

Construction Certificate Determination

issued under the Environmental
Planning and Assessment Act 1979
Section 109C (1) (b) 81A (2) and 81A (4)

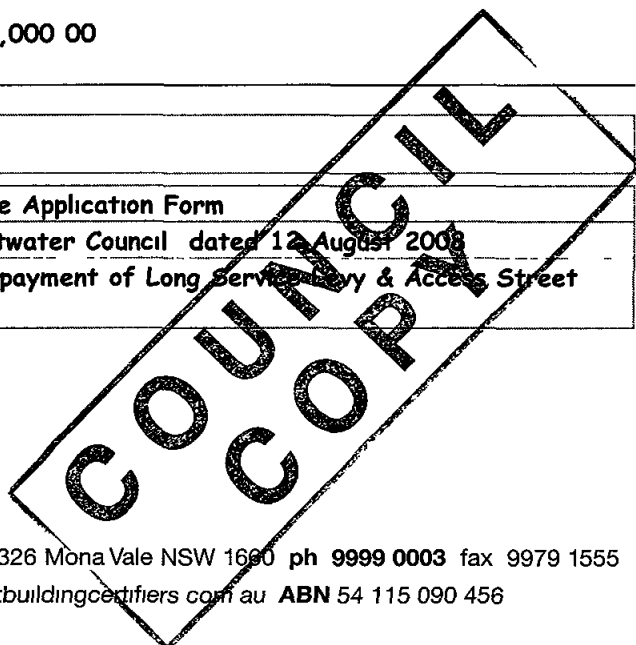
Certificate No 2009/3221

Council	Pittwater
Determination date of issue	Approved 20 March 2009
Subject land Address Lot No DP No	40 Bilwara Avenue Bilgola Plateau Lot 4 DP 30870
Applicant Name Address Contact No	Mr Phillip Ponton 40 Bilwara Avenue, Bilgola Plateau NSW 2107 9918 6515 / 0416 099 977
Owner Name Address Contact No	Mr Phillip Ponton & Ms Catherine Ponton 40 Bilwara Avenue Bilgola Plateau NSW 2107 9918 6515 / 0416 099 977
Description of Development Type of Work	Alterations & additions to an existing dwelling including a Carport ONLY
Builder or Owner/Builder Name Contractor Licence No/Permit	Phillip Ponton Owner Builder Permit No 324040P
Value of Work Building	\$50,000 00

Attachments

- Copy of completed Construction Certificate Application Form
- Consent Extension Approval, issued by Pittwater Council dated 12 August 2008
- Pittwater Council Receipt no 255194 for payment of Long Service Levy & Access Street Profiles

Rec- 256918
24-3-09-
\$30



Plans & Specifications certified

The development is to be carried out in compliance with the following plans and documentation listed below and endorsed with *Insight Building Certifiers* stamp

- Architectural Plans & Construction Specification reference no DA1 to DA5 (inclusive) prepared by Jo Willmore Designs Pty Ltd dated August 2006
- Structural Details reference no 24376 drawing no S1 prepared & endorsed by Jack Hodgson Consultants Pty Ltd dated 14 May 2007
- Driveway Design Details reference no 24376 drawing no C1, prepared & endorsed by Jack Hodgson Consultants Pty Ltd dated 2 March 2009
- Access Driveway Profiles issued by Pittwater Council, dated 14 August 2007
- Sydney Water Approval, dated 3 August 2007

Certificate

I hereby certify that the above Plans documents or Certificates satisfy

- The relevant provisions of the Building Code of Australia
- The relevant conditions of this Development Consent

and that work completed in accordance with the documentation accompanying the application for this Certificate (and any modifications as verified by me and shown on that documentation) will comply with the requirements of the Environmental Planning & Assessment Regulation referred to in Section 81A(5) of the Environmental Planning & Assessment Act 1979

Signed

Date of endorsement
Certificate No


20 MAR 2009
2009/3221

Certifying Authority

Name of Accredited Certifier
Accreditation No
Accreditation Authority
Contact No
Address

Stephen Pinn
BPB 0326
Building Professionals Board
(02) 9999 0003
13/90 Mona Vale Road Mona Vale NSW 2103

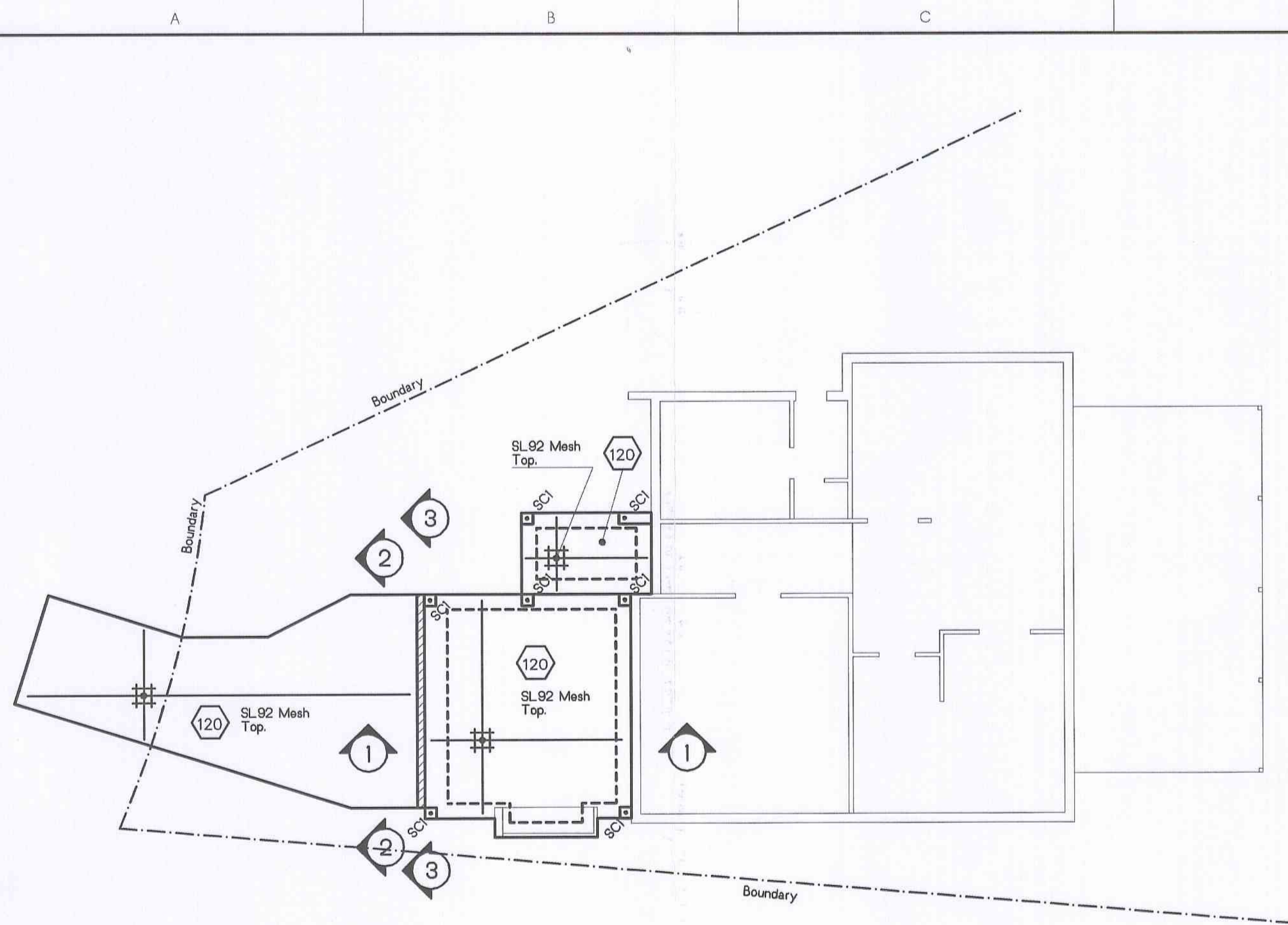
Development Consent

Development Application No
Date of Determination

N0528/06
10 November 2006

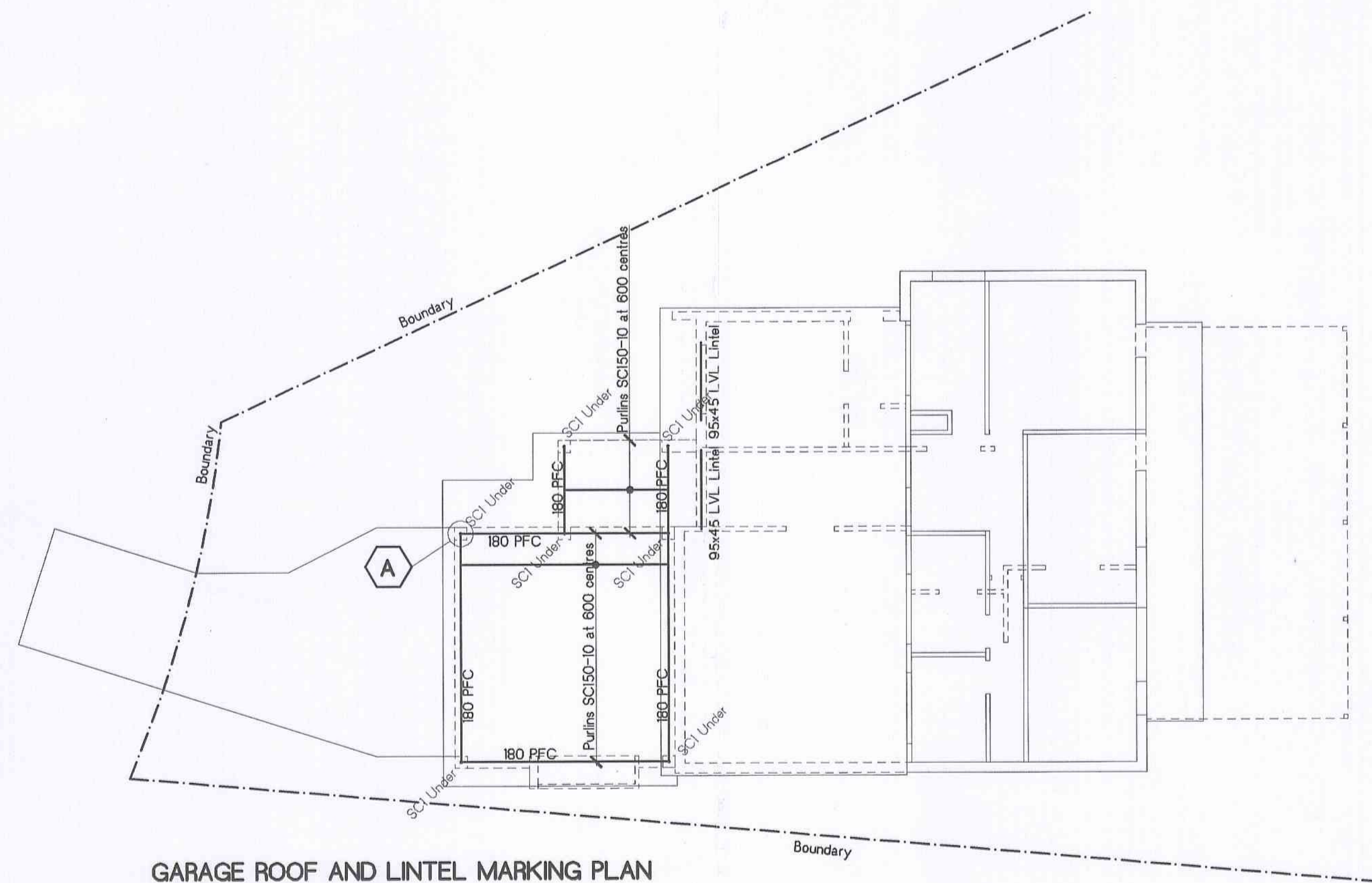
BCA Classification

1a, 10a & 10b



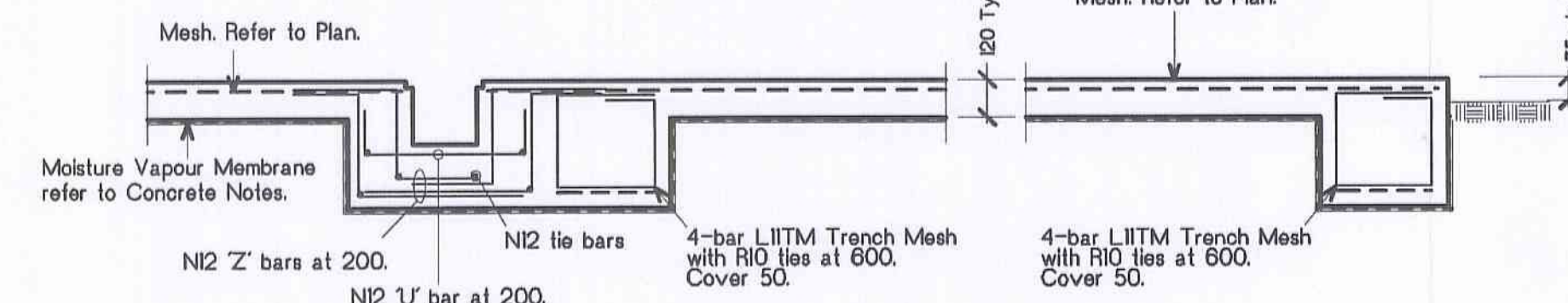
SLAB MARKING PLAN
Scale 1:100

SCI = 761 x 23 CHS
All beams to bear on adequate structural supports.
To be Confirmed on Site.
All posts to bear on adequate structural supports.
To be confirmed on site.

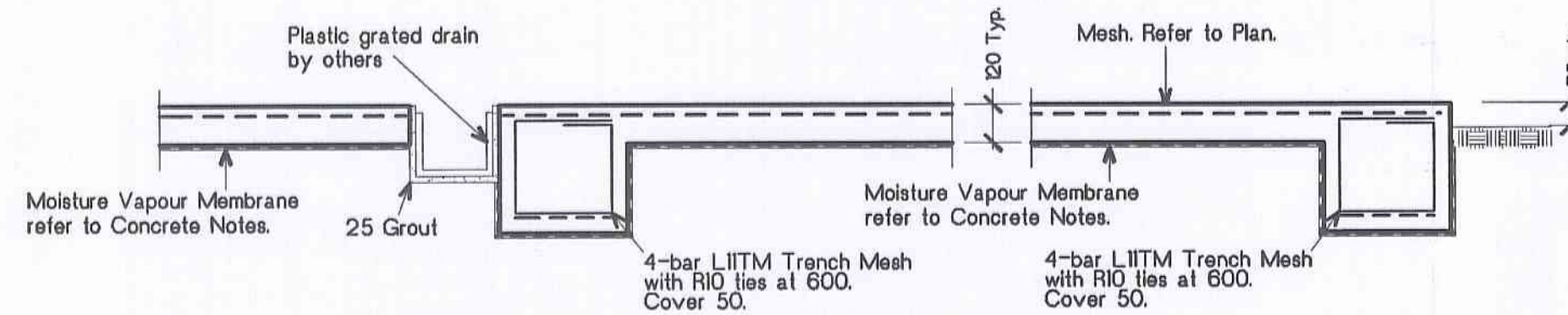


GARAGE ROOF AND LINTEL MARKING PLAN
Scale 1:100

NOTE: All Purlins to be bridged once
SCI = 761 x 23 CHS
All beams to bear on adequate structural supports.
To be Confirmed on Site.
All posts to bear on adequate structural supports.
To be confirmed on site.

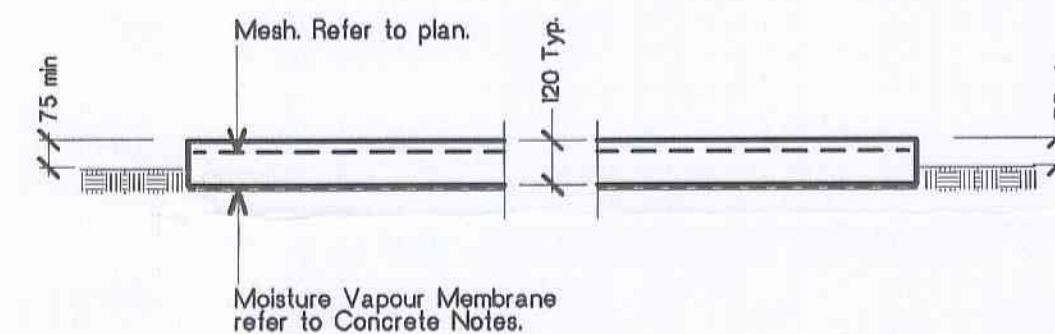


OPTION A

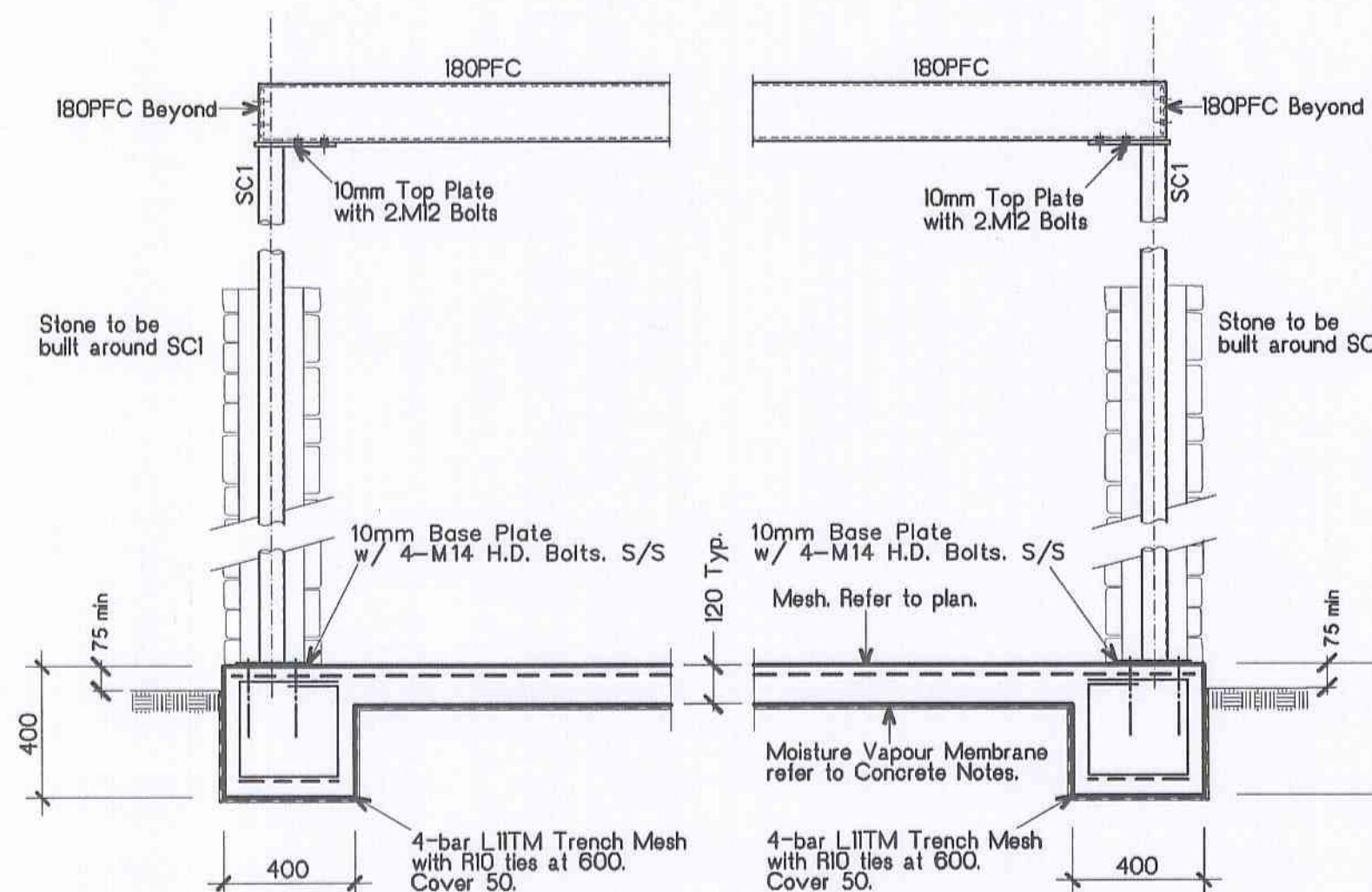


OPTION B

SECTION 1
Scale 1:20



SECTION 2
Scale 1:20

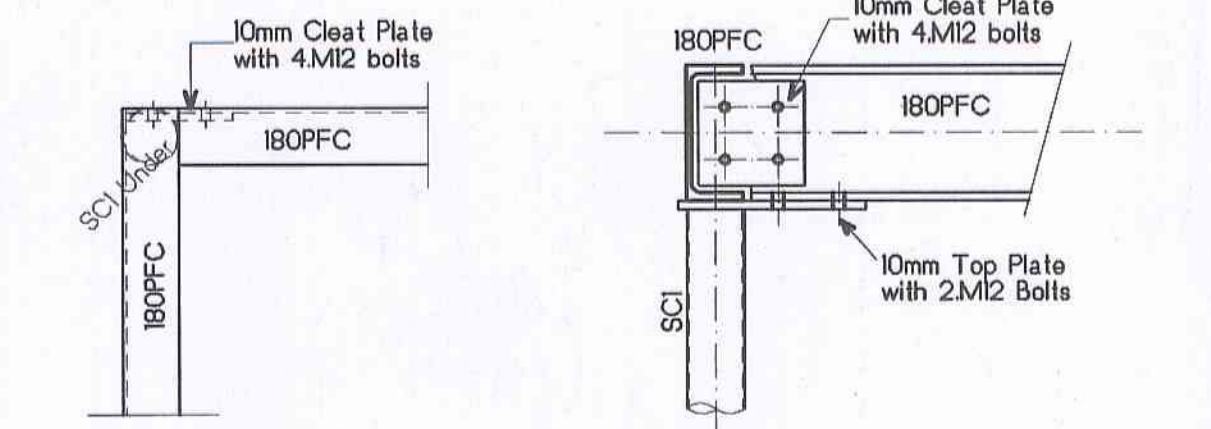
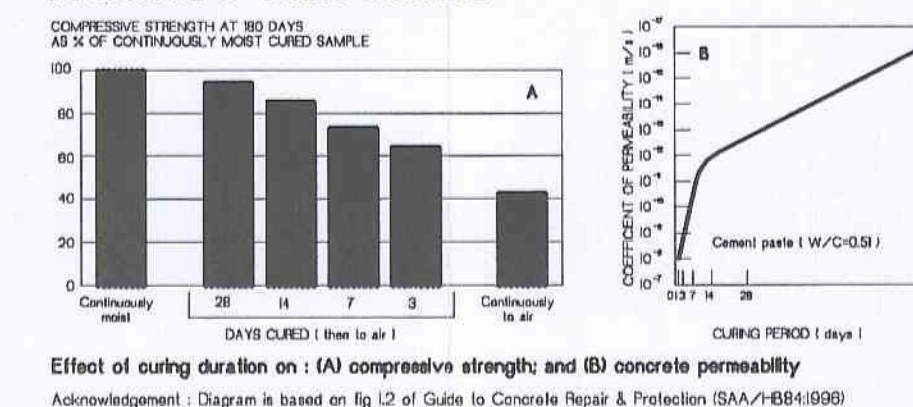


SECTION 3
Scale 1:20

SCI TO BE FACED WITH 50mm thick SAND STONE

WARNING
The stamping of this plan by Insight Building Certifiers Pty Ltd does not relieve:
• The applicant's responsibility to obtain approval from Sydney Water or other utilities.
• The Structural Engineer of their responsibility to ensure the structural adequacy of this project.
• The Applicant, Structural Engineer or other Professional of their responsibility to ensure these stamped details are consistent with the issued Construction Certificate Architectural Details.

IMPORTANCE OF CURING CONCRETE



DETAIL A
Scale 1:10 180PFC TO 180 PFC CONNECTION
Scale 1:10

CONCRETE & BLOCK NOTES
1. All concrete work to be in accordance with AS 3600.
2. F'c Refer to table.
3. Maximum aggregate size = 20 for footings, slabs & beams.
4. Slump = 80.
5. All concrete, including block filling, to be vibrated.
6. Slabs to be kept damp for at least 14 days after placing.
7. All blockwork to be in accordance with SAA Masonry Code AS 3700.
8. All cavities of block work to be thoroughly cleaned out, using knock out blocks or other suitable means, before filling with grout or concrete.
9. 200 & 300 blocks to be hollow retaining wall blocks with a characteristic strength of 20 MPa.
10. Blocks may be filled with a C 1L 0.5 : 3 4.5 mortar as the block laying proceeds.
11. Reinforcing Steel to comply with AS/NZS 4671:2001, and to be D500N unless noted otherwise. (where 500 = strength grade in megapascals & N = Normal ductility class).
12. Bar Chairs to be no more than 800mm centre to centre spacings.
13. Reinforcement to be tied at every other intersection minimum.
14. Metal roofing being used as formwork (not Bondock or similar). Depth of Slab must be taken from the Top of the Roof Rib. Specified bottom cover must be taken from the Top of the Roof Rib or be protected by an approved curing membrane.
15. Moisture Vapour Membrane to be 200 Microns thick, L.V.V. Resistant and to be in accordance with AS 2870-1998. Acceptable manufacturers and processors of steel reinforcement must hold a valid certificate of approval, issued by the Australian Certification Authority for Reinforcing Steel Ltd (ACRS), or to an equivalent certification system as may be approved in writing by the specifier. Evidence of compliance with this clause must be obtained when the contract bids are received.

