

Construction Certificate Determination

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

Certificate No 2008/2729

Council	Pittwater
Determination date of issue	Approved 30 April 2008
Subject land Address Lot No, DP No	82 Waterview Street Mona Vale Lot 4 DP 251112
Applicant Name Address Contact No (phone)	Mr Darren Charles & Mrs Elisa Charles 82 Waterview Street, Mona Vale NSW 2103 9940 2286
Owner Name Address Contact No (phone)	Darren Charles & Elisa Buttrose 82 Waterview Street, Mona Vale NSW 2103 9940 2286
Description of Development Type of Work	Single Storey Extension to Existing Dwelling
Builder or Owner/Builder Name Contractor Licence No/Permit	McCarry Homes Pty Ltd 36356
Value of Work Building	\$213,539 00

Attachments
• Copy of completed Construction Certificate Application Form
• Pittwater Council receipt no 237168 for payment of Long Service Levy
• BASIX Certificate No A20008, dated 3 October 2007

COUNCIL
COPY

30 00 Rept 237563 1/5/08

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 (including sediment & erosion control details)** reference nos CC 0714, Sheets 1 to 6 (inclusive), prepared by G M Kett Pty Ltd Building Design, dated 12 December 2007
- **Structural Details** reference no 11808-1, prepared and endorsed by TJ Taylor Consultants Pty Ltd, dated February 2008

Certificate

I hereby certify that the above Plans documents or Certificates satisfy

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

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

Signed



Date of endorsement
Certificate No

30 APR 2008
2008/2729

Certifying Authority

Name of Accredited Certifier
Accreditation No
Accreditation Authority
Contact No
Address

Tom Bowden
BPB0042
Building Professionals Board
(02) 9999 0003
13/90 Mona Vale Road, Mona Vale NSW 2103

Development Consent

Development Application No
Date of Determination

N0581/07
6 November 2007

BCA Classification

1a

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)

Family Name (or Company)

DARREN & ELISA

CHARLES

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

82 WATERVIEW STREET

MONA VALE

Post Code 2103

Daytime telephone

Alternate no

Mobile no.

02 9940 2286

0413 528 132

0413 528 129

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)

DARREN CHARLES & ELISA DEANNE BUTTKESE

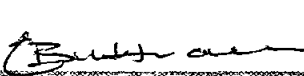
Address

82 WATERVIEW ST

MONA VALE

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)

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.

Street name

82

WATERVIEW STREET

Suburb

MONA VALE

Post code

2103

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

Lot no.

DP no.

4

251112

COUNCIL
COPY

4. Description of work

What type of work do you propose to carry out?

Please describe briefly everything that you want approved

GROUND FLOOR ALTERATIONS & ADDITION TO RESIDENCE

5. Estimated cost of work

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

Estimated cost of work: \$ ~~145,000~~ 213,539.00

6. Development Consent

Council Consent no: NO 581/07

Date of Determination: 6th NOVEMBER 2007

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: McCARRY HOMES

License no: 36356

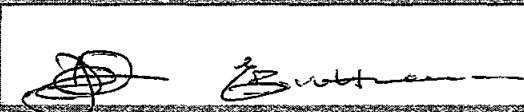
Owner/builder permit no:

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

Date



26/3/08

SUBMISSION REQUIREMENTS

A GENERAL

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

Yes [X] No []

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

Yes [X] 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
[X]	[]	[]	Three (3) copies of detailed architectural plans and specifications
[X]	[]	[]	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)
[X]	[]	[]	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
[X]	[]	[]	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
[]	[]	[X]	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
[]	[]	[X]	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?
[]	[]	[X]	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
[X]	[]	[]	Copy of BASIX Certificate & Report
[X]	[]	[]	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 addressed 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)? 1136 00 m²	Gross floor area of building (m ²) as proposed 271 92 m²
What are the current uses of all or parts of the building(s)/land? DWELLING	Location 82 Watervale St Use Mona Vale
Does the site contain a dual occupancy? No	What is the gross floor area of the proposed addition or new building (sq metres)? 32 14 m²
What are the proposed uses of all parts of the building(s) land? DWELLING	Number of pre-existing dwellings 1
Number of dwellings to be demolished N/A	How many dwellings proposed? N/A
How many storeys will the building consist of? 2.	Will the new building be attached to the existing building? ALTERATION Will the new building be attached to any new building? N/A

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	☐						

ARN 61340837871

18/04/2008 Receipt No 237168

TO E BUTTROSE

82 WATERVIEW ST
MONA VALE

Qty/ Applic	Reference	Amount
	QLSL-Buil	\$747 00
GL Rec	N0581/07 - 82 WATERVIEW ST	
1	CCGST-CCa	\$6 79
GL Rec	1	
	GST	\$0 68
GL Rec		
To GL Receipt		

Total Amount	\$754 47
Includes GST of	\$0 68

Amounts Tendered

Db/Cr Card	\$754 47
Total	\$754 47
Rounding	\$0 00
Change	\$0 00
Nett	\$754 47

Printed 18/04/2008 3 58 51 PM

Cashier GH-11

FORM NO

OFFICE USE ONLY

Y/ORGANISATION LEABLE TO PAY LEVY

PLEASE PRINT ALL DETAILS USING CAPITALS

TROSE
SAD E ANNE
T T T T T T T

WATERVIEW STREET
A VALE
Postcode 2103 Bus hours phone 99402286

REPORT

WATERVIEW STREET
A V A L E
Postcode 2103

05 Y 2008 Estimated finish date D 05 M 10 Y 2008

Completed by consenting/certifying authority with whom plans lodged for approval.

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Levy payable \$

													7	4	7		0	0
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vide DA number here

Date D' M Y

Business hours phone

Dept/Authority where applicable – see reverse

[illegible]

Phone number : [] [] [] [] [] []

Date D: M Y

any person liable to pay levy or authorised officer if company/organisation

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 Ensa Butrose Signature [Signature] Date 18 / 04 / 2008

PART I—TO BE COMPLETED WHERE APPROPRIATE. SEE INSTRUCTIONS.

Exemption Approval Certificate No.

