insight building certifiers pty ltd

$30-00 Rt# 216636 NCwb 30/5/07

Construction Certificate
Determination

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

Certificate No. 2007/2092

Council	Pittwater
Determination date of issue	Approved 29 May 2007
Subject land Address Lot No, DP No.	69 Robertson Road, Scotland Island Lot 115 DP 12749
Applicant Name Address Contact No. (phone)	Ms S Boyd 9 Renwick Street, Drummoyne NSW 2047 9979 3347
Owner Name Address Contact No. (phone)	Ms Suzanne Boyd 9 Renwick Street, Drummoyne NSW 2047 9979 3347
Description of Development Type of Work	Alterations & Additions to an Existing Dwelling and landscape works
Builder or Owner/Builder Name Contractor Licence No/Permit	R W Stidwill Constructions Pty Ltd 170304C
Value of Work Building	$350,000.00

Attachments

- Copy of completed Construction Certificate Application Form
- Receipt for payment of Long Service Levy, reference no. 213614
- Copy of Pittwater Council letter confirming compliance with Condition C6
- NSW Rural Fire Service Report, reference no. DA06101034466, dated 12 October 2006

Suite 13/90 Mona Vale Road Mona Vale NSW 2103 PO Box 326 Mona Vale NSW 1660 **ph: 9999 0003** fax: 9979 1555
email: info@insightcert.com.au **ABN** 54 115 090 456

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 Specifications, reference nos. SB0300010, dated 1 May 2007 & SB0300011 & SB0300030, dated 15 May 2007, prepared by Project One Associates**
- **Structural Details, reference nos. 23724-S1, S2 & S3, prepared and endorsed by Jack Hodgson Consultants Pty Ltd, dated 15 May 2007**
- **Completed Form 2 of the Geotechnical Risk Management Policy for Pittwater, dated 15 May 2007**
- **Landscape Plan & Maintenance Strategy, reference no. BO-06-01, prepared by CAB Consulting Pty Ltd, dated 10 April 2007**
- **Copy of Sydney Water approval, dated 11 April 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 29 MAY 2007

Certificate No. **2007/2092**

Certifying Authority

Name of Accredited Certifier	Tom Bowden
Accreditation No.	BPB0042
Accreditation Authority	Building Professionals Board
Contact No.	(02) 9999 0003
Address	13/90 Mona Vale Road, Mona Vale NSW 2103

Development Consent

Development Application No.	**N0611/06**
Date of Determination	**4 January 2007**

BCA Classification **1a**

INSight building certifiers pty ltd

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): Suzanne Victoria

Family Name (or Company): Boyd

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

9 Renwick St, Drummoyne, NSW

Post Code: 2047

Daytime telephone: (02) 9979 3347

Alternate no.: (02) 9999 5652

Mobile no.: 0408 22 9931

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): Suzanne Boyd

Address: 9 Renwick St, Drummoyne, NSW, 2047

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): S. V Boyd

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.: 69

Street name: Robertson Rd.

Suburb: Scotland Island

Post code: 2105

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

Lot no.: 115

DP no.: 12749

4. Description of work

What type of work do you propose to carry out?

Please describe briefly everything that you want approved.

Work as detailed in DA Approval No. N0611/06 including alterations and additions to existing building and landscaping works.

5. Estimated cost of work

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

Estimated cost of work $ 350,000

6. Development Consent

Council Consent no. N0611/06

Date of Determination 4/1/07

7. Building Code of Australia classification

This can be found on the development consent

BCA Classification 1a

8. Builder's details

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

Name STIDWILL CONSTRUCTIONS P/L

License no. 170304C

Owner/builder permit no.

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 S J Boyd

Date 10/4/07

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	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: a) show a plan of each floor section b) show a plan of each elevation of the building c) 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 d) indicate the height, design, and full construction details e) 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: a) to describe the construction and materials of which the building is to be built and the method of drainage, sewerage and water supply b) 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) 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 b) 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. c) 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 At 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)? 796.7	Gross floor area of building (m^2) as proposed: 217.6
What are the current uses of all or parts of the building(s)/land? Residential	Location: Attached 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)? 30.2
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: 0	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? NO

MATERIALS TO BE USED

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

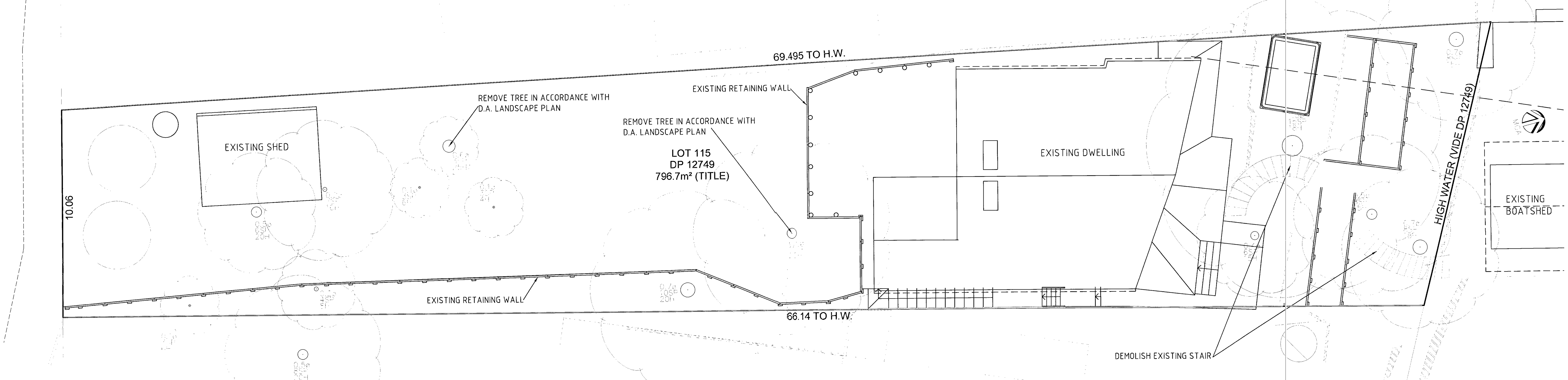
Place a tick (√) in the box which best describes the materials the new work will be constructed of:

WALLS		FLOOR		ROOF		FRAME	
Brick veneer	☐	Concrete	☐	Aluminium	☐	Timber	☑
Full brick	☐	Timber	☑	Concrete		Steel	☐
Single brick	☐	Other	☐	Concrete tile	☐	Other	☐
Concrete block	☐	Unknown	☐	Fibrous cement	☐	Unknown	☐
Concrete/masonry	☐			Fibreglass	☐		
Concrete	☐			Masonry/terracotta shingle	☐		
Steel	☐			Tiles	☐		
Fibrous cement	☐			Slate	☐		
Hardiplank	☐			Steel	☑		
Timber/weatherboard	☑			Terracotta tile	☐		
Cladding-aluminium	☐			Other	☐		
Curtain glass	☐			Unknown	☐		
Other	☐						
Unknown	☐						

Suite 13/90 Mona Vale Road Mona Vale NSW 2103 PO Box 326 Mona Vale NSW 1660 ph: 9999 0003 fax 9979 1555
Email: info@insightcert.com.au ABN 54 115 090 456

RevNo	Revision note	Date	Signature	Checked

- ~~Building to incorporate BASIX commitments to comply with the attached BASIX Certificate No. dated~~
- Smoke Alarms to be installed in accordance with AS 3786-1933 '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



EXISTING SITE PLAN

SCALE 1:100

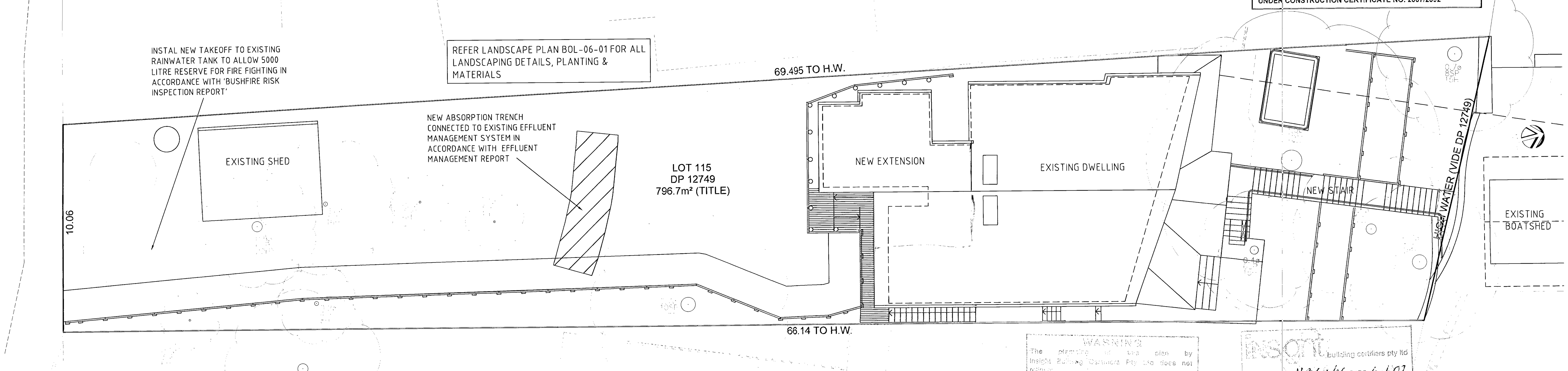
SITE AREA : 796.7sqm
MAX SITE COVER PERMITTED : 223sqm - 28%
SITE COVER EXISTING : 187.4sqm - 24%
SITE COVER PROPOSED : 217.6sqm - 27%

NOTE; BUSHFIRE PROTECTION MEASURES ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF AS 3959 AND APPROVED SPECIFICATIONS FOR LEVEL 1 CONSTRUCTION AND ALSO IN ACCORDANCE WITH NSW RURAL BUSHFIRE SERVICE REPORT REFERENCE No DA06101034466 SF DATED 12 OCT 2006

NOTE: NO DEVELOPMENT IS PERMITTED SEAWARD OF THE MEAN HIGH WATER MARK IN ACCORDANCE WITH CONDITION B24 OF THE DEVELOPMENT CONSENT

NOTE: THE PLANTER BEDS AT THE FRONT OF THE DWELLING ARE NOT APPROVED AND DO NOT FORM PART OF WORKS UNDER CONSTRUCTION CERTIFICATE NO. 2007/2092

REFER LANDSCAPE PLAN BOL-06-01 FOR ALL LANDSCAPING DETAILS, PLANTING & MATERIALS



PROPOSED SITE PLAN

SCALE 1:100

NEW
EXISTING

insight building certifiers pty ltd
CONSENT NO. N0611/06 DATE 4.1.07
CONSTRUCTION CERT NO. 2007/2092
CONSTRUCTION CERTIFICATE PLANS
I.Dowdu 29 MAY 2007
Accreditation No. BPB0042

GENERAL NOTES
ALL WORK TO BE STRICTLY IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS
REFER ENGINEERS DRAWINGS FOR ALL STRUCTURAL DETAILS

THIS DRAWING MUST NOT BE SCALED
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DATA AND LEVELS PRIOR TO COMMENCEMENT OF WORK. ALL ERRORS AND OMMISIONS ARE TO BE REPORTED IMMEDIATELY.