STEELWORK NOTES
1. Fabricate and erect all structural steelwork in accordance with AS 3600, AS 4100, AS 1554 and the Specification.
2. Do not obtain dimensions by scaling the structural elements.
3. Chip all welds free of slag.
4. All steelwork to be Hot Dipped Galvanised Unless Otherwise Noted.
5. Unless otherwise noted use:
a) 6mm continuous fillet weld
b) 10mm thick gusset, fin and end plates, weld all round.
c) 16mm dia. 4.6/s bolts
6. Minimum end bearing 150mm.

No.	Amendment	Drawn	Date
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PLAN OR DOCUMENT CERTIFICATION

I am a qualified.....CIVIL, GEOTECHNICAL & STRUCTURAL ENGINEER.....
I hold the following qualifications or licence No.....MEngSc.....
.....F.I.E.Aust.....Nper3.....StructCivNoW9788.....
Further I am appropriately qualified to certify this component of the project.
I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia.
A.S.1170, A.S.1170.1, A.S.1170.2, A.S.1684, A.S.2870.1, A.S.3500, A.S.3600, A.S. 3700, A.S.4100 & A.S.1863
Jack D. Hodgson 14/5/07
Name Date Signature

SLAB AND DRIVEWAY DETAILS

PROPOSED ADDITIONS AND ALTERATIONS

40 BILWARA AVE
BILGOLA PLATEAU

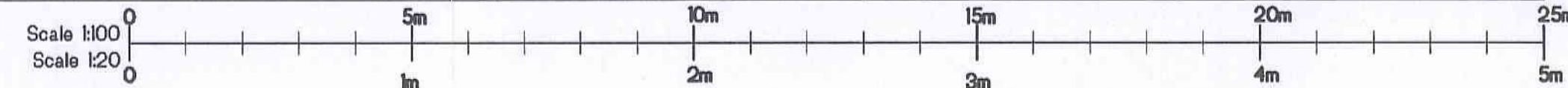
PHILLIP PONTON

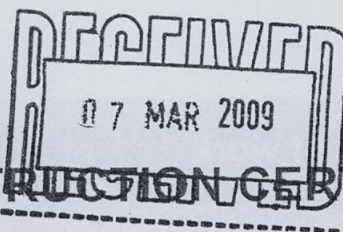
Our design and drawings are based upon and derived from information (including levels, surveys, etc) provided by the owner/architect/designer/builder. (ARCH NAME, DRAWING NUMBER, DATE ETC)
Should the information provided to us be found to be deficient, unreliable, incorrect or inaccurate then our design/drawings may require modification. We take no responsibility for verifying the accuracy of the information that forms the basis of our brief and it is your obligation to verify it prior to the commencement of building operations.

The Structural Details shown on this Drawing are NOT to change under any circumstance.
NO Certificate will be issued for work NOT in accordance with the Drawing

JACK HODGSON CONSULTANTS PTY. LIMITED.
Consulting Civil, Geotechnical, and Structural Engineers
67 Darley Street, MOKA VALE 2103 P.O. Box 389, Post Code 1690.
Telephone (02) 8678 6733, Facsimile (02) 8678 6828.
Email info@jchodgson.com.au web www.jchodgson.com.au A.C.N. 053 405 011

Designed: JLH Drawn: JLH
Design Check: JDH Drawing Check: JDH
Date: 13 MAY 2007
Drawing No: 24376-S1





APPLICATION FOR A CONSTRUCTION CERTIFICATE

1. Applicant's details

It is important that we are able to contact you if we need more information. Please give us as much details as possible

Mr ☒ Mrs ☐ Ms ☐ Dr ☐ Other

Given Names (or ACN)

PHILLIP

Family Name (or Company)

PONTON

Postal Address (we will post all mail to this address)

40 BILWARA AVE BILGOLA PLATEAU

Post Code 2107

Daytime telephone

02 9918 6515

Alternate no.

0416 099977

Mobile no.

0416 329336

2. Owner's consent

Every owner of the land must sign this form. If the owner is a company the form must be signed by an authorized director and the common seal must be stamped on this form. If the property is a unit under the strata title or a lot in a community title, then in addition to the owner's signature, the common seal of the body corporate must be stamped on this form over the signature of the owner and signed by the Chairman or Secretary of the Body Corporate or the appointed managing agent.

Owner(s)

PHILLIP PONTON, CATHERINE PONTON

Address

40 BILWARA AVE BILGOLA PLATEAU 2107

As owner(s) of the land to which this application relates, I/We consent to this application. I/We also consent for the Principal Certifying Authority and/or Accredited Certifier to enter the land to carry out inspections relating to this application.

Signature(s)

[Signature] C. Ponton

Without the owner's consent we will not accept the application. This is a very strict requirement for all applications. If you are signing on the owner's behalf as the owner's legal representative, you must state the nature of your legal authority and attach documentary evidence (eg, power of attorney, executor, trustee, company director, etc).

3. Location of property

Unit/Street no.

40

Street name

Bilwara Avenue

Suburb

Bilgola Plateau

Post code

2107

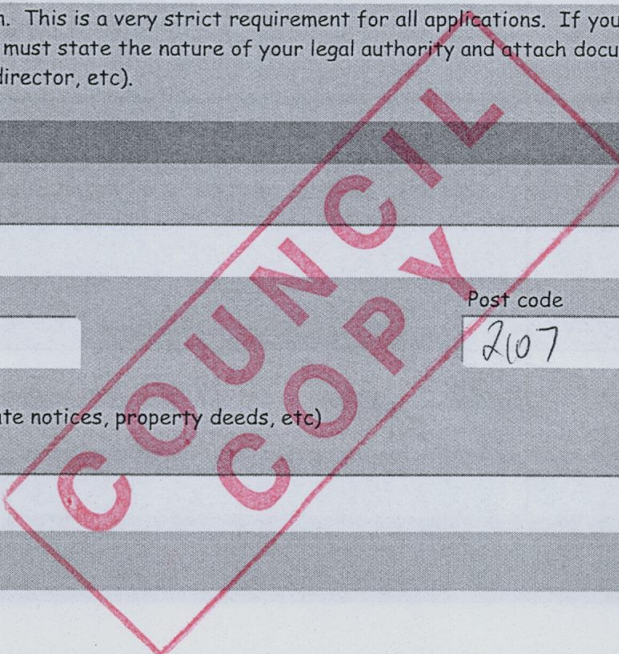
Legal Property Description (these details are shown on your rate notices, property deeds, etc)

Lot no.

4

DP no.

30870



4. Description of work

What type of work do you propose to carry out?

Please describe briefly everything that you want approved.

Alteration & additions to existing dwelling including carport
(Excluding Retaining Wall)

5. Estimated cost of work

The estimated cost of the development or contract price may be subject to review

Estimated cost of work \$ 50,000.00

6. Development Consent

Council Consent no. NO528/06

Date of Determination 10/11/06

Consent Extension Granted 12/8/08

7. Building Code of Australia classification

This can be found on the development consent

BCA Classification 1a & 10a

8. Builder's details

If known, to be completed in the case of residential building work

Name

Phillip Ponton

License no.

—

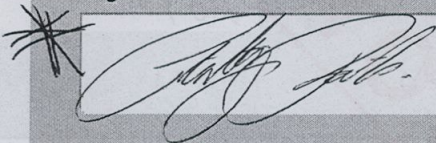
Owner/builder permit no.

324040P

9. Applicant's declaration

I apply for a Construction Certificate to carry out building works as described in this application. I declare that all the information in this application and checklist is, to the best of my knowledge, true and correct.

Signature

 C. Ponton

Date

25.02.09

SUBMISSION REQUIREMENTS

A. GENERAL

Are the plans submitted with the Construction Certificate Application in accordance with the Development Consent?

Yes ☒ No ☐

Have all the conditions of Development Consent relating to the issue of the Construction Certificate been fully complied with?

Yes ☒ No ☐

If you have answered NO to either of the above questions, then you will need to speak with the Accredited Certifier BEFORE LODGING YOUR APPLICATION.

B. ALL PROPOSALS (has the following required information been submitted?)

Yes	No	Not Applicable
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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In the case of an application for a Construction Certificate for building work:

Three (3) copies of detailed architectural plans and specifications

The plan for the building must consist of a general plan drawn to a scale not less than 1:100 and a site plan drawn to a scale not less than 1:200. The general plan of the building is to:

- show a plan of each floor section
- show a plan of each elevation of the building
- show the levels of the lowest floor and of any yard or unbuilt on area belonging to that floor and the levels of the adjacent ground
- indicate the height, design, and full construction details
- indicate the provision for fire safety and fire resistance (if any)

Where the proposed building work involves any alteration or addition to, or rebuilding of, an existing building, all copies of the general plan are to be coloured or otherwise marked to the satisfaction of the Council to adequately distinguish the proposed alteration, addition or rebuilding with a separate letter listing the proposed changes being submitted.

3 copies of a specification:

- to describe the construction and materials of which the building is to be built and the method of drainage, sewerage and water supply
- state whether the materials proposed to be used are new or second hand and give particular

Where the proposed building work involves a modification to previously approved plans and specifications the general plans must be coloured or otherwise marked to the satisfaction of the Accredited Certifier to adequately distinguish the modification.

If the proposed building work involves a modification to previously approved plans and specification which were subject of a Development Consent, has the original Development Consent been modified by Council?

Except in the case of an application for, or in respect of domestic building work:

- a list of any fire safety measures that are proposed to be implemented in the building or on the land on which the building is situated, and
- if the application relates to a proposal to carry out any alteration or rebuilding of, or addition to, an existing building, a separate list of such of those measures as are currently implemented in the building or on the land on which the building is situated. This list must specify the standard of design of each of those fire safety measures to which they were originally installed.
- This list must describe the extent, capability and basis of design of each of the measures concerned.

Copy of BASIX Certificate & Report.

All other documentation to satisfy conditions of Development Consent.

HOME BUILDING ACT 1989 (as amended) OWNER/BUILDER REQUIREMENTS

Applicants for work at a residential property with a value of work over \$12,000 require insurance as specified in the Home Building Act 1989.

Owner Builders require Property Owner Builder's Permit issued by the Department of Fair Trading for all projects over \$5,000. In addition to this permit all projects valued in excess of \$12,000 may also require a contract of insurance under the provisions of the Home Building Act 1989 as amended. This requirement will take effect should the property owner offer the property for sale in the ensuing period of 7 years.

Enquiries on any matters relevant to this section should be taken up with the Department of Fair Trading at Level 21, Astra House, 227 Elizabeth Street, Sydney (ph: 133220).

LONG SERVICE LEVY (applies to all classes of buildings)

A Long Service Levy at 0.35% of the cost of works is payable on projects valued \$25,000 or more. This sum can be paid directly to the Long Service Payments Corporation or to Council acting as an agent to the Corporation. Partial exemption from the levy may be granted to non profit organizations, churches and to owner/builders. The levy may also be paid in instalments. Application forms for these exemptions are available from Council but all enquiries in this regard should be address to the Long Service Payments Corporation.

THE CONSTRUCTION CERTIFICATION CANNOT BE ISSUED UNLESS THE LONG SERVICE LEVY AND HOME BUILDING ACT 1989 INSURANCE (APPLICABLE TO RESIDENTIAL PROPERTIES) HAVE BEEN PAID, OR EVIDENCE OF THE EXEMPTION PROVIDED TO COUNCIL.

PARTICULARS OF THE PROPOSAL

What is the area of the land (m ²)? 969m ²	Gross floor area of building (m ²) as proposed: 190m ²
What are the current uses of all or parts of the building(s)/land? Residential	Location: 60 Bilwara Avenue Bilgola Valeau Use: Residential
Does the site contain a dual occupancy? No	What is the gross floor area of the proposed addition or new building (sq metres)? Unknown
What are the proposed uses of all parts of the building(s) land? Residential	Number of pre-existing dwellings: 1
Number of dwellings to be demolished: None	How many dwellings proposed? 1
How many storeys will the building consist of? 2	Will the new building be attached to the existing building? Yes Will the new building be attached to any new building? Yes

MATERIALS TO BE USED

The following information must be supplied for the Australian Bureau of Statistics:

Place a tick (✓) in the box which best describes the materials the new work will be constructed of:

WALLS		FLOOR		ROOF		FRAME	
Brick veneer	<input checked="" type="checkbox"/>	Concrete	<input checked="" type="checkbox"/>	Aluminium	<input type="checkbox"/>	Timber	<input checked="" type="checkbox"/>
Full brick	<input type="checkbox"/>	Timber	<input type="checkbox"/>	Concrete	<input type="checkbox"/>	Steel	<input type="checkbox"/>
Single brick	<input type="checkbox"/>	Other	<input type="checkbox"/>	Concrete tile	<input type="checkbox"/>	Other	<input type="checkbox"/>
Concrete block	<input type="checkbox"/>	Unknown	<input type="checkbox"/>	Fibrous cement	<input type="checkbox"/>	Unknown	<input type="checkbox"/>
Concrete/masonry	<input type="checkbox"/>			Fibreglass	<input type="checkbox"/>		
Concrete	<input type="checkbox"/>			Masonry/terracotta shingle	<input type="checkbox"/>		
Steel	<input type="checkbox"/>			Tiles	<input type="checkbox"/>		
Fibrous cement	<input type="checkbox"/>			Slate	<input type="checkbox"/>		
Hardiplank	<input checked="" type="checkbox"/>			Steel	<input checked="" type="checkbox"/>		
Timber/weatherboard	<input type="checkbox"/>			Terracotta tile	<input type="checkbox"/>		
Cladding-aluminium	<input type="checkbox"/>			Other	<input type="checkbox"/>		
Curtain glass	<input type="checkbox"/>			Unknown	<input type="checkbox"/>		
Other	<input type="checkbox"/>						
Unknown	<input type="checkbox"/>						



PITTWATER COUNCIL

ABN 61 340 837 871

02 9970 1111

02 9970 7150

PO Box 882

Mona Vale NSW 1660

DX 9018 Mona Vale

Business Hours

8 00am to 5 30pm, Monday to Thursday

8 00am to 5 00pm, Friday

DA No N0528/06

12 August 2008

JOANNE WILLMORE
11 HUDSON PARADE
AVALON NSW 2107

Dear Sir/Madam

Extension of Development Consent for Alterations and additions and a retaining wall

40 BILWARA AVENUE BILGOLA PLATEAU NSW 2107

Pursuant to Section 95A of the Environmental Planning and Assessment Act, 1979 (as amended), please be advised that an extension of the above Development Consent has been granted to 10/11/09

Please note that the consent will lapse if building, engineering or construction work relating to the building is not physically commenced on the land to which the consent applies by this date

Yours faithfully

Grant Walsh
SENIOR PLANNER

**COUNCIL
COPY**

pittwater_council@pittwater.nsw.gov.au - pittwater.nsw.gov.au

FORM NO

OFFICE USE ONLY

PLEASE PRINT ALL DETAILS USING CAPITALS

Pittwater Council

OFFICIAL RECEIPT

25/12/2008 Receipt No 255,94

To: Phillip Porton

47 Bulwara Ave
Scone Plateau

Application Reference	Amount
GL Re ECTR-Eng	\$44.00
GL Pe OLEL-Bull	\$175.00

Total \$221.00

Amounts Tendered

Cash	\$0.00
Cheque	\$221.00
Debit Card	\$0.00
Money Order	\$0.00
Agency Rec	\$0.00
Total	\$221.00
Roundling	\$0.00
Change	\$0.00
Nett	\$221.00

Printed 25/02/09 11:25:25

Cashier JCurren

0N

LIP

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1LWARA AVE

00000000000000000000

0LA PLATEAU

scode 2107 Bus hours phone 02 99186315

1LWARA AVE

00000000000000000000

0LA PLATEAU

ostcode 2107

3 Y 2009 Estimated finish date D 24 M 12 Y 2009

WATER

8/06

500000 Levy payable \$ 175.00

DA number here 0000000000000000 (0.35%)

Date D 00 M 00 Y 0000

Business hours phone 0000000000

water Council

8/06 Contract amount \$ 175.00

175

Phone number 99301111

Date D 25 M 02 Y 2009

Contact person (Signature)

any false or misleading information provided on this form may result in prosecution under Section 58A
hereby declare that the information provided on this form is true and correct to the best of my knowledge

ame

P. PONTON

Signature

Date D 23 M 02 Y 2009

emption Approval Certificate No

Building and Construction Industry Long Service Payments Corporation Locked Bag 3000 Central Coast MC NSW 2252

Tel 13 14 41 Fax (02) 9287 5685 Email levy@lspc.nsw.gov.au www.lspc.nsw.gov.au ABN 93 646 090 808

Jan06/1a0



Pittwater Council
Information for Access Driveway Profiles
1 July 2006 – 30 June 2007

To PA & CE Ponton
Postal Address 40 Bilwara Ave
Bilgola Plateau, 2107

Date 14th August 2007

Receipt No 220861
Amount 71 00

ACCESS DRIVEWAY PROFILE AT 40 Bilwara Ave Bilgola Plateau

- The proposed vehicular access driveway profile shall be as per the enclosed plan **NL**
- **Type of Construction** Domestic
 - **For Residential single & dual occupancy** - 20MPa Concrete, 150mm thick
 - **For Other** - 20MPa Concrete, 180mm thick with F72 mesh
- **Slab Construction** *Vehicular access slab 3 6m long, 3 5m wide at gutter crossing to 3 5m wide at the boundary*
- Council will only permit an absolute maximum gradient of 25% (1 in 4) measured at any point on the driveway and that an ease may be required for access into the car stand area, carport or garage Refer to relevant attached profile
- All work within the road reserve (including excavation) in connection with the above, is to be carried out by authorised Contractors only,
- Quotations for the work specified above should be obtained from any of the contractors on Council's list and should be for the whole of the work stated,
- Construction of vehicular access will be strictly in accordance with the profile supplied, and
- A formwork inspection by Council is required prior to construction (Provide minimum 24 hours notice)

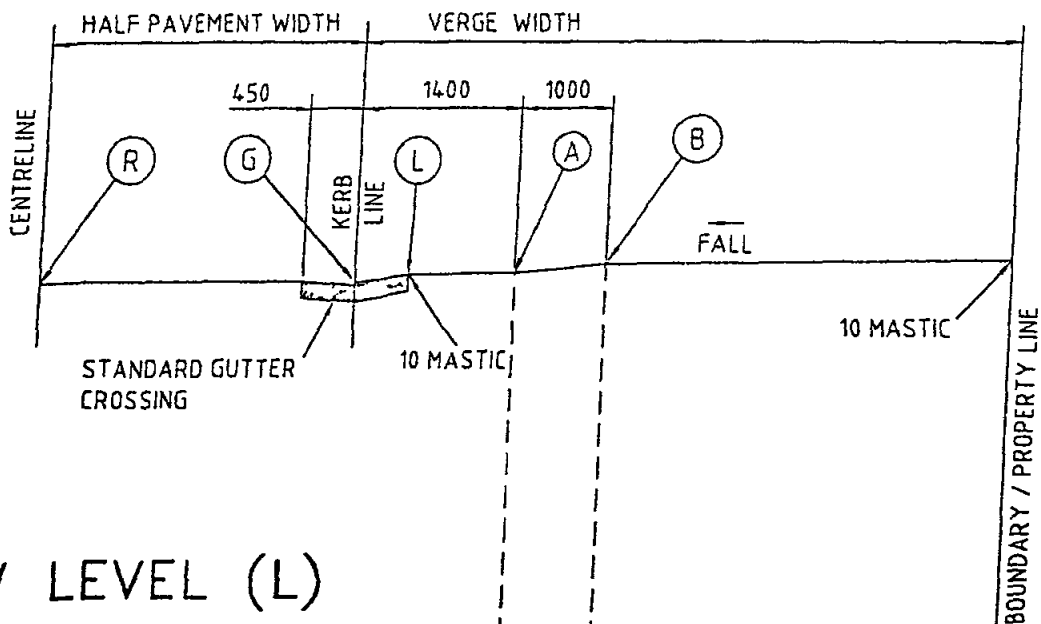
- 1 **NOTE THAT THIS INFORMATION SHEET DOES NOT CONSTITUTE AN APPROVAL TO COMMENCE OR PROCEED WITH ANY WORK ON SITE**
- 2 **A SECTION 139 CONSENT UNDER THE ROADS ACT – 1993 IS REQUIRED (FORM UI203)**
- 3 **FAILURE TO OBTAIN SUCH CONSENT PRIOR TO COMMENCING WORK WILL INCUR A PENALTY**

S. Melderis

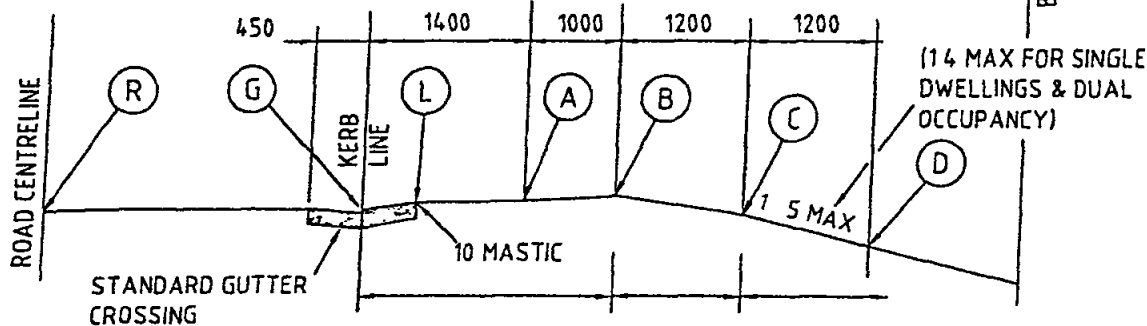
Sigi Melderis
ASSETS / RESTORATIONS OFFICER
Telephone 9970 1348

**COUNCIL
COPY**

NORMAL (N)



LOW LEVEL (L)




(1 6) (1 6—1 2) (1 2)
(MAX BATTER FROM EDGE OF DRIVEWAY TO FINAL G L)
(WHERE THERE IS NO CONSTRUCTED FOOTPATH)

POINT	REMARKS	LEVELS
R	ROAD CENTRELINE	
G	INVERT OF GUTTER	
L	BACK OF LAYBACK	100 ABOVE "G"
A	1400 FROM KERB LINE	130 ABOVE G
B	2400 FROM KERB LINE	150 ABOVE G
C	3600 FROM KERB LINE	MAX 20 ABOVE G"
D	4800 FROM KERB LINE	MAX 130 BELOW G

NOTE

- To be read in conjunction with Pittwater 21 Development Controls



PITTWATER COUNCIL

Standard Driveway Profile

NORMAL TO LOW

PLAN No

PWC-DW6

REV No

B

DATE

26/8/05



Pittwater Council

List of Council Authorised Concrete Contractors For Vehicle Footpath Crossings & Associated Works

- The following contractors are authorised to carry out the above construction within the road reserve in the Pittwater Council area. No other persons are permitted to carry out excavation or any other part of this work.
- Please note that the contractors are specifically recommended as vehicle footpath crossing contractors only and in some instances the contractors may not hold a Builder's Licence or a Restricted Builder's Licence.