Building and Construction Industry Long Service Payments Corporation Locked Bag 3000 Central Coast MC NSW 2252
Tel 13 14 41 Fax (02) 9287 5685 Email levy@lspc.nsw.gov.au www.lspc.nsw.gov.au ABN 92 646 090 808

Jan 1, 180

~~\$ 747.00~~ Repts 237169 18/4/03

BASIX Certificate

Building Sustainability Index www.basix.nsw.gov.au

1111 1 1 11

Certificate number A20008

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Alterations and Additions Definitions" dated 29/9/2006 published by Department of Planning. This document is available at www.basix.nsw.gov.au

Director General
Date of issue: Wednesday 03 October 2007



NSW GOVERNMENT
Department of Planning

Description of project

Project address	
Project name	Charles Kett 10 window
Street address	82 Waterview Street Mona Vale 2103
Local Government Area	Pittwater Council
Plan type and number	Deposited Plan 251112
Lot number	4
Section number	0
Project type	
Dwelling type	Separate dwelling house
Type of alteration and addition	My renovation work is valued at \$50,000 or more, and does not include a pool (and/or spa)

COUNCIL

Lighting				
The applicant must ensure a minimum of 40% of new or altered light fixtures are fitted with fluorescent, compact fluorescent, or light-emitting-diode (LED) lamps				
Fixtures				
The applicant must ensure new or altered showerheads have a flow rate no greater than 9 litres per minute or a 3 star water rating				
The applicant must ensure new or altered toilets have a flow rate no greater than 4 litres per average flush or a minimum 3 star water rating				
The applicant must ensure new or altered taps have a flow rate no greater than 9 litres per minute or minimum 3 star water rating				

Insulation requirements

The applicant must construct the new or altered construction (floor(s), walls, and ceilings/roofs) in accordance with the specifications listed in the table below, except that a) additional insulation is not required where the area of new construction is less than 2m², b) Insulation specified is not required for parts of altered construction where insulation already exists

concrete slab on ground floor	nil	
external wall framed (weatherboard, fibro, metal clad)	R1 30 (or R1 70 including construction)	
flat ceiling, pitched roof	ceiling R0 95 (up), roof foil backed blanket (75 mm)	medium (solar absorptance 0 475 - 0 70)

Windows and glazed doors

The applicant must install the windows, glazed doors and shading devices, in accordance with the specifications listed in the table below
 Relevant overshadowing specifications must be satisfied for each window and glazed door

The following requirements must also be satisfied in relation to each window and glazed door

Each window or glazed door with standard aluminium or timber frames and single clear or toned glass may either match the description, or, have a U-value and a Solar Heat Gain Coefficient (SHGC) no greater than that listed in the table below. Total system U-values and SHGCs must be calculated in accordance with National Fenestration Rating Council (NFRC) conditions.

For projections described in millimetres, the leading edge of each eave, pergola, verandah, balcony or awning must be no more than 500 mm above the head of the window or glazed door and no more than 2400 mm above the sill.

Pergolas with polycarbonate roof or similar translucent material must have a shading coefficient of less than 0.35.

Pergolas with fixed battens must have battens parallel to the window or glazed door above which they are situated, unless the pergola also shades a perpendicular window. The spacing between battens must not be more than 50 mm.

Windows and glazed doors glazing requirements

W1	SW	2 4	0	0	eave/verandah/pergola/balcony >=900 mm	timber or uPVC, single clear, (or U-value 5.71, SHGC 0.66)			
W2	SW	1 9	0	0	eave/verandah/pergola/balcony >=900 mm	timber or uPVC, single clear, (or U-value 5.71, SHGC 0.66)			
W3	SW	2 4	0	0	eave/verandah/pergola/balcony >=600 mm	timber or uPVC, single clear, (or U-value 5.71, SHGC 0.66)			
W4	SW	2 4	0	0	eave/verandah/pergola/balcony >=600 mm	timber or uPVC, single clear, (or U-value 5.71, SHGC 0.66)			
W5	SE	0 72	0	0	eave/verandah/pergola/balcony >=600 mm	timber or uPVC, single clear, (or U-value 5.71, SHGC 0.66)			

In these commitments, "applicant" means the person carrying out the development
Commitments identified with a " " in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development)
Commitments identified with a " " in the "Show on CC/CDC plans & specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development
Commitments identified with a " " in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate for the development may be issued



T J TAYLOR CONSULTANTS PTY LIMITED

ABN 98 002 360 054

Consulting Civil and Structural Engineers

'Seascope', Suite 7, 22-26 Fisher Road, Dee Why, NSW 2099

Telephone 9982 7092 Fax 9982 5898 Email taylor_consultants@tpg.com.au



The Association of
Consulting Engineers
Australia

27 February 2008

Our Ref DMS dp 11808

SPECIFICATION AND CONSTRUCTION NOTES FOR REINFORCED CONCRETE SLAB-ON-GROUND

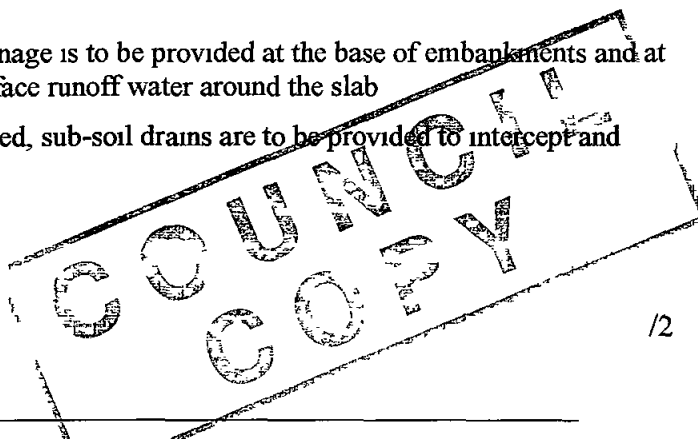
PROJECT Additions – 82 Waterview Street, Mona Vale

GENERAL

- 1 The drawings and specification are to be read in conjunction with all architectural and other consultants' drawings and specification and with such other written instructions as may be issued during the course of the work
- 2 Dimensions are not to be obtained by scaling from the structural drawings
- 3 Setting out dimensions shown are to be verified by the builder
- 4 All workmanship and material shall be in accordance with the requirements of the SAA Codes and By-Laws and Ordinances of the relevant Building Authority
- 5 Any conflict between these notes and specifications or drawings shall be resolved by the Supervising Engineer

GROUND PREPARATION AND DRAINAGE

- 1 The slab area is to be cleared of all grass, vegetation, stumps and any soil containing significant volume of organic matter
- 2 The site is to be trimmed to suit finished surface levels. In areas of cut and fill the fill is to be a maximum depth of 500mm and compacted in horizontal layers of 150mm maximum depth to 95% of the modified dry density in accordance with S A 1289Pt E or equivalent
- 3 The batter of any fill is to be at least 1000mm clear of the edge of the slab and at a maximum slope of 1.5 to 1
- 4 Any imported fill is to be an approved select material
- 5 The finished ground surface adjacent to the slab is to be at least 100mm below the slab level
- 6 In cut and fill areas adequate surface drainage is to be provided at the base of embankments and at least 1000mm from the slab to divert surface runoff water around the slab
- 7 In areas where ground water is encountered, sub-soil drains are to be provided to intercept and divert the water from the slab



/2

Directors D J Squire BE (Civil) MIEAust D M Schaefer BE (Civil) MIEAust
Consultant T J Taylor BSc (Eng) LGE MIEAust CPEng NPER

FOUNDATIONS

- 1 This slab is designed for a uniform and stable foundation of safe bearing pressure of 150kPa. Further advice is to be obtained from the Supervising Engineer if organic matter, highly plastic soil or ground water is encountered.
- 2 A level bed of clean sand, 50mm thick is to be spread over the foundation and thoroughly compacted.
- 3 In areas of termite activity or as required by local building authorities protection is to be provided to the building in accordance with AS36601-1995 "Protection of building from subterranean termites" Part 1 New Buildings.

