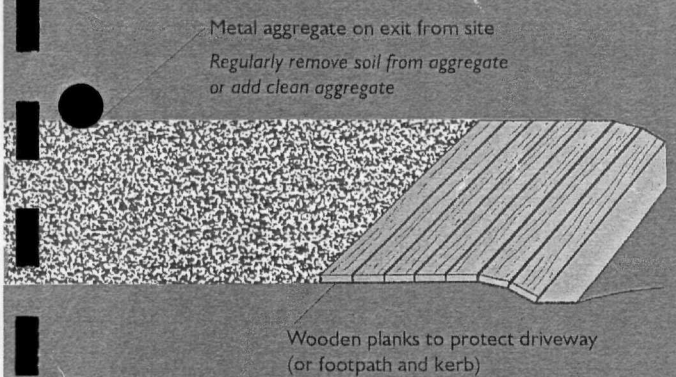
Sediment control on small sites



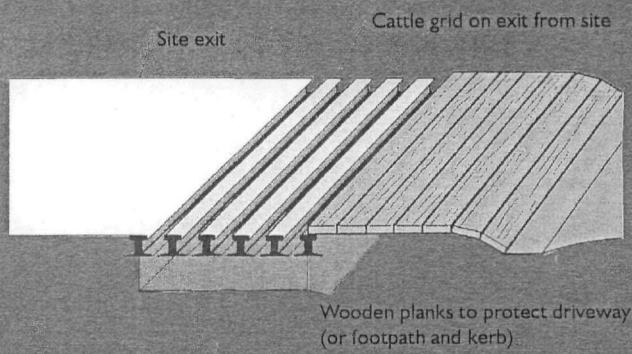
Keeping the roads clean...

It is important that soil from the site is not spread onto the road by vehicle tyres. To prevent this from occurring a stabilised entranceway must be built. The simplest method is to spread metal aggregate on all exitways from the site, where the soil will have a chance to fall off before the vehicle enters the road. Other methods for larger sites are cattle grids or wheel washes. The site manager or site owner is responsible for cleaning up any spilt soil or other materials that get on to the road from the site.



Remember also to protect the footpath, berm and kerb from damage by crossing vehicles.

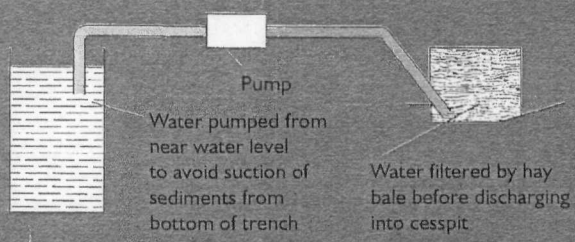
Keeping the roads clean...



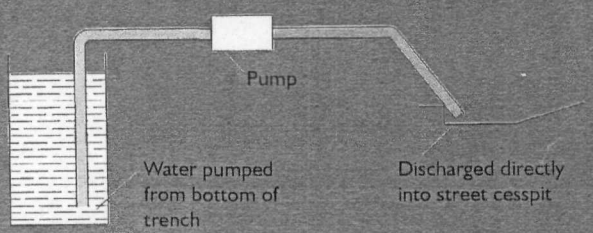
Pumping water from the site

If it is necessary to remove water from trenches or other areas of the site, then this should be done in a manner to prevent sediment in the water from entering any drain or watercourse. Water should not be taken from the bottom of any trench and sediment should be properly filtered out from the dirty water by some appropriate means such as the use of hay bales. Once the sediment has been filtered out it can then be discharged to a cesspit or a grassed area, or a watercourse if no other disposal point is available.

YES



NO



For more information, please contact:

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3101 CONCRETE

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Concrete foundation beams and floor slabs.

1.2 DOCUMENTS
Documents referred to in this section are:

NZS 3108	Concrete production - ordinary grade
NZS 3109	Concrete construction
NZS 3114	Concrete surface finishes
NZS 3124	Concrete construction for minor works
NZS 3402	Steel bars for the reinforcement of concrete
NZS 3422	Welded fabric of drawn steel wire for concrete reinforcement
NZS 3604	Light timber frame buildings not requiring specific design

2. PRODUCTS

2.1 REINFORCEMENT
Bars to NZS 3402. Welded reinforcing mesh to NZS 3422.

2.2 VAPOUR BARRIER
0.25mm minimum polythene to NZS 3604, appendix E8.

2.3 READY-MIX CONCRETE
High grade 20 MPa, maximum aggregate size 19mm to NZS 3104.
High grade 25mpa to footings.

3. EXECUTION

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

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

3.3 COMPLY
Comply with NZS 3109, section 3 for execution and construction.

3.4 REINFORCEMENT
To comply with NZS 3109. Bends to be made cold and once only. Reinforcing to be accurately placed and well secured against displacement. Do not weld reinforcement.

3.5 TOLERANCES
To comply with NZS 3114, sections 104 and 105, with the suggested tolerances becoming the required tolerances.

3.6 VAPOUR BARRIER
Apply polythene membrane to prepared basecourse with 150mm laps; tape seal laps and penetrations. Refer to drawings for perimeter details.

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3.7 CASTING IN

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

Continuous grounds (i.e. exceeding 100mm) must not be used. Location and form of conduits to be approved in writing by the owner. Minimum cover 40mm. Bare aluminium items not to be encased in concrete. Steel embedded items not to be painted more than 25mm into the concrete encasement. Any form ties to be cut back to specified cover and the cavities filled with mortar.

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

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

3.8 COMPACTION

To be achieved by the use of power operated vibrators.

3.9 RESIDENTIAL FLOOR SLABS

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

3.10 SAW CUTS

Floor slabs cast on the ground to be poured in areas not greater than 25 square metres, with a maximum ratio of length to breadth of 1:1.5.

Cut slabs where indicated on the drawings and as required to control shrinkage cracking. Cutting to be carried out as soon as possible, without causing tear-out of aggregate and before shrinkage cracking has occurred, generally within 24 hours of pouring. Where saw cuts are made, cut out 100mm of every second wire of the mesh for a length of 50mm each side of the saw cut position. Saw cuts to be 1/3rd slab depth or 30mm minimum.

3.11 REPAIRS

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

3.12 CURING OF CONCRETE

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

3.13 STRIKE FORMWORK

Strike formwork without damaging or overloading structure. Do not remove formwork before the following minimum periods:

Sides of beams, walls and columns: 12 hours

3.14 CLEAN OUT

Clean out saw cuts and fill with cement grout where the floor will be covered with carpet or vinyl.

3.15 REMOVE

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

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3301 BRICKWORK

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
Clay brickwork used as veneer (Exterior wall covering)

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	B1/AS1	Structure - general 3.0 Masonry

AS 1225	*Clay building bricks*
NZS 3117	Pigments for Portland cement and Portland cement products
NZS 3604	Light timber frame buildings not requiring specific design
NZS 421O	Masonry construction materials and workmanship

BRANZ Bulletin 324: Masonry veneer cladding - detailing and construction.

1.3 BRICKLAYER QUALIFICATION
Construction of brickwork to be by persons competent and experienced in the trade.

2. PRODUCTS

2.1 BRICKS
To AS 1225.

Brand/type: To be selected by owner.

Size: 70 series.

Laying pattern: Stretcher bond.

Pointing: To be selected by owner.

2.2 TIES
Pressed mild steel, galvanised after fabrication. To conform with NZS 4210, section 2.9.7, as modified by NZBC acceptable solution B1/AS1, section 3.1.

2.3 MORTAR
Portland cement, sand, water and hydrated lime or admixture, with mix proportions, workability, compressive and bond strengths and water retention to NZS 4210, section 2.2. Admixture to brick manufacturer's recommendations.

2.4 MORTAR COLOUR
Add mineral oxide pigment conforming to NZS 3117 and to requirements of NZS 4210, clause 2.2.2.2 (f).

Colour: To be selected by owner.

2.5 WATER
Water to be clean, fresh and free from excess alkali, salt, silt and organic materials. Water from a local authority water supply is acceptable.

3. EXECUTION

3.1 VENEER WORK
Comply with NZS 3604, NZS 4210, section 2.9 and BRANZ Bulletin 324.

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3.2 DETAILING
Where not otherwise detailed on the drawings or covered in the Standards listed, carry out veneer construction to the details recommended by BRANZ Bulletin 324.

3.3 STORE BRICKS
Store bricks and other components clear of the ground, under cover and well ventilated until placed in the work.

3.4 COLOUR MIXING
Use bricks equally off all pallets as work proceeds. Distribute facing bricks of varying colour randomly throughout so no patches or striping appears.

3.5 BOND
Stretcher bond, single width unless detailed or stated otherwise.

3.6 WALL TIES BRICK VENEER
Fix to face of studs without damaging the building paper; ties placed and spaced to NZS 4210, section 2.9, as modified by NZBC acceptable solution B1/AS1, 3.1.

3.7 MORTAR
To maximum practical density. To be fully laid, firmly placed, correctly cured and not re-tempered. Joint thickness 10mm plus or minus 2mm.

3.8 RAKE OUT
Rake out joints as work proceeds, for pointing as detailed.

3.9 POINTING
Joint to be tooled concave after initial stiffening.

3.10 WEEPHOLES
Rake out every third perpend where weep holes are required, and vent veneer to NZS 3604, appendix F and to BRANZ Bulletin 324.

3.11 CO-ORDINATE
Co-ordinate the building in of all exterior joinery and items required to be fitted as the work proceeds. Rake out for or build in flashings as required.

3.12 KEEP CAVITY AND TIES CLEAR
Keep cavity and ties clear of mortar droppings and clean the brickwork face of any marking as the work proceeds. Repair any damage to building paper immediately it occurs.

3.13 DAMP PROOFING
Apply bituminous brush-on liquid applied membrane as a primer and 2 coats to drain water effectively out of the cavity.

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

3.15 TAKE AWAY
Take away from the site all materials not used.

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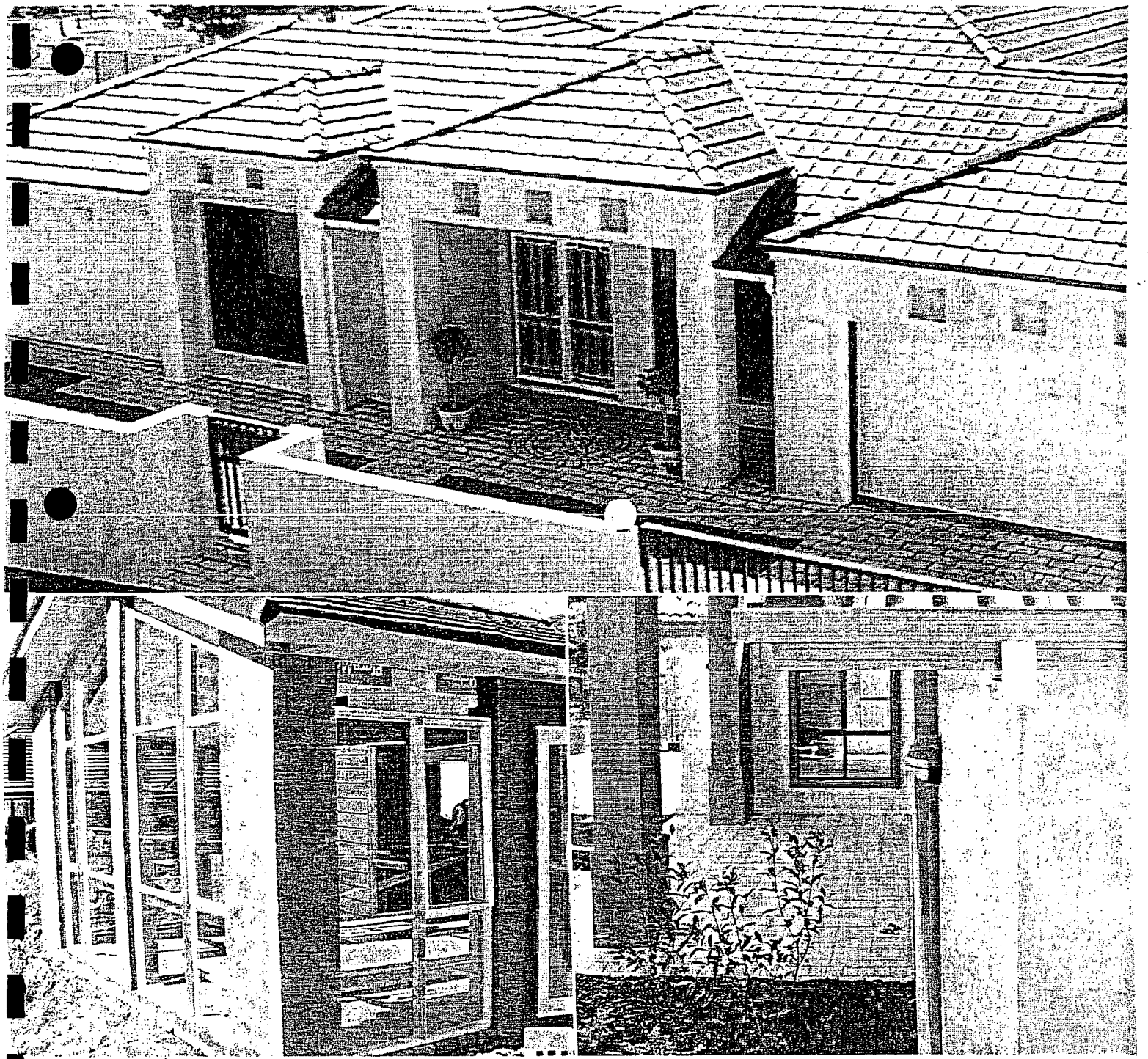
Australcote Clay Bricks

stronger, lighter, faster



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TECHNICAL DATA – BRICK

Product: **Common 70.119** AUSTRALCOTE

Description: **Common 70.119** is a vitreous clay brick
Manufactured through an extrusion process at Austral Riverview Plant. It is a product designed for render or bag and paint finish.

Typical Properties

Characteristic Unconfined Compressive Strength:			14 - 20	MPa
24 Hour Cold Water Absorption:			< 10	%
Initial Rate of Absorption:		Gross	0.8 – 1.6	kg/m^{2}min
Estimated 15 year Coefficient of Expansion:			< 0.5	mm/m
Perforation Volume:			< 30	%
Durability Class:			General Purpose	
Freeze/thaw			Frost Safe	
Average Dry Mass:			3.0 – 3.2	kg
Working Dimensions:	(DW2)	Length:	230	+/- 60mm
		Width:	70	+/- 40mm
		Height:	119	+/- 40mm
Units per Square Meter:		Traditional	33	

Laying Instructions

- On a full bed mortar with 10 mm joints of a 1:1:6 mortar mix with a rolled or flush finish.
- To achieve a blend of the inherent colour variations of the clay bricks, the product should be draw from across the job lot during laying.
- Clean down with clean water as job progress. If acid is to be used, consult with the manufacturer prior to cleaning.

Note: This data represents average results from commercial production lots. If specific test results are required, samples should be taken from current production lots.

AUSTRALIAN STANDARD TEST METHODS AS/NZS 4456 ARE USED AS APPLICABLE.
MORE INFORMATION CAN BE OBTAINED ON WEB SITE: www.australbrick.com.au

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Introducing Australcote Render and Paint Bricks

We're now pleased to bring you an expanded range of Australcote clay bricks. This improved range, including the Austral Uni, Avanti, Noosa and Maxi sizes, has been specifically designed for both plaster and modified plaster applications.

The Austral Uni clay brick has one header and one face smooth. The other face and header are wire cut, making it possible to apply a bag and paint finish on the smooth side, or plaster on the wire cut surface. Our Maxi brick is the largest size in the range, its 90mm thickness makes it the ideal brick for situations where increased strength is required. The larger format Noosa, Avanti and Maxi bricks, will reduce laying times and cut building costs significantly. Without a doubt, our Australcote clay bricks provide the best and most cost-effective way to build where bag and paint and render finishes are required.

Manufacture and Testing

Austral Bricks manufactures all products to satisfy the requirements of the Australian and New Zealand Standard for Masonry Units and Segmental Pavers, AS/NZS 4455. All products are tested to the Australian and New Zealand Standard for Masonry Units and Segmental Pavers – Methods of Test, AS/NZS 4456. The testing is carried out in Austral's NATA registered laboratories.

Masonry Veneer Construction

Using brick veneer for external walls provides a cladding that has been proven over many years. When compared with alternative cladding systems, brick veneer walls constructed using Australcote clay bricks, are recognised by the New Zealand Standard as weathertight external walls. Therefore, brick veneer walls when designed to NZS 3604, do not require weatherproofing.

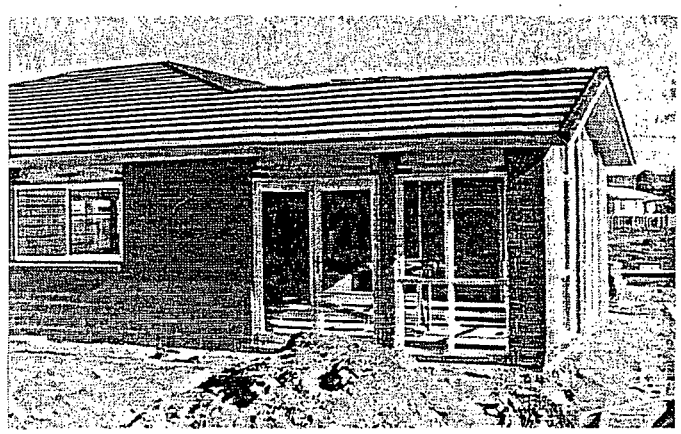
The construction of masonry veneer walls is covered by NZS 4210. Specifically designed for plaster finish the Australcote clay brick veneer wall has a 40mm cavity that provides separation from the supporting frame structure. This means that the structural timber frame is protected from the weather. In contrast, many alternative cladding systems are directly fixed and can transfer moisture to the framing.

Installation of Wall Ties

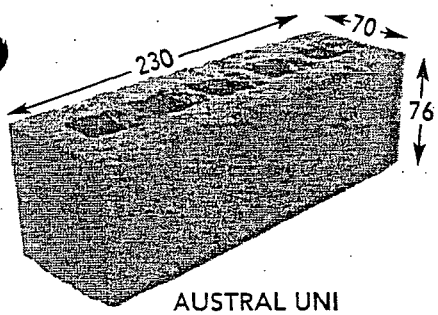
Austral's 70mm brick veneer system can be used with 85mm Lumberlok screw ties and 85mm long Eagle Brick ties placed on the bare top of the brick rather than fully encapsulated in the mortar.

Austral Bricks have verified this by carrying out tie testing to AS/NZS 2699.1:2000 on our 70mm clay bricks at BRANZ. The testing was carried our as per the Standard, but with the wall ties installed with their lower face directly on the top surface of the lower brick. This demonstrated that wall ties placed directly on the brick surface will satisfy the strength and stiffness requirements of NZS 3604:1999 for seismic zones A to C.

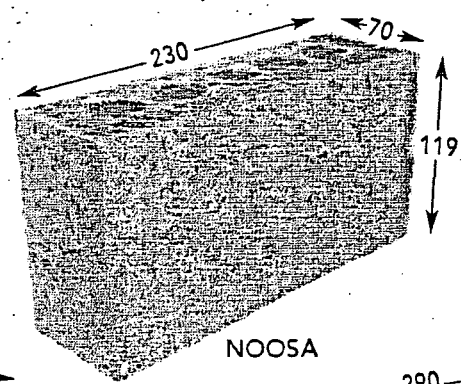
To obtain a sample or to discuss the benefits of using Australcote clay bricks please contact your nearest Austral Bricks agent listed on the back of the brochure.



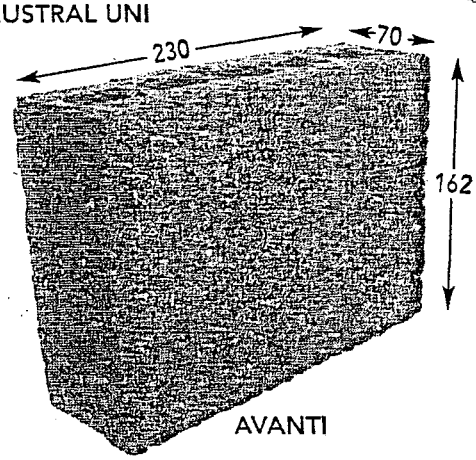
Australcote Clay Bricks - Dimensions



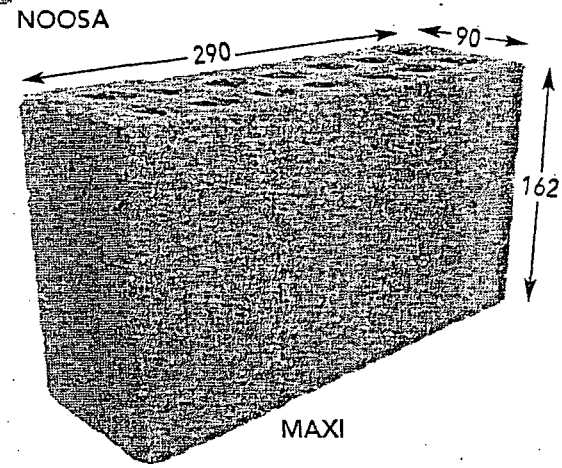
AUSTRAL UNI



NOOSA



AVANTI



MAXI

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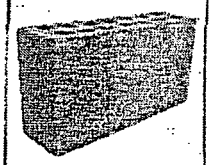
Australcote Clay Bricks - Ratings

BRICK	Austral Uni	Noosa	Avanti	Maxi 
Size (Length x Width x Height)	230x70x76	230x70x119	230x70x162	290x90x162
Dimensional Category	DW1	DW1	DW1	DW1
Weight - kg	2.0	3.0	4.2	6.2
Brick Wall Density - kg/m² (with mortar)	119	114	116	137
Units per Square Metre	48.5	32.3	24.3	19.4
Fire Resistance Levels, FRL (mins)				
Structural Adequacy	240*	240*	240*	120*
Integrity	240	240	240	60
Insulation (unrendered)	30	30	30	60
Insulation (5mm render)	60	60	60	-
Number per Pack	448/576	384	224	188
Perforation Volume - %	<30	<30	<30	<30
Minimum Face Shell Thickness - mm	15	15	15	15
Unconfined Compressive Strength - MPa	>13	>13	>13	>10
24 Hour Cold Water Absorption - %	<10	<10	<10	<10
Coefficient of Expansion mm/m 15 Years	<0.5	<0.5	<0.5	<0.5
Durability Class	GP	GP	GP	GP

*Fire resistance levels of a single skin of bricks was determined by testing to AS 1530.4-1997. The structural adequacy is specific to a 3 metre high wall restrained on all 4 sides. The design of fire rated walls should be checked by a qualified structural engineer.
*Fire Resistance Period for structural adequacy calculated as per clause 6.3.2.2 of AS 3700 for a wall height of 2.4 metres (S_{rf} 20.0).
Austral reserves the right to change specifications without notice - October 2005. Check the Austral Bricks website for updated results.

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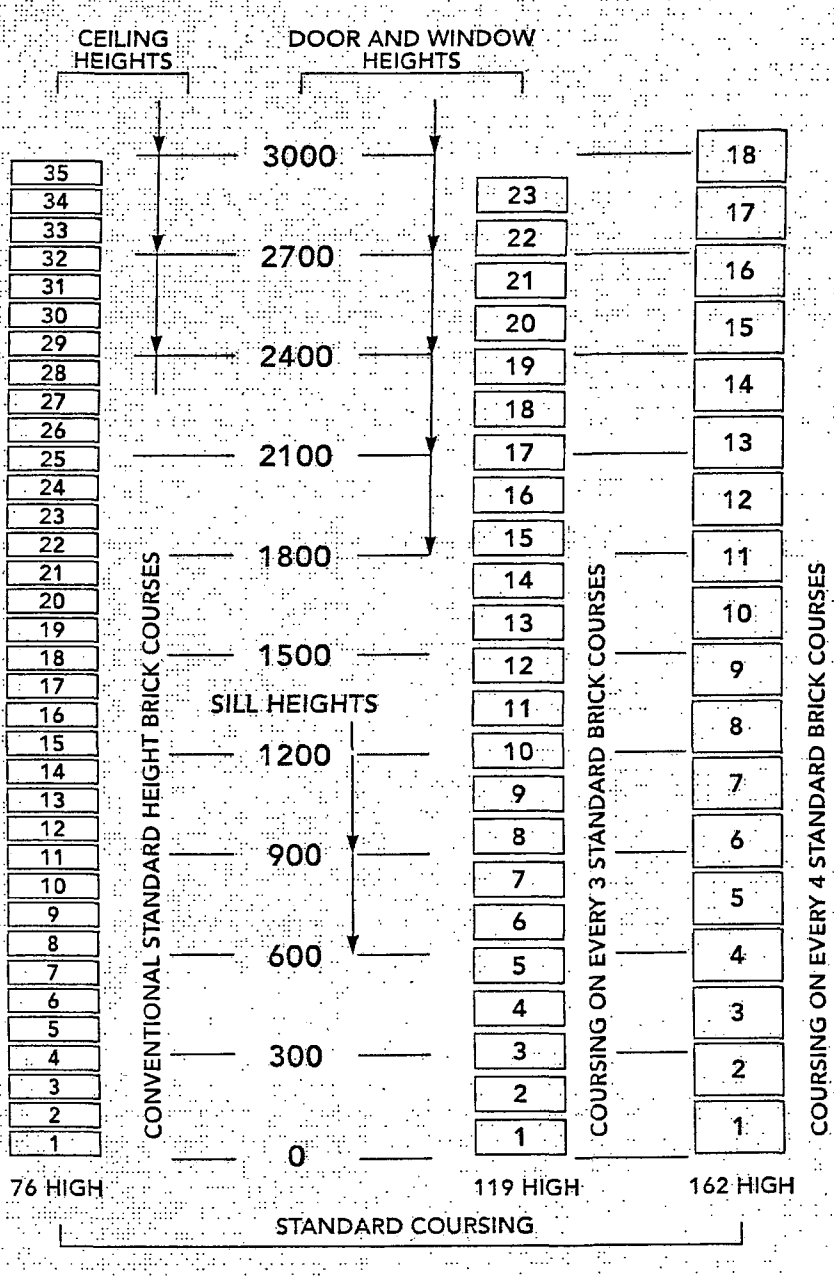
COURSING HEIGHTS



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To find out more about Australcote Clay Bricks call 0800 AUSTRAL (0800 2878725)

CHRISTCHURCH
Austral Bricks
1/99 Sawyers Arms Rd, Papanui
Christchurch

AUCKLAND
Ross Brick and Pavers Ltd
7 The Furlong, Takanini
Auckland

TAURANGA
Stewart Building Products Ltd
15 Hynds Road, Greerton
Tauranga

VISIT OUR WEBSITE: www.australbricks.com.au

Photographs should be considered indicative of colour and texture only. Variation in size and shade can occur in manufacture of clay products. November 2005. The Austral Brick Company Pty Ltd ABN 52 000 005 550

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3302 BLOCKWORK

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Blockwork foundation walls of concrete slabs.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	B1/AS1	Structure - general 3.0 Masonry
AS/NZS 4455	Masonry units and segmented pavers	
NZS 3109	Concrete construction	
NZS 3604	Light timber framed buildings not requiring specific design	
NZS 4210	Masonry construction: materials and workmanship	

1.3 BLOCKLAYER QUALIFICATIONS
All blockwork to be carried out by people competent and experienced in this type of work, under the supervision of a registered mason.

The registered mason to provide written certification to the owner that the observation has been carried out in accordance with the relevant New Zealand Standard.

1.4 INSPECTION
Allow for inspection of the work at critical stages including set out, reinforcing, and the time prior to and during grouting. All to recognised trade practice as set out in NZS 4210.

1.5 TESTS
All required tests to be carried out in accordance with NZS 4210, appendix 2A.

1.6 QUALITY RECORDS
Keep accurate records relating to strength and quality of materials used in the construction, and make the information available to the territorial authority inspector on request.

2. PRODUCTS

2.1 BLOCKS
To conform with AS/NZS 4455.

Brand: Firth

Series: 200 Series

Bond: Stretcher

2.2 REINFORCEMENT
Conform with NZS 3109.

2.3 MORTAR
Conform with NZS 4210, section 2.2. To provide a compressive strength of not less than 12.5 MPa.

2.4 GROUT
Conform with NZS 4210, section 2.3. Spread value 450 - 530mm.

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2.5 WATER
Water to be clean, fresh and free from excess alkali, salt, silt and organic materials. Water from a local authority water supply is acceptable.

3. EXECUTION

3.1 GENERALLY
Comply with NZS 4210 and NZS 4229.

3.2 STORE BLOCKS
Store blocks clear of the ground, under cover and well ventilated until placed in the work.

3.3 MOISTURE CONTENT
Ensure blocks are air dry prior to laying.

3.4 CHECK THE BASE
Check the base concrete is true to line and level, requiring a base mortar bed of 10mm (minimum) to 20mm (maximum). Ensure that all laitance, loose aggregate, or anything preventing bond is removed prior to block laying.

3.5 STARTER POSITIONS
Before commencing block laying check the location of starter reinforcement by measure or by a dry trial lay up of the first course. Do not correct misplacement by cranking bars.

3.6 REINFORCEMENT AND GROUTING
Reinforcement to be detailed, bent and placed in accordance with NZS 4210. Refer to drawings for details of reinforcement and extent of grout filling.

3.7 COVER
The minimum cover to be as required for reinforced concrete, with grout and blockwork treated as a homogeneous material. Maintain reinforcing bars for retaining walls a minimum of 15mm and for other blockwork a minimum of 6mm from the blockwork face, with the space filled with grout.

3.8 TOLERANCES
Construct within the tolerances set out in NZS 4210, clauses 2.6.5 and 2.7.1. Lay blocks with bedding of consistent thickness throughout.

3.9 PROTECTION
Protect fair-faced block walls to keep them clear of all mortar droppings, grout splashes, or stains of any kind.

3.10 LAYING BLOCKS
Ensure consistent, fully filled and tooled joints. Where walls are reinforced, prevent mortar droppings from entering the cells to be grouted. Provide clean out holes at base of wall, unless "low lift" (NZS 4210) grouting is used. Ensure reinforcement is accurately placed and tied. Lay in regular running bond with all necessary special units and sill blocks. Cut blocks, if necessary, true and square without chipping.

3.11 BLOCK JOINTS
Not exceeding 10mm thick, or less than 8mm when the blocks are bedded in. Joints tooled concave, unless detailed otherwise.

3.12 GROUT CELLS
Grout all blockwork cells.

3.13 BUILD IN
Build in all plugs, bolts, ties, metal flashings, dowels, fastenings and fixings as required by all trades and as shown on the drawings.

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3.14 PROGRESSIVE CLEANING

Clean off mortar splashes and grout spills as they occur, making good any damage at the same time.

3.15 FINAL CLEANING

Clean down all blockwork and remove waste material from adjoining surfaces and floors at completion.

3.16 REMOVE

Remove from the site all materials not used.

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3401 STEELWORK

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Steel beams, refer Roof Framing Plan for extent.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	F5/AS1	Construction and demolition hazards
AS 2204	*Zinc rich organic priming paint*	
NZS 3404	Steel structures standard Part 1: Steel structures standard	
AS/NZS HB62	Safe erection of steelwork	

Heavy Engineering Research Association: 17 - Vol 2 HERA design guides - Fabrication and erection of structural steel

1.3 REFER
Refer to all drawings to ensure all required details and fixings are provided for in the structural steelwork. Verify dimensions against site measurements prior to fabrication. Supply 1 set of shop and erection drawings to the owner for review prior to fabrication.

2. PRODUCTS

2.1 STRUCTURAL STEEL
Comply with Australian, British and Japanese standards for steel as required by NZS 3404, part 1. Test and stress relieve for brittle fracture when required by NZS 3404, part 1, section 17.

2.2 PRIMER
Abrasive blast to Sq 2.5 then apply one coat Altex Coatings Zinc Silicate 8641, Dry film thickness = 75 microns

3. EXECUTION

3.1 SURFACE FINISH
Grind off all burrs and sharp arrises.

3.2 TOLERANCES
Discard material showing visual defects affecting its structural integrity. Structural components to comply with NZS 3404, part 1, section 14.4 (straightness, full contact splices, length) and struts not prepared for full contact.

Comply with the recommended tolerances laid down for holding down bolts, columns, beams and other members in HERA 17 Vol 2 and NZS 3404, part 1, section 14.4.

3.3 CUTTING
All cutting to comply with NZS 3404, part 1, clause 14.3.3 and HERA 17, Vol 2, clause 5.2. Hand cut only where machine cutting is not possible.

3.4 CONSTRUCT
Construct the steel structure to NZS 3404, part 1.

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3.5 HOLING
Comply with NZS 3404, part 1, clause 14.3.5 for sizes, alignment, finishing and punching of holes.

3.6 FASTENERS
Bolts, nuts and washers to comply with to NZS 3404, part 1, section 9 (connections). Bolting to comply with NZS 3404, part 1, clause 14.3.6.

3.7 START ERECTION
Start erection only when the holding down bolts and anchorages have achieved sufficient strength. Carry out the erection of the structural steel to the requirements of AS/NZS HB62. Comply with NZBC acceptable solution F5 and NZS 3404, part 1, section 15. Provide temporary bracing as required to achieve stability during erection.

3.8 INSPECTION
Inspect all stages of fabrication and construction of the structure to NZS 3404, part 1, sections 14 (fabrication) and 15 (erection).

3.9 STEELWORK TO BE PAINTED, BRUSHING
Remove oil and grease by the use of solvents. Scrape and power wire brush to bright metal. Avoid producing a polished surface. Ensure no burrs or sharp arrises remain which may prevent full coating thickness being attained. Prime immediately and paint as soon as practicable.

3.10 PRIMING
After cleaning and grit blasting to bright metal in the workshop, all steelwork unless noted otherwise to be coated with the specified priming paint. Patch prime on site after erection, using a compatible priming system.

3.11 PATCH PRIMING
Clean areas of damaged priming and areas left clear for site jointing to a standard comparable with that specified for shop cleaning. Wash off chemical deposits from welding fumes. Apply priming coats to same standard as shop primers, ensuring thorough coating of bolts, nuts and connection areas.

Reprime if more than 4 weeks elapse before the final coating system is applied.

3.12 COATING SYSTEMS
Apply all coatings strictly in accordance with the manufacturer's recommendations. Apply coatings to steel within 4 hours of cleaning and before condensation or light rusting can occur. Steel to be dry and atmospheric conditions warm and dry, with an air temperature of greater than 12 degrees C and relative humidity less than 85%.

3.13 TOUCH UP
Touch up all primer.

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3801 CARPENTRY

1. GENERAL

1.1 SCOPE

The work to be done under this section includes the following:

- Supply and erection of light timber framing.
- Insulation
- Supply and installation of garage doors.

1.2 DOCUMENTS

Documents referred to in this section are:

AS/NZS 1859	Reconstituted wood based panels 1859.1 Particle board
AS/NZS 2269	Plywood - structural
NZS 2295	Building papers (breather type)
NZS 3602	Specifying timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Light timber frame buildings not requiring specific design
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 3631	NZ national timber grading rules
NZMP 3640	Minimum requirements of the NZ Timber Preservation Council Inc.
NZS 4214	*Methods of determining the total thermal resistance of parts of buildings*
NZS 4218	Energy efficiency - Housing and small building envelope
NZS 4222	Materials for the thermal insulation of buildings

BRANZ Bulletin 328: Selection and use of fasteners
BRANZ Bulletin 343: Moisture in timber
BRANZ Bulletin 357: Thermal insulation of houses

2. PRODUCTS

2.1 BUILDING PAPER

Breather type to NZS 2295.

Brand/type: Protek building wrap

2.2 GLASS FIBRE INSULATION

Interleaved glass fibre quilt in block form.

Brand/type: Pink Batts - Walls R2.2 W
- Ceiling R2.6C

2.3 TIMBER FRAMING GENERALLY

Species, grade and level of treatment as set out in NZS 3602. Grading to NZS 3631 and treated to NZMP 3640.

Moisture content at supply: 24%

Member	Species/grade/treatment	Nom Size	Sawn/gauged/D4S
All wall framing	Grade – H1.2 MSG8	100 x 50	Gauged

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2.5 CEILING BATTENS

Species, grade, moisture content in service and level of treatment as set out in NZS 3602. Grading to NZS 3631 and treated to NZMP 3640.

Moisture content at supply: 24%

Species/grade/treatment	Nom Size	Gauged/D4S
Pinus Radiata No 1 Grade – H1.2	75 x 40	Gauged

2.6 TIMBER TRUSSES

Brand/reference number: Gangnail/ Pryda Trusses at 900 centres

Timber selection: Pinus Radiata

Treatment: H1.2

Moisture content at supply: 24%

2.7 EXTERIOR FINISHING TIMBER

Species and grade: (Radiata Pine H3.1 / Paint)

2.8 DAMPPROOF COURSE

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

2.9 NAILS

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

2.10 BOLTS AND SCREWS

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

2.11 NAIL PLATES

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

Brand/type: Pryda

2.12 CONNECTORS

Stainless steel connectors and structural brackets to the manufacturer's design for particular locations shown on drawings.

Brand/type: Pryda

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3. EXECUTION

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

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

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

3.3 GENERALLY
To NZS 3603 and 3604 except as varied in this specification. Execution to include those *methods, practices and processes contained in the unit standards for the National* Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

3.4 DIMENSIONS
All timber sizes are nominal sizes.

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

3.6 WALL FRAMING
Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 6.

3.7 ROOF FRAMING
Frame to required loading and bracing complete with valley boards, ridge boards and purlins. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 10.

3.8 INSTALLING CEILING BATTENS
Fabricate and fasten in accordance with NZS 3604, section 12.

3.9 INSTALLING INSULATION
Install insulation cut tightly between studs, rafters, ceiling joints etc.

3.14 SUNDRY TIMBER ITEMS
Install verandah, rafters, battens and beams as detailed and set-out on drawings.

3.15 GARAGE DOOR
Supply and install 2400 x 5000 and 2400 x 2800 wide sectional garage door complete with auto door opener and two hand remotes.

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

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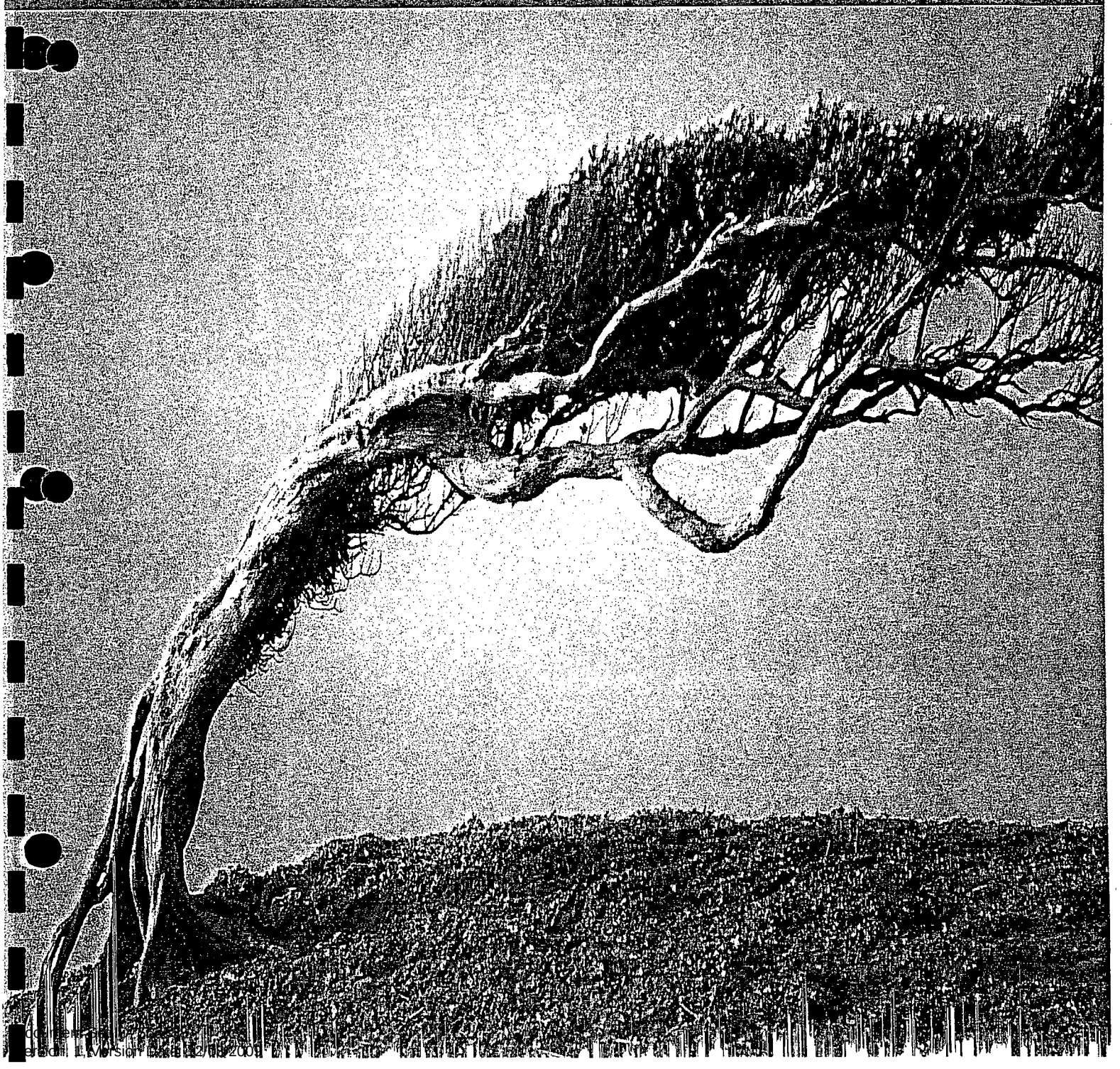
ecoply

Ecoply bracing manual

March 2005



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Benefits of Ecoply over other bracing systems

- A large range of thicknesses, nailing and hold-down options offer design flexibility
- Ratings for walls as narrow as 450mm
- Available in 2745mm long sheets
- Allows single sheet cladding and bracing from top plate to cover floor joists
- Nogs not required
- Cost effective
- Clean, light to handle and easy to work with
- Easy to nail, and can nail close to the edge of the sheet
- Can be used easily on 35mm and 45mm framing
- Can be used as both construction and permanent bracing
- Can be used as subfloor bracing
- Can be used as a rigid air barrier
- A strong resilient sheet able to withstand impact
- Can be used for buildings specifically designed to NZS 3603:1993
- Made from sustainable, renewable radiata pine

Description and Purpose

The Ecoply bracing system uses structural plywood of various types to provide sheet bracing for walls and subfloor foundations in both internal and external applications. The purpose of the system is to provide bracing resistance for light timber framed buildings under wind and earthquake loading, to meet the requirements of the New Zealand Building Code Section B1 Structure, and NZS3604:1999 'Timber Framed Buildings'.

Applications

Ecoply will provide bracing for buildings designed and constructed in accordance with NZS 3604:1999 and for buildings that are specifically designed. It may be both a bracing and an air barrier, and both a bracing and a cladding.

Ecoply plywood correctly installed and used as recommended in Table 1 will provide bracing that meets the 50 year durability requirements of the New Zealand Building Code B2, Durability.

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Identification

Ecoply structural plywood panels are manufactured under a third-party audited, product quality control programme to monitor compliance with AS/NZS2269:2004 "Plywood-Structural," by CHH Woodproducts, a Carter Holt Harvey business. As such they carry Plywood Association of Australasia Joint Accreditation System – Australia and New Zealand (PAA/JAS-ANZ) accreditation.

Limitations

All statements in this manual shall be read subject to the plywood being properly stored, handled, installed, used and maintained as appropriate to each application in accordance with this brochure, and subject to the governing codes of practice. Suggested design details are provided as a guide for good building practice and should be evaluated for specific environments.

Product Description

Structural plywood is manufactured from rotary peeled *Pinus radiata* veneers bonded with phenol formaldehyde resin adhesive. Untreated Ecoply structural plywood may be used in interior dry situations, (i.e. protected from the weather or dampness). The inside face of a drained ventilated cavity behind cladding is not an interior dry situation. For exterior use, or internal environments exposed to high humidity or condensation, or where the moisture content of the plywood or timber next to it could exceed 18% moisture content (e.g. wet area walls, foundation walls in subfloors, the inside face of a drained ventilated cavity behind cladding), use H3 treated Ecoply.

The basic Ecoply bracing sheet is 7mm thick 3 ply, DD grade in 2440mm and 2745mm long sheets. All other Ecoply products, including decorative plywood claddings, can also be used as bracing with appropriate design and detailing. Refer to the "Ecoply Structural Plywood" brochure for the full product range. Non-structural (e.g. pallet grade, reject or marine) plywood should not be used for structural bracing and is not covered by this manual.

Testing

Timber framed buildings to NZS 3604:1999

Carter Holt Harvey commissioned testing on over 50 different walls to develop a wide range of wall bracing element design options in Table 2, tested and analysed using the P21 testing and analysis methods referenced in NZS 3604:1999. These tests included 7mm Ecoply and grooved 12mm Shadowclad cladding.

BRANZ has subsequently conducted testing to validate the bracing units for wall types, tested in accordance with the P21 testing and analysis methods, for plywood claddings used as bracing when installed onto 20mm cavity battens. Refer to the Shadowclad® Specification & Installation manual for fixing details.

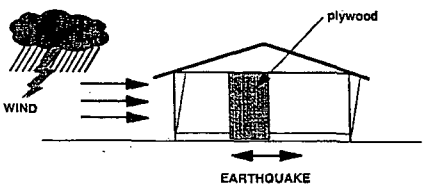
Specific design

Because Ecoply is structural plywood manufactured to AS/NZS 2269:2004, it is suitable for design and use in earthquake and wind bracing systems constructed in accordance with NZS 3603:1993 and NZS 4203:1992.

Compliance with the New Zealand Building Code

Structure

NZS 3604:1999, "Timber Framed Buildings" is listed as an Acceptable Solution within section B1/AS1 of the Approved Document under clause 3.0 Timber. Bracing unit ratings for an extended range of plywood wall bracing systems have been derived from tests according to clauses 5.5.2 and 8.3.1.2 of NZS 3604:1999 for walls and clauses 5.4.3 and 6.2.3 for subfloor timber framing. Structural plywood is the only sheet brace material with properties defined in a published New Zealand engineering design code, NZS 3603:1993, "Timber Structures", and so can be designed in compliance with Verification method B1/VM1 under clause 6.0 Timber, for use in buildings over three storeys in height.



Durability

Durability for structural plywood bracing will meet 50 years when installed in accordance with the installation instructions and the other requirements of this brochure.

PRODUCT INFORMATION

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Table 1: Ecoply Bracing, Plywood Types and Fastener Description

ECOPLY DESCRIPTION		
APPLICATION	PLYWOOD TYPE	FASTENER DESCRIPTION
Bracing, rigid underlay (air barrier), behind all cladding types (with cladding either direct fixed to framing or with a drained ventilated cavity system)	Ecoply H3 treated[1]	Stainless steel[5] or silicon bronze
Plywood as both cladding and bracing[2], (direct fixed to framing or over a 20mm drained ventilated cavity system)	Ecoply H3 treated Shadowclad®[1,2]	Stainless steel[5] or silicon bronze (as per Table 4.3 of NZS 3604:1999[3])
Internal bracing walls[4]	Ecoply[4]	Galvanised or better
Bracing on framing exposed to ground atmosphere (subfloor)	Ecoply H3 treated[1]	Stainless steel[5] or silicon bronze
Bracing in wet process buildings	Ecoply H3 treated[1]	Stainless steel[5] or silicon bronze

Note:

1 Ecoply H3 is plywood that has been preservative treated to the H3 hazard rating with CCA type preservative. Shadowclad® plywoods are preservative treated to H3 hazard rating with an LOSP system. H3 CCA treated plywood in accordance with AS/NZS 1604.3:2002 is comparable to H3.2 and H3 LOSP is comparable to H3.1.

2 Refer to the "Shadowclad® *Specification & Installation manual*". Plywood used as both cladding and bracing should have a three coat maintained acrylic paint system for 50 year durability.

3 Galvanised steel/protected galvanised steel nails are unsuitable for use with Ecoply H3 CCA treated plywood.

4 Moisture content in plywood and adjacent timber must be less than 18% in service.

5 Stainless steel nails should have annular grooves to provide similar withdrawal resistance to hot-dipped galvanised nails.

6 Plywood claddings should be a minimum of 12mm in thickness and grade CD or better.

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Performance to the New Zealand Building Code

Structure

Ratings for Ecoply plywood bracing are in Table 2. These values can be used with any design method, design manual or computer software that is in accordance with NZS 3604:1999.

The ratings in Table 2 apply to walls tested and analysed to BRANZ P21 method, detailed in accordance with NZS 3604:1999 and this brochure. The hold-down value determines which details should be used.

The Type 1 hold-down is a dropped panel detail with no steel straps or a single strap at each end of the wall. The Type 2 hold-down is two straps at each end of the wall.

Durability

The durability of Ecoply plywood bracing correctly installed and applied in accordance with Table 1 will satisfy the 50 year performance requirement of the New Zealand Building Code.

Rain wetting and construction bracing: Some materials used in bracing elements will not withstand exposure to weather. Untreated plywood sheets will withstand rain and exposure during construction for up to 3 months. Hence plywood bracing may be used as both construction and permanent bracing.

Humidity and condensation: In uses where the moisture content may exceed 18% for prolonged periods, plywood must be H3 treated to resist decay or insect hazard.

Subfloor sheet bracing: H3 treated plywood can be used as sheet bracing where dampness does not allow the use of untreated plywood or other sheet materials (clause 5.4.3 of NZS 3604:1999). Where plywood subfloor sheet bracing is exposed to both rain and sun, it should be coated with a three coat acrylic paint system as for claddings.

Cladding as bracing: H3 treated plywood can be used as cladding and bracing. To achieve 50 year structural durability, it must be:

- Manufactured to AS/NZS2269.
- Grade CD or better.
- A minimum of 5 ply.
- A minimum of 12mm in thickness.
- Coated with a maintained three coat acrylic paint system with a Light Reflectance Value (LRV) of 40% or more.
- Fixed with stainless steel or silicon bronze nails.

Refer to the Shadowclad® Specification & Installation manual for details.

Fasteners: Use corrosion resistant fasteners appropriate to the expected life cycle exposure for the bracing element. Refer to Table 1.

Soil: Plywood (untreated or H3 treated) must not be allowed to come in contact with soil.

For further information, refer to the CHH Woodproducts Ecoply Durability Statement.

See back page for contact details.

Cladding Plywoods

Specialty plywood claddings such as Shadowclad® have decorative veneers designed and treated to withstand exterior exposure. The bracing ratings given in this brochure mean that properly detailed and painted cladding with decorative or weather protection functions can also act as bracing. Refer to the "Shadowclad® Specification & Installation manual".

PERFORMANCE

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Table 2: P21 ratings for 2.4m high Ecoply wall bracing elements

WALL TYPE CODE (FLOOR TYPE)	MINIMUM WALL LENGTH (m)	MINIMUM PLYWOOD THICKNESS (mm)	NAIL** SPACING (mm)	HOLD-DOWN Type***	STUD SPACING (mm)	BRACING UNITS/M (20 BRACING UNITS = 1KN) Wind	Earthquake
Ratings for Ecoply component on one side only							
SP4	0.45	7	75	1	450	70	85
SP2* (Timber)	0.6	7	150	1	600	90	80
(Concrete)	0.6	7	150	1	600	90	105
SP1* (Timber)	0.9	7	150	1	450/600	110/100	105/100
(Concrete)	0.9	7	150	1	450/600	100/100	115/100
SPST1	1.2	7	150	1	600	90	80
SP6	0.9	12	150	1	450 or 600	115	110
SP8D	0.9	7	150	2	450	125	135
SP5D	1.2	7	75	2	600	130	135
SP10	1.8	7	75	1	450	135	135
SP12* (Timber)	1.8	7	150	1	600	120	105
(Concrete)	1.8	7	150	1	600	115 ◆◆	105
Ratings for Ecoply one side and Gib® plasterboard on the other side							
SP2G	0.6	7	150	1	600	95	95
SP1G	0.9	7	150	1	450 or 600	110	105
◆SP11G	1.8	7	150	1	450 or 600	140	120
BR7* (Timber)	0.9	7	150	1	450 or 600	130	100
(Concrete)	0.9	7	150	1	450 or 600	135	140
SP6G	0.9	12	150	1	450 or 600	120	110
SP6GD	0.9	12	150	2	450 or 600	145	135

* These walls on timber and concrete floor systems reviewed by BRANZ.
Where floor type is not specified, the lower value may be used.

** Use these spacings at all sheet edges. Within the sheet, spacings may be double that specified.

*** See Installation page 7.

◆ BR7 - plywood one side in accordance with this brochure and 10 mm Gib® Braceline nailed on the other side in accordance with Winstone Wallboards Ltd instructions.

◆◆ The Gib® may be 10 mm Gib® std plasterboard or any other plasterboard panel except system BR7 where 10 mm Gib® Braceline is required. Gib® may be fixed vertically or horizontally (refer to 'Gib® Bracing Systems' manual for installation details and limitations, available at www.gib.co.nz or by calling 0800 100 442).

Use any one of the following fasteners with 7mm plywood.

- 30 x 2.5mm galvanised clouts (flathead)
- 40 x 2.5mm galvanised clouts (flathead)
- Paslode 55 x 2.8mm Lense Head (Full Round Head) 304 stainless steel ring nails, plastic collated
- 40 x 2.8mm stainless steel annular grooved nails
- 40 x 2.8mm silicon bronze annular grooved nails

For 9mm plywood use minimum length 40mm. For 12mm plywood use minimum length 50mm.

The type of fastener required will depend on the corrosion risk and is given in Table 1.

Use SPST1 for plywood on light steel frames only. Use button head self-drilling, self-tapping screws for Ecoply bracing and standard plywood, and counter-sunk stainless steel self-drilling, self-tapping screws for cladding applications.

Adjustments for wall height

Use clause 8.3.1.4 of NZS 3604:1999 to calculate bracing values.

"Adjustment of bracing capacity of walls of different heights and walls with sloping top plates shall be obtained by the following method:

(a) For wall bracing elements of heights other than 2.4m, the bracing rating determined by test or from table 8.1 should be multiplied by $\frac{2.4}{\text{element height in metres}}$

except that elements less than 1.8m high shall be rated as if they were 1.8m high.

(b) Walls of varying heights, should have their bracing capacity adjusted in accordance with 8.3.1.4(a) using the average height."

ECOPLY RATINGS

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Installation

Framing

Framing must be in accordance with NZS 3604:1999. Before placing the frame in position, check the hold-down requirements to enable positioning of any straps required. Refer to Figure 5 for detailing of expansion gaps and framing alignment. Nogging for horizontal joints between sheets should be at least 90 x 35mm.

Hold-down details

Type 1 hold-down:

At each end of the wall, use either:

1. A single 25mm x 1.0mm galvanised steel sheet brace strap, refer to:
   - Figure 1(a) to (e) for timber floors.
   - Figure 2(a) or (b) for concrete floors.
2. Or the dropped panel detail, requiring no straps, refer to:
   - Figure 4(a) where the brace is in a veneer cavity or under cladding.
   - Figure 4(b) for cladding used as bracing.

Type 2 hold-down:

Higher wall ratings are possible with double hold-down and/or double nailing.
For Type 2 hold-down use two 25mm x 1.0mm straps, refer to:

1. Figure 6(a) to (d) for timber floors.
2. Figure 7 for concrete floors. Detailing in Figure 8 can be used with two straps.

Steel strap:

For details requiring steel straps according to NZS 3604:1999, use only 25mm x 1.0mm galvanised steel sheet brace strap, with 30 x 3.15mm FH nails. Where strap projects into subfloor space, use additional protection in accordance with NZS 3604:1999 clause 4.4.5.

Nailing and fixing of sheets

Refer Figure 3. Nail according to the desired bracing rating in Table 2.

- Allow a 2 to 3mm wide expansion gap between sheets (Figure 5).
- Nails must be at least 7mm from the edge of the sheet for square edge sheets and 7mm from the back edge for the shiplap claddings.
- Do not nail through the overlapping shiplap edges of Shadowclad® (Figure 5b & 5c).
  For more detailed instructions refer to the Shadowclad® Specification & Installation manual.
- Nail all edges and all ends of the sheets used as bracing, including blue tongue or tongue and grooved sheet to the requirements of Table 2.
- Do not foul hold-down straps and nails used to fix the plywood. This weakens the strap below specification.
- For power driven nails, use the Paslode Impulse Compact Nailer fitted with a No Mar(k) work contact element. Adjust work contact element to the flush position and drive nail flush with the plywood surface. Hammer any nails flush which are left proud. Do NOT overdrive power driven nails.

Openings in bracing elements

Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element.

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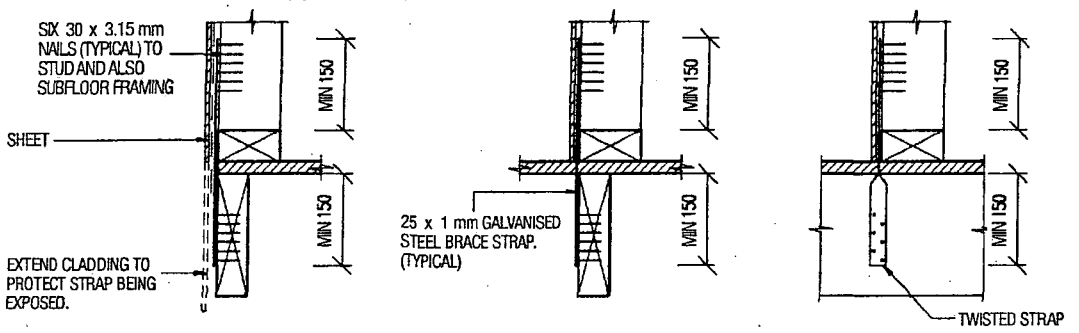
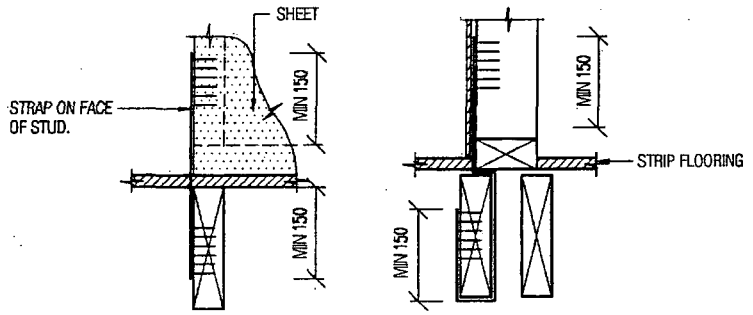
Figure 1: Type 1 strap fixings to each end stud of plywood sheet braces for timber ground floor and upper storey



(a) Exterior or edge detail

(b) Internal detail over continuous floor – wall parallel to joists

(c) Internal detail over continuous floor – wall across joists



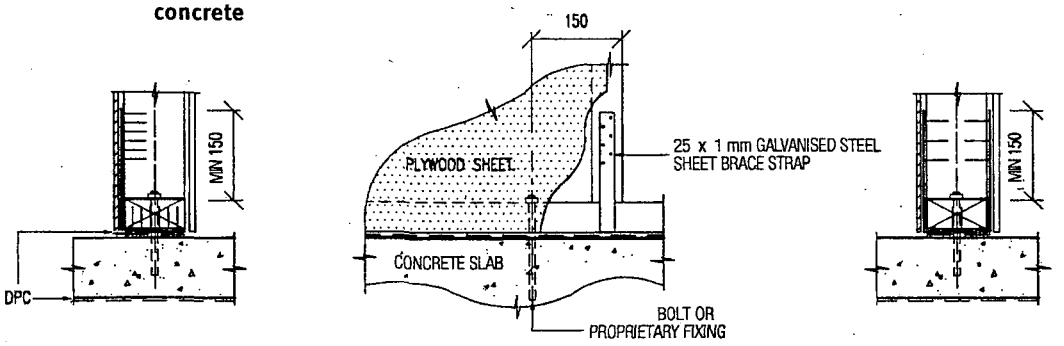
(d) Alternative to detail (c)

(e) Strip flooring detail

Note

1. Detail (a) can be replaced by a dropped panel fixing with no straps. See Figure 4.
2. Straps may be recessed into framing where a smooth finish is required in linings over straps.

Figure 2: Type 1 strap fixings and capacities to each end stud of braced panels on concrete



(a) Type 1 strap one side and under plate 6 – 30 x 3.15mm dia. Galv. F.H. nails each end

(b) Embed M12 bolt with 50 x 50 x 3mm washer, cranked and embedded 75mm into concrete or proprietary fixing

(c) Type 1 strap wrapped under plate 3 – 30 x 3.15mm dia. Galv F.H. nails each end of strap

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Figure 3: Fixing of plywood bracing sheets

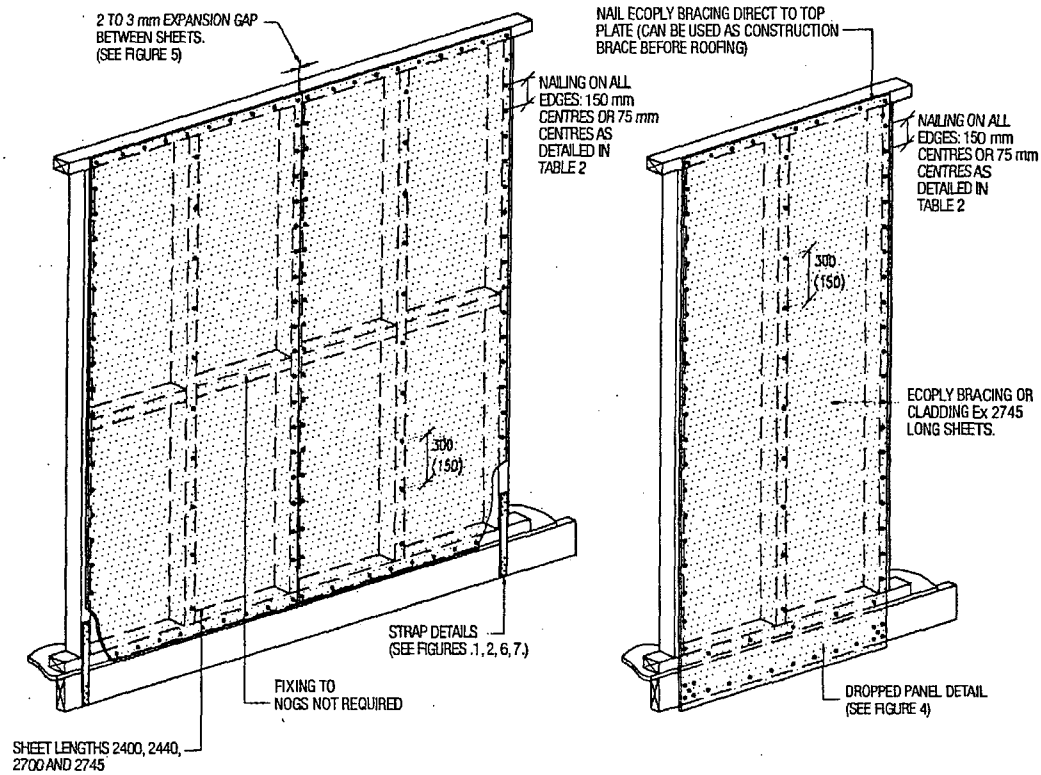
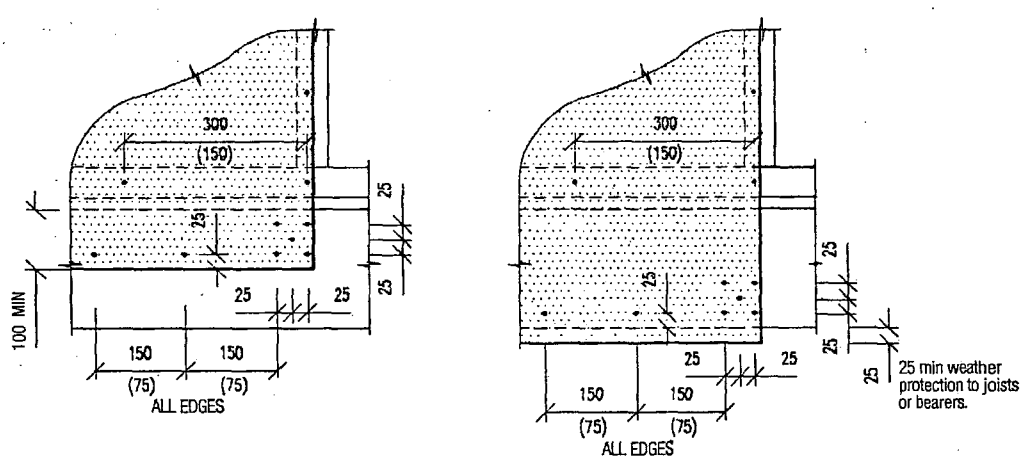


Figure 4: Type 1 dropped panel fixing for timber frames



(a) Dropped panel for brace under other cladding

(b) Dropped panel for plywood cladding brace

Note

1. Nails as specified in Table 2.
2. Nail centres given for standard nailing, refer Table 2.
3. Extra hold-down nails are same size as for rest of sheet.