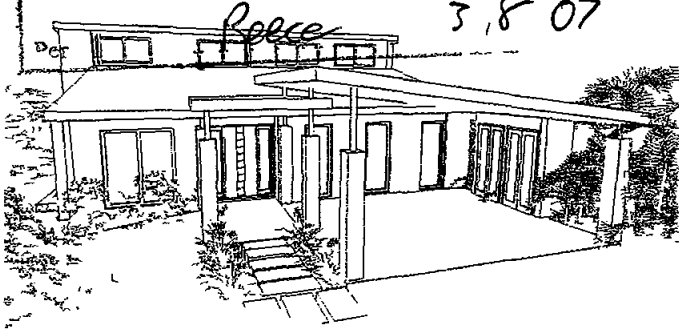
Company Name	Address1	Address2	Phone	Mobile
4DV Constructions Pty Ltd	670A Twelfth Avenue	ROSSMORE NSW 2717		0417 458 664
A K Concrete Solutions Pty Ltd	164 Madagascar Drive	KINGS PARK NSW 2148	9837 8322	0412 392 355
All In One Concrete & Property Maintenance	21 Parkland Road	CARLINGFORD NSW 2118		0412 048 248
Acacia Paving	71 Smith Avenue	ALLAMBIE NSW 2100	9939 3917	0414 397 055
Action Concreting & Const Pty Ltd	P O Box 521	COLLARROY NSW 2097	9982 2135	0414 355 772
A-Grade Concrete	PO Box 6142	NARRAWEENA NSW 2100	9982 2616	0410 565 777
Anton Constructions Pty Ltd	730 Ourimbah Creek Road	PALMGROVE NSW 2258	4362 9605	0418 236 651
Antonio Tomaino	97 Wyadra Avenue	NORTH MANLY NSW 2099	9938 3841	0422 994 938
Arch Concreting Services Pty Ltd	67 Fullers Road	CHATSWOOD 2067	9904 6949	0419 424 930
Barrie Bree Concreting	29 Seaview Avenue	NEWPORT NSW 2106	9997 8840	0415 183 146
Ben Papandrea	8/6 Cohen Street	FAIRLIGHT NSW 2094	9948 3713	0422 849 111
Brook Concrete P/L (Bomanite)	26 Adderton Road	TELOPEA NSW 2117	9638 2926	0418 218 671
C & J Concreting	35 Port Erringhi Road	EBENEZER NSW 2756		0414 799 338
Capano Concrete Pty Ltd	40 Rowley Street	SMITHFIELD NSW 2164	9604 8715	0409 838 238
Castlepeake Homes Pty Ltd	121 Alexander Street	CROWS NEST 2065	9437 1800	0439 404 505
Coastline Concrete Pty Ltd	47 Blighs Road	CROMER NSW 2099	9982 4805	0412 278 507
Cubic Concrete	12A Linden Street	MOUNT DRUITT NSW 2770		0407 016 064
Cunneen and Mayne Building Construction	PO Box 6558	BAULKHAM HILLS BC 2153	9680 7081	0409 455 937
D Spencer & Associates	7/1 Marina Close	MOUNT KURING-GAI NSW 2080	9457 0332	0425 212 570
Danalig Pty Ltd	8 Rydal Street	WHEELER HEIGHTS 2097		0412 383 993
Danscapes Pty Ltd	PO Box 764	CARINGBAH NSW 1495	9523 3335	0416 107 283
Danstruct Building Contractors	4 Peal Place	WARRIEWOOD 2102		0418 668 840
Foster Civil Contracting Constructions P/L	PO Box 7278	KARIONG NSW 2250	4376 1081	0418 213 248 0418 427 879
Franks Concrete	PO Box 983	MONA VALE NSW 2103	9997 3999	0418 225 871
Freshwater Environmental Constructions	3/72 Harbord Road	HARBORD 2096	9905 3770	0414 543 957
G & D Concrete Pty Ltd	58 Parkes Road	COLLARROY NSW 2097	9982 4780	0418 644 887
H J Bellamy & Sons Pty Ltd	P O Box 541	COLLARROY NSW 2097	9981 4137	0418 280 904
Hosni Construction Pty Ltd	12 Gosling Street	GREENACRE NSW 2190	9759 5311	0414 401 282
Ingleside Landscaping Pty Ltd	145 Wirreanda Road	INGLESIDE 2101	9450 2404	0408 296 359
Jems Concreting Design Pty Ltd	20 Olive Street	FAIRFIELD NSW 2165	9724 4153	0419 435 220
John Florimo	Lot 4 Oxford Falls Road	OXFORD FALLS NSW 2100	9453 5637	0415 296 978
J M & G Construction Pty Ltd	25 Orleans Circuit	CECIL HILLS 2171	9822 0859	0404 848 980
Kakoda Concrete Pty Ltd	32 Aldinga Road	WAMBERAL NSW 2260	4384 2460	0421 342 177

SITE CALCULATIONS EXISTING	PROPOSED
SITE AREA 969 6 sqm	
SITE COVERAGE house & deck 190 50 sqm driveway 74 00 sqm carport 0 sqm cubby house - 2 50 sqm entry porch 0 sqm paths 12 00 sqm total 279 00 sqm (28 78 %)	SITE COVERAGE house & deck 190 50 sqm driveway - 31 00 sqm carport 34 00 sqm cubby house 2 50 sqm entry porch - 7 50 sqm paths- 12 00 sqm total 277 50 sqm (28 62 %)
SOFTLANDSCAPED AREA -front 66 5 sqm rear&west 610 sqm total 676 5 sqm (69 77%)	SOFTLANDSCAPED AREA -front- 68 sqm rear & west- 610 sqm total 678 sqm (69 93%)

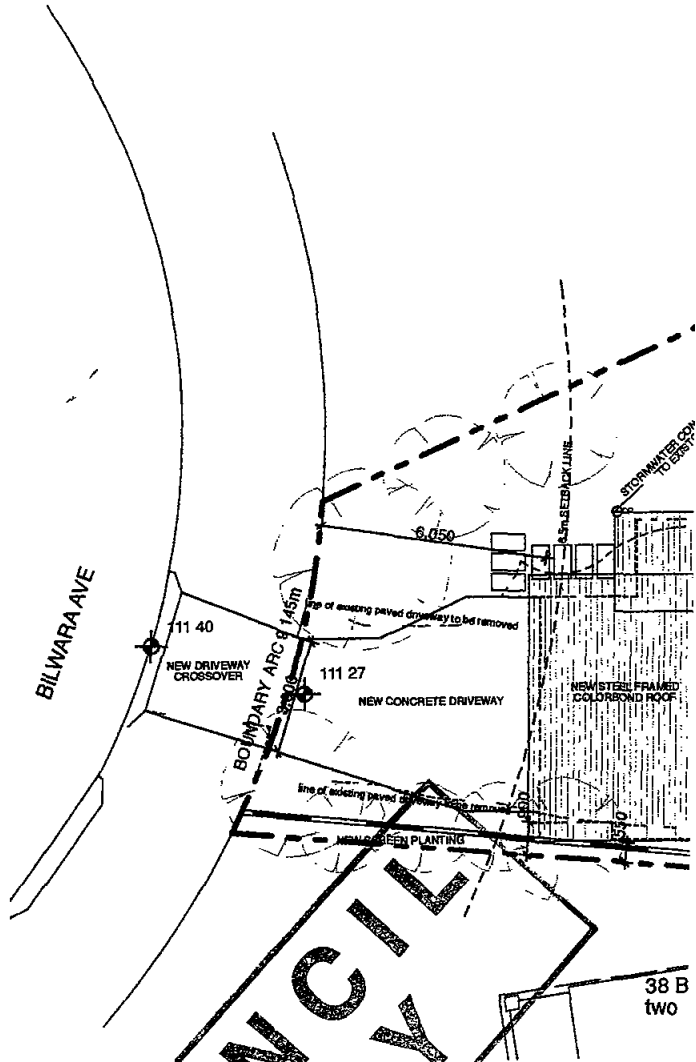
**SYDNEY WATER
APPROVED**

- 1 Position of structure in relation to Sydney Water's assets is satisfactory
- 2 Connections to Sydney Water sewer/water services may only be made following the issue of a permit to a licensed plumber/drainier
- 3 It is the owner's responsibility to ensure that all proposed fittings will drain to Sydney Water's sewer
- 4 Any Plumbing and/or Drainage Work to be carried out in accordance with the Sydney Water Act 1994 AS 3500 and the NSW Code of Practice
- 5 Gullies Inspection Shafts and Boundary Tanks shall not be placed under any Roof Balcony Verandah Floor or other cover unless otherwise approved by Sydney Water
- 6 Property No **T4020F2**

Reece Mona Vale
**Quick Check Agent on behalf of
SYDNEY WATER**



FRONT PERSPECTIVE



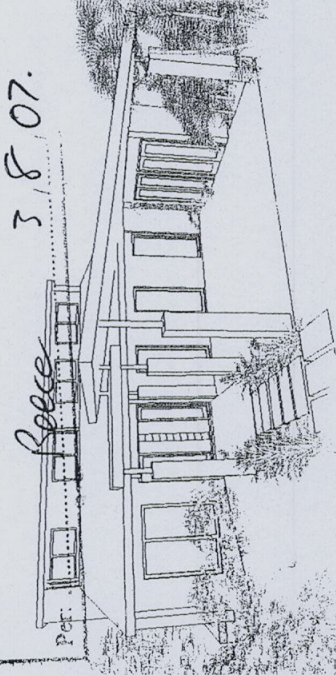
AMENDMENTS

JO WILLMORE DESIGNS
11 Hudson Parade
Clareville NSW 2107
9918 2476
ABN 27 370 370 17

SITE CALCULATIONS - EXISTING SITE AREA	PROPOSED
SITE COVERAGE - house & deck - 190.50 sqm driveway - 74.00 sqm carport - 0 sqm cubby house - 2.50 sqm entry porch - 0 sqm paths - 12.00 sqm total - 279.00 sqm (28.78 %)	SITE COVERAGE - house & deck - 190.50 sqm driveway - 31.00 sqm carport - 34.00 sqm cubby house - 2.50 sqm entry porch - 7.50 sqm paths - 12.00 sqm total - 277.50 sqm (28.62 %)
SOFTLANDSCAPED AREA - front- 66.5 sqm rear & west- 610 sqm total- 676.5 sqm (69.77%)	SOFTLANDSCAPED AREA - front- 68 sqm rear & west- 610 sqm total- 678 sqm (69.93%)

SYDNEY WATER APPROVED

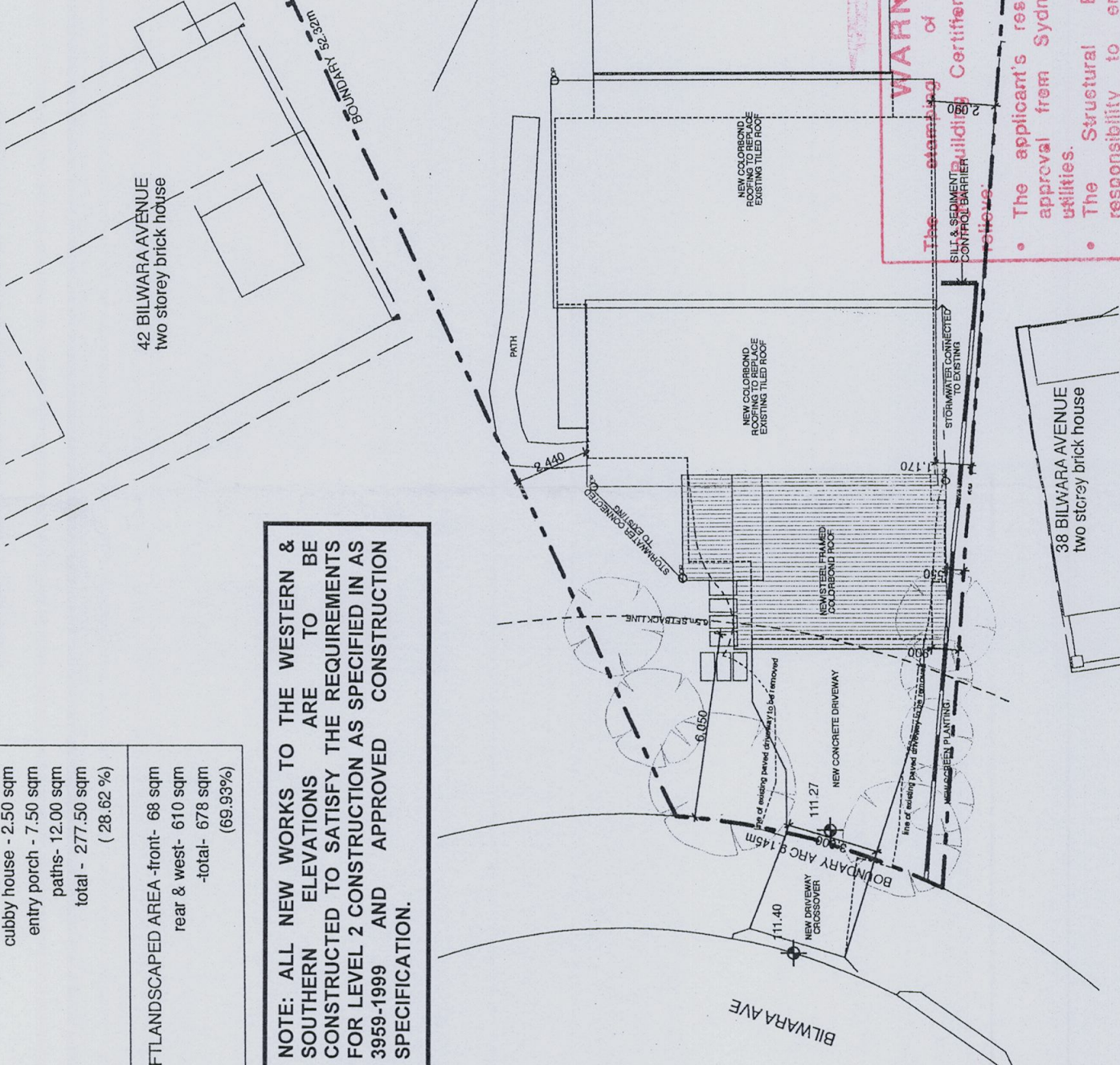
- Position of structure in relation to Sydney Water's assets is satisfactory.
- Connections to Sydney Water sewer/water services may only be made following the issue of a permit to a licensed plumber/drainier.
- It is the owner's responsibility to ensure that all proposed fittings will drain to Sydney Water's sewer.
- Any Plumbing and/or Drainage Work to be carried out in accordance with the Sydney Water Act 1994, AS 3500 and the NSW Code of Practice.
- Gullies, Inspection Shafts and Boundary Traps shall not be placed under any Roof, Balcony, Verandah, Floor or other cover unless otherwise approved by Sydney Water.
- Property No. **7602052**
Reece, Mona Vale
Quick Check Agent on behalf of
SYDNEY WATER



- Building to incorporate BASIX commitments to comply with the attached BASIX Certificate No. _____ dated _____
- Smoke Alarms to be installed in accordance with AS 3786-1993 'Smoke alarms'
- Termite Management to comply with AS 3660 - 2000 'Termite Management - New Building Work'
- Glazing to comply with AS 1288 - 2006 'Glass in Buildings - Selection & Installation' and AS 2047 - 1999 'Windows in Buildings - Selection & Installation'
- Waterproofing of wet areas to comply with AS 3740 - 2004 'Waterproofing of Wet Areas in Residential Buildings'
- Doors to fully enclosed sanitary compartments to comply with Part 3.8.3 'Facilities' of the Building Code of Australia
- External Glazing & Cladding being of minimal reflectance (maximum of 20%)
- External Finishes being in natural, recessive, non-reflective colours and textures
- Balustrades construction to comply with Part 3.9.2.3 - 'Balustrades' of the Building Code of Australia
- Damp-proof membrane must be 'high impact', 0.2mm thick polyethylene film

NOTE: ALL NEW WORKS TO THE NORTHERN & EASTERN ELEVATIONS ARE TO BE CONSTRUCTED TO SATISFY THE REQUIREMENTS FOR LEVEL 3 CONSTRUCTION AS SPECIFIED IN AS 3959-1999 AND APPROVED CONSTRUCTION SPECIFICATION.

NOTE: ALL NEW WORKS TO THE WESTERN & SOUTHERN ELEVATIONS ARE TO BE CONSTRUCTED TO SATISFY THE REQUIREMENTS FOR LEVEL 2 CONSTRUCTION AS SPECIFIED IN AS 3959-1999 AND APPROVED CONSTRUCTION SPECIFICATION.



NOTE: PROPOSED RETAINING WALL DOES NOT FORM PART OF CONSTRUCTION CERTIFICATE CC2009/3221 ISSUED BY INSIGHT BUILDING CERTIFIERS

WARNING
The stamping of this plan by Certifiers Pty Ltd does not constitute an approval of the plan by the Council.

The applicant's responsibility for the approval from Sydney Water or other utilities.

The Structural Engineer of their responsibility to ensure the adequacy of this project.

The Appointed, Structural Engineer or other Professional of their responsibility to ensure these stamped details are consistent with the issued Construction Certificate Architectural Details.

INSIGHT building certifiers pty ltd
CONSTRUCTION CERT. NO. 2009/3221
CONSTRUCTION CERTIFICATE PLANS
I certify that the work completed in accordance with these plans & specifications will comply with the regulations referred to in Section 81A(5) of the Environmental Planning & Assessment Act 1979
S. Pinn Accreditation No. BPB 0326
20 MAK 2009

PROPOSED ALTERATIONS & ADDITIONS

for: P. & K. Ponton
at: 40 Bilwara Avenue, Lot 4 DP 30870
BILGOLA PLATEAU

WILLMORE DESIGNS
11 Hudson Parade
Clareville NSW 2107
9918 2479
ABN 27 370 370 173

date: AUGUST 2006
scale: 1:200

SITE PLAN

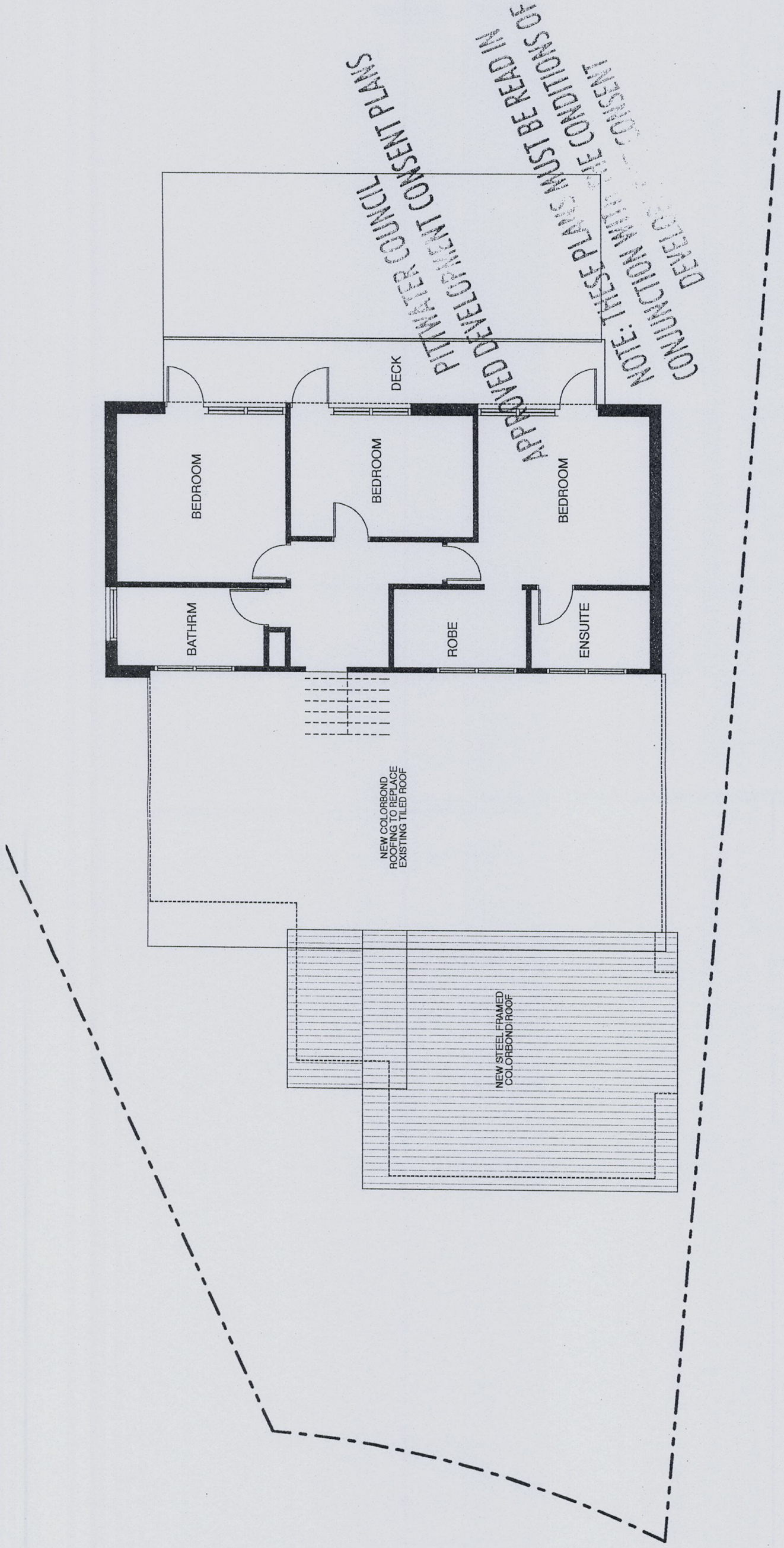
NOTE: Use figured dimension only. Do not scale off drawings. All levels and dimensions to be verified prior to construction of work.

drawing number

DA-1

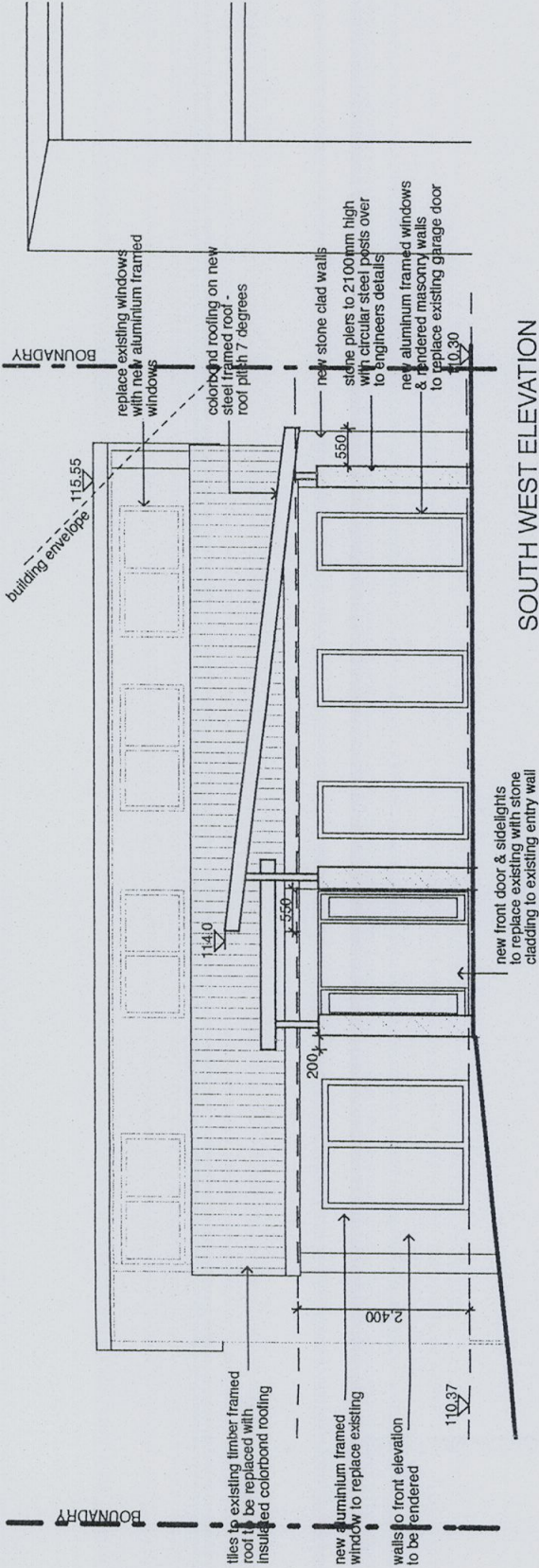


AMENDMENTS	JO WILLMORE DESIGNS 11 Hudson Parade Clareville NSW 2107 9918 2479 ABN 27 370 370 173	<p>PROPOSED ALTERATIONS & ADDITIONS</p> <p>for: P. & K. Ponton</p> <p>at: 40 Bilwara Avenue, Lot 4 DP 30870</p> <p>BILGOLA PLATEAU</p>	<p>drawing title</p> <p>GROUND PLAN</p> <p>NOTE: Use figured dimension only. Do not scale off drawings. All levels and dimensions to be verified prior to construction of work.</p>	<p>date: AUGUST 2006</p> <p>scale: 1:100</p> <p>drawing number</p> <p>DA-2</p>
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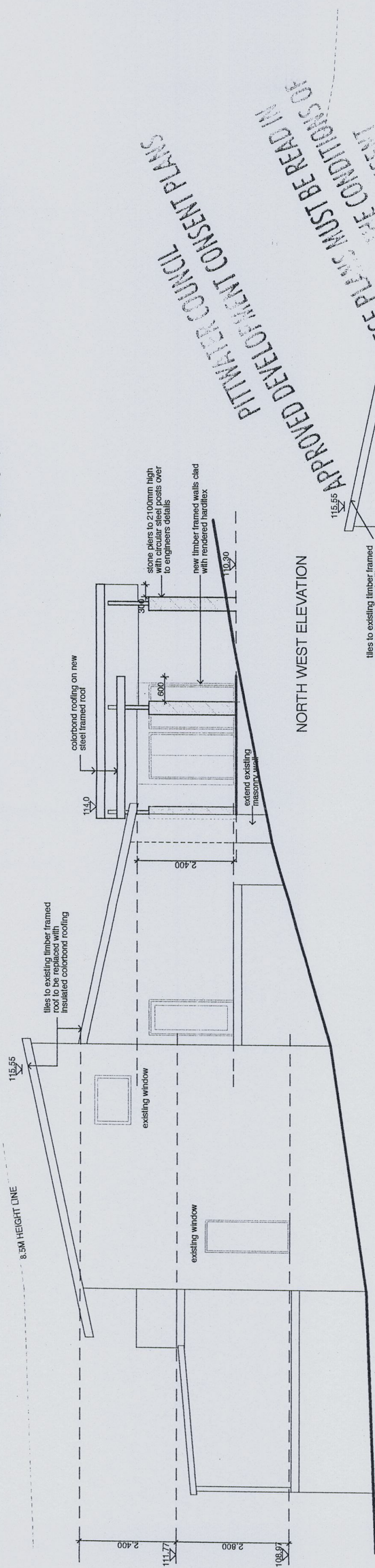


AMENDMENTS	JO WILLMORE DESIGNS 11 Hudson Parade Clareville NSW 2107 9918 2479 ABN 27 370 370 173	PROPOSED ALTERATIONS & ADDITIONS for: P. & K. Ponton at: 40 Bilwara Avenue, Lot 4 DP 30870 BILGOLA PLATEAU		drawing title FIRST FLOOR PLAN	date: AUGUST 2006 scale: 1:100
		NOTE: Use figured dimension only. Do not scale off drawings. All levels and dimensions to be verified prior to construction of work.		drawing number DA-3	

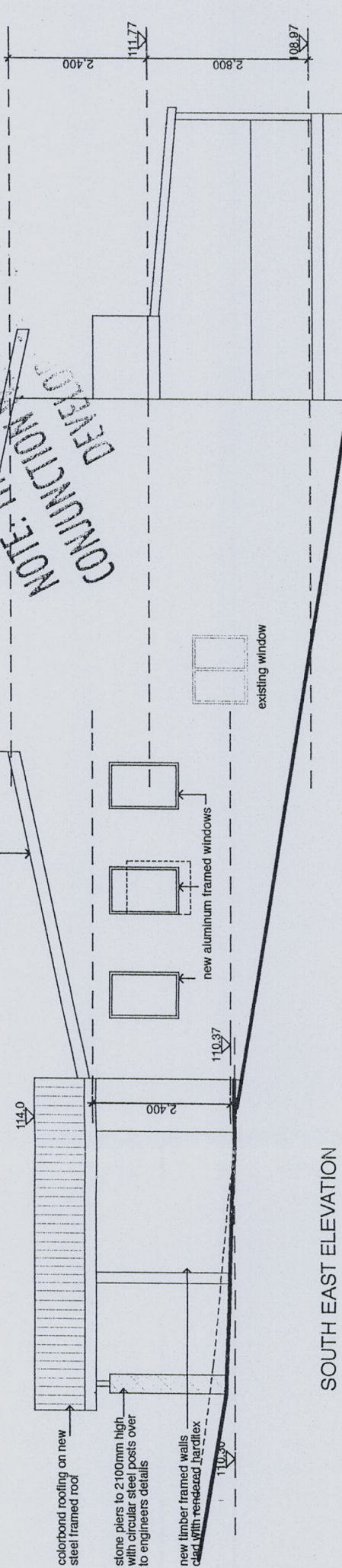
NOTE: ALL NEW WORKS TO THE WESTERN & SOUTHERN ELEVATIONS ARE TO BE CONSTRUCTED TO SATISFY THE REQUIREMENTS FOR LEVEL 2 CONSTRUCTION AS SPECIFIED IN AS 3959-1999 AND APPROVED CONSTRUCTION SPECIFICATION.