ProjectONE ASSOCIATES
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Church Point
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email: poa@poa.com.au
ABN 43 657 630 238

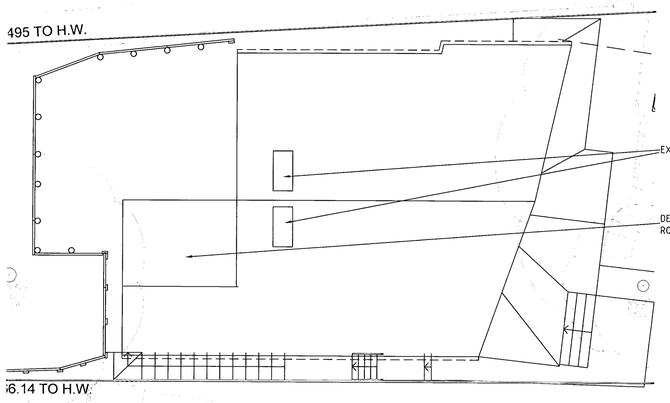
Designed by	Checked by	Approved by - date	Filename	Date	Scale
JGL				01 MAY 2007	1:100

BOYD RESIDENCE
69 ROBERTSON ROAD
SCOTLAND ISLAND

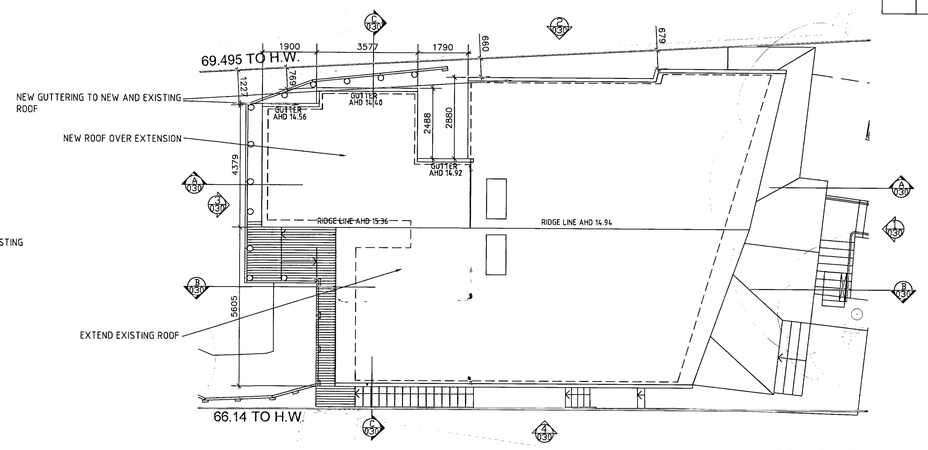
SITE & ROOF PLANS
SB0300010
Edition: CC00
Sheet:

COUNCIL COPY

RevNo	Revision note	Date	Signature	Checked



EXISTING ROOF PLAN SCALE 1:100



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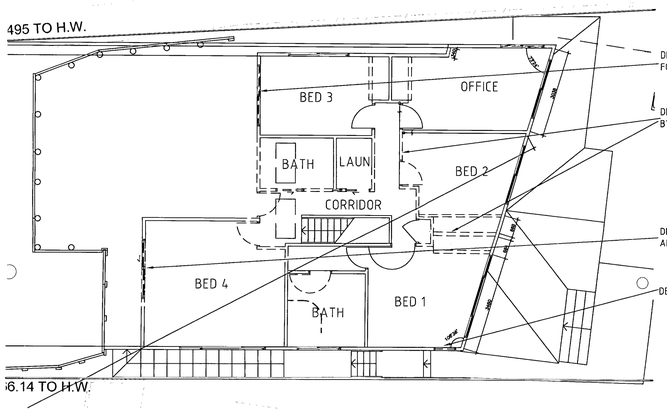
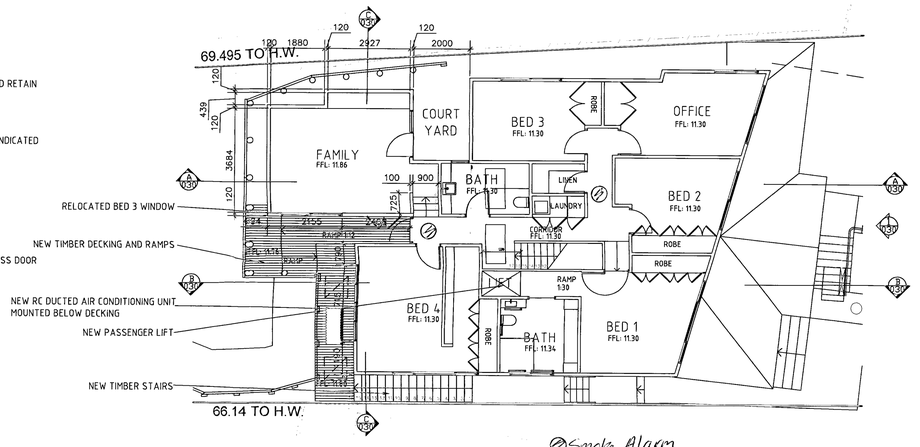
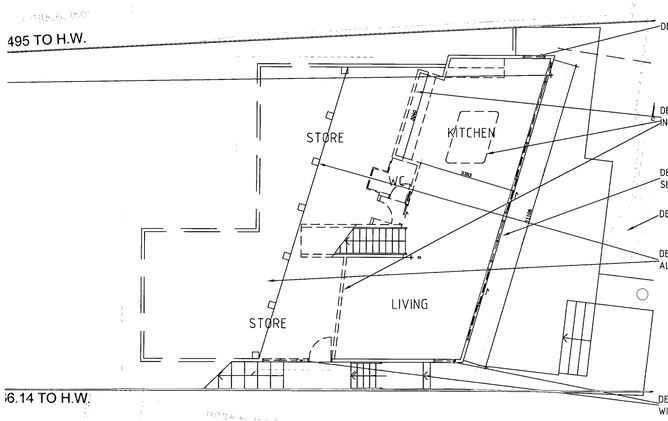


EXISTING FIRST FLOOR PLAN SCALE 1:100

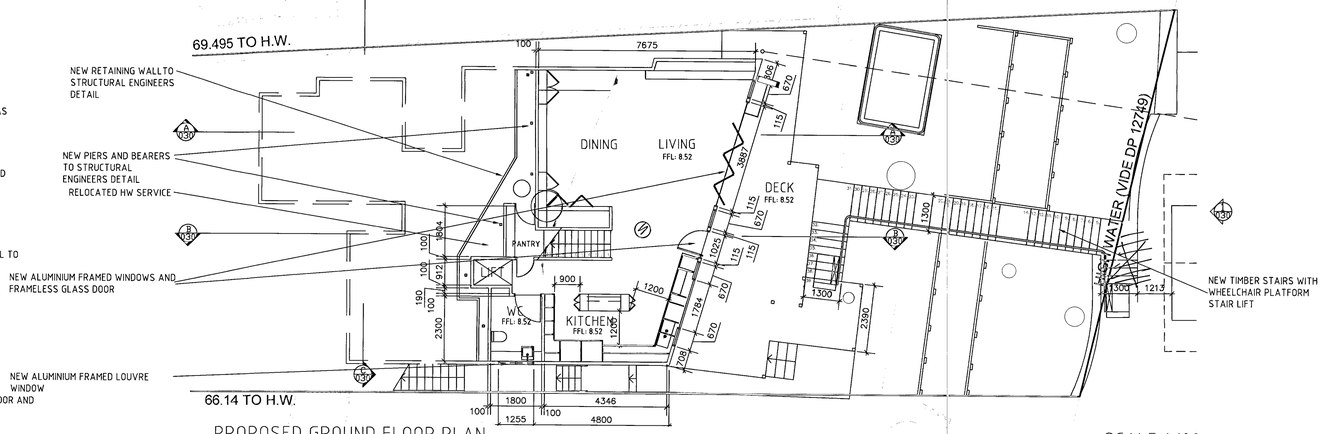


PROPOSED FIRST FLOOR PLAN SCALE 1:100

Smoke Alarm



EXISTING GROUND FLOOR PLAN SCALE 1:100



PROPOSED GROUND FLOOR PLAN SCALE 1:100

NEW
EXISTING

GENERAL NOTES
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REFER ENGINEERS DRAWINGS FOR ALL STRUCTURAL DETAILS

CONSTRUCTION
FOOTINGS - TO ENGINEERS DETAIL
PIERS - TO ENGINEERS DETAIL
BEARERS - TO ENGINEERS DETAIL
FLOOR JOISTS - TO ENGINEERS DETAIL
WALL FRAMING - 90x45 TREATED PINE H2 @ Max 450 CTR'S
RAFTERS - TO ENGINEERS DETAIL
ROOF BATTENS - 70x35 TREATED PINE @ Max 900 CTR'S
GFL FLOORING - POLISHED T&G HARDWOOD
1st FL FLOORING - 19mm YELLOW TONGUE GP
INT' WALL LINING - 13mm PLASTERBOARD
EXT' WALL CLADDING - WRC TO MATCH EXISTING
WINDOWS - ALUMINIUM FRAMED

INSULATION - F3.0 ROCKWOOL
SARKING - FOIL LINED FIREPROOF
CEILINGS - 10mm PLASTERBOARD
EAVES - FC SHEET 4.5mm
ROOFING - COLOURBOND SHEETING
FLASHING - COLOURBOND
GUTTER - COLOURBOND FITTED WITH BLUE MOUNTAIN ' MESH' FP ALL STEEL GUTTER PROTECTION
FASCIA - DESIGNPINE H3 180x 18
ARCHITRAVES - DESIGN PINE H3 65x18
DOORS - 35mm BLOCKBOARD

EXTERNAL FINISHES
EXTERNAL CLADDING - MURASPEC COLOUR: CHARLESTONE
DOORS, ARCHITRAVES & EXTERNAL TRIM - DULUX EXTERNAL LOW SHEEN ACRYLIC COLOUR: MALAY GREY
ROOF, FLASHING, GUTTER & DOWNPIPE - WOODLAND GREY

TERMITE PROTECTION
TERMITE PROTECTION TO BE IN ACCORDANCE WITH AS3660.1

NOTE: NO DEVELOPMENT IS PERMITTED SEAWARD OF THE MEAN HIGH WATER MARK IN ACCORDANCE WITH CONDITION B24 OF THE DEVELOPMENT CONSENT

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ProjectONE ASSOCIATES
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fx. 02 99995653
email. poa@poa.com.au
ABN 43 657 630 238

Designed by	Checked by	Approved by - date	Filename	Date	Scale
JGL				15 MAY 2007	1:100