Protection should be provided in the form of a continuous physical barrier of stainless steel mesh or graded stones, or a chemical soil barrier as approved by local authorities.

WATERPROOFING

- 1 An unpunctured polythene vapour barrier, 0.2mm thick is to be provided under the total area of the floor and beams including internal beams and terminated at ground level.
- 2 Joints in membrane to be lapped a minimum of 200mm and sealed with pressure sensitive tape. Service pipes through slab to be wrapped with polythene membrane that is in turn lapped and sealed with main layer.

REINFORCEMENT

- 1 Slab fabric to be lapped a minimum of 225mm at the ends and side and supported on chairs at 1000mm centres.
- 2 Edge beams and internal beam trench mesh to be fully lapped at corners with a minimum 350mm splice lap and supported on chairs at approximately 1200mm centres.
- 3 All reinforcement chairs to sit on approved base supports to prevent puncture of polythene membrane.

CONCRETE

- 1 All workmanship and material shall be in accordance with AS 3600 "AS Concrete Structures" and shall be grade 25 ($f'_c = 25\text{MPa}$). Slump shall be 80mm. Site additives are not permitted.
- 2 To enable an inspection to be carried out on the waterproofing membrane and reinforcement the Supervising Engineer is to be advised 24 hours before pouring of concrete.
- 3 Concrete is to be compacted with approved vibrators and moist cured for a minimum of seven (7) days after pouring.

FINISH

- 1 Concrete is to be screeded level and finished to a smooth surface with a wooden float, steel trowel or mechanical trowelling device depending on type of surface finish required.

ABBREVIATIONS

U.O.N - UNLESS OTHERWISE NOTED

TOP

H.D - HOT DIPPED

GALV - GALVANISED

MIN - MINIMUM

C/C - CENTRE TO CENTRE

SQ - SQUARE

TYP - TYPICAL

MAX - MINIMUM

ABBREVIATIONS

SEE ATTACHED FLOOR SLA: SPECIFICATION.

[illegible][illegible]

MEMBER SCHEDULE	
FLOOR BEAMS	
F81	250 PFC 3.6M MAX SPAN
F82	230 PFC 4.5M MAX SPAN
F83	180 PFC 3.6M MAX SPAN
F84	150 PFC 3.6M MAX SPAN
F85	300 PFC 4.5M MAX SPAN
F86	125 PFC 2.2M MAX SPAN
F87	150 PFC 2.5M MAX SPAN
F88	300 PFC 3.1M MAX SPAN
F89	180 PFC 3.1M MAX SPAN
F90	400 PFC 3.1M MAX SPAN
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F186	400 PFC 3.1M MAX SPAN
F187	400 PFC 3.1M MAX SPAN
F188	400 PFC 3.1M MAX SPAN
F189	400 PFC 3.1M MAX SPAN
F190	400 PFC 3.1M MAX SPAN
F191	400 PFC 3.1M MAX SPAN
F192	400 PFC 3.1M MAX SPAN
F193	400 PFC 3.1M MAX SPAN
F194	400 PFC 3.1M MAX SPAN
F195	400 PFC 3.1M MAX SPAN
F196	400 PFC 3.1M MAX SPAN

GROUND FLOOR PLAN

SCALE 1:100

SHOWING ADDITIONAL STRENGTHENING BEAMS OVER

ASSUMED NON LOAD-BEARING WALLS BUILDER TO CONFIRM

FB1, FB2, FB3, FB4, FB5, FB6, FB7

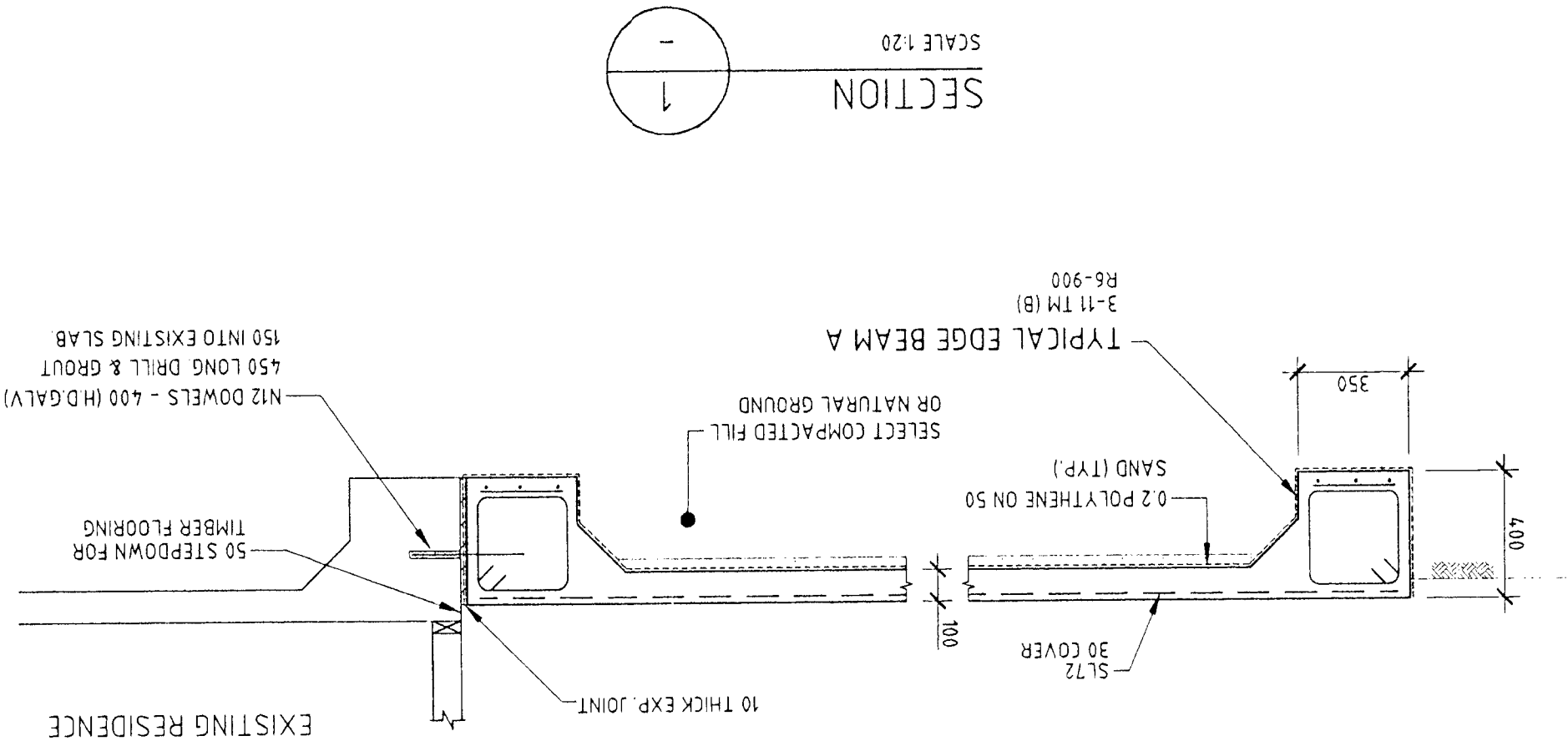
EXISTING FLOOR JOISTS OVER

WALLS TO BE REMOVED (SHOWN DASHED)