SOUTH WEST ELEVATION



NORTH WEST ELEVATION

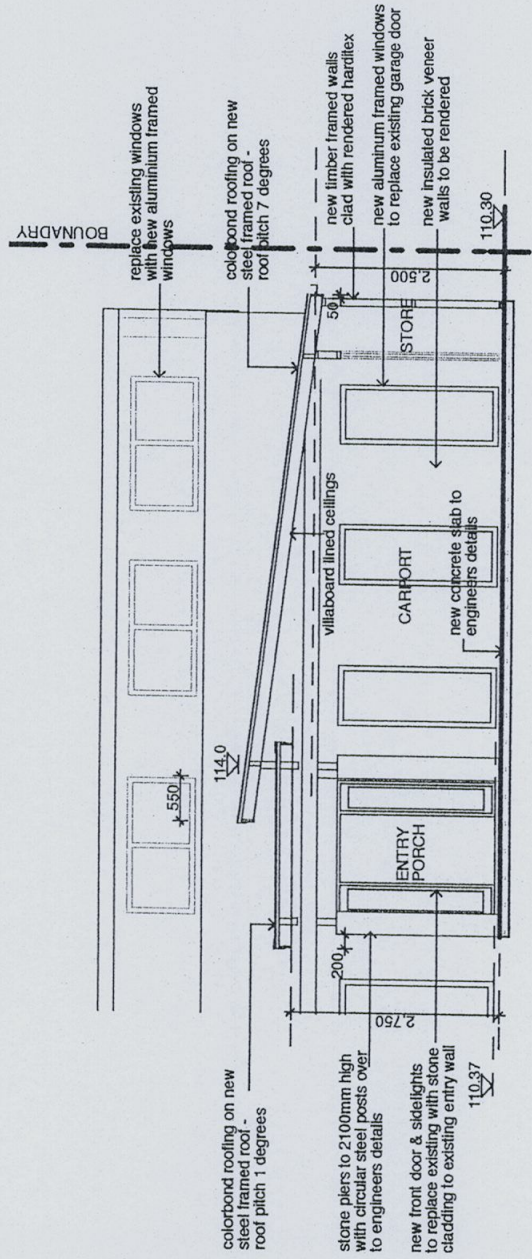


SOUTH EAST ELEVATION

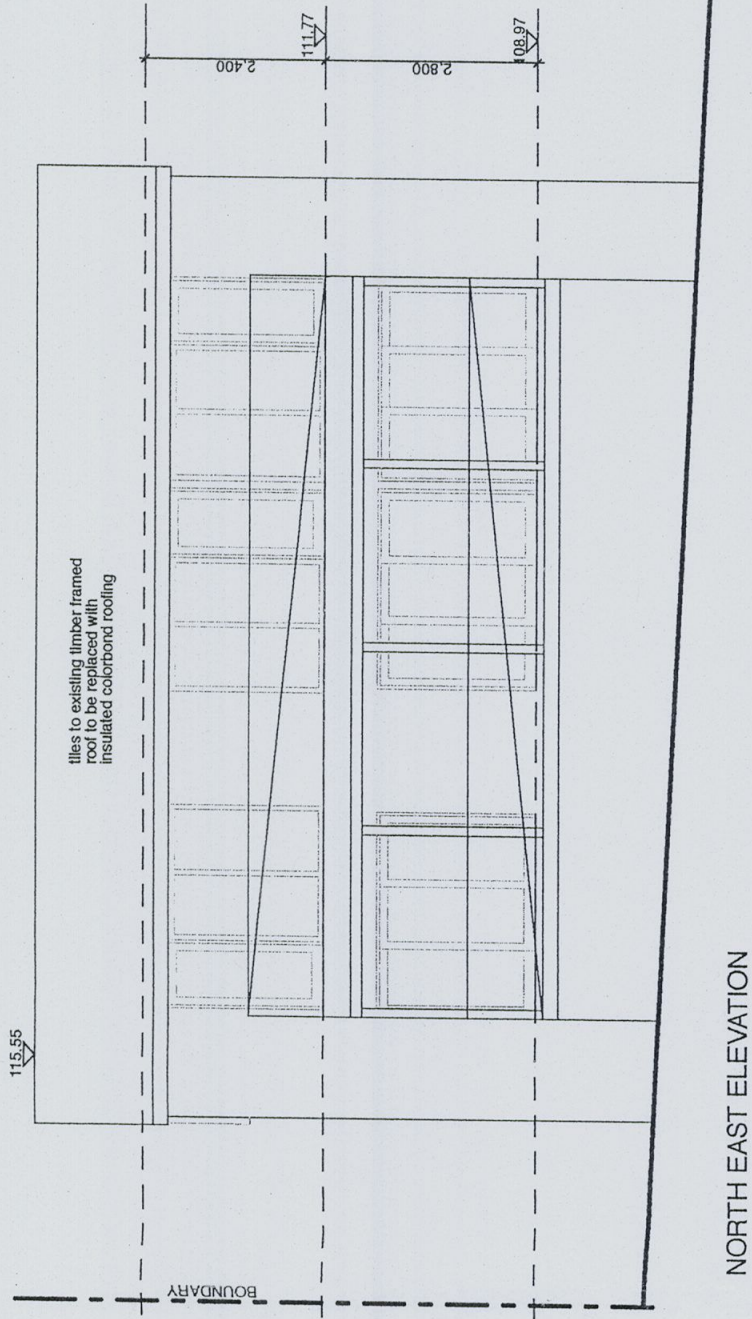
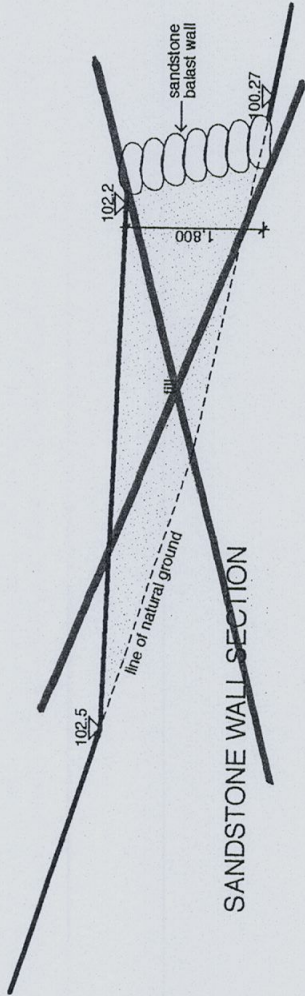
PITTMAN COUNCIL
APPROVED DEVELOPMENT CONSENT PLANS
CONJUNCTION WITH THE CONDITIONS FOR
DEVELOPMENT
NOTE: THESE PLANS MUST BE READ IN
CONJUNCTION WITH THE CONDITIONS FOR
DEVELOPMENT

AMENDMENTS	J O WILLMORE DESIGNS 11 Hudson Parade Clareville NSW 2107 9918 2479 ABN 27 370 370 173	PROPOSED ALTERATIONS & ADDITIONS for: P. & K. Ponton at: 40 Bilwara Avenue, Lot 4 DP 30870 BILGOLA PLATEAU	drawing title ELEVATIONS NOTE: Use figured dimension only. Do not scale off drawings. All levels and dimensions to be verified prior to construction of work	date: AUGUST 2006 scale: 1:100 drawing number DA-4
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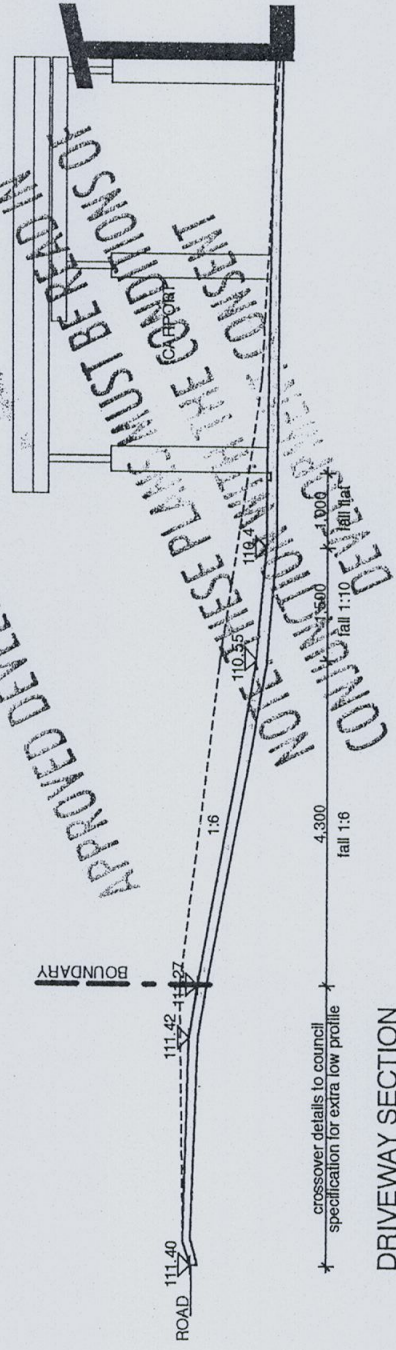
NOTE: ALL NEW WORKS TO THE NORTHERN & EASTERN ELEVATIONS ARE TO BE CONSTRUCTED TO SATISFY THE REQUIREMENTS FOR LEVEL 3 CONSTRUCTION AS SPECIFIED IN AS 3959-1999 AND APPROVED CONSTRUCTION SPECIFICATION.



SECTION AA



NORTH EAST ELEVATION



DRIVEWAY SECTION

AMENDMENTS	JO WILLMORE DESIGNS 11 Hudson Parade Clareville NSW 2107 9918 2479 ABN 27 370 370 173	PROPOSED ALTERATIONS & ADDITIONS for: P. & K. Ponton at: 40 Bilwara Avenue, Lot 4 DP 30870 BILGOLA PLATEAU	drawing title SECTION <small>NOTE: Use figured dimension only. Do not scale off drawings. All levels and dimensions to be verified prior to construction of work.</small>	date: AUGUST 2006
				scale: 1:100
				drawing number DA-5

CC 200/3221

SPECIFICATION OF BUILDING WORKS

**COUNCIL
COPY**

BUILDING TYPE

- SINGLE DWELLING ☐
- VILLA OR TOWNHOUSE ☐
- INDUSTRIAL BUILDING ☐
- DUAL OCCUPANCY ☐
- GARAGE ☐
- OFFICE BUILDING ☐
- MEDIUM DENSITY UNITS ☐
- RETAIL BUILDING ☐
- ADDITION ☐
- FARM SHED ☐
- ☐
- ☐

CONSTRUCTION

- CAVITY BRICK ☐
- TIMBER FRAMED ☐
- A A C BLOCK/PANEL ☐
- BRICK VENEER ☐
- STEEL FRAMED ☐
- MASONRY BLOCK ☐
- SINGLE BRICK ☐
- STEEL CLAD ☐
- CONCRETE PANEL ☐
- F/C SHEET ☐

ADDENDUM

If any difference in requirements exists between this specification and the Building Code of Australia or relevant Standard that may apply to the construction of any building nominated by this specification then the requirements of the Building Code of Australia and/or the appropriate Standard shall take precedence over this specification for any construction

DISTRIBUTORS SOUTHspec PUBLISHING
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NORTH NOWRA NSW 2541

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REVISION 19 – AUGUST 2008
BCA 2008
BASIX (NSW only)

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SPECIFICATION

FOR THE ERECTION AND COMPLETION OF BUILDING AT LOT No

ADDRESS 40 Silwana Avenue

MUNICIPALITY / SHIRE / CITY

FOR Mr Phillip Panton

4

DP No

30870

TOWN/AREA

Isipha Plateau

POST CODE

2607

Hereinafter called the Proprietor

The builder must ensure that relative drawings plans and construction comply with the prescribed construction the Local Government Act the Building Code of Australia and that the work and services performed by the Builder are to the satisfaction of the Proprietor and Lending Authorities

INSPECTION NOTICE

This is to apply only if inspections are required by the Lending Authority. The building is to be inspected by the Society or Bank Representative at the following stages of construction and the Builder is to give the Lending Authority and Owner at least (2) clear working days notice that inspections are required

- 1 When trenches for footings have been prepared or rock surfaces scabbled and in the case of reinforced concrete footings when reinforcement and depth pegs have been placed in position just prior to placing of concrete. Footings must not be commenced until the trenches have been inspected and approved by the Society Representative
- 2 On completion of floor wall and roof framing with noggin in position and veneer walling but before flooring is cut down roof covering is laid and wall linings and sheetings are secured
- 3 When the internal wall coverings have been secured and fixing out commenced apron mouldings must not be fixed until flashings have been inspected and approved
- 4 ON COMPLETION OF BUILDING. The owner is cautioned that if works have advanced beyond these stages without the requisite notices being given inspections made and unsatisfactory conditions are discovered later the offer of a loan or the terms and conditions of a loan may be varied by the lending authority

REGULATIONS AND NOTICES

The builder is to comply with the Building Code of Australia as amended and as applicable to the particular State or Territory in which the building is being constructed and the requirements of legally constituted Authorities for local Government and/or Services. The Builder is to give all notices obtain all permits and pay all fees required by such Authorities. If any difference in requirements exists between this specification and the Building Code of Australia or relevant Standard that may apply to the construction of any building nominated by this specification then the requirements of the Building Code of Australia and/or the appropriate Standard shall take precedence over this specification for any construction. Where materials components design factors and construction methods comply with the Performance Requirements of the B C A these may be accepted by approval authorities as an alternative as per the Deemed to Satisfy Provisions

INSURANCE

Insurance of the works against fire will be effected as nominated in the Building Contract. The Builder shall at his own expense adequately insure against Public Risk and arrange indemnification in respect of his liability under the Workers Compensation Act Work Cover and/or other regulations as applicable

VISIT THE SITE

Builders tendering are to visit the site and satisfy themselves to the nature and extent of the work the facilities available and the difficulties entailed in the execution of the said works. No amount above the accepted price will be allowed because of work arising due to neglect of this precaution or assumptions made

LABOUR AND MATERIALS

The Builder is to provide all materials labour fittings and plant required to construct and complete the work. Materials shall be of the standard specified and workmanship in each trade shall be performed by tradesmen of that particular trade and in conformity with current good building practice

SET OUT

The Builder shall be responsible for the accuracy and clear delineation of the site boundaries and location of the buildings there on. The Builder is to set out and maintain the works in accordance with the drawings. Figured dimensions to be taken in preference to scale

PLANS AND SPECIFICATIONS

Any work indicated on the plans and not in the specification or vice versa and any item not shown on either plans or specifications but which is obviously necessary as part of proper construction and/or finish is to be considered as so shown or specified and is to be duly done as part of the contract. Any variations to plans or specifications are to be agreed and recorded by the proprietor and the builder/contractor

PLANS ON JOB

The builder must at all times maintain on the job a legible copy of the plans and specifications bearing the approval of the Municipal Authority concerned or Principal Certifying Authority

STANDARDS

Where an Australian Standard (AS) or Australian New Zealand Standard (AS/NZS) is nominated in this specification then that nomination refers to the latest revision of that Standard unless the Building Code of Australia references a different revision

EARTHWORKS AND EXCAVATIONS BCA part 3 1

All earthworks shall be designed and constructed in accordance with the guidelines of AS3798 Stormwater and other surface water drainage by underground piping or surface diversions shall be in accordance with AS/NZS3500

All siteworks shall be in accordance with the Environmental Planning and Assessment Act and Regulations for siteworks for the erection of a building safeguarding excavations backfilling preventing soil movement and supporting neighbouring buildings. Drainage requirements must be determined according to the soil classifications BCA part 3 1 1 and part 3 1 2

FOOTINGS AND PIERS BCA part 3 2 2

Excavate for all footings piers etc to dimensions and minimum depth shown on plans or otherwise specified or to depths necessary to secure solid bottoms and even bearing throughout similar strata. Bottoms of excavations to be level and stepped where necessary. Grade fill and ram where necessary to receive concrete floors where shown on ground level

At completion of foundations all excavations to be filled well rammed to ground level and surplus soil spread as directed. All seepage and soakage water to be effectively dealt with and diverted clear of the building. Excavate for and lay agricultural drains to back of walls retaining earth and to any other sections of foundations as may be necessary and/or directed

ROCK EXCAVATIONS

Should rock of any type be encountered in excavation of the works the cost of its removal is to be considered as an extra to the contract and charged for at a rate per cubic metre as indicated in the schedule of rates. The Proprietor is to be notified when rock is encountered in excavations

CONCRETE BCA part 3 2 3

All structural concrete shall be ready mixed and in compliance with AS3600 and unless otherwise specified on Engineers drawings shall be of N20 grade

The concrete shall be supplied by an approved firm and delivery dockets shall be kept on the job for inspection by the proprietor if he so desires. The concrete for minor works where strength of concrete is not critical such as paving on solid ground may have a minimum compressive strength of 15MPa if unreinforced and 20 MPA if reinforced. Alternatively such concrete may be mixed on site where the aggregate proportions and water/cement ratio can be controlled so that the required compressive strengths can be obtained

All concrete work shall comply with the AS3600. Maximum slump shall be 80mm unless otherwise specified by Engineer. Concrete shall be carefully handled and placed to avoid segregation and shall be adequately compacted. Reinforcing mesh fabric to AS 1304 and all reinforcing bars mild steel grade unless otherwise specified

FOOTINGS BCA parts 3 2 3, 3 2 4 and 3 2 5

Where sites have soils or foundations of reactive nature or problem sites footings shall be approved by a practising structural engineer and in the case of known highly swelling soils or other unstable soils special precautions may have to be taken in the design and construction of concrete footings. In the case of concrete suspended floors to first floor it will be necessary for size of footings to be specified by a practising structural engineer. Footing sizes to be as per AS2870 part 1

At completion of footing excavations fill to the underside of floor slab with approved hardcore so as to provide a minimum depth of 100mm. Such hardcore may be carried under minor interior footings if required

TERMITE PROTECTION BCA part 3 1 3

Where the building is being erected in a prescribed termite area and protection is required by regulation of local government or state authority then protection against subterranean termites shall be installed in accordance with AS 3660 Details of method of protection to be used shall be submitted where required prior to commencement of building works Written certification signed by the installer that the method used and the manufacturers specification complies with the Australian Standard shall be provided to the relevant authority and owner where required A durable notice must be permanently fixed in a prominent location in the building prior to its occupation indicating 1 The method and date of installation of the system and the need to inspect and maintain the system on a regular basis 2 Where a chemical barrier is used the life expectancy as listed on the National Registration Authority label and recommended date of renewal Note that AS3660 and BCA lists the minimum acceptable level of protection only Owners and/or builders may specify and install additional protection if desired

PATHS (see AS 3727 for guide to residential pavement construction)

Provide paths as indicated on plans Concrete to be as previously specified and surfaced with wooden float Excavate for and lay paths to even grades true lines and curves Car tracks to be a minimum of 100mm thick and paths a minimum of 75mm Provide expansion joints in paths at a maximum spacing of 1200mm with bitumen impregnated felt joining strips the full thickness of concrete with tooled V joints above same

CROSS SECTION DIMENSIONS OF REINFORCED CONCRETE FOOTINGS for buildings with timber framed floors for sites classified a or s according to AS2870

CONSTRUCTION OF WALL	Normal thickness of wall to be supported (not more than)	Size of Concrete (width x depth)	
		For stable soil foundations Class A	Other foundations not subject to significant movement Class S
Brick single storey with wall height not exceeding 4200mm excluding any gable	mm 270 110 270	mm 400x300 300x300 400x400	mm 400X400 400x400 400x500
Brick two storey with external wall height not exceeding 7200mm excluding any gable internal wall height not exceeding 7200mm use 11TM reinforcement Top and Bottom			
Brick veneer single storey with wall height not exceeding 4200mm excluding any gable	110	300x300	300x400
Brick veneer two storey with external wall height not exceeding 7200mm excluding any gable	110	300x300	300x400
Timber frame single storey – foundation walling measured from the top of the strip footing			
Up to 1500mm height	110	300x300	300x400
Exceeding 1500mm and up to 3000mm height	110	300x400	300x400

REINFORCEMENT FOR STRIP FOOTINGS	Width of Strip Footing	Minimum number of main wires per layer using 8TM or 11TM fabric	Minimum number of 10mm dia bars per layer	Minimum number of 12mm dia bars per layer
	300 400	3 4	3 4	3 4

Where wall thickness exceeds as specified above increase footing width to maintain the offset and provide additional bar or bars so that bar centres do not exceed 200mm or an additional width of trench mesh maintaining in all cases the required concrete cover

CONCRETE FLOORS BCA parts 3 2 5

Provide concrete floors where indicated on plans Where not specifically detailed floors are to be a minimum of 100mm thick reinforced with No F72 hard drawn reinforcing fabric set 32mm below top of concrete Floor slabs to be full thickness and free from grooves and ridges Finish surface in one operation as required for tiling or otherwise to fine finish with float or steel trowel and sponge Thickness of floors shall be maintained under tiling recesses in all cases

Note that in Climate Zones 6 7 and 8 the edges and underneath some concrete slab construction may require thermal insulation

INTEGRAL FLOOR SLABS AND SLAB ON GROUND BCA part 3 2 5

Grade whole area occupied by floor to a minimum depth as required to remove top soil and grass roots etc Determine level of top of floor to habitable rooms a minimum of 150mm above highest point of adjacent proposed external ground level (adjust for fill or general excavation as required) or as otherwise required by Local Council The external finished ground surface must be graded to drain water away from the building at a minimum slope away of 50mm over the first 1m as per BCA Part3 1 2 3

Excavate for perimeter and other main footings to minimum depths as shown on Engineers drawings or to depths necessary to obtain solid bottoms and even bearing throughout a similar strata Allow for sufficient recess for brickwork if carried under main floorings so as to reduce the amount of concrete necessary provided that the fill is retained from displacement under the footings (by a temporary earth bank or similar) and provided also that a minimum of 100mm depth of the same hardcore is provided under all footings in such case roadbase or ungraded bluemetal is recommended as hardcore coalwash is NOT to be used Reinforce to Engineers detail and pour in one continuous operation in concrete Grade 20 unless otherwise nominated Residential slabs and footings must be constructed in accordance with AS2870 as amended

SUSPENDED REINFORCED CONCRETE SLABS

All concrete slabs to separate areas within or adjoining a building generally of timber floor construction shall be suspended Temporary formwork must be removed prior to final inspection Permanent metal formwork approved by the lending authority may be used with slab sizes and reinforcement according to manufacturers recommendation

Suspended floor slabs to have minimum of 100mm bearing on at least two opposite sides and spans are not to exceed 2100mm except where specifically detailed Solid fill forming may be used under concrete floors (eg laundry garage) adjoining the building providing that the level of the top of the slab is not less than 50mm below antcap and/or dampcourse level of the main building For spans exceeding 2100mm slabs supporting walls cantilever slab floors or where beams and columns are used to support the slab a practising structural engineers details shall be submitted with the drawings and specifications

PRE STRESSED BEAM FLOORING

Pre stressed beams for areas to be constructed by this method shall be delivered to site and stacked for storage on timber packers to avoid damage and where stacked one above the other the timber packers shall be positioned in vertical lines

Beams shall be purpose made by the manufacturer for this particular project designed in accordance with AS3600 Beams shall be individually marked for their respective location on the job and positioned in the work to comply with manufacturers key drawing Cutting or drilling into beams or modification in any way shall be done only with the express authority of the manufacturer or their site representative