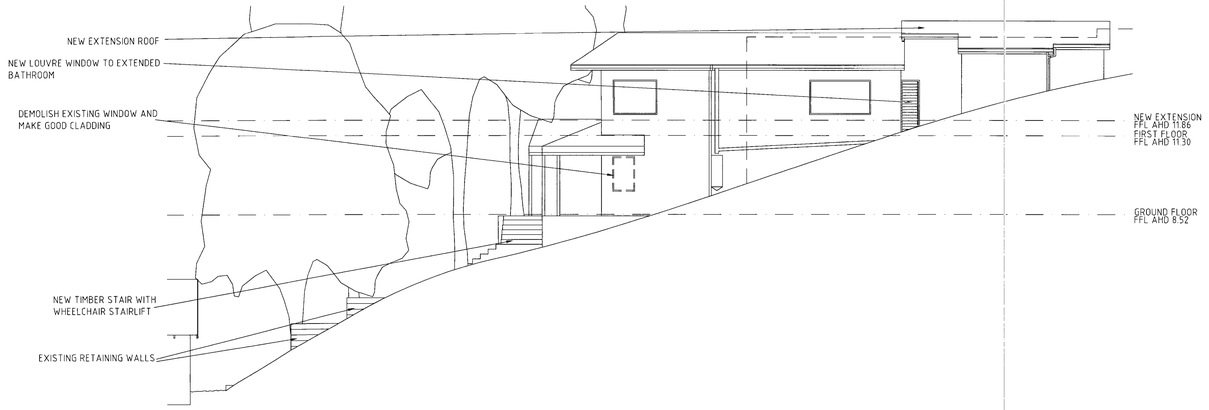
BOYD RESIDENCE
69 ROBERTSON ROAD
SCOTLAND ISLAND

FLOOR PLANS

SB0300011 | Edition CC00 | Sheet

RevNo	Revision note	Date	Signature	Checked

ELEVATION 1/011 SCALE 1:100



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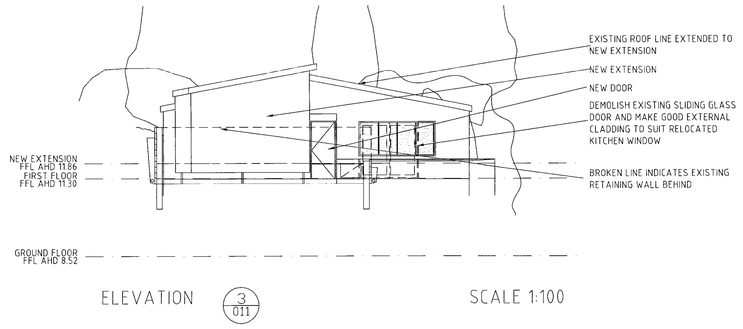

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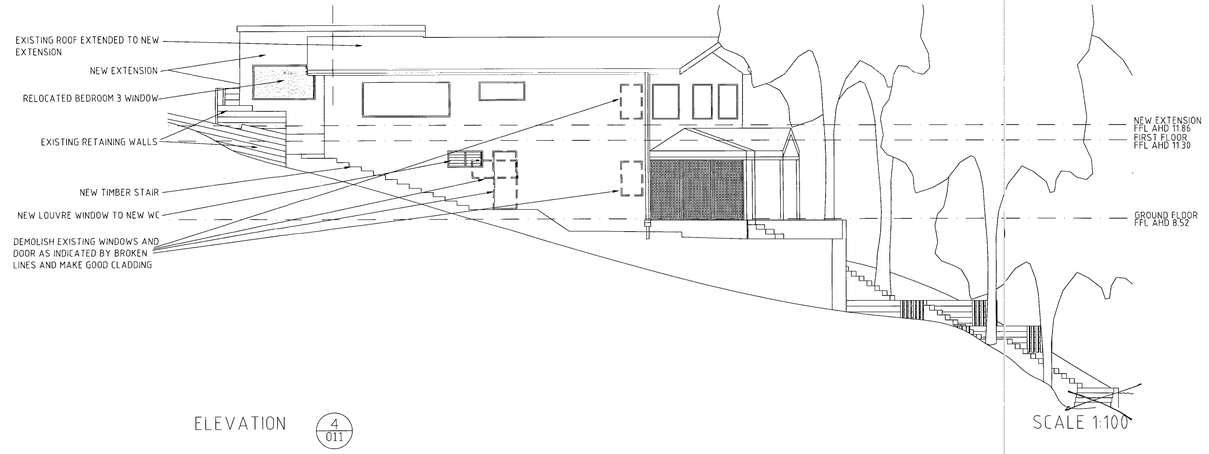

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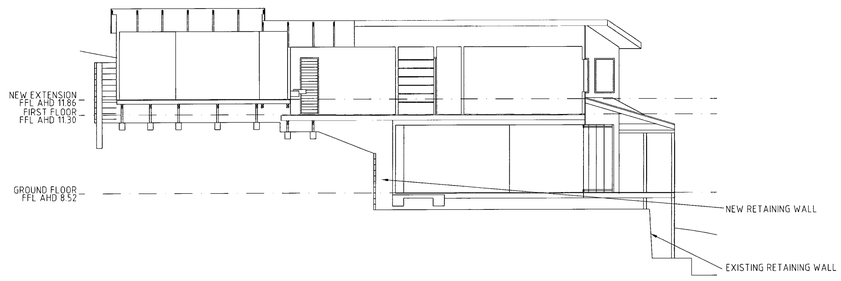
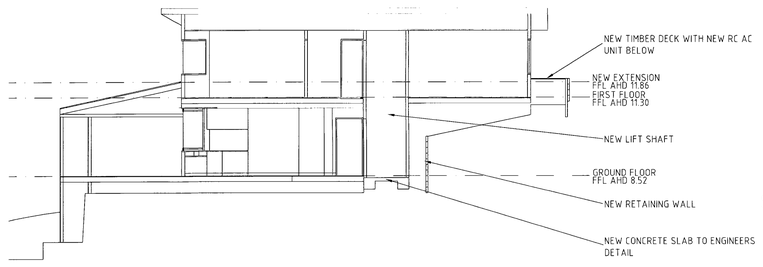
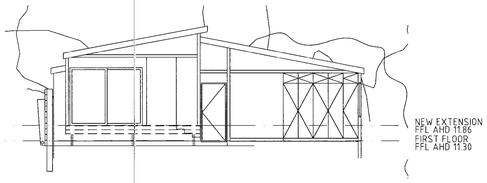


SECTION A:A 011 SCALE 1:100



SECTION B:B 011 SCALE 1:100



SECTION C:C 011 SCALE 1:100

GENERAL NOTES

ALL WORK TO BE STRICTLY IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARDS

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ph: 02 99995552
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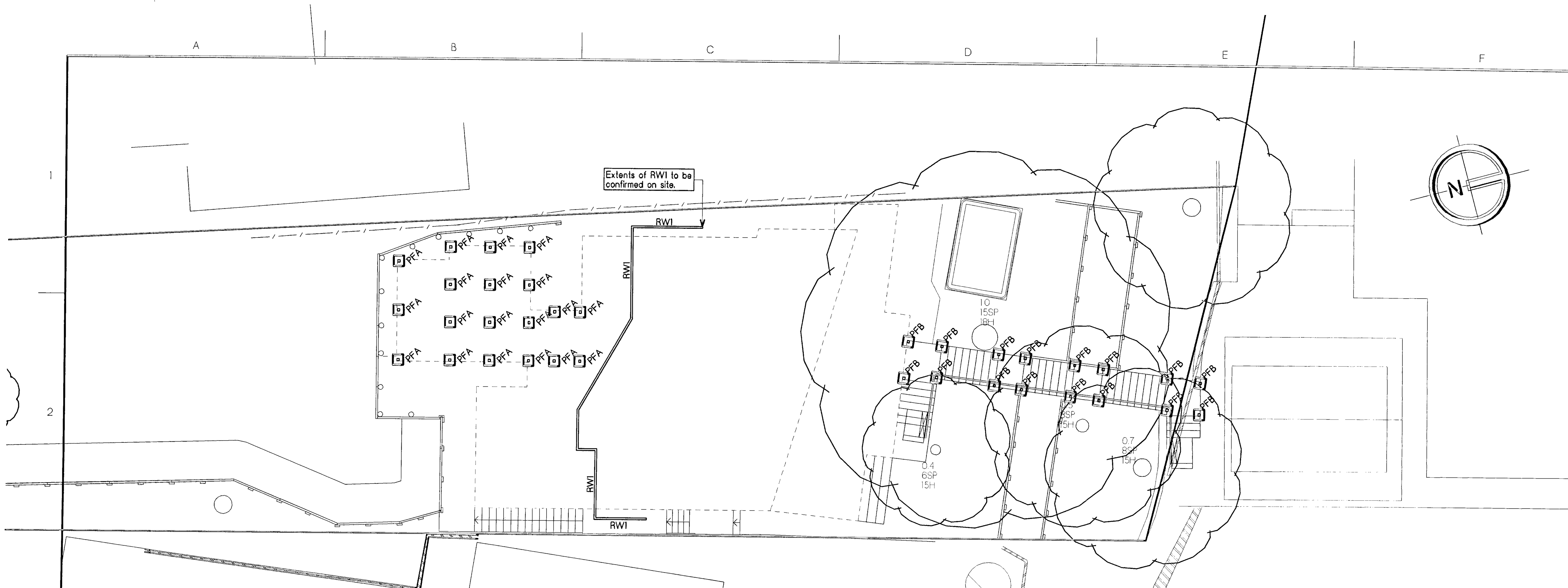
Designed by	Checked by	Approved by - date	Filename	Date	Scale
JGL				15 MAY 2007	1:100