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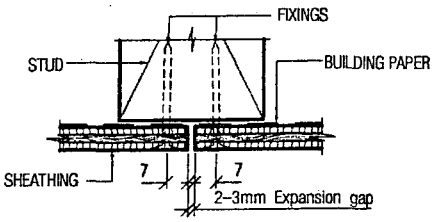
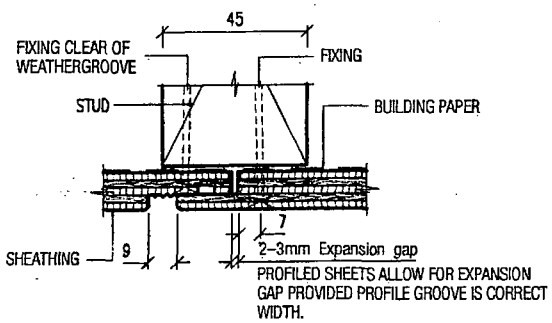
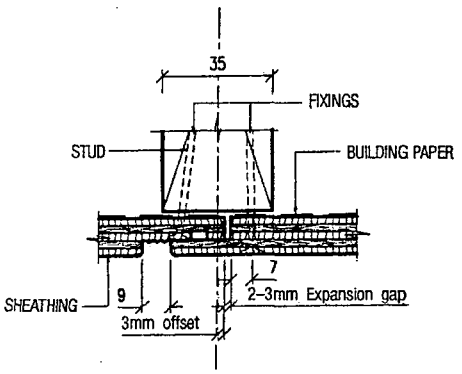
Figure 5: Typical detailing for expansion gaps



(a) Ecoply to stud

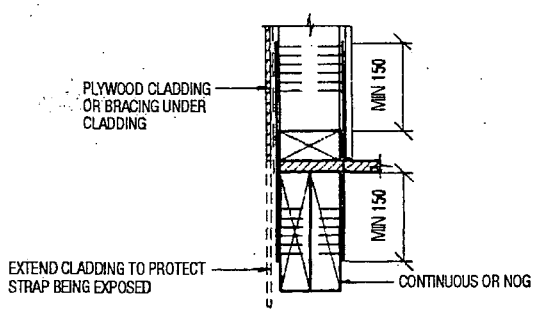


(b) Shadowclad to 45 mm stud

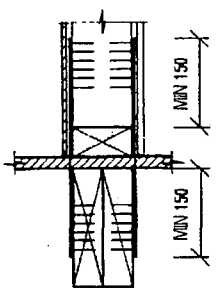


(c) Shadowclad to 35 mm stud

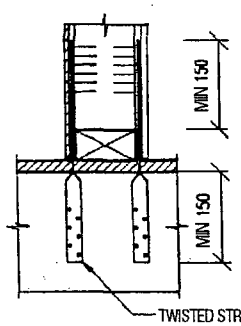
Figure 6: Type 2 strap fixings to each stud of plywood sheet braces for timber



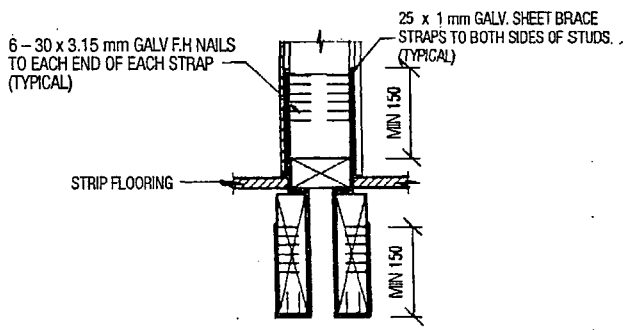
(a) Exterior or edge detail



(b) Internal wall over continuous floor - wall parallel to joists



(c) Internal detail over continuous floor - wall across joists



(d) Strip flooring detail

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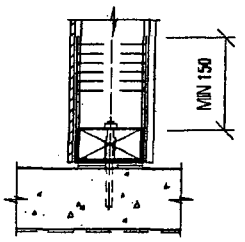
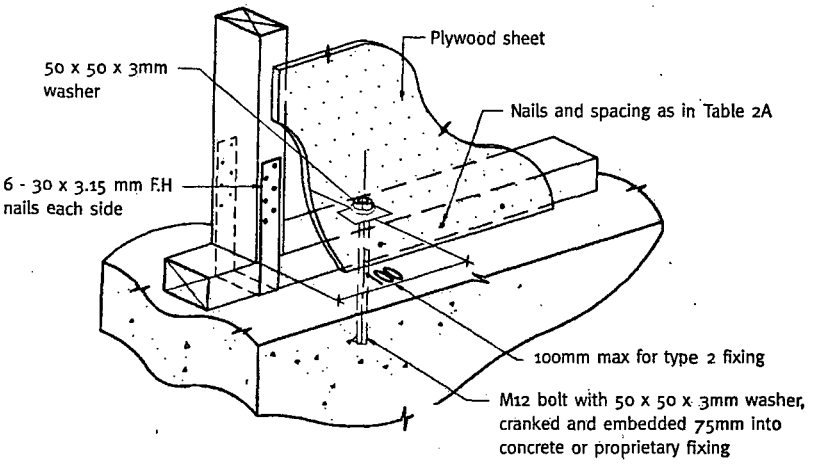
Figure 7: Type 2 strap fixings to end studs of plywood sheet braces for concrete floors

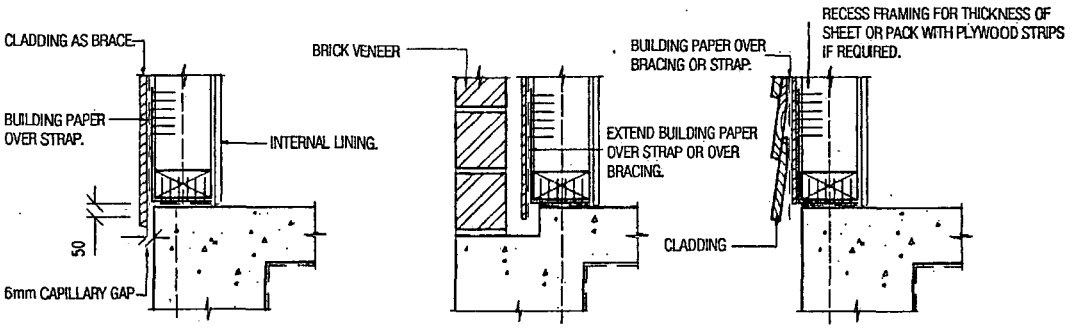


(a) 25 x 1 mm galvanised sheet brace strap wrapped under plate 6 - 30 x 3.15 mm dia. Galv. F.H. nails each side of stud

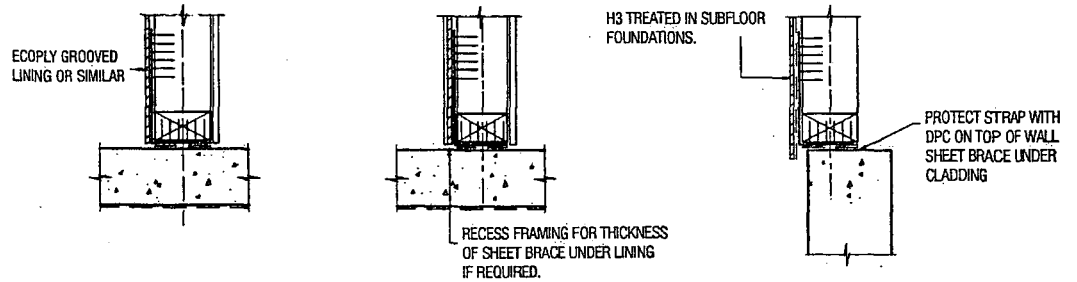


(b) Concrete base

Figure 8: Typical detailing for wall and subfloor framing on concrete floor and foundations



(a) Exterior cladding as sheet brace (b) Sheet brace under brick veneer (c) Sheet brace under cladding



(d) Plywood internal lining as sheet brace (e) Plywood sheet under internal lining (f) Foundation Wall

Note: Modify these details for either Type 1 or Type 2 fixings according to Figure 2 or Figure 7.

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4202 TECSTOP PLASTER

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the supply and application of following plaster systems. Tecstop plaster over brickwork/blockwork.

1.2 DOCUMENTS
Documents referred to in this section are:

Plaster Systems, Tecstop. Runforced levelling Plaster
Technical Data Sheet
NZS 3064 Light timber frame buildings not requiring specific design
NZS 4251 Solid plaster

BRANZ Publication: Good Stucco Practice

1.3 QUALIFICATION
All work to be carried out by competent, experienced plasterers.

2. PRODUCTS

TECSTOP PLASTER
18kg premixed, cement based plaster.

2.2 WATER
To be local town supply

2.3 ADMIXTURES
Use strictly in accordance with the manufacturer's recommendations. Obtain written approval from the owner before using any admixtures.

3. EXECUTION

3.1 STORE ALL MATERIALS
Store all materials on site in conditions ensuring adequate protection from contamination and deterioration.

3.2 BACKGROUND
Ensure that all backgrounds and adjoining surfaces are (with the preparation called for in this section) of a standard required for first class plastering. If not, then do not proceed until they are brought up to standard.

3.3 PROCTECT ALL
Protect all existing adjoining work and surrounding areas with boards, dust sheets and protective panels. Completely mask all metals, joinery, glass and other adjoining finished surgaces.

3.4 ALL FLASHINGS
All flashings and penetrations to be in place, and all work liable to damage the plaster to be complete before laying up commences.

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3.5 BACKGROUND
Hack off projections, fill voids. Remove oils, retarders, loose material and leave surfaces dust free.

3.6 BONDING AND KEY
Roughen concrete to provide a mechanical bond, rake out brick/block joints and dampen surface if necessary before applying the bond coat.

3.7 ACCURACY
For trowelled surfaces no deviation more than 3mm from a 1200mm long straight edge.

For textured surfaces no deviation more than 3mm from a 900mm long straight edge.

3.8 PLASTERING, CONCRETE OR MASONRY
Lay up bond, flanking and finish coats to the requirements of NZS 4251 and the recommendations of BRANZ "Good Stucco Practice" under atmospheric conditions that will not adversely affect the finished work. Scratch the initial coasts of plaster to provide a mechanical key for following coats. Complete any coat in sufficient time to enable subsequent coats to be applied under conditions that give full bond. Cut out damaged and faulty work in any coat and make good before proceeding.

3.9 CURING
Do not let TECSTOP completely dry out for the first 48 hours. Protect newly applied TECSTOP plaster from temperature extremes and rain for at least 24 hours.

3.10 PROTECT FINISHED WORK
Protect finished work from the weather and from damage by building operations or other causes.

3.11 CLEANING UP
Clean up all droppings and other trade waste from surrounding structure and areas. Remove all unused materials from the site.

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TECHNICAL DATA SHEET

plaster systems ltd
a Nuplex Group Company

tecstop®

Reinforced Levelling Plaster

INTRODUCTION

TECSTOP is a pre-mixed, cement-based plaster which can be easily applied as a single bond/flanking coat over a variety of exterior backgrounds.

The specially developed plaster mix contains lightweight aggregates, adhesion and workability aids, together with a unique polypropylene fibre reinforcement. This enables ease of application by hand or machine of thin levelling coats to a wide variety of backgrounds including concrete blocks, formed concrete, brickwork or metal lath.

TECSTOP's unique formulation provides a very economical bond and flanking alternative to conventional plaster systems. The fibre reinforcement not only relieves curing stresses but also provides an excellent surface key for a variety of conventional plaster finishes.

PROPERTIES

Density	720kg/m³
Compressive Strength	4100 KPa @ 28 days
Hydrostatic Permeability	15mm sample, 100mm head – 2.4mm after 24 hours
Flamespread	Nil – non combustible coating
Frost Resistance	Excellent

SUBSTRATE PREPARATION

TECSTOP is designed to be applied to a DRY substrate. Do not wet down masonry surfaces before the application of TECSTOP, do not apply TECSTOP to surfaces which are wet from rain or overnight dew.

Concrete block and brick surfaces must be free of oil, paint, dirt and lichen growth. Any loose or unsound surface material must be chiseled off back to a solid substrate.

On a smooth dense concrete surface a suitable key or slush coat must be applied to provide a suitable bond for the TECSTOP plaster. Where required metal corner beads or any depth gauge beads must be in place prior to the plaster application.

Metal lath and its appropriate accessories must be fixed in accordance with the lath manufacturers instructions.

PLASTER PREPARATION

Each 18kg bag of TECSTOP plaster is mixed with approximately 13 litres of clean drinking water. Depending on weather conditions and the method of application, a slight variation in the quantity of water may be required.

Place all the water for the mix size into a bin (a 50 litre rubbish bin is ideal) and add all of the TECSTOP plaster, while stirring with a powered whisk.

Let the mix stand for 10 minutes and give it a quick re-stir before use.

Do not mix more plaster than you can use in one hour.

Do not re-activate the mix with water once it begins to set. Discard any plaster that has been mixed for more than 1½ hours.

PLACING

Conventional hand plastering techniques are suitable with TECSTOP. The plaster can be sprayed or pumped with certain types of equipment (check TECSTOP plaster is suitable for the machine with a small trial application). Apply TECSTOP to solid, dry backgrounds with firm pressure and then double back with more plaster to bring the surface to a nearly level finish. When a reasonable area has been covered, use a wooden float or similar, to level out surface to a flat plane.

On thin coats the fibre reinforcement will provide the mechanical key for subsequent plaster coats without the need for "scratching" the surface.

Apply TECSTOP plaster only when the temperature is between 5° to 35°C, and will be in that range for a 24 hour period after application.

THICKNESS

5mm is the minimum thickness for a cohesive coat of TECSTOP plaster. The actual thickness of TECSTOP plaster will be dictated by how flat the background is, but do not reduce the TECSTOP plaster thickness to below the minimum of 5mm.

TECSTOP can be applied up to 50mm thick in one application. If your plaster coat needs to be thicker than this, build it up in layers with a minimum of 24 hours between plaster coats.

Over metal lath, the TECSTOP plaster must completely cover the wire surface with the first plaster coat. A minimum cover of 10mm of TECSTOP is recommended over metal lath.

NOTE: TECSTOP is not suitable as a finishing plaster and must be coated with a conventional exterior plaster finish or Plaster System Ltd's MULTIPLAST All Purpose Finishing Plaster.

CURING

Do not let TECSTOP completely dry out for the first 48 hours.

Protect newly applied TECSTOP plaster from temperature extremes and rain for at least 24 hours.

COVERAGE

6 square metres per bag – 5mm thickness of plaster.

PLASTER STORAGE

Bags of TECSTOP plaster must be stored in a dry area, preferably off the floor on a timber pallet or timber dunnage.

Rotate the stock to ensure that the oldest material is used first.

Plaster stock that is older than 6 months should be discarded.

HEALTH AND SAFETY

TECSTOP plaster dust is an irritant, and paper dust protection masks should be worn while it is being mixed. The wet plaster is alkaline, and prolonged skin contact should be avoided.

TECHNICAL ADVICE

An advisory service is available to the specifiers, and users of TECSTOP. Simply contact Plaster Systems Ltd on toll free phone service - 0800 11 44 00.

TECSTOP® is a registered trademark of Plaster Systems Ltd.

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4301 ROOFING

1. GENERAL

1.1 SCOPE

The work done under this section includes the following:

- Supply and installation of 0.4mmColorsteel Endura corrugate roofing, complete with underlays and accessories to create a watertight roof.
- Supply and installation of Roofman Easiline Colorsteel Fascia System

1.2 DOCUMENTS

Documents referred to in this section are:

NZBC	E2/AS1	External moisture 1.O Roofs
NZS 2295		Building papers, (breather type)
NZS 3403		Hot-dipped galvanised corrugated steel sheet four building purposes
NZS 3602		Timber and wood-base products for use in building
NZS 3604		Light timber frame buildings not requiring specific design
NZMP 3640		Minimum requirements of the NZ Timber Preservation Council
NZS 4222		Materials for the thermal insulation of buildings

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

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

1.3 ROOFER QUALIFICATION

Carry out all roofing work using experienced, competent roofers familiar with the materials and techniques specified.

1.4 WIND AND EARTHQUAKE LOADINGS

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

1.5 COORDINATE

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

3. PRODUCTS

BUILDING PAPER

Breather type kraft paper laminates to NZS 2295

2.2 UNDERLAY SUPPORT

50mm hexagon mesh of 1mm diameter galvanised steel wire in 900mm (minimum) width sheets.

2.3 PROFILED METAL ROOFING

Steel sheet galvanised to NZS 3403, aluminium-zinc coated to NZS/AS 1397. Finish as specified. Accessories, cappings, flashings and fixings to match and to the manufacturer's recommendations.

Brand/Type:	Dimond
Base metal thickness:	0.4mm
Coating:	Colorsteel Endura
Flashings:	0.55mm

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3. EXECUTION

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

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

3.3 LAY ROOF UNDERLAY
Lay and fix to NZBC acceptable solution E2/AS1, NZS 3604, section 11.2 and the manufacturer's recommendations.

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

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

3.7 PENETRATIONS
Flash and overflash all penetrations through the roof.

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

3.9 LEAVE
Leave the work complete with all flashings, undercloaks, valleys, and ridges properly installed so the finished roof is completely weathertight.

3.10 CLEAR
Clear all trade rubbish and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out all spoutings, gutters and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.

3.11 REPLACE
Replace damaged or marked elements. Remove unused materials from the site.

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4501 TIMBER WINDOWS AND DOORS

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Supply and installation of interior door frames and doors.
- Timber entry door D1.

1.2 DOCUMENTS
Documents referred to in this section are:

NZS 3602	Timber and wood-based products for use in building
NZS 3610	Profiles of mouldings and joinery

2. PRODUCTS

2.1 TIMBER SELECTIONS
To NZS 3602.

Location/component	Timber species	Grade	Finish
Interior timber frames:	Pine	Clears	Paint

2.2 EXTERIOR DOORS
Solid timber framed, panelled.

Brand/Type: Refer to window and door schedule.

Timber: Cedar tg&v (dressed)

2.3 HOLLOW CORE DOORS PAINT QUALITY –
37mm nominal thickness, hardboard faced hollow core paint quality with solid clashing strips to both long edges.

2.4 CAVITY SLIDERS
Cavity Sliders shall be as manufactured by Cavity Sliders Limited, Mount Roskill, Auckland.

2.5 DOOR HINGES
Door hinges to be butt hinges. Bright steel, chrome plate, stainless steel, zinc plated, or Florentine bronze, loose pin for interior use. Select to suit adjoining finish. Size and gauge to carry door size and weight. 3 hinges per door.

2.6 DOOR HARDWARE
All door hardware to be selected by owner.

3. EXECUTION

3.1 CONFIRM
Confirm all framing openings on site for dimension, plumb and straightness prior to fabrication or ordering of timber joinery.

3.2 GENERALLY
Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

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3.3 INTERNAL JOINERY FRAMES
Fabricate as detailed. Wedge and rigidly fix in place without distortion, plumb, and true to line and face.

3.4 INTERNAL DOOR LINERS
Heads and jambs finished 20mm, with 10mm planted stops, finished to match width of lined walls. Hang doors on hinges, sliding, or bi-fold gear to the manufacturer's recommendations and to operate freely. Fit hardware.

3.5 CHECK
Check and adjust operation of all doors sets, hardware and furniture.

3.6 ON COMPLETION
On completion remove any temporary protection and leave ready for following work.

3.7 LIAISON

4. SCHEDULES

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BTL
APPRAISALS

APPRAISAL CERTIFICATE No: 264 A

Re-issued April 1996

This Certificate replaces BTL Appraisal Certificate No.264 (1994) issued in March 1994

Building Industry Authority Certificate of Accreditation No 93/006A Valid until further notice

CS CAVITY SLIDERS

Cavity Sliders Limited
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Tel 09-276 0800
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Please refer to this document as "BTL Appraisal Certificate No.264A, March, 1996".

Readers are advised to check that this Certificate has not been withdrawn or superseded by a later issue, by either referring to the "Current Certificates Index" in BUILD, the bi-monthly magazine published by the Building Research Association of New Zealand (BRANZ), or by contacting Building Technology Limited (BTL).

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Quality Endorsed Company

This Appraisal was produced by BTL, a company wholly owned by BRANZ.

Product

This Certificate relates to CS Cavity Slider units Timberform, Powderseal and System 50 and models and variations as detailed under Description. All units are suitable for installation into conventional wall construction.

The CS Cavity Sliders units have been appraised for use with sliding doors in internal locations in residential, commercial and light industrial buildings.

This Certificate does not cover:

- *door leaves (except Soundstop).*
- *Extra High units for doors over 2.7 m in height.*
- *Commandoor activating devices.*
- *the use of door leaves heavier than 50 kg for System 50, 55 kg for Commandoor and 120 kg for all other units.*

All CS Cavity Sliders are manufactured and marketed by Cavity Sliders Limited.

Building Regulations

New Zealand Building Code (NZBC)

In the opinion of BTL, if CS Cavity Sliders are used in accordance with the statements and conditions of this Certificate, the relevant provisions of the following NZBC Clauses will be met:

B1 STRUCTURE; B2 DURABILITY; D1 ACCESS ROUTES; and F2 HAZARDOUS BUILDING MATERIALS.

Specific NZBC compliance details are contained within this Certificate.

Technical Specification

Description

CS Cavity Sliders are units for sliding doors suitable for installation into timber, steel, concrete or masonry construction where a fire resistance rating is not required.

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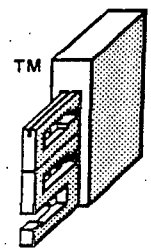

INSTALLATION INSTRUCTIONS FOR CS CAVITY SLIDERS

TIMBERFORM

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING

Other units fitted with timber jambs and covered by these instructions are —

- EXTRA WIDE
- EXTRA HIGH
- FULL HEIGHT DETAIL (FHD)
- NO CLOSING JAMB (NCJ)
- NO CLOSING JAMB WITH FULL HEIGHT DETAIL (NCJFHD)
- EASI-OPEN
- SERVERY
- 10mm GLASS
- SOUNDSTOP

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PLEASE KEEP THESE INSTRUCTIONS IN A SAFE PLACE

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10. FOR ARCHITRAVE MODELS

Nail the front of the vertical architraves to the vertical jambs using panel pins with a maximum length of 28mm plus the combined thickness of the architrave and wall lining. Nail the back of the architraves to the split jamb blocks using panel pins with a maximum length of 16mm plus the combined thickness of the architrave and wall linings.

Note: Nail the head architraves to the head jambs but **do not** nail the architraves to the timber pelmet blocks above the head jambs (refer diag. T).

11. NAILING SKIRTINGS

Care must be taken when nailing skirtings to the bottom plate. Use panel pins with a maximum length of 17mm plus the combined thickness of the skirting and wall lining. **DO NOT HAMMER TOO HARD AGAINST THE BOTTOM PLATE AS THIS MAY DAMAGE THE CHANNEL THROUGH WHICH THE DOOR GUIDE RUNS.**

12. TO REMOVE OR ADJUST THE DOOR

If the black tee-guide is not fitted (diag. X) disregard instruction a).

(a) With the door in the open position, use a slotted screwdriver to lift up the locking pin in the black tee-guide located underneath the door. Only lift the pin high enough to enable you to push the tee-guide back inside the cavity by approx. 40mm (diag. X).

(b) Remove both head jambs by taking out the wooden plugs and screws (if jambs fitted).

(c) Close the door. Push the small red wedges out from underneath the flat springs (diag. W). The springs should now drop down below the hexagonal nuts allowing the nuts to be turned for adjustment. USE SPANNER SUPPLIED. To remove the door turn the adjusting nuts clockwise until you wind the door completely off the carriages (diag. W).

(d) The door can now be taken out on an angle (diag. V).

(e) To remove the carriages slide them to the closing jamb end of the track, where they will drop out through the access slot.

(f) To replace the door, follow (a) to (e) instructions in reverse.

13. DOUBLE DOORS

(a) Fix in the same manner as single doors making sure to butt the centre of each track hard together. (These units **do not** have closing jambs.)

(b) Adjust the doors for plumb (refer Instruction 12c) and make sure they butt neatly together when closed with no gaps. Set the adjustable stops located near the centre of the track so that when the doors are closed, their leading edges do not pass the central point.

FIXING FOR UNITS WITH:—

14. No Closing Jamb

Fix as per instructions (Ignore instruction 6). Make sure the free end of the track butts hard into the finished wall. This unit does not have a closing jamb.

15. Full Height Detail:

Fix as per instructions making sure that the bottom of the track is flush with the bottom of the ceiling. The vertical jambs are square cut on the top ends which butt hard up under the finished ceiling, level with the bottom of the track. This unit does not have head jambs (diag. U).

16. No Closing Jamb With Full Height Detail:

Fix as per instructions (Ignore instruction 6) making sure:

(a) That the free end of the track butts hard into the finished wall.

(b) That the bottom of the track is flush with the bottom of the ceiling. The vertical jambs are square cut on the top ends which butt hard up under the ceiling, level with the bottom of the track. This unit does not have head jambs or a closing jamb (diag. U).

17. EASI-OPEN

No special fixing is required. Install as per instructions for single doors **less** than 910mm wide.

18. SERVERY

Install as per instructions. Where the bottom plate is normally fitted to a concrete or timber floor, in this case it will be fitted to a 100 x 50 trimmer, use fasteners and fixing detail as per Instruction 7.

As the serving area of which the door slides over could involve a sill, bar, benchtop etc. no reference has been made to them in these instructions.

For aesthetic purposes the sill, bar or benchtop is normally fitted around the cavity slider, thus reducing the gap under the door to a dimension required by the customer.

19. SOUNDSTOP

Use these instructions plus supplementary sheet titled "**Extra Instructions For Fitting CS Cavity Sliders Soundstop**" dated April 1994.

20. 10mm GLASS DOORS

Install as per standard instructions. This unit does not have a black tee guide.

21. FITTING YOUR OWN DOOR

(a) **Mounting Plates & Carriages**

Top of door — drill two 20mm diameter holes in positions marked and screw both mounting plates to door (diag. Z). (Note: they must be exactly centre of door thickness.) Screw the two carriages into the mounting plates to approximately the same distance (about six turns each). For doors heavier than 120kg two extra carriages will need to be fitted. Please consult CS Cavity Sliders to purchase extra carriages and advice on fitting them.

(b) **Groove Door (To Accept Tee Guide):**

The groove is only required for units which are fitted with the black tee guide (diag. X). Groove must be straight and in the centre of door to dimensions shown (diag. Z).

(c) **Fit Door To Cavity Slider:**

Slide the carriages (fitted to the door) into the end of the track and push the door all the way to the back of the cavity.

(d) **Fit Closing Jamb to Cavity Slider (Single Units Only):**

Screw the closing jamb onto the end of the track using #8 x 25mm self tapping screws supplied. The two screws fit through the pre-drilled holes in the closing jamb and then cut a thread into the screw tubes which are part of the track.

PLEASE KEEP THESE INSTRUCTIONS IN A SAFE PLACE

Continued overleaf

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Table 2		
Door Size (mm)	Trim Size (mm)	
	Single Doors	Double Doors
1980 x 610	2075 x 1250	2075 x 2450
1980 x 660	2075 x 1350	2075 x 2650
1980 x 710	2075 x 1450	2075 x 2850
1980 x 760	2075 x 1550	2075 x 3050
1980 x 810	2075 x 1650	2075 x 3250
1980 x 860	2075 x 1750	2075 x 3450
1980 x 910	2075 x 1850	2075 x 3650

Soundstop

Soundstop is supplied with a sound-insulated door manufactured by Cavity Sliders Ltd that can achieve a Sound Transmission Class (STC) of up to 43.

System 50

System 50, a self-assembly unit, is not supplied with a door fitted, and is limited to doors of up to 50 kg in weight.

Handling and Storage

CS Cavity Sliders are supplied with transportation plates to prevent distortion of the frames during delivery and handling. Units for other than local deliveries are packed in cardboard. Handling, as with any joinery product, must be with due care to avoid damage.

System 50 is supplied in self-assembly form, packed in a cardboard box.

On site, units must be stored upright supported across their width (e.g. against a wall) to prevent distortion of the frame and in a dry and clean area protected from dust and direct sunlight.

Design Information

General

This Certificate must be read in conjunction with the manufacturer's installation instructions (as given in Basis of Appraisal).

Units can be supplied with timber jambs or prefinished powdercoated aluminium jambs in a variety of colours.

CS Cavity Sliders are designed to fit standard stud walls (nominally 100 mm). Double Overtaking fits into 144 mm ex 150 mm thick walls.

An intermediate stud is included in the framing for stability in all units for doors wider than 910 mm, except for Easi-Open units which are made for doors of a maximum width of 1043 mm (cavity depth 933 mm).

Structure

When used in accordance with the provisions of this Certificate, CS Cavity Sliders, including the Soundstop door leaf, will meet the provisions of NZBC B1.3.1, B1.3.2, B1.3.3 and B1.3.4.

Where vertical loads are imposed from above, CS Cavity Sliders require supporting members which span the full trim-size.

CS Cavity Sliders for doors over 2.7 m in height are outside the scope of this Certificate.

CS Cavity Sliders are capable of withstanding wind loadings up to 1 kPa and likely soft and hard body impact loadings associated with residential, commercial and light industrial buildings.

Bracing

CS Cavity Sliders Bracewall units are for areas where wall bracing is needed in conjunction with a cavity sliding unit. When used in accordance with Section 6.9 of NZS 3604:1990, Bracewall will provide a rating of 127 (earthquake) and 110 (wind) Bracing Units per metre width of bracing panel. These Bracing Unit values have been derived from BRANZ Technical Paper P21 1991.

Wider units may be specified where a higher bracing value is required.

Durability

The drive unit, carriages, rollers, Easi-Open handle and Soundstop door leaf for the CS Cavity Sliders covered by this Certificate will meet the durability performance requirements of NZBC B2.3(d) of 5 years with normal maintenance. Normal maintenance may include replacing the drive roller for Commandoor and the carriages for System 50.

The door units covered by this Certificate, being non-structural internal partitions, except Bracewall, will meet the 5 year minimum requirement of NZBC B2.3(d) when correctly installed.

Bracewall, when kept dry, will meet the requirements of B2.3(a) for 50 years, when fixed directly to timber or when fixed to concrete with glued-in EPCON® System Ceramic 6™ Epoxy bolts.

Bracewall can be used in wet areas such as bathrooms and laundries but only if the ventilation meets the requirements of Acceptable Solution E3/AS1 Paragraph 1.2.

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Cavity Sliders will therefore meet the provisions of NZBC F2.3.1.

Sound Transmission

In applications where sound insulation between rooms and a sound transmission class (STC) is required, Soundstop comprising an acoustic door and seals can be used. Soundstop achieves an STC of up to 43.

Installation

CS Cavity Sliders must be installed in accordance with the manufacturer's installation instructions (as given in Basis of Appraisal).

The instructions for the assembly of System 50 are printed on the outside of the box it is supplied in.

The following is a summary of the important aspects.

The required opening size in which a unit is to be fitted (trim size), allows for clearance all around to fit the unit in place, which must be packed after plumbing the assembly. Fixing of the aluminium framing members to the surrounding structure is through pre-drilled holes using the number, type and size of fasteners required by the manufacturer.

Care must be taken when installing the frame. The top and bottom plates must be correctly aligned so that the door will slide smoothly.

The doors are installed by fixing mounting plates and carriages to the top which are then fitted onto the track.

The cavity wall must not be lined until the door is fitted and slides smoothly. When lining the cavity wall, care must be taken not to use a fastener length which will penetrate through the nogging and subsequently damage the door surface. Adhesive fixing rather than nailing fixing of wall linings is recommended.

Where units are installed on a concrete slab on ground, the slab must meet the requirements of NZBC E2.3.3.

Bracewall

Where Bracewall is installed on a concrete slab, the slab must be thickened to a depth of 150 mm in a strip 300 mm wide (150 mm both sides of the bolts) for the full length of the unit.

Note: Cast in bolts may be used for existing slabs with a minimum thickness of 100 mm. This method is not covered by this Certificate and Cavity Sliders Ltd must be contacted regarding specific design.

Soundstop

Soundstop requires additional care, to ensure tight perimeter and threshold seals to achieve the specified STC ratings.

Basis of Appraisal

Tests

Tests were carried out by Anthony Bearings, Australia on wheels used in CS Cavity Sliders as well as the track and carriages for System 50, Timberform and Powderseal to assess their wear characteristics.

The load capacity of the aluminium track and wheels was tested by McKechnie Brothers (NZ) Limited.

Testing was carried out by the Acoustics Testing Service of the University of Auckland to establish the sound transmission loss of Soundstop.

Bracing ratings for Bracewall were determined by John Yolland Associates, Auckland, in accordance with BRANZ Technical Paper P21, and BRANZ Technical Recommendation No. 10.

The wind and impact loading of CS Cavity Sliders was determined by calculation, and history of use and opinion by BTL.

Testing was carried out by Commandoor International Limited on the drive unit, carriages and track for Commandoor to assess strength, reliability and durability.

Other BTL Investigations

BTL has examined the quality and composition of the materials used, the manufacturing process and the methods adopted for quality control and found them all to be satisfactory.

Installations of CS Cavity Sliders have been inspected by BTL to assess practicability of installation and to establish reliability of use.

BTL have established that Commandoor complies with the installation and operation requirements of AS 4085-1992.

Cavity Sliders Limited's installation instructions "Installation Instructions for CS Cavity Sliders 'Powderseal'", "Installation Instructions for CS Cavity Sliders 'System 50'", "Installation Instructions for CS Cavity Sliders 'Timberform", "Installation Instructions for CS Cavity Sliders 'Powderseal & Timberform Bracewall'", "Installation Instructions for CS Cavity Sliders 'Powderseal and Timberform Commandoor'", "Installation Instructions for CS Cavity Sliders 'Powderseal & Timberform Double Overtaking'", and "Extra Instructions for Fitting CS Cavity Sliders 'Soundstop'" all dated April 1994 and "System 50 Assembly Instructions" dated October 1993 have been examined.

BTL is satisfied the tests and other investigations demonstrate fitness for purpose and compliance with the relevant provisions of the NZBC.

Sources of Information

Anthony Bearings Pty Ltd. Australia. Product Information Bulletin No 1 Wear testing on ball bearing wheel in aluminium sliding doors. December 1976.

Anthony Bearings Pty Ltd. Australia. Test Report NJ-302 Bearing Assembly. April 1990.

AS 4085: 1992 Automatic sliding door assemblies.

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4502 ALUMINIUM WINDOWS AND DOORS

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
The manufacture, glazing, supply and installation of aluminium windows and doors.

1.2 DOCUMENTS
Documents referred to in this section are:

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

Architectural Aluminium Association of New Zealand: Aluminium Window Handbook
Architectural Aluminium Association of New Zealand: Specification for powder coatings on architectural aluminium products
Architectural Aluminium Association of New Zealand: Installation code for aluminium joinery products

BRANZ Bulletin 349: Finishes for aluminium

1.3 SUBMIT
Submit full size section samples, with the selected finish through all profiles offered. Provide evidence from a laboratory accredited by International Accreditation of New Zealand that the windows offered comply with the requirements of NZS 3504 and the required site and building design wind pressure, air leakage and water leakage levels to NZS 4211.

Provide written confirmation that all windows and doors have a serviceability wind pressure (SWP) and an ultimate wind pressure (UWP) corresponding to the wind zones set down in NZS 3604, table 5.

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

2. PRODUCTS

2.1 JAMB REVEALS, TIMBER

Timber species: Pine, Architraves / H3.1 treatment

Grade: Clears

Finish: Paint

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

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2.3 GLASS GENERALLY
All glazing to comply with NZS 4223, with particular attention to NZS 4223, part 3 where glass could be subject to human impact.

2.4 GLASS, FLOAT
To NZS 4223, part 1, selection G. Thickness as required by NZS 4223, part 1 and AS/NZS 2208. Light Grey Tint

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

Colour: To be selected by owner

2.6 SEALANT
To the window manufacturer's recommendations.

2.7 GLAZING TAPE AND GASKETS
To the window manufacturer's recommendations.

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

2.9 FLASHINGS
All flashings to heads, jambs and sills as detailed. Sill flashing to be finished to match window finish.

3. EXECUTION

3.1 SITE MEASURE
All window frame measurements to be verified on site prior to fabrication.

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

3.3 AVOID DISTORTION
Avoid distortion of components during transit, handling and storage. Prevent pre-finished surfaces from rubbing together. Prevent contact with mud, plaster and cement. Do not deliver to site any components which cannot be immediately unloaded into suitable conditions of storage.

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

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

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

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3.7 GLAZING INSTALLATION
Glazing and infill panels to be the responsibility of the window manufacturer for structural and weather-tight performance. All glass to be held in aluminium beads and black PVC gaskets.

3.8 SAFETY GLASS INSTALLATION
Use in all doors, sidelight panels, low level windows and all other locations to comply with NZS 4223, part 3, as modified by NZBC acceptable solution F2/AS1. Glass to comply with AS/NZS 2208.

3.9 INSTALL FLASHINGS
Install flashings to heads, jambs and sills of frames as supplied and recommended by the window manufacturer and as detailed on the drawings.

3.10 SEAL FRAMES
Seal frames to each other and to adjoining structure and finishes, all as recommended by the manufacturer and to make the installation weathertight.

3.11 RETAIN PROTECTIVE COVERINGS
Retain protective coverings and coatings in place during fixing wherever possible. Provide additional protection to prevent marking of surfaces which will be visible in the completed work. Remove protection on completion.

3.12 ON COMPLETION
On completion remove temporary protection and clean down both sides of all aluminium and glass, using the method recommended by the manufacturer.

3.13 INDICATE
Indicate the glass in place with inert whitening, paper, glazing signs or tape.

3.14 CLEAN
Clean off or remove indicators at completion of the building. Clean all glass inside and out to a shining finish.

3.15 LIAISON

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5101 LINING

1. GENERAL

1.1 SCOPE
The work to de done under this section includes the following:
- Supply and installation of wall and ceiling linings, and associated trim.

1.2 DOCUMENTS
Documents referred to in this section are:

NZS 3602	Timber and wood-based products for use in buildings
NZS 3604	Light timber frame buildings not requiring specific design
NZS 3610	Profiles of mouldings and joinery
NZS 4221	Fibrous plaster sheet
NZS 7607	Plastics - Decorative laminated sheets based on thermo-setting resins: Part 1: Specification Part 2: Determination of properties

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

BRANZ Bulletin 328: Selection and use of fasteners
BRANZ Bulletin 343: Moisture in timber

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

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

1.4 PROTECT
Protect all joinery, fittings and finishes already in place from water staining or damage from lining installation. Immediately make good any damage.

1.5 BUILDING
Building to be weatherproof before lining work commences.

2. PRODUCTS

Plasterboard

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

Brand: Winstone Wallboards 9.5 Gib-Board, 9.5 Gib Aqualine, 9.5 Gib Braceline, 9.5 Gib Noiseline

Refer to the drawings and/or the finishing schedule for the location of standard, water resistant, bracing, special ceiling, fire rated, sound rated panels.

2.2 EXTERNAL ANGLE
Slim type 0.5mm galvanised steel.

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2.3 CASING BEAD
Slim type 0.5mm galvanised steel or PVC.

2.4 CORNICE
Square stopped throughout

2.5 NAILS
Galvanised clouts 40mm x 2.5mm.

2.6 SCREWS
40 x 6 gauge zinc electro-plated bugle head gypsum drywall screws.

2.7 JOINTING
Compound and paper tape to the board manufacturer's recommendations.

2.8 ADHESIVE
Multi-purpose water based wallboard adhesive.

Sundry Linings And Finishings

2.9 INTERIOR FINISHING, TIMBER
Species and grade:

Skirting	90 x 10	Single Bevel/ PQ

3. EXECUTION

3.1 SUBSTRATE
To NZS 3604, sections 6, 9, 11 and the standard required by the manufacturer's recommendations. Starting work implies acceptance the substrate will allow work of the required standard.

3.2 LEVELS OF FINISH
Before commencing work, confirm the surface finish assessment procedures necessary to ensure the specified levels of finish will be obtained.

Plasterboard

3.3 LEVELS OF FINISH
Provide levels of finish to standards laid down by the Interior Systems Association document "Levels of finish," as follows:

Level 4: surfaces receiving light texture or wall covering finishes (walls and ceilings)

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

Fixing method: Gib Fix adhesive and gib grabber screws.

3.5 LINE WALLS
Line walls by the vertical method, with plasterboard sheets, fastened to the manufacturer's recommendations.

Fixing method: Gib Fix adhesive and gib grabber screws.

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3.6 LINE WET AREA WALLS
Line wet area walls with water resistant plasterboard sheets using adhesive and nail fixing to studs at centres to suit the surface finish and to the manufacturer's details.

3.7 FORM BRACING PANELS AND SYSTEMS
Form using high density plasterboard sheets fixed with clout-washers and clouts to the manufacturer's details. For panels strap substrate and for systems diagonal brace to NZS 3604, appendices K.4 and K.2.

3.9 FIX EXTERNAL ANGLES
Fix full length to all external corners with clouts at 100mm each side staggered.

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

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

Sundry Items

3.13 CEILING ACCESS
Trim out ceiling to form 1900mm x 900mm square clear opening. Fit finished 40mm x 12mm timber facings to perimeter, set to support a lift-out panel of the ceiling material.

3.14 INSTALL TRIM
Fit architraves to interior joinery aluminium windows and doors, and skirtings to all walls and timber bead cornices as detailed and shown.

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

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

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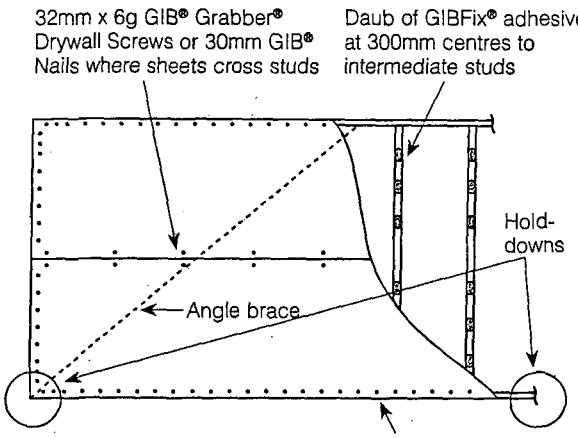
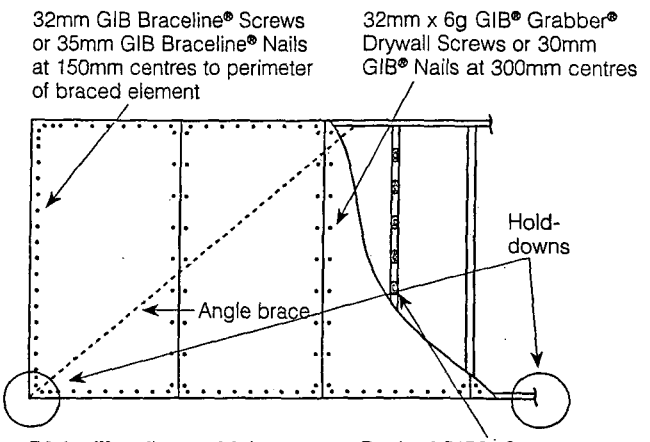
Fastener Layouts – GIB Braceline® Bracing Elements MARCH 2006

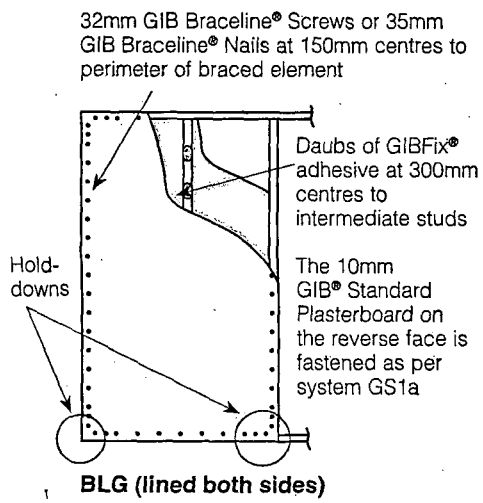
For 10mm GIB Braceline®, 10mm GIB Noiseline® and 10mm GIB Toughline®



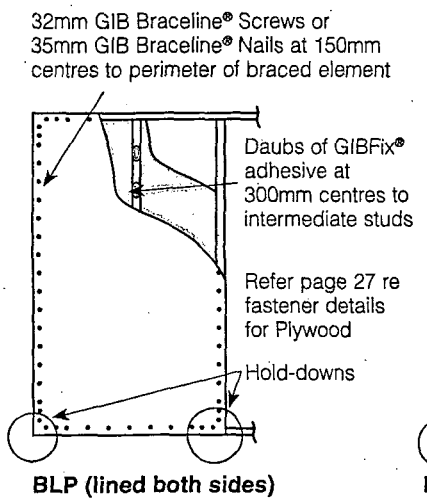
BL1a (lined one side) (Horizontal Fixing)



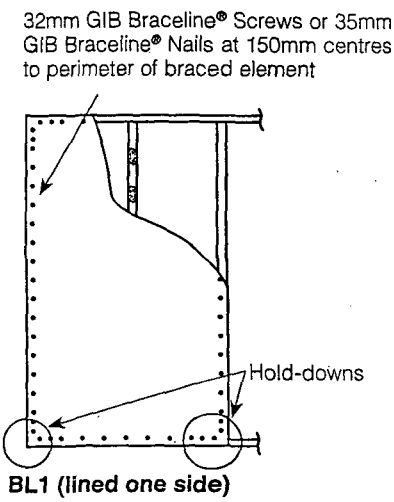
BL1a (lined one side) (Vertical Fixing)



BLG (lined both sides)



BLP (lined both sides)



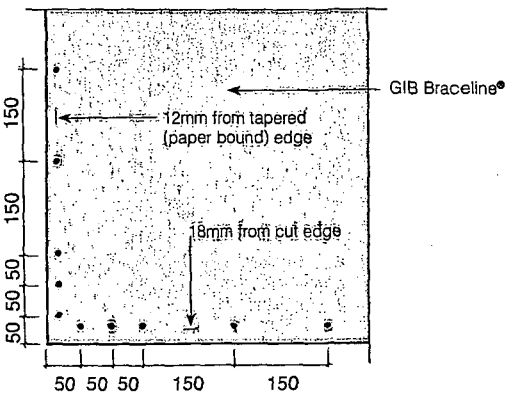
BL1 (lined one side)

Fixing the perimeter of a GIB Braceline® bracing element

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

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

Fastening pattern for GIB Braceline® bracing elements



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

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Ceiling Diaphragms – Steel Battens

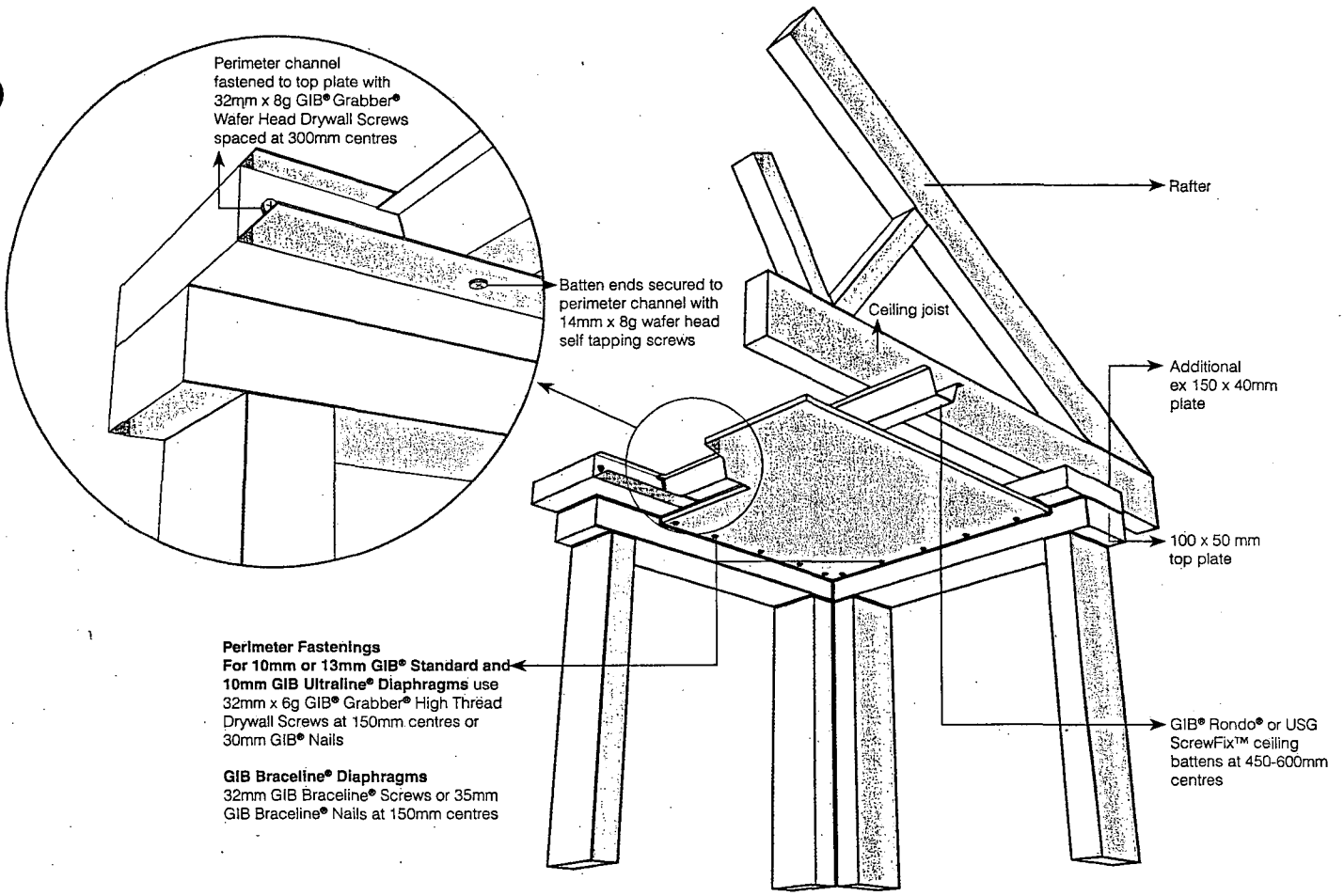
MARCH 2006

Steel Battens

The GIB® Rondo® and USG DONN Screwfix™ (FC37 and FC50) battens may be used to construct GIB® plasterboard ceiling diaphragms.

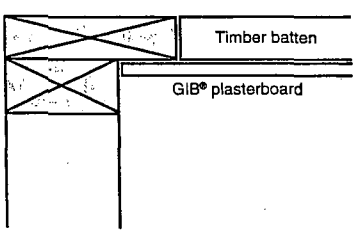
- The battens shall be spaced at 450mm centres maximum for 10mm GIB® plasterboard and at no more than 600mm centres for 13mm GIB® plasterboard. The battens are fastened through both flanges directly to the ceiling framing with 32mm x 8g GIB® Grabber® Wafer Head Self Tapping Drywall Screws.
- A steel perimeter channel is required at the perimeter of the diaphragm. The channel shall be fastened to the top plate with 32mm x 8g GIB® Grabber® Wafer Head Self Tapping Drywall Screws spaced at 300mm centres maximum.
- The linings are fastened to the perimeter channel at 150mm centres maximum with 25mm x 6g Self Tapping Screws.
- Within the diaphragm area sheets may be fastened as described in "General Fixing Requirements for GIB® Ceiling Diaphragms".

Ceiling Diaphragm on Steel Battens – Typical Fixing Detail

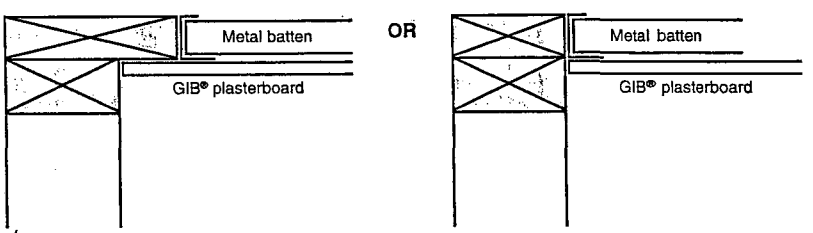


The perimeter of a ceiling diaphragm must be connected to a single continuous member along all edges. Connection to dwangs between trusses is not acceptable.

Timber battens example



Steel battens with perimeter channel example



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

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MARCH 2006

GIB® Bracing Systems Changes

GIB® Bracing Systems have undergone a thorough review as part of Winstone Wallboards ongoing programme to make GIB® systems simpler, easier and faster for customers to use. Users of the previous systems will notice some significant changes. Please review this technical literature in detail to make yourself aware of these changes. The key differences are as follows:

- The new EzyBrace™ Specification Numbering System is designed to make specification, installation and identification of GIB® Bracing Systems easier.
- A rationalised number of bracing element types and a more consistent construction method.
- Fasteners must not be placed closer than 18mm to a sheet end or a cut edge or no closer than 12mm to the tapered (paper bound) machine edge of the GIB® plasterboard sheets.
- Some hold down details and corner fastening details have changed.
- A new 35mm GIB Braceline® Nail replaces the 32mm GIB Braceline® Nail in GIB Braceline® bracing elements.
- GIB® plasterboard sheets used in GIB® Bracing Systems March 2006 must have a manufacturing date after 16 January 2006.
- No additional framing is required for narrow panels.
- Introduction of a shorter 0.4m bracing element.
- Ability to substitute GIB Aqualine® for GIB Braceline® with modified fastener patterns.

Note: The bracing systems in the GIB® Bracing Systems 1999-2003 technical literature will remain valid, however, transfer to the systems contained in this publication is recommended for new designs for the benefits these systems offer.

Framing

General framing requirements such as grade, spacings and installation shall comply with the provisions of NZS 3604:1999. Winstone Wallboards Ltd recommends the use of kiln-dried machine stress graded framing (KD MSG). To achieve the published bracing performance the minimum actual framing dimensions are 90 x 35mm for external walls and 70 x 35mm for internal walls.

Wall bracing tests on GIB® Bracing Systems were undertaken without nogs. Nogs are not considered to add to the bracing performance of the wall.

Fastening GIB® plasterboard Linings

GIB® Standard Plasterboard bracing systems must be fastened using minimum length 32mm x 6g GIB® Grabber® Drywall Screws or 30 x 2.8mm GIB® Nails. GIB Braceline® bracing systems must be fastened with 32mm x 7g GIB Braceline® screws, or 35mm GIB Braceline® nails.

GIB® plasterboard linings for designated bracing elements are fastened at 150mm centres around the perimeter of the bracing element. For GIB® Standard bracing elements fasteners are placed at 50 and 150mm from the sheet corner (see page 30). For GIB Braceline® bracing elements fasteners start at 50, 100 and 150mm from the sheet corner (see page 31). Fasteners must be placed 12mm from the tapered edge (paper bound) and 18mm from the cut edge.

Fastening in the field of the bracing element is conventional and the screw and glue method is recommended as outlined in the "GIB® Site Guide".

When fixing part sheets of GIB® plasterboard, a minimum width of 300mm applies for bracing elements.

Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, the sheet end butt joints may be back-blocked.

Plywood

'Plywood' specified in BLP is grade D-D 7mm construction plywood manufactured to AS/NZS 2269:2004, fixed with 30 x 2.8mm flat head nails at 150mm centres around the perimeter of the bracing element and at 300mm centres to intermediate framing.

Fire Resistance and Noise Ratings

10mm GIB Braceline®, 10mm GIB Aqualine®, 10mm GIB Noiseline®, 10mm and 13mm GIB Ultraline® and 10mm GIB Toughline® may be substituted for 10mm GIB Fyreline® in fire rated constructions. 10mm GIB Braceline® and 10mm GIB Toughline® may be substituted for 10mm GIB Noiseline® in GIB® Noise Control Systems.The fastener length for the fire rated system applies. The field of the braced element must also be fastened in accordance with the fire rated specification (adhesive not permitted).

Jointing and Stopping

All sheet joints must be paper tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide".

Fastening the Bracing Element to Timber Floors

Fastening the bottom plate of a GIB® wall bracing element to a timber framed floor must be in accordance with NZS3604:1999 with pairs of 100 x 3.75mm hand driven nails or three 90 x 3.15mm power driven nails at 600mm centres. In addition panel hold-downs, as detailed on page 29, must be installed when specified for the particular bracing element type (BL1, BL1a, BLG and BLP).

Fastening the Bracing Element to Concrete Slabs

Fastening the bottom plate of an external wall for bracing element GS1a is in accordance with NZS 3604:1999. On internal bracing lines, the bottom plate of wall bracing elements GS1a and GS2 may be fixed using minimum 65mm x 3.8mm shot fired fasteners fitted with 16mm discs, spaced at 150mm and 300mm from the end studs and thereafter at 600mm centres. Wall bracing elements BL1, BL1a, BLG and BLP installed on both external and internal walls require a panel hold-down connection at each end of the bracing element (see page 29). Within the length of the bracing element bottom plates are fixed in accordance with NZS 3604:1999.

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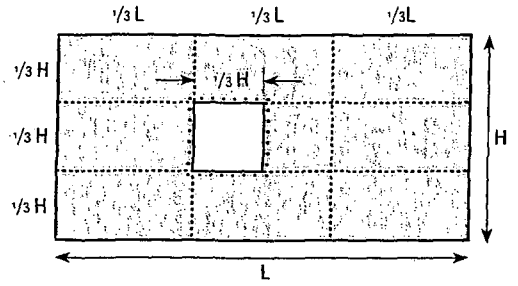
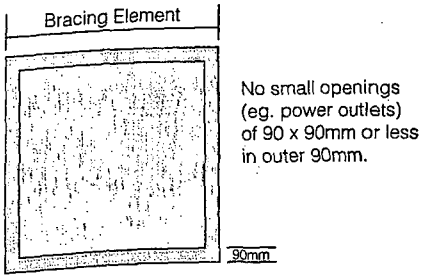
Panel Hold-Down Details

GIB® Standard Bracing Systems GS1a and GS2 do not require specific connections at the bracing element ends.
GIB Braceline® Bracing Systems BL1, BL1a, BLP and BLG all have panel hold-down connections at each end of the bracing element. Refer to page 29 for construction details.

Openings in Bracing Elements

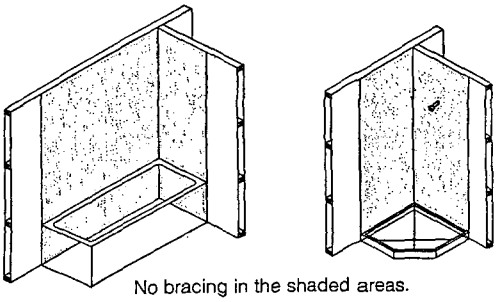
Openings are allowed within the middle third of a wall bracing element's length and height. Neither opening dimension shall be more than one third of the element height. Wall linings are fixed to opening trimmers at 150mm centres. Small openings (e.g. power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element.





GIB® Bracing in Water-Splash Areas

Bracing elements are required to have a durability of 50 years. Winstone Wallboards recommends that bracing elements are not located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members.
Otherwise GIB® Bracing Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.
GIB Aqualine® can be used in place of GIB® Standard in bracing elements. GIB Aqualine® can be used in place of GIB Braceline® in bracing elements 900mm or longer, provided the perimeter of the element is fixed with GIB Braceline® nails or screws at 100mm centres generally, using the GIB Braceline® corner fixing pattern.



No bracing in the shaded areas.

Renovation

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

Angle Braces

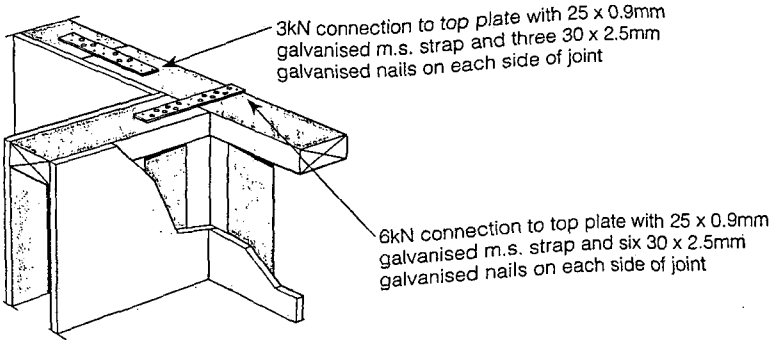
Angle braces serve to keep frames square during transport and construction. They also act as part of the temporary bracing of a building under construction.
Where specified, metal angle braces must be placed at an angle no steeper than 55 degrees, and within the designated length of the bracing element. For elements longer than 3.6 metres, pairs of angle braces (in opposite directions) are required. Fixing of angle braces is with three 30 x 2.8mm galvanised flat head nails to top and bottom plates, and two 30 x 2.8mm nails to intermediate framing.

Top Plate Connections

The top plate of a wall that contains one or more wall bracing elements shall be jointed according to the rating of the highest-rated individual wall bracing element as follows:

(a) Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;

(b) Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.