Spacing of beams and fibre cement infill panel placement shall be strictly to manufacturers detail Topping slab concrete shall have a 28 day strength of not less than 20 MPA and thickness shall not exceed 50mm unless shown on the drawings Reinforce with nominal F52 Mesh U N O

Topping slabs shall be continuously cured for 7 days to prevent non structural cracking

BRICK AND BLOCKWORK - (construction of masonry building shall be as per AS3700) BCA part 3 3

CLAY BRICKS

To be sound hard of well burnt clay and shale and comply with specifications AS1225 Burnt Clay and Shale Building Bricks

SAND LIME BRICKS To Comply with AS1654 Calcium Silicate Bricks and have a transverse strength no less than as per Specification AS1640 Clay Bricks

CONCRETE BLOCKS OR BRICKS To comply with AS4455 Masonry Building Blocks/Pavers

SAND To be clean sharp and free from all impurities

CEMENT MORTAR To be one part fresh cement to 3 parts sand

LIME MORTAR BCA part 3 3 1 6

To be one part lime to 3 parts sand Lime to be well slaked before use

COMPO MORTAR To be one part cement one part lime and 6 parts sand All bricks to be well wetted before use This not to apply to textured bricks Footing courses to be grouted solid with cement mortar All brickwork to be properly bonded laid on full bed and all perpends filled All piers are to be built solid and each course grouted as work proceeds Carry up all work true and plumb to even gauge and in level courses the full height and thickness required The brickwork faces above damp course level to be finished with neatly ironed or raked joints Beds and joints to be kept to a reasonable thickness Finish all other exposed brickwork faces with neat struck joints

BUILD THE FOLLOWING IN CEMENT MORTAR BCA part 3 3 1

All brickwork to underside of floor bearers level All 110mm thick brickwork All copings steps brick balustrade walls sills piers wing walls retaining walls Brick Fences on alignment and/or brickwork under timber fencing also concrete blocks or bricks **Build compo mortar** All other Brickwork including concrete masonry

SLEEPER PIERS BCA table 3 2 5

230 x 230mm up to 1 5 high footings are to be two courses of 350mm work Where pier height exceeds 1 5m up to a maximum of 2 4m footings are to be two courses of 470 work and lower portion of pier to be 350 x 350 Concrete footings must be 500mm square and 200mm thick for an effective supported floor area of not more than 20m² All footings must have Engineers details for soil other than class A or S

ENGAGED PIERS BCA figure 3 3 1 2

To be minimum of 230 x 350 (including wall thickness) spaced at not more than 1 8m centres up to 2700 high to support floor bearers and at similar centres to stiffen walls supporting concrete slabs All stack bonded piers to be anchored to walls with specified wall ties every fourth course Areas with design wind speeds greater than N2 must be vertically reinforced with at least 1 off Y12 bar tied to the footing

VENEER WALLS BCA 3 3

To be 110mm Brickwork built in Compo Mortar on foundation walls as previously specified Internal faces to be 38mm from timber frames Build in 3mm galvanised wall ties opposite each alternate stud four courses above level of bottom plate then every fourth course and spaced not more than 460mm horizontally and 610mm vertically or 610mm horizontally and 460mm vertically Ties to be left open for attachment to studs A cavity space of between 25mm and 50mm must be maintained throughout Where thermal insulation is required to comply with Energy Efficiency requirements clear cavity spaces must be maintained Cavities and weep holes to be clean and clear at damp course level All mortar droppings to be caught on paper or other material and removed before internal linings are fixed Mortar joints on inside face walls to be flush with brickwork

SPECIAL WALLS (if shown on plans)

Walling not of timber Veneer on timber or masonry to be constructed as per Structural Engineers Detail and Certificate

SINGLE LEAF MASONRY (Garage Walls etc)

Footings as per BCA part 3 2 5 engaged piers and reinforcing to be as per part 3 3 1

ACCESS

Adequate access in the external foundation wall must be provided with a weatherproof lockable door and crawl access is to be provided to all under floor areas

VENTILATION BCA part 3 4 1

Sub floor areas shall be ventilated by means of evenly distributed openings with an unobstructed area of 7300mm2 per lineal metre of external wall Where particle board flooring is used the unobstructed area shall be increased to 7500mm2 per lineal metre and evenly spaced Ventilation of internal walls shall be a minimum of 22000mm 2/m run of wall Vents to be immediately below bearers and similarly provide vents under verandah floors and suspended floor slabs Sufficient cross ventilation to be provided through all walls below floors No section of the under floor area should be so constructed that is will hold pockets of still air Appropriate special provision to be made where a gas bath heater is installed Ventilation may be varied by Local Council

BRICK REINFORCEMENT

In full brick cavity walls at two courses above level of the highest opening built into each 110mm thickness one continuous strand of 64 wide galvanised metal reinforcement lapped 100mm at joints and full width of layer at intersections

ANT CAPS

To all brickwork and piers at the level of underside of floorbearers ant capping of 0 5mm gauge galvanised steel or other approved metal is to be set projecting 38mm beyond the internal faces of all brickwork and turned down at a 45 degree angle lapped 13mm and soldered or crimped at all joints and corners so as to provide a continuous and effective barrier against termites throughout the length of the material Whole of house protection against subterranean termite attack shall be installed in accordance with AS 3660

TIES BCA PART 3 3 3

Wall ties complying with AS/NZS2699 shall be used for all tie requirements Corrosion protection and installation of wall ties is to comply with AS3700

STEPS

If shown on plan in bricks to match other exposed brickwork To be built in solid work or where side walls are provided in consolidated filling Treads are to be brick on edge or pre cast concrete units with a maximum of 355mm going and a maximum of 190mm and minimum of 115mm rises

LINTELS BCA PART 3 3 3 4

Provide galvanised mild steel angle iron or bars of the following sizes over openings to each 110mm thickness (or part thereof) of brickwork all having a minimum of 110 bearing each end All lintel angles to be placed with the longer leg vertical

UPPER STOREY	EXTERNAL WALLS	INTERNAL WALLS
Up to 1210mm span	One 76mmx10mm bar	One 76mmx10mm bar
Up to 1570mm span	One 76x51x10 angle	One 76x51x10 angle
Up to 2410mm span	One 127x76x10 angle	One 127x51x10 angle
Up to 3010mm span	One 152x89x10 angle	One 152x89x10 angle

LOWER STOREY OR BASEMENT	EXTERNAL WALLS	INTERNAL WALLS
Up to 910mm span	One 76x76x10 angle	One 76x76x10 angle
Up to 1210mm span	One 102x76x10 angle	One 127x76x10 angle
Up to 1810mm span	One 152x76x10 angle	One 152x89x10 angle
Up to 2410mm span	One 152x102x10 angle	One 152x102x10 angle

FIREPLACE CHIMNEY and FLUES BCA part 3 2 5 5 and 3 7 3

Reinforced concrete footings 300mm wider all round than brck construction to be provided Build 110mm brick wall and/or corbel courses to support hearth Non combustible material to be used for upper surface of hearth with a minimum thickness of 155mm and shall extend not less than 300mm beyond the front of the fireplace opening and not less than 150mm beyond each side of the opening Local council may vary this requirement Provide fireplace and chimney in position as shown and to the dimensions on plan Mild steel bars or angles of suitable sizes and with a 110mm bearing at each end to support work over openings Up to the level of 300mm above the underside of the arch or lintel the back and sides of the fireplace to be constructed in two separate sections of solid masonry minimum 190mm thick not including cavity Concrete masonry not permitted in construction of inner section balance of walling to be minimum of 90mm thick Flue to be rendered minimum 12mm thick Mix 1 cement 2 lime 10 sand or L C approved material Chimney stack is to be not less than the height of the main roof ridge and is to be built in compo mortar The flue is to be 250 x 250mm or one tenth of the area of the fireplace opening whichever is the greater gathered over to break daylight and pargetted to the full height An 0 6mm galvanised steel tray in one piece holed for flue is to be set at level of one course above roof covering on the high side of the roof The internal edges are to be shaped to form a quadrant gutter 25mm wide sweated at corners The tray is to project a minimum of 25mm beyond the external faces of brickwork turned up and/or down as required Where the tray is turned up a clearance of at least 6mm is to be maintained between the brickwork and the tray Provide weep holes by leaving open vertical joints in brickwork above tray Rake joints in brickwork ready to receive flashing to be provided by Plumber A loose brick must be left on the back of the chimney stack This brick must not be set until after the tray has been cleared of all mortar droppings

HEATING APPLIANCES BCA part 3 3 4

Heating appliances installed in brick or blockwork surrounds shall be in conformance with AS 1691 or AS 2918 as applicable

DAMPCOURSE AND WEATHERPROOFING OF MASONRY BCA part 3 3 4

Provide a continuous run of L C Approved dampcourse material to full width of wall thickness on all brickwork at level not higher than bottom of floor bearers and engaged piers Dampcourse material is to be run in long lengths lapped minimum 100mm at joints and full width at all intersections To wall surrounding concrete and/or solid floors an additional run of dampcourse is to be laid one full course above floor level and stepped down to meet lower dampcourse where other walls about walls of bathroom shower recess or laundry Damp proof courses and flashings shall be installed to give performance as specified in AS/NZS 2904

VERMIN PROOFING

13mm mesh galvanised bird wire to be built into brickwork and taken across cavity and secured to bottom plate

FLASHING BCA part 3 3 4

L C approved dampcourse material to be built in under all window sills 25mm at back of wood sill and 50mm at each end of same Flashing to be bent down across cavity and built 25mm into veneer wall L C approved dampcourse material to be built in over all exposed window and external door openings

WEEP HOLES

Perpend joints are to be left open in exterior brick walls spaced approx 600mm in course immediately over flashings of all exposed openings and to brick retaining walls fender walls etc as required See Bushfire Clauses for protection of weep holes in bush fire areas

RETAINING WALLS

Retaining walls not specifically detailed and foundation walling required to retain earth are to be a minimum of 230mm thick up to a height of 750mm of retained earth. Cavity walls used to retain earth are to have the leaf adjacent to the retained earth a minimum of 230mm thick to a maximum of 900mm of retained earth height. All to be properly bonded (see Bonded Walls) and provide with a properly constructed agricultural drain to the earth side of retaining wall. For walls in excess of the above heights of retained earth an Engineers detail will be required.

BONDED WALL

Solid brick walls more than one brick width which are used to retain earth or are otherwise noted as Bonded Walls shall be bonded throughout the thickness of the wall by either header bricks or equivalent tying. Where header bricks are used every sixth course shall be a header course or there shall be at least one header or equivalent tie to every 0.13sq metres (every third course at 480mm centres). Walls 350mm or more in thickness shall have overlapping headers or ties to provide a continuous tie through the wall.

CAVITY WALLS

Walls indicated as cavity walls to be constructed with two leaves 110mm thick spaced nominally at 60mm apart. Where thermal insulation is required to comply with Energy Efficiency requirements clear cavity spaces must be maintained. Connect the two leaves with wall ties as per AS2699 set nominally 600mm apart in every fifth course. Keep ties clean of mortar droppings and cavity clear as work proceeds.

STRAPS BCA part 3 3 3

To full brick cavity walls secure door and window frames with 1.6mm galvanised iron straps set in brickwork. Straps to be 25mm wide and at least 300mm long where practicable and spaced at a maximum of five courses apart. Set 25mm x 1.6mm galvanised iron straps 1800 apart and 1200mm down cavity with ends turned 75mm into brickwork to secure wall top plates.

COMPLETION

Clean all cavities. Wait upon and make good after other trades. Replace all damaged and defective bricks. Clean all exposed brickwork with diluted spirits of salts or as otherwise recommended by brick manufacturers wash down with clean water and leave free from cement and mortar stains.

CONCRETE BRICK A S 1346 - BCA part 3 3

MORTAR For normal conditions mortar to consist of	Above Dampcourse		Below Dampcourse	
	1 part cement		1 part cement	
	2 parts lime or lime putty		1 part lime or lime putty	
	9 parts clean sand		6 parts clean sand	

Mortar mixes must comply with A S 3700 and BCA part 3 3 1 6

The substitution of other plasticisers for lime is not recommended. Under no circumstances should the proportion of cement be increased.

JOINTS BCA part 3 3 1 7 Finish all external brickwork and internal feature walls with raked joints. Finish all other brickwork with neat struck joints.

JOINT REINFORCEMENT AND ARTICULATION JOINTS BCA part 3 3 1 8 in addition to reinforcement over openings as later specified provide joint reinforcement in bed joints at vertical spacings not exceeding 600mm. Control joints providing a continuous vertical separation through the entire thickness of the wall are to be provided where indicated on plans or where walls exceed 9m in length as close as practical building will permit. Reinforcement not to extend across control joints.

AUTOCLAVED AERATED CONCRETE BLOCKS

Lightweight blockwork shall be Autoclaved Aerated Concrete blocks consisting of sand, cement and lime and shall be installed to areas as indicated on drawings. Site provisions for storage of materials and for the mixing of adhesive shall be as recommended by the manufacturer.

WORKMANSHIP

Fixings, fastenings, anchors, lugs and the like shall be of a type approved by the manufacturer and shall transmit the loads and stresses imposed and ensure the rigidity of the assembly. Block laying shall be in accordance with the manufacturers current published specifications.

TOLERANCES

Maximum planar misalignment shall be 2mm along butt joints. The thickness and width of walls shall not vary by more than 5mm from design sizes. Deviation from plumb, level or dimensional angle must not exceed 5mm per 3.5m of length of member or 6mm in total run in any line.

INSTALLATIONS

All lightweight blockwork shall be installed using thin bed adhesive mortar to all horizontals and perpendics. The first course must be made true and level using a normal thick bed mortar with thin bed adhesive to fully seal the perpendics. All thin bed adhesive shall be applied using a recommended notched trowel to obtain an even distribution of adhesive to achieve joint thickness of 2-3mm. All lightweight blockwork shall be laid in a format that the vertical joint of the lower course must be staggered at least 100mm relative to the vertical joint of the overlaying course. A slip/joint bond breaker must be installed between the first course and the foundations or slab on all internal and external walls to allow for differential movement between the blocks and the supporting structure. Build in as necessary all flashings, reinforcements, arch bars, lintels, frames, straps, bolts, lugs, wall ties, metalwork, precast units, sills, partitions, joists and the like. Carefully set out and leave openings for other trades to eliminate cutting.

COMPLETION

On completion clean out all blocks, mortar droppings, debris etc and remove all scaffolding, make good all put log holes and other blemishes and leave all work in perfect condition and protect until handover.

CONCRETE BLOCK and REINFORCED MASONRY AS 3700 - BCA part 3 3 2

All masonry units shall comply with AS1500 Hollow Load Bearing Concrete Units. Masonry shall be stacked on planks off the ground and in wet weather shall be covered with tarpaulins or otherwise kept dry. At the end of each days work the top of the wall shall be covered with tar paper, polyethylene sheets or by other means protected from becoming excessively wet. Masonry units shall not be dampened prior to laying and shall be laid in dry state.

MORTAR BCA PARTS 3 3 1 6

Mortar shall comply with AS 3700 in all respects. Plasticisers may be used when approved and where tests show the mortar with plasticisers meets the requirements of these specifications.

CONSTRUCTION BEDDING

All face and end joints shall be fully filled with mortar and joints shall be squeezed tight. Slushing of mortar into joints shall not be permitted. The first course of blocks shall be laid in a full bed of mortar.

JOINTS BCA part 3 3 1 7

Joints on all exposed surfaces shall be as specified. The joint shall be formed by striking the mortar flush and after it has partially set, tooling with the proper shaped tool to adequately compact the surface. The tool shall be of sufficient length to form a straight line free from waves. Internal joints shall be ironed. Where flush joints are left exposed they shall be first compacted then repointed and excess mortar removed. Joints shall be 10mm thick unless otherwise specified or directed.

PATTERNS AND BOND

All walls shall be built plumb, true and level to the thickness shown on the plans and with the pattern indicated or running bond U N O.

ARTICULATION JOINTS

Shall be located where shown and shall form a continuous vertical break from top to bottom of wall or from bond beam. Provision shall be made for adequate lateral stability. Joint shall be filled with mortar, raked back 16mm and pointed with a non hardening plastic filler. No reinforcing shall be carried across control joint.

JOINT REINFORCEMENT

Reinforce every 600mm in height and in the two courses immediately above and below window openings. Lap mesh at least 150mm at all joints and intersections except at articulation and expansion joints where a slip joint may be required.

BRACING DURING CONSTRUCTION

Masonry walls constructed in locations where they may be exposed to highwinds during erection shall not be built higher than ten times their thickness unless adequately braced or unless provision is made for prompt installation of permanent bracing such as intermediate floor or roof structure. Back filling shall not be placed against foundation walls or retaining walls before mortar or grouting has sufficiently hardened or before wall has been permanently braced to withstand horizontal pressure.

WEATHERPROOFING BCA part 3 3 4

All concrete masonry walls exposed to the weather or below ground level shall be adequately water proofed using an approved paint or other coating and applied in accordance with the directions of the manufacturer.

CLEANING

During the progress of the work every effort shall be made to keep walls that are to be left exposed clean. Mortar smears shall be allowed to dry for a short period and shall then be promptly removed by trowel or wire brush or both. Care shall be taken to avoid damage to the mortar joint when brushing. Mortar burrs shall be promptly removed. At the conclusion of the work walls shall be cleaned down, all scaffolding and debris removed and the wall left in good clean condition.

BUSHFIRE PRONE AREAS – BCA 3 7 4

Performance requirements are satisfied for a class 1 building in a bushfire prone area if constructed in accordance with AS3959 NSW variation excludes Section 2 of that standard which is replaced by Planning for Bushfire Protection appendix 3 Site Assessment for Bushfire Attack OR in consultation with NSW rural Fire Service under Sec 79B of the Environmental Planning and Assessment act1979 OR as modified for development consent under section 100B of the Rural fires Act

CONSTRUCTION OF CLASS 1 BUILDINGS as per acceptable methods in BCA clause 3 7 4 1 (for information only)

BUILDING COMPONENT	BUSH FIRE ATTACK CATEGORY		
	MEDIUM	HIGH	EXTREME
Flooring system	(a) Concrete slab on ground (b) Suspended concrete floor (c) Framed floor with all joists and bearers above 600mm above ground (d) Framed floor where timbers are less than 600mm above ground (i) All timbers fire retardant OR (ii) subfloor space fully enclosed as per the wall above OR (iii) fully enclosed with non combustible material or 6mm thick F R cement sheets	As per medium requirements	As per medium requirements except that where bearers and joists are greater than 600mm above ground and not enclosed all timbers must be fire retardant treated or sheeted underneath with non combustible material
Supporting posts piers stumps poles (except where enclosed as per flooring systems)	(a) Non combustible material (b) Fire retardant treated timber to 400mm above ground (c) Timber mounted on 75mm high stirrups	As per medium requirements	As per medium requirements except that all timber is to be fire retardant treated
External Walls	(a) Masonry concrete or earthwall (b) Framed wall with (i) sarking having a flammability index not more than 5 OR (ii) an insulation material of that standard (c) Timber logs with all joints between the logs planed and sealed (d) Combustible sheet cladding if cladding within 400mm of ground is covered by non combustible sheet material	As per medium requirements except that (a) P V C cladding must not be used and (b) Timber wall cladding must be fire retardant treated	As per high attack category
Windows	The openable part of a window must be screened with aluminium steel or bronze corrosion resistant mesh with 1 8mm max aperture size	As per medium requirements except that (a) timber must be fire retardant treated except if enclosed by non combustible shutters (b) Leadlight windows must be protected with non combustible material or toughened glass (c) Window screens must not be aluminium	As per high requirements except that windows not protected by non combustible shutters shall be glazed with toughened glass
External doors	External doors must be fitted with (a) weather strips or draught excluders to prevent build up of burning debris and (b) tight fitting screen doors with corrosion resistant mesh as per windows	As per medium requirements except that (i) aluminium mesh must not be used and (ii) leadlight panels must be protected by non combustible shutters or panels	As per high bushfire requirements except that (a) Timber doors must be fire retardant treated OR (b) Protected by non combustible shutters OR (c) Solidcore doors min 35mm
Vents and weepholes	Vents and weepholes must be protected by spark guards of corrosion resistant 1 8mm max mesh size aluminium steel or bronze	As per medium category except that aluminium mesh must not be used	As per high category requirements
Roof covering eaves and fascias	(a) Timber shakes or shingles are not allowed (b) Sheet roofing must be metal or fibre reinforced cement (c) Seal gaps under corrugations at wall or eaves line by (i) fully sarking roof OR (ii) corrosion resistant mesh as per weepholes or profiled metal sheet or mineral wool (d) Hip and ridge capping must be preformed with no gaps or gaps sealed as per (c) (e) Roof wall junctions must be sealed by (i) fascia and eaves lining OR (ii) sealing to u/side of roofing at wall line with non combustible material (f) Tiled roofs must be fully sarked (including ridge) with sarking directly under tiling battens All sarking must have Flammability Index less than 5	As per medium requirements except that (a) all roof sheeting must be non combustible and sarked and (b) Timber eaves lining and/or trimming strips must be of fire retardant treated timber and (c) Fascias must be non combustible or fire retardant treated	As per high category requirements except that (a) Fibre reinforced cement or aluminium sheet must not be used for roof sheeting or fascias and (b) Aluminium must not be used for eaves linings
Roof lights	(a) rooflight penetrations and shafts must be sealed with non combustible sleeve and linings (b) A rooflight may be of metal framed thermoplastic provided that the diffuser at ceiling level is wired or toughened glass in a metal frame (c) Vents in rooflights must have a steel or bronze mesh screens with 1 8mm max aperture size	As per medium requirements except that (a) roof light glazing must be wired glass (Thermo plastic or toughened glass must not be used)	As per the requirements for high category attack
Roof Ventilators	All components of roof ventilators including rotary ventilators must be of non combustible materials and ventilation openings must be protected by 1 8mm max aperture size non corrosive steel or bronze screens		
Gutters and downpipes	Must be constructed of non combustible materials including materials or devices to stop leaves collecting or clogging		
Verandah and decks	Supporting posts columns and piers and external walls must comply with previous requirements as per this table for all categories If sheeted or tongue and grooved solid flooring is used the flooring system must comply with previous requirements for flooring systems		
	(a) spaced timber deck flooring (i) gaps in deck strips must not be less than 5mm (ii) the perimeter of the deck must not be enclosed (iii) The deck flooring must be separated from main building so fire will not spread	(a) spaced timber deck flooring must be fire retardant treated	(a) as per high category except that all timber (including balustrades) must be fire retardant treated or all materials must be non combustible

- NOTES
- (a) Fire retardant timber must comply with requirements of AS/NZS3837 Some timber varieties naturally meet the Ignition and Heat Radiance Parameters when tested to ASTM D2898 Method B without having to be fire retardant treated
 - (b) External timbers in a verandah patio deck or the like are regarded as protected also if they are under a roof or similar structure that projects to a line at an angle of 30° off the vertical from the base of the wall
 - (c) Where roofing systems are fully sarked mesh protected vents may be necessary to reduce condensation in some areas
 - (d) Where sub floor areas are enclosed termite protection must not be compromised

ENERGY EFFICIENCY – BCA part 3 12

Performance provisions of the BCA part 2 6 requires that a building must have a level of thermal performance so that greenhouse gas emissions are reduced using energy efficiently. This level of thermal performance must facilitate the efficient use of energy for cooling and heating. This will be achieved by selection of materials and methods of construction of Building Fabric External Glazing Building sealing Air movement and services as best suited to the particular Climatic Zone in which the building is sited. A building must have an energy rating of not less than 5 stars complying with the ABCB protocol for House Energy Rating (Note BCA part 2 6 does not apply in N S W) Map of Australian Climate Zones for Thermal Design can be viewed on the Australian Building Code Boards website at www.abcb.gov.au

R Value is the Thermal Resistance of a component to heat and cold movement. Thermal movement is upwards or downward through a roof or a combination of both.