BOYD RESIDENCE
69 ROBERTSON ROAD
SCOTLAND ISLAND

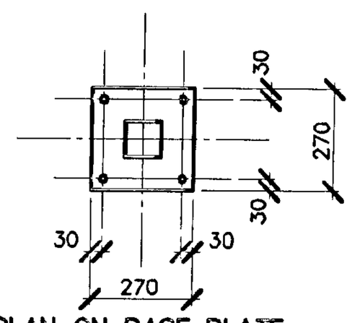
ELEVATIONS & SECTIONS

SB0300030 | Edition CC00 | Sheet

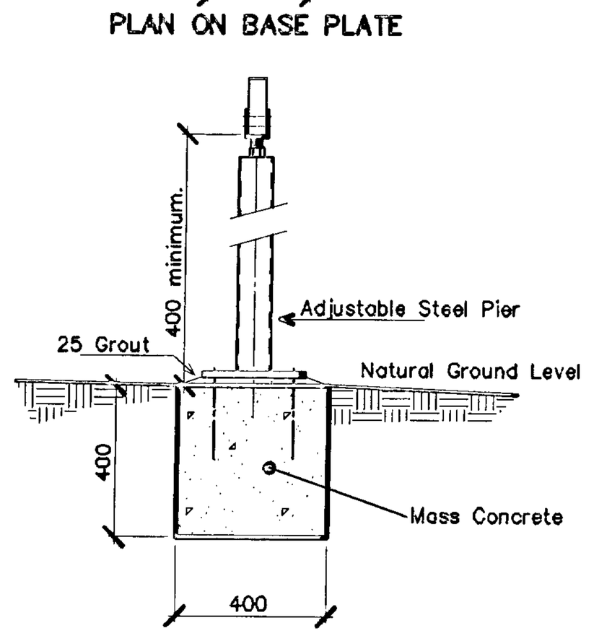


FOOTING & RETAINING WALL PLAN

Scale 1:100

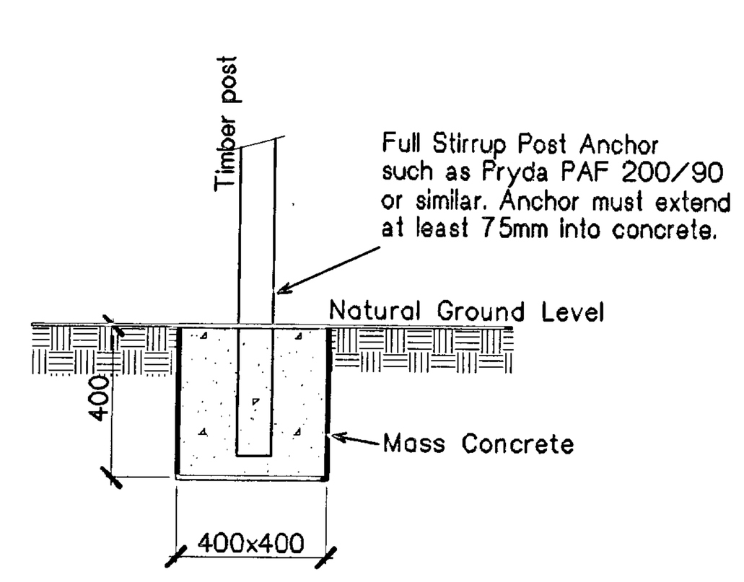


PLAN ON BASE PLATE



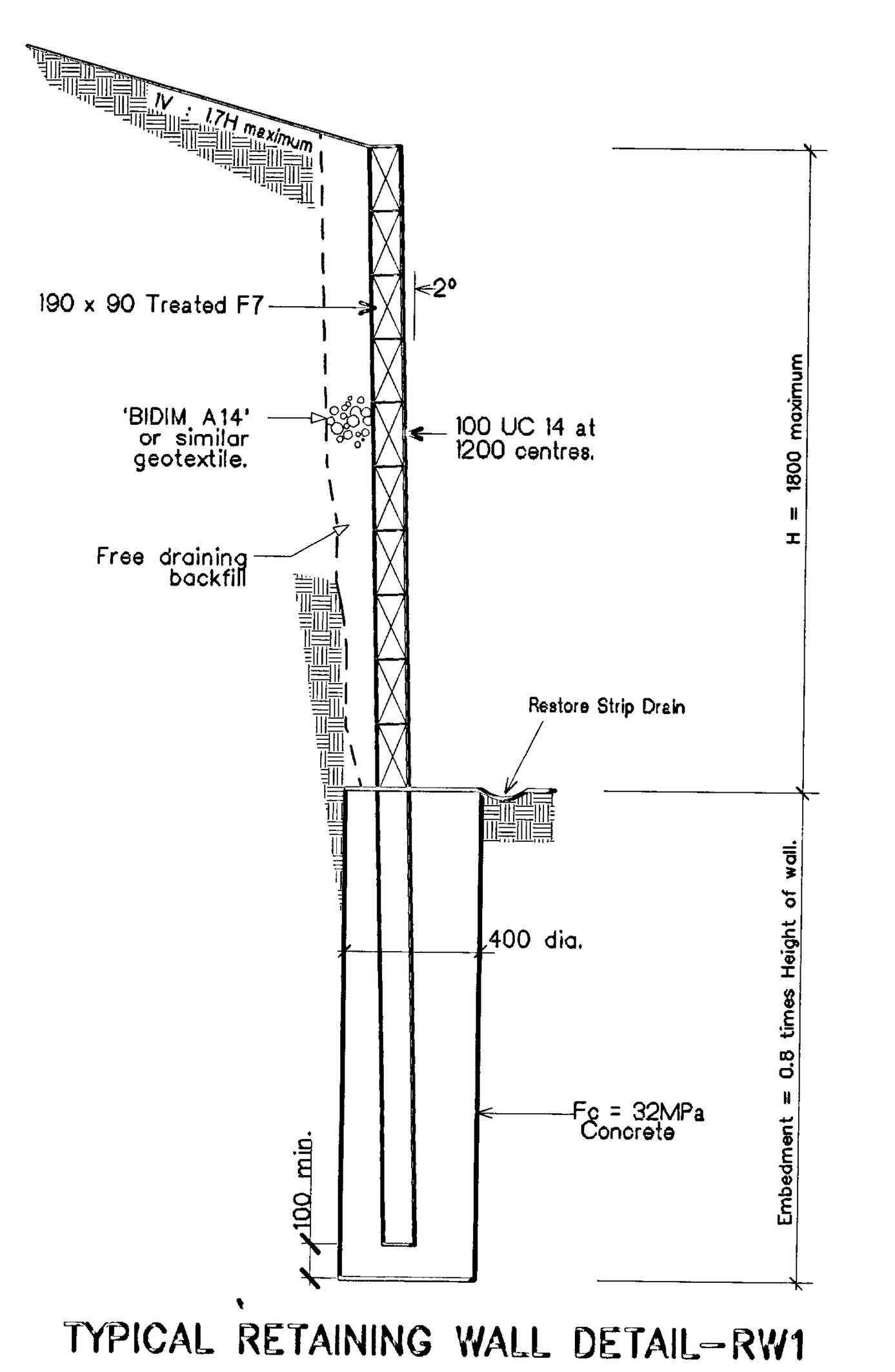
TYPICAL PAD DETAIL - PFA

SCALE 1:20



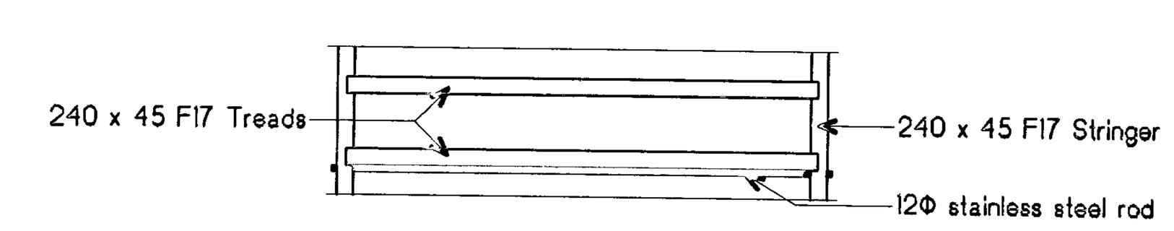
PAD FOOTING DETAIL 'PFB'

SCALE 1:20



TYPICAL RETAINING WALL DETAIL - RW1

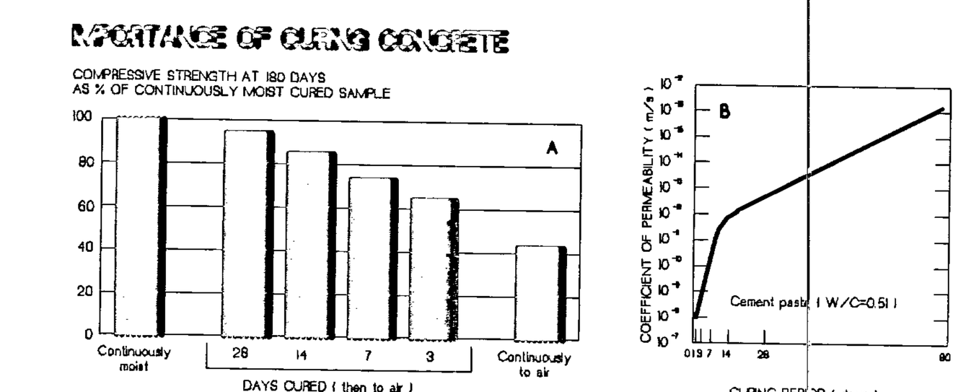
SCALE 1:20



TYPICAL TIMBER STAIR DETAIL

SCALE 1:20

IMPORTANCE OF CURING CONCRETE



Effect of curing duration on : (A) compressive strength, and (B) concrete permeability

TIMBER NOTES :

1. All work (including bracing, wind bracing & tie downs) shall be carried out in accordance with AS 3660.1, AS 1684.2, AS 1720.1 and the specification.
2. Refer to the Architects Drawings and the specification for all timber sizes not shown on these drawings.
3. All timber shall be free of Gum veins, pockets, knots holes or splits within 255mm of any connection.
4. Refer to specification for preservatives and finishes to timbers.
5. All bolts, nuts, washers and timber connectors shall be hot dip galvanised unless noted otherwise.
6. All F7 timber shown are nominal sizes only.

STEELWORK NOTES

1. Fabricate and erect all structural steelwork in accordance with AS 3660.1, 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.

CONCRETE 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.
   = 10 for block filling.
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 or to be protected by an approved curing membrane.
7. Bar Chairs to be no more than 800mm ctr to ctr spacing.
8. 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)
   Steel Reinforcement to be cut & bent in accordance with AS 3600.
9. Reinforcement to be tied at every other intersection minimum.
10. Moisture Vapour Membrane to be 200 Microns thick, U.V. Resistant and to be in accordance with AS 2870-1996.

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 writting by the specifier. Evidence of compliance withthis clause must be obtained when the contract bids are received.

Element	Cover (mm)		F'c at 28 days	
	Protected	Exposed	Protected	Exposed
Piers	65		25 MPa	
Footings	50		25 MPa	
Block Filling	refer to detail		25 MPa	
Slab on Ground			32 MPa	32 MPa
- Top	30	45		
- Bottom				
Beams	50	50	40 MPa	40 MPa
Columns	30	45	40 MPa	40 MPa
Slabs	30	45	40 MPa	40 MPa
Walls	30	45	40 MPa	40 MPa

The minimum clear cover is to reinforcement ties and stirrups.

No.	Amendment	Drawn	Date

PLAN OR DOCUMENT CERTIFICATION

I am a qualified........CIVIL, GEOTECHNICAL & STRUCTURAL ENGINEER......

I hold the following qualifications or licence No..........M.Eng.Sc..........

...............F.I.E.Aust............Nper3............Struct.Civil.No.149788..........

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.1163

Jack D. Hodgson 15/5/07 [signature]

Name Date Signature

FOOTING & RETAINING WALL PLAN AND DETAILS

PROPOSED ALTERATIONS AND ADDITIONS
69 ROBERTSON ROAD
SCOTLAND ISLAND

SUZIE BOYD

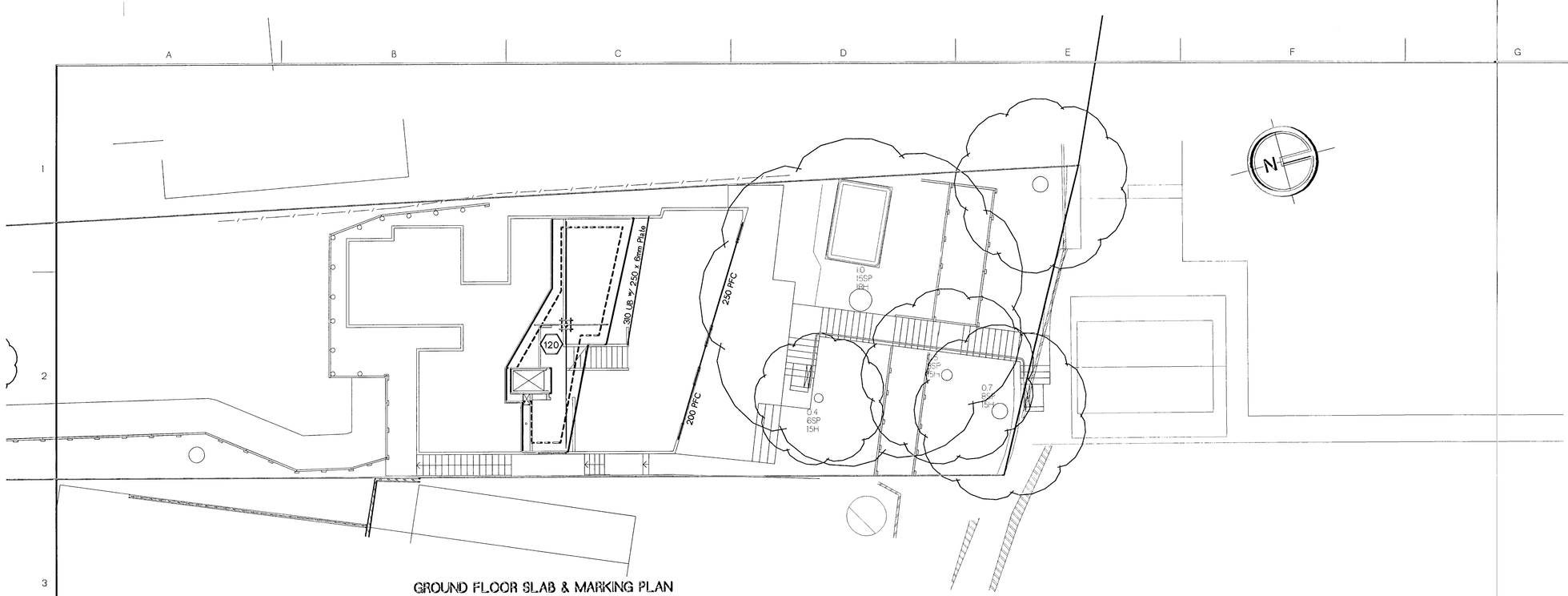
Our design and drawings are based upon and derived from information (including levels, surveys, etc) provided by the owner/architect/designer/builder. (ARCH NAME, DRAWING NUMBER DATE ETC
Should the information provided to us be found to be deficient, unreliable, incorrect or inaccurate then our design/drawings 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, MONA VALE 2103. P.O. Box 389. Post Code 1660.
Telephone (02) 9979 6733. Facsimile (02) 9979 6926.
Email:info@jackhodgson.com.au web:www.jackhodgson.com.au A.C.N. 053 405 011

Designed	Drawn	Job No. / Drawing No.
JDH	LS	23724-S1
Design Check: JDH	Drawing Check: SG	
Date: 11 MAY 2007		

Scale 1:100 0 5m 10m 15m 20m 25m
Scale 1:20 0 1m 2m 3m 4m 5m

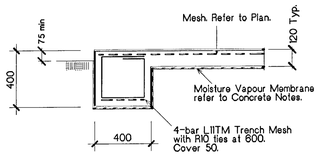


GROUND FLOOR SLAB & MARKING PLAN

Scale 1:100

All beams to bear on adequate structural supports.
To be Confirmed on Site.