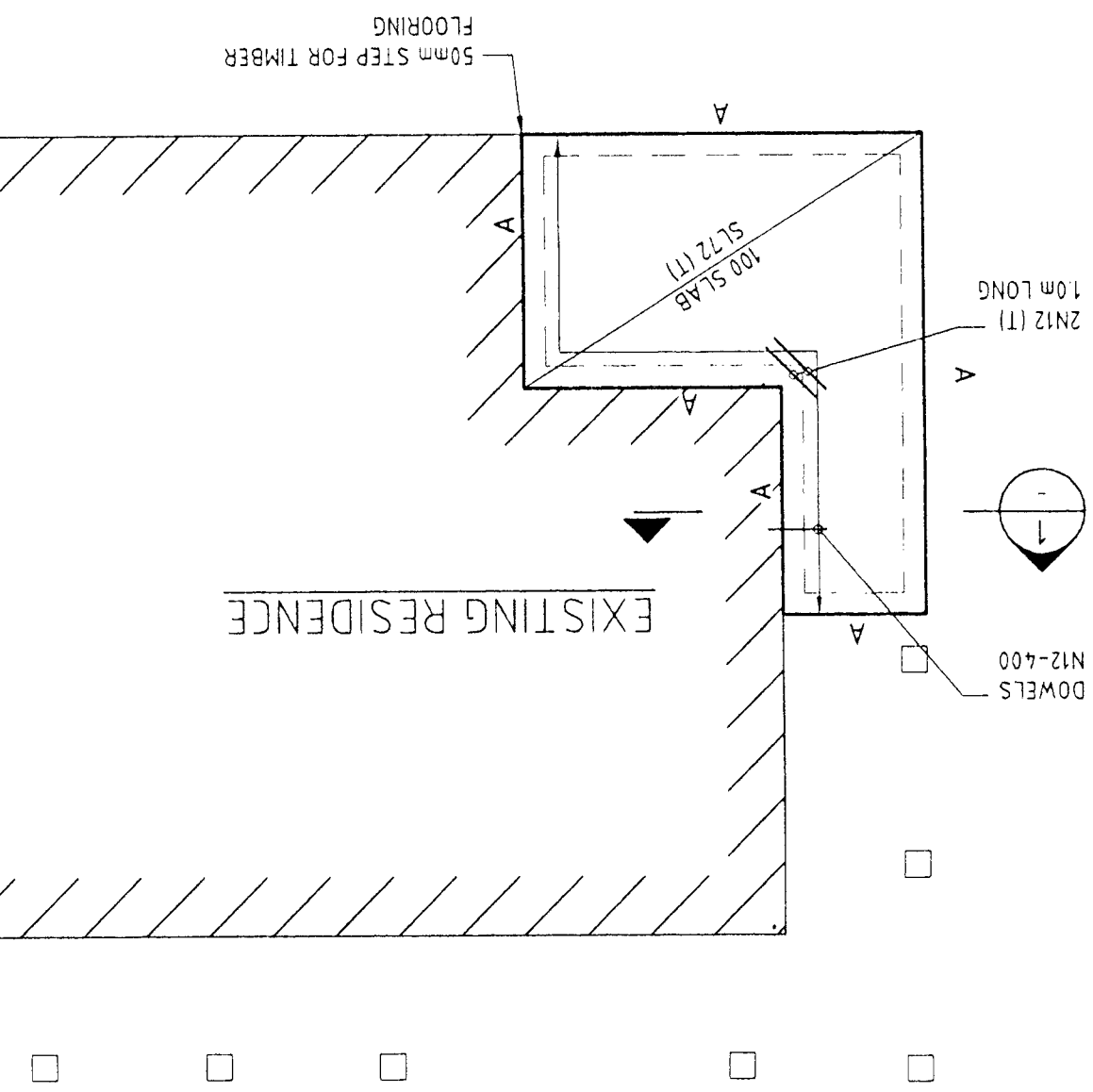
CONFIRM ON SITE EXISTING FLOOR JOIST SPANNING A DIFFERENT DIRECTION WILL CHANGE DESIGN FOR BEAMS)

ASSUMED LINE OF EXISTING BEAM OVER (TYPICAL)