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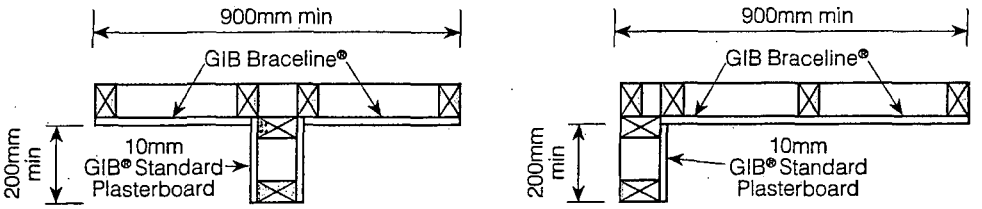
Guidelines for Intersecting Walls

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Bracing element sheets shall be fixed and jointed as given on pages 30 and 31. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions (illustrated below) shall be fixed and jointed as specified for intermediate sheet joints. **The bracing element length must be no less than 900mm.**



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

Fixing the Perimeter of a Bracing Element

A bracing element can consist of a part sheet (such as in a 600 mm long BL1 element), or multiple sheets (such as in a 2.4 metre or longer GS1a element). The critical fasteners are located around the perimeter of a bracing element as outlined on the fastener layout pages. The perimeter of a bracing element must be connected to a continuous member such as studs or plates. Connection to a row of nogs is not acceptable.

Fixing in the Field of the Bracing Element

Fixing in the field of a bracing element is conventional and for GIB® wall bracing elements this means that adhesive fixing is recommended, eliminating the need for mechanical fasteners in the body of the sheets.

For GIB® ceiling diaphragms the screw and glue method is recommended resulting in a minimum number of mechanical fasteners along the centre line in the body of the sheets.

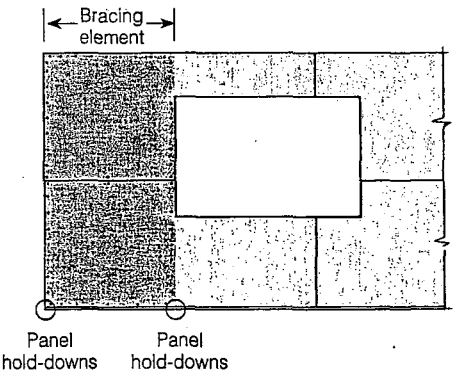
When applied correctly, paper-tape and stopped joints within the bracing element are strong enough to transfer loads within the element and conventional fixing of intermediate sheet joints to framing is sufficient.

Any sheet end butt joints within the field of the bracing element must be back-blocked in accordance with the "GIB® Site Guide".

Consult the "GIB® Site Guide" for further details on recommended fixing details.

Horizontal Fixing

GIB Braceline® linings may be fixed horizontally when linings extend under/over door or window openings. GIB Braceline® fasteners are provided around the perimeter of the bracing element.



GIB® Bracing Systems – EzyBrace™ Specification Numbering System

The EzyBrace™ Specification Numbering System is designed to make specification of GIB® Bracing Systems by designers and identification on site by builders and building officials more transparent. Note: the EzyBrace™ Specification Numbering System (and sub-components thereof) are protected by copyright.

GS = GIB® Standard Plasterboard
BL = GIB Braceline®
BLP = GIB Braceline® / Plywood
BLG = GIB Braceline® / GIB® Standard Plasterboard

1 = lined one side
2 = lined both sides
a = angle brace

Therefore,
GS1a = GIB® Standard Plasterboard one side with an angle brace
GS2 = GIB® Standard Plasterboard both sides
BL1 = GIB Braceline® one side
BL1a = GIB Braceline® one side with an angle brace
BLP = GIB Braceline® one side, Plywood on the other
BLG = GIB Braceline® one side, GIB® Standard Plasterboard on the other

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

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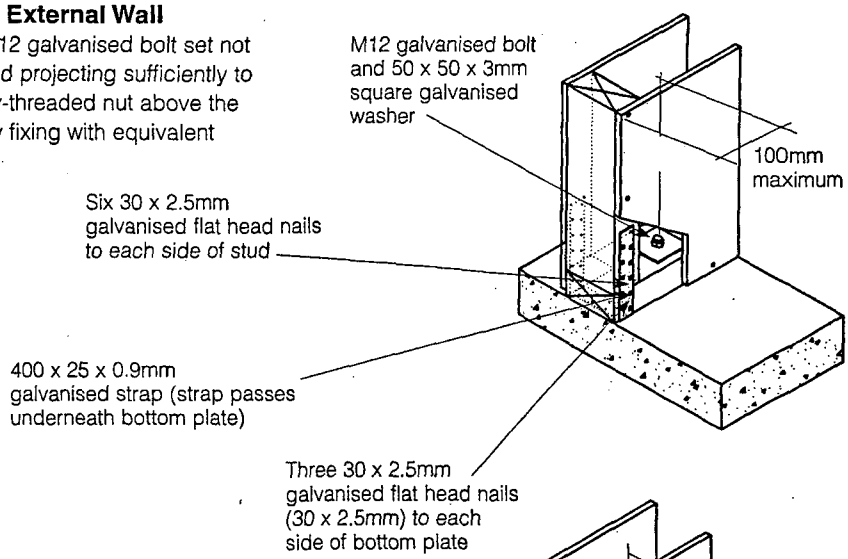
Panel Hold-down Details

MARCH 2006

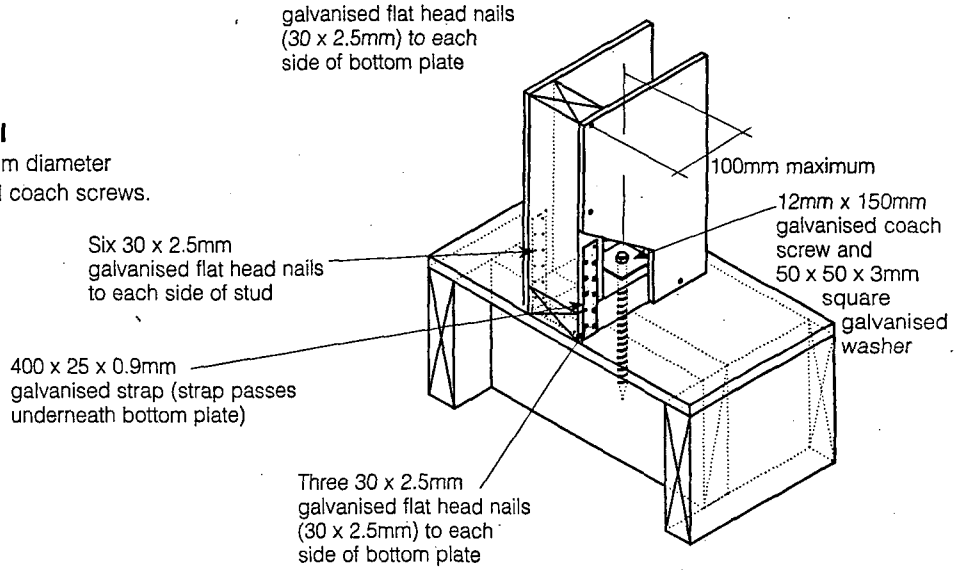
Concrete Floor – Internal / External Wall

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



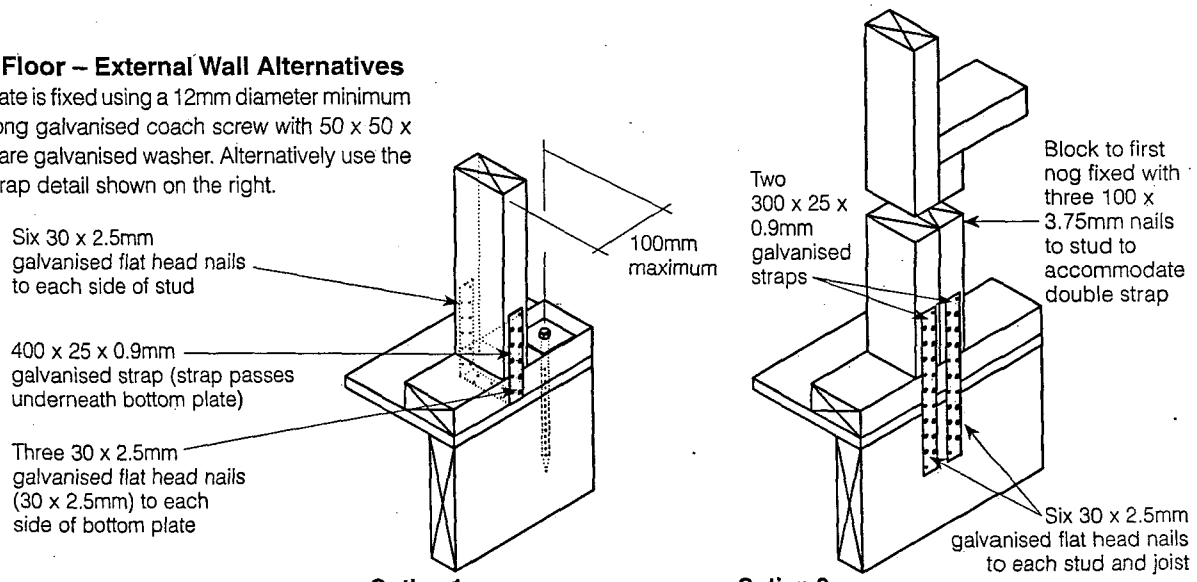
Timber Floor – Internal Wall

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



Timber Floor – External Wall Alternatives

Bottom plate is fixed using a 12mm diameter minimum 150mm long galvanised coach screw with 50 x 50 x 3mm square galvanised washer. Alternatively use the double strap detail shown on the right.



Notes:

Additional thickness and/or corrosion protection is required in exposed and sheltered applications. (Consult NZS 3604:1999).
To maintain a flush surface for the wall linings, it is recommended that hold down straps are checked into the framing.

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

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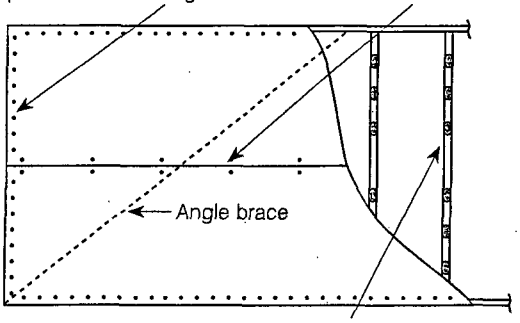
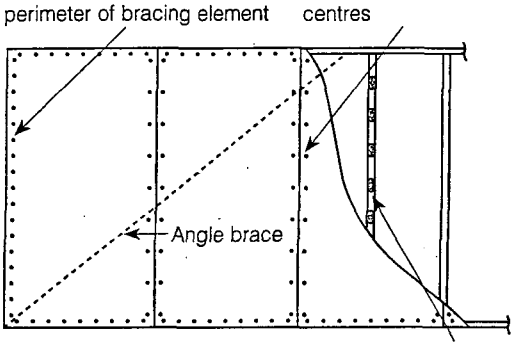
Fastener Layouts – GIB® Standard Bracing Elements MARCH 2006

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



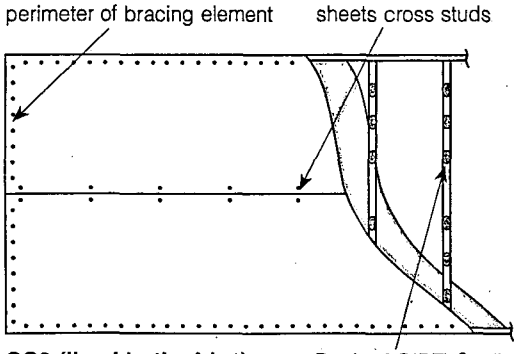
GS1a (lined one side) (Horizontal Fixing)

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



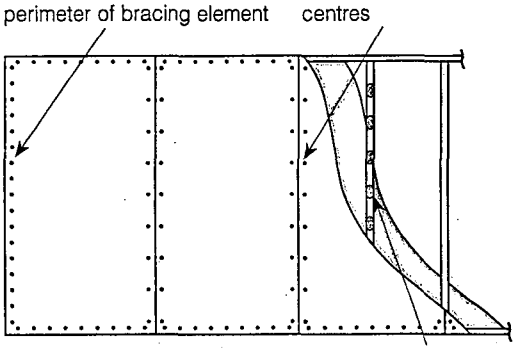
GS1a (lined one side) (Vertical Fixing)

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



GS2 (lined both sides) (Horizontal Fixing)

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



GS2 (lined both sides) (Vertical Fixing)

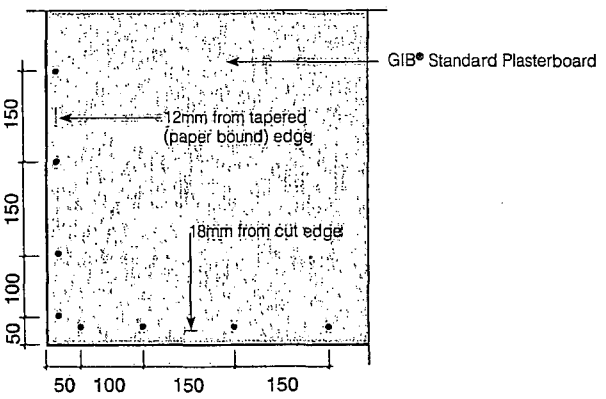
Daub of GIBFix® adhesive at 300mm centres to intermediate studs and nogs

Fixing the perimeter of a GIB® Standard Plasterboard bracing element

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

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

Fastening pattern for GIB® Standard bracing elements



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

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5501 JOINERY FITTINGS

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Shelving to storage and linen cupboards.

1.2 DOCUMENTS
Documents referred to in this section are:

AS/NZS 1859	Reconstituted wood based panels 1859.2 medium density fibreboard (MDF)
NZS 3602	Timber and wood-based products for use in buildings

2. PRODUCTS

2.1 SHELVING
Melamine urea formaldehyde resin bonded, medium density, wood particle board sheet to AS/NZS 1859.2, or urea formaldehyde resin bonded, medium density, fine wood fibreboard sheet to AS/NZS 1859.2, veneered both sides, with decorative sheet impregnated with melamine resin.

3. EXECUTION

3.1 GENERALLY
Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

3.2 HOT WATER CUPBOARDS
Fit out with 5 full depth 20mm x 70mm timber slat shelves on ex 25mm scotia bead along ends. Confirm the height of the hot water cylinder before installing the shelves.

3.3 LEAVE
Leave all work to the standards required by all following trades.

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6201 TILING

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Supply and setting of ceramic tiles, refer to drawing for extent.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	D1/AS1	Access Routes 2.1 Slip resistance
AS 2358	Adhesives for ceramic tiles	
AS 3740	Waterproofing of wet areas within residential buildings.	
AS 3958	Ceramic tiles Part 1: Guide to the installation of ceramic tiles	
BS 5980	Adhesives for ceramic tiles	
BS 6431	Ceramic floor and wall tiles	

BRANZ publication: Good Tiling Practice

1.3 TILER QUALIFICATION
All work in this section to be carried out by competent tilers, experienced with the materials and techniques specified.

1.4 ADHESIVES QUALIFICATION
All adhesives selected for use on proprietary substrates or waterproof membranes to have documented compatibility approval from the respective manufacturers.

2. PRODUCTS

2.1 WALL TILES
To BS 6431.

Brand: To be selected by owner.

2.2 FLOOR TILES
To BS 6431.

Brand: To be selected by owner

2.3 LIQUID WATERPROOFING MEMBRANE
To AS 3740.

2.4 CEMENT BASED SCREED
Mix of 3:1 Portland cement, wash-mix sand, gauged with liquid polymer additive to the manufacturer's recommendations.

2.5 TILE ADHESIVE
To AS 2358 and BS 5980.

Brand/type: Flexible type

2.6 GROUT

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Cement based, compressible and to suit the particular location and use.

2.7 MOVEMENT CONTROL JOINT SEALANT
To BRANZ "Good Tiling Practice," section 8.0.

3. EXECUTION

3.1 HANDLING AND STORAGE
Handle tiles with care to avoid chipping, soiling and damage. Store on hard, level standings in non-traffic, non-work areas that are enclosed, clean and dry. Reject all damaged tiles.

3.2 SUBSTRATE
Ensure that all services and accessories are in place and located to suit the tile layout, with the substrate required for tiling work. Commencement of the work means the substrate and environment are accepted by the tile layer as satisfactory.

3.3 TEMPERATURE
Do not carry out tiling where the ambient temperature is below 5 degrees C, or onto a substrate with a temperature higher than 40 degrees C.

3.4 TECHNIQUE
Before commencing work, obtain approval for the proposed layout of tiles, expansion joints and other visual considerations of the finished work.

3.5 GENERALLY
All surface preparation and tiling work to be in accordance with AS 3958, part 1, as modified by BRANZ "Good Tiling Practice."

3.6 TIMBER FLOORS, PREPARATION
Confirm with the owner that the deflection of the timber floor is within the range of $^{1}/_{360^{th}}$ span. Completely remove from the surface all existing finishes, punch nail heads and sand to a smooth, clean, dust-free surface.

3.7 LAYING CEMENT SCREED
Apply a proprietary cement slurry bond coat over the whole of the shower floors to the manufacturer's recommendations. Thoroughly mix and place a 75mm thick mortar bed over the bond coat and firmly tamp, screed and compact to the required level.

In waterproofed areas where the cement screed has been laid over the waterproofing membrane, the screed surface to be protected by a further waterproof coating before laying tiles.

3.8 APPLYING LIQUID WATERPROOFING MEMBRANES
Apply the selected liquid waterproof membrane system to the manufacturer's recommendations and in accordance with AS 3740.

3.9 TILE FIXING GENERALLY
Apply adhesive, prepare and fix tiles by the method recommended by the adhesive manufacturer and tap them firmly into place.

3.10 TILE FIXING, INTERIOR TIMBER FRAMED FLOORS
Refer to 3801 CARPENTRY for the installation of rigid sheet underlays.

After the curing of any waterproof membrane, prime the surface, spread adhesive to a uniform minimum thickness of 3mm and rib it with a notched trowel to the manufacturer's recommendations. Press the tile and beat it into place to obtain adequate coverage by adhesive on the back of each tile.

3.11 GROUTING

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Remove spacers. Prepare joints, mix and apply proprietary grout and finish off to the grout manufacturer's recommendations. Grout to finish uniform in colour, smooth and without voids, pinholes or low spots.

3.20 MOVEMENT CONTROL JOINTS

To be a minimum width of 6mm, carried through tile and bedding. Where substantial movement is anticipated, carry through the rigid sheet to the structure. Install joints over expansion joints in structure, at junctions between different backgrounds, where abutting other materials, at storey heights horizontally and 3.0 metres vertically, at internal corners and at junctions with floors and columns.

Ensure joints are clean, formed, filled, and the sealant inserted, all to the sealant manufacturer's recommendations.

3.21 CLEANING

Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave completely clean and without blemish. Finally polish tiles with a clean dry cloth.

3.22 TAKE AWAY

Take away from the site all unused materials.

3.23 PROTECTION

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BRANZ APPRAISED

SPECIFY WITH CONFIDENCE

BRANZ APPRAISAL CERTIFICATE No: 372

THE WET-SEAL SYSTEM WATERPROOFING MEMBRANE

Wet-Seal New Zealand Ltd
P O Box 33-720
Takapuna
Auckland
Tel/Fax: 0-9-486 6301

Readers are advised to check that this Certificate has not been amended, withdrawn or superseded by a later issue. Refer to the "Valid Certificates Index" in BUILD magazine published by BRANZ, the Certificate Listing on the BRANZ Internet Site, or contact BRANZ.

Please refer to this document as "BRANZ Appraisal Certificate No. 372, February 1999".

BRANZ, Private Bag 50908
Porirua City
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Telephone: +64-4-235 7600
Fax: +64-4-235 6070
http://www.branz.org.nz

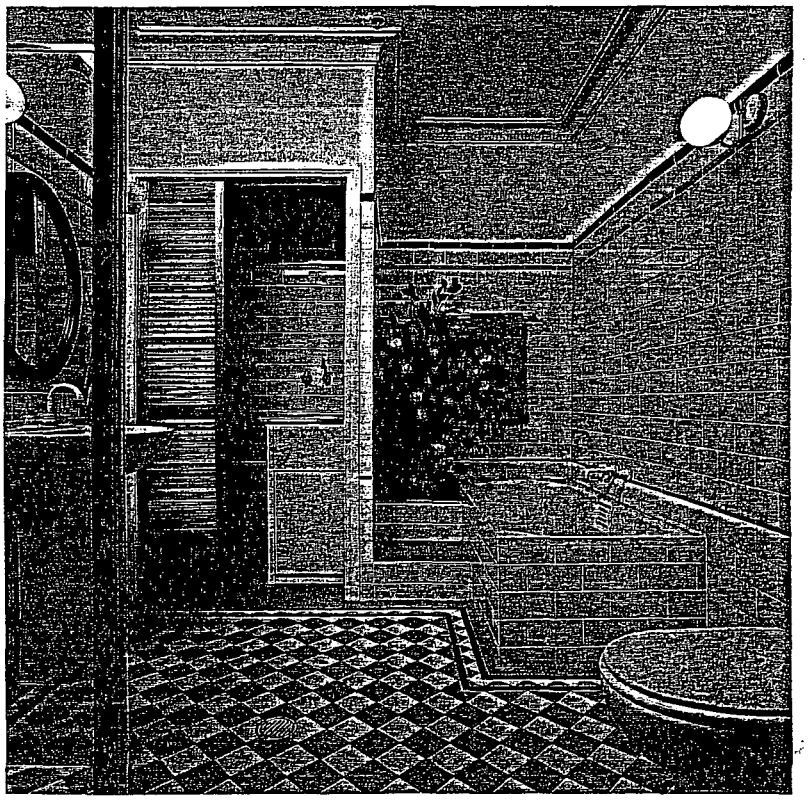
Quality Endorsed Company

Product

This Certificate relates to the Wet-Seal System, a site applied flexible fibreglass reinforced modified polyester resin waterproofing membrane. The product is distributed and marketed in New Zealand by Wet-Seal New Zealand Ltd.

The Wet-Seal System has been appraised for use as an internal wet area water proofing membrane for floors, walls and shower bases which are to be tiled.

The Wet-Seal System must be applied by licensed and trained applicators, in accordance with the Wet-Seal Australia Management Pty Ltd document entitled "Installation Procedures Manual Issue B," dated 1 December 1993. Unless stated otherwise, reference to "Installation Procedures Manual" shall be taken as this document.



Building Regulations

New Zealand Building Code (NZBC)

In the opinion of BRANZ, if the Wet-Seal System waterproofing membrane is used and installed in accordance with the statements and conditions of this Certificate, the relevant provisions of the following NZBC Clauses will be met:

B2 DURABILITY; E3 INTERNAL MOISTURE; F2 HAZARDOUS BUILDING MATERIALS.

Specific NZBC compliance details are contained within this Certificate.

Product Information

Description

The Wet-Seal System is a site applied flexible waterproofing membrane. It uses a fibreglass reinforced matting in conjunction with a flexible polyester resin hardened with a catalyst. When dry this is coated with a flow coat which is a jade coloured polymer also hardened with a catalyst. The total thickness of the membrane where a single layer of glass matt is used is 1.5 - 2 mm and greater at glass matt overlaps.

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E3.3.5 and E3.3.6, by providing wall surfaces that are impervious and easily cleaned, by providing an impervious membrane, and by preventing water from penetrating behind linings or to concealed spaces.

While the membrane provides the waterproof sealing requirements of the NZBC, it is reliant on being supported by a suitable substrate and protected by an overlaying tiled surface.

F2 Hazardous Building Materials

When the Wet-Seal System is used and installed in accordance with this Certificate and the Installation Procedures Manual, is fully cured and the work area and interconnecting spaces unoccupied and effectively ventilated to remove all airborne chemicals, the product will not present a health hazard to people, therefore the requirements of NZBC F2.3.1 will be met.

Installation Information

General

Installation of the Wet-Seal System is by licensed and trained installers in accordance with the Installation Procedures Manual instructions which are summarised below.

Preparation

Prior to the application of the Wet-Seal System the surface to be coated must be smooth, sound, clean, dry and free from dirt, oil, grease, loose matter and other contaminants. Surface defects and shrinkage cracks must be repaired.

Hobs and angle water stops must be in place.

Two methods are used for waste outlets. In one method a leak control flange is fitted prior to the membrane installation and the membrane is sealed to the waste flange. In the other, the floor waste pipe is cut off flush with the floor with the inside roughened with sandpaper. The Wet-Seal System waterproofing membrane is turned down into the pipe. The waste outlet is fitted into substrates other than concrete through a neat hole, such that there is no more than a 5 mm gap between the pipe work and the substrate and is securely fixed to the substrate with a flanged fitting.

Wall penetrations for plumbing fittings must be sealed. A backing rod or a bead of sealant is applied to all shower wall/floor junctions as a bond breaker.

Membrane Application

In shower areas, the fibreglass is dressed to fit the entire shower base, 25-35 mm down the waste pipe, and 150 mm up the walls. A double layer of fibreglass is used in all wall/floor joints. Hobs, if fitted are completely covered with fibreglass across the inner face, top and outer face and for a distance of approximately 50 mm across the floor. Fibreglass is placed approximately 1800 mm up the internal wall corners (to at least the height of the shower rose).

In walk-in showers (showers without hobs), the fibreglass membrane is carried across the floor areas and stopped at a floor angle or carried across the full floor area and 80 mm up the walls.

The mixed resin is applied to completely cover the fibreglass, it is also applied down the floor waste.

When the fibreglass is dry, the mixed flowcoat is applied. In all cases except when the tiles are to be laid directly onto the membrane, clean sharp sand is spread across the wet flowcoat on the floor area to provide a key for the mortar bed.

Tiling

Tiling directly to the membrane may be carried out a minimum of 24 hours after the flowcoat is applied. A flexible two part adhesive recommended by Wet-Seal New Zealand Ltd must be used.

Mortar beds and floor screeds may be applied 24 hours after the flowcoat.

Health and Safety

Precautions must be taken during the installation and the curing of the "Wet-Seal System" to minimise health risks associated with the application of the materials. Work areas must be well ventilated and protective clothing, including masks must be worn in accordance with the "Installation Procedures Manual".

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INTRODUCING

WS

"The Waterproofing Professionals"

Wet-seal WATERPROOFING SYSTEMS

FOR ALL WET AREAS

INSTALLED LOCALLY BY
FULLY TRAINED PROFESSIONAL
APPLICATORS

BRANZ APPRAISED
SPECIFY WITH CONFIDENCE

Quality Endorsed Company

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Wet-seal New Zealand

Wet-seal Pyure Coat

DESCRIPTION

Wet-seal Pyure Coat is a flexible and elastic one-part polyurethane waterproofing system, and is Jade Green colour. **Wet-seal Pyure Coat** is a seamless membrane and will not bleed through porous materials.

SURFACE PREPARATION

Surfaces must be firm, clean, dry, sound and smooth. All grease, oil wax, curing compounds, dust, droppings, loose material, paint and any other contaminants must be removed. Compressed Cement Sheeting, Plasterboard, and CD Plywood must be fixed in accordance to manufacturers' directions. Allow concrete to cure for 28 days and cement render to cure for 7 days prior to application of the **Wet-seal Pyure Coat.**

APPLICATION

Wet-seal Pyure Coat is for external waterproofing of Balconies, decks, Box Gutters, Ponds and Flat Roofs. **Wet-seal Pyure Coat** is a supply and fix system and is only installed by **Wet-seal** New Zealand's national network of Franchisees.

CURING TIME

Minimum of 48 hours.

TILING AND MORTAR BED COVERING

This may be carried out after **Wet-seal Pyure Coat** has been allowed to cure. **Wet-seal Pyure Coat** must be fully protected at all times from UV and other trades, and to eliminate possible surface contamination tiling or mortar bedding should be carried out within 72 hours of membrane application.

TILE ADHESIVE

ASA Asaflex 2 Part is a compatible ceramic tile adhesive.

LIMITATIONS

Wet-seal Pyure Coat membrane should never be used as an exposed finish or as a top coating exterior membrane.

GUARANTEE

Wet-seal Pyure Coat carries a ten-year materials guarantee.

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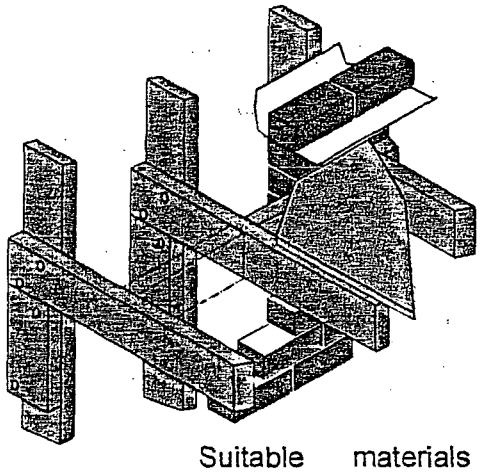
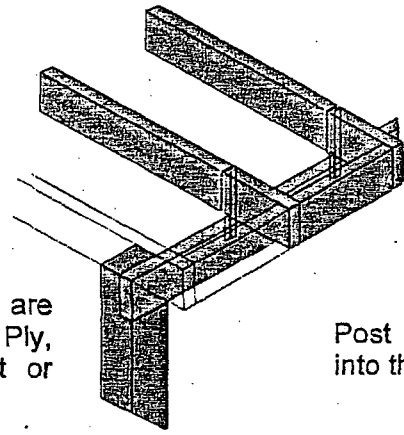
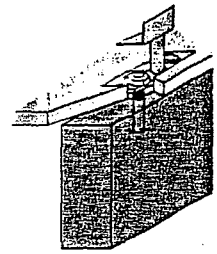
Wet-seal Group

DECK CONSTRUCTION REQUIREMENTS



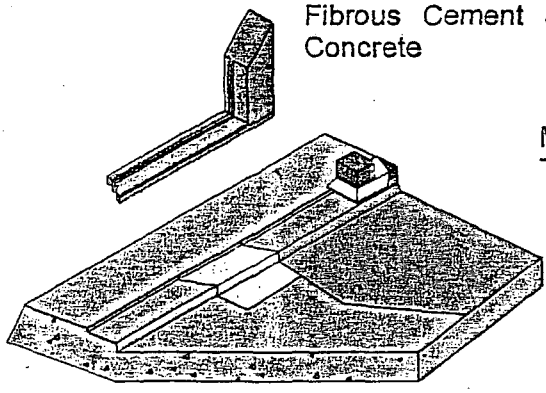
All Decks must be of solid construction with a 1:60 fall to the waste, edge or gutter incorporated in the joists or substrate



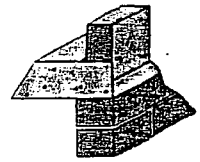


Suitable materials are 17mm (minimum) CD Ply, Fibrous Cement Sheet or Concrete

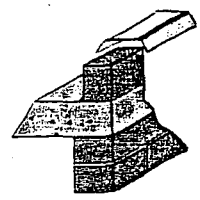
Post Styrups recessed into the Deck substrate

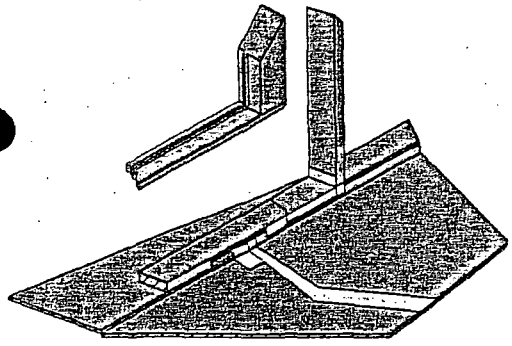


Minimum step-down must be 50mm To finished Tile surface

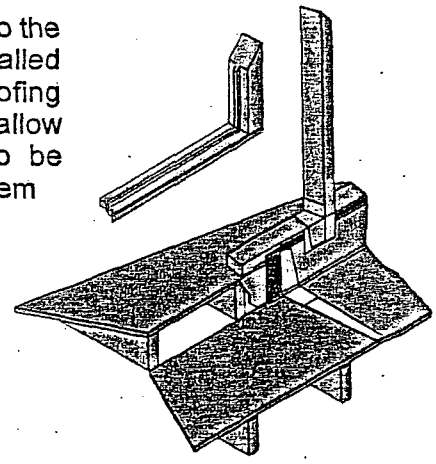


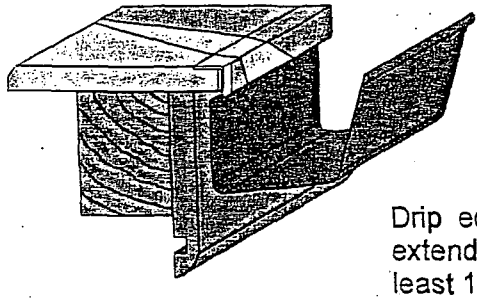
Deck edge upstands or Parapets must be completely sealed or have a Capping in place





Doors leading onto the Deck must be installed after the waterproofing is completed to allow the membrane to be applied behind them





Drip edges such as aluminium angles must extend below the underside of the deck by at least 10mm

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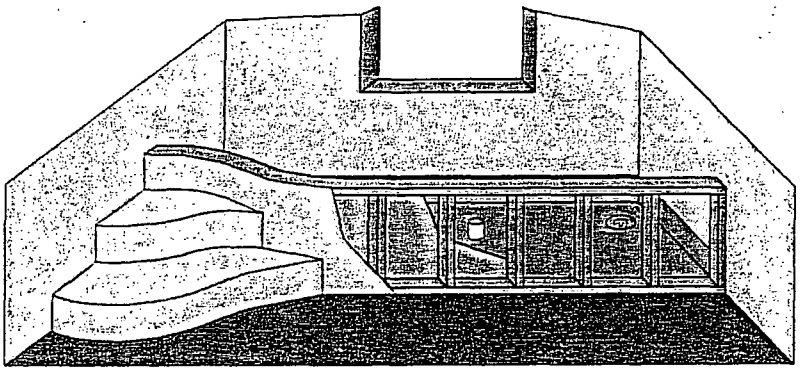
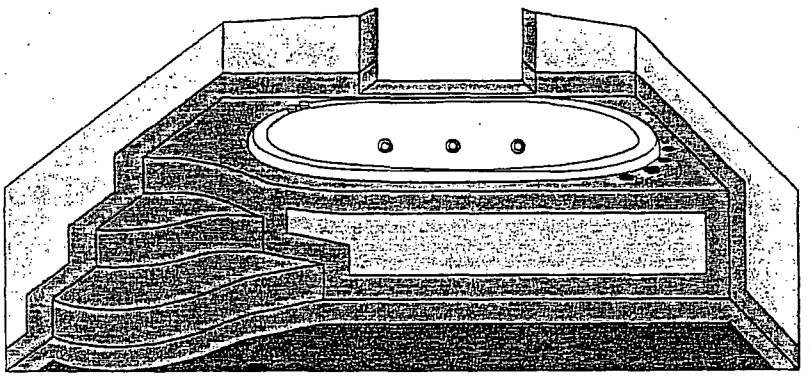
Wet-seal Group

SPA CONSTRUCTION REQUIREMENTS

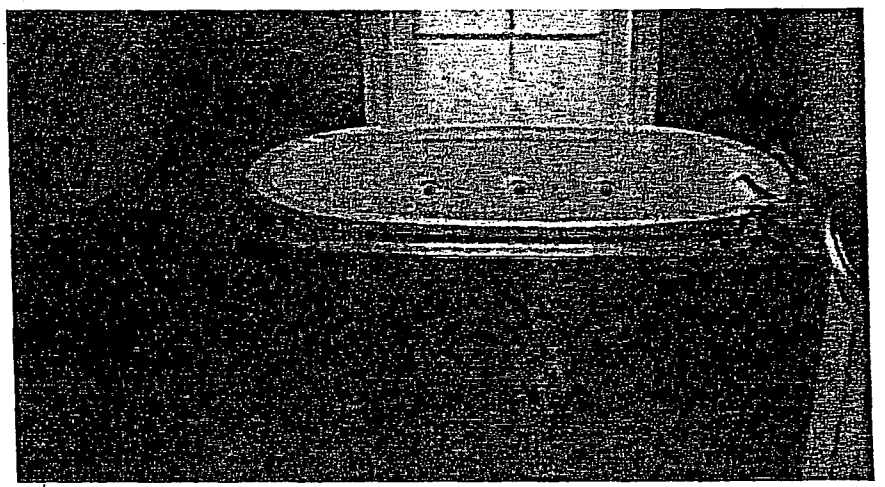
Due to the basic construction of Spa Bath's with their extra pipework for water and air jets the possibility of a water leak due to a pipe or pump failure is increased



The area under the spa should have an extra floor waste to cater for any overflow and be fully sealed including perimeter flashings before the bath surround is finished



Once the bath surround is finished the area can be fully sealed before the bath is set in position



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Wet-seal New Zealand

Wet-seal Fibre Coat

DESCRIPTION

Wet-seal Fibre Coat is a fibreglass re-inforced polyester resin based waterproofing-membrane system, and is Jade Green in colour. **Wet-seal Fibre Coat** when cured is a seamless membrane and will not bleed through porous materials.

SURFACE PREPARATION

Fall should be incorporated in the original concrete slab pour where possible. Allow concrete to cure for 28 days and cement render to cure for 7 days prior to application of the **Wet-seal Fibre Coat**. The plumbing and wall sheets must be installed prior to the application of the **Wet-seal Fibre Coat**. Drainage Flanges must be installed on suspended floors prior to application of the membrane. Surfaces must be clean, completely dry, and without any trace of residue or permanent dampness. All grease, oil wax, curing compounds, dust, droppings, loose material, paint and any other contaminants must be removed. Fibrous cement sheeting and plasterboard must be fixed in accordance to manufacturers' directions. Hobs (if applicable) must be constructed from brick, concrete or concrete masonry.

APPLICATION

Wet-seal Fibre Coat is for internal waterproofing area such as Showers, Bathrooms, Ensuites, Powder Rooms and Laundries. **Wet-seal Fibre Coat** is a supply and fix system, and is only installed by **Wet-seal** New Zealand's Franchisees.

CURING TIME

Minimum of 24 hours.

TILING AND MORTAR BED COVERING

This may be carried out after the **Wet-seal Fibre Coat** has been allowed to cure. Remove excess sand if tiles are to be glued directly onto the membrane.

Please Note: If a hob is used in the shower ensure that hob tiles are grouted with a flexible grout.

TILE ADHESIVE – INTERNAL AREAS

WASH DOWN the **"Wet-seal Membrane"** with a mixture of 25% washing up detergent & 75% water OR methylated spirits PRIOR to application of any **two part flexible adhesive.**

LIMITATIONS

Wet-seal Fibre Coat membrane should never be used as an exposed finish.

GUARANTEE

Wet-seal Fibre Coat carries a ten-year material guarantee.

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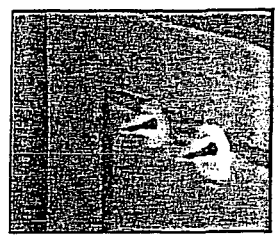
Wet-seal Group

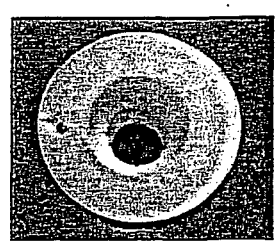
INTERNAL WET AREA CONSTRUCTION REQUIREMENTS

All areas must be completely dry without any trace of residue or permanent dampness

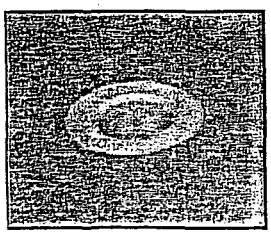


The plumbing and wall sheets must be installed

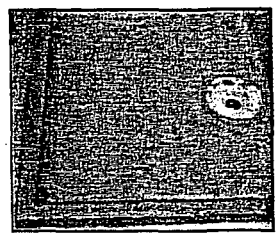
Wall sheets must extend to within 5-10 mm of the floor. The bottom plate must be secured correctly as movement may damage the waterproofing.



Drainage flanges must be fitted flush with the surface of the floor

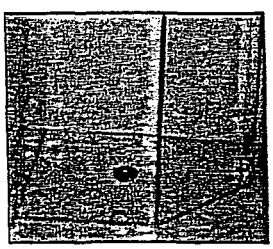


Concrete floors must be completely dry, smooth and graded to wastes.
Where houses require Termite protection, termite collars must be fitted to all pipe penetrations and set into the slab. Drainage flanges on waste pipes must be fitted when the slab is poured and be flush with the surface.

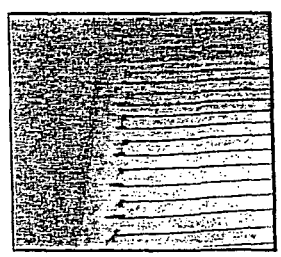


Waste pipes through structural flooring must have drainage flanges, which are fitted flush with the floor.

Tongue and groove flooring must also be covered with a Tile Underlay.



For frameless shower screens and disabled access situations it is better to set down the whole room. Consideration must be given to the thickness of the floor bearers when creating a set down on a structural floor.



If undertile heating is to be installed allowances in the tile bed depth have to be considered as this will effect the height of waterstop angles in doorways

02/01

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Wet-seal New Zealand

A NEW SUPER FLEXIBLE MEMBRANE from Australasia's Premier Waterproofing Company

Installed by Experts, no lift the lid and goodbye guarantee

ADVANCED FEATURES

- Non-Toxic
- Seamless and Strong
- Environmentally Friendly
- Pyure Coat one day – tile the next
- Easy Adhesion for most Tile Glues
- Suitable for normal external substrates
- Warranty on both product and workmanship

Wet-seal, the word means Waterproof

"The Waterproofing Professionals"

Wet-seal New Zealand – 0800 436 000

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eal New Zealand Limited t/as

Wet-seal New Zealand

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Takapuna AUCKLAND

Phone: (09) 476 5474

Fax: (09) 476 5474

Quality Endorsed Company

NORTH ISLAND FRANCHISEES

Wet-seal Auckland

Covering Regional Council areas of Northland, Auckland & Waikato

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PO Box 36-530, Northcote Auckland 9
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International Ph: 0011-64-9-426-7577
Fax: (09) 426 7574
International Fax: 0011-64-9-426-7574
Mo[illegible]25 996 764
International Mobile: 0011-64-25-996-764
Email: ECandCJONES@xtra.co.nz

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Covering Regional Council areas of Hawkes Bay & Gisborne

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International Ph/Fax: 0011-64-4-297-1603
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International Mobile: 0011-64-25-900-455
Email: wet-sealwgtn@xtra.co.nz

Wet-seal Bay of Plenty

Covering Regional Council areas of Kawerau, Opotiki, Rotorua, Tauranga, Western Bay of Plenty & Whakatane

Roger Pryce
Mangatete Road
Ngakuru R.D.1., Rotorua NZ
Ph/Fax: (07) 333 2339
International Ph/Fax: 0011-64-7-333 2339
Mob: 025 2444 990
International Mobile: 0011-64-25-2444-990

SOUTH ISLAND FRANCHISEES

Wet-seal Canterbury

Covering the Regional Council area of Canterbury

Chris & Daniel McDonald
PO Box 13239,
Armagh Christchurch NZ
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International Mobile: 0011-64-25-984-330
Ph/Fax: (03) 386 2155
International Ph/Fax: 0011-64-3-386-2155

Wet-seal Nelson

Covering the Regional Council areas of Marlborough, Nelson & Tasman

Graham Kay
20 Ledbury Road
Atawhai Nelson NZ
Ph/Fax: (03) 545 0088
International Ph/Fax: 0011-64-3-545-0088
Mobile: 025 470 086
International Mobile: 0011-64-25-470-086
Email: grahamkay@paradise.net.nz

Ref: NZ Franchisee Listing – 24.7.2001

Registered Office:
8 Lake Road
kapuna AUCKLAND
mail: wetseal@wet-seal.ws
Website: www.wet-seal.co.nz

"The Waterproofing Professionals"

BRANZ APPRAISED
SPECIFY WITH CONFIDENCE

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JAS-ANZ

QAS is Accredited by the Joint Accreditation System of Australia and New Zealand, Acc No. S1250992AS

Quality System

Quality Endorsed Company

CERTIFIED I Net MANAGEMENT SYSTEM

CERTIFICATE OF REGISTRATION

Wet-seal Management Pty Ltd

ACN 002756087

31 Newcastle Drive TOORMINA NSW 2452 AUSTRALIA

(Refer to Schedule of Addresses No. QEC3957 dated 20 November 2000 for additional certified sites)

complies with the requirements of

AS/NZS ISO 9002:1994

Quality systems-Model for quality assurance in production installation and servicing

for the following capability

The registration covers the Quality Management System for the supply of raw materials, methods and installation procedures of the company's specialised system of waterproofing for wet areas in buildings. The system is installed by independent Licensees who have completed the company's Training Program.

Registered by:

Quality Assurance Services Pty Limited (QAS) ACN 050 611 642 286 Sussex Street Sydney NSW 2000 Australia

Subject to the QAS Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, QAS accepts responsibility only for proven negligence. This certificate remains the property of QAS and must be returned to QAS upon its request.

Certificate No.: QEC3957
Issue Date: 27 November 2000

Certified Date: 8 July 1994
Expiry Date: 14 November 2003

Keith Ketheeswaran
Managing Director
For and on behalf of
The Board of Quality Assurance Services Pty Limited

Authorised Local Signatory, QAS

QAS
QUALITY ASSURANCE SERVICES

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Version: 1, Version Date: 12/03/2009

JAS-ANZ

QAS is Accredited by the Joint Accreditation System of Australia and New Zealand, Acc No. S1250992AS

Quality System

Quality Endorsed Company

IQNet

SCHEDULE OF ADDRESSES

Wet-seal Management Pty Ltd

ACN 002756087

NSW Licensees
WET-SEAL Coffs Harbour
WET-SEAL Newcastle
WET-SEAL Sydney North
WET-SEAL Mid North Coast
WET-SEAL Ballina/Lismore
WET-SEAL Riverina
WET-SEAL New England
WET-SEAL Sth East Sydney
WET-SEAL Central Coast Division
WET-SEAL Mid-Coast
WET-SEAL Blue Mountains Division
WET-SEAL Ilawarra/Shoalhaven
WET-SEAL Sth West Sydney
WET-SEAL Wagga

South Australia Licensees
WET-SEAL South Adelaide
WET-SEAL Mt Gambier
WET-SEAL North East

ACT Licensee
WET-SEAL ACT

Queensland Licensees
WET-SEAL Redcliffe
WET-SEAL Suncoast
WET-SEAL Mackay
WET-SEAL North Queensland
WET-SEAL Hervey Bay
WET-SEAL Brisbane
WET-SEAL Townsville
WET-SEAL South East Qld
WET-SEAL Garden City
WET-SEAL Nth West Qld
WET-SEAL Bundaberg
WET-SEAL Ipswich
WET-SEAL Darling Downs

Tasmania Licensee
WET-SEAL Tasmania

Western Australia Licensee
WET-SEAL Northern Perth

Northern Territory Licensee
WET-SEAL Darwin

Victoria Licensees
WET-SEAL Eastern Melbourne
WET-SEAL Wangaratta/Shepparton
WET-SEAL Albury/Wodonga
WET-SEAL Bayside
WET-SEAL Mildura
WET-SEAL Gipps Valley
WET-SEAL Peninsula/Cardinia
WET-SEAL North East Melbourne
WET-SEAL Western

WET-SEAL NEW ZEALAND

New Zealand Licensees
WET-SEAL Hawke's Bay
WET-SEAL Wellington
WET-SEAL Canterbury
WET-SEAL Auckland
WET-SEAL Bay of Plenty
WET-SEAL Nelson

Registered by:

Quality Assurance Services Pty Limited (QAS) ACN 050 611 642 1 The Crescent Homebush NSW 2140 Australia

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QAS

QUALITY ASSURANCE SERVICES

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THE PRODUCTS

Wet-seal New Zealand's **"Wet-seal** ***Systems of Waterproofing"*** are membranes for the effective sealing of Showers, Bathrooms, En-suites, Laundries, Balconies, Decks, Planter Boxes, Fish Ponds, Box Gutters, and Retaining Walls.

Wet-seal New Zealand use their own specially formulated, high tech, waterproofing products, which allow for normal building movement, without tearing or cracking. The **"Wet-seal** ***Systems of Waterproofing"*** are supply and fix, and are only available through a network of Franchisees. The Wet-seal membranes carry a 10-year material guarantee, and a written workmanship guarantee is given by the Franchisee.

Wet-sealing has been carried out in New Zealand since 1997. To date numerous installations of internal and external wet areas have been completed. The **Wet-seal** Systems have been marketed in Australia for over 16 years and are currently a leader in the waterproofing industry in that country.

Wet-seal's Quality Assurance schedule also covers the following: "The registration covers the quality management system for the supply of raw materials, method and installation procedures of the company's specialised system of waterproofing for wet areas in buildings. The system is installed by Independent Licensees who have completed the companies Training Program".

FRANCHISEES

All Wet-seal New Zealand's Franchisees:

- Own and operate their own business.
- Complete **Wet-seal**'s Training Programme.
- Hold their own Insurance policies.
- Use the same MATERIALS and METHODS in the installation of the **"Wet-seal** ***Systems"***.
- Maintain the highest quality of workmanship.
- Comply with the Building Code Of New Zealand.
- Supply an Installation Certificate and give their own workmanship guarantee.
- Work in accordance to **Wet-seal**'s Quality Assurance System.

ACCREDITATIONS

The **"Wet-seal** ***Systems of Waterproofing"*** has undergone strict testing procedures by both Government bodies and Building Associations.

Tests performed by the Queensland Institute of Technology - Uni-search, and the C.S.I.R.O., have resulted in the following Accreditations:

- **BRANZ Appraisal Certificate No. 372 (2000)**
- **BRANZ Appraisal Certificate No. 406 (2000)**
- **CSIRO Technical Assessment 110**
- **CSIRO Technical Assessment 225**
- **CERTIFICATE OF CONFORMITY with the BUILDING CODE OF AUSTRALIA No 97/002**

These tests, accreditations and job performance, are proof of the outstanding success of **Wet-seal**'s superior waterproofing systems.

THE COMPANY

Wet-seal New Zealand is a:

National Franchise Company for the **"Wet-seal** ***Systems of Waterproofing"***.

Distributor of all material components necessary to apply the **"Wet-seal** ***Systems of Waterproofing"***.

Wet-seal gained **QUALITY ASSURANCE** from Standards Australia Quality Assurance Services Pty Ltd to the level of AS3902/1987 for the company in July 1994, and updated to AS/NZS ISO 9002 - 1994 in June 1995.

The ***"Wet-seal Systems of Waterproofing"*** are marketed in New Zealand & Australia through a network of Franchisees.

All Franchisees are provided with the latest information, online Technical Support and regular Field Audits, to maintain the quality of the **"Wet-seal** ***Systems"***.

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6601R RESENE PAINTING

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Supply and application of paint to interior gib-board.
- Supply and application of paint to plaster work, soffit linings and exterior timber.

1.2 DOCUMENTS
Documents referred to in this section are:

NZS 7703 The painting of buildings

Health and Safety in Employment Act 1992

Resene Paints: One-Line specification and product data manual
Resene Paints: Putting your safety first

1.3 PAINTER QUALIFICATION
All work to be carried out by persons competent in the trade and experienced with the **Resene Paints** coating systems and techniques specified.

1.4 HEALTH AND SAFETY
Refer to the requirements of the Health and Safety in Employment Act 1992 and the **Resene Paints** booklet "Putting your safety first" and if elimination or isolation are not possible, then minimise the hazards in this work.

2. PRODUCTS

2.1 PAINT TYPES
All paint coatings to be **Resene Paints** products (which are guaranteed for consistency and performance under ISO 9002 and NZ PASS) prepared, mixed and applied as directed in the One-Line specification and product data manual.

2.2 GAP FILLERS
Use suitable gap fillers to match the surface being prepared. Any special primers required of the fillers must be satisfied. Refer to **Resene Paints** surface preparation sheets in the One-Line specification manual.

3. EXECUTION

3.1 INSPECT
Inspect all surfaces to be painted and report any that will not, after the preparation as laid down in the **Resene Paints** surface preparation sheets, allow work of the required standard.

3.2 COVER UP
Cover up all adjoining surfaces and areas liable to damage by this work.

3.3 REMOVE ALL HARDWARE
Remove all hardware liable to damage or over-painting and replace on completion.

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

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

3.6 SELECTIONS
Confirm all selections, colours and finishes for both paint and wallpaper with the owner, before commencing work.

3.7 SHARP EDGES, CRACKS AND HOLES
Sharp edges, cracks and holes if present, to be repaired as outlined in the preamble to the **Resene Paints** One-Line specification and product data manual.

3.8 PREPARE ALL SURFACES
Prepare all surfaces to be coated to the requirements of the **Resene Paints** surface preparation sheets. Use suitable gap fillers to match the surface being prepared. Any special primers required of the fillers must be satisfied. Refer to **Resene Paints** surface preparation sheets.

3.9 APPLY PAINT
Apply paint by brush and/or roller to suit the location of the coating to NZS 7703, clause 6.7. Do not spray on site without express permission.

3.10 REFER TO
Refer to the **Resene Paints** One-Line specification and product data manual for surface preparation, coating sequence and application recommendations as they apply to each system. Correct defective work immediately, with any recoating following the systems recommendation.

3.11 SCUFF BETWEEN ALL COATS
Scuff between all coats to remove any dust pick-up, protruding fibres and coarse particles.

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

3.13 CLEAN ALL
Clean all adjoining surfaces, glass and fittings of any paint contamination.

3.14 REPLACE ALL
Replace all hardware without damage to the hardware or the adjoining surfaces.

3.15 TAKE AWAY
Take away from the site all unused painting materials and equipment.

4. SCHEDULES

4.1 PAINT SYSTEMS, EXTERIOR

Plaster	1e 1.3 Lumbersider Satin
Soffits/ Timber Trim	2e 1.3 Lumbersider Satin

4.2 PAINT SYSTEMS, INTERIOR
To the **Resene Paints** One-Line specifications as listed for the different substrates. Refer to the **Resene** manual for the first and second coats of each system to suit the particular substrate and condition

Paper faced plaster/ plaster/fibrous plaster	15i 1.4	Zylone Sheen D302	Low sheen

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7101 WATER

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
Connection to potable water supply connection, reticulation of hot and cold water supply pipe work, hot and cold fixtures and tapsets throughout.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	G12/AS1	Water supplies
NZS 4606	Storage water heaters Part 3: Specific requirements for water heaters with composite shells	
CSA B137-8	Polybutylene (PB) piping for hot and cold water distribution systems.	

Plumbers, Gasfitters and Drainlayers Act 1976

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

2. PRODUCTS

2.1 WATER MAIN ALKATHENE
High density alkathene 32mm OD (minimum 25mm internal diameter) pipe to minimum 1200 kPa (170 psi) complete with rubber ring compression type fittings.

2.2 COPPER WATER PIPE
Copper piping. Complete with fittings and accessories brand matched.

2.3 GATE VALVES
De-zincified brass with screwed ends.

2.4 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE
A grade to NZS 4606, part 3 ceramic-coated steel thermal storage cylinder, insulated and complete with fittings recommended for installation by the manufacturer.

2.5 TAPS AND FAUCETS
Confirm selections with the owner.

3. EXECUTION

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

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

3.3 EXCAVATE
Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

3.4 LAY WATER MAIN

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Lay a minimum of 450mm below ground level from the utility network operator's supply through a gate valve and meter toby box to the building.

3.5 INSTALL COPPER WATER SUPPLY

Size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Run pipes in straight runs, firmly fixed to falls, with long radius bends and jointed by brazing or with crox fittings, all to NZBC acceptable solution G12/AS1. Conceal all piping, insulate all hot water piping and pressure test before the wall linings are fixed.

3.6 INSTALL ELECTRIC HOT WATER CYLINDERS AND BOILING CYLINDERS

Install where shown complete with all the necessary fittings to the manufacturer's recommendations and in accordance with NZBC acceptable solution G12/AS1 4.10. Low pressure, open-vented systems to NZS 4603. Valve-vented systems to NZS 4607.

3.7 FINISH TO EXPOSED PIPES

Chrome plate on copper or white polybutylene or PVC including back nuts. At wall penetrations provide and fit collars to match pipe finish.

3.8 INSTALL TAPS AND FAUCETS

Install all taps and faucets strictly in accordance with the tap manufacturer's recommendations. Flush out on completion and check that washers or discs are operating correctly.

3.9 LEAVE

Leave all water services in proper working order. Pressure test to ensure no leakage and leave all in proper working order.

3.10 CLEAN UP

Clean all tapsets and fittings. Remove all unused materials from the site.

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7201 GAS

1.1 GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
- Supply and installation of INFINITY WATER HEATERS

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	G10/AS1	Piped Services (Gas)
NZS 5258	Gas distribution	
NZS 5261	Installation of gas burning appliances and equipment	
NZS 7646	Polyethylene pipes and fittings for gas reticulation	

Electricity Regulations 1997
Gas Regulations 1993
Plumbers, Gasfitters and Drainlayers Act 1976

Document listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of being at varience with the cited document.

1.3 COMPLY
Comply with the Gas Regulations, Electricity Regulations and the network utility operator's requirements. Give notices for inspections and carry out tests as required.

1.4 ALL WORK
All work to be carried out by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers ACT.

1.5 SUPPLY
Supply at 1:100 scale as built plan of gas pipe runs, sizes, componentry and fittings at completion.

1.6 DESIGN
Design the piping system with pipe sizes to give a minimum pressure at any appliance inlet of 1.13kPa for natural gas, when all appliances are in use; and with a maximum design pressure drop from meter outlet to any appliance of 80pa. All to NZS 5261

1.7 ARRANGE
Arrange for the network utility operator to extend their distribution system through the primary meter to connect to this installation, all to NZS 5258. Include for the cost of this service complete with excavation and backfilling.

2. PRODUCTS

2.1 COPPER PIPE
Complete with fittings to NZS 5261.

2.2 STEEL PIPE
Galvanised and wrapped or coated, complete with fittings to NZS 5261

2.3 POLYETHYLENE PIPE
To NZS 7646 and complete with fittings to NZS 561

2.4 ISOLATING VALVES
Manual Shut-off valves to NZS 5261

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2.5 METER
Primary meter to suit design load, supply pressure and pressure drop, supplied and installed by the network utility operator.

3. EXECUTION

3.1 CARRY OUT
Carry out the whole of this work to the requirements of NZBC acceptable solution G10/As1 and NZS 5261.

3.2 METER INSTALLATION
Check the location of the meter enclosure with the owner. Allow to recess or conceal as detailed.

3.3 PIPING
Run the system, completely concealed, in the most suitable type of pipe for each part of the installation, bent, supported, jointed and complete with all fittings to NZS 5261. Confirm the type of pipe to be used and its location.

3.4 PRESSURE TEST
Pressure test the system for leakage to NZS 5261 before pipework is concealed by linings.

3.5 GAS APPLIANCES
Supply, fit and connect appliances to NZS 5261, complete with flues as required and all to the manufacturers recommendations.

3.6 REPLACE
Replace all damaged, cracked or marked elements.

3.7 LEAVE
Leave all appliances clean and in full working order and leave all work to the standard required for all following trades.

3.8 REMOVE
Remove all debris, unused materials and components from the site.

3.9 SUBMIT
Submit the work for inspection and test and prove to the satisfaction of the network utility operator that the installation complies with all ACTS and regulations and has been tested for leakage and proved to be sound.

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7401 RAINWATER PLUMBING

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
Supply, fabrication and installation of spouting and downpipes.

1.2 DOCUMENTS
Documents referred to in this section are:

NZS/AS 1397 Steel sheet and strip - hot-dipped, zinc-coated or aluminium/zinc-coated

BRANZ Bulletin 304: Flashing design.
BRANZ Bulletin 305: Domestic flashing installation.

2. PRODUCTS

2.1 PVC DOWNPIPES
Formed into round tube, seam jointed and completed with stand-off brackets, galvanised screw fixed.

Diameter: 80ϕ

Finish: PVC

2.2 COLOURSTEEL SPOUTING

Brand/type: Diamond Quarter-round 150MM

Finish: COLORSTEEL ZRX

3. EXECUTION

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

3.2 CHECK
Check compatibility of all metals used for rainwater goods, against the materials used for roofing and flashings. Notify any incompatibility to the owner and obtain written approval for amendments to selections and then submit to the territorial authority for their approval.

3.3 FIX PVC DOWNPIPES
Screw fix stand-off brackets, set pipes plumb and clear of the wall, with joints solder run. Discharge into stormwater bends.

3.4 FIT SPOUTING/RAINHEADS
Screw fix brackets, set to falls to outlets, to the manufacturer's recommendations.

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3.5 LIAISON
Liaise with all associated trades to ensure material selections are compatible and all required flashing work is completed.

3.6 LEAVE
Leave all rainwater services in proper working order and all flashing work completed to keep the building weathertight.

3.7 CLEAN UP
Take away from the site all unused materials and components.

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7402 SANITARY PLUMBING

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
Supply and fitting of waste disposal pipe-work, sanitary fittings and sundry hardware items.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	G1/AS1	Personal hygiene 2.0 Fixture construction and installation 3.0 Location of sanitary fixtures
NZBC	G13/AS1	Foul water - sanitary plumbing
AS/NZS 3500	National plumbing code	
NZS 7641	Unplasticized PVC waste and ventilating pipe, fittings and accessories, 32mm, 40mm and 50mm	

Plumbers, Gasfitters and Drainlayers Act 1976

1.3 ALL WORK
All work covering waste disposal and plumbing fittings to be carried out by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

2. PRODUCTS

2.1 UPVC WASTE, SOIL AND VENT PIPES
UPVC pipe to NZS 7641 complete with fittings brand-matched to the manufacturer's specifications.

2.2 SANITARY FIXTURES
To be selected by owner.

2.3 SUNDRY HARDWARE ITEMS
To be selected by owner.

3. EXECUTION

3.1 CARRY OUT
Carry out the whole of this work and tests to AS/NZS 3500 or NZBC acceptable solutions G1/AS1, 2.0, 3.0 and G13/AS1.

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

3.3 INSTALL SANITARY FIXTURES
Fit and install all sanitary fittings and associated screens, components and hardware, plumb, true to line and rigid, all to the manufacturer's recommendations. Standard chrome plated wastes and plastic plugs on chrome plated chains to be supplied with all basins, tubs and baths.

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3.4 INSTALL TRAPS, WASTE AND VENT PIPES
Connect waste outlets to traps and run waste pipes and back vents concealed, all sized and fixed to AS/NZS 3500 or NZBC acceptable solution G13/AS1. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to all roof vents and vermin proof mesh to all untrapped waste pipes.

3.5 FINISH TO EXPOSED PIPES
Chrome plate on copper, or white UPVC including back nuts. At all wall penetrations provide and fit collars to match pipework.