(120) Indicates Slab Thickness



TYPICAL SLAB EDGE DETAIL

REFER TO DRAWING 1 FOR NOTES AND THE 'IMPORTANCE OF CURING CONCRETE' GRAPH.

No.	Amendment	Drawn	Date

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Jack D. Hodgson 15/5/07 J Hodgson

Name Date Signature

GROUND FLOOR SLAB & MARKING PLAN AND DETAILS
PROPOSED ALTERATIONS AND ADDITIONS
69 ROBERTSON ROAD
SCOTLAND ISLAND

SUZE BOYD

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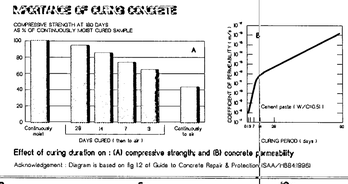

Effect of curing duration on : (A) compressive strength; and (B) concrete permeability

Acknowledgement : Diagram is based on fig 12 of Guide to Concrete Repair & Protection (SAA/HB84:1995)

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Email:info@jackhodgson.com.au web:www.jackhodgson.com.au A.C.N. 053 405 011

Designed	Drawn	Job No.	Drawing No.
JDH	LS		
Design Check	Drawing Check	23724-S2	
JDH	SG		
Date			
11 MAY 2007			

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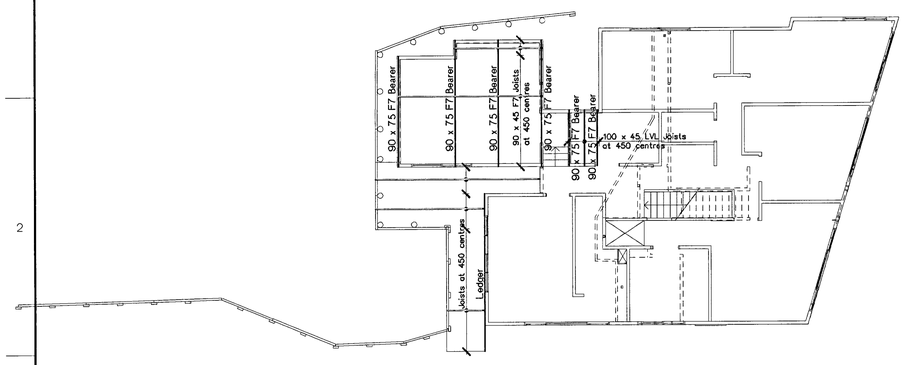
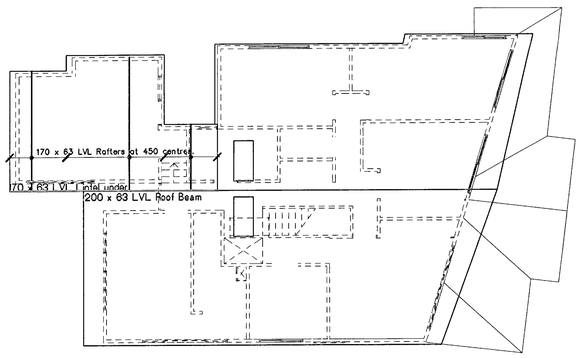
Scale 1:20 0 1m 2m 3m 4m 5m



FIRST FLOOR MARKING PLAN

Scale 1:100

? x ? F7 Ledger Beam fixed with
suitable M12 anchors at 450 centres.



ROOF MARKING PLAN

Scale 1:100

REFER TO DRAWING 1 FOR NOTES AND THE 'IMPORTANCE OF CURING CONCRETE' GRAPH.

No.	Amendment	Drawn	Date

PLAN OR DOCUMENT CERTIFICATION

I am a qualified.....CIVIL, GEOTECHNICAL & STRUCTURAL ENGINEER.....
I hold the following qualifications or licence No.....M.Eng.Sc.....
.....F.I.E.Aust.....Nper3.....Struct.Civil.No.149788.....
Further I am appropriately qualified to certify this component of the project.
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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.1163

Jack D. Hodgson 25/4/07 — Name — Date — Signature

FIRST FLOOR AND ROOF MARKING PLANS

PROPOSED ALTERATIONS AND ADDITIONS
69 ROBERTSON ROAD
SCOTLAND ISLAND

SUZE BOYD

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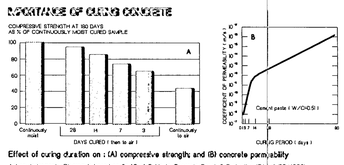
Designed	Drawn	Job No.	Drawing No.
JDH	LS	23724-S3	
Design Check	Drawing Check		
JDH	SG		
Date			
11 MAY 2007			

IMPORTANCE OF CURING CONCRETE



Effect of curing duration on : (A) compressive strength; and (B) concrete permeability

Acknowledgement - Diagram is based on fig 12 of Guide to Concrete Repair & Protection (SA/HB84/1996)

Scale 1:100 — 0, 5m, 10m, 15m, 20m, 25m
Scale 1:20 — 0, 1m, 2m, 3m, 4m, 5m

CAB CONSULTING PTY LTD.
ABN 48076570990
Heritage Urban Design
Landscape and Architecture
CRAIG BURTON ARAIA FAILA AAA
BArch.MA.DipLD DipEnv.S.Hort Cert
P.O Box 277
CHURCH POINT N.S.W.2105
Tel/Fax 02 99971085 Scotland Is
02-99971050 Church Pt.
e-mail.
craigburton@cabconsulting.com.au
web site
www.cabconsulting.com.au

10 April 2007

Tom Bowden
Insight Building Certifiers Pty Ltd
PO Box 326
Mona Vale NSW 1660

Dear Sir,

RE : DESIGN CERTIFICATION : LANDSCAPE DESIGN FOR PROPOSED DEVELOPMENT AT 69 ROBERTSON ROAD SCOTLAND ISLAND

This is a response to Pittwater Council's Conditions , B7, B8,B10,B13 and B19 as a result of a Development Application submission regarding the above property and the application for a Construction Certificate.

B7
Screen planting of 50 % of the built form is currently provided by the canopy of existing Spotted Gum trees and will be further screened by the amount of vegetation proposed in the landscape design, particularly through the use of "locally native" plant species

B8
A landscape maintenance strategy is attached for the owner/occupier to administer over a 24 month establishment period. It is assumed that two reports will be required to be prepared over the establishment period

B10
Canopy trees are proposed to be provided throughout the property. All are considered to be "locally native species"

B13
A minimum of 200mmm will be provided between any tree trunks and built structures.

B 19
Approximately 80% of all nominated plant species in the landscape plan are locally native species
In reference to the Ecological Sustainability Plan the proposed landscape design applies to the whole of the property except the area taken up by buildings and pavings. Plant species are predominantly indigenous to Scotland Island and the range of plant types from Trees ,shrubs ground covers ,climbers and scramblers provides a full range of habitat for a variety of indigenous fauna.

Yours Sincerely.
CBurton

LANDSCAPE MAINTENANCE STRATEGY : 69 ROBERTSON ROAD SCOTLAND ISLAND

1.0 GENERALLY

The landscape design is intended to be of an informal "Bush" character employing a predominant structure of locally native plants and to provide a general sense of continuity of tree canopy, shrub layer for visual screening, scale and fauna habitat and a ground cover layer. The intention is to establish a sustainable landscape setting for the property with ultimately minimal maintenance requirement

The minimum establishment period is for two years and the maintenance works will need to be an ongoing process beyond the minimum establishment period in terms of weeding, selective pruning and replacement of mulch and any failed plantings

The following items will need to be addressed during the establishment period : soil testing, watering, weeding, pest and disease control, replanting , mulching and pruning

2.0 SOIL TESTING

Carry out tests before construction to establish the pH value of the soil and on any proposed imported soil to be mixed with the existing site soil. On going testing may be required to monitor any possible affects of the waste treatment trench areas. Generally inspect the soil layer to test for moisture retention over the whole site

3.0 WATERING

All plants within mass planted areas are to be watered regularly so as to ensure continuous healthy growth. During the establishment period supply and lay a temporary surface trickle irrigation system and established on a timer system to the entire extent of the mass planting areas. The amount of water distributed is to make allowance for plant species sensitive to over watering whilst also avoiding water stress

4.0 WEEDING

Remove weed growth that may occur throughout the mass planting area and to areas of gravel paving. It is preferable to do this by hand and on a regular basis. Compost the weeded material on site

5.0 PEST AND DISEASE CONTROL

Regularly inspect the mass planted areas and existing trees for signs of pests and diseases. If necessary spray against insect and fungus infestation and use any such sprays in accordance with the manufacturer's directions. Avoid any spraying on wet and /or windy days

6.0 REPLANTING

Replace any failed or damaged plants with the same species as set out in the Planting Schedule. Any proposed changes should be referred to the Landscape Architect for comment as to the suitability of substitute species

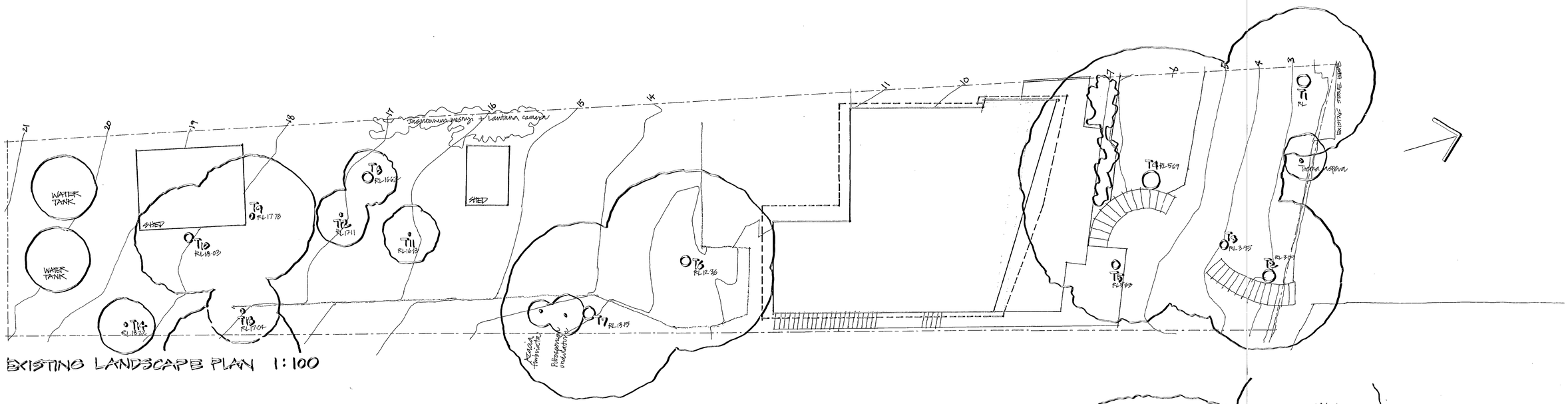
7.0 PRUNING

Selectively prune any dead wood from trees and shrubs and /or to maintain access through pathways etc. and to conform to the objectives of the Bushfire Protection Inner Protection zone by removing branches that overhang or touch any buildings. Where possible use non infected woody tissue as a possible source for mulch supply