GROUND FLOOR PLAN



GROUND FLOOR SLAB PLAN

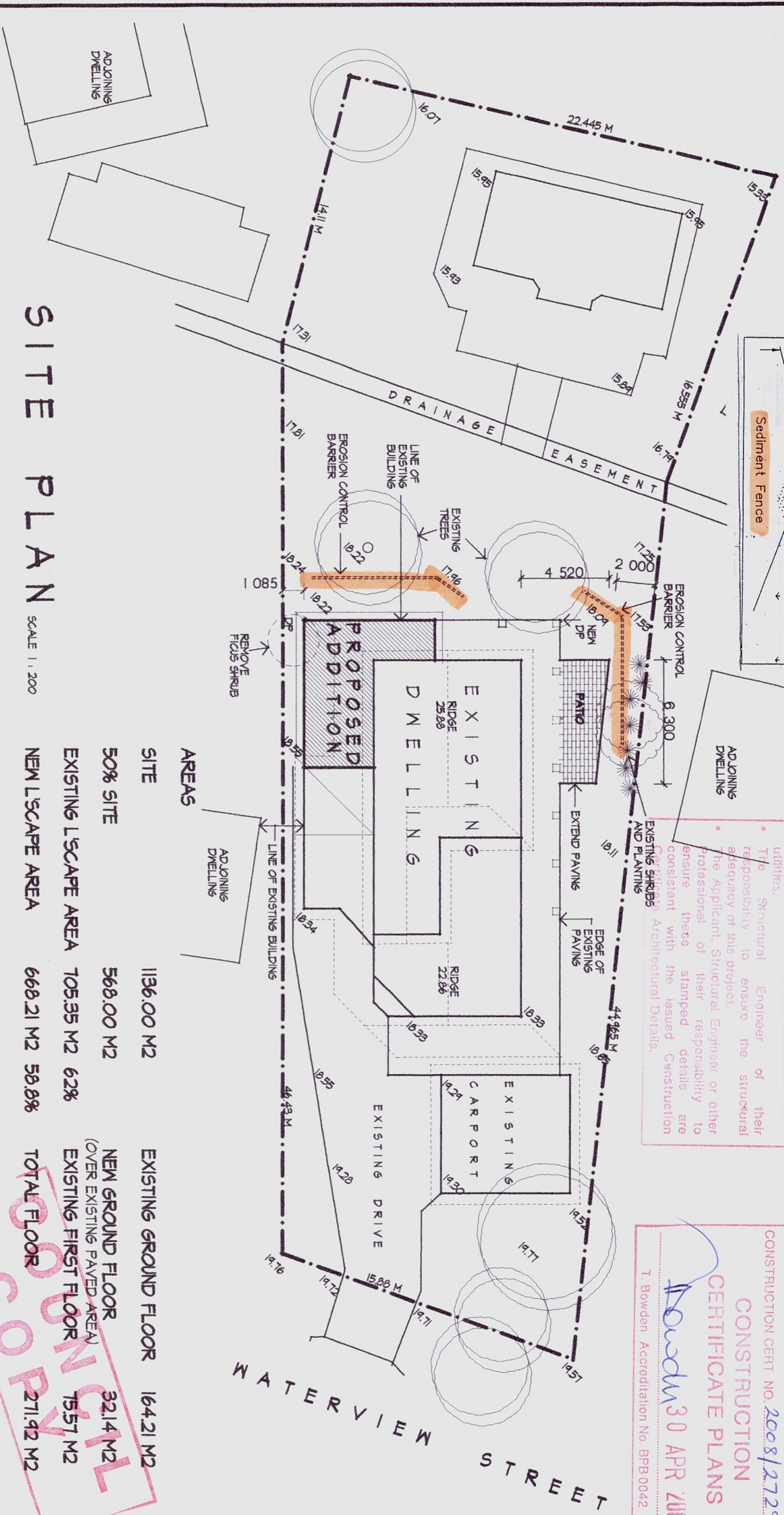


The diagram illustrates a cross-section of a sediment fence. A wire or steel mesh is shown with a vertical spacing of 0.6m max. The mesh is supported by a 3m max wide base. The area above the mesh is labeled 'Disturbed area' and the area below is 'Undisturbed area'. A 'Direction of flow' arrow points from the disturbed area towards the fence. The fence consists of a 'Wire or steel mesh' and a 'Geotextile filter'. 'Pests driven 0.6m into ground' are indicated by arrows pointing down. A 'Detail of overlap' is shown between the mesh sections. The overall height of the fence is 0.2m.


 building certifiers pty ltd

CONSTRUCTION
CERTIFICATE PLANS
Bowden 30 APR 2008
I. Bowden Accreditation No. BPB 0042

T. Bowden Accreditation No. BPB0042



SITE PLAN

SCALE | : 200

SCALE 1 : 200

AREAS

SITE 1136.00 M2

EXISTING GROUND FLOOR 164.21 M2

50% SITE 568.00 M2

NEW GROUND FLOOR 32.14 M2

EXISTING LANDSCAPE AREA 705.35 M2 62%

EXISTING FIRST FLOOR 75.57 M2

NEW L'SCAPE AREA 668.21 M2 58.8%

TOTAL FLOOR 271.92 M2

NEW GROUND FLOOR	32.14 M2
OVER EXISTING PAVED AREA)	
EXISTING FIRST FLOOR	75.57 M2
TOTAL FLOOR	271.92 M2

6 M KETT PTY LTD
BUILDING DESIGN
PHONE 94711224
FAX 94716542

THE WHOLE OF THE WORKS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING CODE OF ALST. LOCAL COUNCIL POLICY AND CODES GOVERNING STATUTORY AUTHORITIES REQUIREMENTS AND CURRENT ALST STANDARDS.

NOTE : ALL DIMENSIONS MUST BE CHECKED ON SITE BY BUILDER PRIOR TO ORDERING MATERIALS OR COMMENCING ANY WORK. DO NOT SCALE OFF DRAWINGS

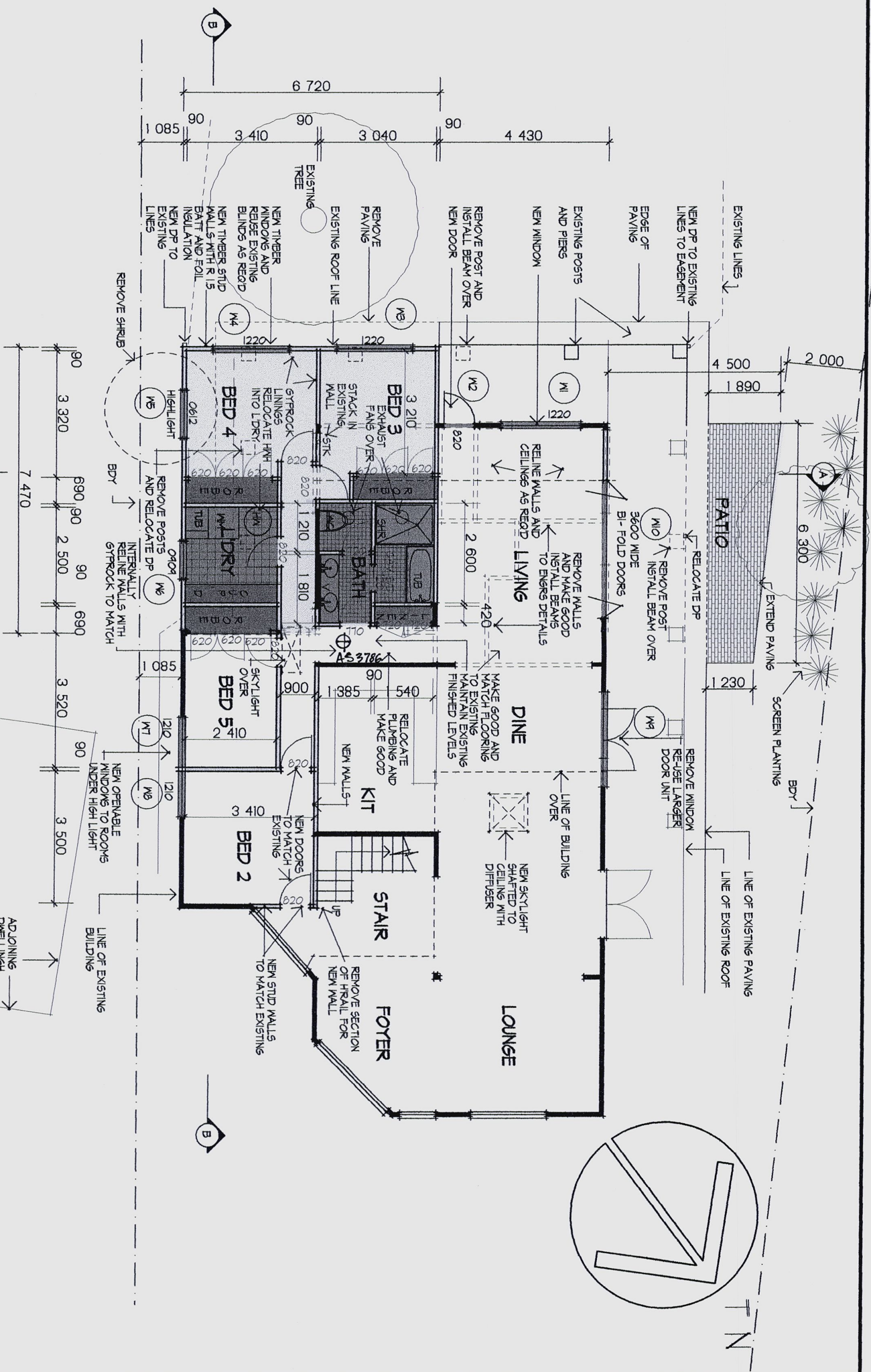
PROPOSED ALTERATIONS AND ADDITIONS TO DWELLING
AT 82 WATERVIEW STREET MONA VALE
FOR MR D AND MRS E CHARLES LOT 4 DP 251112