THERMAL RESISTANCE minimum TOTAL R Value required for various climatic zones											
BUILDING COMPONENT	CLIMATE ZONE										
ROOFS	1	2	Altitude less than 300	2	Altitude 300m or more	3	4	5	6	7	8
Direction of heat flow	Downwards			Downwards and upwards			Upwards				
Minimum Total R Value required	2.2	2.2		2.5		2.2	3.0	2.7	3.2	3.8	4.3

BUILDING COMPONENT	CLIMATE ZONE							
WALLS	1	2	3	4	5	6	7	8
Minimum Total R – Value required	1.4			1.7	1.4	1.7	1.9	2.8
QLD Variation minimum Total R Value	1.0			n a	1.4		n a	

Special Condition apply to two storey houses

FLOORS	CLIMATE ZONES			6	7	8	Enclosed perimeters and heated slab floors have special requirements. Consult authorities
Suspended floors without heating and unenclosed around perimeter	1.0			1.0	1.0	2.5	

Added insulation to achieve minimum R Values for various climate zones can be (a) Reflective Insulation or (b) Bulk insulation or a combination of both. Reflective Insulation must be installed with not less than 20mm air space between the more reflective side and a building lining or cladding (note cavity clearances are not to be reduced) and closely fitted against any penetration and or door/window frame. be adequately supported and overlapped to adjoining sheet not less than 150mm Bulk insulation must be installed so that it maintains its position by not slumping and forming voids and must abut other installation or building members. Care should be taken that insulation does not interfere with the safety or performance of services or fittings. Insulation as manufactured must comply with AS/NZS4859 1

R VALUE OF INSULATION TO BE ADDED TO BUILDING COMPONENT TO MEET TOTAL R VALUE REQUIRED									
ROOF TYPE	ROOFS	CLIMATE ZONE							
		1	2	3	4	5	6	7	8
		Below 300m AHD altitude	at or over 300m AHD						
Minimum required Total R Value for roofs		2.2	2.5	2.2	3.0	2.7	3.2	3.8	4.3
FLAT ROOF SKILLION ROOF AND CATHEDRAL CEILING – CEILING LINING UNDER RAFTERS									
TILED	Total R Value of roof materials	0.4 downwards	0.4 down and up	0.40 upwards					
	Minimum R Value of insulation to add	1.8	2.1	1.8	2.59	2.29	2.79	3.39	3.89
FLAT ROOF SKILLION ROOF AND CATHEDRAL CEILING – CEILING ON TOP OF EXPOSED RAFTERS									
TILED	Total R Value of roof materials	0.4 downwards	0.41 down and up	0.41 upwards					
	Minimum R Value of insulation to add	1.79	2.09	1.79	2.59	2.29	2.79	3.39	3.89
FLAT CEILING WITH PITCHED ROOF – CAVITY ROOF SPACE									
TILED	Total R Value of roof materials	0.7 downwards	0.35 down and up	0.35 upwards					
	Minimum R Value of insulation to add	1.5	2.15	1.85	2.65	2.35	2.85	3.4	3.95
FLAT ROOF SKILLION ROOF AND CATHEDRAL CEILING – CEILING LINING UNDER RAFTERS									
METAL	Total R Value of roof materials	0.38 downwards	0.35 down and up	0.39 upwards					
	Minimum R Value of insulation to add	1.82	2.12	1.82	2.61	2.31	2.81	3.41	3.91
FLAT ROOF SKILLION ROOF AND CATHEDRAL CEILING – CEILING LINING OF TOP OF EXPOSED RAFTERS									
METAL	Total R Value of roof materials	0.37 downwards	0.37 down and up	0.39 upwards					
	Minimum R Value of insulation to add	1.83	2.13	1.83	2.61	2.31	2.81	3.41	3.91
FLAT CEILING WITH PITCHED ROOF – CAVITY ROOF SPACE									
METAL	Total R Value of roof materials	0.5 downwards	0.4 down and up	0.4 upwards					
	Minimum R Value of insulation to add	1.7	2.1	1.8	2.6	2.3	2.8	3.4	3.9

A roof must achieve the minimum Total R Value specified. In Climate Zones 1 2 and 3 pitched roof material with a flat ceiling must have a Solar Absorbance value less than 0.55. RBM installed below the roof and the roof space ventilated by roof gable eaves or ridge vents that allow an unobstructed air flow with no dead air spaces. Vents must have a total fixed open area of not less than 1% of the ceiling area. OR not less than 2 wind driven ventilators in association with fixed vents subject to approval.

TYPICAL SOLAR ABSORPTANCE VALUES OF COLOURED ROOFS

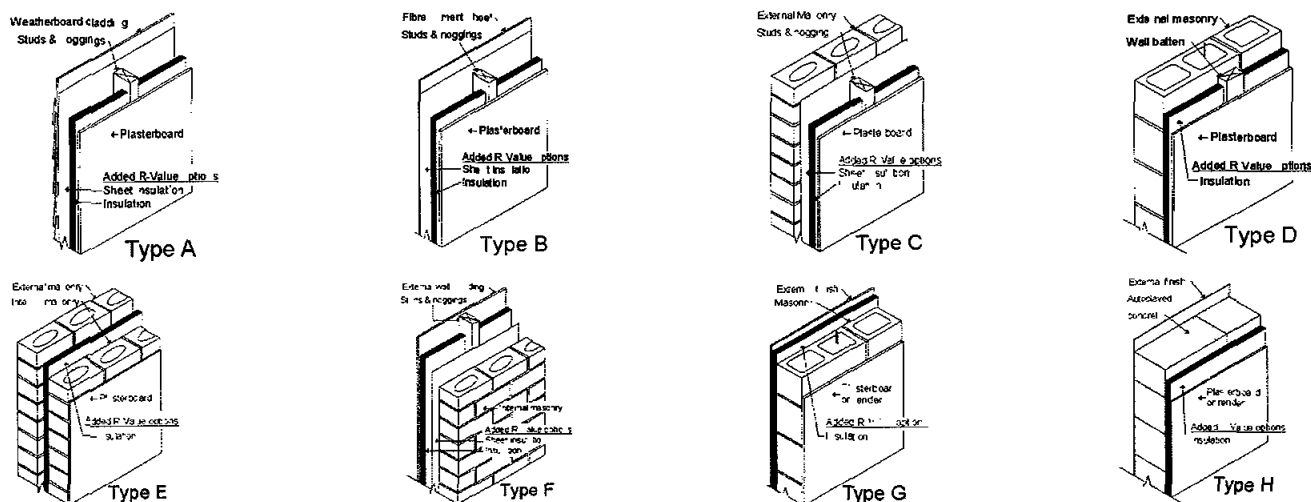
Slate (dark grey)	0.9				Light Grey	0.45
Red Green	0.75		Zinc Aluminium (dull)	0.55	off white	0.35
Yellow Buff	0.6		Galvanised steel (dull)	0.55	Light Cream	0.3

EXTERNAL WALLS

An external wall must achieve the minimum Total R Value for the relevant Climate Zone or in Climate Zones 1 2 and 3 to be shaded by a verandah balcony carport eaves and gutter or the like. The horizontal projection from the external face of the building must be not less than one quarter of the overall height of the wall measured from the internal floor vertically to the underside of the projection. This applies to all stories. NOTE In Climate Zones 4 5 6 7 and 8 all walls must achieve a surface density of not less than 220 Kg/m2 and in Climate Zone 6 be constructed on a flooring system that is in direct contact of ground i.e. concrete slab or in Climate Zones 6 7 and 8 incorporate insulation with an R Value not less than 1.0 to the edges and underneath the slab.

These requirements to not apply to South facing walls in Climate Zones 1 2 and 3 south of latitude 20° south.

R VALUE OF INSULATION TO BE ADDED TO BUILDING COMPONENT TO MEET TOTAL R VALUE REQUIRED					
TYPICAL WALL CONSTRUCTION	R VALUES	CLIMATE ZONE			
		1	2	3	4
Minimum required Total R – Value for Walls		1.4	1.7	1.9	2.8
(A) Weatherboard minimum 70mm Timber Frame	Total R Value of Wall Materials	0.47			
	Minimum R Value of insulation to add	0.93	1.23	1.43	2.33
	Total R Value of Wall Materials	0.4			
(B) Cement or Metal Sheet 70mm timber frame	Minimum R Value of insulation to add	1.0	1.3	1.5	2.4
	Total R Value of Wall Materials	0.54			
	Minimum R Value of insulation to add	0.86	1.16	1.36	2.26
(C) Clay Masonry Veneer minimum 110mm Veneer	Total R Value of Wall Materials	0.52			
	Minimum R Value of insulation to add	0.88	1.18	1.38	2.28
	Total R Value of Wall Materials	0.67			
(D) Concrete Block Masonry minimum 140mm Masonry	Minimum R Value of insulation to add	0.73	See note above		
	Total R Value of Wall Materials	0.5			
	Minimum R Value of insulation to add	0.9	1.2	1.4	2.3
(F) External insulated Clay Masonry Minimum 110 mm masonry	Total R Value of Wall Materials	0.48			
	Minimum R Value of insulation to add	0.92	1.22	1.42	2.32
	Total R Value of Wall Materials	1.73			
(G) External insulated Corner Masonry minimum 140mm thick	Minimum R Value of insulation to add	Nil	Nil	Nil	1.07



ENERGY EFFICIENT EXTERNAL GLAZING – BCA part 3 12 2

This part of the BCA applies to Class 1 buildings and class 10a buildings with a conditioned space. Acceptable Construction Practice. The effective glazing area of a building must not exceed the percentages of the building area as per BCA Table 3 12 2 1. This table defines the maximum effective glazing area (Total glazed area of all windows in a storey) as a percentage of the total floor area of a storey. The glazing area limits listed provide only the minimal protection against overheating (heat flow into the building via the glazing) and heat loss (through the glazing) in cold conditions. The heat loss or gain can be controlled by siting of windows, shading, use of protective films, double glazing with air or gas fill in a sealed unit, and size of windows. Window manufacturers can supply windows to suit the requirements for the site. Climate Zone and the window construction depends on shading of the glazed area by verandahs, balcony, fixed canopies etc. or a shading device. A shading device must restrict at least 80% of the solar radiation when in use and can be a shutter, blind, vertical or horizontal screen with blades, battens, slats etc. and be adjustable by the building occupants. Where necessary, the nomination of glazing types, window locations, shading etc. should be carried out by an approved specialist.

NSW requirements to comply with BASIX Specifications are selectable in NatHERS 2 32A

CARPENTRY

All timber shall comply with the appropriate standard as listed below. Timber sizes shall be selected so that the building as constructed complies with AS1170 2 or AS4055 for serviceability and Design Wind Gust Velocities (permissible stress) of 33 M/s minimum. Substitution of some members may be required for higher Gust Wind Velocities and advice of local authorities Building Department or Structural Engineer should be sought as to whether design to N3 or higher is required.

STRESS GRADES

Visually Stress Graded Timber: Timbers whose species or place of growth is known may be visually graded for quality in accordance AS 2082.

Mechanically Stress Graded Timber of required stress grade according to AS/NZS 1748 may be used regardless of species.

Seasoned Timbers: All timber shall be regarded as seasoned only if its moisture content does not exceed 18 per cent.

FRAMING – BCA part 3 4 3

Timber sizes in this specification are based on AS1684 4 Simplified Non cyclonic areas with restrictions as follows: Maximum wind classification N2 (33m/s), maximum roof pitch 30°, maximum building width 12 0m, maximum rafter overhang 750mm, maximum wall height at ext. walls floor to ceiling 2400mm. The sizes are for information only and should not be used for construction. All design for a structure within these limits should be carried out to AS1684 4.

NOTE: for wind classification N3 (W41N) and N4 (W50N) Non cyclonic areas with building widths 12 0m and up to 16 0m and with roof slopes exceeding 30° and up to 35° design according to AS1684 2 is required. For construction in Cyclonic Areas, wind classification C1 to C3 refer to AS 1684 3.

CUTTING, ASSEMBLY AND ERECTION OF FRAMING ABOVE GROUND FLOOR LEVEL

Where framing is cut, assembled and erected on site, particular care should be taken that member sizes and fixings are designed to comply with stress grades for the particular number of stories and roof loads according to AS1684.

FLOOR FRAMING

Ground floor timbers shall be only of hardwood, cypress pine or pressure treated Radiata or Canada Pine below a height of 300mm above finished ground level and must not be built into brickwork. Subfloor ventilation shall conform to BCA part 3 4 1. In Bushfire Prone Areas special conditions apply. Where termite barriers need to be inspected, 400mm clearance is required between the underside of bearer and ground surface. BCA FIGURE 3 4 1.

ANT CAPS

To all brickwork and piers, at the level of underside of floorbearers, and capping of 0 5mm gauge galvanised steel or other approved metal is to be set projecting 38mm beyond the internal faces of all brickwork and turned down at a 45 degree angle, lapped 13mm and soldered or crimped at all joints and corners so as to provide a continuous and effective barrier against termites throughout the length of the material. Whole of house protection against subterranean termite attack shall be installed in accordance with AS 3660 1.

BEARERS

Bearers should be laid in straight and normally parallel lines with top surfaces arranged to give level bedding for joists. Unless specifically noted as otherwise, bearers shall be located directly under all load bearing walls, except where walls are located at right angles to line of bearers, in which case piers or other approved supports shall be provided for bearers at points where they cross under such walls. Bearers having minor excesses in depth shall be brought to required level by checking out underside over supports. Packing is to be avoided but where there is no alternative, corrosion resistant and incompressible sheet material over full area of contact may be permitted. Bearers having not more than permitted spring shall be placed so that they tend to straighten under loading. Joints in bearers, unless specifically detailed otherwise, shall be made only at points of support on which adequate bearing for both members can be provided and the joint shall be secured by means of bolting or spiking against displacement or separation.

JOISTS

Joists shall be laid over bearers in straight and normally parallel lines with top surfaces set accurately to a common level to receive flooring. Underside of joists having minor excesses in depth are to be notched out over bearers to obtain required common level. Packing may be employed if unavoidable, similar to that for bearers, such packing to be securely fixed. Joists having not more than the permitted amount of spring shall be laid so that they tend to straighten under loading. Joints, unless specifically detailed, shall be made only over bearers or other supports. Joints occurring in joists which are parallel and support wallplates shall be made at points of support which provide adequate bearing for both ends which shall be butted or scarfed to maintain a straight line. Posts shall be securely skew nailed from both sides to bearers at all points of support.

Where floor joists abut solid masonry or concrete walls, they shall be supported on timber wall plates or bearers carried on walling, off sets or attached piers, where such method is not practicable and height of floor is more than 1800mm above ground, the ends of joists or bearers may bear in pockets formed in the wall which allow at least 12mm clear air space at sides and ends of members and provide solid bearing at least 100mm in depth.

Where the unsupported span of deep joists exceed 2700mm, 50mm x 50mm herringbone strutting or solid blocking of 25mm min thickness shall be provided in continuous rows between joists at not more than 1800mm centres.

EAVES BEAMS AND VERANDAH PLATES

Eaves beams and verandah plates shall be provided to support rafters or trusses over full height openings or recesses in walls or over verandahs or porches covered by main roof structure. Any reduction in nominal size through mill dressing or scalloping shall be allowed for so that the minimum size listed is not reduced. The ends of eaves beams and verandah plates that are supported on stud wall shall be carried by studs or stud groups as

for heads for equivalent spans End fixing shall provide resistance to uplift or displacement Verandah Posts to be not less than 100mm x 100mm in timber F11 If supporting roof loads they shall be as per AS1684 2

ROOFING BATTENS Supporting roofing only (Note roofing battens are not suitable for the safe support of workers prior to fixing roof cladding) Battens should be continuous over a minimum of two spans and their design to suit rafter/truss spacing and batten spacing must be in accordance with AS1684 for the allowable roof mass

MANHOLE

Trim as required between ceiling joists or trusses for manhole 600 x 400mm minimum size Line the opening and provide a suitable cover

EAVES

Project rafters to give a soffit at eaves of directed width and fix 200 x 25mm timber fascia or colourbond steel as directed Where eaves are boxed in soffit bearers (sprockets) of 50 x 38mm shall be provided spaced to suit eaves lining and attached directly to outer ends of rafters In brick veneer buildings the inner ends of soffit bearers shall be fixed to the frame so as to be 20mm or more clear above top of brickwork at time of construction In solid masonry buildings the inner ends of soffit bearers shall be located by means of 50 x 25mm hangers from rafters or wall plates In Bushfire Prone Areas fascias and eaves linings have special requirements

PREFABRICATED TIMBER WALL FRAMES AND TRUSSES – BCA part 3 4 3

Where prefabricated frames and/or trusses are used for construction of the building the manufacturers certification of construction according to AS1684 2 or AS1684 4 for the building on the particular site must be obtained Where certification is attached to truss or framing members the certification labels shall be left in place after erection for approval by the appropriate Building Surveyor P C A or Council Authority Timber trusses purpose manufactured for this project and engineer designed according to AS1720 1 are to be spaced at centres as directed erected and fixed in accordance with the manufacturers instructions as approved Support only on ends or designed bearing points Where spacing of trusses exceeds 600mm centres provide intermediate ceiling joists in 100mm x 38mm hardwood (in F7) or 100mm x 50mm (in F8) supported from hangers at maximum of 2100 centres Hanging beams shall be supported not more than 600mm from bottom chord panel points unless hangers are provided to nearest top chord panel points

MASSSES OF TYPICAL ROOF CONSTRUCTION

MASS OF ROOF	MATERIAL
10 kg/m2	Steel sheet roofing 0 50mm thick and battens
20 kg/m2	Metal sheet tiles or medium gauge steel sheet roofing battens 12mm softwood ceiling lining sarking and lightweight insulation
30 kg/m2	Steel sheet roofing 0 775mm thick 13mm plaster ceiling roof and ceiling battens sarking and lightweight insulation
40 kg/m2	Steel sheet roofing 0 75 thick battens graded purlins and high density fibreboard ceiling lining
60 kg/m2	Terracotta or concrete tiles and battens
75 kg/m2	Terracotta or concrete tiles roofing and ceiling battens 10mm plasterboard sarking and insulation
90 kg/m2	Terracotta or concrete tiles purlins roofing and ceiling battens 19mm hardwood ceiling lining sarking and insulation

DEFINITIONS

Spacing Where this term is used the measurement shall be the centre to centre distance between members
Span Where this term is used the measurement shall be the face to face distance between members

Reference is made to effective roof spans in the tables the span is an indicator of the mass of roof being carried by the outer wall members



TABLES OF TIMBER SIZES

SINGLE STOREY TILED ROOF

SINGLE STOREY SHEET ROOF

Framing Member Stud Height 2400	Span	Unseasoned	Seasoned				Unseasoned	Seasoned			
		F8	F5	MGP10	MGP12	F8	F5	MGP10	MGP12		
BEARERS											
Strutted roof – max rafter span 3000 @ 1800 spacing continuous over two or more spans load bearing	1500	100 x 75	2/120 x 35	2/120 x 35	2/90 x 35	100 x 75	2/90 x 35	2/90 x 35	2/90 x 35		
	1800	125 x 75	2/140 x 35	2/120 x 35	2/90 x 35	125 x 75	2/120 x 35	2/120 x 35	2/90 x 35		
Trussed Roof 9 0 Span External Wall 1800 spacing continuous over two or more spans load bearing	1500	175 x 75	2/170 x 35	2/140 x 35	2/140 x 35	125 x 75	2/120 x 35	2/120 x 35	2/90 x 35		
	1800	150 x 75	2/190 x 35	2/190 x 35	2/140 x 35	200 x 75	2/190 x 35	2/190 x 35	2/170 x 35		
JOISTS											
450 spacing-continuous over two or more spans	1800	125 x 38	120 x 45	120 x 35	120 x 35	125 x 38	120 x 45	120 x 35	120 x 35		
LINTELS											
Trussed Roof 9000 Span	900	100 x 75	2/90 x 35	90 x 45	90 x 35	100 x 50	2/90 x 35	90 x 45	90 x 35		
	1200	125 x 75	2/120 x 35	120 x 45	2/90 x 45	125 x 50	140 x 45	2/90 x 45	2/90 x 35		
	1500	175 x 75	2/140 x 45	2/120 x 45	2/120 x 45	150 x 50	2/120 x 35	2/140 x 35	2/90 x 45		
	1800	200 x 75	2/170 x 45	2/170 x 35	2/140 x 35	150 x 75	2/140 x 35	2/120 x 35	2/120 x 35		
	2100	225 x 75	2/240 x 35	2/170 x 45	2/170 x 35	175 x 75	2/170 x 35	170 x 45	2/120 x 45		
	2400	275 x 75	2/240 x 35	2/240 x 35	2/190 x 45	200 x 75	2/170 x 45	2/170 x 35	2/140 x 45		
	3000	--	2/290 x 45	2/290 x 35	2/240 x 45	250 x 75	2/240 x 35	2/190 x 45	2/190 x 35		
	3600	-- --	-----	-- --	2/290 x 45	--- --	2/290 x 45	2/290 x 35	2/240 x 45		

UNCOUPLD ROOF WITH LOADBEARING RIDGEBEAMS AND/OR WALLS

Rafters supporting roof and ceiling loads – non coupled cathedral roof single span

Rafter Span		Rafter Spacing	Unseasoned				Seasoned			
			F5	F7	F8	F11	F5	MGP10	MGP12	F17
Tiled Roof Ceiled										
3000		600	200 x 38		175 x 50	175 x 50	175 x 45	140 x 45	140 x 45	140 x 35
	Overhang		750		750	750	750	750	750	750
3600		600	250 x 50		225 x 50	200 x 50	240 x 35	170 x 45	170 x 45	170 x 35
	Overhang		750		750	750	750	750	750	750
4200		600	275 x 50		250 x 50	250 x 50	240 x 45	240 x 35	190 x 45	190 x 45
	Overhang		750		750	750	750	750	750	750
4800		600	275 x 75		300 x 50	275 x 50	290 x 35	240 x 45	240 x 35	240 x 35
	Overhang		750		750	750	750	750	750	750
5400		600	--		300 x 75	275 x 75	--	290 x 35	290 x 35	240 x 45
	Overhang				750	750		750	750	750
Sheet Roof Ceiled										
3000		900	175 x 50		175 x 50	150 x 50	140 x 45	140 x 35	120 x 45	120 x 45
	Overhang		750		750	750	750	750	750	750
3600		900	225 x 50		200 x 50	200 x 50	170 x 45	170 x 35	140 x 45	140 x 45
	Overhang		750		750	750	750	750	750	750
4200		900	250 x 50		225 x 50	225 x 50	240 x 35	190 x 45	170 x 45	170 x 45
	Overhang		750		750	750	750	750	750	750
4800		900	300 x 50		275 x 50	250 x 50	240 x 45	240 x 35	190 x 45	190 x 45
	Overhang		750		750	750	750	750	750	750
5400		900	300 x 75		300 x 50	275 x 50	290 x 35	240 x 45	240 x 35	240 x 35
	Overhang		750		750	750	750	750	750	750

- NOTE**
- 1 Allowable overhangs are based on a maximum birdsmouth depth of D/3. Where rafters are not birdsmouthed, the allowable overhang may be increased to 30% of the single span for that member, provided that the overhang does not exceed 50% of the actual backspan.
 - 2 Overhang limits are only applicable where rafter ends are supported by a structural fascia.

NOTE Sizes shown in tables in this specification are intended only as a guide to the size and stress grade for a particular member of a building frame. All timber framing should be designed and constructed in accordance with AS1684 2 and/or AS1684 4. Sizes in this specification are based on AS1684 4 Simplified Non cyclonic areas, with restrictions as follows:

- Maximum wind classification N2 (33m/s)
- Maximum Roof pitch 30°
- Maximum building width 12.0m

Where a building exceeds the restrictions as listed above, design to comply with AS1684 2 will allow wind speeds up to N4 (50 m/s), roof slopes up to 35° and building widths up to 16.0m.

PERMANENT BRACING OF WALLS AS PER AS1684 2 Section 8 BCA parts 3 4 3

This section Permanent Bracing of walls as per AS1684 shows typical bracing applicable to timber frame construction as explanatory information only.

TYPE A UNITS (Design racking resistance of 2kN) The following bracing units are deemed satisfactory type A braces

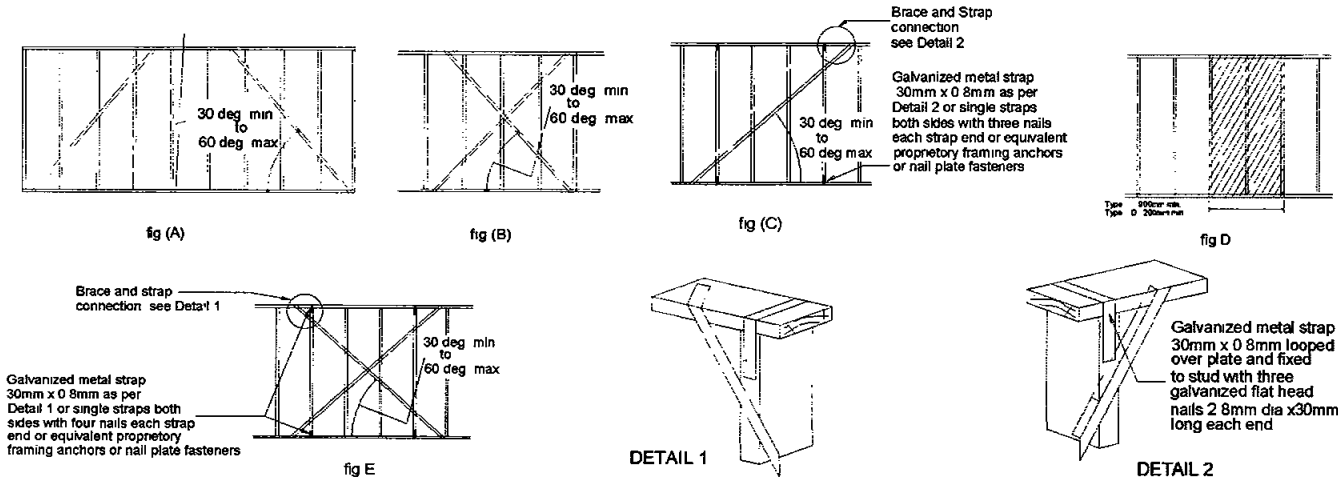
- 1 A pair of diagonal timber or metal section braces in opposite directions from each end of the wall as per fig (A) OR galvanised metal tensioned strap bracing as per fig (B)
- 2 Single diagonal timber or metal section brace as per figure (C)
- 3 A 900mm minimum wide panel of structural plywood as per figure (D)

Type 'A' Bracing – Pair of diagonals from each end of wall		
Timber	Metal Section	Tensioned Straps
50mm x 19mm for studs up to 2.7m long 75mm x 19mm for studs over 2.7m long Fixing galvanised flat head nail 2.8mm dia x 50mm long to each plate and stud	18mm x 16mm x 12mm min galvanised angle brace fixed with one 2.8mm dia x 30 long galvanised flat head nail to each plate and stud edge	Flat galvanised straps 0.8mm thick x 20 wide Fixings one galvanised flat head nail 2.8mm dia x 30mm long to each plate and stud edge Tension straps

Type 'A' Bracing – Single diagonal at end of wall	
Timber	Metal Section
75mm x 19mm min fixed with two 2.8mm dia x 50mm long flat head galvanised nails to each stud and plate	Galvanised angle brace fixed with two 2.8mm dia x 30 long galvanised flat head nails to each plate and stud

Type B UNITS (design racking resistance of 4kN) The following bracing units are deemed to be satisfactory type B braces

- 1 A pair of diagonal galvanised metal tension straps of minimum nominal dimension 30mm x 0.8mm in opposing directions on one side of timber frame. Ends of straps shall be bent over top and bottom faces of plates and fixed with four 3.15mm dia x 30mm long galvanised flat head nails. Braces shall be fixed to stud edges with two similar nails to each crossing. End studs of braces section shall be strapped to top and bottom plates with 30mm x 0.8mm galvanised strap looped over plate and fixed to studs with four galvanised flat head nails 3.15mm dia x 30mm long each end of loop.
- 2 A 900mm minimum wide panel of structural plywood as shown in figure (D). Fixed as follows:
 - Plywood stress grade F8 Stud spacing 450mm to be 7mm thick ply
 - Plywood stress grade F11 Stud spacing 450mm to be 6mm thick ply
 - Plywood stress grade F14 Stud spacing 450mm to be 4mm thick plyFixing 2.8mm dia x 30mm long galvanised flat head nails at 50mm centres along top and bottom plates, 150mm centres along vertical edges and 300mm centres along intermediate studs.