8.0 MULCH

Provide over the whole of the mass planted areas a mulched surface of 75mm depth of a natural character equal to Forest Fines Mulch

Craig Burton
CAB CONSULTING PTY LTD



EXISTING LANDSCAPE PLAN 1:100

PROPOSED LANDSCAPE PLAN 1:100

RAISED TERRACE BED　　MASS PLANTING　　RAMPED PATHWAY

DETAILS 1:20

PLANTING SCHEDULE

SYMBOL	NAME	NO	SIZE	HEIGHT	ANTICIPATED HEIGHT
CM	CORYMBIA maculata	9	10 litre	1200 mm	25000 mm
EP	EUCALYPTUS punctata	2	10 litre	1000 mm	20000 mm
CT	ALLOCASURAINA torulosa	30	5 litre	800 mm	6000 mm
ER	ELAEOCARPUS reticulatus	3	5 litre	1000 mm	8000 mm
ASM	ACMENA smithii 'Minor'	5	25 litre	1200 mm	8000 mm
FC	FICUS coronata	1	5 litre	600 mm	8000 mm
PL	PERSOONIA linearis	2	200mm pot	800 mm	2500 mm
AL	ACACIA longissima	16	5 litre	600 mm	2000 mm
AI	ACACIA iteaphylla	8	5 litre	800 mm	1800 mm
AFN	ACACIA fimbriata 'Nana'	8	5 litre	600 mm	1800 mm
AU	ACACIA ulicifolia	15	200 mm pot	500 mm	1200 mm
PR	PITTOSPORUM revolutum	6	200mm pot	500 mm	1000 mm
WF	WESTRINGEA fruticosa	12	10 litre	800 mm	1500 mm
DT	DODONEA triquetra	11	tube	400 mm	1200 mm
MC	MACROZAMMIA communis	3	50 litre	900 mm	1200 mm
ZS	ZIERIA smithii	13	200 mm pot	400 mm	900 mm
O	OXYLOBIUM ilicifolium	20	200mm pot tube	400 mm 400 mm	900 mm 900 mm
GO	GOODENIA ovata	12	tube	300 mm	900 mm
CA	CASSINIA aculeata	12	200mm pot	400 mm	1000 mm
L	LOMANDRA longifolia	57	tube	300 mm	1200 mm
Ta	THEMEDA australis	26	tube	300 mm	800 mm
HV	HARDENBERGIA violacea	23	tube	300 mm	SCRAMBLER
Kr	KENNEDIA rubicunda	10	tube	300 mm	SCRAMBLER
D	DIANELLA caerurea	45	200mm pot	300 mm	600 mm
m	MUEHLENBECKIA axillaris	16	tube	150 mm	400 mm SCRAMBLER
P	PANDOREA pandorana	6	tube	600 mm	CLIMBER

LEGEND:

▨	MASS PLANTING AREAS/MULCHED SURFACE MIN 300mm DEPTH SOIL MIX: SITE SOIL + IMPORTED SOIL MIX 75mm DEPTH FOREST FINES MULCH + SURFACE IRRIGATION TRICKLE SUPPLY
░	STABILISED CRUSHED SANDSTONE MIX 75mm DEPTH MIN.
▩	SELECTED GRAVEL 75mm DEPTH
------	75 x 5mm STEEL EDGING
▯	900 x 1000mm x 50mm STONE PAVING SLABS: selected & to detail.
+	NEW TREE PLANTINGS
⊙	EXISTING TREES Refer to ARBORIST'S REPORT NB: T6 & T8 to be removed Replacement Plantings included in SCHEDULE

NB: DECK STRUCTURE AND STAIRS TO BE MIN 200mm CLEAR OF EXISTING TREES

CAB CONSULTING PTY LTD.
ABN: 48076670990
Heritage Urban Design Landscape + Architecture
CRAIG BURTON ARAIA FAILA AAA

PO BOX 277
CHURCH POINT NSW 2105
Tel/Fax: 99971085 SCOTLAND ISLAND
99971050 CHURCH POINT
e-mail: craigburton@cabconsulting.com.au

SCALE: 1:100 & 1:20
DATE: 26 September 2006 AMENDED 10 APRIL 2007
DWG NO: 30-06-01

LANDSCAPE WORKS

BOYD RESIDENCE: 69 ROBERTSON ROAD SCOTLAND ISLAND PITTWATER

LONG SERVICE BUILDING & CONSTRUCTION

See reverse of form for instructions

LEVY PAYMENT FORM

FORM NO.

OFFICE USE ONLY

PLEASE PRINT ALL DETAILS USING CAPITALS

Surname (if person) or Company/Organisation name: BOYD

Given names (if person): SUZANNE VICTORIA

ABN (if applicable):

POSTAL ADDRESS
No. and street or PO Box: 9 RENWICK ST ~~DRUMMOYNE~~

Town/suburb: DRUMMOYNE

State: NSW Postcode: 2047 Bus. hours phone: 0405229931

Number and street: 69 ROBERTSON ROAD

Town/suburb: SCOTLAND ISLAND

State: NSW Postcode: 2105

Estimated start date: D M Y Estimated finish date: D M Y

Local Council Area: PITTWATER COUNCIL

[1] DA/CC/CDC No.: N0611/96

Estimated value of work (see note on back): $ 350,000.00 Levy payable $ 1,225.00

[1] If you have provided a CC above, please provide DA number here:

Signature of Officer/Private Certifier: MPorter Date: D 11 M 04 Y 2007

Name of Officer/Private Certifier: Mary-Louise Porter Business hours phone: 0299701111

Department/Authority:

Contract/DA No (circle which):

Contract amount $:

Levy payable $:

Contact person (Print): Phone number:

Contact person (Signature): Date: D M Y

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

Name: ~~S Boyd~~ Suzanne Boyd Signature: S Boyd Date: D 10 M 04 Y 2007

Pittwater Council

ABN 61 340 837 871 **Telephone** (02) 9970 1111 **Facsimile** (02) 9970 7150
Postal Address: P.O. Box 882, Mona Vale NSW 1660, DX 9018 Mona Vale

pittwaterlga.com.au **e-mail:** pittwater_council@pittwater.nsw.gov.au

Business Hours:
8.00am to 5.30pm, Monday to Thursday
8.00am to 5.00pm, Friday

DA No: N0611/06

21 May 2007

SUZANNE BOYD
9 RENWICK STREET
DRUMMOYNE NSW 2047

Dear Sir/Madam

Development Application for alterations and additions to the existing dwelling at 69 ROBERTSON ROAD SCOTLAND ISLAND NSW 2105.

Council is satisfied that the Ecological Sustainability Plan (ESP) submitted is acceptable in meeting the requirements of condition C6.

Yours faithfully

Sarah Winnacott
PLANNER

All communications to be addressed to:

Warringah / Pittwater FCC
NSW Rural Fire Service
PO Box 111
Terrey Hills NSW 2084

Telephone: 9450 3000
e-mail: warringah.fcc@rfs.nsw.gov.au

Warringah / Pittwater FCC
NSW Rural Fire Service
Thompson Dr Off Kamber Rd
Terrey Hills NSW 2084

Facsimile: 9450 1028

The General Manager
Pittwater Council
PO Box 882
Mona Vale NSW 1660

Your Ref: N0611/06
Our Ref: DA06101034466 SF

Attention: S.Hegarty

Date: 12-Oct-2006

Dear Sir/Madam,

RE: Land Use Application for 115//12749, 69 ROBERTSON ROAD, SCOTLAND ISLAND NSW 2105

I refer to your letter dated 02-Oct-2006 seeking our advice in accordance with section S.79BA of the Environmental Planning & Assessment Act 1979 for the above property.

Based upon an assessment of the plans and documentation received for the proposal, the NSW Rural Fire Service, in respect to bush fire matters, provides the advice that the development should have the following conditions:

1. Construction shall comply with AS3959 - 1999 level 1 'Construction of Buildings in bushfire prone areas'.

2. The structure shall incorporate gutterless roofing or leafless guttering to prevent the build up of flammable material.

3. The entire property shall be managed as an 'Inner Protection Area' as outlined within section 4.2.2 in Planning for Bushfire Protection 2001.

For any enquiries regarding this correspondence please contact Stephen Fisher.

Yours faithfully,

Craig Geddes
Fire Control Officer

SYDNEY WATER

APPROVED

1. Position of structure in relation to Sydney Water's assets is satisfactory.
2. Connections to Sydney Water sewer/wate services may only be made following the issu of a permit to a licensed plumber/drainer.
3. It is the owner's responsibility to ensure th all proposed fittings will drain to Sydney Water's sewer.
4. Any Plumbing and/or Drainage Work to b carried out in accordance with the Sydn Water Act 1994, AS 3500 and the NSW Co of Practice.
5. Gullies, Inspection Shafts and Boundary Tra shall not be placed under any Roof, Balco Verandah, Floor or other cover unle otherwise approved by Sydney Water.
6. Property No. 3452547

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

per: [signature] 11/04/07

495 TO H.W.

EXISTING DWELLING

0.5ø
10SP
20H

6.14 TO H.W.

COUNCIL COPY

DEMOLISH EXISTING STAI

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER

FORM NO. 2 – To be submitted with detailed design for construction certificate

Development Application for Suzanne Boyd
Name of Applicant

Address of site 69 Robertson Road, Scotland Island

Declaration made by Structural or Civil Engineer in relation to the incorporation of the Geotechnical issues into the project design

I, J Hodgson (insert name) on behalf of Jack Hodgson Consultants Pty Ltd (trading or company name)

on this the 15th May, 2007 (date)

certify that I am a Structural or Civil Engineer as defined by the Geotechnical Risk Management Policy for Pittwater. I am authorised by the above organization/company to issue this document and to certify that the organization/company has a current professional indemnity policy of at least $2million. I also certify that I have prepared the below listed structural documents in accordance with the recommendations given in the Geotechnical Report for the above development

Geotechnical Report Details: Risk Analysis and Management for the Proposed Additions at 69 Robertson Road, Scotland Island VR 23724

Report Date: 3rd August, 2006

Author: Jack Hodgson

Structural Documents list:

23724-S1, S2, S3

I am also aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified.