3.6 INSTALL SUNDRY HARDWARE
install all sundry hardware and fittings as selected.

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

3.8 CLEAN UP
Remove labels and clean all fittings. Remove all unused materials from the site.

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7403 DRAINAGE

1. GENERAL

1.1 SCOPE
The work to be done under this section includes the following:
Supply and laying of foul water and stormwater drains.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC	B1/AS1	Structure - general 6.0 Drains
NZBC	E1/AS1	Surface water
NZBC	G13/AS2	Foul Water - drainage

NZS 3108	Concrete production, ordinary grade
NZS 3402	Steel bars for the reinforcement of concrete
AS/NZS 3500	National plumbing and drainage code
NZS 7643	Installation of Unplasticized PVC pipe systems
NZS 7649	Unplasticized PVC sewer and drain pipe and fittings

Plumbers, Gasfitters and Drainlayers Act 1976

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

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

2. PRODUCTS

2.1 FILL
Scoria or rock of general all-passing 40 grading to NZBC acceptable solution G13/AS2, 8.0.

2.2 CONCRETE
17.5 MPa and 20 MPa ordinary grade to NZS 3108.

2.3 REINFORCEMENT
To NZS 3402 Grade 300 deformed bars.

2.4 UPVC PIPES
UPVC pipes bends, junctions, fittings and joints to NZS 7649.

Brand/type: Novasoil PVC

2.5 GULLY TRAPS
To NZBC acceptable solution G13/AS2, 3.2, complete with grating.

2.6 SURFACE WATER SUMP GRATINGS
Cast iron frame with lift-up grating.

3. EXECUTION

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

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3.2 DRAINAGE LINES GENERALLY
All to the pipe manufacturer's recommendations.

3.3 CARRY OUT
Carry out drainage work and tests to AS/NZS 3500and NZS 7643, all as modified by NZBC acceptable solution B1/AS1, 6.0.

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

3.5 INSTALL GULLY TRAPS
Set on concrete brought up to protect the top of the fitting. Trowel off.

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

3.7 INSTALL SURFACE WATER SUMP
To NZBC acceptable solution E1/AS1 standard, complete with ceramic half-siphon pipe and cast iron frame with a lift out grating.

3.8 INSTALL FOUL WATER INSPECTION CHAMBERS
To NZBC acceptable solution G13/AS2 standard, with ceramic channels to form a cascade and with a 75mm fall across the chamber. Bench from channels at 45 degrees and plaster all the interior with 1:2 cement: sand mortar, trowelled smooth. Fit a cast iron cover and frame.

3.9 SOAKHOLES OR TRENCHES
Dispose of stormwater on site as shown on the drawings, by soakage, to suit local geology and soil structure; all as directed by the territorial authority.

3.10 CONCRETE ENCASE
Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.

3.11 FIELD TEST
Field test drains for watertightness (UPVC to NZS 7643 section 11) to the satisfaction of the territorial authority inspector.

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

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7701 ELECTRICAL

1. GENERAL

1.1 SCOPE

The work to be done under this section includes the following:
- Connection to the electrical authority's supply and the wiring for power and lighting, complete with componentary and electrically powered fittings.
- Obtain the necessary permits to carry out the work.

1.2 DOCUMENTS

Documents referred to in this section are:

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

Electricity Regulations 1997

1.3 COMPLY

Comply with the Electricity Regulations 1997 for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.4 ALL WORK

All work to be carried out by or under the direct supervision of a holder of a practising certificate under the Electricity Regulations 1997.

1.5 CERTIFICATE OF COMPLIANCE

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

2. PRODUCTS

2.1 MAINS UNDERGROUND, SINGLE PHASE

Tough plastic sheathed neutral screened cable to NZS 6401 with a minimum rating of 60 amps per phase.

2.2 CABLES

Tough plastic sheathed copper conductors to NZS 6401.

Lighting circuits	1.5mm² on 10amp MCB's
Power circuits (domestic)	1.5mm² on 16amp MCB's

2.3 METER BOX

Rust protected metal case (glass panel door), all powder coated and complete with meter mounting, main switch and fuse.

2.4 DISTRIBUTION BOARD

Complete with neutral and earth busbars, MCB's and 60 amp main switch, complete with removable insulated panel. Include 2 spare MCB's labelled as "spare." All protective devices to be 6kA MCB's of the appropriate rating.

2.5 WALL BOXES

Standard size in plastic, with 2 or more gang size in metal, all screw fixed.

Brand: PDL

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

Brand/model number: PDL Clipsal 2000 Series
Colour: White

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

Brand/model number: PDL Clipsal 2000 Series

Colour: White

2.8 SHAVER AND EARTH LEAKAGE PROTECTED SOCKET OUTLETS
Earth leakage protected 110/230 volt multiple plug configuration and residual current protected socket outlets, tripping at 30 mA.

Brand/model number: PDL Clipsal 2000 Series

Colour: White

2.9 CEILING ROSES
White plastic mounting base with screwed cover and to be terminal type.

2.10 BATTEN HOLDERS
Standard white plastic with angled cap and brass liners.

2.11 LIGHT FITTINGS
To be selected by owner.

2.12 TV AERIAL
Selected aerial, co-axial cable and outlets, suitable for both VHF and UHF reception.

Brand/model number: To be selected by owner

2.13 ELECTRIC-POWERED FITTINGS AND EQUIPMENT
To be selected by owner.

2.14 SELECTIONS
Confirm all selections with the owner in writing before ordering.

3. EXECUTION

3.1 LAY MAINS
Lay underground mains to the network utility operator's requirements. Allow for trench excavation and backfill.

3.2 FIT METER BOX
Fit to the manufacturer's recommendations, level and plumb where shown on the plan. Recess into the external wall; flash to weatherproof.

3.3 FIT DISTRIBUTION BOARD
Fit to the manufacturer's recommendations, level and plumb where shown on the plan. Recess into the wall. All labelling to be complete and include a warning notice if light dimmers are used in the installation.

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3.4 INSTALL CABLING

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

3.5 FIT SWITCH AND SOCKET UNITS

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

Switch Units :	1000mm
Socket Units :	150mm above work benches
	400mm elsewhere

Label all switch units which control electrical equipment by engraving on the rocker switch.

3.6 INSTALL LIGHT FITTINGS

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

3.7 TELEPHONE WIRING

Wire for the telephone outlets shown on the electrical drawings.

3.8 FIT TV AERIAL

Fit aerial, run cabling concealed below the roof and fit outlets where shown on the electrical drawings.

3.9 INSTALL ELECTRIC POWERED FITTINGS AND EQUIPMENT

Provide, install and wire all selected fittings and equipment to the Electricity Regulations and the manufacturer's recommendations. Refer to the drawings for required layouts and locations for equipment.

3.10 EARTHING

Provide a plastic toby box or UPVC tube to contain and protect the earth pin. Fix the connecting earth wiring closely and securely against wall surfaces.

3.11 LABELLING

Provide and install a printed label under each controller, switch and circuit breaker on all distribution boards. List the rating of each circuit.

3.12 COMPLETION

Leave all work operating correctly, with all equipment clean and all light bulbs and tubes operational.

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OPENING ROOF SYSTEM

LouvreTec™
Opening Roof System

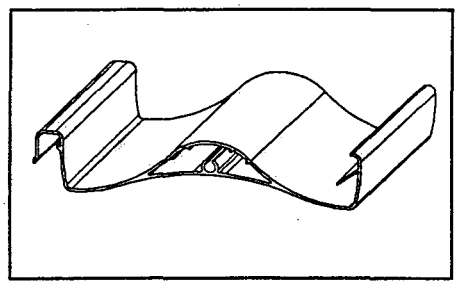
1. PRODUCT OVERVIEW

Just as the weather changes you can change your roof with the LouvreTec™ Opening Roof System. Enjoy at your convenience direct sunlight, shade, fresh air, a cool breeze and weather protection when wet.

TWO OPENING ROOFS

1. LouvreTec™ 180 Aluminium

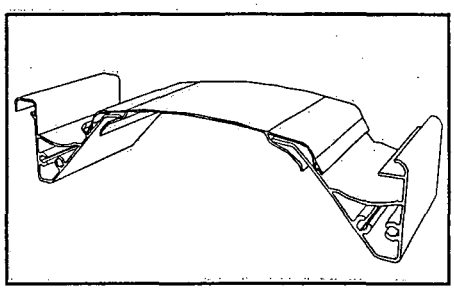
This multi-purpose interlocking 180 mm louvre design is matched to a superb new pivot system.
The clean uncluttered lines offer real design versatility.
Supplied with a 12V electric operating system as standard, other control options include remote control and a rain activated sensor.



2. LouvreTec™ 260 Translucent

This top of the line Operating Roof System has two additional features:

- Light when closed.
  The unique feature of incorporating translucent panels allows the transmission of a soft filtered light under protected areas when the roof is closed.
- The biggest in the business.
  The louvres span a full 4 metres with a 250 mm opening between the blades. This allows for a huge potential range of commercial or domestic applications for protecting open space areas.



By reversing the blade 130 degrees the top surface can be reached from below for ease of cleaning. Currently the 260 Translucent is available in a white or primrose colour.

Good reasons to specify an Opening roof System

- Shelter from wet
- Shade from hot sun and heat glare
- Unrestricted air flow
- Visible Skies
- Privacy
- Light (translucent light panels)
- Enhancing practical aspects of the building

Typical Applications

- Decks, verandas, patios
- Swimming pool and spa pool areas
- Conservatories
- Apartment upper roof and deck areas
- Colour options blending in the design of the building
- Reliability - easy to clean and maintain
- Enhanced lifestyle and property value

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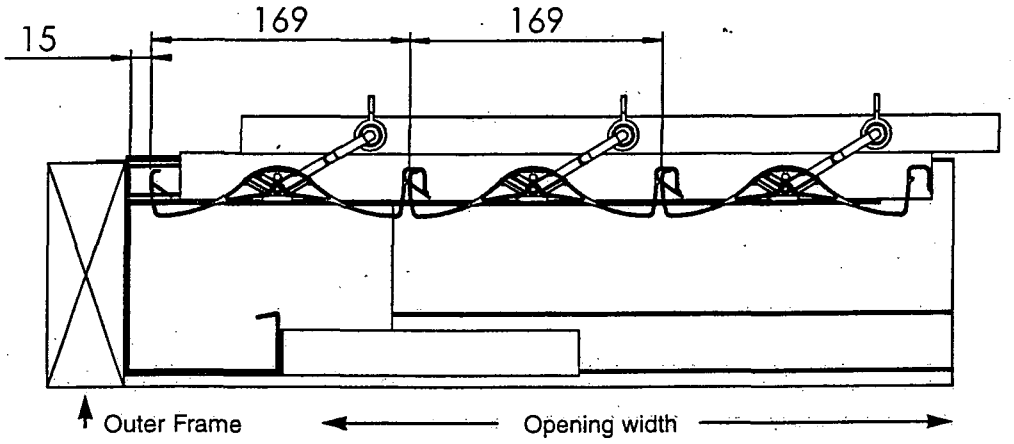
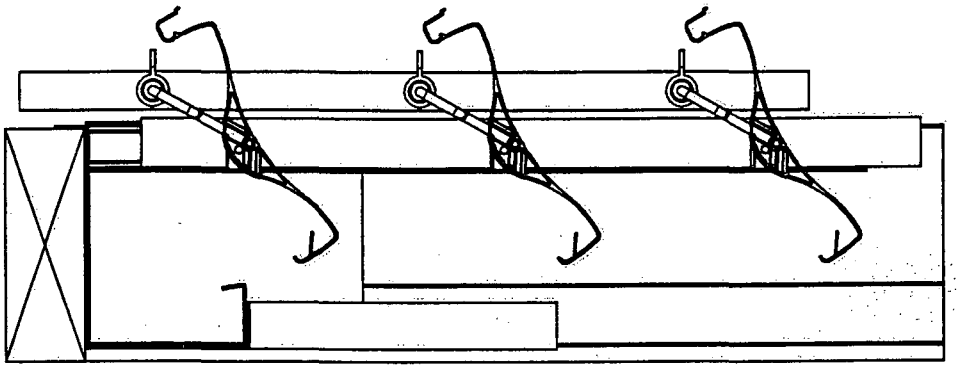
LouvreTec™
Opening Roof System

180 ALUMINIUM OPENING ROOF IN CLOSED AND OPEN POSITIONS



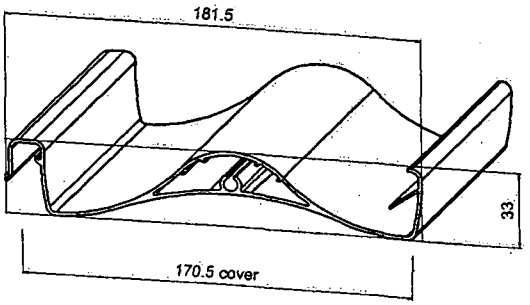
To calculate optimum opening width of outer frame:
Allow 15mm clearance per end (= total 30 mm), plus number of louvres x 169 mm
Example: 17 louvres x 169 = 2873 + 30 = 2903 mm optimum width
Note: 150 mm internal gutter provides cover if clearance increases over 15 mm at ends.



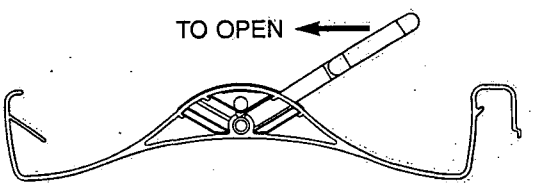
Specification of 180 Aluminium Louvre Blade

• Weight per lineal metre	1.54kgm
• Cover per blade	169mm
• Weight per square metre	9.1kg/sqm
• Max span of Louvre Blades	3.6m - refer to engineering details
• Max. roof area per motor	18sqm
• Min. roof pitch1 degree	(17mm/1m)

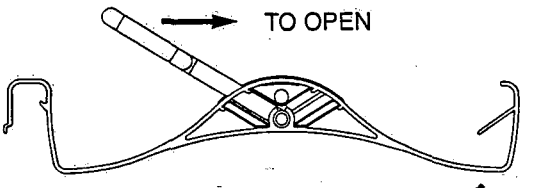
Note: To ensure good water run off allow if possible fall of 3-4 degrees.



- Options for opening direction of blades, as viewed from pivot end.
- Aim for maximum sun in winter.



Left Hand Opening



Right Hand Opening

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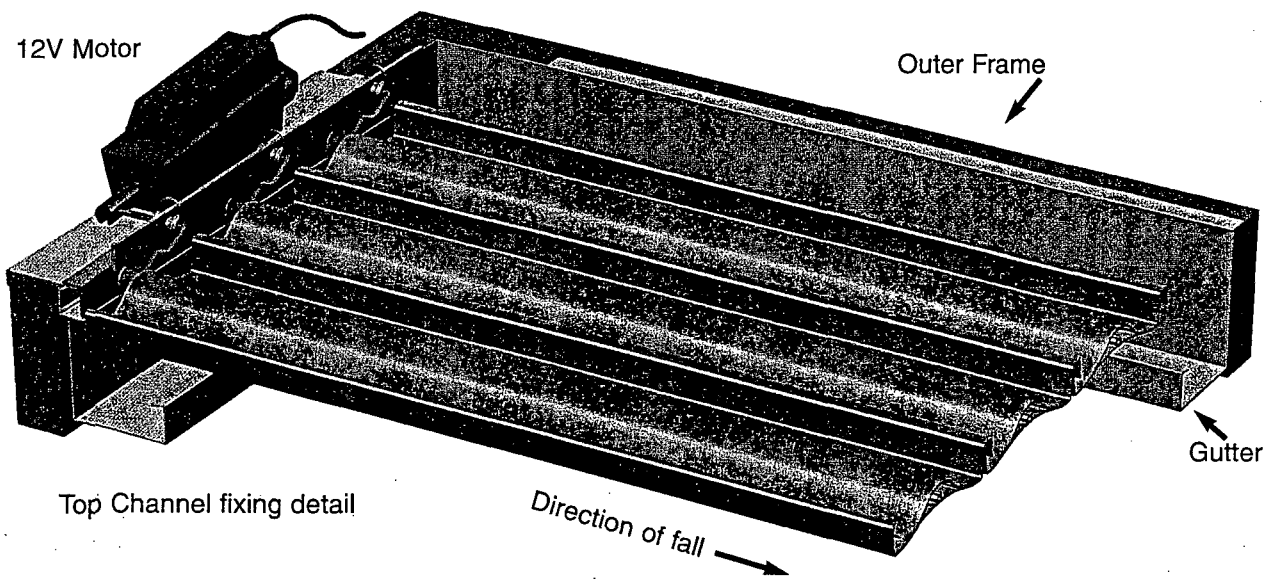
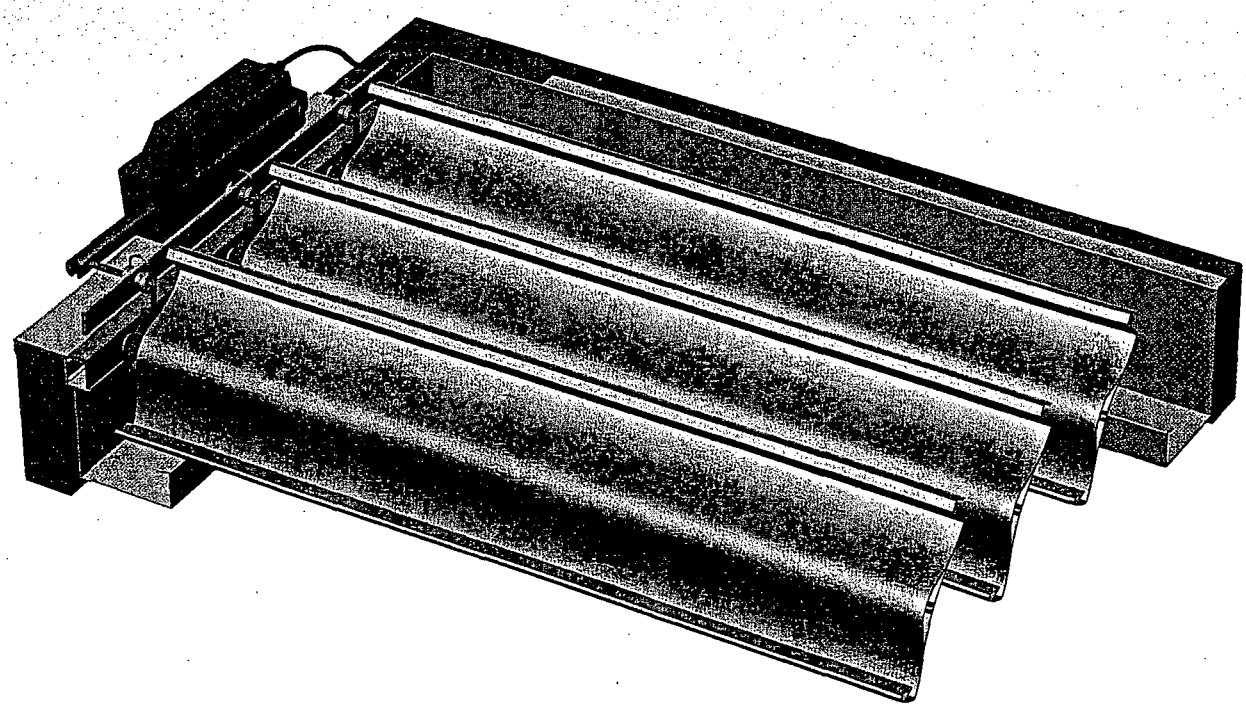


CORNER SECTIONAL VIEW IN CLOSED POSTION



CORNER SECTIONAL VIEW LOUVRES OPENING

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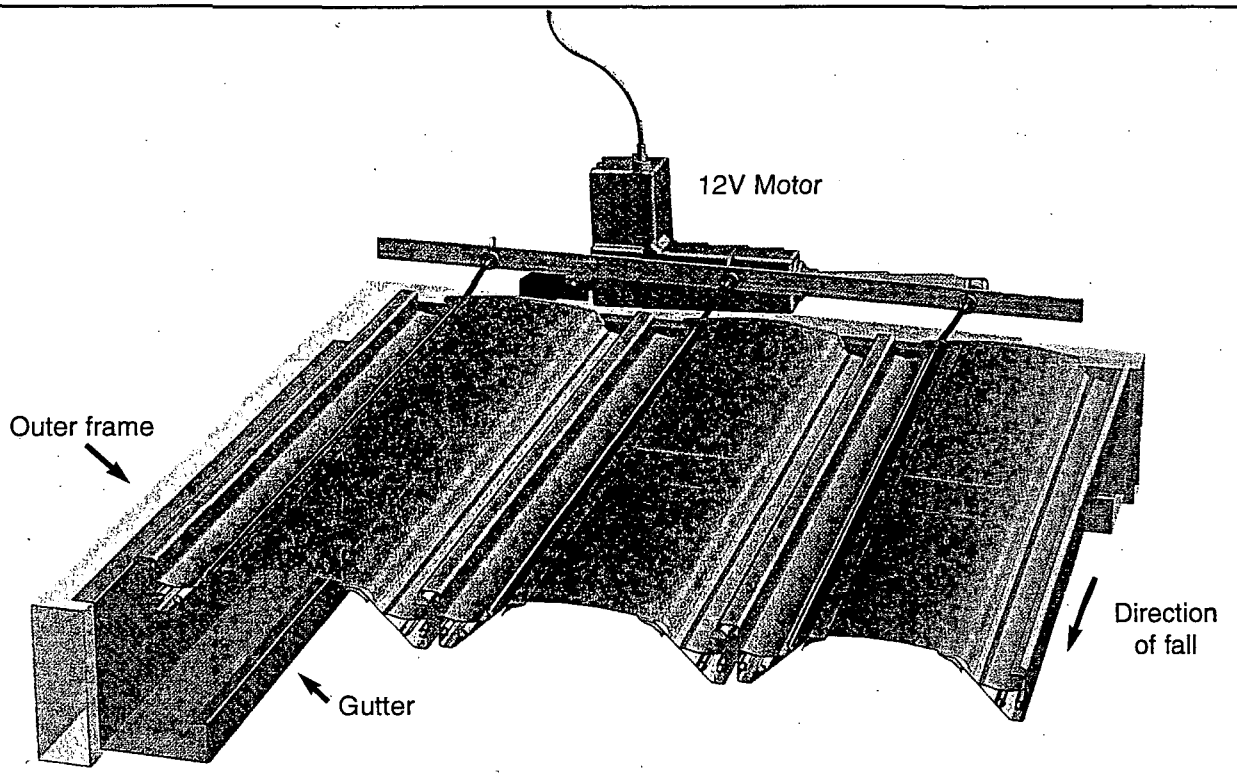
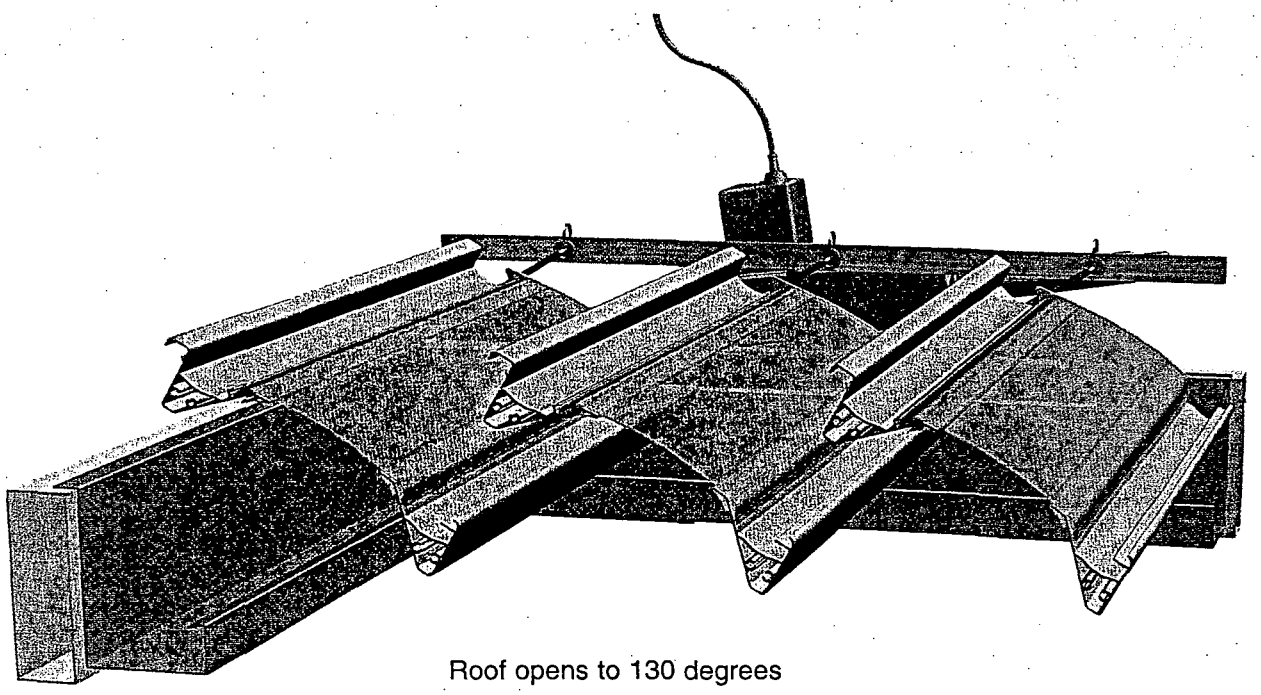


CORNER SECTIONAL VIEW IN CLOSED POSTION



CORNER SECTIONAL VIEW LOUVRE OPENING

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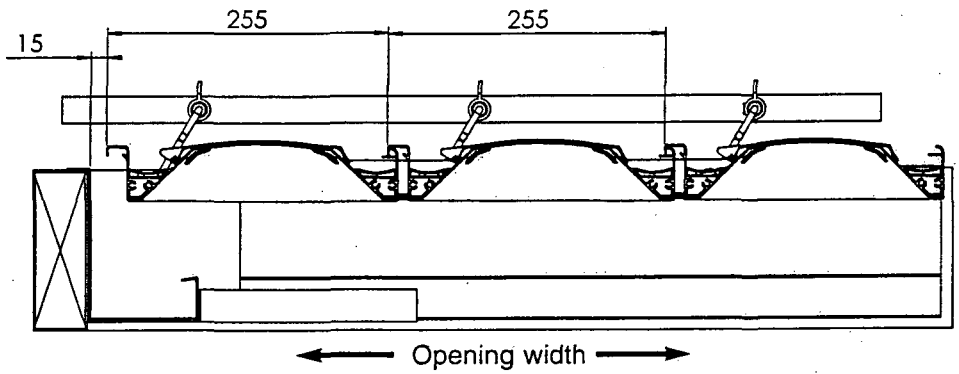
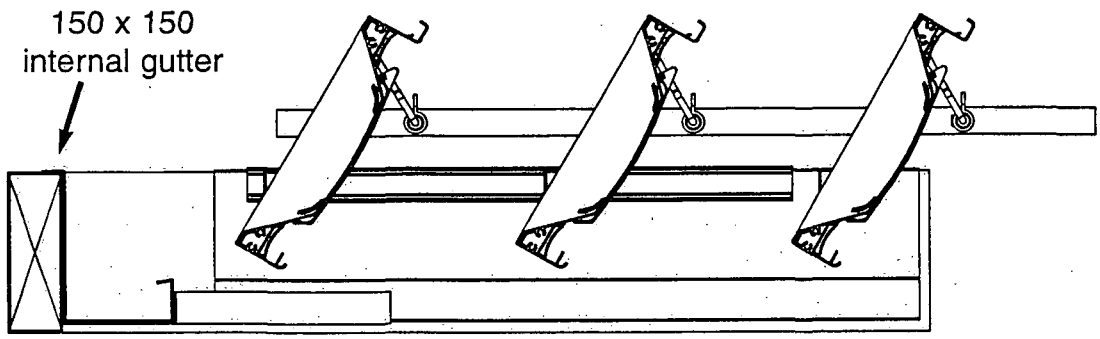
260 TRANSLUCENT TECHNICAL DETAIL

LouvreTec™
Opening Roof System

260 TRANSLUCENT OPENING ROOF IN CLOSED AND OPEN POSTIONS



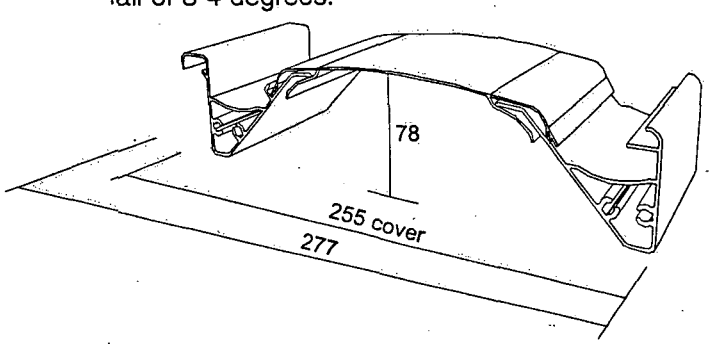
To calculate optimum opening width of outer frame:
Allow 15mm clearance per end (= total 30 mm), plus number of louvres x 255 mm
Example: 17 louvres x 255 = 3060 + 30 = 3090 mm optimum width
Note: 150 mm internal gutter provides cover if clearance increases over 15 mm at ends.



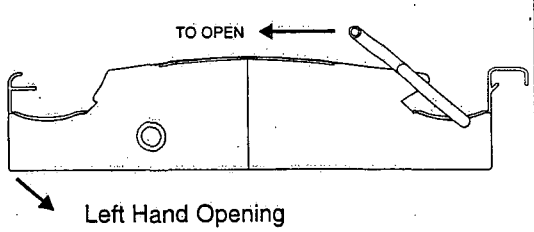
Specification of 260 Translucent Louvre Blade

• Weight per lineal metre	2.4kgm
• Cover per blade	255mm
• Weight per square metre	9.4kg/sqm
• Max span of Louvre Blades	up to 4m - refer to engineering detail
• Max. roof area per motor	16sqm
• Min. roof pitch1 degree	(17mm/1m)

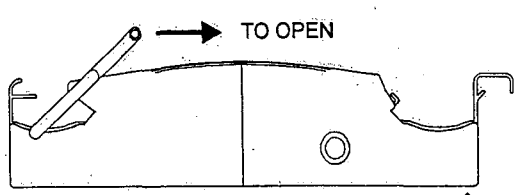
Note: To ensure good water run off allow if possible fall of 3-4 degrees.



- Options for opening direction of blades, as viewed from pivot end.
- Aim for maximum sun in winter



Left Hand Opening



Right Hand Opening

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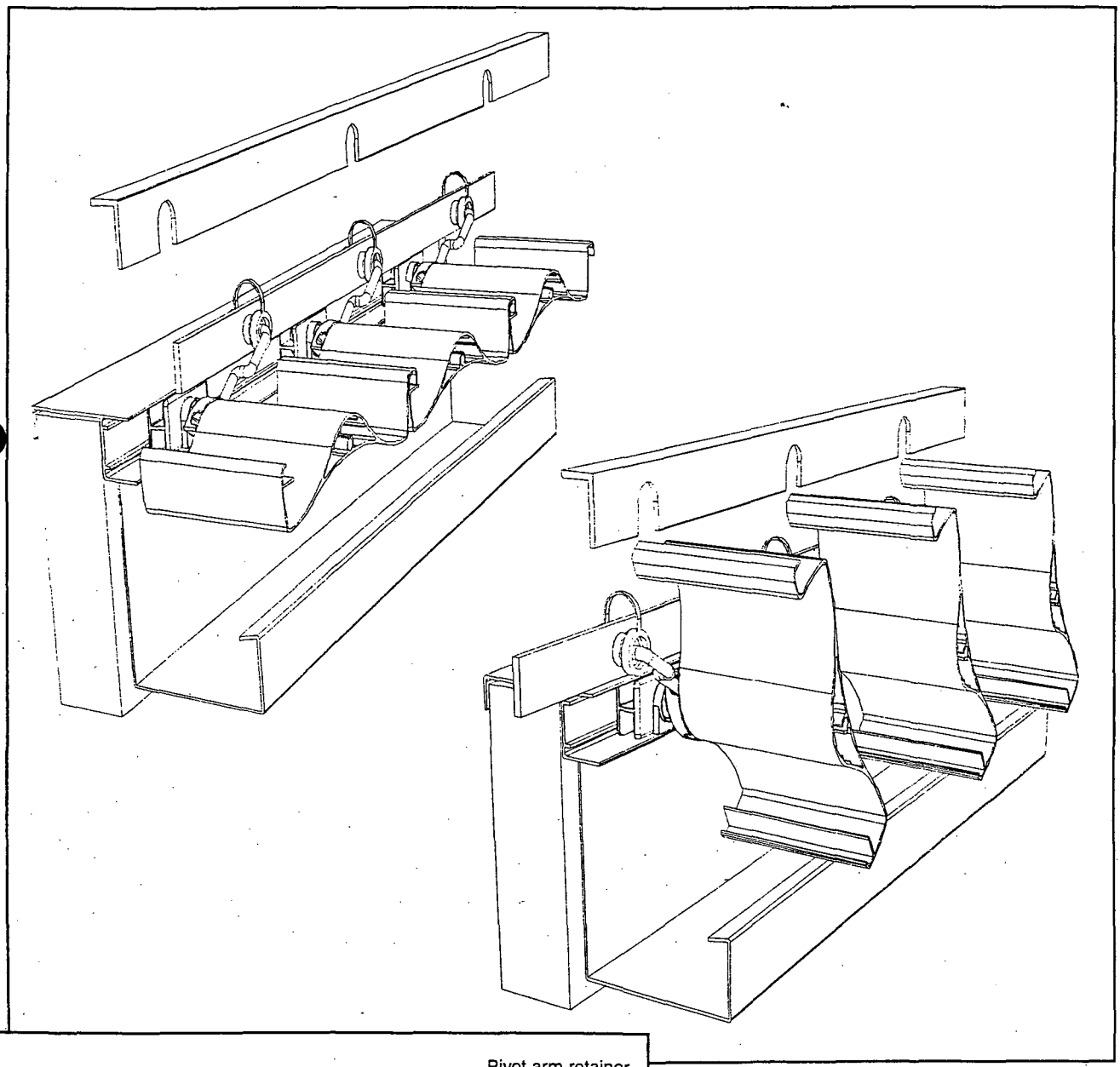
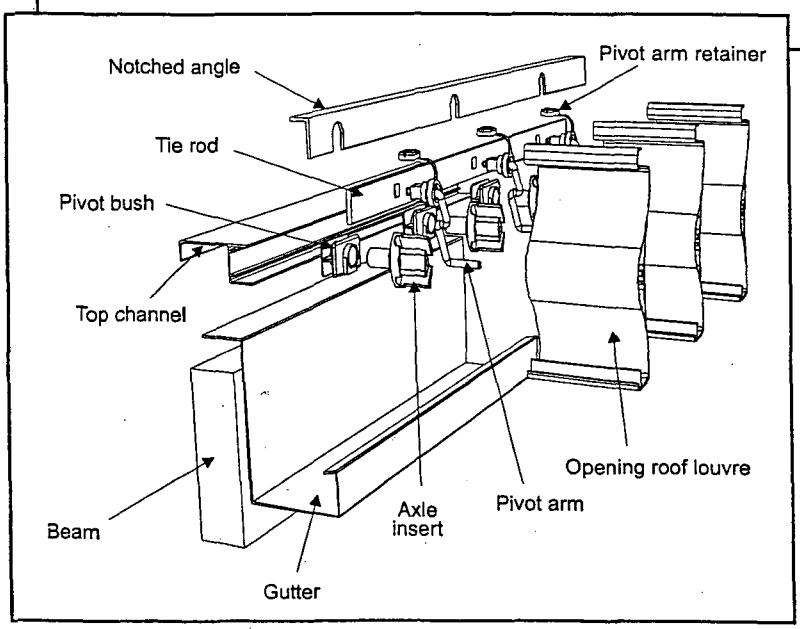
EXPLODED VIEWS
180 OPENING ROOF





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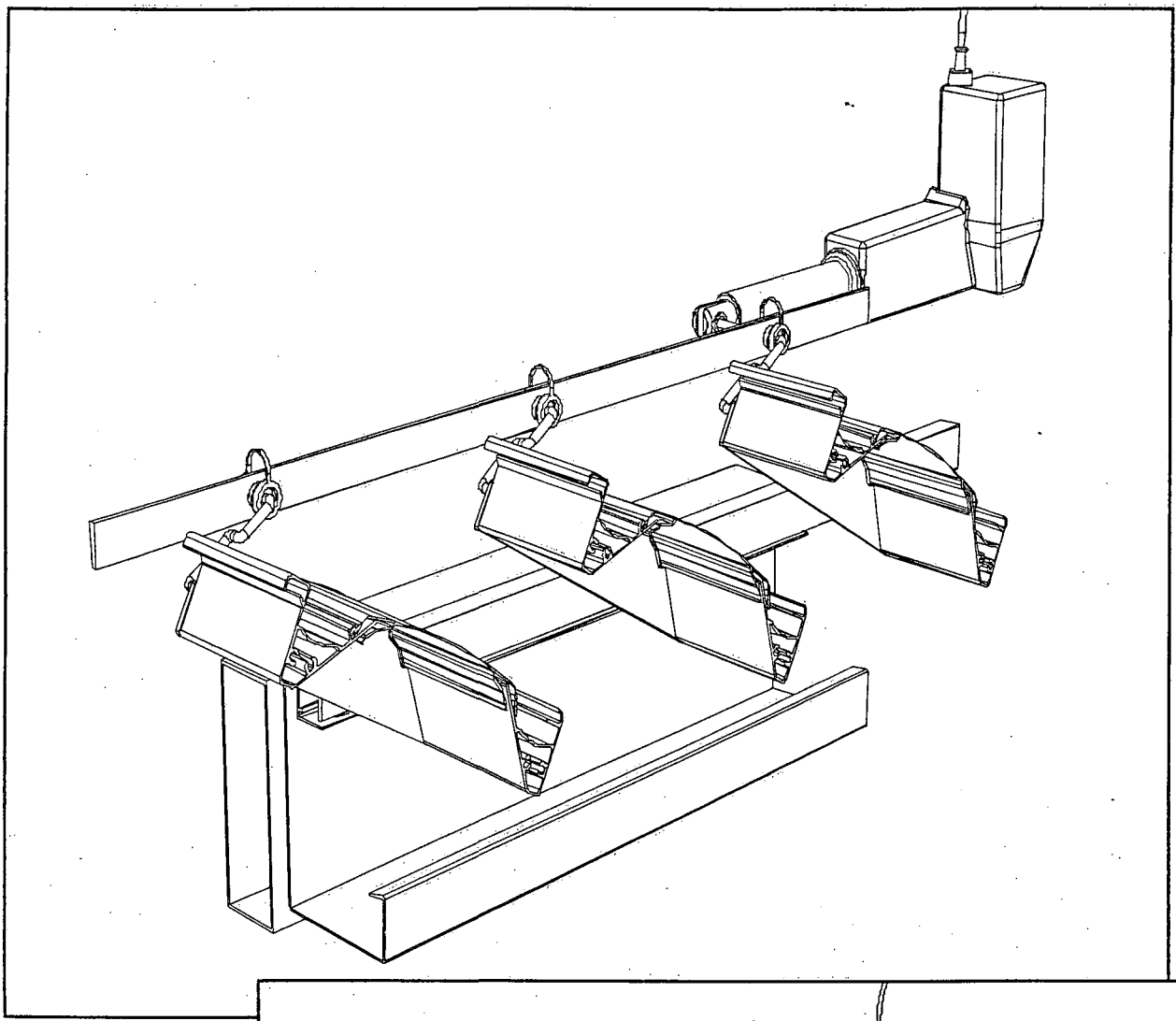
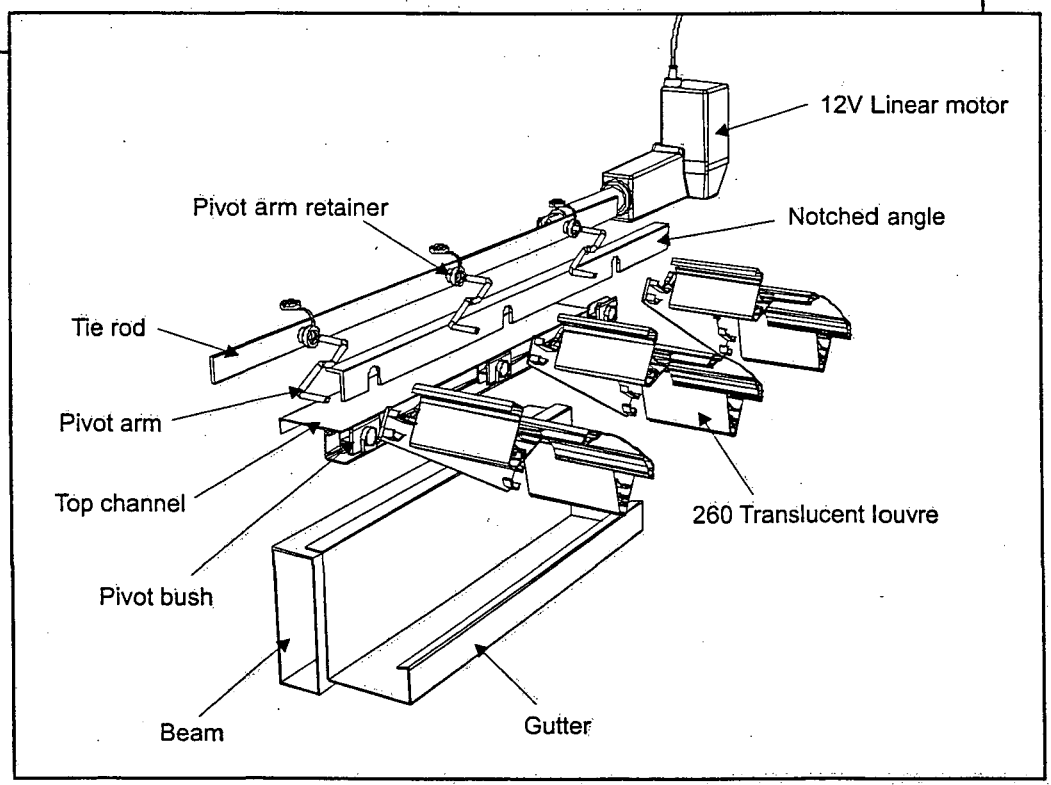
Version: 1, Version Date: 12/03/2009

EXPLODED VIEWS
260 TRANSLUCENT OPENING ROOF

LouvreTec™
Opening Roof System





Document Set ID: 5625581
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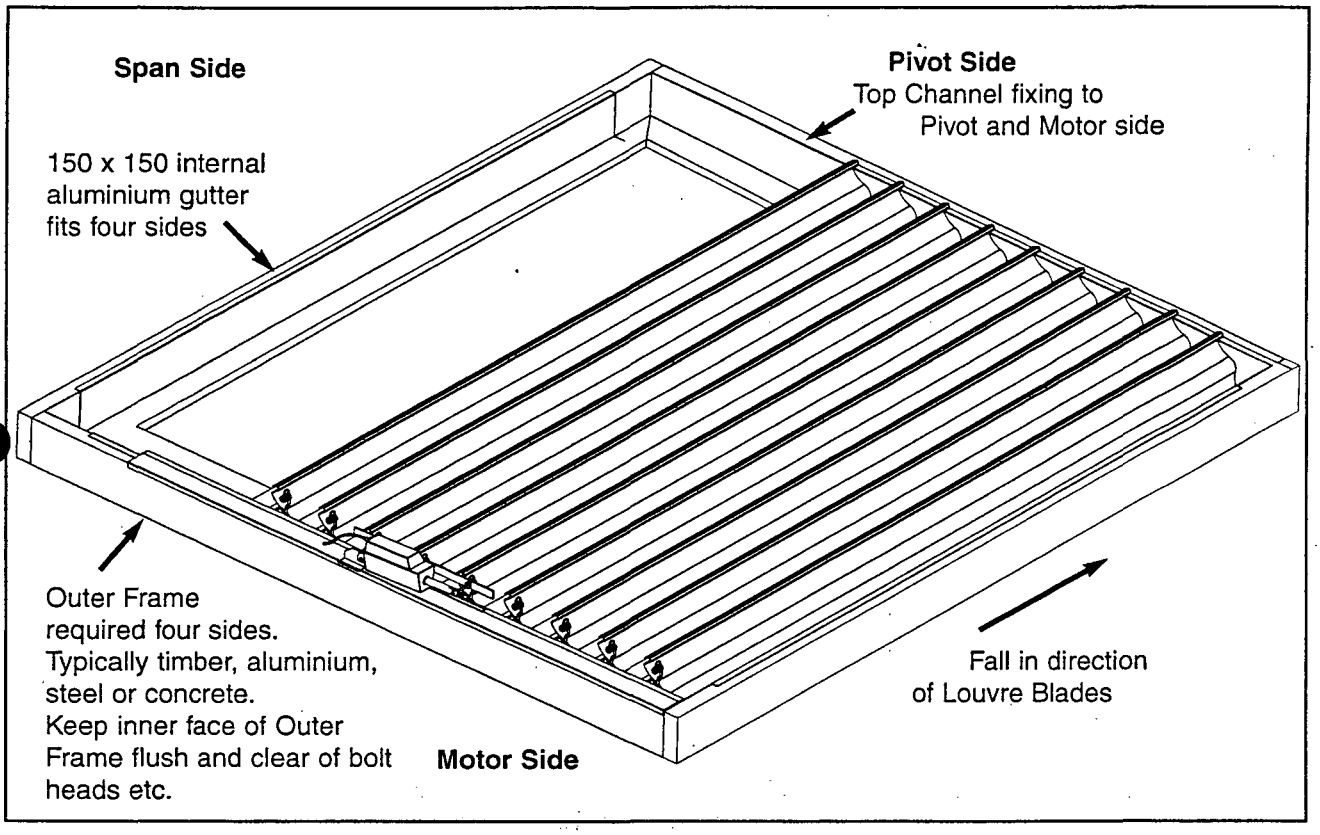
DESIGN CHECK LIST

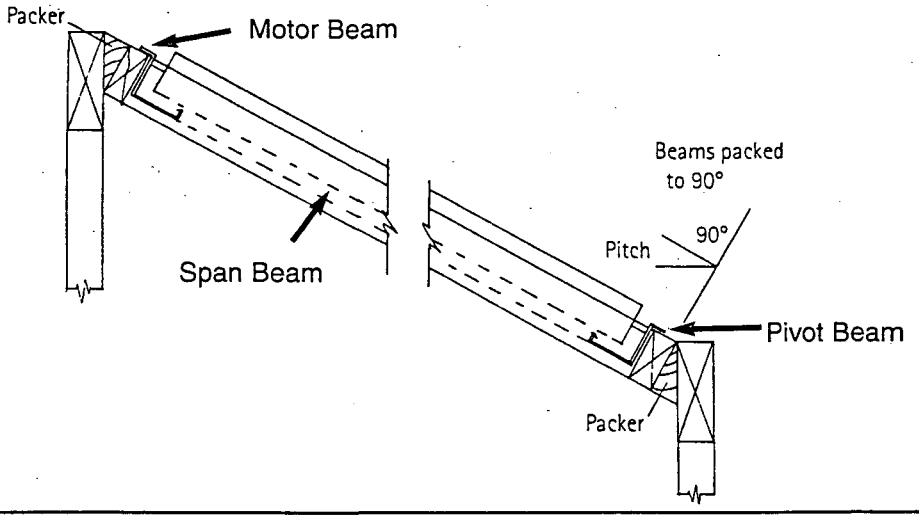
LouvreTec™
Opening Roof System

Check the following key points when incorporating a LouvreTec™ Opening Roof to a new or existing building.

1.OUTER FRAME



- **Outer frame must be parallel and always packed out to 90 degrees**



2. CONNECTION TO BUILDING

- For both new and existing buildings, connection to house, clearances and falls are key issues.
- Existing house gutter will often determine start height for opening roof.
- If there is insufficient room to fit under gutter, Opening Roof may need to be packed clear of gutter, or supported clear by steel fixing bracket (contact LouvreTec™)
- Allow clearance for motor and louvre blades when open.
  Remember motor can be located at either end of louvre blades (high end standard).
  Louvre blades can open left or right.

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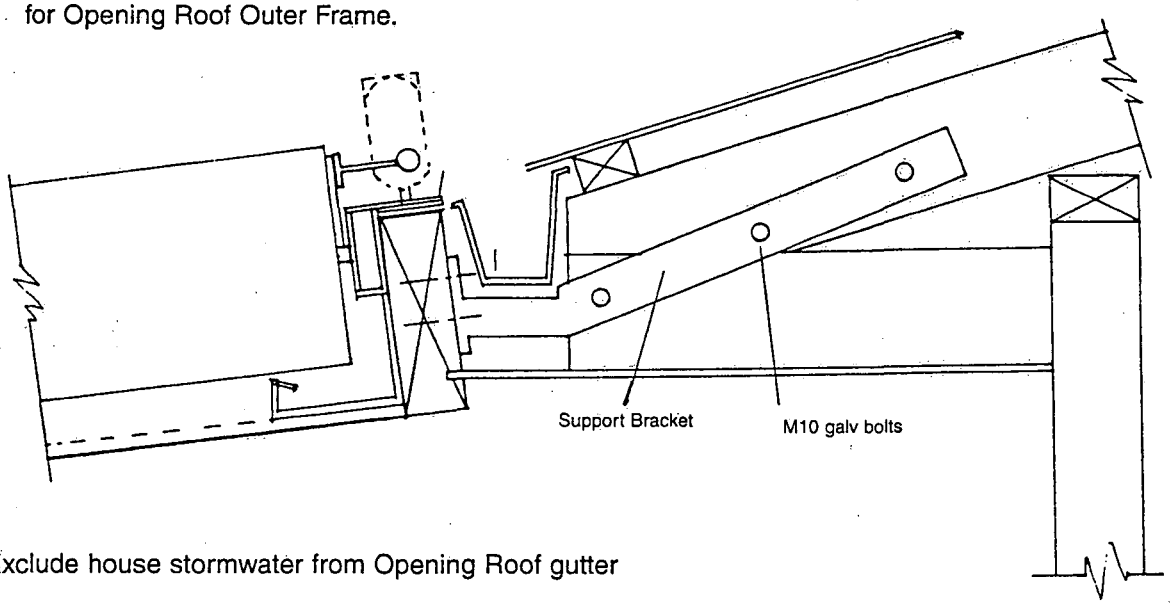
Connection to building

- Typical Detail - Steel beam support brackets fixed to rafters to provide support for Opening Roof Outer Frame.

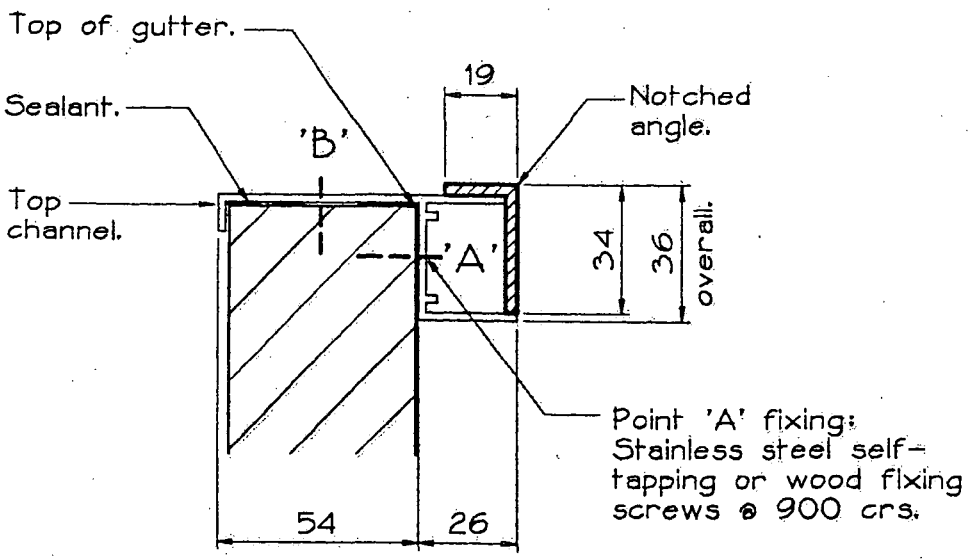


Exclude house stormwater from Opening Roof gutter

3. TOP CHANNEL FIXING DETAIL

- All structural fixing for the Opening Roof is through the Top Channel, fitted to the motor and pivot side of the Outer Frame.

Top Channel Detail



- Top Channel is fixed at 900 centres at point **A** using stainless steel self tapping or wood fixing screws.
- Additional fixing at point **B** is available when Top Channel leg is in place (see detail over)

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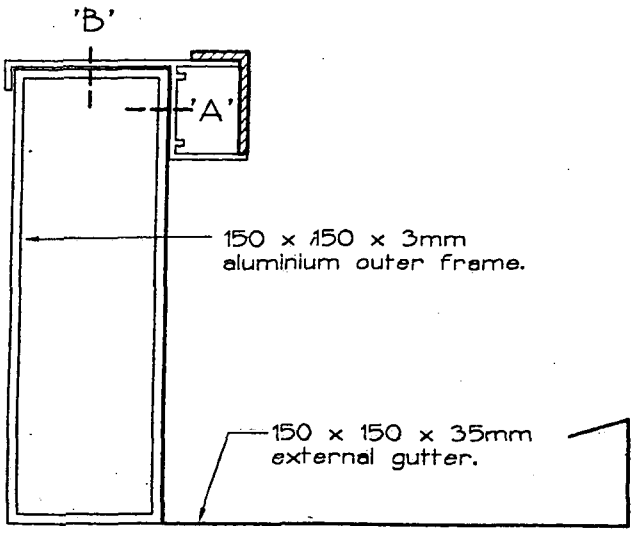
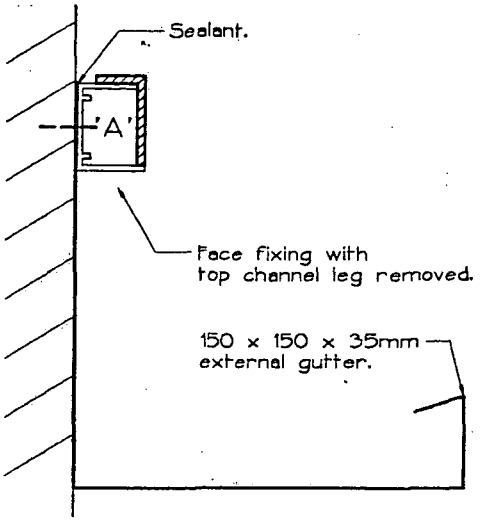
DESIGN CHECK LIST

3. TOP CHANNEL FIXING DETAIL (Cont)

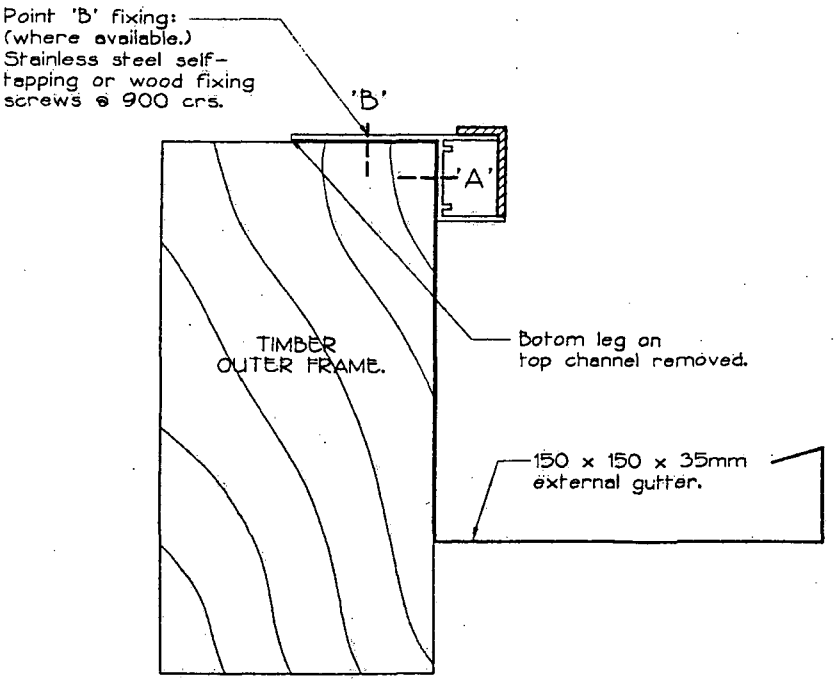
1.TO ALUMINIUM OUTER FRAME



2.FACE FIXED TO WALL



3. TO TIMBER OUTER FRAME



4. LOUVRE BLADES

Direction of louvre blades determined by -

- Fall - must run in direction of blades
- Louvre blades can be left or right opening
- Shade - shelter requirements in relation to sun, prevailing wind
- Work within span limitations

5. STORMWATER

- Exclude existing house roof water
- Opening Roof has internal gutter. Determine suitable location for down pipe
- Standard installation includes 65 mm Marley down pipe to deck, or in single storey installations ground level
- Remember whereever possible include fall in Outer Frame.

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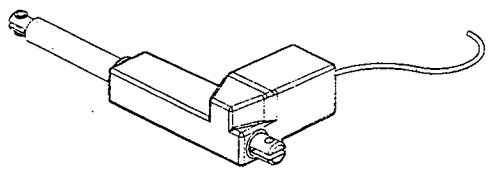
MOTORS AND CONTROL OPTIONS

LouvreTec™

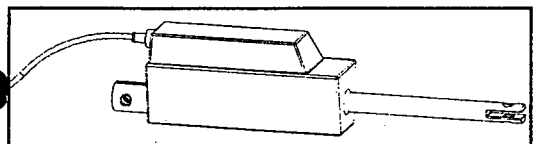
Opening Roof System
Sun Louvre Systems

6. ELECTRICAL REQUIREMENTS

- Determine power source, location of motor, transformer, on/off switch
- Standard on/off or remote control option



Linak LA31 - Used on 260 Translucent



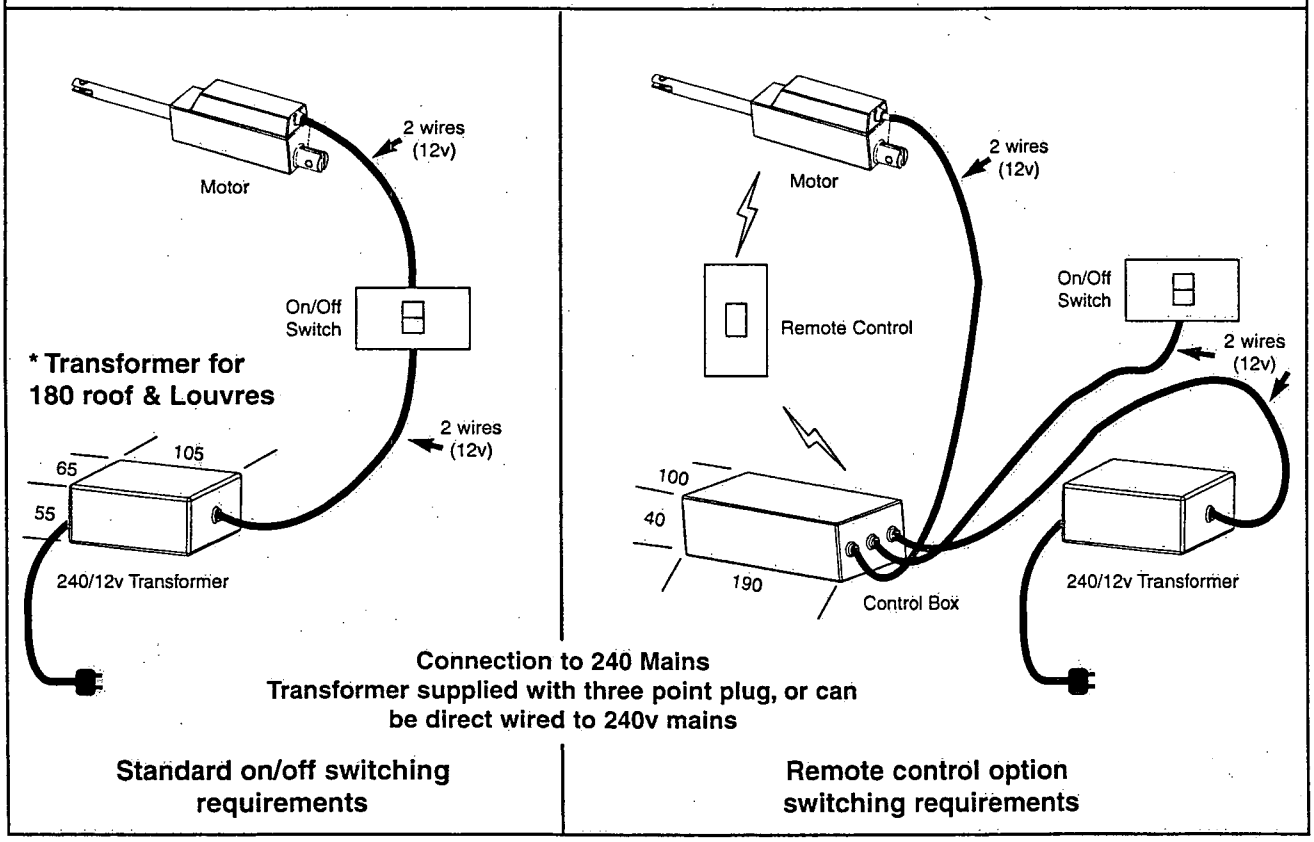
Linak LA12 - Used on 180 roofs & louvres

LouvreTec™ Opening Roofs and Motorised Sun Louvre Systems are mechanically operated by lineal actuator motors.

Features

- 12V Lineal Actuator motor
- Compact design
- Extremely quiet operation
- High strength plastic housing protects motor and gear
- Standard protection class: 1P51
- Motors supplied with compatible 240/24V transformer
- Operate from 240 mains or solar energy supply
- Remote control option
- Rain sensor option to close roof

WIRING DETAIL



Connection to 240 Mains
Transformer supplied with three point plug, or can be direct wired to 240v mains

Standard on/off switching requirements

Remote control option switching requirements

* 24V transformer for 260 translucent roof 160 long x 130 wide x 130 high

- Solar powered option on request
- LouvreTec™ connects motor, supplies on/off switch, transformer and remote control as option
- A suitably located three point plug or 240V feed is required for transformer
- Internal wiring may be required, depending on location of on/off switch
- Consider where to locate transformer, and/or remote control box
- Locate switch so roof louvre can be observed while switch is in use.

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LouvreTec™

Opening Roofs - Sun Louvres

ENGINEERING REPORTS
ROOF & WALL SPANS

EO22 - 180 Aluminium Opening Roof

Shademaster Opening Roof - LouvreTec 260 Translucent

E982 - 180 Airfoil Sun Louvres

E710 - 120 Airfoil Sun Louvres

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Technical specifications subject to change without prior notice

MITCHELL, VRANJES
CONSULTING ENGINEERS LTD
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■ Corner Wood and East Streets, Papakura. PO Box 799, Papakura.. Telephone: 09-298 8800 Facsimile: 09-299 6533

1. Design Assumption and Siting Criteria

We have carried out a static wind analysis of E022 (180 Aluminium), E982 (180Airfoil) and E710 (120 Airfoil) louvres (manufactured by McKechnie Metals) under the loadings set out in NZS 4203:1992 and design limitations in NZS 1664.1:1997 (Aluminium Design Code). To simplify the analyses the seven wind regions of NZS 4203 have been condensed down to three regions tabled A, B and C.

We have considered terrain categories 2 and 3 for each region and also the influence of shielding.

We have considered five building configurations:

1. Enclosed buildings.
2. One and two and three and four walled buildings including partially enclosed carports.
3. Canopies and awnings.
4. Free roofs.
5. Free standing walls.