Diagrams as shown and explanation of the various types of bracings are not intended to specify bracing requirements for any timber frame construction. All bracing requirements for a particular design in timber framing must be determined in accordance with Section 8 of AS1684 2 or AS1684 4 as applicable.

TIEDOWN REQUIREMENTS BCA tables 3 4 3

Tie down requirements for timber frame construction can be determined from AS1684 4 Section 9 for maximum design gust wind speeds of 33m/sec. For wind speeds in excess of 33m/sec, design as per AS1684 2 is required.

Tie down fixings should be determined for the following connections

- a) bearers to piers
- b) floor joists to bearers
- c) Bottom plates to floor joists or concrete slabs
- d) studs to bottom and top plates
- e) rafters to top plates
- f) rafters to ceiling joists
- g) battens and/or purlins to rafters
- h) collar ties to rafters
- i) verandah plates and eaves beams to posts

NOTE Special fastening requirements are required for type A and B wall bracing for connections (c) and (d) above.

CYCLONIC AND OTHER HIGH WIND AREAS BCA part 3 10 1

Where buildings are to be constructed in regions B, C and D as per AS/NZS1170 2 and AS1170 2 compliance with the AS1170 2 Minimum Design Loads on Structures or AS4055 Australian Wind Loads for Housing.

NOTE High wind areas exist outside of cyclone regions B, C and D. Clarification of the category at the site should be sought from local authorities. Cyclonic Regions of Australia and Tasmania are shown on Map BCA fig 3 10 1 4.

STEEL FRAMING AND OR TRUSSES BCA part 3 4 2

MATERIALS All framing sections shall be manufactured from galvanised steel conforming to AS1397 Galvanised materials up to 3.2mm thick shall have minimum coating mass of 200 g/m² Design fabrication and fixing shall be as per recommendations of the component manufacturers design manual Design for Residential and Low Rise Steel Framing may conform to NASH standard as alternative to AS3623

FABRICATION AND ERECTION

All structural components fabricated into frames and/or trusses and shall be cut accurately to length to fit firmly against abutting members and held so until fastened. Studs shall be seated squarely in bottom plates with webs at 90deg to the face of the wall and accurately located, plumbed and securely fixed to top and bottom plates. Multiple studs shall be used as specified at concentrated load points. Plates shall be securely spliced to maintain continuity. Splices in studs are not permitted. Structurally adequate heads shall be fitted over openings in walls. All frames shall be adequately braced for transport and resist wind loads in service. Preferred fastening is by MIG welding. All welds shall be cleaned and painted with zinc rich paint. The bottom plate shall be securely fastened to sub floor at centres as recommended and all site connections shall be as specified in design manual. Holes for electrical wiring, other cables and plumbing services shall be max 33mm dia flanged holes. Service pipes shall be effectively separated from framing by lagging and be securely fixed in cavities. Permanent electrical earthing of a steel frame building shall be carried out in accordance with the requirements of the local electrical authority. Where power tools are used on site temporary earthing to the frame shall be made during construction. On completion of framing all debris shall be removed from cavities and bottom plates. Domestic metal framing shall be designed to comply with the load combinations as per AS3623.

STRUCTURAL STEEL BCA part 3 4 4

All steel work is to be fabricated to details as shown on engineers drawings all work to be in accordance with AS4100 Steel Structures

PURLINS AND GIRTS

To roof and walls of building provide purlins and girts according to engineers details. Cover roof and walls of building in full length sheets complete with all necessary flashings, cappings etc. Secure as recommended by manufacturer and provide panels of selected translucent sheeting as indicated or directed.

ROOFING BCA part 3 5 1

TILE ROOFING BCA part 3 5 1 2

Provide all roofs with first quality roofing tiles. Where pitch of rafters is less than 1:2.75 terra cotta, Marseilles pattern, 1:3.7 Swiss pattern, 1:3.3 concrete tiles are used the roof shall be sarked with either 2 ply bituminous felt or double faced aluminium foil covered reinforced fabric as per AS1736. Between 1:3.7 and 1:4.5 slope perimeter of roof shall be provided with an anti ponding board or device to ensure that all water will be discharged into eaves gutter. A clear space must be provided between edge of the device and the lowest side of the first batten so as to allow a free flow of water into the gutter. Where one section of the roof discharges into a lower section the discharge is to be widely distributed and the roof is to be fully sarked. Elsewhere where a spreader is used the roof shall be sarked from the point of discharge to eaves with a minimum width of 1800mm approved sarking. Cover all ridges and hips with capping starters and apex caps necessary and bed all capping and verge tiles on lime mortar and point with coloured cement mortar.

TERRA COTTA TILES

To be glazed and manufactured in accordance with AS 2049. To be fixed to timber battens with copper wire ties every alternate tile. All fixed in accordance with AS2050.

CONCRETE TILES

To conform to AS1757 and AS1758 and to be produced by manufacturers who provide a comprehensive guarantee and fix in accordance with AS1787. Tiles are to have an end lap of not less than 75mm. Where wiring holes are provided every alternate tile in each course is to be tied to battens with approved wire. Where holes are provided for nailing every tile in each third course is to be fixed with galvanised flat head nails at least 19mm into tile batten. Fixing to be as per AS2050.

CORRUGATED FIBRE CEMENT ROOFING

To conform to AS1611 and fixed in accordance with AS1562 Pt 2. Minimum pitch of roof is to be 1:8 for large corrugations and 1:11 where the rafter length can be covered with a single sheet. Where pitch of roof is less than 1:6 in the case of large corrugations and 1:4.5 in the case of small corrugation end laps shall be at least 225mm and sealed. Sheets to be fixed with galvanised round head screws and felt washers set in mastic to each run of battens with side and end laps or other approved method in accordance with manufacturers instructions. All necessary accessories are to be provided and the roof is to be adequately birdproofed.

PROFILED STEEL ROOF BCA part 3 5 1 3

To be material as nominated on drawings. All necessary accessories to be provided and fixed according to manufacturers recommendations. Roof is to be bird proofed. Sheet fixings and spacings are to be strictly as per manufacturers recommendations for the design wind speed for the area. Design and installation shall be in accordance with AS/NZS 1562. Cover roof and walls of building in full length sheets complete with all necessary flashings and cappings etc. Secure as recommended by manufacturer and provide panels of selected translucent sheeting as indicated or directed.

SARKING

Where sarking is specified or required by any authority the selection of and fixing shall be in accordance with the code of practice as specified in AS1736 for pliable roof sarking and/or AS1903.04 for reflective foil laminates. All installations must comply with the requirements of BCA part 3.7.4 in Bushfire prone areas.

FLOORING BCA part 3 4 3

T & G STRIP FLOORING BCA table 3 4 3 1

Flooring shall be seasoned and stored in a way to preserve its delivery condition. Flooring boards shall be laid in straight and parallel lines with tongues fitted into grooves and cramped together with pressures suited to moisture content and seasonal conditions. End joints shall be made on a joist and joints in adjoining boards shall be staggered. Flooring shall be kept 12mm clear of walls or wall plates parallel with the direction of laying. Boards of normal width of 75mm and less shall be fixed with one nail at each joist and boards over 75mm shall be fixed with two nails at each joist. Nails in faces of boards are to be well punched to allow for subsequent sanding and stopping. Boards profiled for secret nailing are to be skew nailed through tongues at each joist with nail punched to permit the full entry of the tongue into the groove. Flooring is not to be cut in and fixed before roofing is complete. External walls sheeted or lined and all external openings covered.

SHEET FLOORING

The minimum height of sheet flooring above ground level and under floor ventilation shall be in accordance with manufacturers instructions or as required by Council or Lending Authority.

Where sheet flooring is used in platform construction and a decorative finish is required it shall be sealed with a water repellent at time of fixing.

a) Structural Plywood shall be manufactured in accordance with AS2269 and sheets stamped on the face side with manufacturers name or trade mark. Sheets shall be fixed in accordance with manufacturers instructions as approved.

b) Particle Board Approved board bonded with phenolic resin to achieve a type A bond as defined in AS1860 for plywood may be used in platform construction or as fitted flooring. Boards shall be fixed in accordance with manufacturers instructions as approved. The perimeter of flooring should be fully supported by joists or noggin. Other approved particle board may be used providing it is a minimum of 2100mm above the ground.

c) Compressed Fibre Cement Sheet flooring not less than 18mm thick with density of not less than 1.8g/cm³ may be used in lieu of suspended concrete floors. Sheets shall be fixed in accordance with manufacturers instructions adequately flashed and suitably finished.

ELECTRICAL INSTALLATIONS

Provide all labour and materials necessary for the proper installation of electrical services in accordance with the appropriate AS Rules and requirements of the Local Supply Authority. Arrange with the supply Authority for connection from supply main to meter board. Provide for the proper installation and connect electricity stove/s and hot water unit/s. Provide light and power points as indicated on drawings or as directed and in accordance with AS/NZS1680. Provide box to enclose meters in accordance with the requirements of the Authority concerned. Arrange for inbuilt wiring for telephone, television, computer and security installation as required. AS/NZS 3000 specifies the minimum requirements including safety provisions.

SMOKE DETECTORS/ALARMS BCA part 3 7 2

Fire/smoke detectors selected by the owner and complying with the requirements of the Local Government Act and/or state or territory regulations must be fitted in the locations required and approved by the regulatory authority and shall be installed in accordance with AS3786.

LIGHTNING PROTECTION

Where lightning protection is specified by the proprietor or required under regulatory provisions it shall be installed in accordance with AS1768.

EXTERNAL WALL CLADDING BCA part 3 5 3

WEATHERBOARDS OR PROFILE SHEETING or other cladding as approved by the leading authority shall be fixed and flashed in accordance with manufacturers instructions and to the satisfaction of the lending authority. Weatherboards with laps as specified by the relevant AS shall be hardwood, pressure treated radiata pine or slash pine, cypress pine, baltic pine or western red cedar. The boards shall have a maximum moisture content of 15% be in long lengths with staggered end joints, securely nailed and fitted with angle stops. Western red cedar used externally shall be fixed with galvanised or cadmium plated fasteners. Boards exceeding 100mm in width shall be double fastened at all bearings. All boards shall be primed or sealed all around including rebates and ends before fixing. Where vertical boarding is used it shall be fixed to battens at not more than 600mm centres and sarking acceptable to the lending authority placed behind the battens to provide air space and fixed to the frame work with adequate provision for discharge of moisture. External boarding shall be in one length or have joints specially designed for external use.

FIBRE CEMENT

a) Flat Sheeting. Fibre cement sheeting shall be not less than 4.5mm thick and close jointed to full height of walling or above sill level where weatherboard dados are specified. Horizontal joints shall be flashed with 0.42mm galvanised steel turned up 13mm against stud faces and down 12mm over sheet faces, lapped 25mm at joints. Internal angles of walls shall be flashed with 38mm x 38mm x 0.42mm minimum base thickness galvanised steel angles or bitumen coated metal flashing to full height of studs and lapped 50mm at joints. All vertical and horizontal joints and angles shall be covered with timber fibre cement mouldings as approved by the lending authority. Trimmers of not less than 75mm x 38mm timber shall be provided between ends of floor bearers to support lower edge of sheeting.

b) Profiled sheeting and Weatherboard. As approved by the lending authority shall be fixed and flashed in accordance with the manufacturers instructions and to the satisfaction of the lending authority.

INTERNAL LININGS

Line all internal walls not specified as otherwise with Gypsum plaster board fixed horizontally in full length sheets or with staggered end joints to ceiling height. Sheets to have recessed edges and of thickness as recommended by the manufacturer for the stud, batten or support spacing. Fixing is to be with galvanised clouts, manufacturer approved screws and/or approved adhesive and be strictly in accordance with manufacturers instructions. Set all internal angles. Note: Where below 1200mm in laundry, bathroom and W.C. and at back of kitchen sink unit and below 1800mm in shower recess, only approved water repellent sheet shall be used. Note: Adhesives must not be used to fix sheets in tiled areas.

FIBREBOARD

Sheets shall not be less than 4.5mm thick except where tiled. Sheets to be tiled shall not be less than 6mm thick. Where flush jointing is required fibreboard sheets shall be used, fixed and jointed in accordance with manufacturers instructions.

CEILING LININGS

Provide Gypsum plaster board to all internal ceilings unless otherwise specified. Sheets to have recessed edges and to be 10mm thick when fixed to ceiling battens/joints spaced at not more than 450mm and 13mm thick for 600mm spacings. Fixing is to be with galvanised clouts and/or approved adhesive and is to be in accordance with manufacturers recommendations as approved. Provide selected cornices, neatly mitred, properly fixed and scrimmed and set at all joints in full wall lengths where practicable. Gypsum plaster board for ceilings and walls shall be as per AS2589. Sheets of different thickness may be used at other spacings where their manufacture and installation complies with the Deemed to Satisfy Provisions.

PLASTER AND RENDER

To all brick walls not specified as feature brickwork or otherwise (with exception of garage) apply render to minimum thickness of 12mm. Render to consist of one part fresh cement to 3 parts clean sand with 10 per cent hydrated lime added. Use only whilst fresh. All brickwork to be well wetted before plastering is commenced. Point up all flashings externally with cement mortar and make good as required after other trades.

JOINERY

Joinery timber is to be of species seasoned and free from those defects that might effect its appearance and/or durability. All to be D.A.R. accurately cut and fitted, properly mitred and scribed as required and securely fixed. All surfaces to be left free of mill marks or other defects, filled where necessary and ready for painting or staining. Where wood plugging is required it shall be a suitable species properly seasoned.

DOOR FRAMES – BRICK BUILDINGS

Shall be at least 100mm x 50mm solid rebated properly dowelled to thresholds. Mullions shall be 75mm thick and double rebated.

JAMB LININGS – INTERIOR DOORS ALL BUILDINGS EXTERIOR DOORS TIMBER FRAMED AND BRICK VENEER

Linings shall be a minimum of 38mm thick solid rebated to all door openings. Where return plaster reveals occur linings shall be 75mm x 50mm rebated. Alternatively for internal doorways 25mm linings may be used with 12mm planted stops. In brick veneer and timber framed construction 12mm clearance shall be provided over jamb linings to external openings. Linings to openings not having doors or to have swing doors are to be 25mm thick timber securely fixed. Other proprietary linings may be approved by the owner.

DOORS Fit accurately to door frame. Hang external doors with three 88mm steel butts and internal doors unless otherwise specified with two 88mm steel butts. External doors shall not be less than 2040mm x 820mm x 40mm thick. Where sheeted with plywood, waterproof plywood only shall be used. All framed glazed doors (external or internal) shall be minimum of 40mm thick. Internal doors shall be minimum of 35mm thick and free of warping.

WINDOWS AND FRAMES In brick veneer construction 10mm clear space shall be left between underside of sill and brickwork. In two storey construction with hardwood timber framing the clearance shall be increased to 20mm.

INSTALLATION

All windows shall be installed in accordance with the requirements of AS2047-48 for Aluminium windows and AS2146-47 for timber windows.

STAIRS, HANDRAILS AND BALUSTRADES BCA 3 9 1 and 3 9 2

Stairways shall be constructed to the layout as shown on plans with treads of equal dimensions except where shown or where winders are required. All risers in any flight shall be of equal height. All flights shall have a minimum of 2 and not more than 18 risers. Vertical clearances above stairs shall be 2000mm min. to soffit of floor or structure above when measured vertically above nose of tread. Relationship of riser to going shall be between 1:2 and 1:1.35 unless otherwise directed or as permitted in AS1657. Balustrades shall be provided to all landings, decks, roofs, other elevated platforms where the vertical distance from that level is more than 1 metre above the adjoining floor or finished ground level. Height of the balustrade must be a minimum of 1 metre above landings etc. and not less than 865mm above the nosings of any stair treads or floor of a ramp. Openings in balustrades (decorative or otherwise) and space between treads, eg. riser opening must not allow a 125mm dia sphere to pass through. Resistance to loading forces of a balustrade must be in accordance with A.S. 1170. Materials and finish of handrails, newel posts and balustrading shall be as directed or agreed by owner. Where balustrades are constructed of tensioned wires provision shall be made to maintain tension applied.

ACCESS AND MOBILITY

Where access and mobility requirements are to be addressed in the construction of a new building, AS1428 1 General Requirements for Access – New Building Work contains the minimum design requirements to enable access for people with disabilities. Revision of the BCA in order to address requirements of the Disability Discrimination Act (DDA) as applies to the construction of buildings with public areas will require that the latest revision of AS1428 should be used.

PLUMBING AND DRAINING BCA part 3 5 2

EAVES GUTTERS VALLEY GUTTERS AND DOWNPIPES

Eaves gutters and downpipes of material and finish as nominated on drawings shall be installed as per manufacturers specification to all eaves as required with falls to downpipes in positions shown and to comply with AS/NZS 2179. Valley gutters of material compatible roof covering to comply with BCA 3 5 2 4.

FLASHINGS

Flash around chimney stacks, exhaust flues and wherever else required with approved flashings dressed well down onto roof slopes and taken vertically at least 75mm. Wedge step flashing into brickwork joints and point up with cement mortar. Eaves gutters, valleys and roof flashings shall be selected from materials compatible with each other and the roof covering to prevent by metallic corrosion. (See BHP publications TB8, TB15). Use of lead for flashings, gutters, downpipes and roofing is prohibited if the roof will collect potable water.

WATER SERVICES

Where a reticulated water supply is available all work shall be carried out by a licensed water plumber. All water supply installations shall be carried out in accordance with AS3500 National Plumbing and Drainage Code.

RETICULATED RECYCLED WATER

Where a utility supplied reticulated recycled water supply is connected as a dual reticulation it is important that no cross connection between the potable and recycled water can occur. There must be at least one external tap for each system and the recycled water system must have lilac coloured components. Identification markings and signage shall be installed as per AS1319 and AS1345. Recycled water cannot be used for human consumption or contact, household cleaning, personal washing or irrigation where fruit and crops are eaten raw or unprocessed.

WET ROOM FLASHINGS BCA 3 8 1

Waterproofing of wet areas shall be designed and installed in accordance with requirements and construction techniques as per AS3740 and appendix for wall/floor combinations. All waterproofing installations are to be inspected and approved prior to covering. Where waterproof membranes are used in the construction of wet area membranes shall comply with AS/NZS4858.

HOT WATER SERVICE

All installations must comply with AS3500 4. Provide from H/water unit with selected tubing to points necessary. Terminate with taps selected. Provide inlet stop cock to hot water unit.

GAS SERVICE

The whole of the work is to be carried out as per requirements of the Local Supply Authority. The plumber is to be responsible for the gas service from boundary alignment including fixing of the meter and cover for same. Installations for bottled gas supply shall comply with the relevant standard.

HEATING APPLIANCES BCA 3 7 3 Domestic type Oil Gas and Solid Fuel heater installations shall comply with AS2918. Domestic solid fuel burning appliances – Installation or AS1691. Rules for installation of domestic Oil Fired appliances as applicable. Installation of gas fired appliances shall be carried out by a licensed gas plumber.

SEWERED AREAS

Provide a drainage system from pedestal pan and from wastes of all fittings unless a grey water system is to be installed and connect to the sewer main where shown on site plan all to be in accordance with the rules and requirements of the Authority for Water Supply and Sewerage. Provide at least one gully outside the building. The Authority Certificate to be produced at Completion of the Work.

UNSEWERED AREAS

Provide a drainage system from all fittings and from grease trap in accordance with the requirements of the Local Authority concerned. Excavate for drains to provide even falls throughout and a minimum cover of 300mm. Lay 100mm socketed vitrified clay P V C or HDPA pipes to take discharge from wastes of washtubs bath shower washbasin and grease trap. All pipes to be completely jointed with rubber rings or solvent cement as approved. All drain lines to be laid so that water is discharged into an absorption trench provided in position shown on plan. Provide an approved grease trap with lid in position shown to take the water from kitchen sink. Top of trap to be 75mm above finished ground or nearby concrete paving level. All drainage work from fittings to the drainage line outside the building to be in accordance with the rules and requirements of the Water Supply and Sewerage Authority for sewer areas. That Authority Special Inspection Certificate of the work to be produced by the builder. All plumbing and drainage shall be in accordance with the Code of Practice for state or territory and regulating local government area.

GREYWATER REUSE SYSTEMS

Where a greywater reuse system is proposed the installation shall comply with the following Australian Standards and Codes. AS1546 parts 1 and 3. AS1547. NSW Health 1998 AWTS guideline. NSW Health 2000 Domestic greywater treatment guidelines and sewer single domestic premises. An on site greywater reuse system is not permitted in Reticulated Recycled water areas. Domestic Greywater Treatment Systems (DGTS) and Aerated Wastewater Treatment Systems (AWTS) require a certificate of accreditation from NSW Health.

SEPTIC SYSTEM

In position shown on site plan provide and install septic system as nominated by the proprietor together with a holding tank and length of absorption trench installed in accordance with the manufacturers instructions and the requirements of the Local Authority. Installations shall comply with AS1546 part 1.

STORM WATER TREATMENT METHODS

Provide roof water drains from downpipes and from grates in paving where shown on site plan. Drains to be 100mm socketed vitrified clay pipes or PVC laid to an even and regular fall so as to have a minimum cover of 150mm. Drains to discharge into street gutter where possible. Where outlets are shown within the site they are to discharge at least 3000mm clear of the building into rubble packing 600mm diameter and 600mm deep. Acceptable solutions for stormwater drainage to be as per AS/NZS3500 part 3. Stormwater treatment systems should satisfy the following performance requirements:

1. Conserve Water
2. Prevent Increases In Flooding/Erosion
3. Maintain water balance
4. Control Stormwater Pollution

Systems suitable for detached dwellings are: Roof/rainwater tanks. Detention devices. Infiltration devices and Filter strips. These are also suitable for multi dwelling developments in addition to Stormwater tanks and Bio retention devices.

RAIN WATER TANKS

Install rainwater tanks of selected material on slab or support as nominated by tank manufacturer. Rainwater tanks may be trickle topped up (max 2litres/minute) from a potable water supply main and internally reticulated. A dual supply system should have no direct or indirect connection between the mains potable supply and the rainwater tank supply. Inground concrete tanks may be installed as an option with a suitable pressure pump and a testable backflow prevention device as per AS/NZS2845 1. Where an above ground tank is connected to internal reticulation a meter with a dual check valve is to be installed and a visible air gap between the mains supply and the rainwater tank as per AS3500 and AS2845 2 1. (See NSW Health circular. Use of rainwater tanks where a reticulated mains water supply is available).

NOTE Drain pipes must not be taken through the footings of the building. All seepage and soakage water is to be effectively dealt with and diverted clear of the buildings as shown on site plan. Trenches for drains where running parallel to the building must not be within 600mm of the footings of the building.

WALL AND FLOOR TILES

For guidance on installation of ceramic tiles see recommendations as set out in AS3958 parts 1 and 2.

WALLS

Cover the following wall faces with selected glazed tiles	To shower recess to a height of 1800mm
To bathroom generally to a height of 135mm	To enclosing of bath and hobs
To bath recess to a height of 1350mm	To WC to height of one row of tiles or as directed

Above kitchen sink/s and cooking area/s allow for four rows tiles. Finish at top and salient angles with round edge tiles. Provide vent tiles and selected recess fittings. Tiles to be fixed to a backing of Fibre Cement with approved adhesive. Areas for tiles can be increased by proprietors direction or as noted on plans.

FLOORS

Cover floors of bathroom shower recess WC and ES with selected ceramic tiles set in cement mortar or approved adhesive and graded to give an even and adequate fall to floor waste.

PAINTING

All paints stains varnishes and water colours are to be of approved brands as selected. Materials used for priming and undercoating are to be the same brand as the finishing paints or as recommended by the manufacturers of the finishes used. All finishing colours are to be selected by the proprietor. Do all necessary stopping after the priming has been applied. Rub down all surfaces to a smooth finish prior the application of each successive coat of paint. External joinery or other exposed woodwork to have a clear plastic finish is to be treated with a priming oil containing wood preservative and a water repellent.