Jack Hodgson (name) J Hodgson (signature)

Declaration made by Geotechnical Engineer or Engineering Geologist in relation to Structural Drawings

I prepared and/or technically verified the abovementioned Geotechnical Report as per Form 1 dated 09/08/2006 and now certify that I have viewed the above listed structural documents prepared for the same development. I am satisfied that the recommendations given in the Geotechnical Report have been appropriate taken into account by the structural engineer in the preparation of these structural documents. I am aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified.in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature J Hodgson

Name J HODGSON

Chartered Professional Status MEngSc FIEAust

Membership No. 149 788

SPECIFICATION

of works for the erection of

Alterations & Additions to an

Existing Dwelling

for

Ms S Boyd

at

lot no 115 **D.P.no** 12749

69 Robertson Road, Scotland Island

COUNCIL COPY

SPECIFICATION **Revision 18**

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.

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REVISION 18 – SEPTEMBER 2006
BCA 2006
BASIX** as amended **(NSW only)

SPECIFICATION

FOR THE ERECTION AND COMPLETION OF BUILDING AT: LOT No. 115 DP No 12749

ADDRESS 69 Robertson Road TOWN/AREA Scotland Is.

MUNICIPALITY / SHIRE / CITY Pittwater POST CODE 2105

FOR Ms S Boyd. 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 are performed by the Builder 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 noggins 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 manufacturers 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 extra amount above the accepted price will be allowed because of work arising due to neglect of this precaution, or assumptions made in respect of levels or ground slopes.

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 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.

EXCAVATOR - BCA part 3.1.

EARTHWORKS AND EXCAVATIONS:
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 3.1.1.0 and part 3.2. Drainage in reactive soil areas must comply with the requirements of the clauses

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.

CONCRETER - 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 by means of mechanical vibrators or rodding and spading to ensure maximum compaction. 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. Cover areas as noted on drawings with waterproof membrane allowing sufficient at perimeters to extend membrane up face of footing to terminate under external brickwork.

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

FORMWORK: All formwork for concrete shall be in accordance with AS 3610.

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
	mm	mm	mm
Brick, single storey with wall height not exceeding 4200mm excluding any gable.	270	400x300	400X400
	110	300x300	400x400**
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	270	400x400	400x500**
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	3	3	3
	400	4	4-	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 3.2.3

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.

PRESTRESSED BEAM FLOORING:

Prestressed 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.
Seating for beams shall be true to line and level before positioning beams commences to ensure even, uniform bearing and such seatings shall be not less in length than shown on the drawing or as follows :

- Brickwork - bearing not less than 100m
- Steel - bearing not less than 70mm.
- Concrete - bearing not less than 75mm.
- A.A.C. lightweight concrete
- external walls - bearing not less than 140mm.
- Internal walls - full bearing across width of wall.

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.

BRICKLAYER - (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 3.3.1.6

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 3.2.5.2.

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:

To be minimum of 230 x 110, spaced at not more than 1.8m centres up to 1200 high to support floor bearers and at similar centres to stiffen walls supporting concrete slabs. Piers over 1200 high to be 230 x 230. All engaged piers to be anchored to walls with specified wall ties.

VENEER WALLS: BCA 3.3.1.2

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 3.2.5.1 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 3.3.3.1

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 AND 3.3.3.5

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 brick 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 that 150mm beyond each side of the opening. Local council may vary this requirement. Upper surface of hearth not to slope away from grate. 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 that 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:

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

DAMPCOURSE: 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 abut 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:

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. Ties to be embedded a minimum of 50mm in each leaf. Keep ties clean of mortar droppings and cavity clear as work proceeds.

STRAPS:

BCA part 3.3.3To 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.

BRICKLAYER (Concrete brick) A.S. 1346 - BCA part 3.3.1

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
Mortar mixes must comply with A.S. 3400 (BCA parts 3.3.1.6 and 3.3.1.7	9 parts clean sand	6 parts clean sand

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

GENERALLY:

Bricks are to be dry when laid in wall. When delivered on site bricks should be stacked openly and off wet ground and where practicable to be covered in wet weather. Footing courses to be grouted solid. All brickwork to be properly bonded, laid on full bed and all perpends filled.

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. U.N.O.

JOINT REINFORCEMENT AND CONTROL JOINTS: BCA part 3.3.1.8 and 3.3.1.9

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:

GENERALLY:

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 perpends. The first course must be made true and level using a normal thick bed mortar with thin bed adhesive to fully seal the perpends. 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.

CONTROL JOINTS: BCA part 3.3.1.8

Control joints should be built into walls at no greater than 8m centres and at locations in accordance with the recommendations of the manufacturer. Masonry expansion ties shall be installed across the joint every third course.

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

GENERALLY: 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 week. Masonry units shall not be dampened prior to laying, but shall be laid in dry state.

MORTAR: BCA PARTS 3.3.1.6 AND 3.3.1.7

Mortar shall comply with AS123 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 or mortar.

JOINTS:

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.

CONTROL 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: BCA part 3.3.2.3.

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 control and expansion joints where a slip joint must be provided.

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 located in a designated bushfire prone area if constructed in accordance with AS3959.

N.S.W. Variation: (a) AS3959 – Construction of buildings in bushfire prone areas, excluding section 2 of that standard which is replaced by "Planning for Bushfire Protection, appendix 3 – Site Assessment for Bushfire Attack.

OR (b) subclause (a) as modified by development consent following consultation with NSW Rural Fire Service under sec. 79B of the Environmental Planning and Assessment Act 1979

OR (c) subclause (a) as modified for development consent with a bushfire authority issued under section 100B of the Rural Fires Act 1997

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	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 Below 300m AHD altitude	1,2 at or over 300m AHD	3	4	5	6	7	8
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

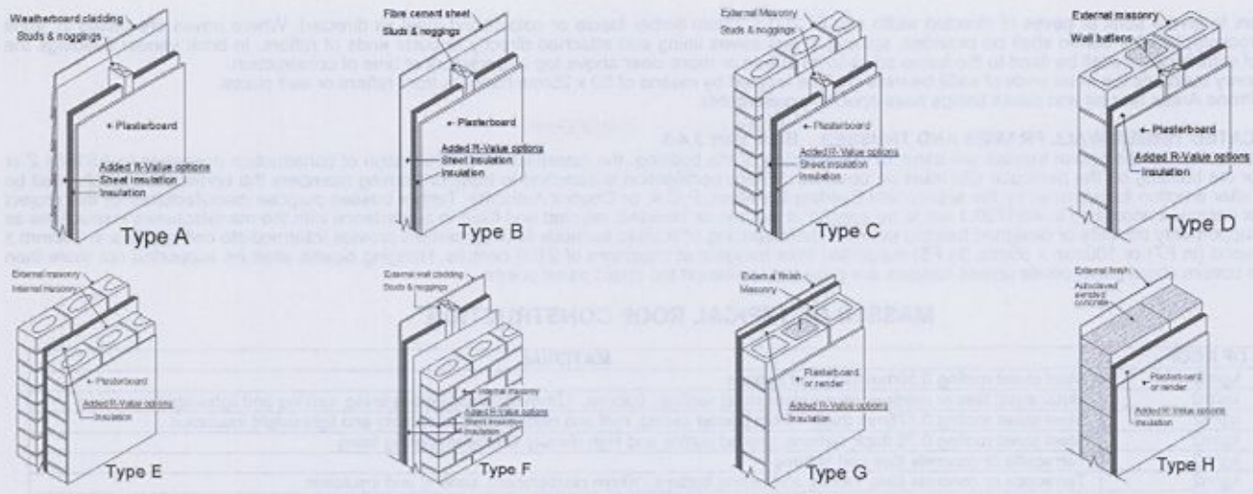
Slate (dark grey)	0.9			Light Grey	0.45
Red, Green	0.75	Zinc Aluminium (dull)	0.55	off white	0.35
Yellow, Buff	0.6	Galvanised steel (dull)	0.55	Light Cream	0.3

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			
		1,2,3,5	4,6	7	8
	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
(B) Cement or Metal Sheet 70mm timber frame	Total R-Value of Wall Materials	0.4			
	Minimum R-Value of insulation to add	1.0	1.3	1.5	2.4
(C) Clay Masonry Veneer minimum 110mm Veneer	Total R-Value of Wall Materials	0.54			
	Minimum R-Value of insulation to add	0.86	1.16	1.36	2.26
(D) Concrete Block Masonry minimum 140mm Masonry	Total R-Value of Wall Materials	0.52			
	Minimum R-Value of insulation to add	0.88	1.18	1.38	2.28
(E) Cavity Clay Masonry 110 ext. veneer, 90mm internal (min)	Total R-Value of Wall Materials	0.67			
	Minimum R-Value of insulation to add	0.73	See note above		
(F) External insulated Clay Masonry Minimum 110 mm masonry	Total R-Value of Wall Materials	0.5			
	Minimum R-Value of insulation to add	0.9	1.2	1.4	2.3
(G) External insulated Corner Masonry minimum 140mm thick	Total R-Value of Wall Materials	0.48			
	Minimum R-Value of insulation to add	0.92	1.22	1.42	2.32
(H) Autoclaved Aerated Masonry minimum 200mm thick	Total R-Value of Wall Materials	1.73			
	Minimum R-Value of insulation to add	Nil	Nil	Nil	1.07

SEE NEXT PAGE FOR DIAGRAMS OF THE ABOVE WALL TYPES:



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

CARPENTER

GENERALLY:
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 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 by reference 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

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.
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 loadbearing 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.

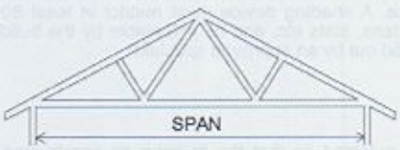
EAVES:
Project rafters to give a soffit at eaves of directed width and fix 200 x 25mm timber fascia or colourbond steel as directed. Where eaves are boxed in, soffit bearers (sprockets) of 50 x 38mm shall be provided, spaced to suit eaves lining and attached directly to outer ends of rafters. In brick 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.

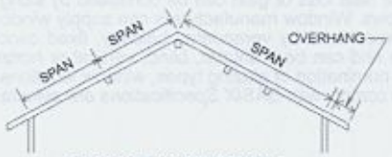
MASSES OF TYPICAL ROOF CONSTRUCTION

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 lighweight 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.



TRUSSED ROOF



ROOF WITH LOADBEARING RIDGEBEAMS AND WALLS

TABLES OF TIMBER SIZES

Framing Member Stud Height 2400	Span	SINGLE STOREY TILED ROOF Unseasoned F8	Seasoned F5	Seasoned MGP10	Seasoned MGP12	SINGLE STOREY SHEET ROOF Unseasoned F8	Seasoned F5	Seasoned MGP10	Seasoned 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*-	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
Trussed Roof 9000 Span	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

UNCOUPLED ROOF WITH LOADBEARING RIDGEBEAMS AND/OR WALLS
Rafters supporting roof and ceiling loads – non coupled cathedral roof single span

Rafter Span	Rafter Spacing	Unseasoned F5	Unseasoned F7	Unseasoned F8	Unseasoned F11	Seasoned F5	Seasoned MGP10	Seasoned MGP12	Seasoned F17
Tiled Roof Ceiled									
3000	600	200 x 38	200 x 50	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	750
3600	600	250 x 50	225 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	750
4200	600	275 x 50	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	750
4800	600	275 x 75	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	750
5400	600	-------	300 x 75	300 x 75	275 x 75	--------	290 x 35	290 x 35	240 x 45
Overhang			750	750	750		750	750	750
Sheet Roof Ceiled									
3000	900	175 x 50	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	750
3600	900	225 x 50	200 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	750
4200	900	250 x 50	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	750
4800	900	300 x 50	275 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	750
5400	900	300 x 75	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	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 3.4.3.8, 3.4.3.11, 3.4.3.19, 3.4.3.20 and 3.4.3.21

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 1.2mm 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.	Stud spacing 600mm to be 9mm thick ply.
Plywood stress grade F11	Stud spacing 450mm to be 6mm thick ply.	Stud spacing 600mm to be 7mm thick ply.
Plywood stress grade F14	Stud spacing 450mm to be 4mm thick ply.	Stud spacing 600mm to be 6mm thick ply.