For simplicity we have grouped these into the following groupings:

Roofs Categories

1. Fully enclosed buildings with uniform permeability. refer Fig. 1.
2. Partially enclosed lean-to structures fixed to buildings such as carport and pergolas with two and three walls and roof pitch up to 5°. refer Fig. 2.
3. Free roofs, canopies, awnings and buildings with three sides or large opening on one wall. Refer Fig. 3 and 4.

Walls Categories

1. Fully enclosed buildings, buildings enclosed two and three sides, including lean-to buildings, Refer Fig. 1, 2 and 4.
2. Free standing walls. refer Fig. 5.
3. Hoardings. Refer Fig. 5.

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We have not recommended a member span exceeding 3.9m for the EO22 louvre, 3.1m for the EO982 or 2.4m sqm for the E710 model regardless of wind loading conditions as the dead load deflections would exceed Span/300. Deflection under wind loading has been limited to Span/40.

In all cases it has been found that by using the T6 temper the maximum allowable spans have been limited by the deflections, not the bending strength.

The capacity of the pivot pin and support rail has not been considered.

The application of the louvre blade is to be limited to non-trafficable only. No materials are to be stored on the louvre blades for any length of time.

The factors influencing wind loads are described in NZS 4203:1992 loadings code. We have included in this report photos of typical examples of the terrain categories and an explanation of the shielding multiplier from the commentary to NZS 4203. Where doubt exists as to which conditions are relevant to a particular site, you should contact the undersigned or engage a qualified engineer for guidelines.

Typical locations where wind exposure may exceed the limitations of this report include:

i) Facing a large expanse of water.
ii) For louvres installed 5 m above ground level.
iii) Facing exposed open terrain with few or no obstructions.
iv) Near hills or on slopes.
v) Next to cliffs.
vi) Hoardings.
vii) Free roofs with a roof slope>15^{o}.
viii) Louvres built in lee zones.
ix) Any other local topographical features which may cause high wind speeds, such as "lee zones" or "wind tunnelling".

The extent of Regions A, B, C are shown on page 3-4.

Shielding has been deemed to be provided where at least two enclosed buildings, at least 6 metres wide x 3 metres high have been constructed within a 45 degree section at radius 30 m in the upwind direction from the proposed installation. If this is not the case, then the non-shielded case must be used.

Kevin R. Mitchell, M.I.P.E.N.Z.
Reg. Engineer

17/2/98

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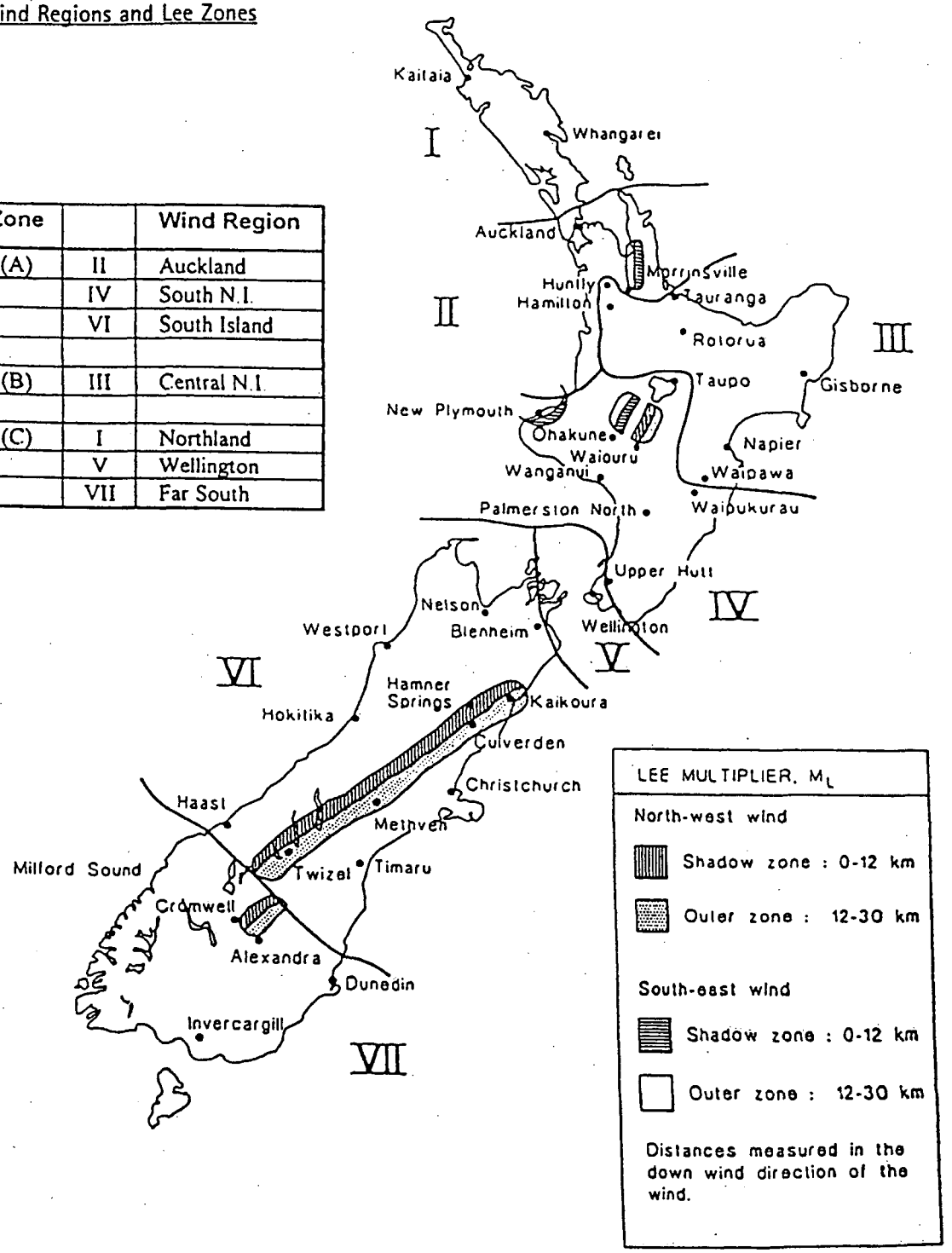
Wind Regions and Lee Zones

Zone		Wind Region
(A)	II	Auckland
	IV	South N.I.
	VI	South Island
(B)	III	Central N.I.
(C)	I	Northland
	V	Wellington
	VII	Far South



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NZS 4203:1992

C5.4.5 Shielding multiplier, M_s

The shielding multiplier, M_s has been based on work by Holmes and Best[5.5], Hussian and Lee[5.6] and Lee [5.7] and is a conservative generalization to accommodate effects of total and local wind forces on structures in a range of shielding configurations.
The shielding parameters,s, for typical New Zealand suburbs (Terrian Catagory 3), is usually in the range from 3 to 6, giving a typical range of M_s from 0.8 to 0.9.

The sector for the determination of the density of shielding is shown in figure C5.4.5.

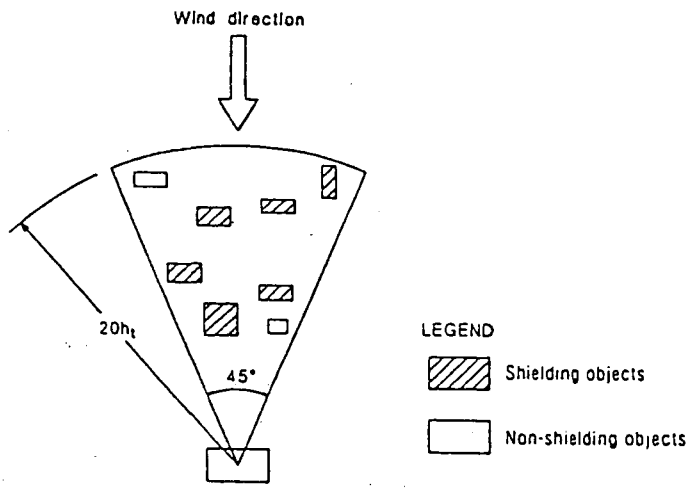

Figure C5.4.5 - Shielding in complex urban situations

For the evaluation of the effective shielding spacing, l_s, equation 5.4.3 gives reasonable values for the cases of regular rows of buildings and of randomly distributed shielding objects within the sector. However the user should beware of 'corridors' with no shielding objects immediately upwind of the structure. In such cases the shielding multiplier may increase or may equal 1.0. Shielding objects must be of a permanent nature and be capable of withstanding extreme wind speeds. Buildings, some fences and mature trees may be considered to be shielding objects.

C5.4.6 Topographic multiplier, M_t

C5.4.6.1
The topographic multiplier is applied to account for wind accelerations which result from free wind streams being displaced around various land formations such as mountain ranges, hills, escarpments or valleys. On simple terrain, one effect is dominant and it is sufficient to limit the topographic multiplier to the maximum of the most severe of the individual effects. For sites with an elevation above 500 m, wind acceleration effects are complex and will usually require the individual effect to be compounded. An additional enhancement of the basic wind speed with elevation is also required for all sites above this elevation.

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STRUCTURAL ENGINEER'S REPORT

RICKARD & PARTNERS PTY LTD
Sydney Australia

LouvreTec 260 Translucent Opening Roof

The LouvreTec 260 Translucent Opening Roof was designed and developed by Hunter Douglas Ltd Australia. It is marketed by Hunter Douglas in Australia under the brand name "Shademaster Opening Roof".
In New Zealand the system is marketed under the brand name "LouvreTec 260 Translucent Opening Roof", and is manufactured to Hunter Douglas design criteria.

The engineering data shown in this manual for LouvreTec 260 Opening Roof has been developed from the various relevant Australian Standards and Codes of Practice.
Hunter Douglas Ltd/LouvreTec Products Ltd disclaims reponsibility for loss or damage resulting from unauthorised or improper use of the procedures outlined in this manual.

SHADEMASTER® is a registered Trade Mark of Hunter Douglas Limited.*

1st August 1997 **SHADEMASTER SHELTER SYSTEMS**

We can certify that a SHADEMASTER structure Douglas designed strictly in accordance with this manual and constructed in accordance with Hunter Douglas standard specifications will be structuarally adequate to support the required design loads in accordance with the following S.A.A. Codes:
AS 1170 Part1 1989 Dead and Live Loads and Load Combinations
AS 1170 Part 2 1989 Wind forces
AS 1538 Cold Formed Structures Code
AS 4055 1992 Wind Loads for Housing
AS 1664 1979 Aluminium Structures Code

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*Please contact LouvreTec™ for further information on any of the Shademaster products shown in the Shademaster brochure

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AUSTRALIAN TERRAIN CATEGORY

The terrain category classification for a site is a measure of the lowest effective surface roughness from any radial direction within a distance of 500m of the proposed construction site and shall be based on the likely terrain in five years time.

(a) TERRAIN CATEGORY 2 (TC2):

Open terrain including sea coast areas, airfields, grassland with few well-scattered obstructions, such as isolated trees and uncut grass, having heights from 1.5m to 10.0m.

(b) TERRAIN CATEGORY 2.5 (TC2.5):

Terrain with few trees, isolated obstructions, agricultural land, long grass or canefields (600mm high). This classification is midway between TC2 and TC3 and may represent terrain in slow developing outer urban areas.

(c) TERRAIN CATEGORY 3 (TC3):

Terrain with numerous closely-spaced obstructions having the size of houses. The minimum density of houses and trees shall be the equivalent of 10 house-size obstructions per hectare. Substantial well established trees shall be considered as obstructions.

AUSTRALIAN SHIELDING CLASSIFICATION

Shielding shall be based upon the likely shielding five years hence.

SHIELDING - where at least two rows of houses of similar size are permanent obstructions surrounding the construction being considered. In Regions A and B, heavily-wooded areas provide full shielding.

The application of full shielding shall be appropriate for typical suburban development greater than or equal to 10 houses or similar size obstructions per hectare.

The effects of roads or other open areas with a distance measured in any direction of less than 100m shall be ignored. However, the first two rows of houses abutting permanent open areas with at least a dimension of greater than 100m, such as parklands, large expanses of water and airfields, shall be considered to have no shielding.

NON-SHIELDED - where there are no permanent obstructions or where there are less than 2.5 obstructions per hectare, such as the first two rows of houses or single houses abutting open parkland, open water or airfields.

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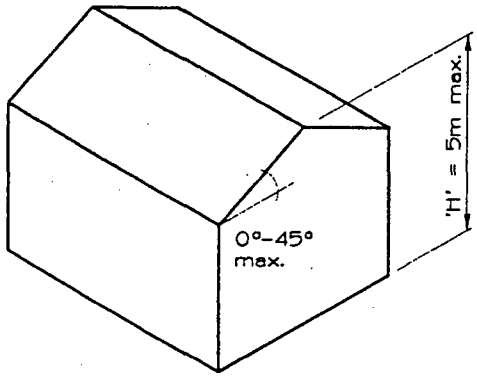
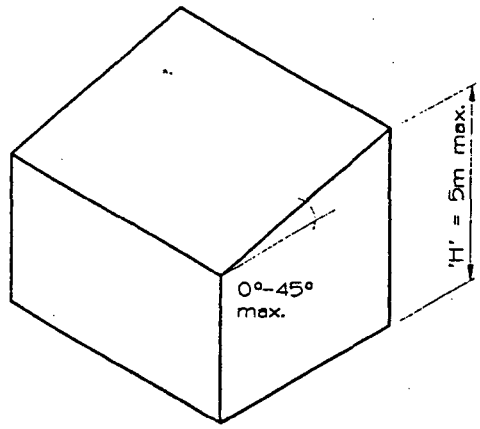


PITCHED ROOF.

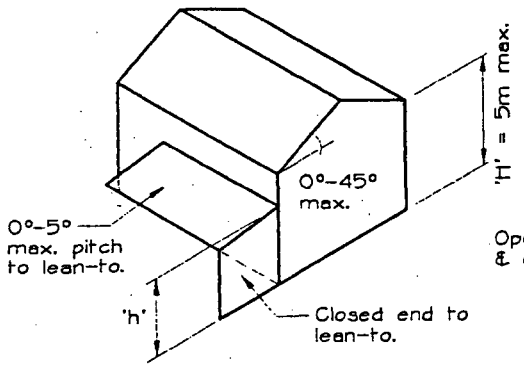


MONO-SLOPE ROOF.

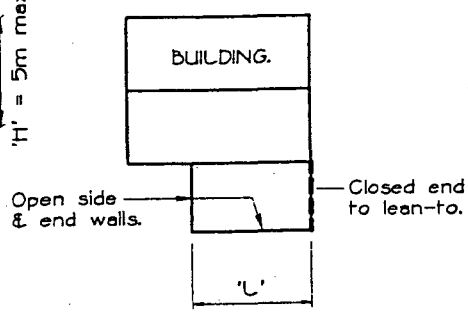
RECTANGULAR PLAN BUILDINGS.
WITH FOUR FULLY ENCLOSED WALLS.

ROOF CATEGORY 1
WALL CATEGORY 1

FIG. 1

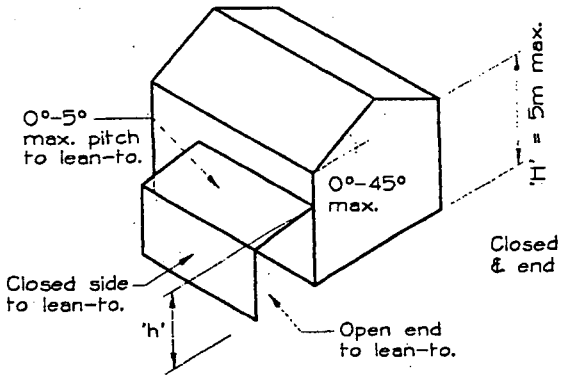


ISOMETRIC VIEW.

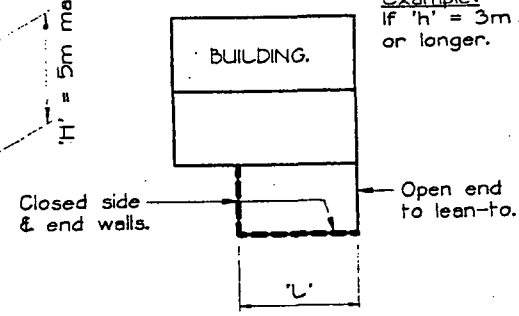


PLAN VIEW.

NOTE:
Length 'L' should be greater than or equal to twice the height 'h'. ie. 'L' > 2x'h'.
Example:
If 'h' = 3m then 'L' = 6m or longer.



ISOMETRIC VIEW.



PLAN VIEW.

RECTANGULAR PLAN BUILDINGS.
WITH SEMI CLOSED LEAN-TO.

ROOF CATEGORY 2
WALL CATEGORY 2

FIG. 2

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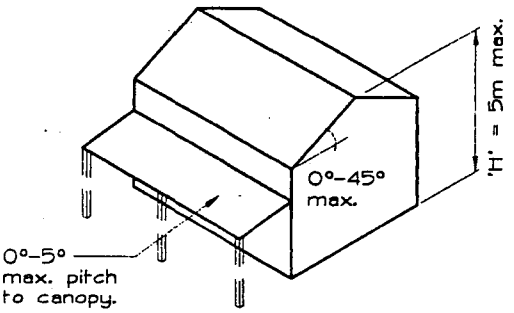
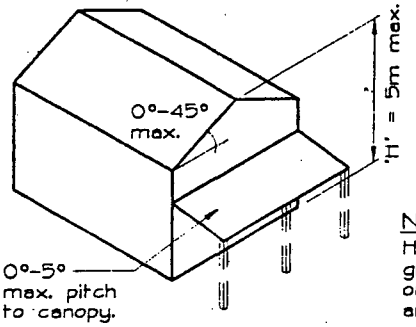


SIDE WALL CANOPY/AWNING.



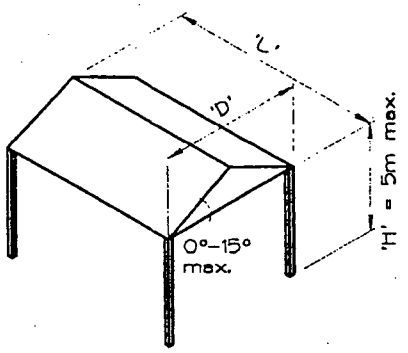
END WALL CANOPY/AWNING.

NOTE:
Height 'H' should be greater than or equal to one quarter the width 'D', and less than or equal to width 'D'.
ie. 0.25'D'('L') ≤ 'H' ≤ 'D'('L').

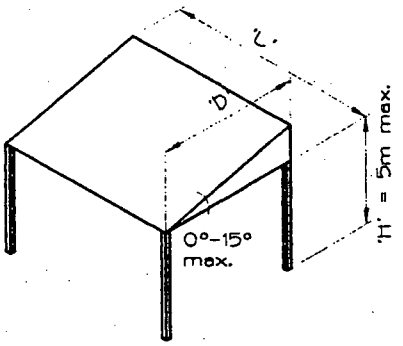
RECTANGULAR PLAN BUILDINGS.
WITH CANOPY/AWNING.

Example:
If 'D' is 4m then 'H' should be no less than 1m and no greater than 4m.

If 'H' is 2m long then 'D' & 'L' can be between 2m & 8m long.



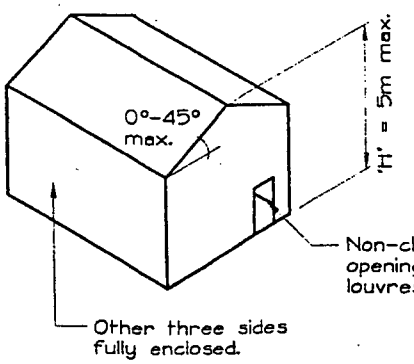
PITCHED ROOF.



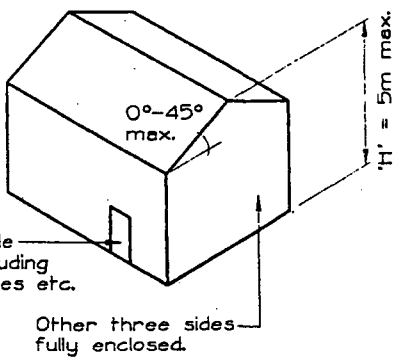
MONO-SLOPE ROOF.

FREE ROOF STRUCTURES.
0° - 15° MAX. PITCH.

Roof Category 3 FIG. 3



END OPENING
(WITH NO DOOR)



SIDE OPENING
(WITH NO DOOR)

RECTANGULAR PLAN BUILDINGS.
WITH NON-CLOSEABLE OPENING.

Roof Category 4
Wall Category 1

FIG. 4

(Cont. over)

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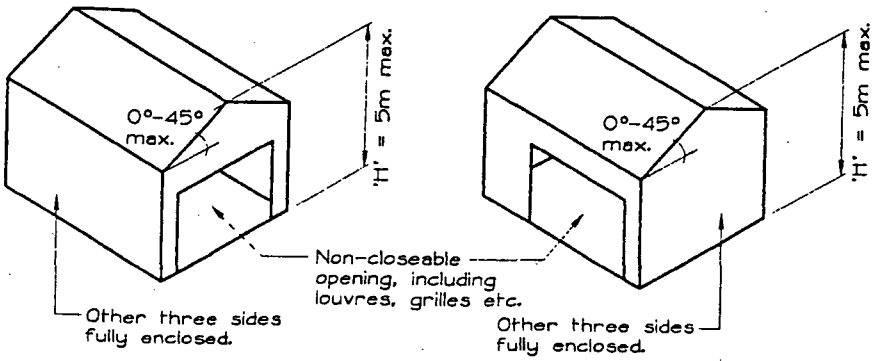


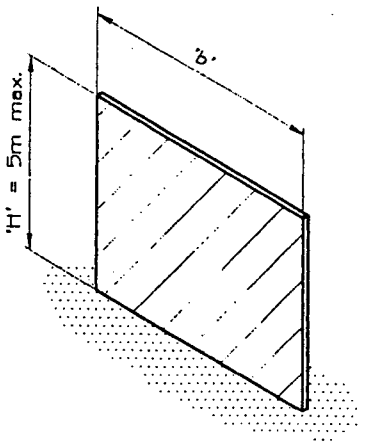
OPEN END

OPEN SIDE

RECTANGULAR PLAN BUILDINGS.
WITH NON-CLOSEABLE LARGE OPENING.

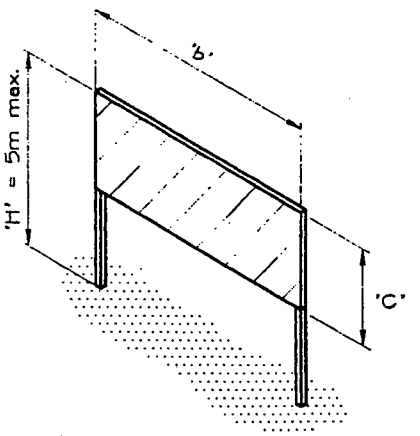
Roof Category 4
Wall Category 1
F16.4

(Cont. from Page 3-9)



SOLID RECTANGULAR WALL.

NOTE:
Width 'b' should be greater than one half of height 'H', and less than 45 times height 'H'.
ie. 0.5'H' < 'b' < 45'H'.
Example:
If 'H' = 3m, then 'b' should be no less than 1.5m and no greater than 135m.



HOARDINGS.

FREE STANDING WALLS.

NOTES:
Width 'b' should be greater than one half of depth 'C' and less than 45 times depth 'C'.
ie. 0.5'C' < 'b' < 45'C'.
Example:
If 'C' = 3m, then 'b' should be no less than 1.5m and no greater than 135m.

If 'C' > 0.7'H', then treat hoarding as a free standing wall.

Wall Categories 2&3

FIG. 5

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ROOF SPANS - TABLE 1 EO22 LOUVRETEC 180 ALUMINIUM

Region	Parameters		Maximum Span (m)		
	Terrain Category	Shielded	Roof Category 1 See Fig. 1	Roof Category 2 See Fig. 2	Roof Category 3 See Figs. 3 & 4
A	2	Y	3.4	3.2	3.0
	2	N	3.2	3.0	2.8
	3	Y	3.9	3.7	3.4
	3	N	3.6	3.5	3.2
B	2	Y	3.6	3.4	3.1
	2	N	3.4	3.2	2.9
	3	Y	3.9	3.8	3.6
	3	N	3.9	3.6	3.4
C	2	Y	3.3	3.1	2.9
	2	N	3.1	2.9	2.7
	3	Y	3.7	3.5	3.3
	3	N	3.5	3.3	3.1

WALL SPANS - TABLE 2 EO22 LOUVRETEC 180 ALUMINIUM

Region	Parameters		Maximum Span (m)		
	Terrain Category	Shielded	Wall Category 1 See Figs. 1,2 & 4	Wall Category 2 Free standing walls See Fig. 5	Wall Category 3 Hoardings See Fig. 5
A	2	Y	3.6	3.2	3.0
	2	N	3.4	3.0	2.8
	3	Y	3.9	3.7	3.4
	3	N	3.9	3.5	3.2
B	2	Y	3.8	3.4	3.1
	2	N	3.6	3.2	2.9
	3	Y	3.9	3.8	3.6
	3	N	3.9	3.6	3.4
C	2	Y	3.5	3.1	2.9
	2	N	3.3	2.9	2.7
	3	Y	3.9	3.5	3.3
	3	N	3.7	3.3	3.1

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LOUVRETEC 260 TRANSLUCENT OPENING ROOF

Blade Span Table - Safe Load Tables (Australian Regions A& B)

Simply Supported
Blades Considered without Cantilever

(p) Opening Roof Blade Design Pressure (kPa)	Maximum Allowable Blade Span (Ls)m
3.850	1.800
2.830	2.100
2.160	2.400
1.710	2.700
1.399	3.000
1.157	3.300
0.972	3.600
0.828	3.900
0.714	4.200
0.622	4.500
0.547	4.800
0.484	5.100
0.432	5.400

Note: Opening Roof blades must be assembled according to Specification Manual provided.

Warning: Opening Roof blades are not attached immovably to the beams and therefore do not enhance the strength of the supporting structure.

It is very important that the structure has a suitable degree of rigidity to contain the heavy Opening Roof blades and restrain any lateral movement.

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ROOF SPANS - TABLE 3 E982 LOUVRETEC 180 AIRFOIL

Region	Parameters		Maximum Span (m)		
	Terrain Category	Shielded	Roof Category 1 See Fig. 1	Roof Category 2 See Fig. 2	Roof Category 3 See Figs. 3 & 4
A	2	Y	2.7	2.6	2.4
	2	N	2.6	2.4	2.2
	3	Y	3.1	2.9	2.7
	3	N	2.9	2.8	2.6
B	2	Y	2.9	2.7	2.5
	2	N	2.7	2.5	2.4
	3	Y	3.3	3.1	2.8
	3	N	3.1	2.9	2.7
C	2	Y	2.6	2.5	2.3
	2	N	2.5	2.3	2.2
	3	Y	3.0	2.8	2.6
	3	N	2.8	2.7	2.5

WALL SPANS - TABLE 4 E982 LOUVRETEC 180 ALUMINIUM

Region	Parameters		Maximum Span (m)		
	Terrain Category	Shielded	Wall Category 1 See Figs. 1,2 & 4	Wall Category 2 Free standing walls See Fig. 5	Wall Category 3 Hoardings See Fig. 5
A	2	Y	2.9	2.6	2.4
	2	N	2.7	2.4	2.2
	3	Y	3.1	2.9	2.7
	3	N	3.1	2.8	2.6
B	2	Y	3.0	2.7	2.5
	2	N	2.8	2.5	2.4
	3	Y	3.1	3.1	2.8
	3	N	3.1	2.9	2.7
C	2	Y	2.8	2.5	2.3
	2	N	2.6	2.3	2.2
	3	Y	3.1	2.8	2.6
	3	N	3.0	2.6	2.5

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ROOF SPANS - TABLE 5 E710 LOUVRETEC 120 AIRFOIL

Region	Parameters		Maximum Span (m)		
	Terrain Category	Shielded	Roof Category 1 See Fig. 1	Roof Category 2 See Fig. 2	Roof Category 3 See Fig. 3
A	2	Y	2.2	2.0	1.9
	2	N	2.1	1.9	1.8
	3	Y	2.4	2.3	2.2
	3	N	2.3	2.2	2.0
B	2	Y	2.3	2.1	2.0
	2	N	2.1	2.0	1.9
	3	Y	2.4	2.4	2.3
	3	N	2.4	2.3	2.1
C	2	Y	2.1	2.0	1.8
	2	N	2.0	1.8	1.7
	3	Y	2.4	2.2	2.1
	3	N	2.2	2.1	2.0

WALL SPANS - TABLE 6 E710 LOUVRETEC 120 AIRFOIL

Region	Parameters		Maximum Span (m)		
	Terrain Category	Shielded	Wall Category 1 See Figs. 1,2 & 4	Wall Category 2 Free Standing Wall See Fig. 5	Wall Category 3 Hoardings See Fig. 5
A	2	Y	2.3	2.0	1.9
	2	N	2.2	1.9	1.8
	3	Y	2.4	2.3	2.2
	3	N	2.4	2.2	2.0
B	2	Y	2.4	2.1	2.0
	2	N	2.3	2.0	1.9
	3	Y	2.4	2.4	2.2
	3	N	2.4	2.3	2.1
C	2	Y	2.2	2.0	1.8
	2	N	2.1	1.8	1.7
	3	Y	2.4	2.2	2.1
	3	N	2.4	2.1	2.0

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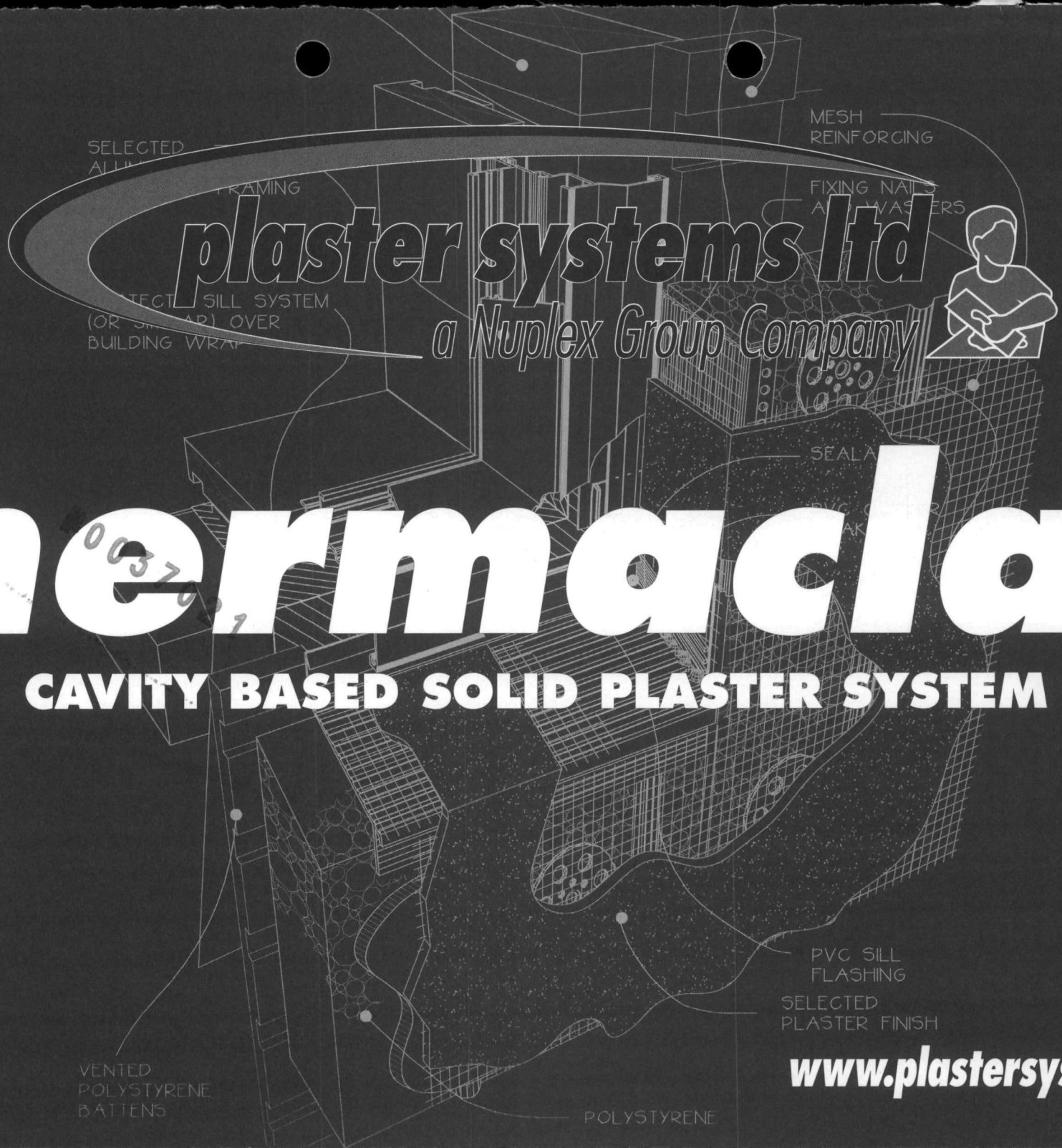

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IMPORTANT - PLEASE READ!

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These details represent typical THERMACLAD construction techniques and are designed to assist specifiers. These details are not a complete and comprehensive range, but do describe the most commonly used applications of the system. If you wish to modify a detail to suit a different design, you must contact Plaster Systems Ltd immediately to discuss the intended modification.

All of the construction details on the following pages have been rigorously tested and independently appraised to ensure the THERMACLAD system meets all the relevant provisions of the New Zealand Building Code. Plaster Systems Ltd reserve the right, to revise and change its construction details without notice. Please consult a Plaster Systems Ltd Technical Adviser to confirm the validity of our current details or to seek advice regarding new developments.

INSTALLATION

The THERMACLAD system must only be applied by licensed contractors who have a good working knowledge of Plaster Systems' products and who are aware of Plaster Systems Ltd current product information and are kept up-to-date with proprietary detailed application instructions.

Due to the specialist nature of the system all the plaster products, fibreglass mesh, and PVC flashing components that makeup the THERMACLAD system, shall be supplied directly to the contractor by Plaster Systems.

GENERAL

Plaster Systems' is an ISO 9002 registered Company and guarantees that its' pre-mixed plaster products are manufactured to specification in accordance with an independently audited quality control system. Plaster Systems' Liability (in contract, tort, negligence or otherwise) for any loss, damage, expense, cost or liability arising from application of the product is limited to making good any defect solely attributable to Plaster Systems' manufacturing process. Plaster Systems shall not be liable for any defective workmanship or application of its products by any contractor, licensed or otherwise, or any other person.

The long-term durability of the THERMACLAD system is dependent upon the correct preparation and application of all of its components in strict accordance with all the relevant written instructions and detail sheets. On-site application is beyond the control of Plaster Systems' and it cannot guarantee workmanship or the correct preparation and application of its' products or systems. The licensed THERMACLAD contractor shall take the overall responsibility for; on-site supervision, staff training, installation, and quality control.

The purchaser of the components of this system will indemnify Plaster Systems Ltd and its personnel of any damage, loss or expense incurred by Plaster Systems Ltd which is not proved to be the direct consequence of defective manufacture of the product and the customer will pay the amount of that damage, loss or damages within 10 days of Plaster Systems Ltd or its personnel making demand in writing on the customer for payment of the same.

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thermaclad® specification

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Project Name:

Project Address:

Consent Applicant:

Specifiers Name:

Date:

1.0 INTRODUCTION

This specification is for the installation of the Thermaclad Exterior Wall System. Thermaclad is a crack resistant lightweight exterior solid plaster system that provides an insulated, drained, weatherproof barrier for residential and commercial constructions.

The Thermaclad System combines 60mm expanded polystyrene, Thermaclad plaster, alkali resistant fibreglass mesh, either a pre-coloured or a cement-based finishing plaster and Insulcote 100% acrylic paint to produce a lightweight durable, impact-resistant cladding system.

2.0 BUILDING REGULATIONS

The Thermaclad system, when installed, applied and maintained in accordance with the instructions and recommended details of Plaster Systems Ltd, will meet or support the following relevant provisions of the New Zealand Building Code. Clause B1 Structure; B2 Durability; E2 External Moisture; E3 Internal Moisture; F2 Hazardous Building Materials; and H1 Energy Efficiency.

3.0 MATERIALS

POLYSTYRENE

Ribbed 60mm thick H – grade expanded polystyrene sheets

POLY BATTENS

All exterior surfaces shall be fully battened using Plaster System's peel 'n' stick vented poly battens. The battens are to be placed on all studs at full length and on horizontal fixings. All horizontal battens must be no longer than 100mm in length and must be installed on a 15° slop. Additional battens maybe required on internal and external corners and around openings as per Plaster Systems Ltd standard cavity details.

FIXINGS

TIMBER FRAME

110mm x 3.6mm hot-dipped galvanised flat head nails used in conjunction with a 40mm diameter plastic washer.

STEEL FRAME

Class 3 exterior grade self-tapping steel screws 8mm x 95mm used in conjunction with 40mm diameter plastic washers.

MASONRY or CONCRETE

A bonding compound made from Insulclad Plaster with the addition of 1 x 1 litre Insulclad Resin per 20kg bag of dry powder. Alternatively, polypropylene construction fasteners driven into pre-drilled holes in the concrete substrate.

PVC ADHESIVE – Fosroc Panelbond adhesive or Plaster Systems Ltd approved equivalent. A solvent free, synthetic rubber and resin construction adhesive.

SEALANT – Silaflex, a modified silicone sealant supplied in 300ml cartridges by Plaster Systems or other Fosroc licensed distributors.

4.0 PLASTER COMPONENTS

BASE COAT

THERMACLAD PLASTER – A fibre reinforced, specially blended acrylic modified cement-based plaster compound supplied in 20kg bags used to imbed the Quik-Mesh fibreglass reinforcing. To be applied a minimum of 5mm thick for the first coat and 3mm thick for the mesh coat.

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☐ **Tick boxes where appropriate**

FINISHING PLASTERS

EZYTEX PLASTER

A range of polymer modified cement-based plasters that can be used to achieve a:

☐ Spray texture finish
☐ Sponge finish
☐ Drag patterned finish
☐ Random scratch patterned finish

Ezytex must be finished with a minimum of two coats of Insulcote 100% acrylic paint or other approved paint system.

FORMSTONE PLASTER

A range of premixed, precoloured 100% acrylic plasters that can be used to achieve:

☐ Fine spray texture finish
☐ Medium spray texture finish
☐ Drag patterned finish
☐ Random scratch patterned finish
☐ Trowel finish

Depending on the application it is highly recommended that Formstone be finished with 1 coat of 100% acrylic Formstone Glaze.

ADOBEPLAST

☐ A polymer-modified, cement based plaster used to readily achieve an undulating plaster finish similar to a French provincial style. Adobeplast must be finished with a minimum of two coats of Insulcote 100% acrylic paint or other approved paint system.

MULTIPLAST

☐ A polymer-modified, cement based plaster which when spray through a hoppergun is used to achieve a heavy stucco plaster finish similar. When Multiplast plaster is used to create a finish it must be painted with a minimum of two coats of Insulcote 100% acrylic paint or other approved paint system.

5.0 PVC FLASHINGS

All head, sill, jamb, corner and base moldings are made from rigid uPVC suitable for exterior applications and are supplied by Plaster Systems Ltd or one of their licensed distributors. Proprietary THERMACLAD head flashings must be installed over all window heads and door openings. THERMACLAD head flashings have been specially designed to allow moisture to egress the system should it enter anywhere above a penetration. It is critical that the building paper is tapped onto the head flashing to ensure any potential water flow is tracked in the right direction. If a THERMACLAD head flashing cannot be used, an acceptable alternative flashing must be provided and approved.

The jambs on recessed joinery must be flashed with THERMACLAD uPVC jamb flashings and sealed. Sills on recessed joinery shall use THERMACLAD uPVC sill flashings in conjunction with THERMACLAD corner soakers to form a continuous uPVC joint between the sill and jamb flashings. Where a THERMACLAD uPVC sill flashing cannot be used because of recessed curved or irregular shaped joinery, e.g. circular windows, the sill must be flashed and sealed using alternative means.

All base beads must be punched to achieve minimum ventilation openings of 1000mm^2 per lineal metre.

6.0 MESH

The Quik-mesh alkali-resistant woven fibreglass reinforcing used in the THERMACLAD system can be specified in two grades to provide adequate resistance against impact loading likely to occur in normal residential and commercial buildings. The likelihood of impact damage when used in commercial or industrial situations should be considered at design stage and appropriate protection, such as bollards or barriers, should be provided for vulnerable areas.

☐ **Residential and light commercial** – Quik-mesh alkali-resistant scrim with a nominal 4 x 4mm aperture weighing no less than 150g/m2.

☐ **Commercial and high impact areas** – Quik-mesh alkali-resistant scrim with a nominal 4 x 4mm aperture weighing no less than 360g/m2.

7.0 APPLICATION

All specified work must be carried out by a member of the Plaster Systems Ltd licensed contractors network.

Contractors name .....

License No .....

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8.0 PAINT

Insulcote: A 100% acrylic-based paint formulated for use over cement based plasters. Insulcote has been specially developed for application over cement-based plaster, does not form a vapour barrier, does not contain lime, does not form a matt finish and must be applied in accordance with the manufacturers instructions. The chosen paint system meets the performance requirements of NZBC B2.3.1(c) 5 years and must have a light reflective value (LRV) of more than 25.

Colour ..... LRV .....

9.0 HANDLING & STORAGE

Handling and storage of all materials during delivery or on site is the responsibility of the Plaster Systems Ltd licensed contractor. Dry storage must be provided on site for the fibreglass Quik-mesh and all bags of dry mix plaster. All polystyrene sheets and rigid uPVC flashings must be protected from direct sunlight and physical damage, and should be stored flat and under cover.

10. CONSTRUCTION INFORMATION

GENERAL

THERMACLAD is an insulating wall cladding system for new or existing timber or steel frame buildings, or reinforced masonry or concrete buildings. The structure supporting the cladding must be designed and constructed to comply with all the relevant performance requirements of the NZBC. Wall studs must not exceed 600mm centres.

The THERMACLAD system must not be used in situations where water may pond. A minimum slope of 15° is required on all sills and copings. The system must not be used as a roof cladding. Particular attention to detail and workmanship must be given to the weatherproofing details contained in the technical literature relating to flashing and sealing building penetrations or junctions with other building materials.

The minimum heights of finished floor level above adjoining ground level, and minimum horizontal clearances from adjoining ground, shall comply with the requirements of NZS 3604:1999 and NZBC E2/AS1. The owner must maintain these minimum dimensions.

It is the designers' responsibility to ensure that the choice and position of the joinery will minimise stress upon the jamb sealant details by minimising expansion and contraction of the window and door joinery.

BUILDING PAPER

A breather-type building membrane must be used against the framing underneath the polystyrene battens in all circumstances.

Please Specify .....

MASS

The wall cladding system has a mass of approximately 12kg/m2 and is therefore considered a light wall cladding in terms of NZS3604: 1999.

BRACING

The THERMACLAD system is not a bracing element. Where external bracing is required, 10mm thick plywood panels can be nailed to the framing. Over the surface of these bracing panels, sheets of polystyrene 10mm thinner than the standard thickness are fixed to maintain a flat surface for plastering. Alternatively, the ply bracing can be checked into the framing so that the surface of the wall remains flush

ELECTRICAL CABLES

PVC sheathed electrical gables must be prevented from direct contact with the polystyrene. When cables must penetrate the polystyrene board for exterior electrical connections, the cable must be supported immediately behind the board by passing through a hole drilled in a framing member.

PIPES/OUTLETS/FIXING BLOCKS

Before plastering begins all the plumbing that will penetrate the cladding system must be in place. If the plumbing work can't be finished prior to plastering, short sections of pipe must be installed through the wall so that they can be sealed in place before plastering commences. This also applies to meter boxes, outside taps, certain light fittings, etc.

Treated timber-backing blocks for items such as downpipe brackets, garden taps and outside light fittings must be fixed to the framing face at the appropriate locations. The Licensed Contractor will cut the polystyrene around these blocks and apply the reinforced plaster finish over their surface.

Fixings shown in drawing No. 53 can be used to attach items to the cladding so long as the item weighs less than 5kg.

11.0 DESIGN CRITERIA

BUILDING WIND ZONES

The THERMACLAD System is suitable for use in all Building Wind Zones up to and including Very High, as defined in NZS3604: 1999, when fixed in accordance with the provisions of the THERMACLAD system's accompanying technical literature.

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*** Note: one fixing mut be put in the centre of each dwang.**

Fixing Details within 1.5m of External Corners
(40mm washer topped nails)

Building Wind Zone	Fixing Centres (mm)
Low	300
Medium	300
High	250
Very	200

WARRANTY

System guarantee period – 15 years from date of practical completion

Workmanship guarantee period – 5 years from date of practical completion

C1 OUTBREAK OF FIRE

The THERMACLAD System must be separated from heating appliances, fireplaces, chimneys and flues in accordance with the requirements of Acceptable Solution C1/AS1 for the protection of combustible materials.

C3 SPREAD OF FIRE

INTERNAL : THERMACLAD contains a foamed plastic (ie. EPS) and must comply with the requirements of NZBC C/AS1 Part 6. Where required by NZBC C/AS1 Part 6, flame barriers meeting the requirements of NZBC C/AS1 Appendix C must be provided. Joints in flame barriers and openings for penetrations must be designed to prevent flame contact with EPS. The EPS used with Thermaclad meets the flame propagation criteria of AS 1366. Interior surface finishes must comply with the appropriate requirements of C/AS1 for fire in terms of spread of flame and smoke developed indices.

EXTERNAL : THERMACLAD has been tested in accordance with AS/NZS 3837:1998 and has achieved a performance level of A. Thermaclad meets the performance provision of NZBC C3.3.5 for use as an external wall cladding system on buildings up to 25 m high in all Purpose Groups at any distance to the boundary.

Where buildings are of three or more floors and Thermaclad extends to cover the walls of three or more floors, the requirements for barriers to vertical fire spread in the EPS as set out in NZBC Acceptable Solution C/AS1 Paragraph 7.9.18 and 7.9.19 must be met. Design of the barrier joint must be specifically detailed by the designer to meet the NZBC, including blocking of the cladding cavity and wall framing cavity, and installation of flashing and sealing systems to collect and direct any moisture to the outside of the cladding system at this point.

The THERMACLAD systems surface finishing options have been tested by BRANZ in accordance with the requirements of AS 1530 Part 3. The finishes of Insulcote 100% acrylic-based paint and Formstone plaster yielded an Ignitability Index of zero.

E2 EXTERNAL MOISTURE

Alternative weather sealing details to those specified by Plaster Systems Ltd, which are not detailed by the designer or are used by the builder, are not covered by this specification. Note should be taken of the requirements of NZS3604 Section 11.6.1.1. requiring full details of weather sealing systems at openings to be forwarded to the Territorial Authority for approval. Where sealant is used, note should be taken of the requirements of Section 11.6.1.1. (d) of NZS3604 with regard to sealant exposure and ease of replacement.

CONSTRUCTION JOINTS

Construction Joints are required in walls longer than 20 metres or higher than two storeys. For residential construction a construction joint is not required for two storeys plus a gable end.

SOUND INSULATION

Full scale testing of the THERMACLAD system over framed wall construction that has been lined internally with a paper faced plasterboard by the University of Auckland, School of Architecture shows the system has a Sound Transmission Class (STC) rating of 42.

12.0 MAINTENANCE

The wall cladding system should be regularly cleaned, at least annually, by washing with clean water to remove dirt and to maintain the finish appearance. Grime may be removed with warm water and detergent.

Ezytex must be recoated with either Insulcote or another approved paint system at 5 to 8 yearly intervals or sooner if required to maintain watertightness. Regular checks, at least annually, must be made of the system to ensure that the weather resistant coating is maintained watertight, and that the sealant, flashings, and other joints continue to perform their function to ensure that water will not penetrate the cladding. Failure to correctly maintain the system may void any long-term warranties offered with the system. Any accidental damage to the cladding must be repaired immediately using THERMACLAD materials. For further information regarding maintenance please refer to Plaster Systems Ltd PlasterCare Technical data sheet.

13.0 SAFETY PRECAUTIONS

The potential irritant nature of the plaster dust (in dry powder form or from subsequent cutting of the hardened product) is recognised. Paper dust masks and other adequate precautions must be taken when handling and in mixing the plaster. The wet plaster is highly alkaline and prolonged skin contact must be avoided.

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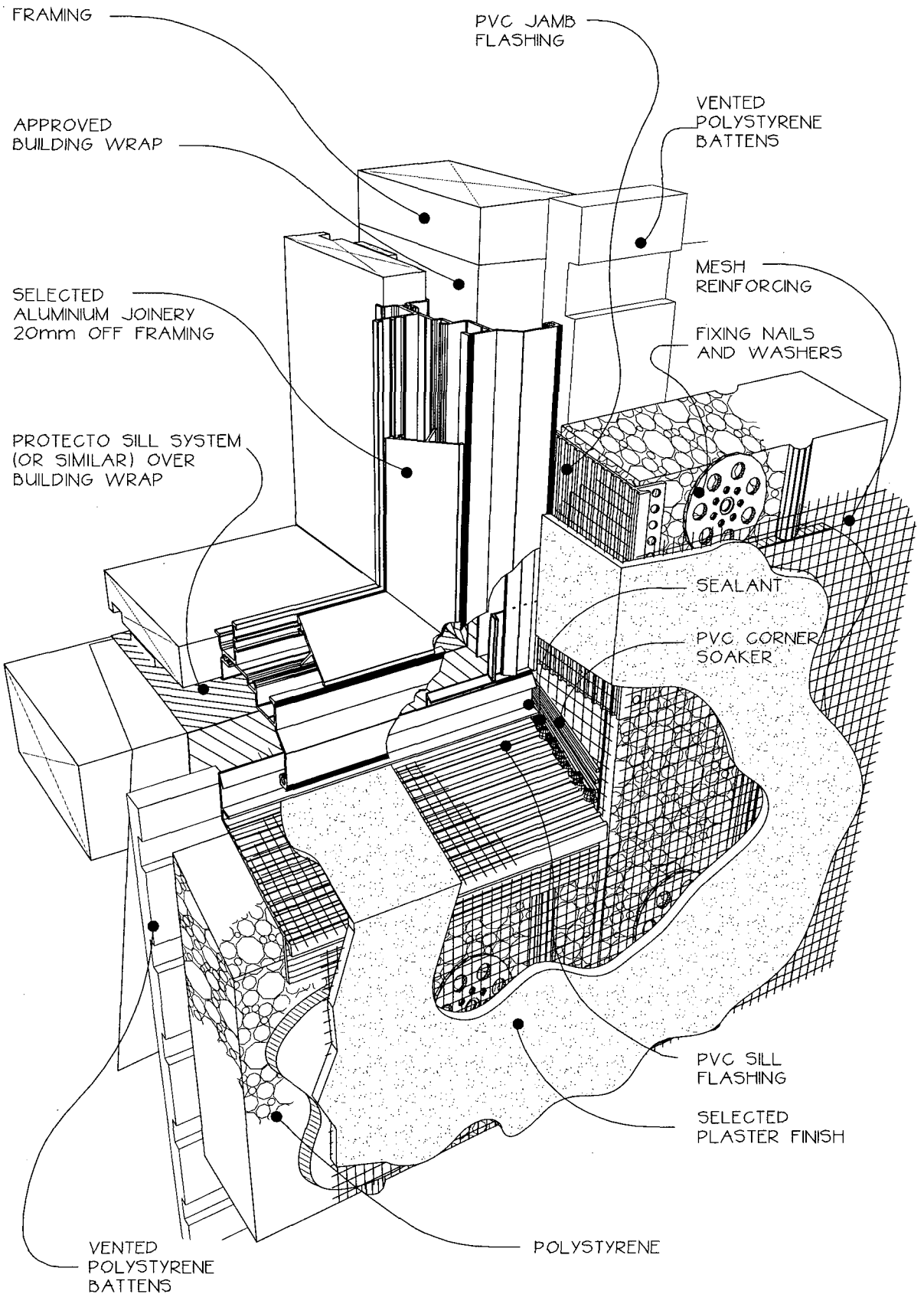

1 SILL
NOT TO SCALE

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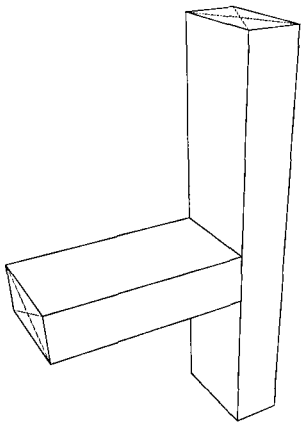
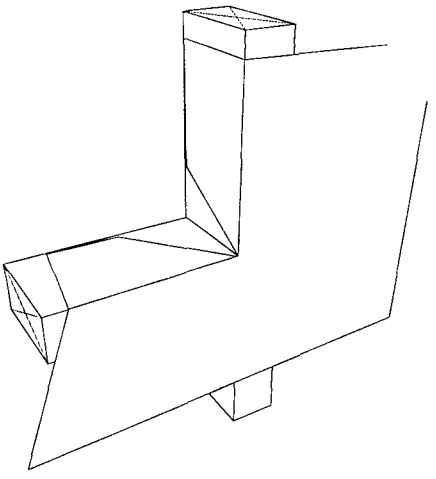
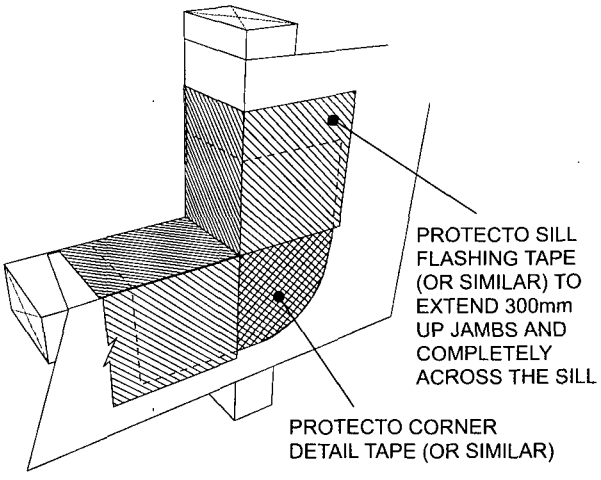
RECESSED JOINERY



1a. FRAMING

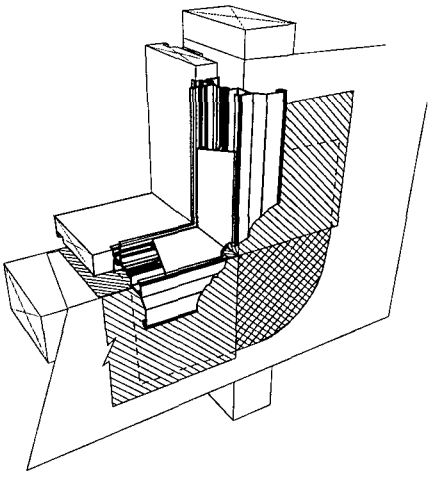


1b. BUILDING PAPER



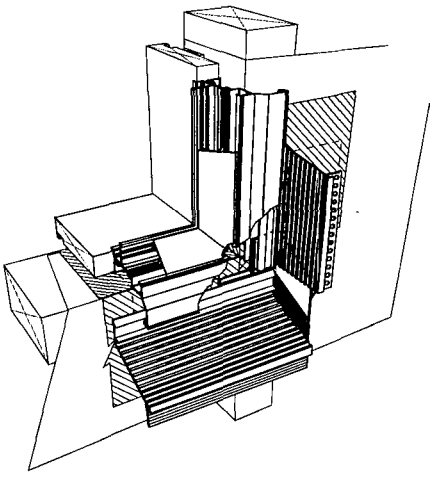
1c. TAPING

PROTECTO SILL SYSTEM (OR SIMILAR)



1d. JOINERY

22-23mm OFF FRAMING



1e. PVC FLASHINGS

NOTE :
THE BUILDING WRAP AND WATERPROOF TAPING SYSTEM SHOWN ON THE FOLLOWING PAGES MUST BE INSTALLED BY THE BUILDING CONTRACTOR BEFORE THE JOINERY IS FITTED AND BEFORE CLADDING COMMENCES

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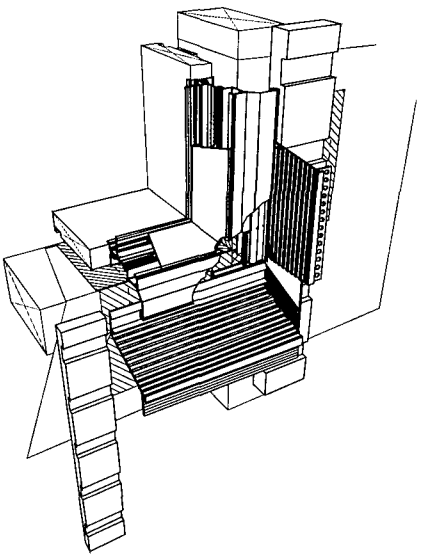
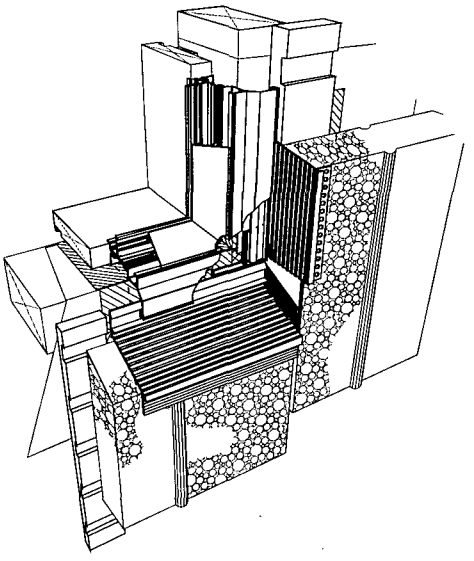
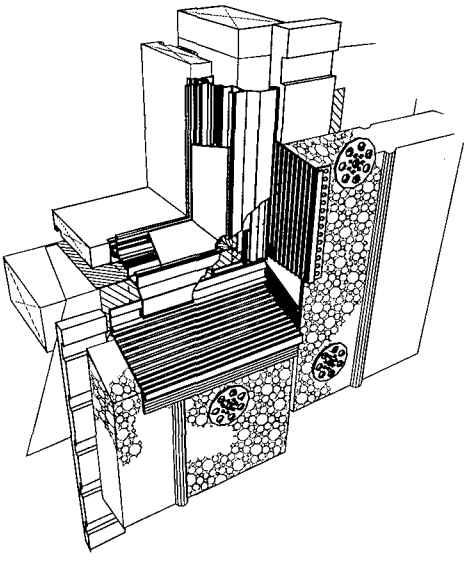
RECESSED JOINERY



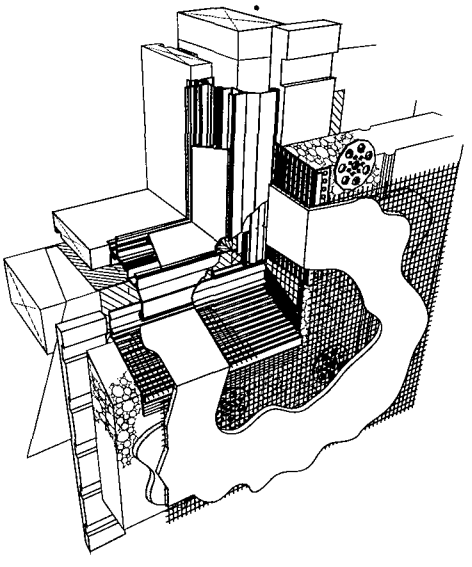
1f. POLY BATTENS



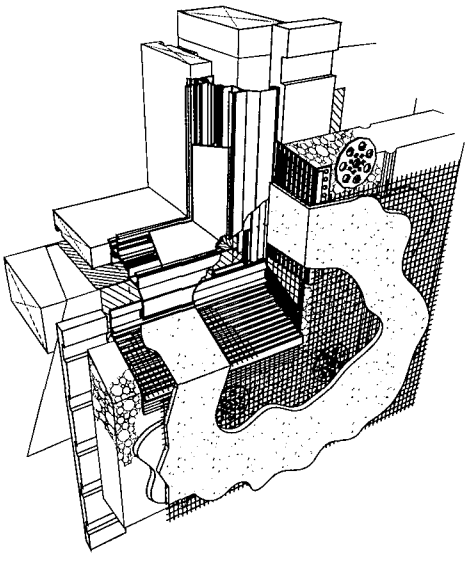
1g. POLYSTYRENE SHEETS



1h. FIXING NAILS



1i. MESH AND PLASTER REINFORCING



1j. SELECTED PLASTER FINISH

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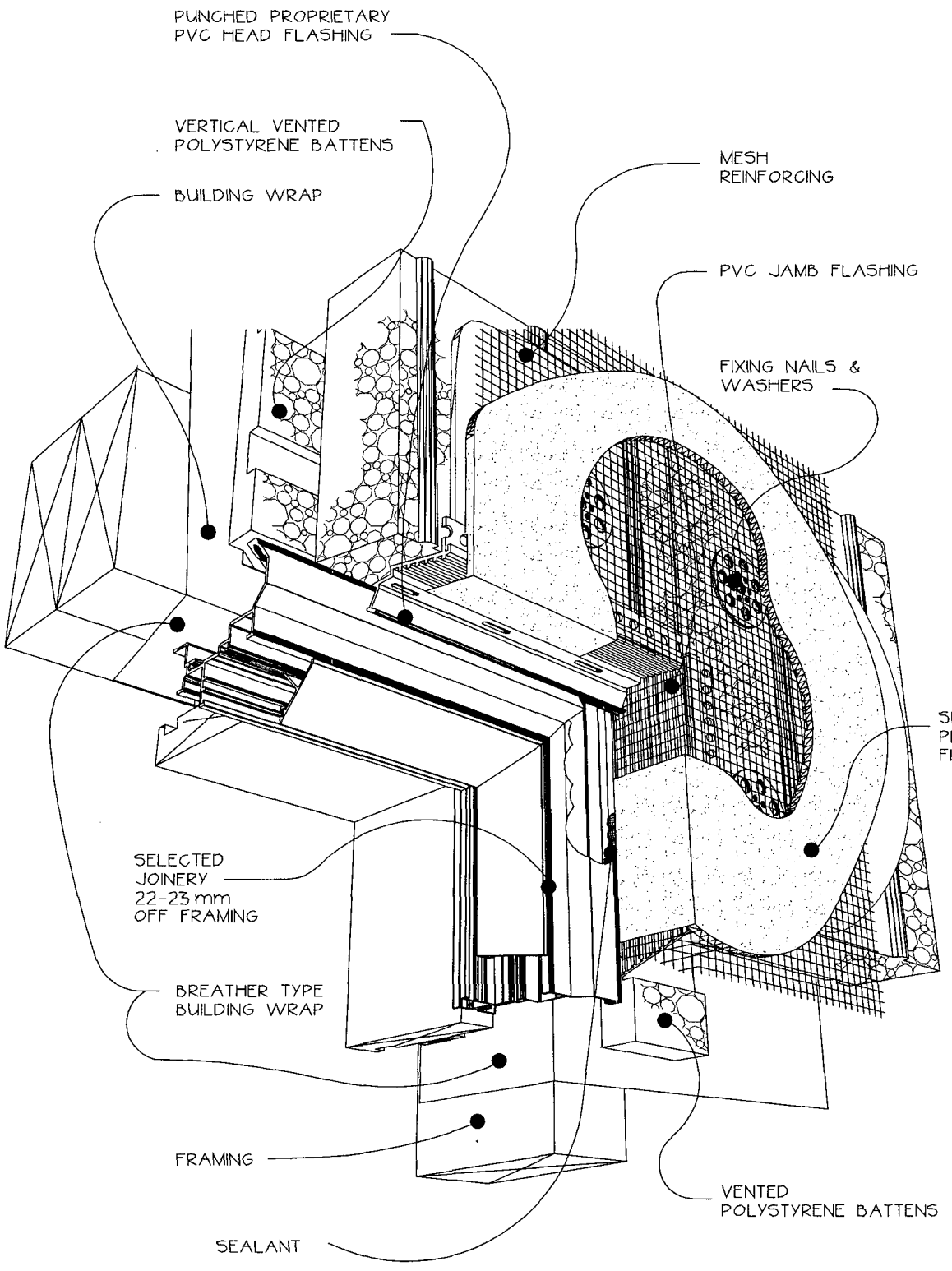
RECESSED JOINERY