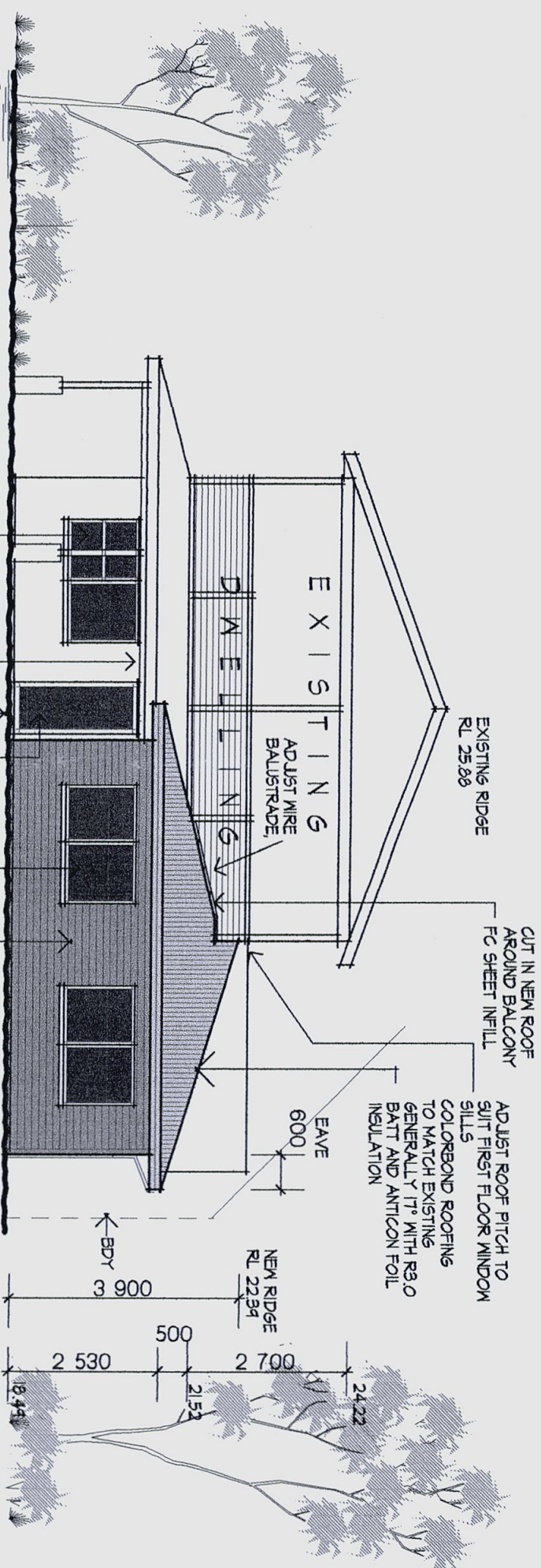


**BUILDING
DESIGNERS
ASSOCIATION**
67 WEST 40TH STREET, NEW YORK, NY 10018
(212) 691-1000

SCALE | : 100
AND AS SHOWN
DATE 12.12.07
DMS NO
CC 0714
SHEET | OF 6

DWG NO
CC 0714
SHEET 2 OF 4





SOUTH ELEVATION



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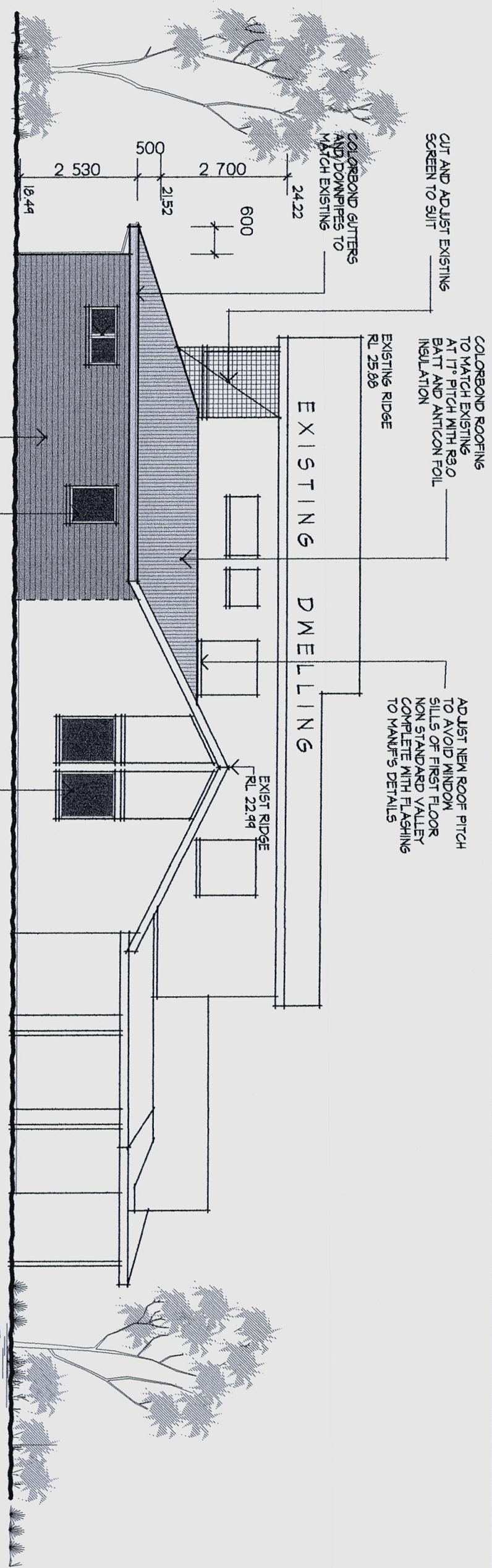
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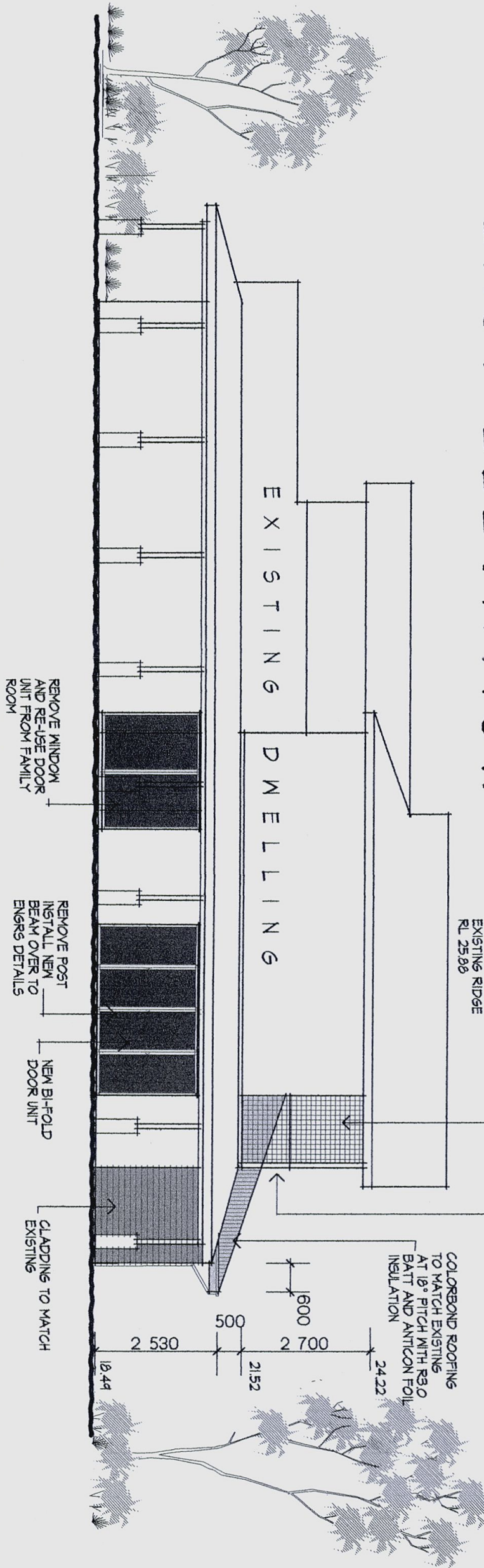
 BUILDING
 DESIGNERS
 ASSOCIATION