Fixing: 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.

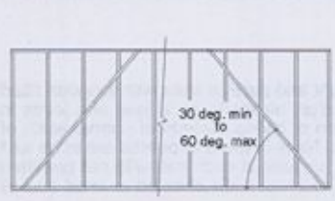


fig (A)

fig (B)

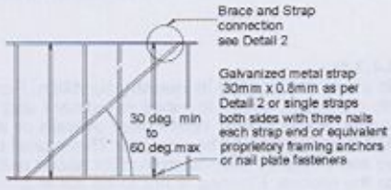


fig (C)

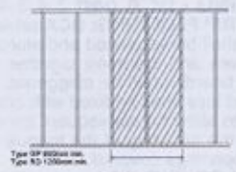


fig D

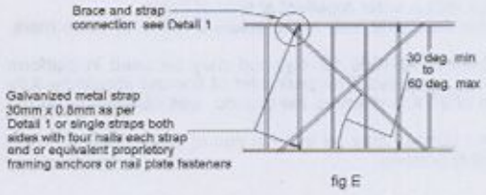


fig E


DETAIL 1

DETAIL 2

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 3.4.3.8, 3.4.3.9 and 3.4.3.18

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	d) studs to bottom and top plates	g) battens and/or purlins to rafters
b) floor joists to bearers	e) rafters to top plates	h) collar ties to rafters
c) Bottom plates to floor joists or concrete slabs	f) rafters to ceiling joists	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 may be fabricated into frames and/or trusses in the shop or on site 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. Other fastening such as carbon arc welding, self tapping bolts and screws or blind rivets of adequate strength may be used. 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. 33 dia. flanged holes in studs and noggins where required. 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.

STEEL WORKER - BCA part 3.4.4

GENERALLY:
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.
ROOFER AND SHEETER:
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.

ROOFER - 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 manufactures 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.
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 3.4.3.4

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: BCA tables 3.4.3.2 and 3.4.3.3
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 noggins. Other approved particle board may be used providing it is a minimum of 2100mm above the ground, well ventilated and the building completely weatherproof prior to fixing of the floor.
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.

ELECTRICIAN

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.

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:
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 dadoes 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 or other 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 WALL 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 FIXER

CEILINGS: 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/joists 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.

PLASTERER

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.

GENERALLY: Point up all flashings externally with cement mortar and make good as required after other trades.

JOINER

GENERALLY:

Joinery timber is to be of durable species seasoned and free from those defects which 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.

JAMB LININGS AND DOORS:

1. 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.

2. 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 proprietory 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 AND HANDRAILS: 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 of otherwise) and space between treads, eg. riser opening must not allow a 125 mm 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.

PLUMBER AND DRAINER:

EAVES 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.

VALLEYS:

To be 0.6mm thickness galvanised steel 450mm wide and fixed to valley boards with edge beaded well lapped and soldered or silicone jointed.

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 bi-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.

BATHROOM FLOOR:

Provide a 50mm grating to overflow outlet in bathroom floor. Connect waste to system or install dry waste if approved..

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

HEATING APPLIANCES: 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 pipes or P V C 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 sewered 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 sewered 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 tank: Detention device: Infiltration device 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.

TILELAYER

GENERALLY:
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 bathroom generally to a height of 135mm.
To bath recess to a height of 1350mm.
To shower recess to a height of 1800mm.
To enclosing of bath and hobs
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.

PAINTER

GENERALLY:
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.

GLAZIER: 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:

Where a building is 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. 3.5.7.2. 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
2 All Keys for all doors.
3 Certificate of termite protection treatment
4 Certificate from Sewerage Authority re-sanitary drainage.
5 Invoices for all PC items required.

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 an average of 36% reduction in Greenhouse Gas emissions can be achieved by dwelling design and sustainability features incorporated. 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 from 1 October 2006 for some alterations and additions..

Alterations and additions costing less than $100,000 will be exempt from BASIX requirements till 1 July 2007; from then additions/alterations costing more than $50,000 will be required to comply with BASIX for the additions/alterations only. Large swimming pools will not be exempt.

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.

From 1 July 2006 the BASIX energy target will vary depending on the location and type of home being built.

Energy zones across NSW have the following targets Zone 1 – 40; Zone 2 – 35; Zone 3 – 25 as shown on the map in the BASIX Website.

Extracts from BASIX are reproduced by courtesy of DIPNR.

Information shown in this specification is intended as a guide only to the requirements of BASIX. 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.
A refrigerator space is well ventilated if:

- *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 by the installation of a greywater re-use system.*
- *Minimise the adverse impact on the amenity of the premises and surrounding land.*
- *Provide for the reuse of resources.*

GREYWATER DIVERSION DEVICES (GDD)

A greywater diversion device must be installed in accordance with the most recent edition of NSW Health's Greywater reuse in sewered single domestic premises.

DOMESTIC GREYWATER TREATMENT SYSTEMS (DGTS)

- *A domestic greywater treatment system that collects., stores, treats and may disinfect all or any of the sources of greywater must be either:*
- *A greywater treatment system device that is accredited by NSW Health in accordance with the DTGS Accreditiation Guideline, as amended from time-to-time; or*
- *An aerated wastewater treatment system (AWTS) accredited by NSW Health in accordance with the NSW Health's AWTS Guidelines, as amended from time-to-time; or*
- *A facility that is purposed designed for a particular premises and approved in accordance with the Local Government (Approvals) Regulation 1999, as amended from time-to-time.*

GREYWATER RE-USE STANDARDS

Greywater must meet the requirements outlined in the most recent edition of NSW Health's Greywater reuse in sewered single domestic premises.

THERMAL COMFORT

INFORMATION FROM THE DATA INPUT CHECK LIST CAN BE ACCESSED ON BASIX WEBSITE 'What's New' BASIX KNOWLEDGE BASE
OBJECTIVES:

- *To maintain consistency between the assumptions made within the BASIX tool and the built outcome*
- *To ensure an adequate level of thermal performance for the building fabric*
- *To provide applicants, local government, principal certifying authorities and accredited certifiers with the technical requirements relating to commitments made in BASIX*

PERFORMANCE REQUIREMENTS
CAN BE ASSESSED BY THREE DIFFERENT METHODS:

Option 1: ***RAPID:*** *compliance can be tested by meeting conditions listed in 10 questions within the BASIX Data Input checklist.*
NOTE: RAPID method is only for simple, single storey homes (usually) brick veneer dwellings common in regional NSW and parts of Sydney

Option 2 : ***DO IT YOURSELF (D.I.Y):*** *Series of tick box answers questions on:- Construction type, details of floors, walls, ceilings, roof, windows and skylights cross ventilation. (See data input checklist for single dwellings).*

Option 3 : ***SIMULATION METHOD:*** *Assessments of the thermal performance of the dwelling undertaken through the 'Simulation' method within BASIX tool are to be in accordance with the BASIX Thermal Comfort Protocols. Assessments are to be conducted by an accredited assessor using approved software.*

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

CONSTRUCTION
(a) Walls
1. *Wall types: When a wall type is selected, the properties of the materials must be such that the required minimum R-value of the total system is achieved as stated in the 'Required Insulation and Roof Colours' section of the BASIX Do It Yourself option.*
2. *Wall areas: The wall area is measured from the internal face of the external wall. It excludes the area of walls adjacent to garages, enclosed sub-floor zones, but includes walls of storerooms, laundries and party walls.*

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
1. *For the purposes of the BASIX Thermal Comfort D.I.Y. method, the orientations of glazed areas are defined as the following compass sectors: NORTH - NORTH EAST - EAST - SOUTH EAST - SOUTH - SOUTH WEST - WEST - NORTH WEST*

(b) Glazing and skylight types
1. *Glazing types selected within the BASIX Do It Yourself method, or on an assessor certificate if using the BASIX Simulation method must have the characteristics nominated in Appendix1 Glazing and skylight characteristics. (Available on BASIX website)*

SHADING
(a) Eaves and projections
1. *May include an eave, horizontal opaque projection, awning or pergola that will block solar gain for the length of the required projection.*
2. *Materials/construction: The device shall be made of a durable material suitable for external use.*
3. *The projection is measured horizontally from the face of the wall/building. The measurement may include fascias and/or gutters which are fixed and provide shading to the glazing.*
4. *The eave/projection must be located such that the outside edge of the projection is no greater than 2400mm vertically above the sill of the glazing system or a proportionally equivalent projection.*

(b) Vertical adjustable external shading
1. *An adjustable shading device may comprise of shutters, louvers or panels.*
2. *Materials/construction: The device should be made of a durable material suitable for external use and must be able to be readily operated either manually, mechanically or electronically by the building occupants.*
3. *An adjustable shading device must comply with(d)(l) and (d)(2).*

(c) Vertical fixed external shading
1. *A fixed shading device may comprise of shutters, louvers or panels.*
2. *Materials/Construction: They should be made of a durable material suitable for external use.*
3. *A fixed shading device must comply with (d)(l).*
4. *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. IF: - Adjustable, when the shading device is fully closed or lowered, OR – Fixed, at 9.00 am for glazing in the east sector; 12.00 pm noon for glazing in the north sector or 3.00 pm for glazing in the west sector*
2. *PERMITTING SOLAR GAIN: An adjustable shading device must permit at least 70% of solar radiation when fully opened at 12.00pm noon at the winter solstice if required to protect glazing in the north sector.*

(e) Concessions to shading requirements
The following glazing concessions apply and are not required to comply with (a), (b), (c) or (d) above:
1. *Five percent of the maximum glazing area may be unshaded.*
2. *Twenty percent of the north sector glazing may have eave/projection greater than the maximum eave/projection (i.e. 1100 mm) or vertical fixed shading as defined by C2.7(c)*

REQUIRED INSULATION AND ROOF COLOURS
(a) Roof colour; Roof colour is defined by the solar absorptance set out in Table C.2.8

TABLE C.2.8. SOLAR ABSORPTANCE VALUES
LIGHT <0.475 - MEDIUM 0.475 – 0.70 - DARK >0.70

(b) Insulation
1. *The technical and installation requirements for thermal insulation are in accordance with the Building Code of Australia, Volume 1 or 2, NSW Appendix*
2. *If a foil-backed blanket is used under the roof, then the R-value of the ceiling insulation may be reduced by R 0.5*
3. *External garage walls do not require insulation to be added to the wall.*

ROOF VENTILATION
(a) Roof ventilation is required to meet the following criteria:
1. *WIND-DRIVEN VENTILATOR: Not less than two wind-driven roof ventilators having an aggregate opening area of not less than 0.14 m2, in conjunction with eave vents, roof vents or the like having an aggregate fixed open area of not less than 0.2% of the ceiling area.*
2. *GABLE END VENTS: Not less than two gable end vents having an aggregate opening area of not less than 0.8m2.*

INDIGENOUS PLANT SPECIES

Promote the planting of indigenous plant species to preserve the character of the local environment and promote a balanced ecosystem. To ensure that the species selected are adapted to the natural rainfall patterns of the locality, and hence require minimal additional water consumption to remain healthy.

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 Planning BASIX Website: www.basix.nsw.gov.au

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

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

.....PROPRIETOR / /

Date for Completion: ...../...../..... .

.....BUILDER / /

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

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** ...../.....**200**

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 proprietor 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.

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

.....PROPRIETOR / /

Date for Completion: ...../...../.....

.....BUILDER / /