2 HEAD DETAIL

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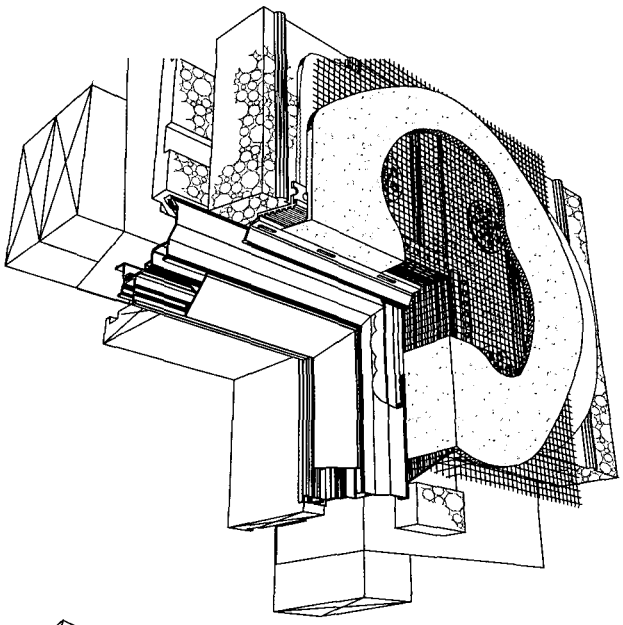
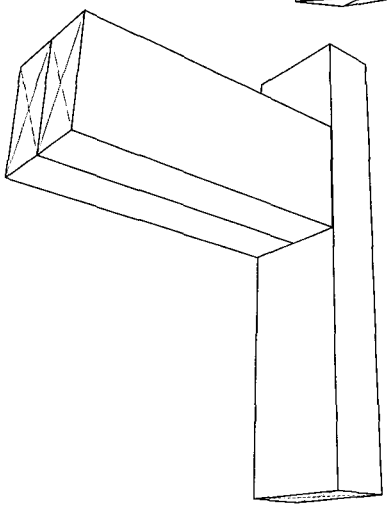
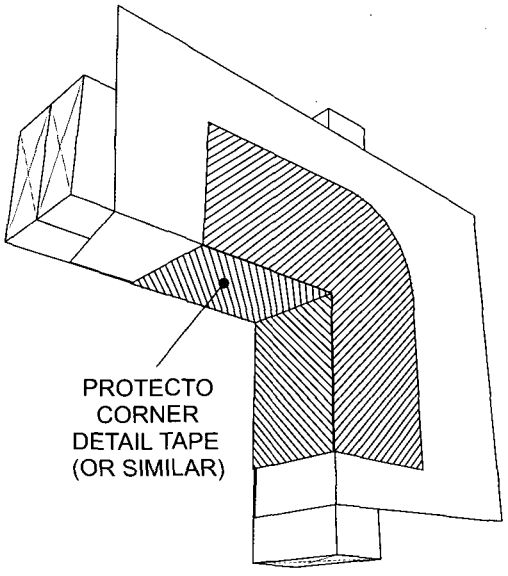




2a. FRAMING

NOTE :
THE BUILDING WRAP AND WATERPROOF TAPING SYSTEM SHOWN ON THE FOLLOWING PAGES MUST BE INSTALLED BY THE BUILDING CONTRACTOR BEFORE THE JOINERY IS FITTED AND BEFORE CLADDING COMMENCES



2b. BUILDING WRAP WITH PROTECTO DETAIL TAPE (OR SIMILAR) TO CORNERS

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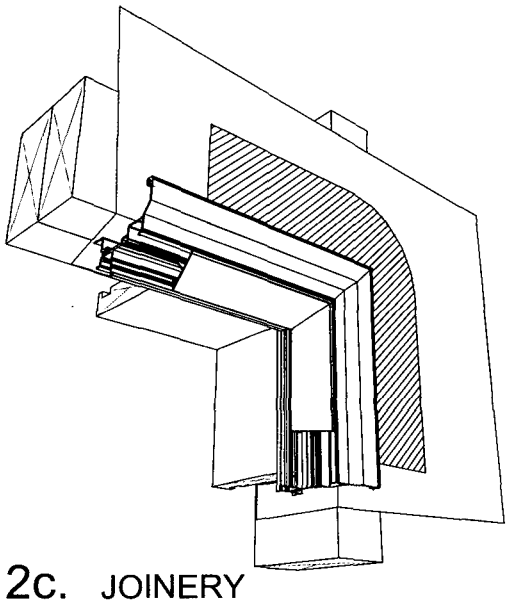
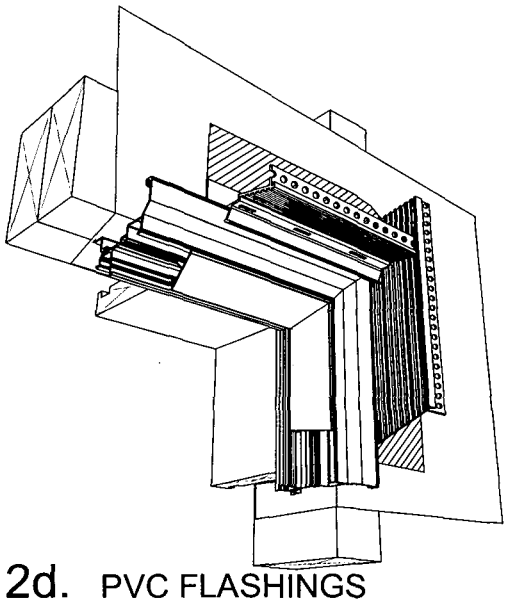


2c. JOINERY
22-23mm OFF FRAMING



2d. PVC FLASHINGS
MUST BE SEALED OR PVC WELDED WHERE THEY INTERSECT

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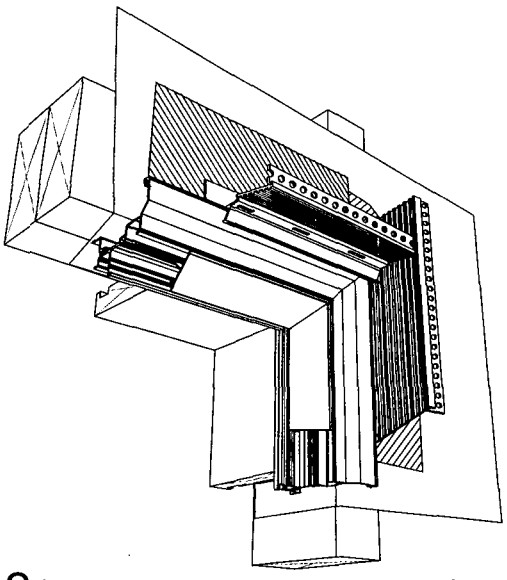
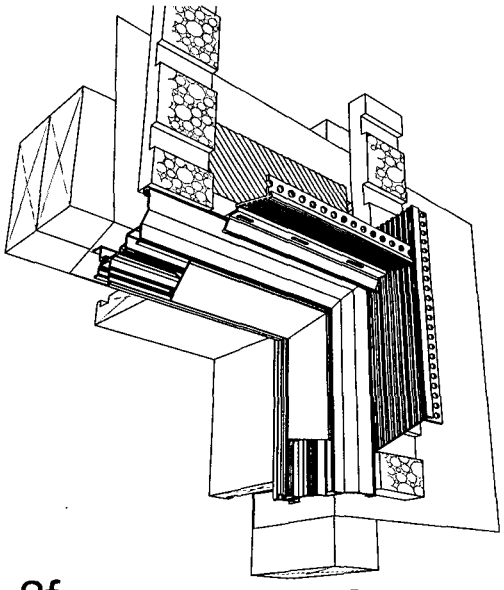
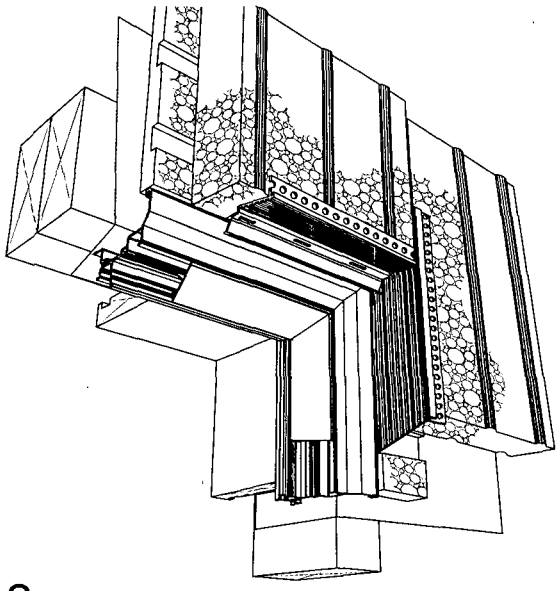


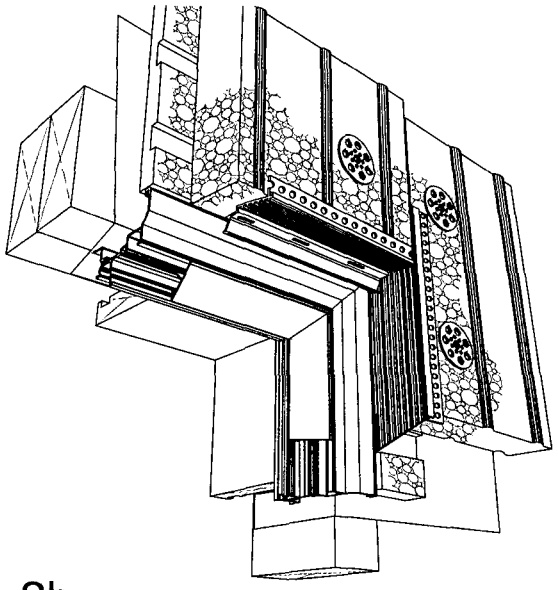
2e. PROTECTO TAPE (OR SIMILAR)



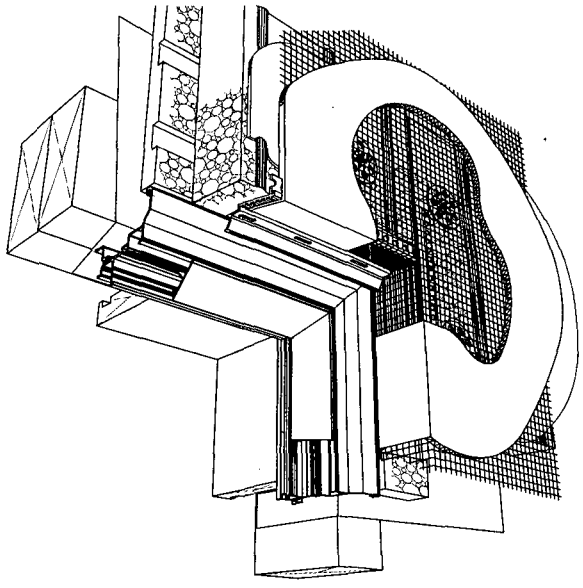
2f. POLY BATTENS



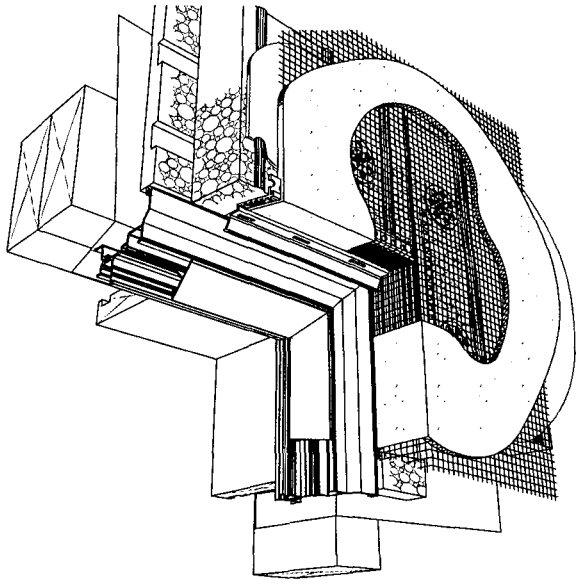
2g. POLYSTYRENE SHEETS



2h. FIXING NAILS



2i. MESH AND PLASTER REINFORCING



2j. SELECTED PLASTER FINISH

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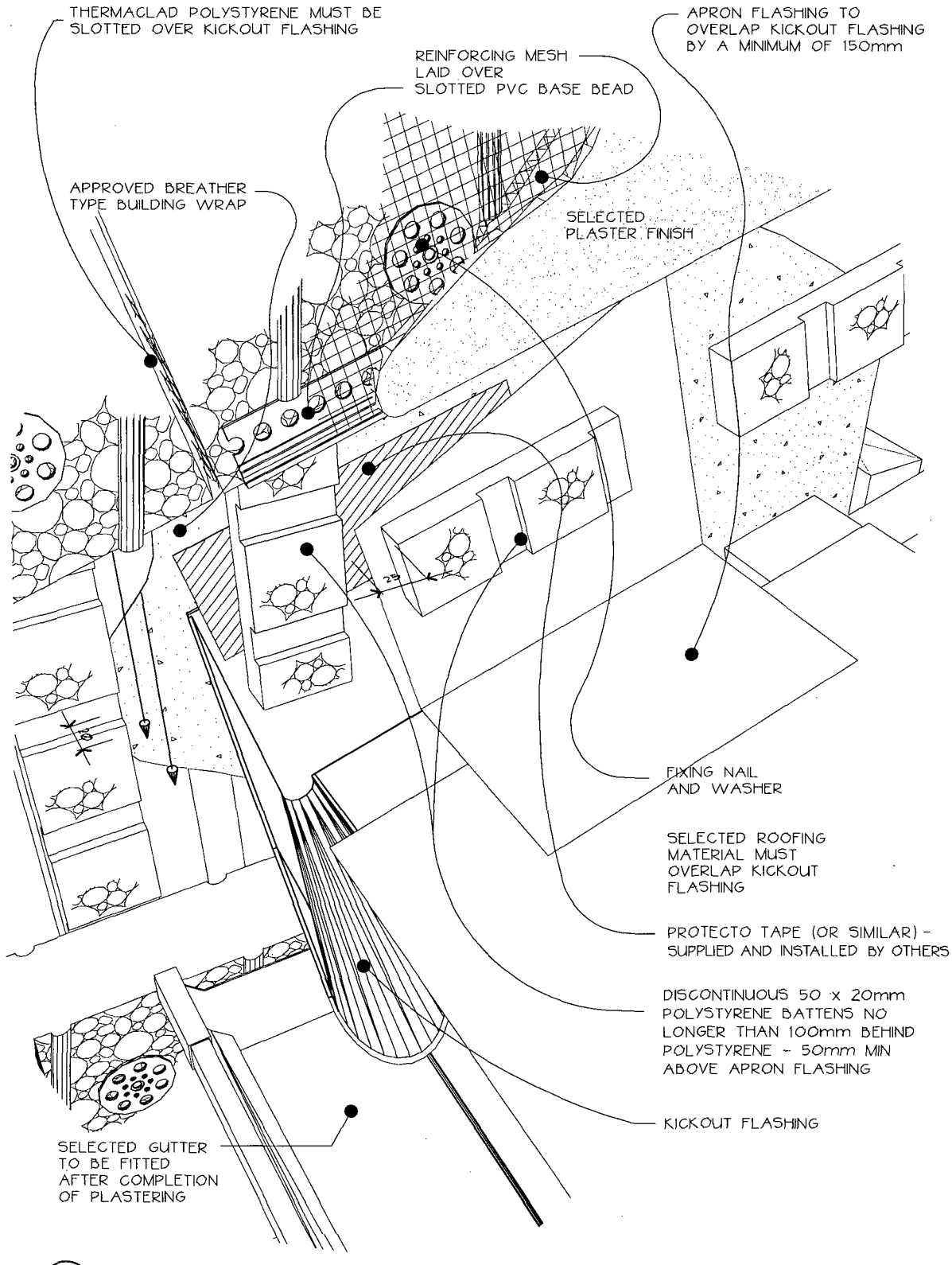

3 KICKOUT FLASHING

NOTE:
GUTTER MUST FINISH A MINIMUM OF 20mm SHORT OF THE FINISHED SURFACE OF THE CLADDING.

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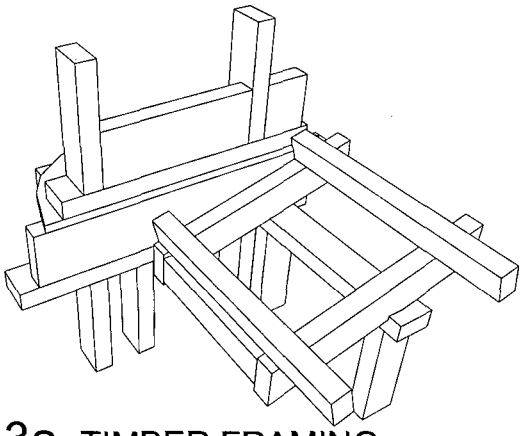
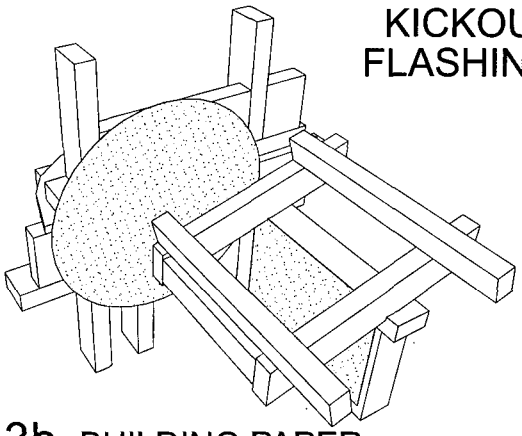
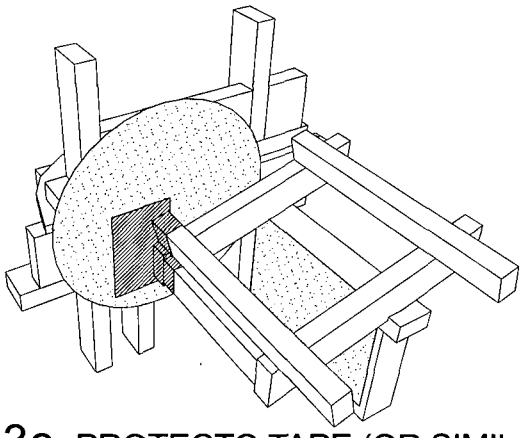


3a. TIMBER FRAMING

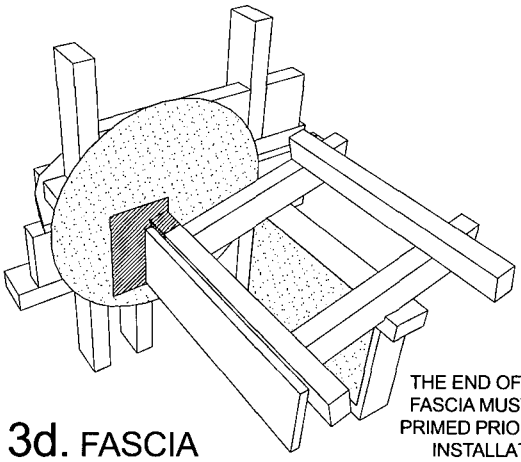
KICKOUT FLASHING



3b. BUILDING PAPER

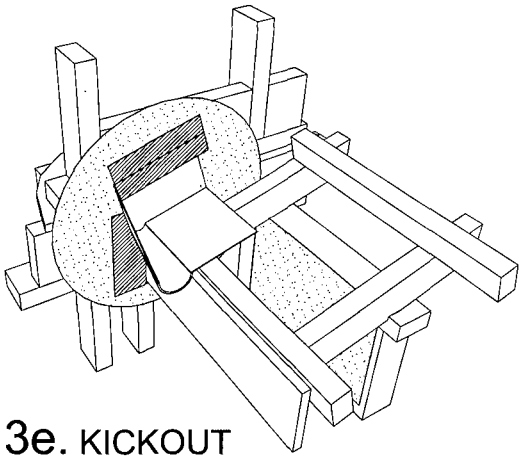


3c. PROTECTO TAPE (OR SIMILAR)

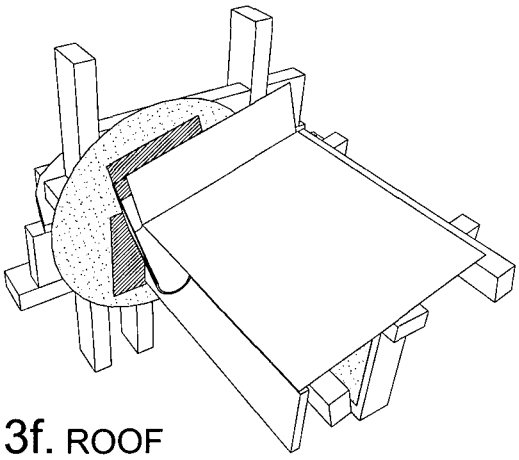


3d. FASCIA

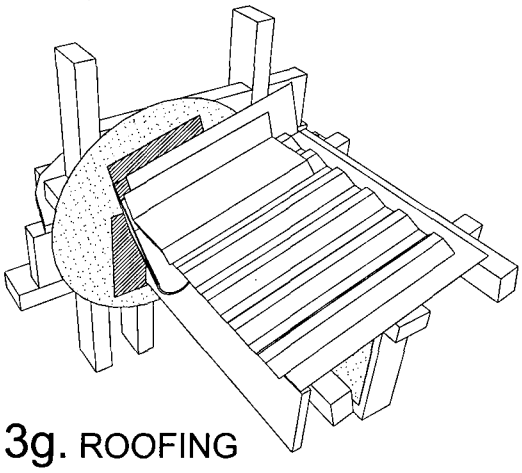
THE END OF THE FASCIA MUST BE PRIMED PRIOR TO INSTALLATION



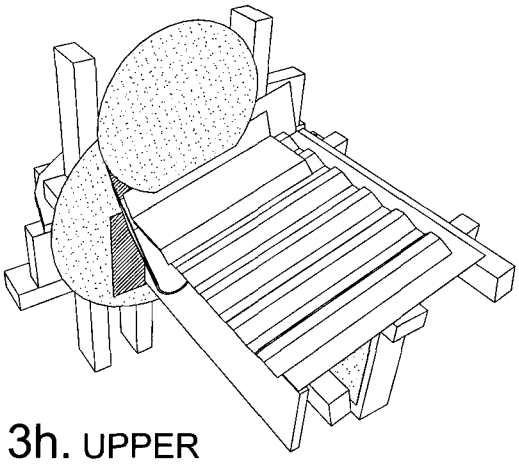
3e. KICKOUT FLASHING/PROTECTO TAPE (OR SIMILAR)



3f. ROOF UNDERLAY



3g. ROOFING



3h. UPPER BUILDING PAPER

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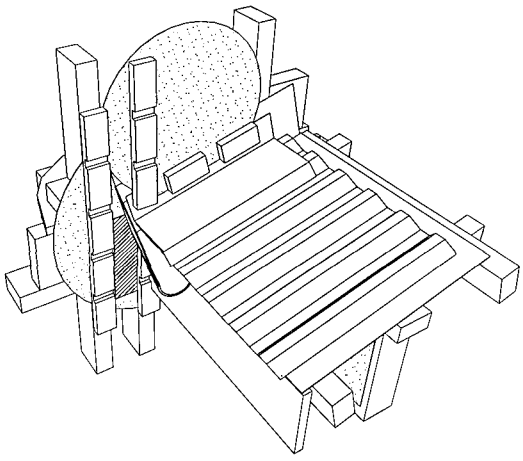
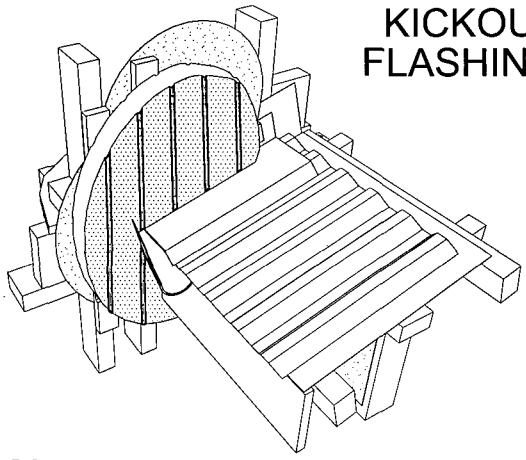


3i. CAVITY BATTENS

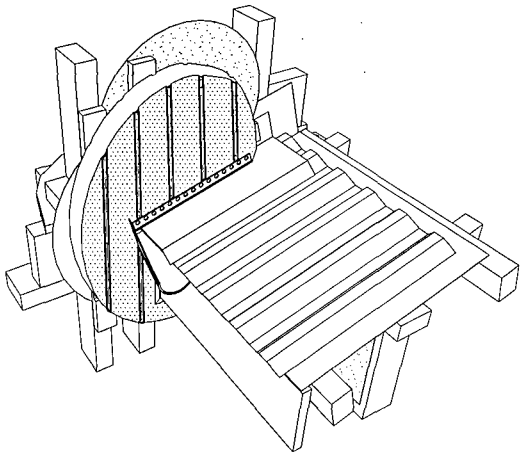
KICKOUT FLASHING

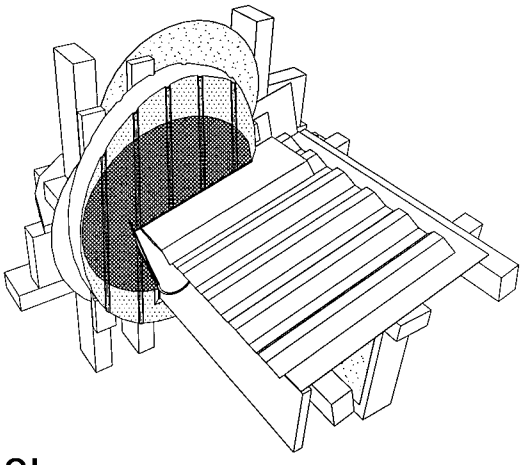


3j. POLYSTYRENE SHEET

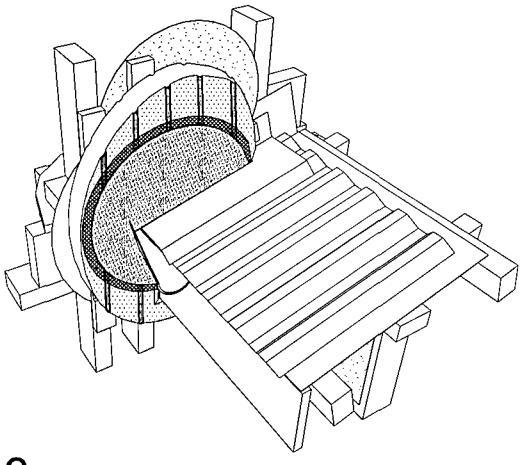
3k. PVC EXTRUSION/SEALANT

THE EDGE OF THE POLYSTYRENE THAT INTERSECTS WITH THE FASCIA MUST BE CAPPED WITH PVC AND IN THE INTERSECTION BETWEEN THE DISSIMILAR MATERIALS A 5MM CONTROL JOINT MUST BE FORMED





3l. MESH REINFORCING



3m. PLASTER REINFORCING

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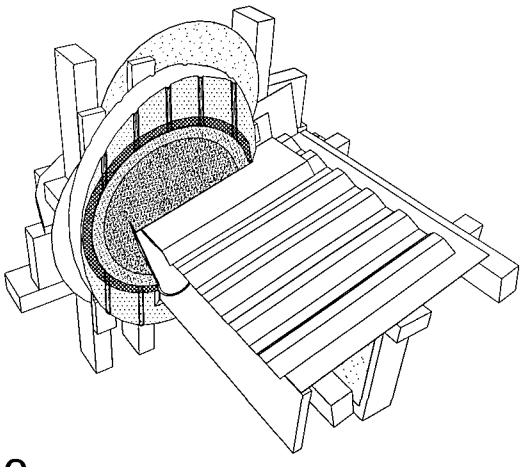
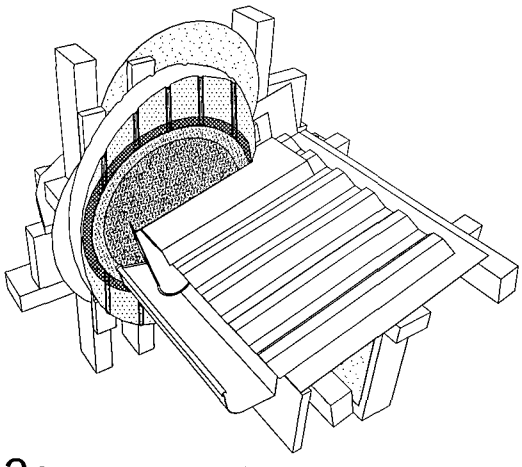


3n. PLASTER FINISH



3o. SPOUTING

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HANDRAIL
PARAPET / WALL

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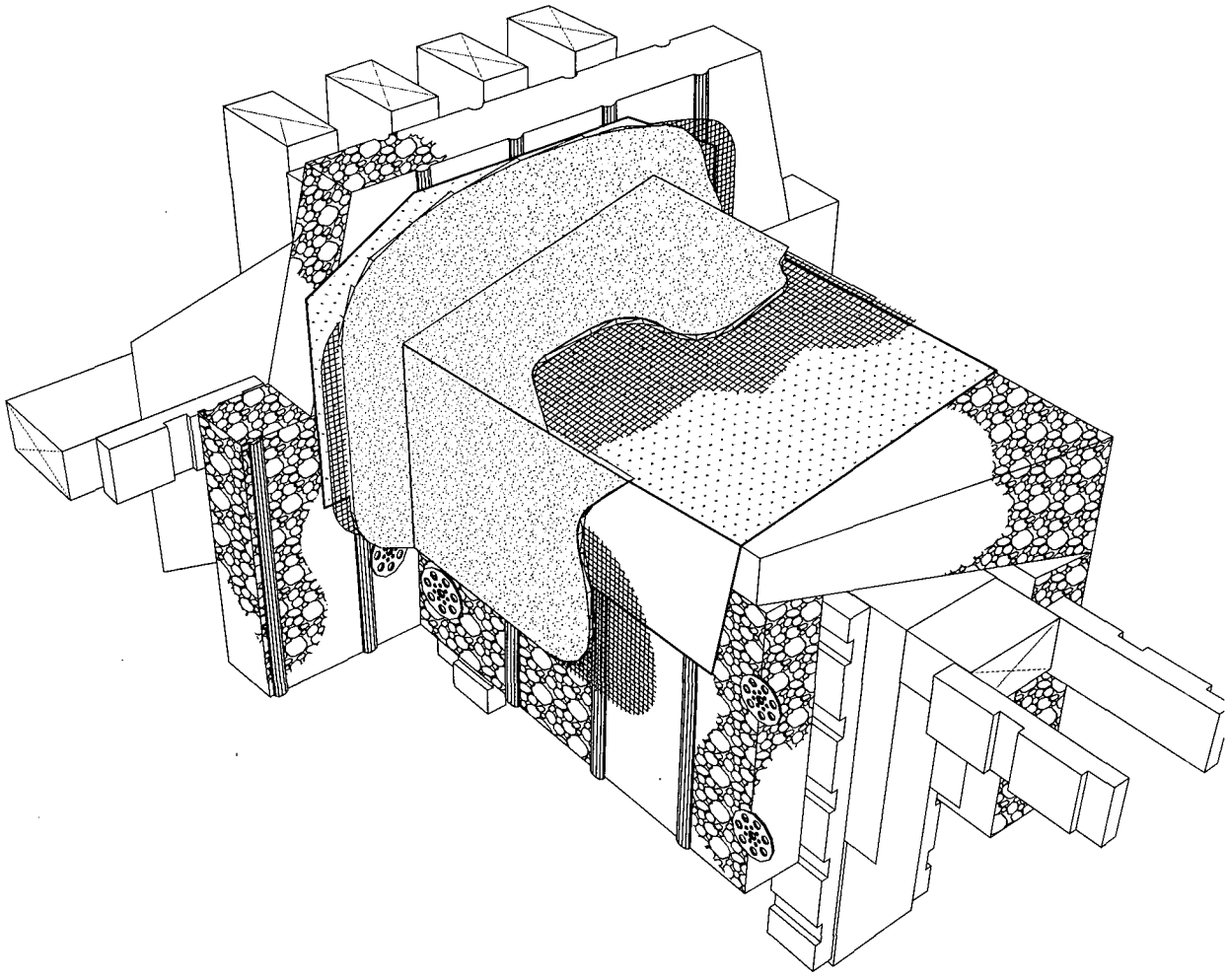

4 HANDRAIL / PARAPET
WALL JUNCTION

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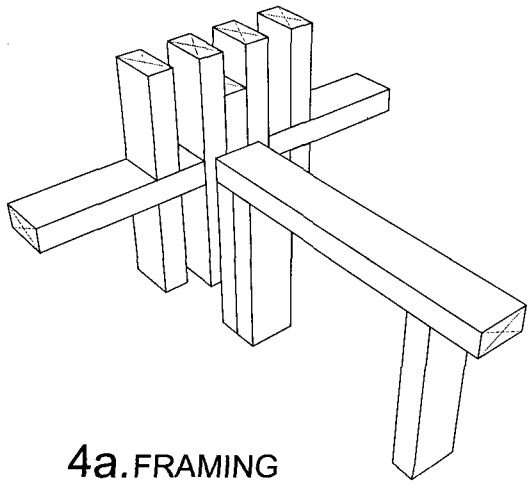
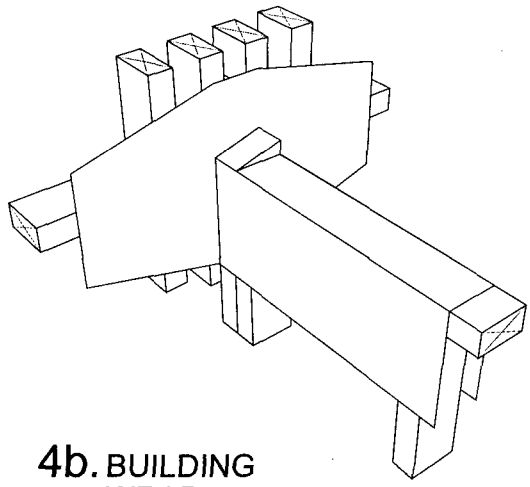
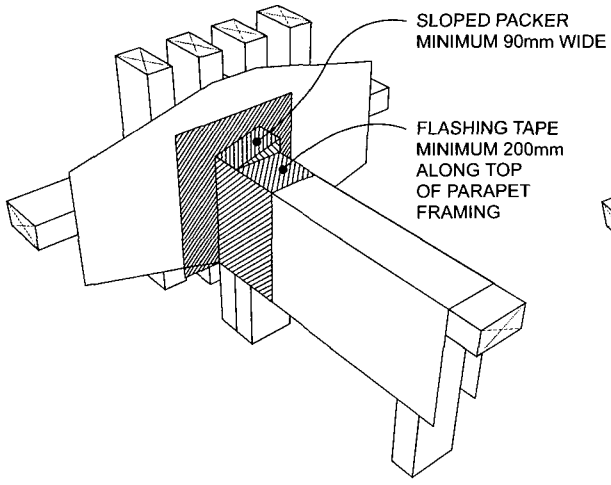
HANDRAIL
PARAPET / WALL



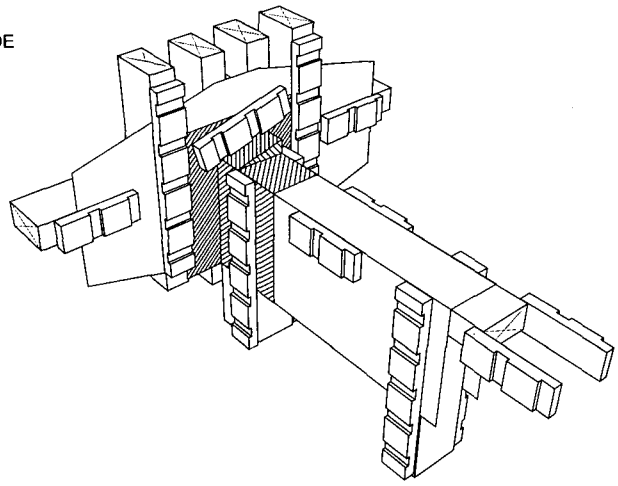
4a. FRAMING



4b. BUILDING WRAP



4c. PROTECTO WRAP FLASHING MEMBRANE (OR SIMILAR) - SUPPLIED AND INSTALLED BY OTHERS



4d. BATTENS

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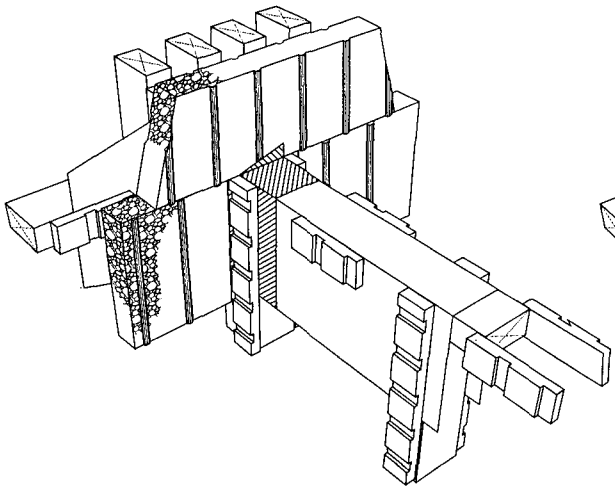
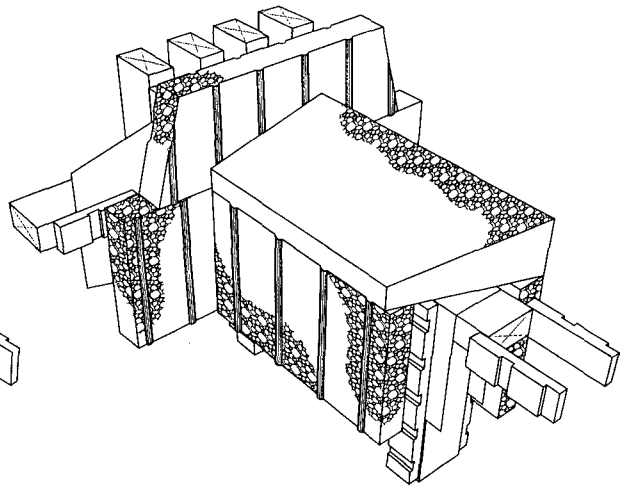


4e. POLY PANELS - WALL



4f. POLY PANELS / HANDRAIL & PARAPET

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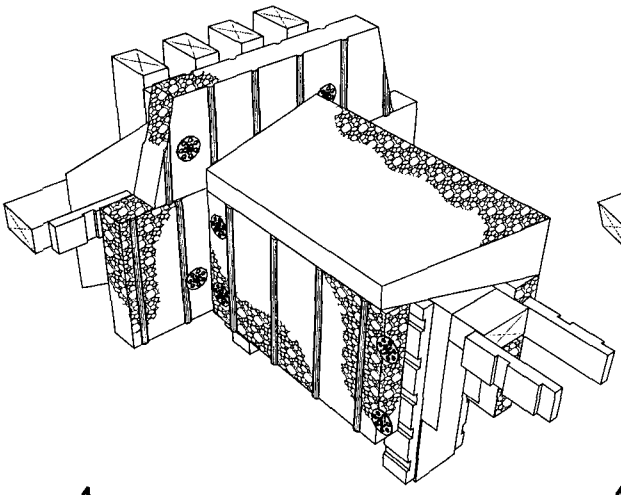
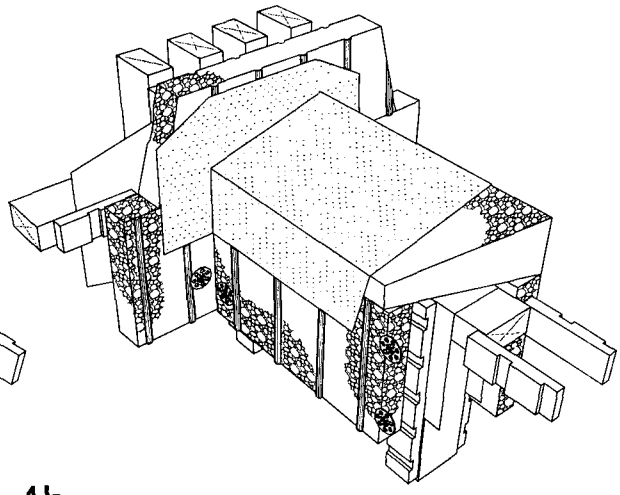
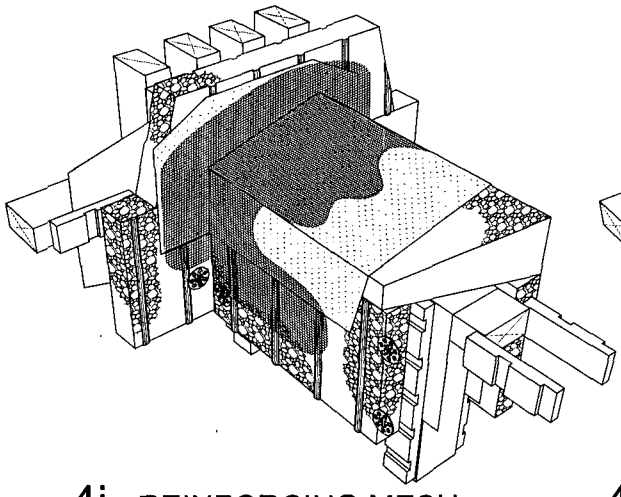


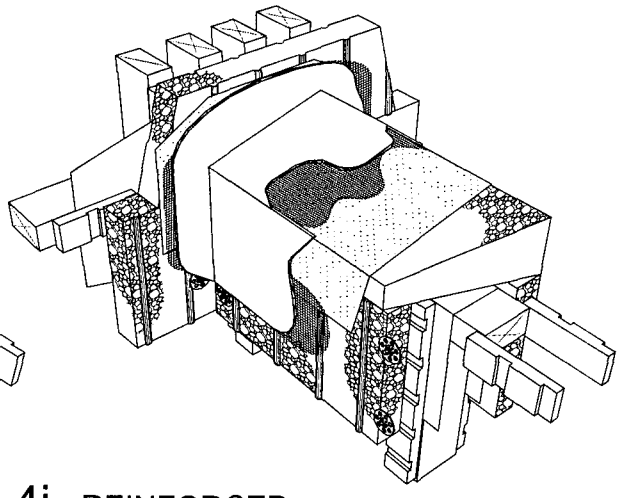
4g. FIXING WASHERS



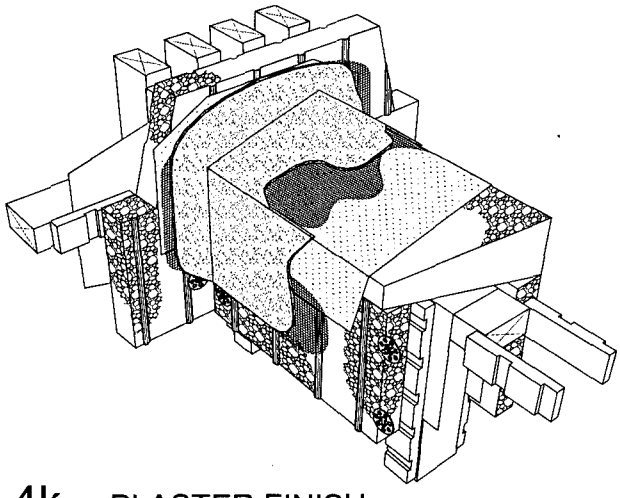
4h PROTECTO EIFS TAPE



4i REINFORCING MESH



4j. REINFORCED
PLASTER COATING



4k. PLASTER FINISH

NOTE:
1. PROTECTO EIFS TAPE MEMBRANE MUST EXTEND ACROSS ENTIRE PARAPET / HANDRAIL TOP, AND ALL TOPS MUST BE REINFORCED WITH 2 LAYERS OF FIBREGLASS MESH
2. ALL PARAPETS WIDER THAN 300mm MUST HAVE A MINIMUM SLOPE OF 30°

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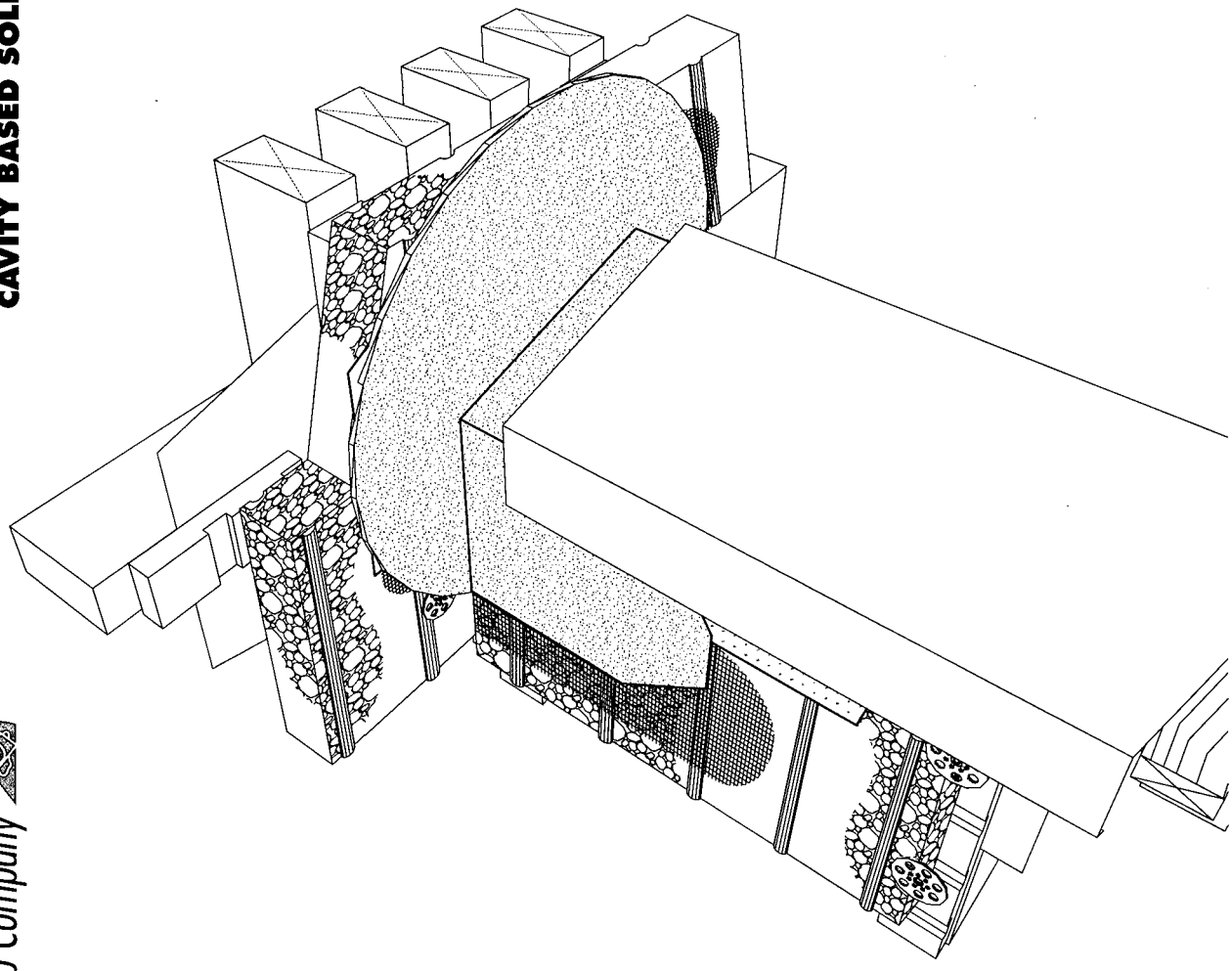
CAPPED PARAPET / WALL



5 METAL CAP FLASHING – HANDRAIL / PARAPET WALL JUNCTION

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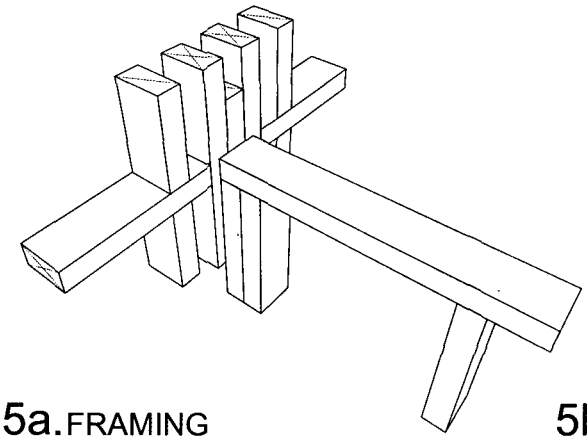
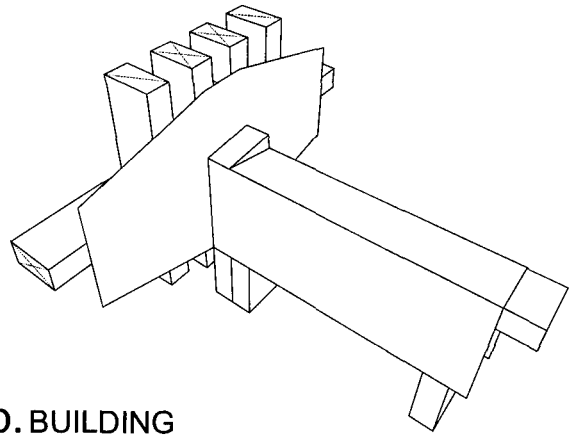
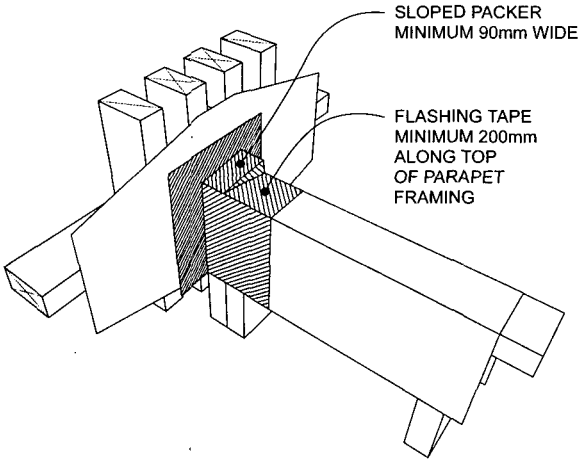
CAPPED PARAPET / WALL



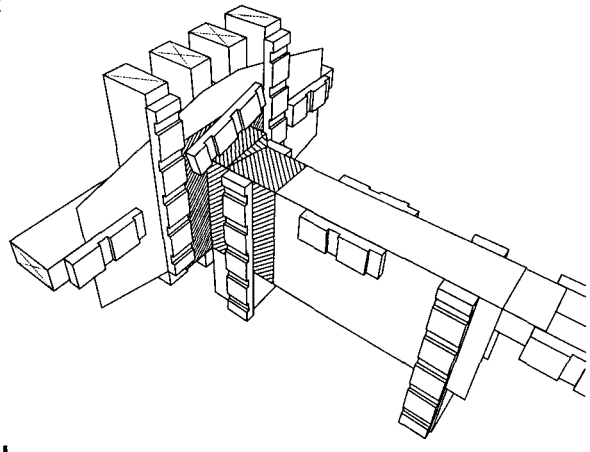
5a. FRAMING



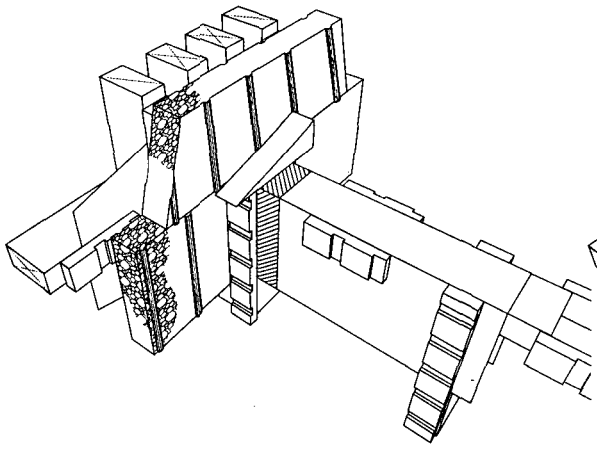
5b. BUILDING WRAP



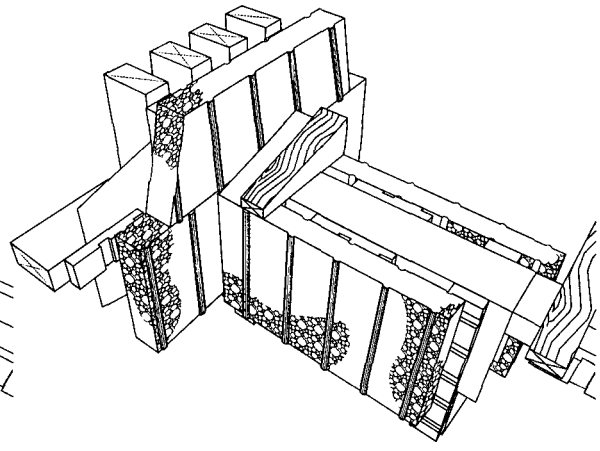
5c. PROTECTO WRAP FLASHING MEMBRANE(OR SIMILAR) - SUPPLIED AND INSTALLED BY OTHERS



5d. BATTENS



5e. POLY PANELS - WALL & POLY WEDGE



5f. POLY PANELS PARAPET & PARAPET TIMBER WEDGES

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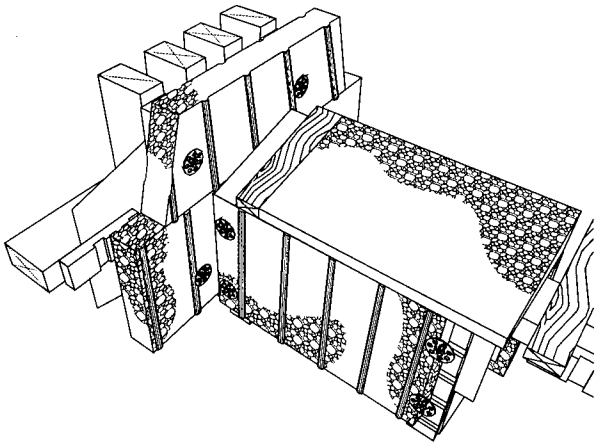
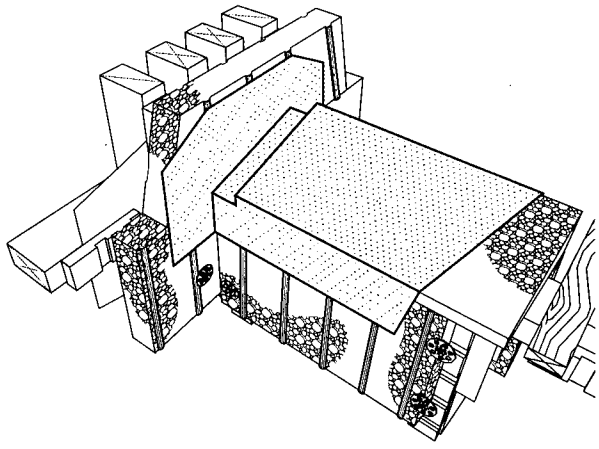
CAPPED
PARAPET / WALL

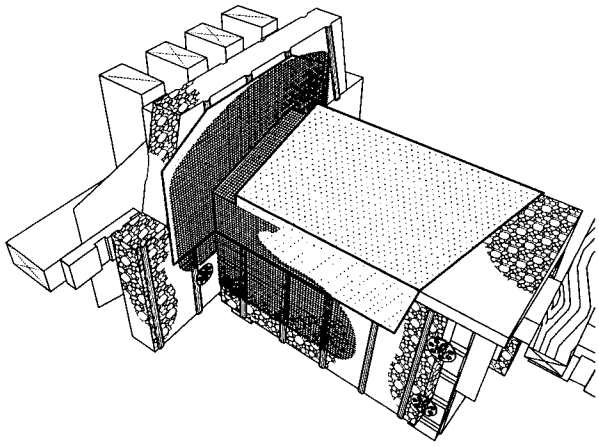


5g. PARAPET TOPPING
& FIXING WASHERS

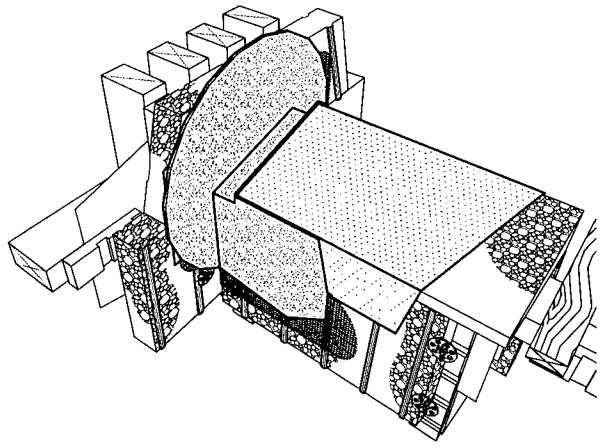


5h. PROTECTO
EIFS TAPE

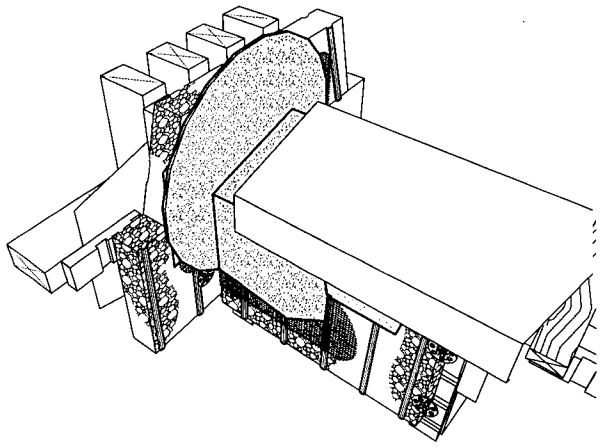
NOTE ! PROTECTO EIFS TAPE MUST BE CARRIED A MINIMUM OF 300mm UNDER THE METAL CAP WHICH IS TO BE FITTED.



5i. REINFORCING MESH



5j. REINFORCED & FINISHED
PLASTER COATING



NOTE !
END OF METAL CAP MUST BE FOLDED UNDER TO FORM DRIP EDGE.