EXTERNALLY All external woodwork to be given one coat of primer one coat of oil based undercoat and one coat of gloss finish enamel or to be given one coat of clear primer one coat of flat clear plastic and one coat of clear plastic.

PRIMING WEATHERBOARDS Any Pine is to be primed all round as well as on the ends before fixing. Hardwood cypress pine radiata pine and oregon are to be primed on external faces including rebates before fixing. pressure treated Canada pine is to be primed at ends before fixing.

IRONWORK

Eaves gutters downpipes exposed service pipes and wrought iron etc. to be cleaned and primed and give one coat of gloss paint all round.

FIBRE CEMENT Clean and prepare all external fibre cement surfaces and finish with two coats of water based paint.

INTERNALLY

All exposed woodwork in kitchen bathroom laundry WC EC to be prepared primed and then given one undercoat and finished with one coat of full gloss paint or to be stained and finished with two coats of clear liquid plastic as selected.

CEILINGS

To be given one coat of sealer and two coats of paint. The finishing coat of bathroom laundry and kitchen ceilings to be semi gloss (unless directed otherwise).

WALLS All rooms except bathroom laundry and kitchen to be given one coat of sealer and two coats of water based paint. To bathroom kitchen WC EC and laundry where no tiled or pre surfaced material is required walls are to be given one coat of sealer one coat of undercoat and one coat of gloss oil paint system.

GLAZING BCA part 3 6

All sashes doors fixed lights and other glass in building shall be selected and installed by procedures as set out in AS1288 and/or AS2047 for type thickness and area of glass according to wind loading human impact and other considerations for glazing in frames of timber steel stainless steel aluminium and bronze according to type of frame height of building and glazing compound and for design and glazing of unframed toughened glass assemblies. Specific attention should be made to the selection of frame materials glazing location in walls and orientation to the path of the sun for various climate zone. Where windows are not shaded by roof eaves or other building projections advice by an approved specialist or manufacturer should be sought to ensure that all installations comply with the Energy Efficiency requirements of the BCA.

FENCING

Provide paling fence 1500mm height to side and rear boundaries. Posts to be 125 x 50mm in sawn approved durable hardwood morticed for two rails and sunk into ground 600mm at maximum of 2700 mm. Posts at angles in fencing to be 125mm square. Well ram around posts. Where rock is encountered posts are to be set in concrete. Fit two rows of 75 x 50mm hardwood rails into mortises. Cover framing with hardwood palings. Double nail to rails at top and bottom. Cut line at top and lop corners. All timber in ground or concrete to be well tarred or treated with an approved preservative. Allow for repairing any existing recommendations of the manufacturer.

FRONT FENCING Provide front fencing as directed

ALPINE AREAS

For buildings to be constructed in an alpine area compliance with the requirements of BCA part 3.7.5 is required. Alpine areas are areas above Australian Height Datum (AHD) as follows: NSW VIC ACT above 1 200 metres AHD TASMANIA above 900 metres AHD. For sub alpine areas where significant snow loads may occur see BCA fig 3.7.5.2. Where snow loads may be applied to a building design according to AS1170.3 is required (see BCA 3.11.3).

EARTHQUAKE

Earthquake probability shall be determined to BCA3.11.3 and loading requirements designed to comply with AS1170.4

LANDSCAPING

The area to be landscaped shall comply with the landscape plan and requirements of the Local Council Authorities. Appropriate landscape design will reduce water usage in lawns and gardens by up to 50%. Selection of native (indigenous plants suited to the local micro climate along with exotic species from California, South Africa and the Mediterranean) will normally require minimal maintenance and water use. (BASIX website see table D.2.1 for indigenous plants in various local government areas)

CAR PARKING All car parking and loading bays to be kerbed, guttered, sealed, drained, line marked and landscaped. Drainage of surface water into neighbouring properties is NOT permitted except where an easement is obtained. All car parks shall comply with the provision of Local Council Authorities.

COMPLETION

The building shall be completed in every trade. Sashes, doors, locks and all other equipment shall be checked and left in a satisfactory operating condition. Timber floors shall be at least rough sanded. Where fine sanding is specified see CA39 Code of practice for sanding interior wooden floors. All plant, surplus materials and rubbish is to be removed from site. Gutters and drains shall be cleared and the building generally to be left clean and fit for occupation.

The Builder is to furnish the Owner with

- | | |
|---|--|
| 1 Notification of Completion | 4 Certificate from Sewerage Authority re sanitary drainage |
| 2 All Keys for all doors | 5 Invoices for all PC items required |
| 3 Certificate of termite protection treatment | |

It is the responsibility of the builder to arrange any inspections necessary by Local Council, Waterboard or Lending Authorities and/or Principal Certifying Authority.

It is the responsibility of the Owner to apply to Local Supply Authorities for connection of Electricity from mains to meter box.

APPROVAL TO OCCUPY MUST BE OBTAINED

BASIX. The Building Sustainability Index – (NSW only)

This is a planning tool that measures the performance of a new dwelling (residential) by comparing its potential to consume less mains water supply and energy than an existing average home.

Sustainability Indices are assessed for Energy, Water Usage and Thermal Comfort. The policy also factors in Stormwater reuse and Landscaping but does not score these.

NSW Government targets of a reduction in mains potable water consumption and reduction in Greenhouse Gas emissions can be achieved by dwelling design and sustainability features. These features may include design elements such as recycled water, rainwater tanks, ***min rated shower heads, taps and toilets, Heat pump or solar water heaters, gas space heaters, eaves awnings and insulation of walls, ceilings and roofs.

A BASIX Certificate must be submitted with Development Application. Complying Development Certificate and Construction Certificate applications for all of NSW for new homes and for some alterations and additions.

Data required to Complete a BASIX Assessment is described in the BASIX Data Input checklist and this should be used in conjunction with the BASIX Assessment Tool.

Extracts from BASIX are reproduced by courtesy of DIPNR.

Information shown in this specification is intended as a guide only. Applicants for DACC and CDC must submit a BASIX Certificate that can be generated in the Department of Planning website www.basix.nsw.gov.au

SUGGESTED ENERGY SAVING METHODS CAN BE

Use of gas for heating, hot water and cooking. Both indoor and outdoor clothes drying lines. Installing energy saving light bulbs. To improve the efficiency of the refrigerator by ensuring there is adequate air passing over the refrigerant coils.

- The refrigerator would be completely freestanding or at least one side or the top of the refrigeration space is completely open.

GREYWATER

- Ensure that public health and the environment are not adversely affected
- Minimise the adverse impact on the amenity of the premises and provide for the reuse of resources

GREYWATER DIVERSION DEVICES (GDD)

A greywater diversion device must be in accordance with the NSW Health's Greywater requirements.

DOMESTIC GREYWATER TREATMENT SYSTEMS (DGTS) must be

- greywater treatment system device that is accredited by NSW Health in accordance with the DTGS Accreditation Guideline or
- An aerated wastewater treatment system (AWTS) accredited by NSW Health or
- A facility that is purposely designed for a particular premises and has Local Government (Approvals) as per Regulation 1999

THERMAL COMFORT

PERFORMANCE REQUIREMENTS (CAN BE ASSESSED BY THREE DIFFERENT METHODS)

Option 1 **RAPID Meet** conditions listed in 10 questions within the BASIX Data Input checklist

NOTE: only for simple, single storey homes (usually) brick veneer dwellings

Option 2 **DO IT YOURSELF (DIY)** tick box questions on Construction type, details of floors, walls, ceilings, roof, windows and skylights, cross ventilation

Option 3 **SIMULATION METHOD** Assessments of the thermal performance of the dwelling undertaken through the Simulation method. Assessments are to be conducted by an accredited assessor using approved software.

PRECONDITIONS The total area of all skylights must not occupy more than 2% of the gross floor area

CONSTRUCTION

(a) Walls Wall types See wall type diagrams in Specification section insulation R Value

CROSS VENTILATION

- (a) Living area cross ventilation
- 1 The total area of ventilation openings in all living areas must be greater than 12.5% of the floor area of all living areas
 - 2 Openings must be provided on opposite or adjacent walls of every living area
- (b) Bedroom cross ventilation
- 1 The bedroom must contain at least two windows or a window and a skylight which can be opened

GLAZING AND SKYLIGHTS

- (a) Orientation Windows facing different directions have varying requirements to comply with BASIX Thermal Comfort requirements
- (b) Glazing and skylight types
- 1 Must have the characteristics nominated in Appendix1 Glazing and skylight characteristics (Available on BASIX website)

SHADING

- (a) Eaves and projections
- 1 May be an eave horizontal opaque projection awning or pergola and shall be made of a durable material suitable for external use
 - 2 The projection is measured horizontally from the face of the wall/building
 - 3 The eave/projection must be located no greater than 2400mm vertically above the sill of the glazing system
- (b) Vertical adjustable external shading
- 1 An adjustable shading device may comprise of shutters louvers or panels
- (c) Vertical fixed external shading
- 1 A fixed shading device may comprise of shutters louvers or panels An adjacent building over 5 m in height and less than 3.1 m from glazing sill is equivalent to fixed vertical shading
- (d) Controlling solar gain
- 1 BLOCKING SOLAR GAIN A shading device must restrict at least 80% of solar radiation at the summer solstice
 - 2 PERMITTING SOLAR GAIN An adjustable shading device may be allowed
- (e) Concessions to shading requirements may be allowed

REQUIRED INSULATION AND ROOF COLOURS Lighter coloured roofing has more resistance to Solar gain (see table C2.8 in BASIX website)

- (a) Insulation Technical and installation requirements for thermal insulation are to be in accordance with the B C A NSW Appendix
- ROOF VENTILATION** Can be increased by Wind driven Ventilators and Gable End vents

INDIGENOUS PLANT SPECIES

Promote the planting of indigenous plant species to preserve the character of the local environment and promote a balanced ecosystem
Ensure that the species selected are adapted to the natural rainfall patterns of the locality

PERFORMANCE REQUIREMENTS

- (a) The indigenous plants for each local government area are set out in Table D 2.1 of the full BASIX Specification on www.basix.nsw.gov.au
- (b) In addition a plant species is considered to be indigenous to a local government area for the purposes of BASIX commitment if the local council for that area states in writing that the species is indigenous to that local government area

Generation of a BASIX Certificate can only be made in the NSW Department of Infrastructure, Planning and Natural Resources BASIX Website www.basix.nsw.gov.au

ADDITIONAL BUILDING REQUIREMENTS (All instructions for extra work or additional requirements must be in writing Dated and signed copies of instructions shall be retained by both the owner and the builder)

This is the specification referred to in the Contract dated / /

Date for Completion / /

PROPRIETOR / /

BUILDER / /

Builders Licence No

MASONRY CONSTRUCTION	Clay Bricks	<input type="checkbox"/>	Face	<input type="checkbox"/>	Commons	<input type="checkbox"/>	Stone	<input type="checkbox"/>
	Concrete Bricks	<input type="checkbox"/>	Concrete Blocks	<input type="checkbox"/>	AAC Blocks	<input type="checkbox"/>	AAC Panels	<input type="checkbox"/>
	Rendered	<input type="checkbox"/>	Bagged	<input type="checkbox"/>	Painted	<input type="checkbox"/>		
MORTAR JOINTS	Colour	<input type="checkbox"/>	Ironed	<input type="checkbox"/>	Flush	<input type="checkbox"/>	Raked	<input type="checkbox"/>
SILLS	Brick	<input type="checkbox"/>	Quarry Tiles	<input type="checkbox"/>				
EXTERNAL WALL SHEETING	Timber Cladding	<input type="checkbox"/>	Fibre Cement Cladding	<input type="checkbox"/>	Metal Cladding	<input type="checkbox"/>	PVC/Vinyl	<input type="checkbox"/>
	Type	<input type="checkbox"/>	Type	<input type="checkbox"/>	Type	<input type="checkbox"/>	Type	<input type="checkbox"/>
FLOOR CONSTRUCTION	Timber	<input type="checkbox"/>	Concrete	<input type="checkbox"/>	Pre Str Beam Floor	<input type="checkbox"/>	Steel	<input type="checkbox"/>
FLOORING	T & G	<input type="checkbox"/>	Species	<input type="checkbox"/>	Compressed FC Sheet	<input type="checkbox"/>	Structural Plywood	<input type="checkbox"/>
	Particle Board	<input type="checkbox"/>	Tiles Ceramic	<input type="checkbox"/>	Terra Cotta	<input type="checkbox"/>	Quarry	<input type="checkbox"/>
DECKING	Treated Pine	<input type="checkbox"/>	Other	<input type="checkbox"/>				
WALL FRAMES	Timber	<input type="checkbox"/>	Hardwood	<input type="checkbox"/>	Pine	<input type="checkbox"/>	H S Galv Steel	<input type="checkbox"/>
	Structural Steel	<input type="checkbox"/>	Off site prefabricated	<input type="checkbox"/>	Onsite cut/assembled	<input type="checkbox"/>		
ROOF CONSTRUCTION	Pitched Roof	<input type="checkbox"/>	Exposed Rafters	<input type="checkbox"/>	Oregon	<input type="checkbox"/>	Hardwood	<input type="checkbox"/>
	Roof Trusses	<input type="checkbox"/>	Raked Ceiling	<input type="checkbox"/>	Pine	<input type="checkbox"/>	Steel Framing	<input type="checkbox"/>
	Flat/Skillion	<input type="checkbox"/>						
ROOF COVER	Concrete Tiles	<input type="checkbox"/>	Terra Cotta Tiles	<input type="checkbox"/>	Shingles/Slate	<input type="checkbox"/>	Corrugated FC	<input type="checkbox"/>
	Zincsalume	<input type="checkbox"/>	Colorbond	<input type="checkbox"/>	Polycarbonate	<input type="checkbox"/>	Profile	
THERMAL INSULATION	Roof/ceiling	<input type="checkbox"/>	Reflective Insulation Rating R		Bulk Insulation Rating R			
	Walls	<input type="checkbox"/>	Reflective Insulation Rating R		Bulk Insulation Rating R			
	Floors	<input type="checkbox"/>	Reflective Insulation Rating R		Bulk Insulation Rating R			
INTERNAL WALL LININGS	Gypsum Plasterboard	<input type="checkbox"/>	FC Sheeting	<input type="checkbox"/>	Timber Panelling	<input type="checkbox"/>	Cement Render	<input type="checkbox"/>
	Face Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>				
WET AREA LININGS	WR Gyp Plasterboard	<input type="checkbox"/>	Villaboard	<input type="checkbox"/>	Timber Panelling	<input type="checkbox"/>	Laminated Panel	<input type="checkbox"/>
CEILINGS	Gypsum Plasterboard	<input type="checkbox"/>	Timber Panelling	<input type="checkbox"/>	FC Sheeting	<input type="checkbox"/>		
CORNICE	Type	<input type="checkbox"/>	Size	mm				
DOOR JAMBS	Timber	<input type="checkbox"/>	Galvanised Steel	<input type="checkbox"/>				
WINDOWS	Timber	<input type="checkbox"/>	Aluminium	<input type="checkbox"/>	Type/Manufacturer	<input type="checkbox"/>		
FLYSCREENS	Timber	<input type="checkbox"/>	Aluminium	<input type="checkbox"/>	Other	<input type="checkbox"/>		
JOINERY	Timber	<input type="checkbox"/>	Species	<input type="checkbox"/>	Stained/Polished	<input type="checkbox"/>	Other	<input type="checkbox"/>
	Architrave Size	mm	Skirting Size	mm	Material	<input type="checkbox"/>		
	Kitchen Cupboards				Stained	<input type="checkbox"/>	Painted	<input type="checkbox"/>
	Front Door Type				Stained	<input type="checkbox"/>	Painted	<input type="checkbox"/>
	Other External Doors Type				Stained	<input type="checkbox"/>	Painted	<input type="checkbox"/>
	Internal Doors Type				Stained	<input type="checkbox"/>	Painted	<input type="checkbox"/>
	Garage Door Type				Size	mm	Colour	<input type="checkbox"/>
EXTERNAL STAIRS	Timber	<input type="checkbox"/>	Steel	<input type="checkbox"/>	Concrete	<input type="checkbox"/>	Brick	<input type="checkbox"/>
INTERNAL STAIRS	Timber	<input type="checkbox"/>	Steel	<input type="checkbox"/>	Concrete	<input type="checkbox"/>	Brick	<input type="checkbox"/>
	as manufactured by				Balustrade type			
ELECTRICIAN	Provide		Light Points		Single Switches		Two way switches	
			Power Outlets	Single				
			Light fittings		Smoke Detectors		Exhaust Fans	
ROOF PLUMBER	Quad Gutters (size)	<input type="checkbox"/>	Box Gutters	<input type="checkbox"/>	Sheerline Gutters	<input type="checkbox"/>		
GUTTERS/DOWNPIPES	Downpipes 100 x 50	<input type="checkbox"/>	100 x 75	<input type="checkbox"/>	100 x 100	<input type="checkbox"/>	Round dia	<input type="checkbox"/>
	Colorbond	<input type="checkbox"/>	PVC	<input type="checkbox"/>	Copper	<input type="checkbox"/>	Zincalume	<input type="checkbox"/>
	Aluminium	<input type="checkbox"/>	Galvanised	<input type="checkbox"/>				
WATER SERVICE	Copper pipe	<input type="checkbox"/>	PVC Pipe	<input type="checkbox"/>	Flex pipe system	<input type="checkbox"/>		
RETICULATED RECYCLED WATER	All Reticulation Systems for Recycled Water must have Lilac Coloured components and markings							<input type="checkbox"/>
RAINWATER STORAGE TANKS	Type		Size	(kl)	Nos		Pressure Pump	<input type="checkbox"/>
STORMWATER STORAGE TANKS	Type		Size	(kl)				
HOT WATER SERVICE	Electric	<input type="checkbox"/>	Gas	<input type="checkbox"/>	Solar	<input type="checkbox"/>		
	Mains Pressure	<input type="checkbox"/>	Gravity Fed	<input type="checkbox"/>	Cylinder capacity	litres		
INTERNAL SEWER SERVICE	Copper	<input type="checkbox"/>	PVC	<input type="checkbox"/>				
DRAINER	Sewer connection	<input type="checkbox"/>	Septic System	<input type="checkbox"/>	Aerated System	<input type="checkbox"/>	Greywater diversion	<input type="checkbox"/>
	PVC pipes	<input type="checkbox"/>	Vitrified clay pipes	<input type="checkbox"/>	Copper pipes	<input type="checkbox"/>		
FENCING	Brick	<input type="checkbox"/>	Paling	<input type="checkbox"/>	Rail	<input type="checkbox"/>	Brushwood	<input type="checkbox"/>
	Front Boundary	<input type="checkbox"/>	Side Boundary	<input type="checkbox"/>	Rear Boundary	<input type="checkbox"/>	Colorbond	<input type="checkbox"/>
	As manufactured by				Type			
POOL	Type		Inground	<input type="checkbox"/>	Above Ground	<input type="checkbox"/>	Pool Cover	<input type="checkbox"/>

This Schedule is to be fully completed Items applicable should be marked items with blank spaces will NOT be included in the works

PROPRIETOR
 BUILDER
 DATE
 /
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SCHEDULE OF RATE / P C ALLOWANCES AND MATERIALS

ITEMS	MODEL OR TYPE	PRIME COST
1 CONCRETE PIERS TO FOOTINGS		\$
2 ROCK EXCAVATION per cubic metre		\$
3 AGRICULTURAL DRAINS per lin metre		\$
4 STORMWATER		\$
5 SEWER CONNECTIONS		\$
6 CERAMIC TILES WALL \$ PER M2 S/O		\$
S/O=SUPPLY ONLY FLOOR \$ PER M2 S/O		\$
QUARRY \$ PER M2 S/O		\$
7 SEPTIC INSTALLATIONS		\$
8 GREYWATER TREATMENT INSTALLATION		\$
9 BATHROOM VANITY & CABINET		\$
10 EN SUITE VANITY & CABINET		\$
11 BASIN		\$
12 BATH		\$
13 TOWEL RAILS		\$
14 SOAP HOLDERS		\$
15 MIRRORS		\$
16 TOILET SUITES		\$
17 SHOWER SCREENS		\$
18 LAUNDRY TUB		\$
19 STAINLESS STEEL SINK		\$
20 KITCHEN CUPBOARDS		\$
21 OVEN		\$
22 HOT PLATES		\$
23 STOVE		\$
24 DISHWASHER		\$
25 EXHAUST FANS		\$
26 RANGE HOOD		\$
27 HOT WATER UNIT		\$
28 SMOKE/FIRE DETECTORS		\$
29 PHONE WIRING/FAX WIRING		\$
30 T V WIRING/COMPUTER WIRING		\$
31 INTERCOM WIRING		\$
32 SECURITY INSTALLATION		\$
33 AIR CONDITIONING SINGLE UNIT		\$
34 INTERNAL VACUUM SYSTEM		\$
35 FRONT GATE		\$
36 FRONT FENCE		\$
37 CLOTHES HOIST		\$
38 CONCRETE PATHS per lin metre		\$
39 GARAGE DOOR REMOTE CONTROL		\$
40 LANDSCAPING (As per Design Supplied)		\$
41 UNIT PAVING		\$
42 RAINWATER TANKS		\$
43 RETICULATED RECYCLED WATER SYSTEM		\$
44		\$
45		\$
46		\$

Where there are additional items or different types of the same item a duplicate list should be added and agreed on by the propnetor and builder

NOTE The builder is to allow Prime Costs amounts of items set out in this Schedule above All items to be selected by Owner The Builders tender is to include the provision of all items including the cost of cartage freight fixing and fitting as part of his contract Adjustment for substituted fittings will be made on the basis of the prevailing retail price

PROPRIETOR BUILDER DATE / /

INDEX – SOUTHspec Standard Specification

A					
Access					
Mobility	10				
Underfloor	3				
Additional Requirements	14				
Alarms – Smoke	10				
Ant Caps	3 7				
Alpine Areas	12				
Articulated Joints	4 5				
Autoclaved aerated blocks	4				
B					
BASIX	13				
Bearers	7				
Bracing					
construction	4				
framing	9				
Bricks and blockwork	2				
Brick					
bonds	4				
joints	4				
reinforcement	3				
ties	2				
straps	4				
weepholes	3				
Bushfire provisions	5				
C					
Carparks	13				
Carpentry	7				
Cavity walls	4				
Ceiling linings	11				
Cement mortar	2 3				
Compo mortar	3				
Concrete					
block	4				
brick	4				
cleaning	4				
floors	2				
footing (dimensions)	2				
tiles	10				
Cyclone areas	9				
D					
Dampcourse	3				
E					
Earthworks and excavations	1				
Earthquakes	12				
Eaves	8				
beams & verandah plates	7				
gutter valleys downpipes	11				
Electrical Installations	10				
Energy efficiency	6 7				
Engaged piers	3				
Excavation	1				
External wall cladding	11				
F					
Fencing	13				
Fireplaces	3				
Fibre cement					
cladding	10				
roofing	10				
Flashings					
brickwork	3				
chimneys	3				
roof	11				
wet rooms	11				
Flooring					
framing	10				
tongue and grooved	10				
sheet	10				
Flues	3				
G					
Gas Service	11				
Glazing					
energy efficiency	7				
general	12				
Greywater re use systems	12				
H					
Heating appliances	3 11				
High wind areas	9				
Hot water service	11				
I					
Inspection notices	1				
Insulation	6				
Insurance	1				
Integral floor slab	2				
J					
Joinery	11				
Joints					
articulated	4				
brickwork	4				
Joists	7				
L					
Labour and materials	1				
Landscaping	13				
Lighting protection	10				
Linings					
walls	11				
ceilings	11				
Lintels	3				
M					
Mortar	3				
Masonry	3				
waterproofing	3				
Manhole	8				
Masses of roof construction	8				
Materials – nomination	15				
P					
Painting	12				
Paths	2				
Permanent bracing – walls	9				
Plans and specifications	1				
on job	1				
Plaster	11				
Plumbing and draining	11				
Prefabricated walls and trusses	8				
Prestressed beam flooring	2				
Prime cost listing	16				
Purlins and girts	10				
R					
Rainwater tanks	12				
Recycled water	11				
Regulations and notices	1				
Reinforced					
concrete footings	2				
slabs	2				
masonry	3				
Reinforcement					
brick	3				
Concrete	4				
Render	11				
Retaining walls	4				
Reticulated recycled water	11				
Rock excavation	1				
Roof construction	8				
Roofing	10				
Battems	8				
S					
Sand lime bricks	2				
Sarking	10				
Septic system	12				
Set out	1				
Sewered areas	11				
Sheet flooring	10				
Single leaf masonry	3				
Sleeper piers	3				
Smoke detectors	10				
Solar absorption values	6				
Stairs					
handrails and balustrade	11				
Standards	1				
Steel					
framing trusses	10				
roofing	10				
structural	10				
Steps	3				
Stress grade – timber	7				
Structural steel	10				
Suspended reinforced concrete slabs	2				
T					
Tables roofing timber sizes	8				
Termite protection	2				
Terra Cotta tiles	10				
Tie down requirements	9				
Tile roofing	10				
Tiles					
wall	12				
floor	12				
Timber stress grades	7				
U					
Unsewered areas	12				
V					
Veneer walls	3				
Ventilation					
underfloor	3				
Vermin proofing	3				
Visit site	1				
W					
Walls					
cladding	10				
insulation	7				
internal linings	11				
special – brick etc	3				
veneer	3				
Wall and floor tiles	12				
Water services	11				
Weather boards	10				
Weather proofing					
concrete block	4				
masonry	4				
Weepholes	3				
Wetroom flashings	12				
Wind classification	7				