SCALE 1 : 100
 AND AS SHOWN
 DATE 12.12.07

DWS NO
 CC 0714
 SHEET 4 OF 6



EAST ELEVATION



WEST ELEVATION



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PROPOSED ALTERATIONS AND ADDITIONS TO DWELLING AT 82 WATERVIEW STREET MONA VALE
FOR MR D AND MRS E CHARLES LOT 4 DP 251112



BUILDING DESIGNERS ASSOCIATION

SCALE 1 : 100
DATE 12.12.07
DWS NO CC 0714
SHEET 5 OF 6

SECTION A A

EXISTING RIDGE
RL 25.88

REMOVE SECTION OF
WIRE BALUSTRADE
TO CUT IN NEW ROOF
AND ADJUST LATTICE
SCREEN AS REQUIRED

600

24.22

21.52

2 700

500

2 530

18.44

CLADDING TO
MATCH EXISTING
WITH R15 BAT AND
FOIL INSULATION

AND DOWNPIPES TO
MATCH EXISTING

COLORBOND GUTTERS

EXISTING RIDGE
RL 25.88

COLORBOND ROOFING
TO MATCH EXISTING
AT 17° PITCH WITH R3.0
BATT AND ANTICON FOIL
INSULATION

TIMBER FRAME ROOF TO
ENG'S DETAILS

ADJUST NEW ROOF PITCH
TO AVOID WINDOW
SILLS OF FIRST FLOOR
AND FLASH TO EXISTING
STUD FRAME WALL

EXIST RIDGE
RL 22.99

NEW CONCRETE FLOOR SLAB
ON WATERPROOF MEMBRANE
TO ENG'S DETAILS
MATCH EXISTING FLOOR LEVELS
AND ALLOW FOR TIMBER FINISH
TO MATCH EXISTING

NEW CONCRETE SLAB
TO ENG'S DETAILS
LEVEL WITH STEP DOWN
FOR TIMBER FINISH

GYFROCK INTERNAL
LININGS TO MATCH
EXISTING AND MAKE
GOOD ADJOINING
SURFACES

PROVIDE WATERPROOF
MEMBRANE AND WHITE
PROOFING TO BCA REGS

NEW STUD WALL AND
LININGS AS REQUIRED
WITH R10 BAT INSULATION

NEW CONCRETE SLAB
TO ENG'S DETAILS
LEVEL WITH STEP DOWN
FOR TIMBER FINISH

EXISTING RIDGE
RL 25.88

CUT IN NEW ROOF
FRAME ROOF UNDER SILL
WITH COLORBOND ROOFING
TO MATCH EXISTING
AT 17° PITCH WITH R3.0
BATT AND ANTICON FOIL
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EAVE
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FC SHEET
SOFFIT

BDY

JOIN SLAB TO EXISTING
TO ENG'S DETAILS

EXISTING SLAB
GYFROCK INTERNAL
LININGS TO MATCH

GENERALLY MAKE GOOD
AND MATCH SURFACES
AFFECTED BY NEW WORK

LIVING

BED 3

HALL

BED 4

D W E L L I N G

E X I S T I N G

EXISTING RIDGE
RL 25.88

SECTION B B

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RL 25.88

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LIVING

BED 3

HALL

BED 4

D W E L L I N G

E X I S T I N G

EXISTING RIDGE
RL 25.88


G M KETT PTY LTD
BUILDING DESIGN
PHONE 94711224
FAX 94716542

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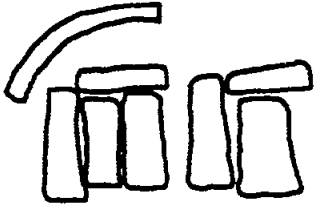
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PROPOSED ALTERATIONS AND ADDITIONS TO DWELLING
AT 82 WATERVIEW STREET MONA VALE
FOR MR D AND MRS E CHARLES LOT 4 DP 251112


BUILDING
DESIGNERS
ASSOCIATION
OF NEW SOUTH WALES

SCALE 1 : 100
AND AS SHOWN
DATE 12.12.07

DWG NO
CC 0714
SHEET 6 OF 6



G M KETT PTY LTD
BUILDING DESIGN
16 MAY RD DEE WHY 2099
PHONE 99711224 FAX 99716542

ABN 40 001 903 626



BUILDING
DESIGNERS
ASSOCIATION
OF NEW SOUTH WALES INC

SCOPE OF WORKS

To be read in conjunction with approved plans and specification

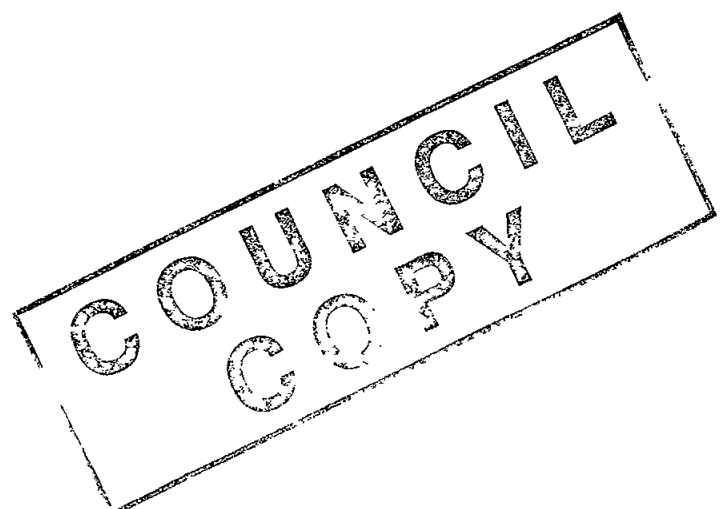
CLIENT

MR D and MRS E Charles

ADDRESS:

82 Waterview Street Mona Vale

For renovations to residence at - 82 Waterview Street Mona Vale



Scope of works

To be included but not limited to the following

Preamble

All work noted on plans and not specified is to be included in the works and likewise work specified and not noted that is normally included in this type of work is to be included.