5k. FOLDED METAL PARAPET CAP –
SUPPLIED AND INSTALLED
BY OTHERS

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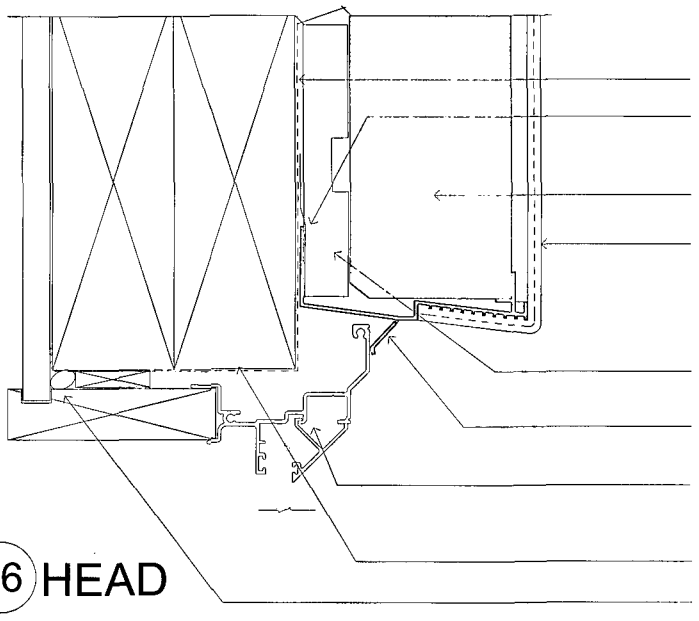
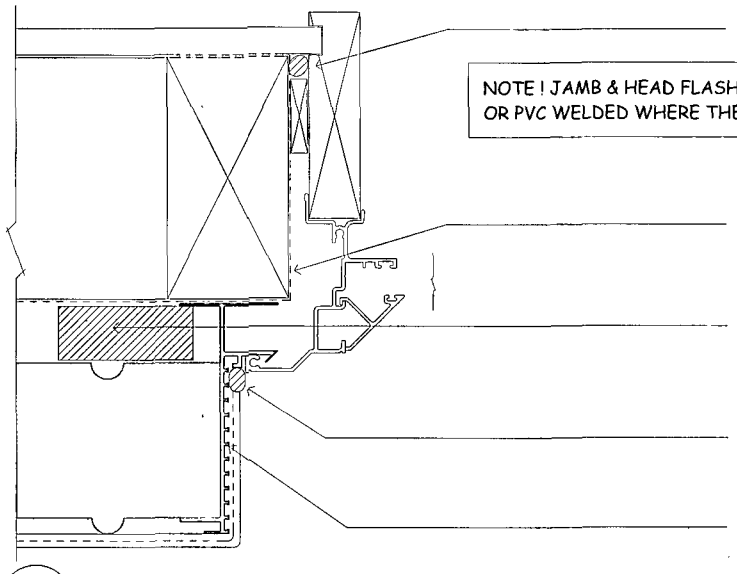
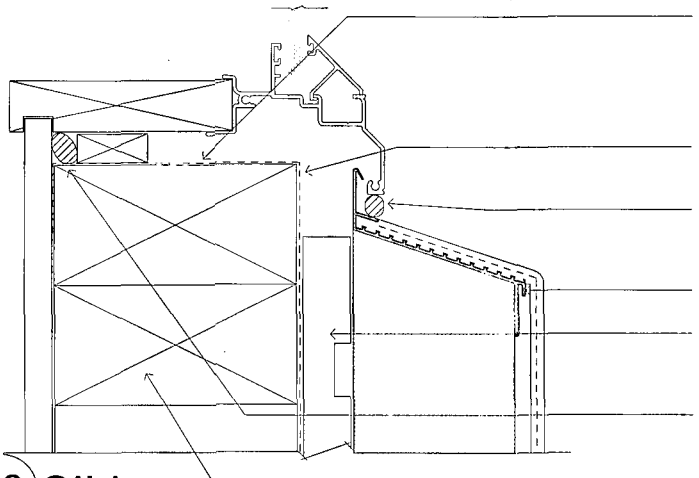
RECESSED JOINERY



06 HEAD



07 JAMB



08 SILL

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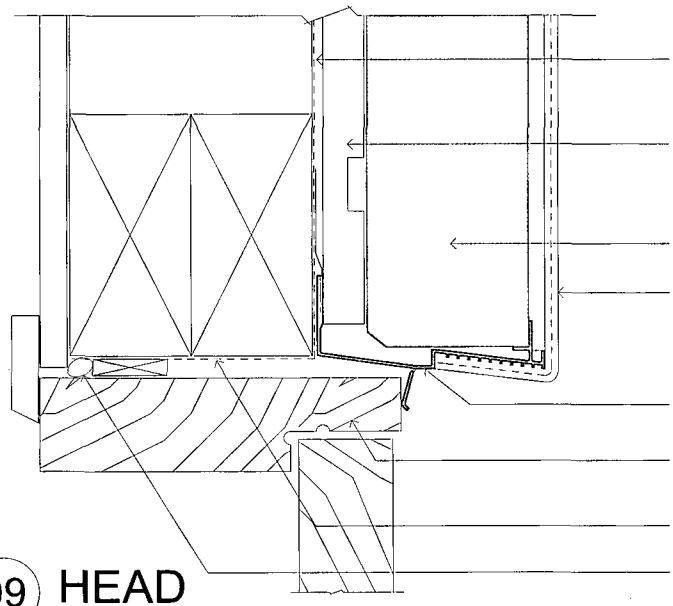
TIMBER JOINERY



BREATHER TYPE BUILDING WRAP TAPED ONTO PVC HEAD FLASHING WITH PROTECTO TAPE (OR SIMILAR)

VERTICAL 50mm x 20mm VENTILATED POLYSTYRENE BATTEN

60mm POLYSTYRENE

SELECTED PLASTER FINISH

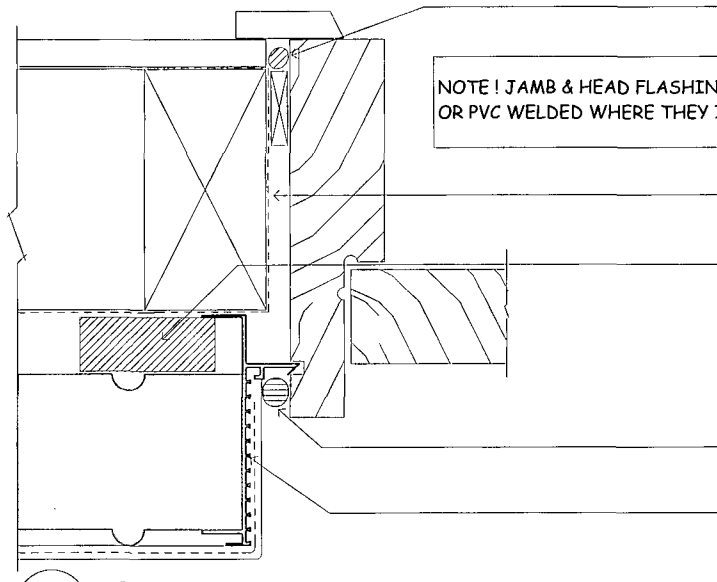
PROPRIETARY PUNCHED THERMACLAD PVC HEAD FLASHING

SELECTED TIMBER JOINERY

BUILDING WRAP TO BE CONTINUED UNDER LINTEL AND TAPED AT CORNERS

AIR SEAL APPLIED AGAINST PEF BACKING ROD

09 HEAD



AIR SEAL APPLIED AGAINST PEF BACKING ROD

NOTE ! JAMB & HEAD FLASHINGS MUST BE SEALED OR PVC WELDED WHERE THEY INTERSECT

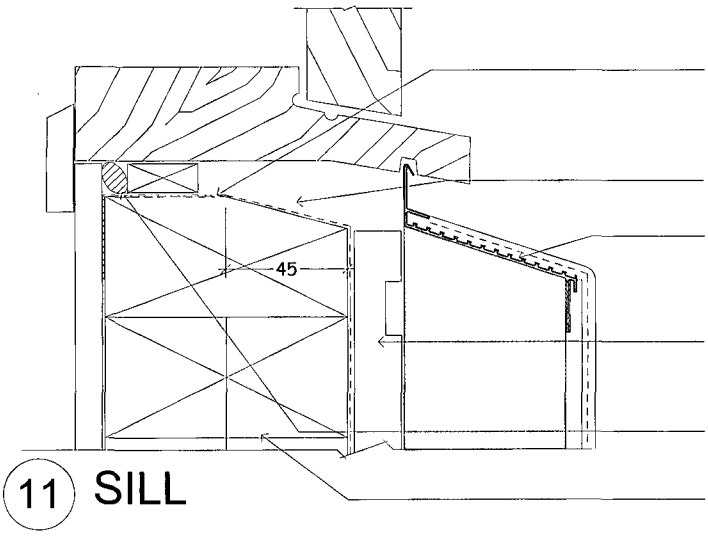
APPROVED PROPRIETARY BREATHER TYPE BUILDING WRAP TO BE CONTINUOUS AROUND FRAMING

VERTICAL 50mm x 20mm VENTILATED POLYSTYRENE BATTEN

APPROVED MS SEALANT MUST EXTEND DOWN JAMBS ONTO PVC SILL FLASHING INTERSECTION

THERMACLAD PROPRIETARY PVC T-JAMB FLASHING

10 JAMB



APPROVED PROPRIETARY BUILDING WRAP MUST BE CONTINUOUS AROUND FRAMING AND TAPED AT CORNERS WITH PROTECTO SILL SYSTEM (OR SIMILAR)

SILL TRIMMER CUT WITH 15° MIN. SLOPE

THERMACLAD PROPRIETARY PVC SILL SECTION

VERTICAL 50mm x 20mm VENTILATED POLYSTYRENE BATTEN

AIR SEAL APPLIED AGAINST PEF BACKING ROD

ALL WINDOWS MUST BE NOGGED UNDER SILL TRIMMER

11 SILL

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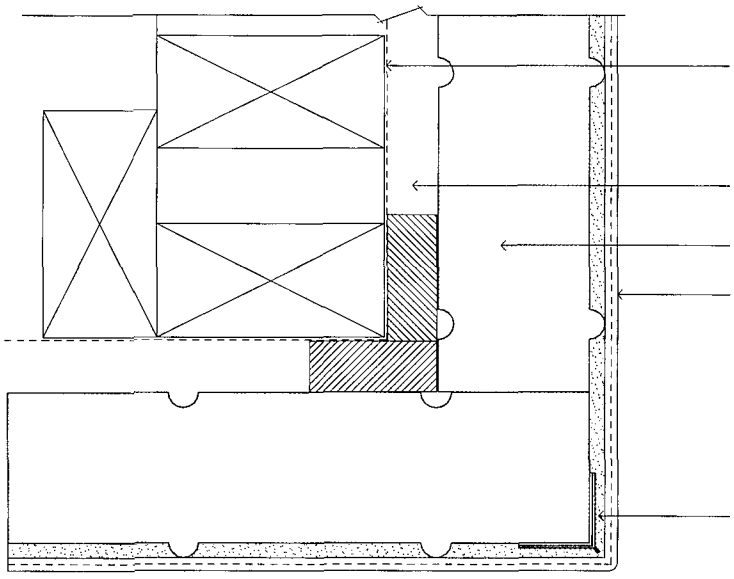
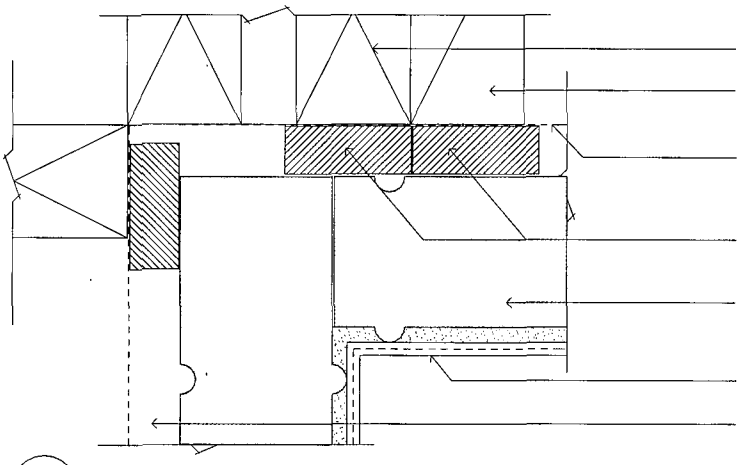
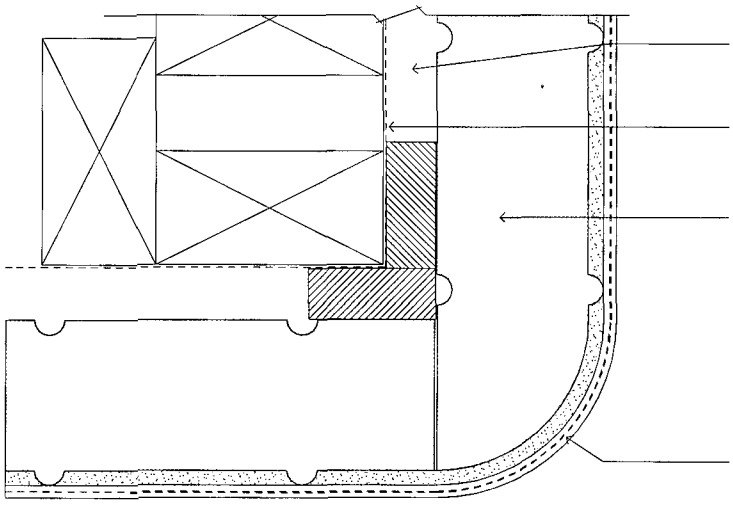
CORNER DETAILS



12 EXTERNAL SQUARE CORNER



13 INTERNAL SQUARE CORNER



14 EXTERNAL ROUND CORNER

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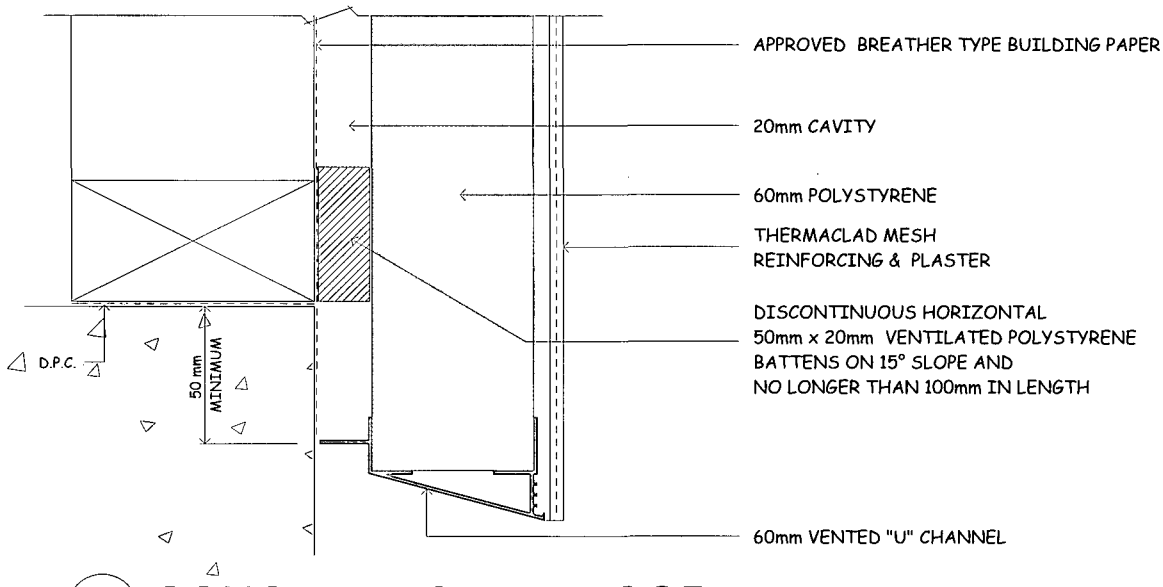
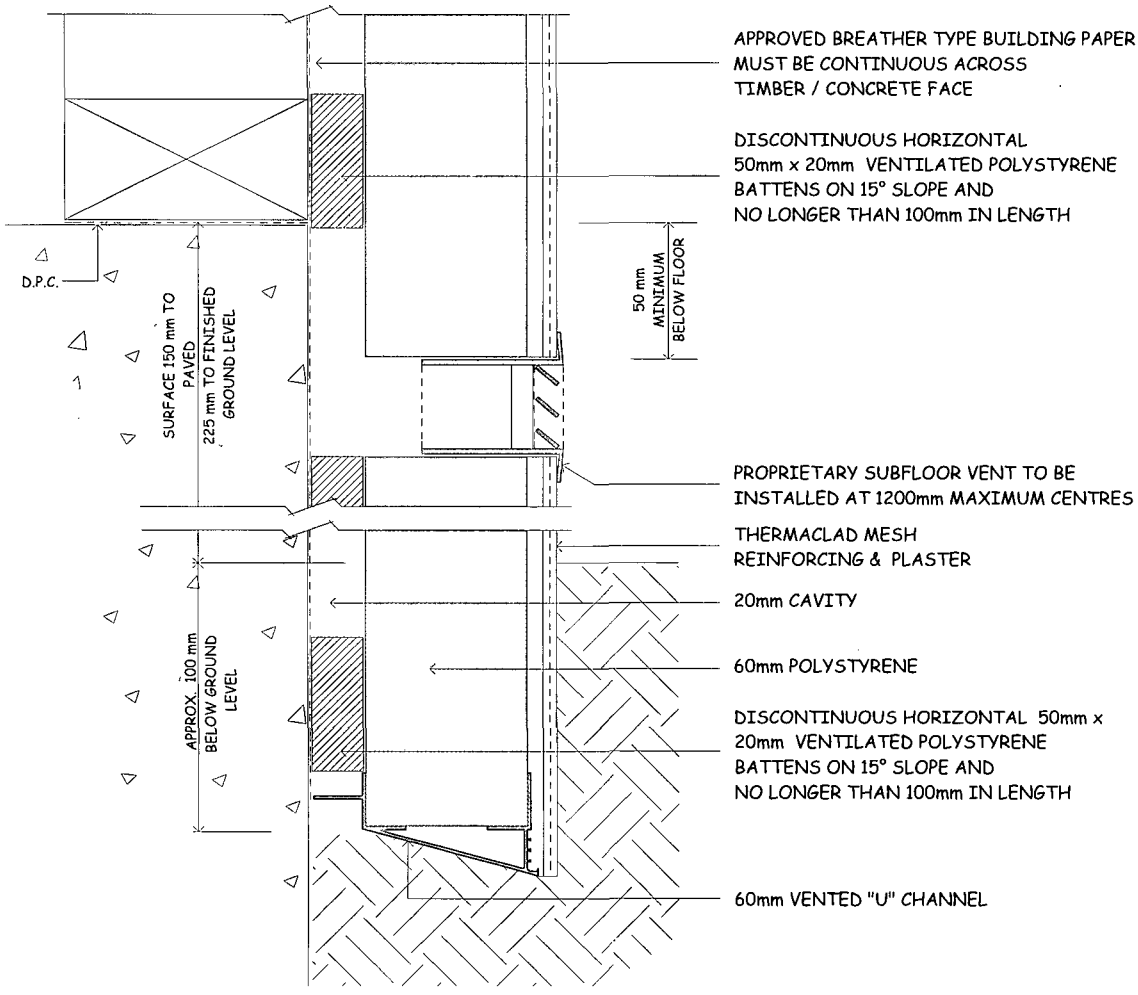


16 CONCRETE SLAB FLOOR



17 BELOW GROUND / CONCRETE SLAB FLOOR

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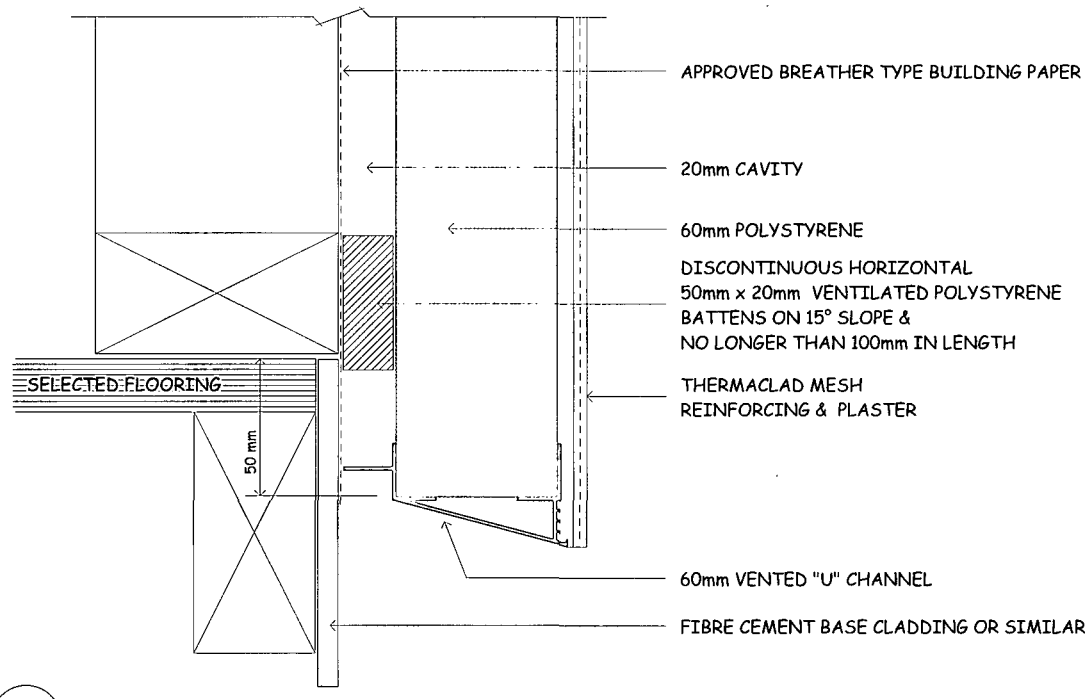
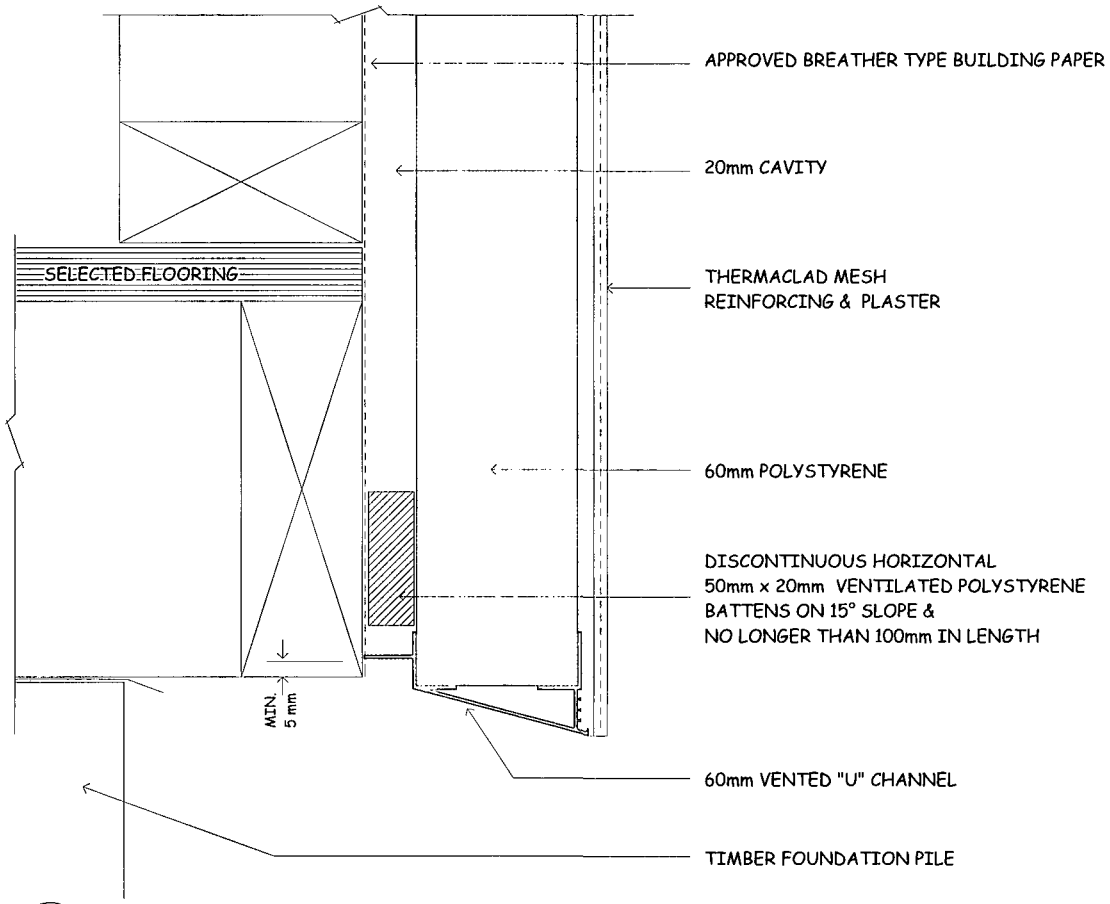
TIMBER FLOOR



18 TIMBER FLOOR FOUNDATION



19 TIMBER SUB FLOOR FINISH

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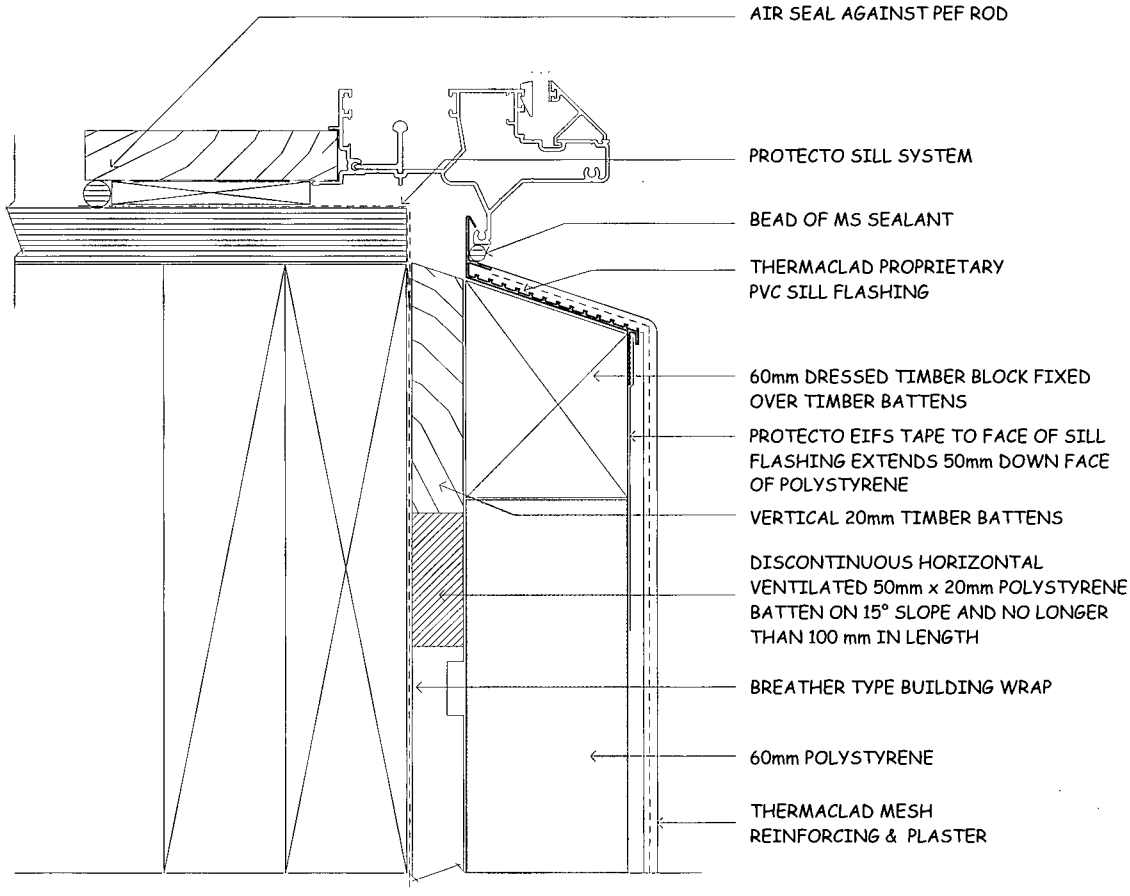
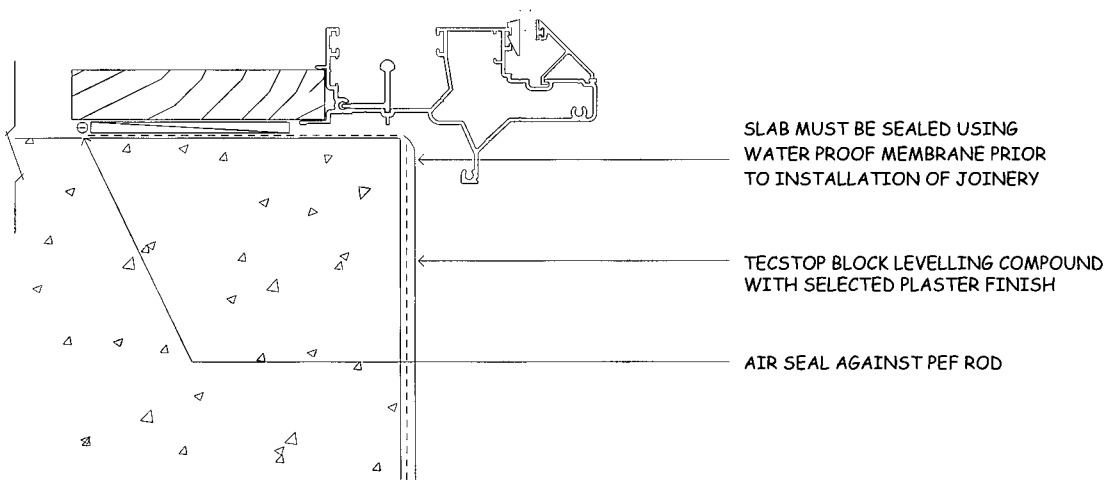


20 TIMBER FLOOR



21 CONCRETE FLOOR

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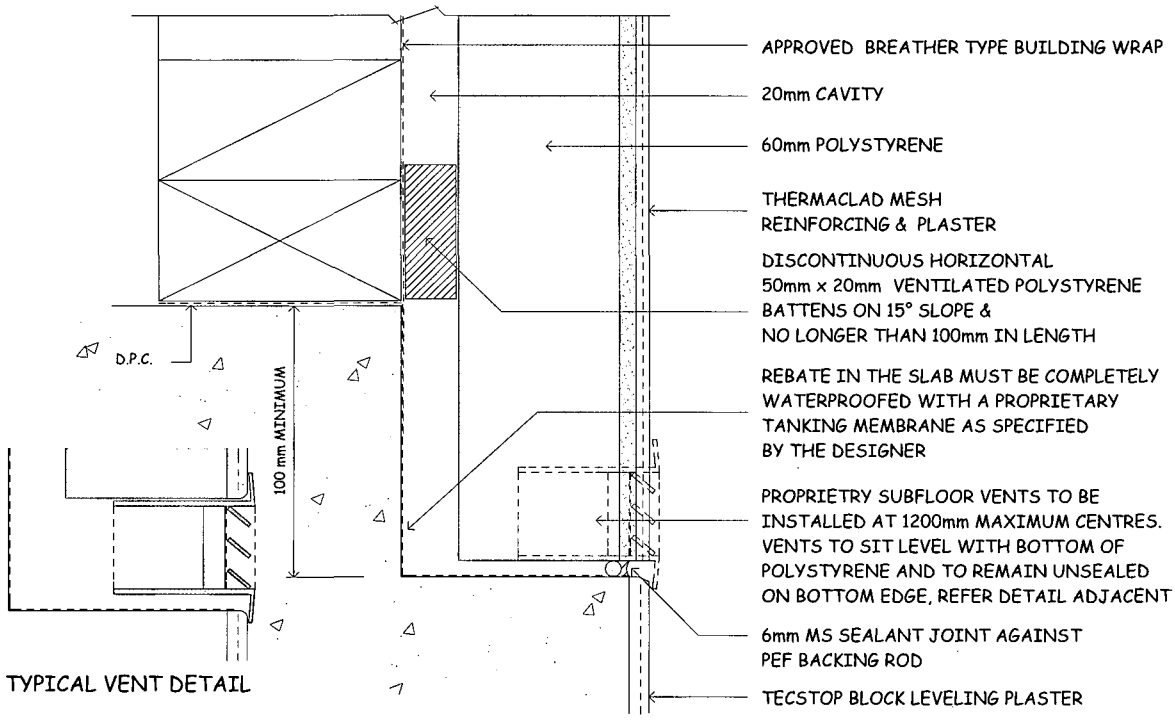
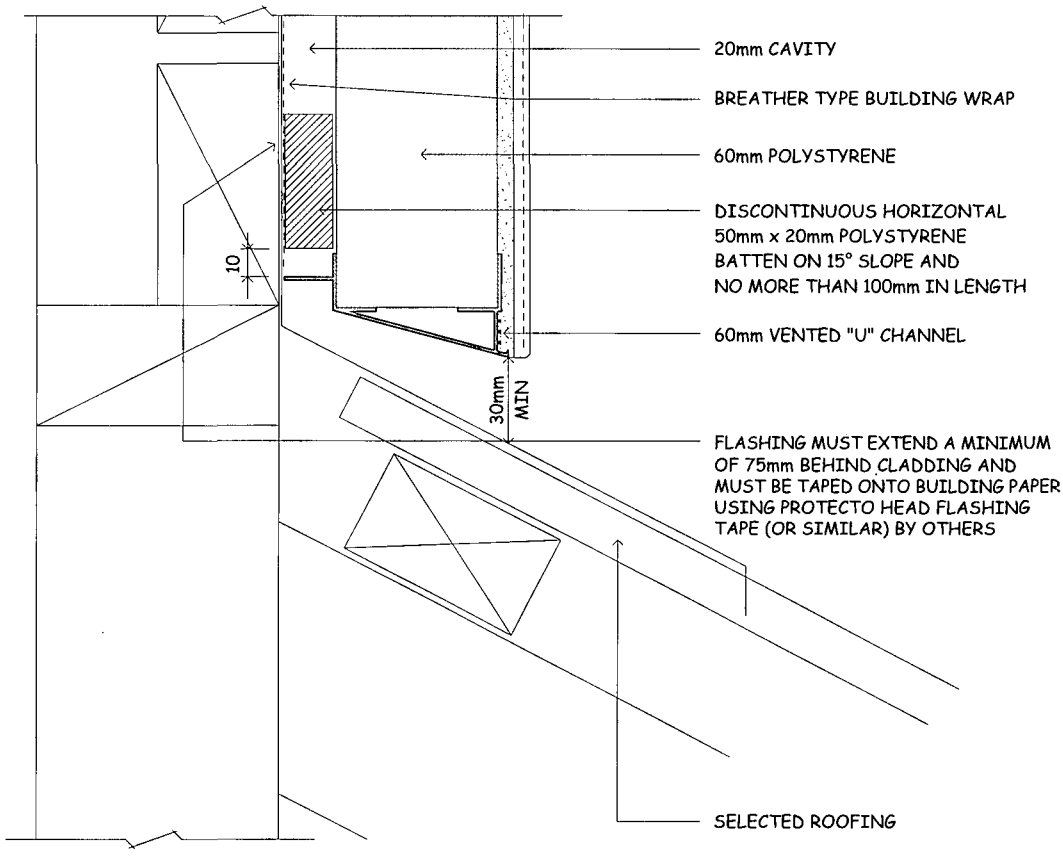


TYPICAL VENT DETAIL

22 REBATED CONCRETE SLAB FLOOR



23 ROOF / WALL JUNCTION

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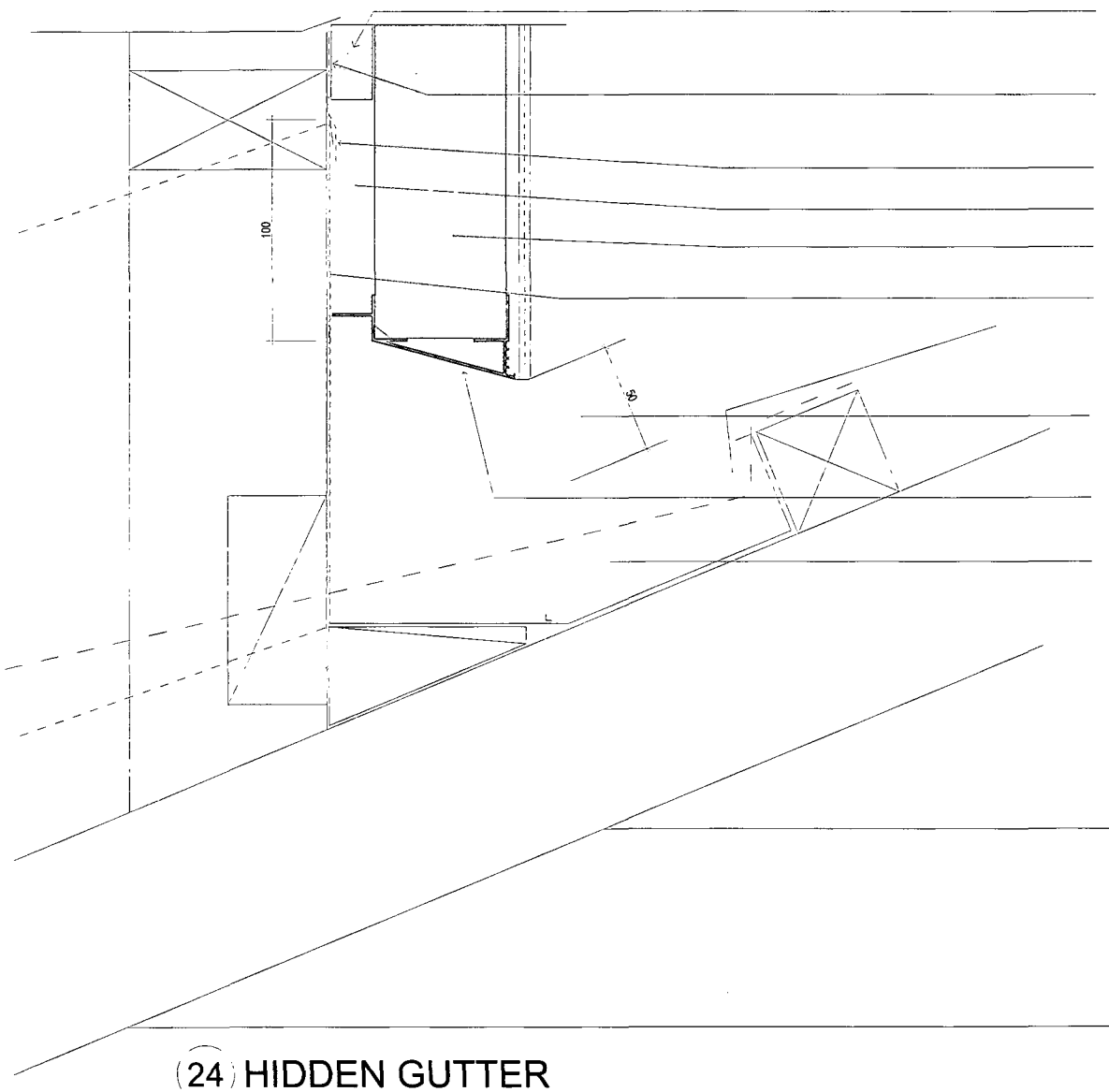


VERTICAL 50mm x 20mm
VENTILATED POLYSTYRENE BATTEN

ALL METAL FLASHINGS MUST BE
TAPED ONTO BUILDING WRAP USING
EIFS PROTECTO TAPE PRIOR TO THE
CLADDING INSTALLATION

BREATHER TYPE BUILDING WRAP

20mm CAVITY

60mm POLYSTYRENE

PRESSED METAL FLASHING MUST EXTEND
A MINIMUM OF 75mm UP BEHIND THE
CLADDING AND MUST BE TAPED ONTO
BUILDING PAPER USING PROTECTO HEAD
FLASHING TAPE (OR SIMILAR) BY OTHERS

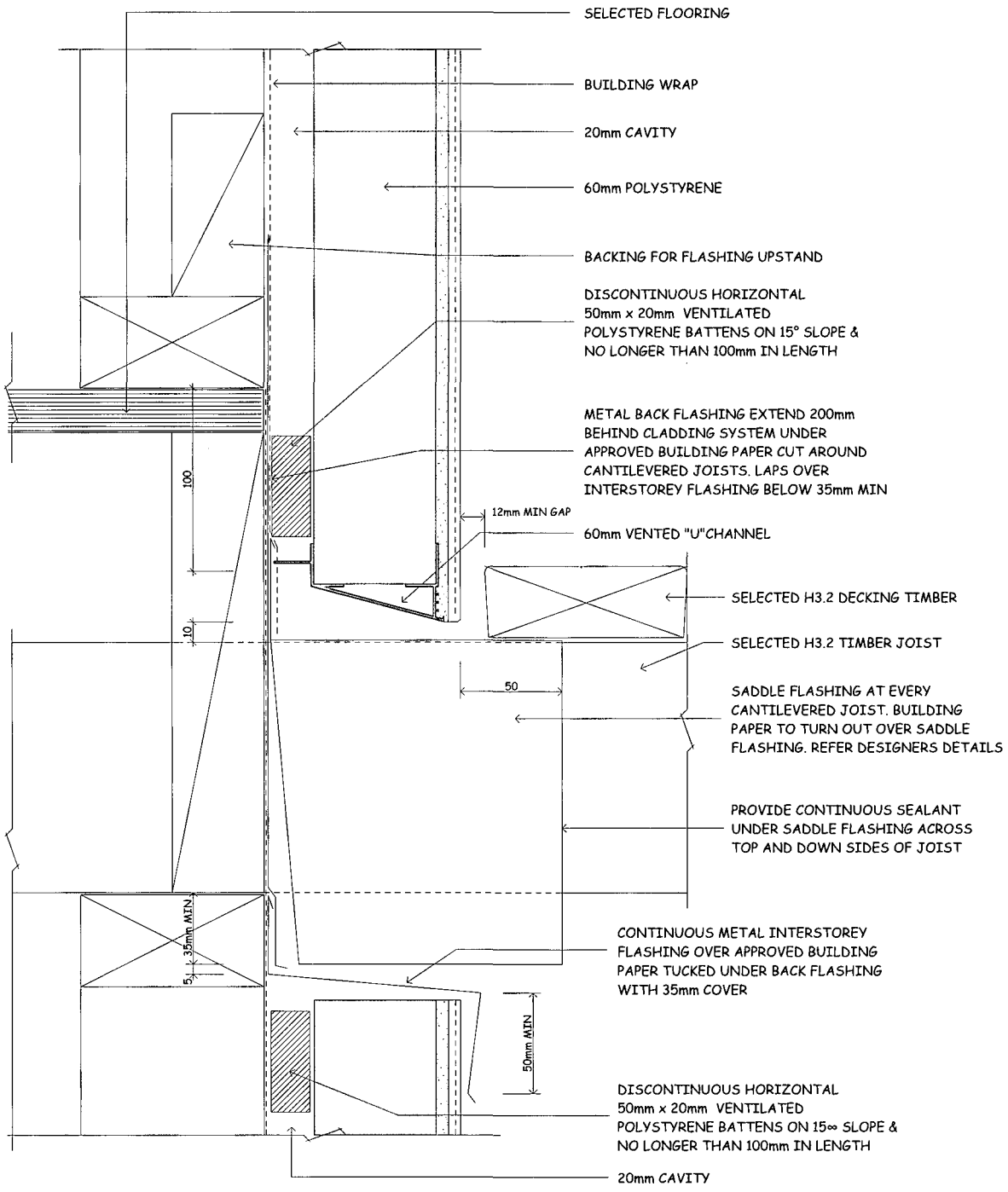
A MINIMUM OF 50mm GAP
MUST BE MAINTAINED BETWEEN
THE BOTTOM EDGE OF THE PVC BASE BEAD
AND THE APRON / SIDE FLASHING

60mm VENTED "U" CHANNEL

INTERNAL PRESSED METAL GUTTER
AS SPECIFIED BY THE DESIGNER

(24) HIDDEN GUTTER

DECK TO DWELLING JUNCTION



25 CANTILEVERED JOISTS

NOTE !
FLASHINGS AROUND CANTILEVERED FLOOR JOISTS ARE THE RESPONSIBILITY OF THE DESIGNER AND BUILDER

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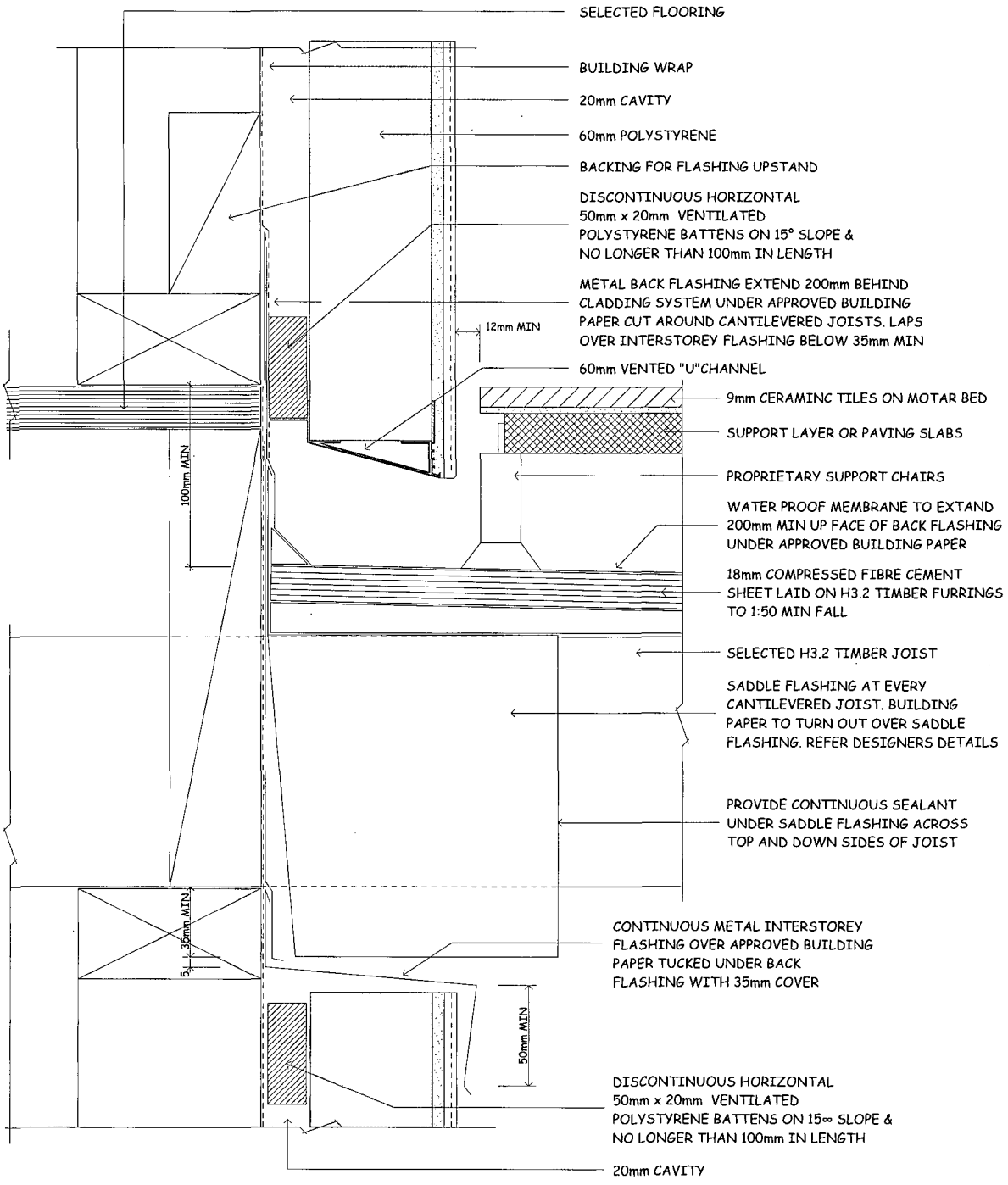

26 CANTILEVERED JOISTS

NOTE!
FLASHINGS AROUND CANTILEVERED FLOOR JOISTS ARE THE RESPONSIBILITY OF THE DESIGNER AND BUILDER

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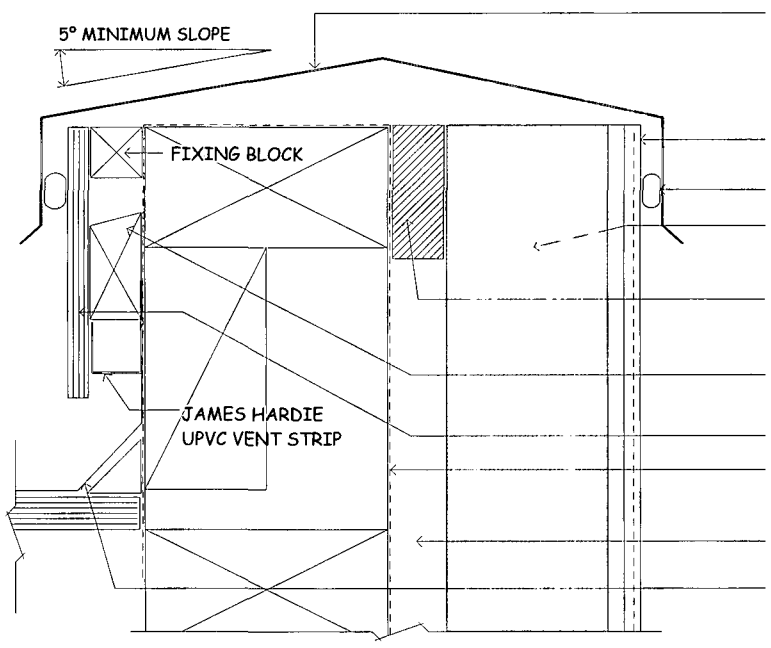
PARAPETS



PRESSED METAL CAPPING
FIXED OVER ALL ELEMENTS
SIDE FIXING ONLY BELOW PEF ROD

THERMACLAD MESH
REINFORCING & PLASTER

COMPRESSED PEF ROD

60mm POLYSTYRENE

DISCONTINUOUS HORIZONTAL 50mm x
20mm VENTILATED POLYSTYRENE
BATTENS ON 15° SLOPE & NO LONGER
THAN 100mm IN LENGTH

DISCONTINUOUS HORIZONTAL
20mm TIMBER BATTENS

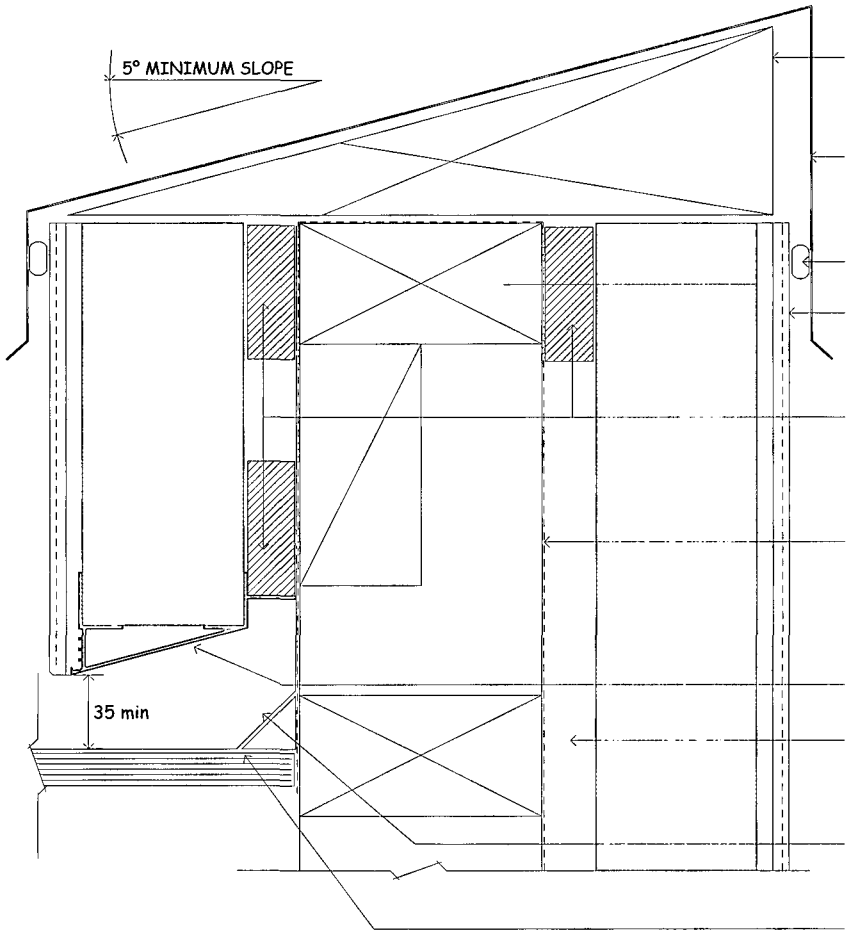
7.5mm or 9mm FIBRE CEMENT

APPROVED BREATHER TYPE BUILDING WRAP
TO WRAP OVER TOP OF WALL

20mm CAVITY

WATER PROOF MEMBRANE TO EXTEND
MIN. 200mm UP ANY VERTICAL FACE
AND MIN. 150mm BEHIND CLADDING SYSTEM

27 METAL CAPPING



UNDER H3 TIMBER WEDGE FIXING
BLOCK REFER DRAWING No. 5 SERIES

NOTE : CONTINUOUS METAL
PARAPET CAP MUST BE SIDE FIXED
BELOW PEF ROD

COMPRESSED PEF BACKING ROD

THERMACLAD MESH
REINFORCING & PLASTER

DISCONTINUOUS HORIZONTAL
50mm x 20mm VENTILATED
POLYSTYRENE BATTENS ON
15° SLOPE & NO LONGER THAN
100mm IN LENGTH

BREATHER TYPE BUILDING WRAP

60mm VENTED "U" CHANNEL

20mm CAVITY

WATER PROOFING EXTEND MIN.
200mm UP ANY VERTICAL FACE
AND MIN. 150mm BEHIND
CLADDING SYSTEM

NOTE : - IF ROOF IS BEING USED
AS AN INTERNAL GUTTER, THE
CLADDING MUST BE MIN. 100mm
ABOVE MEMBRANE SURFACE

28 CAPPING

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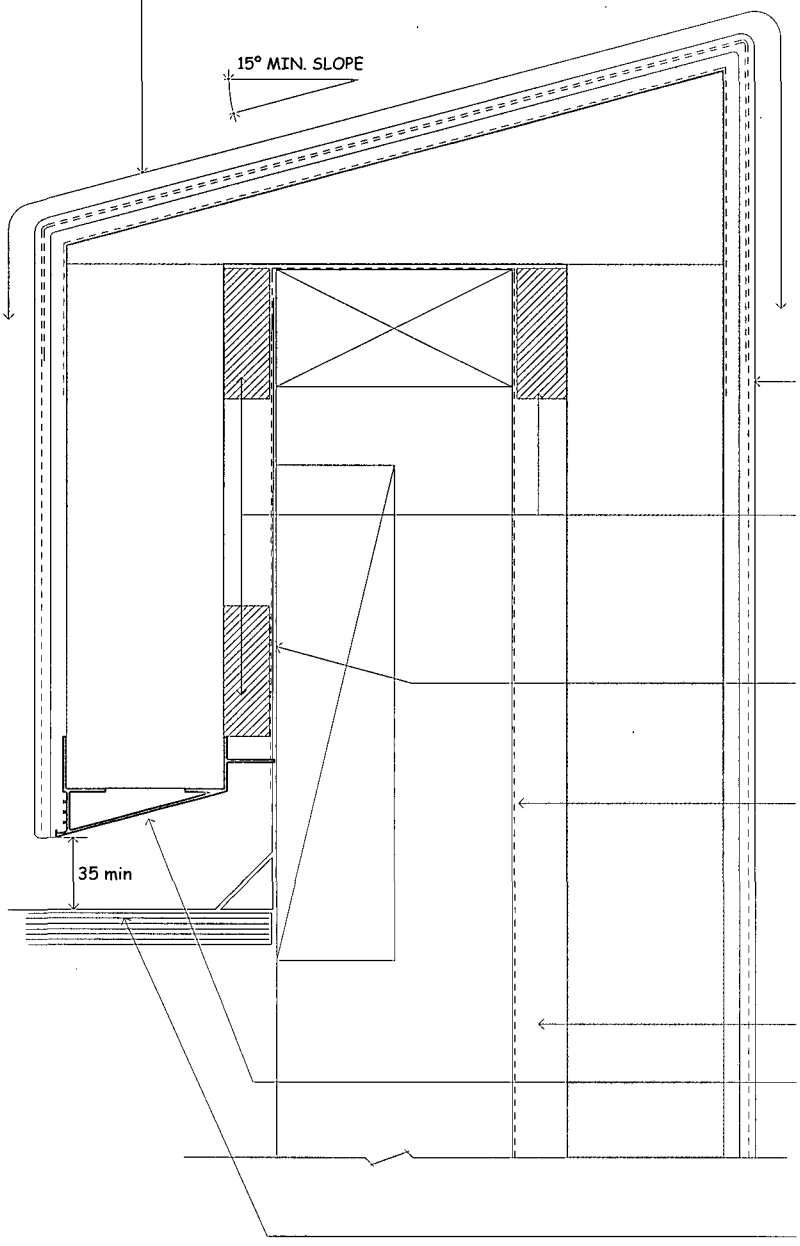
NOTE : IF PARAPET WALL TOP IS GREATER THAN 300mm - IT MUST HAVE A MINIMUM SLOPE OF 30 Deg



29 CAPPING

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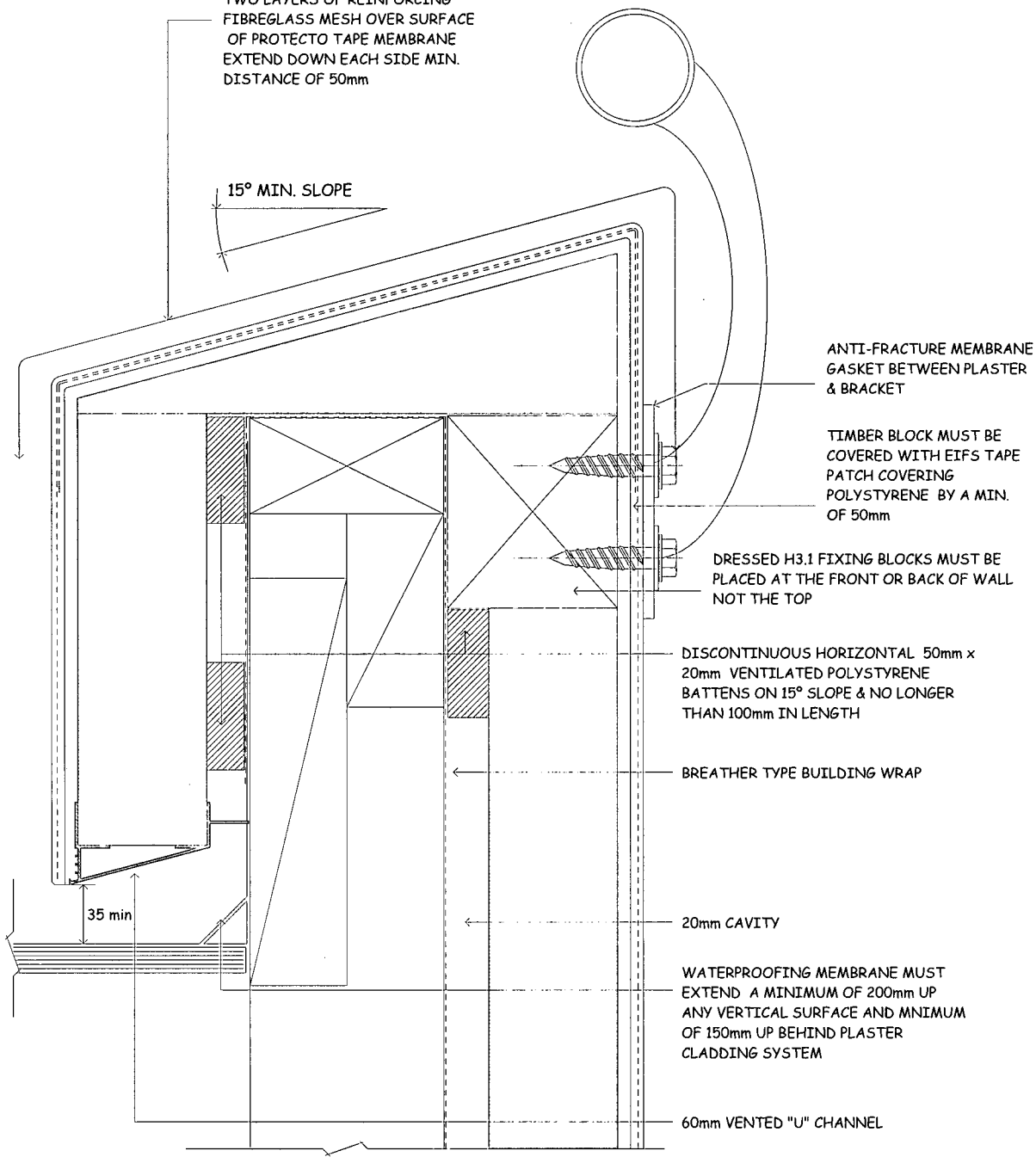
BALCONY WALLS

NOTE : IF HANDRAIL TOP IS GREATER THAN 300mm WIDE - IT MUST HAVE A MINIMUM SLOPE OF 30 Deg



30 CAPPING

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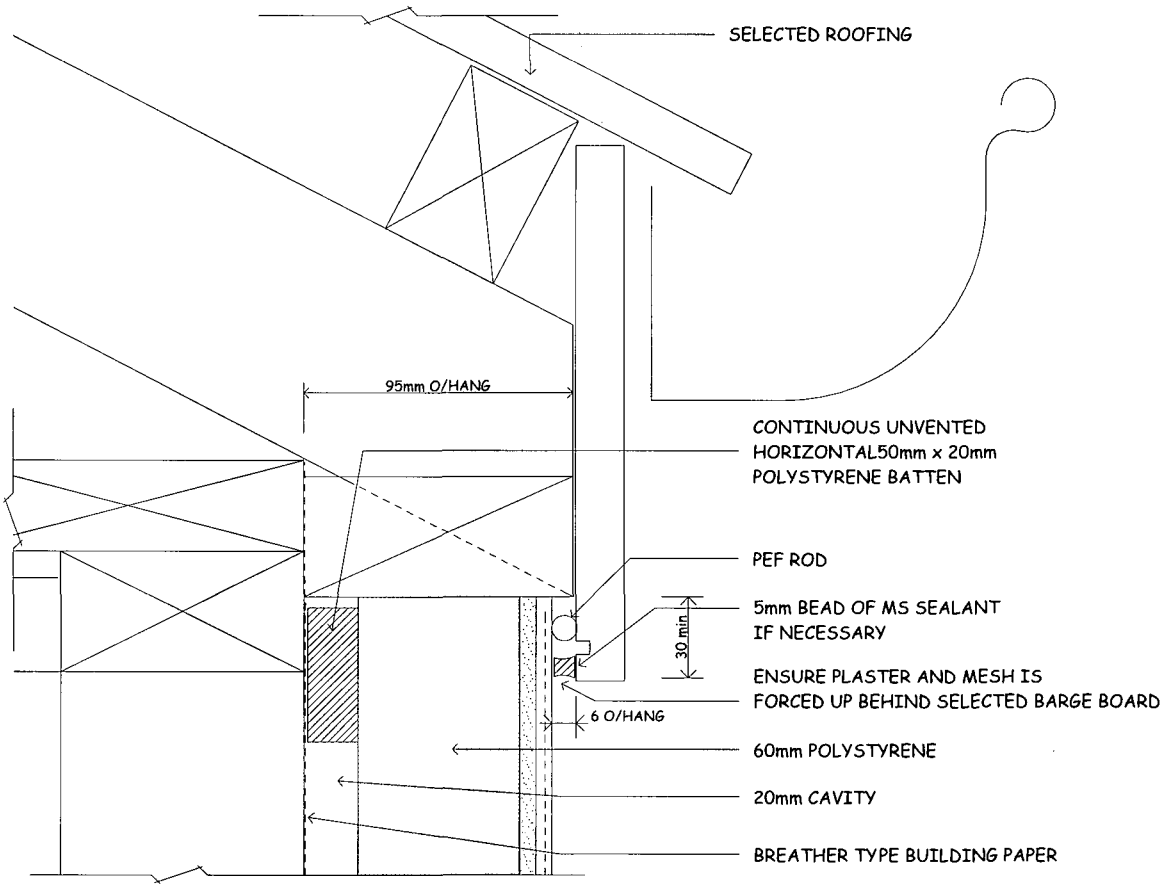
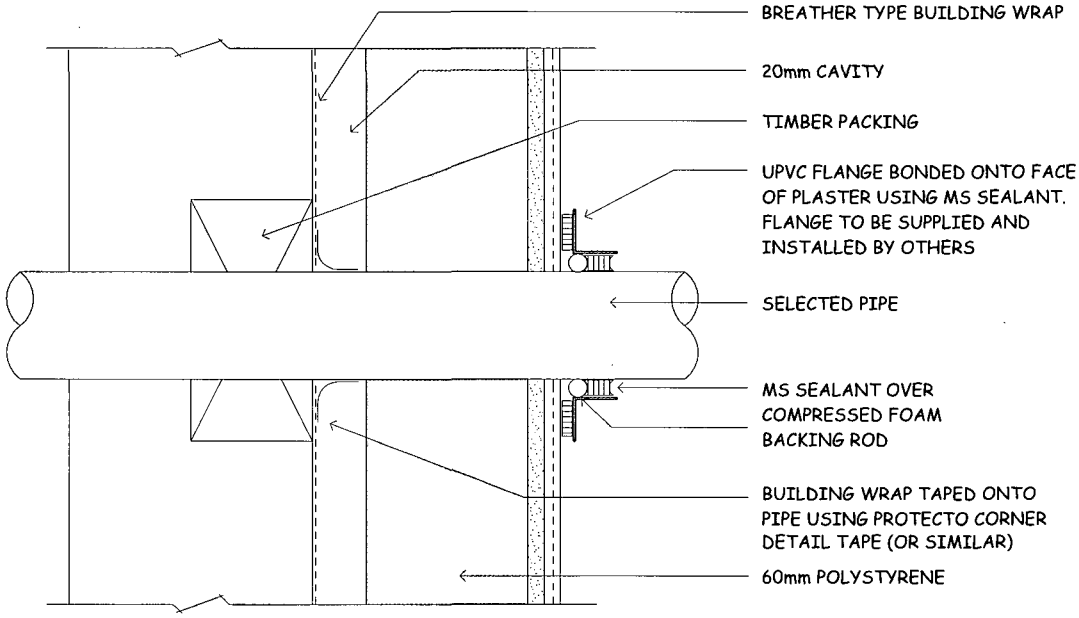


31 FLUSH EAVES GUTTER



32 PIPE PENETRATION

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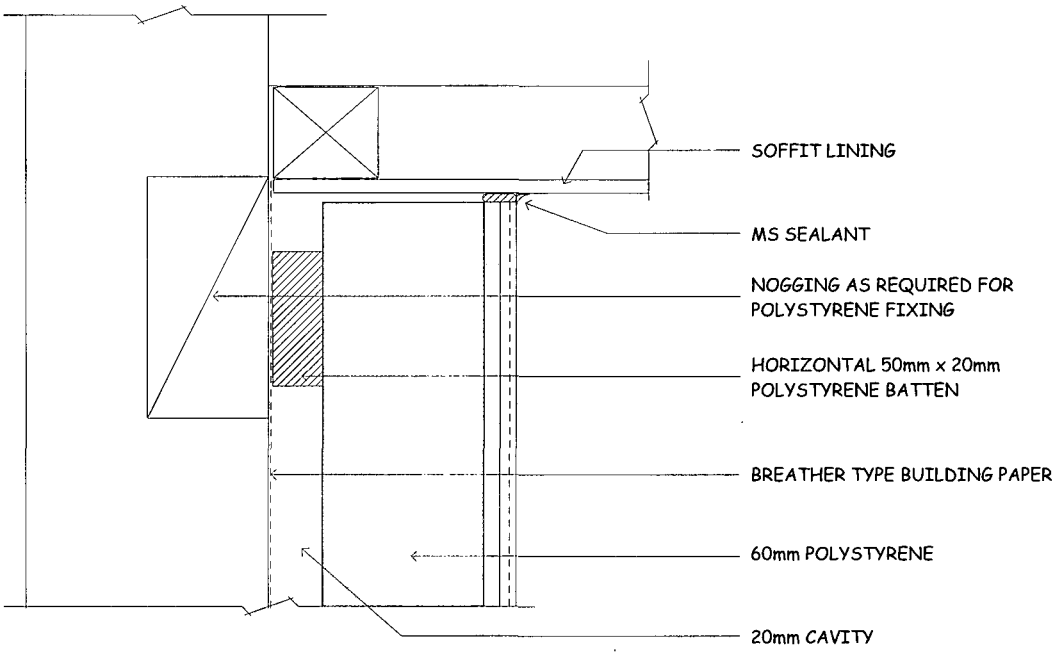
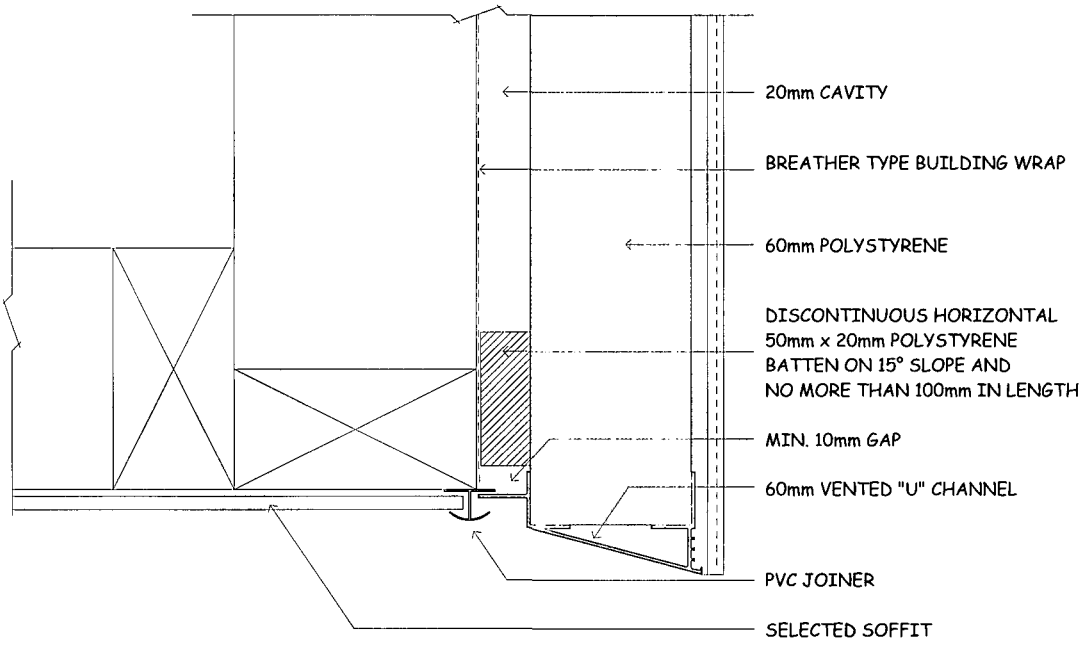


33 SOFFIT DETAIL



34 SOFFIT EDGE DETAIL

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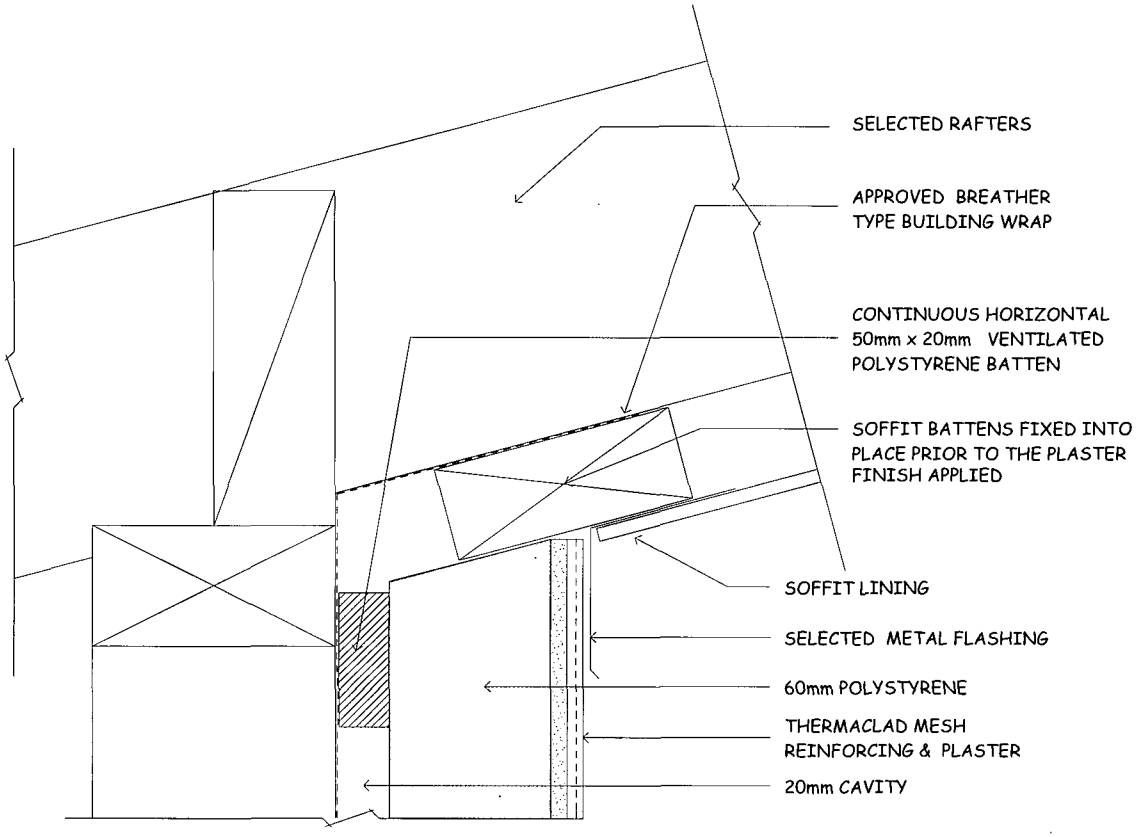
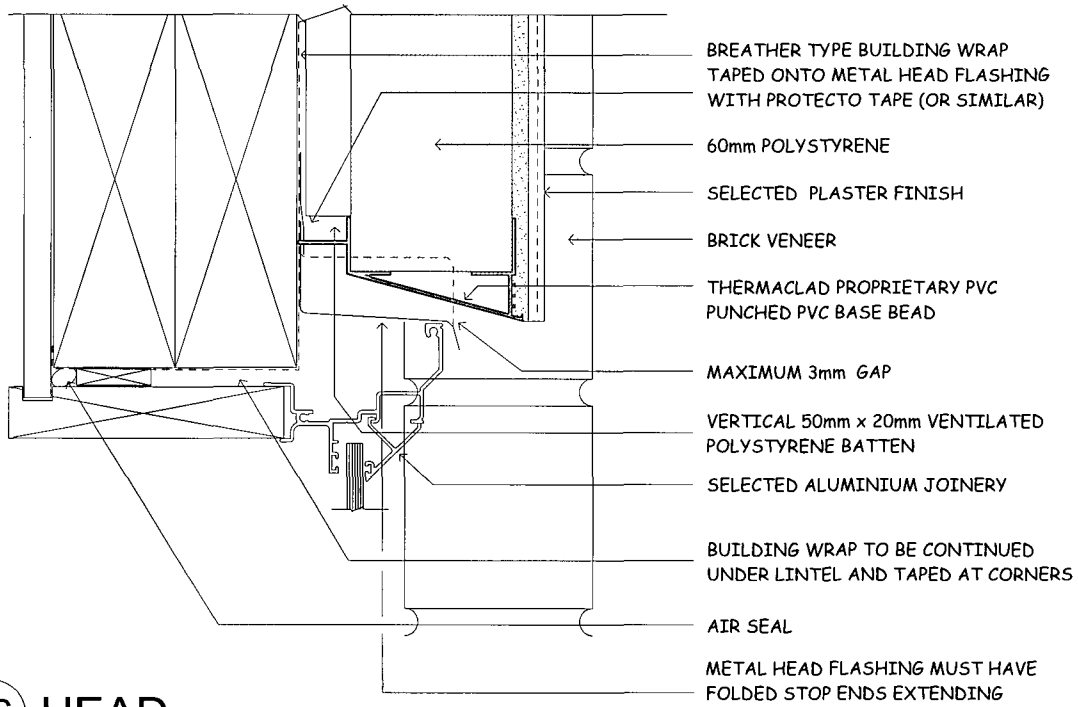


35 SOFFIT / THERMACLAD JUNCTION

BRICK / RECESSED JOINERY



36 HEAD

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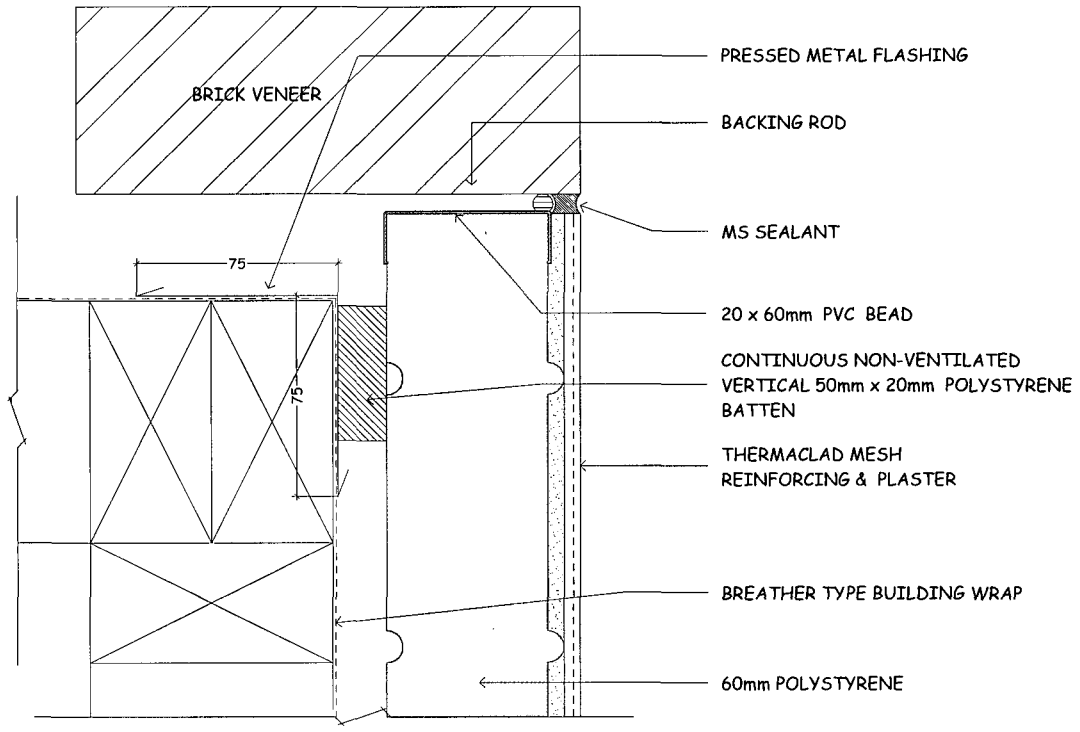
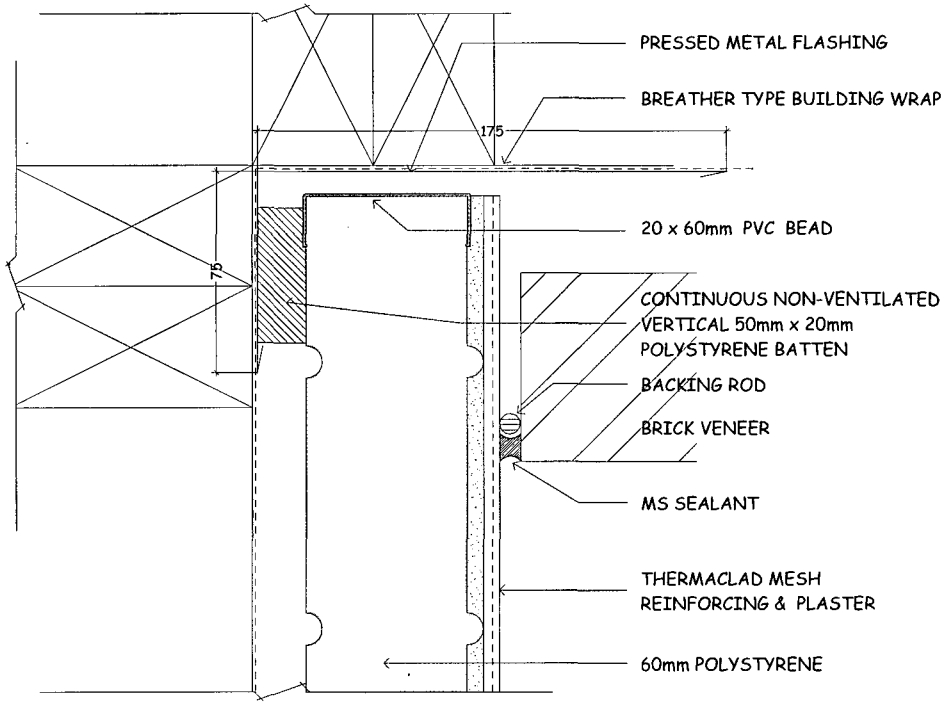


37 EXTERIOR CORNER DETAIL THERMACLAD / BRICK



38 INTERIOR CORNER DETAIL THERMACLAD / BRICK

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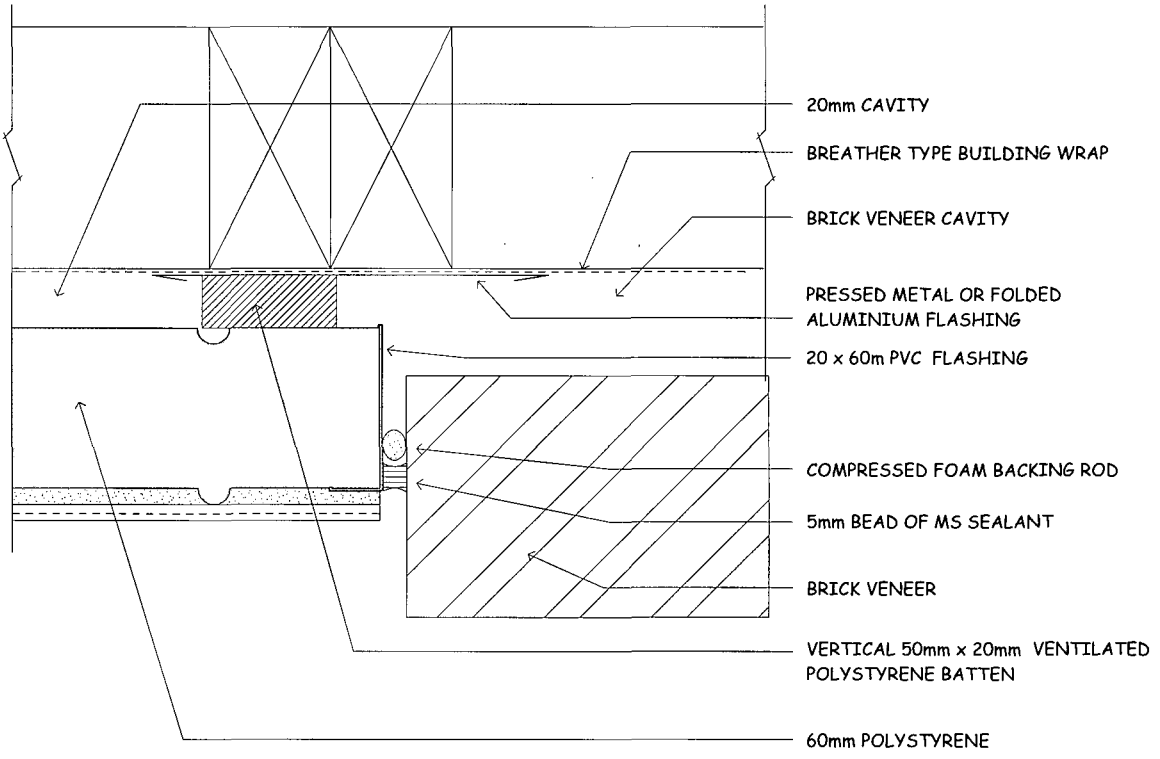
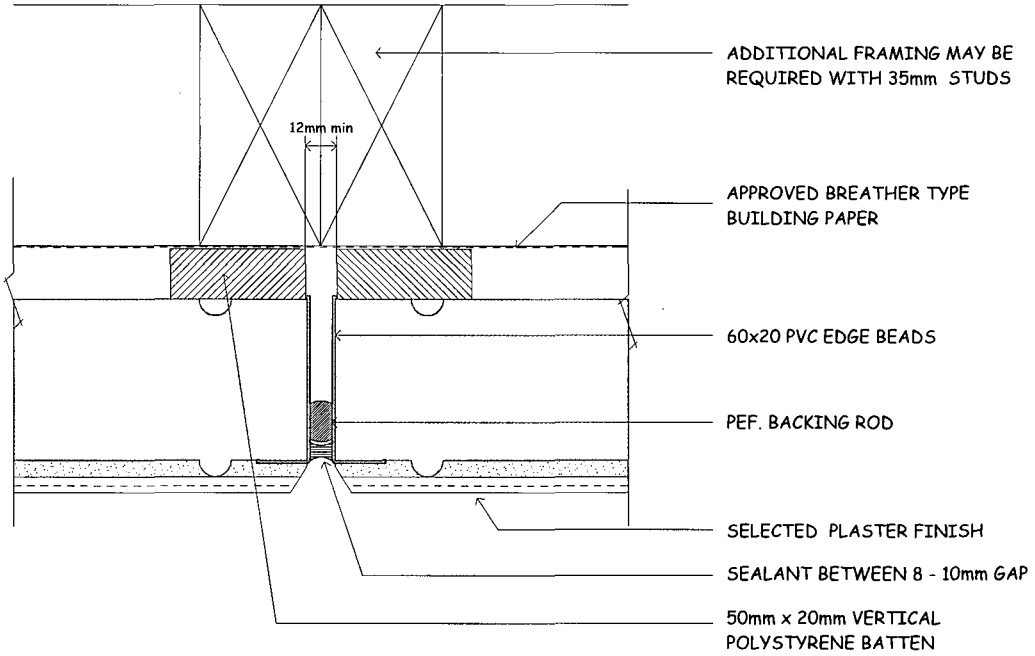


39 VERTICAL BRICK / THERMACLAD JUNCTION



40 HORIZONTAL OR VERTICAL JOINT

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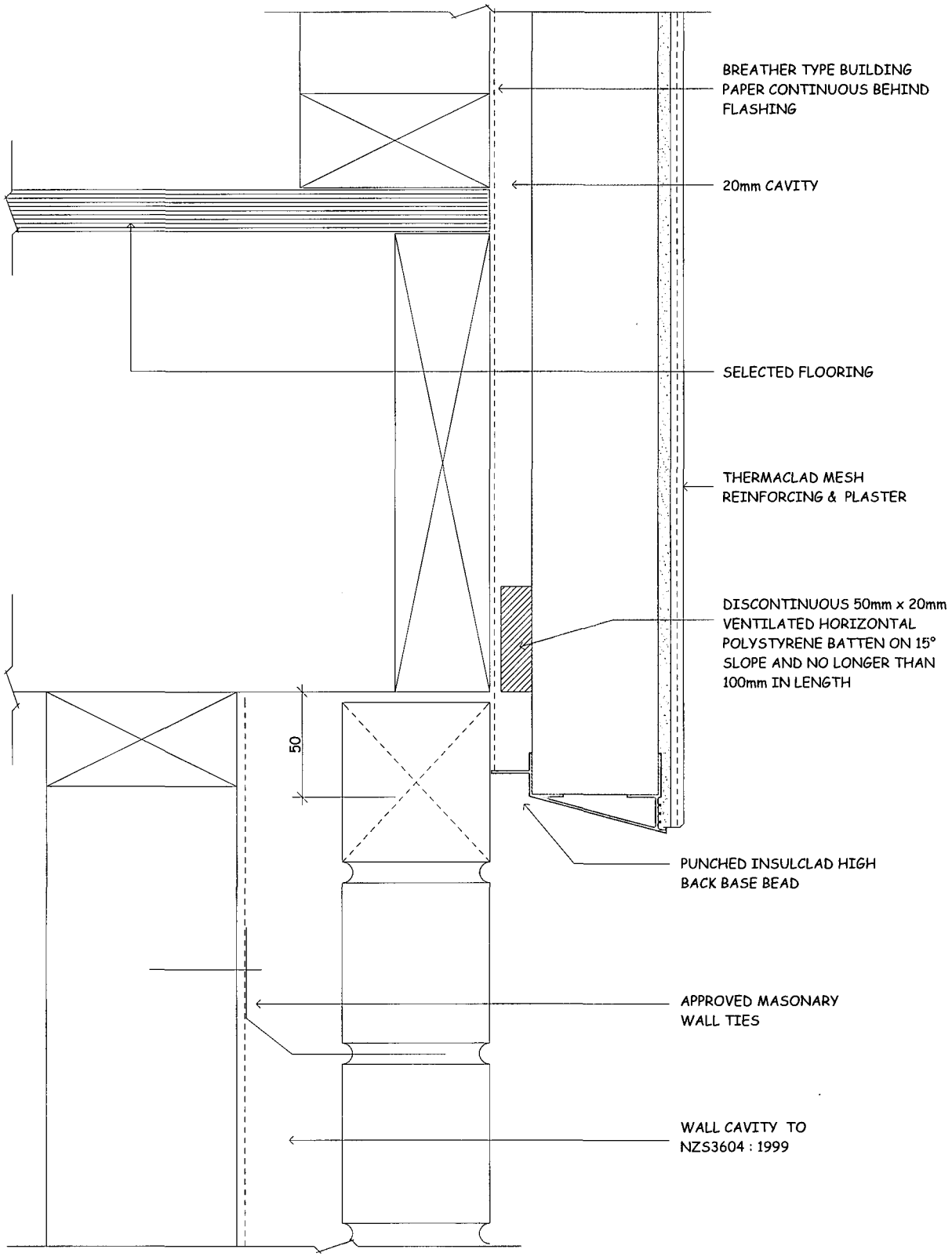
THERMACLAD OVER BRICK JUNCTION



41 JUNCTION FLASHING

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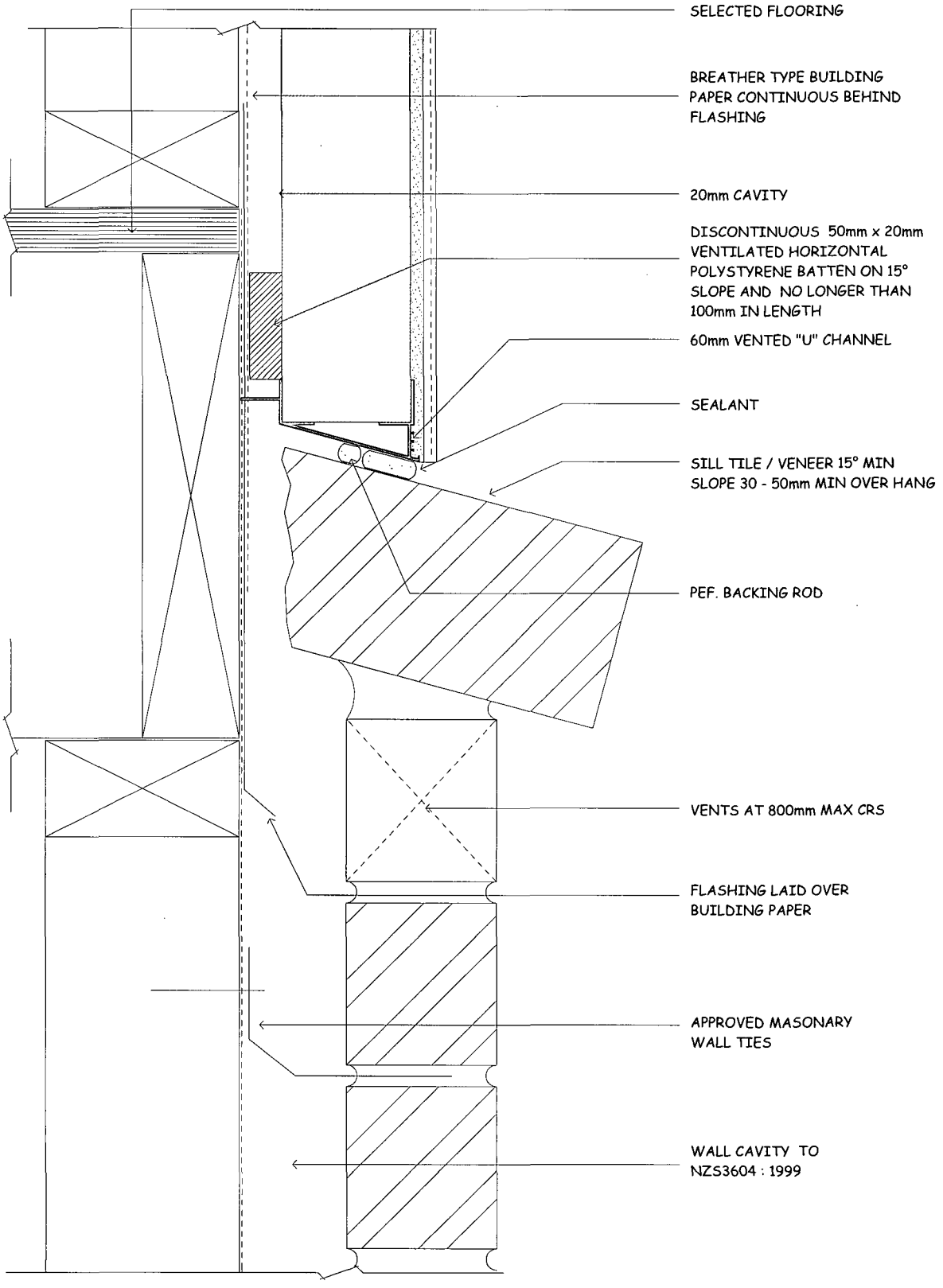

42 JUNCTION FLASHING

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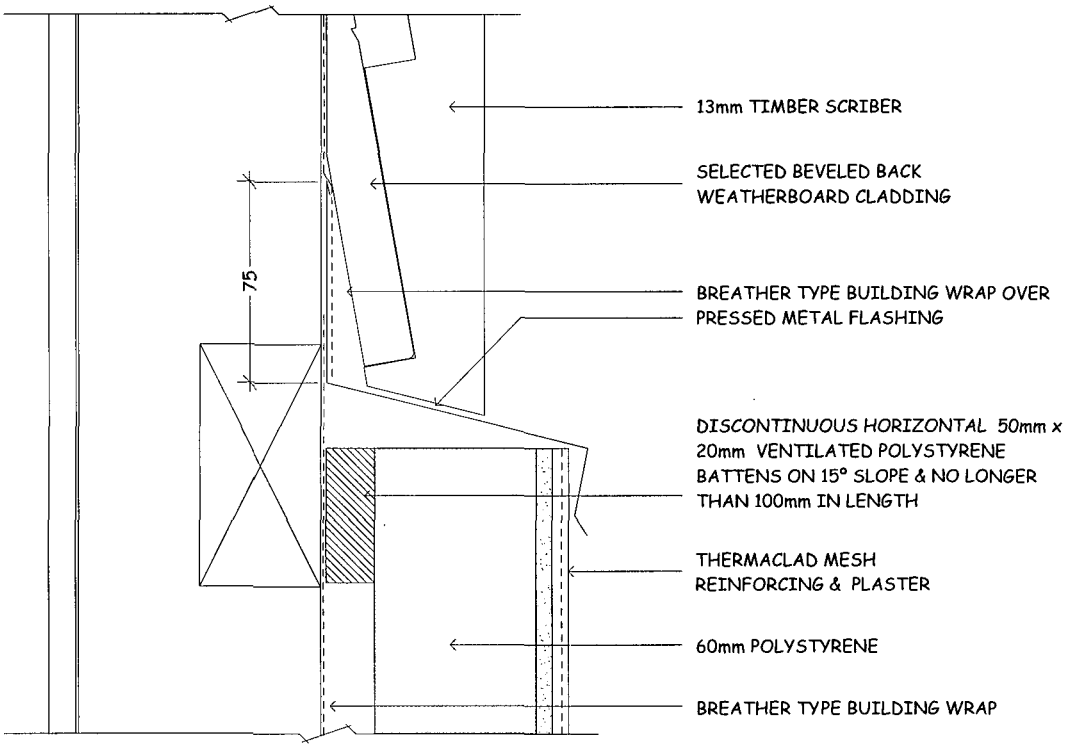
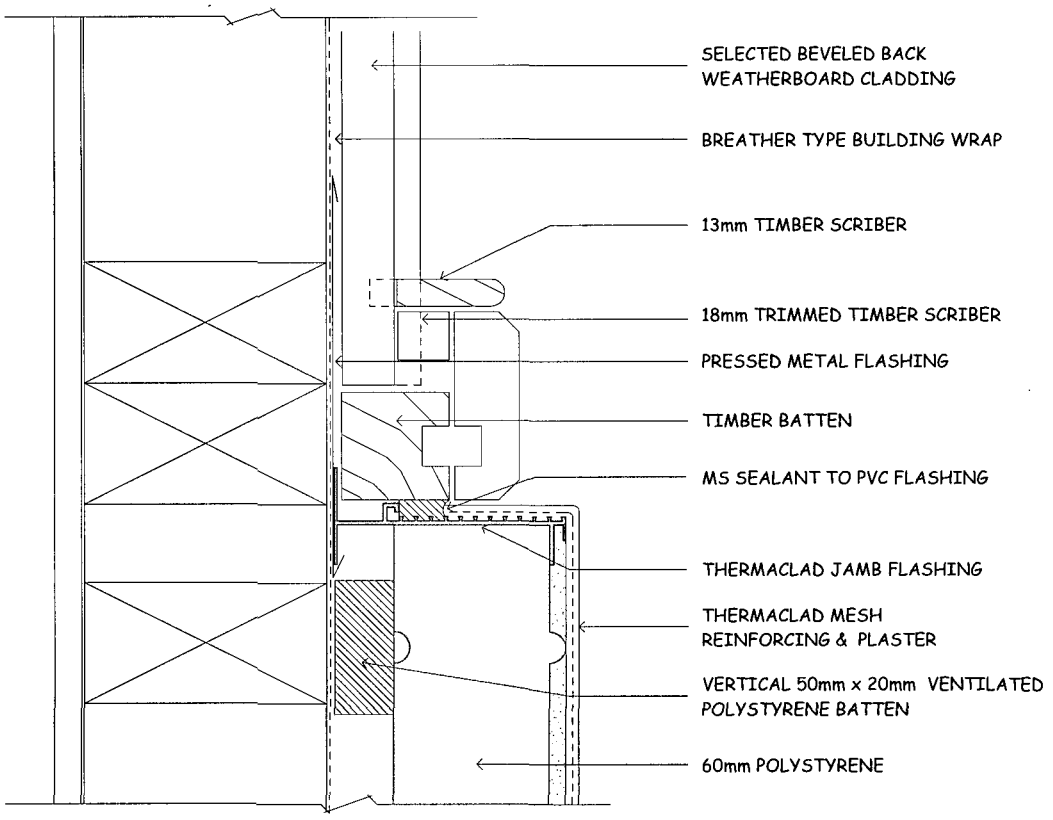
BEVEL-BACK TIMBER WEATHERBOARD / THERMACLAD JUNCTION



43 WEATHERBOARD ABOVE EIFS



44 WEATHERBOARD EIFS JUNCTION

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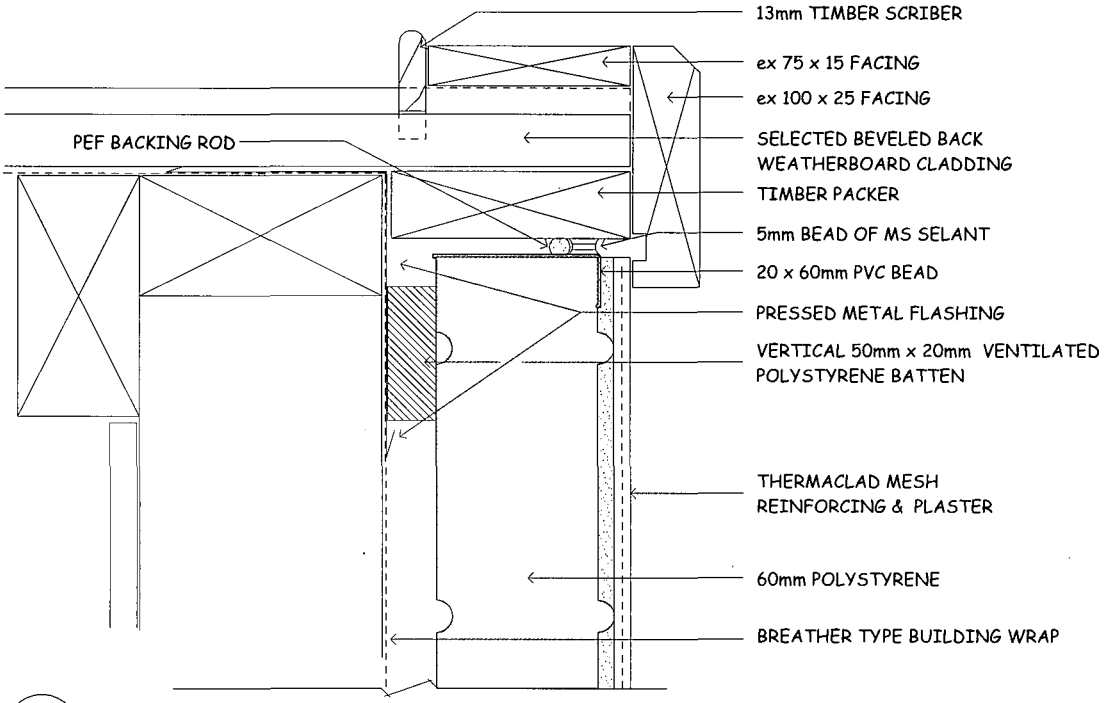
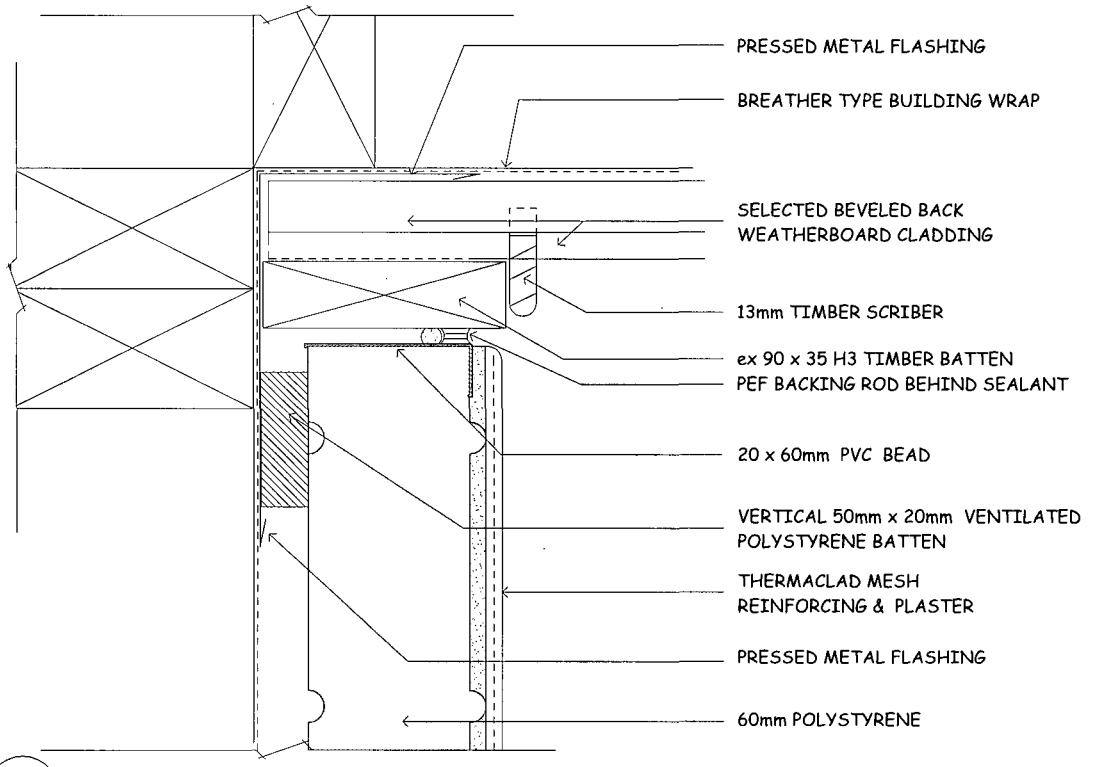
BEVEL-BACK TIMBER WEATHERBOARD THERMACLAD JUNCTION



45 WEATHERBOARD THERMACLAD EXTERIOR CORNER



46 WEATHERBOARD THERMACLAD INTERIOR CORNER

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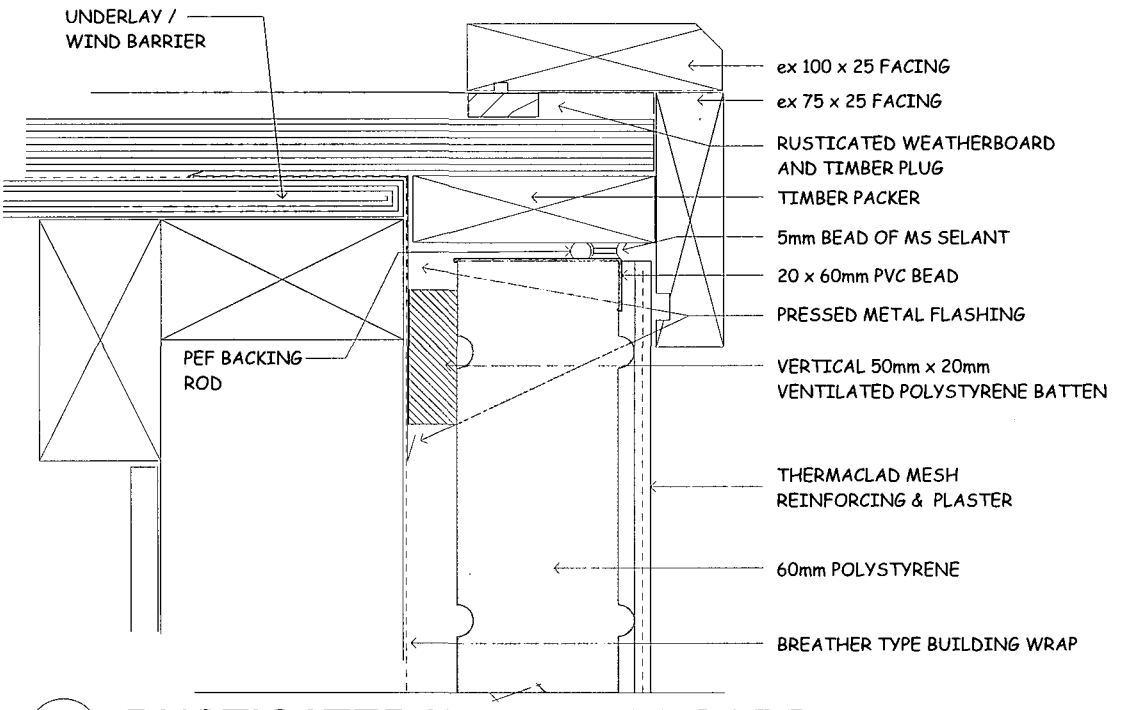
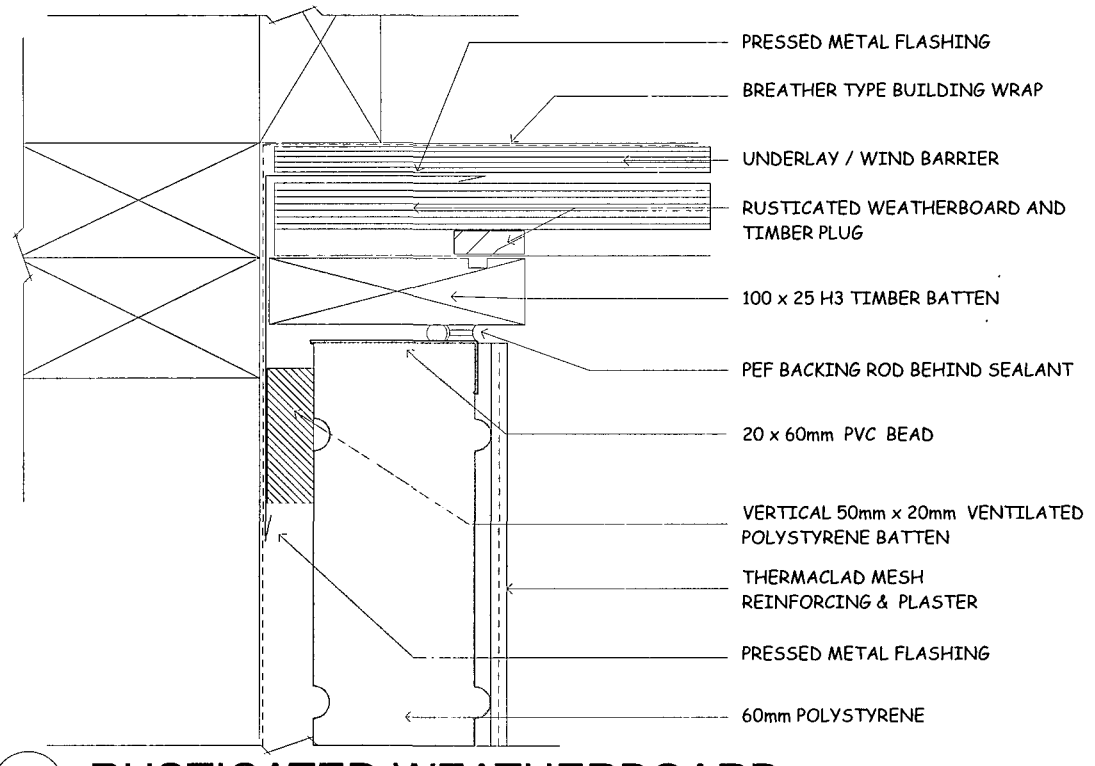
RUSTICATED TIMBER WEATHERBOARD / INSULCLAD JUNCTION



47 RUSTICATED WEATHERBOARD EXTERIOR CORNER



48 RUSTICATED WEATHERBOARD INTERIOR CORNER

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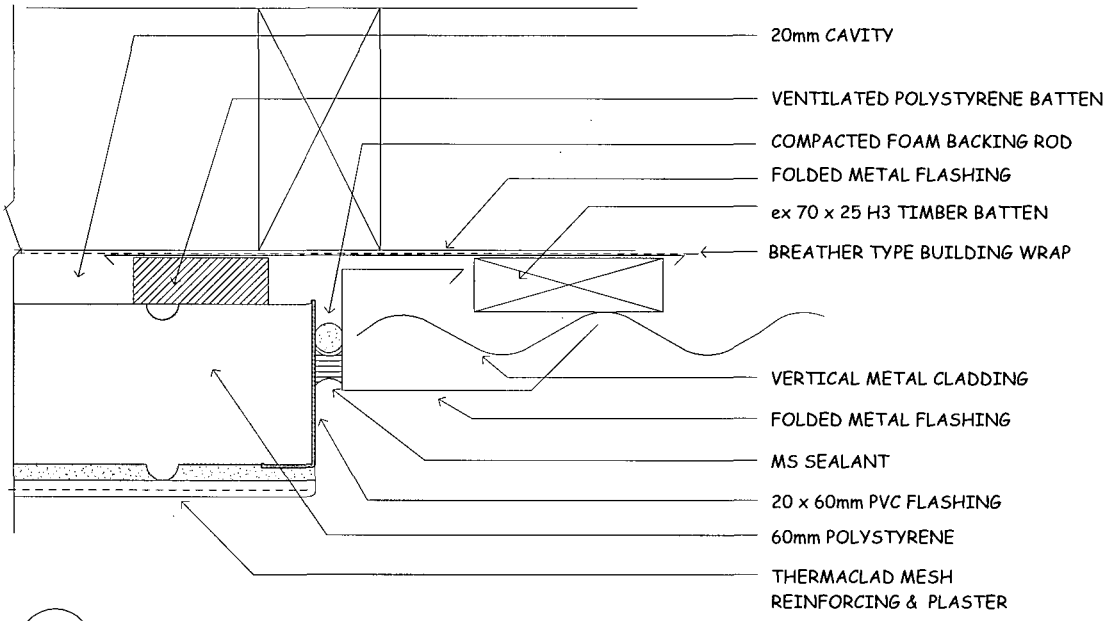
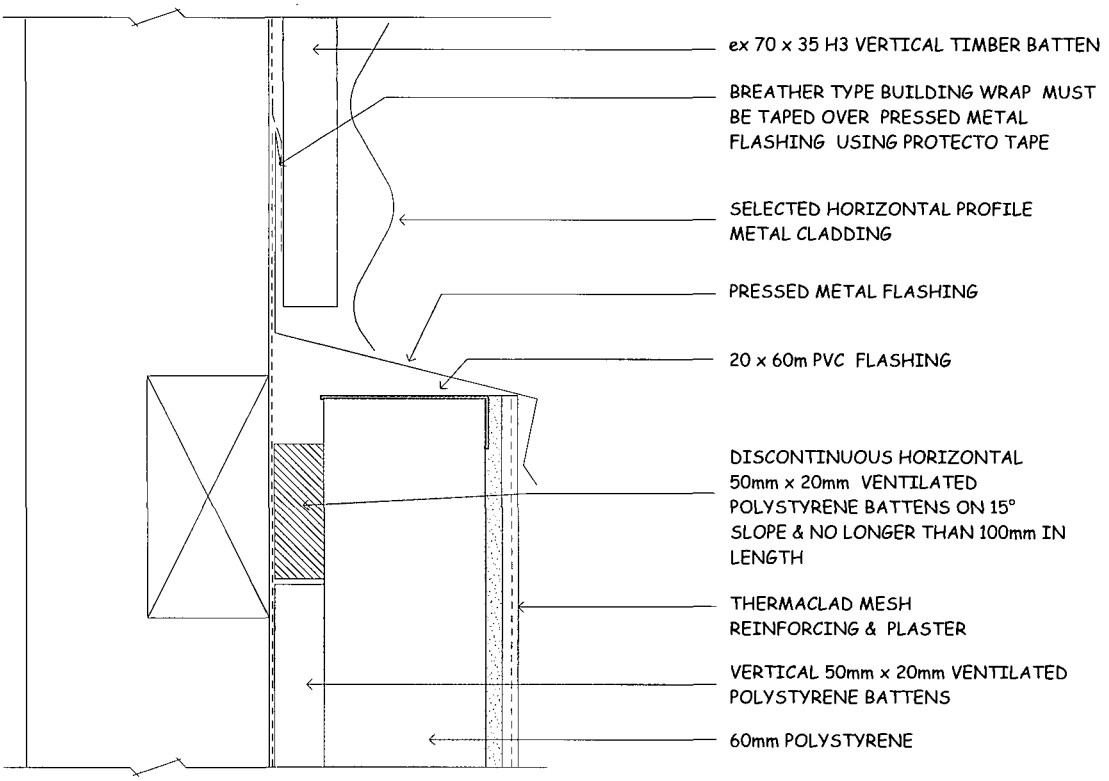


49 VERTICAL METAL PROFILE - THERMACLAD JUNCTION



50 HORIZONTAL METAL PROFILE - ABOVE THERMACLAD

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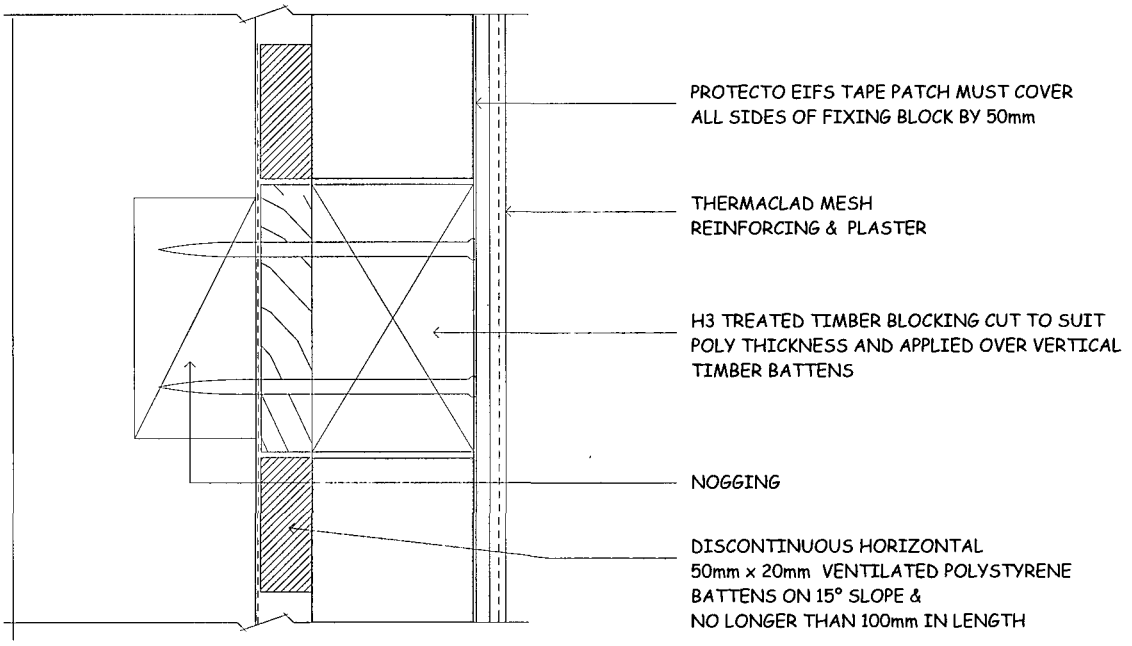
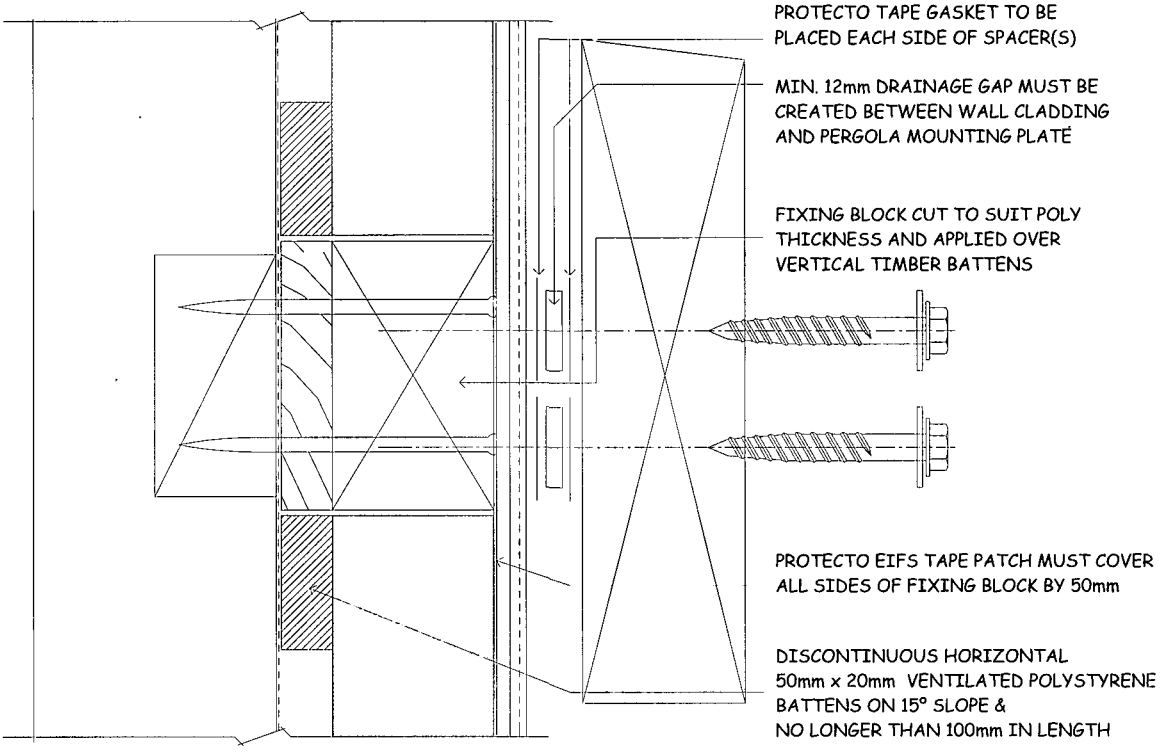


51 FIXING BLOCK - DOWNPIPES ETC



52 WALL PLATE - DECKING OR PERGOLA

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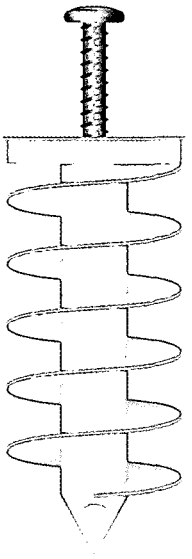

TOGGLE FASTENERS MAY BE
USED TO FIX ALL BRACKETS
UP TO 5KG IN LOAD
(i.e. DOWNPIPE BRACKETS)

53 ALTERNATIVE FIXING DETAILS

NOTES

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CHECKLIST

Prior to the installation of the cladding:

- ☐ The supporting structure has been constructed from timber treated to H1.2.
- ☐ All handrail walls have been constructed from H3 treated timber.
- ☐ The supporting structure complies with the relevant provisions of the NZBC and all walls studs do not exceed 600mm centres – nogs at maximum 800mm centres.
- ☐ All internal corners have been constructed using double studs and double nogs have been provided under all windows. The sill trimmer has had a slope of 15° cut back a minimum of 50% on its top surface. Refer to detail (1).
- ☐ All windows have been installed a minimum of 22mm and a maximum of 23mm off the framing. Where the chosen cladding system cannot be used under certain aluminium extrusions (i.e. a ranchslider at deck level) alternative waterproofing options have been provided.
- ☐ Fixing has been provided for all sheet edges (i.e. soffits)
- ☐ A minimum slope of 15° has been provided to all copings, handrail tops and parapets. If the coping/parapet wall top is going to be wider than 300mm a minimum slope of 30° must be provided. If the slope is to be formed with polystyrene the plasterer has been informed in writing.
- ☐ All kickout flashings, apron flashings and flashings between dissimilar materials are in place.
- ☐ Minimum heights to finished floor levels above adjoining ground are recognised and have been provided for. Where concrete driveways or paths are to be installed above the bottom edge of the chosen cladding system, the paving has been designed to slope away from the house and a slip layer (i.e. building paper) will be placed between the cladding and the paving to stop the two surfaces from bonding together. A minimum height of 150mm from paved ground to bottom plate will be maintained in all circumstances.
- ☐ All exterior tanking/waterproofing of decks, roofs etc has been completed according to the manufacturers specifications and theoretical finished outside floor levels have been considered and comply the NZBC.
- ☐ Breather type building paper has been applied to the entire structure.
- ☐ All guttering will stop 20mm short of finished plaster line. Where gutters are concealed i.e. Klass Fascia, fascia also stops short. Refer AHI Roofing details.
- ☐ All framing is flush and fair.
- ☐ The Protecto 'Sill Flashing System' (or similar) has been installed around all windows and penetrations and all penetrations have been air sealed against a foam or PEF backing rod.
- ☐ Control joints have been provided according to the manufacturers specifications.
- ☐ The Building Wind Zone is known and documented and the plasterer has been informed in writing.
- ☐ Fixing blocks are in place for all external fixings including, taps, light fittings, handrails, clothes lines, aerials etc.
- ☐ All pipes and meter-boxes are flashed appropriately. All pipes have the building paper turned to the outside of the building and have been taped to the outside of the building paper using an appropriate flashing tape. Alternatively a flashing or similar has been fitted.
- ☐ The timber moisture content has been checked and is documented.

BUILDER'S NAME .....

ADDRESS FOR SERVICE .....

SIGNATURE ..... DATE .....

Preplastering

- ☐ All oxidisation has been removed from the surface of the polystyrene sheets
- ☐ The nailing centres comply with the wind-loading for the structure.
- ☐ All sill and jamb flashings have been correctly joined and sealed according to the manufacturers specifications.
- ☐ Appropriate slopes have been provided on all sills, copings, handrails and parapets.
- ☐ All waterproof membranes have been provided and installed according to the manufacturers specifications.
- ☐ All joints between the chosen cladding system and dissimilar materials have been adequately flashed and sealed.
- ☐ All sheets are flush and fair.

PLASTERER'S NAME .....

ADDRESS FOR SERVICE .....

LICENSE NUMBER .....

SIGNATURE ..... DATE .....

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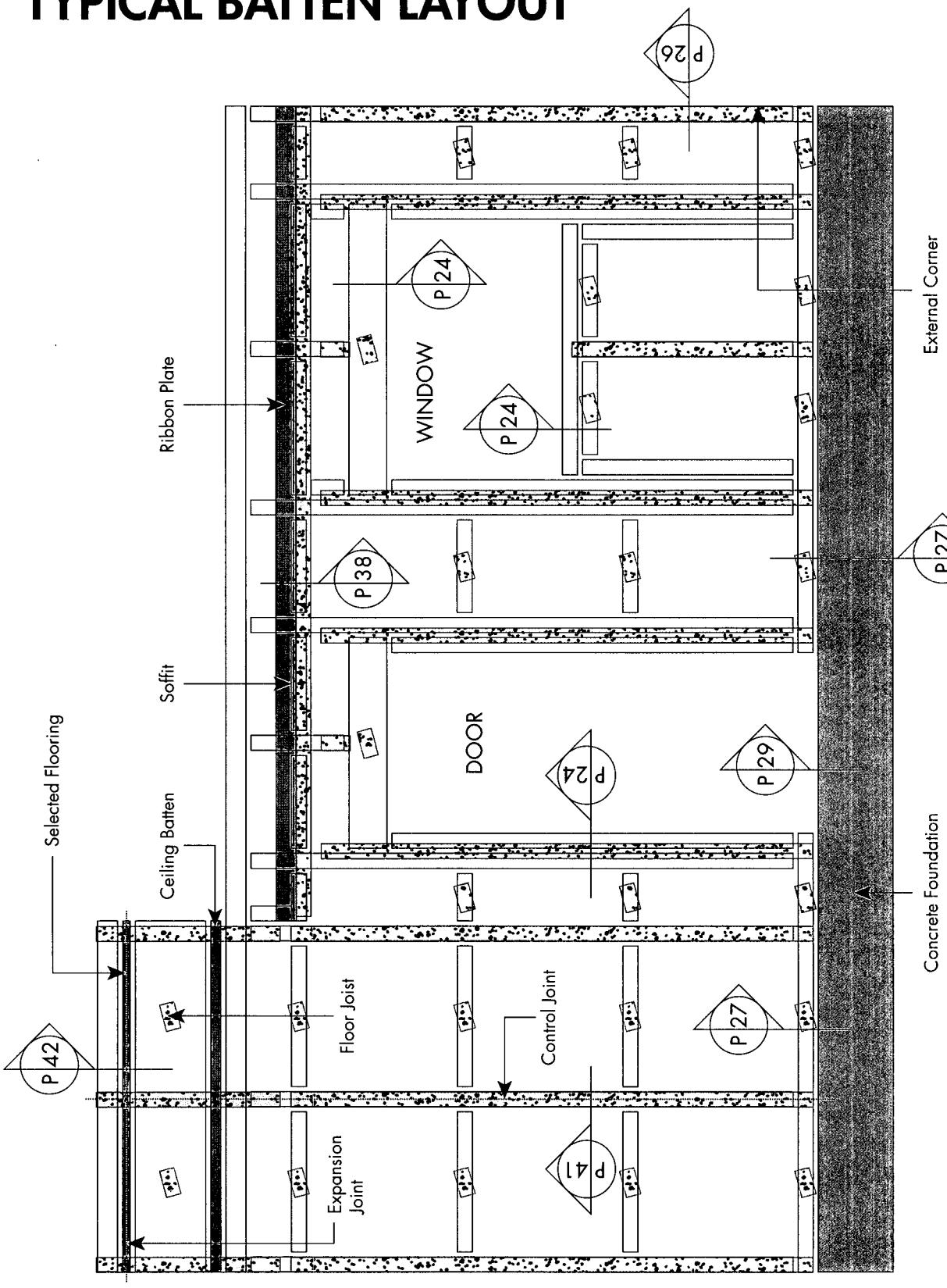
TYPICAL BATTEN LAYOUT



KEY

Poly Battens Framing Page Number

- If additional cavity insulation is being installed, the building wrap must be supported by polypropylene builders strap stapled between the studs to stop the wrap from bulging.
- All horizontal battens must be applied on a minimum slope of 15 degrees and be no longer than 100mm in length.

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DESTINATION ROTORUA	Building Consent File – End Cover	Ref: TP 03 – TF 03 Ver: 01 Issued: 30 May 2007 Doc No: IT-639930 1 of 1

END OF BUILDING CONSENT FILE

BC No. 37021

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