All work to be in accordance with the BCA , Aust standards and councils conditions

All work to be in accordance with the relevant statutory regulations and current good building practice

Builder to take out insurances and take any necessary precautions that would normally be required for this type of work

Ground floor plan

Generally remove vegetation in-way of new work and take necessary measures to protect remaining trees and garden

Prepare ground and excavate for new concrete footings and slab and drainage as shown on plan to extended bed room area to match existing slab level to engineer's details

Excavate for new downpipes and drainage as required to connect extended stormwater lines to existing lines

Allow to extend plumbing and drainage for new/relocated bath room and l'dry as shown on plan to existing sewerage lines in accordance with Sydney Water regulations and manufacturers specifications

Demolish existing verandah roofing in way of new work and prepare for new bed rooms to the southern side

Remove existing posts as indicated from verandah and provide beams to engns details to patio area to the western and southern side

Demolish existing internal walls in living room area as indicated on plan and make good to prepare for new work

Demolish existing bath room and l'dry fittings and allow to extend services to new position

Pour new slab and allow to waterproof and termite proof new work in accordance with Aust Standard , and match existing floor levels

Generally all external work affected by the alterations to be clad and painted to match existing adjoining surfaces

Create new window openings under the existing highlights in beds 5 and 2 and install new timber awning style windows as noted

Build new stud walls to beds 5 and 2 adjacent to kitchen area and stairs

Relocate door unit from old family room (new bed 5) to dining area

Replace window and install new door to south wall of living room

Create and install new bi-fold door unit to living room on western side

Install new skylight over dining area as noted with ceiling diffuser panel

Pitch new roof in colorbond roofing to match existing Cut in new roofing into existing roofing as required with flashing as recommended by manufacturer with insulation blanket, foil and fibre cement soffit eaves lining
New roof pitch to be adjusted to join existing eastern wall under existing first floor windows
Fix new gutters and downpipes in colorbond and connect to existing drainage lines

Prepare ground surface level and compact area for new paving to patio on the western side New paving to match existing level, surface and finish with slight grade to divert any surface runoff away from buildings
Generally make good surfaces disturbed by new work

First floor plan

Modify existing balustrade wires to first floor balcony to suit new work Line back of intersection of new roof and balcony with fc sheet Likewise adjust privacy screen to suit

Generally

Provide new light and power circuits to connect up to new fittings as required
Relocate and extend as necessary existing light and power outlets
Check existing wiring and advise of any necessary replacement and up- grading to ensure that the entire building complies with Statutory Authorities Regulations
Provide and install smoke detectors, min one per floor, to existing building to AS 3786

Disturbed surfaces to be made good on completion of each trade to match existing finishes as close as possible in a tradesmanlike manner unless an alternative is specified by owner in writing

SPECIFICATION

FOR THE ERECTION AND COMPLETION OF BUILDING AT LOT No

ADDRESS

MUNICIPALITY / SHIRE / CITY

FOR

4
Nº 62 Waterview St
Duffwater
Municipality of Duffwater
Mr D & Mrs E Charles

DP No

TOWN/AREA

POST CODE

Hereinafter called the Proprietor

251112
Mona Vale

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 noggin in position and veneer walling but before flooring is cut down roof covering is laid and wall linings and sheetings are secured
- 3 When the internal wall coverings have been secured and fixing out commenced apron mouldings must not be fixed until flashings have been inspected and approved
- 4 ON COMPLETION OF BUILDING The owner is cautioned that if works have advanced beyond these stages without the requisite notices being given inspections made and unsatisfactory conditions are discovered later the offer of a loan or the terms and conditions of a loan may be varied by the lending authority

REGULATIONS AND NOTICES

The builder is to comply with the Building Code of Australia as amended and as applicable to the particular State or Territory in which the building is being constructed and the requirements of legally constituted Authorities for local Government and/or Services The Builder is to give all notices obtain all permits and pay all fees required by such Authorities If any difference in requirements exists between this specification and the Building Code of Australia or relevant Standard that may apply to the construction of any building nominated by this specification then the requirements of the Building Code of Australia and/or the appropriate Standard shall take precedence over this specification for any construction Where 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

CONCRETE - BCA part 3 2 3

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

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

All concrete work shall comply with the AS3600 Maximum slump shall be 80mm unless otherwise specified by Engineer Concrete shall be carefully handled and placed to avoid segregation and shall be adequately compacted 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
Brick single storey with wall height not exceeding 4200mm excluding any gable	mm 270	mm 400x300	mm 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	110 270	300x300 400x400	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
	300 400	3 4	3 4	3 4

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

CONCRETE FLOORS BCA parts 3 2 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	A A C lightweight concrete
Steel bearing not less than 70mm	external walls bearing not less than 140mm
Concrete bearing not less than 75mm	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 perpendis 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 1.5m 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 470mm 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 22000mm²/2m 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 it 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 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 than 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 than the height of the main roof ridge and is to be built in compo mortar. The flue is to be 250 x 250mm or one tenth of the area of the fireplace opening, whichever is the greater, gathered over to break daylight and pargetted to the full height. An 0.6mm galvanised steel tray, in one piece, holed for flue is to be set at level of one course above roof covering on the high side of the roof. The internal edges are to be shaped to form a quadrant gutter 25mm wide, sweated at corners. The tray is to project a minimum of 25mm beyond the external faces of brickwork turned up and/or down as required. Where the tray is turned up, a clearance of at least 6mm is to be maintained between the brickwork and the tray. Provide weep holes by leaving open vertical joints in brickwork above tray. Rake joints in brickwork ready to receive flashing to be provided by Plumber. A loose brick must be left on the back of the chimney stack. This brick must not be set until after the tray has been cleared of all mortar droppings.

HEATING APPLIANCES

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 3 To full brick cavity walls secure door and window frames with 1 6mm galvanised iron straps set in brickwork Straps to be 25mm wide and at least 300mm long where practicable and spaced at a maximum of five courses apart Set 25mm x 1 6mm galvanised iron straps 1800 apart and 1200mm down cavity with ends turned 75mm into brickwork to secure wall top plates

COMPLETION

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

BRICKLAYER (Concrete brick) A S 1346 BCA part 3 3 1

MORTAR For normal conditions mortar to consist of

Above Dampcourse	1 part cement 2 parts lime or lime putty 9 parts clean sand	Below Dampcourse	1 part cement 1 part lime or lime putty 6 parts clean sand
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Mortar mixes must comply with A S 3400 (BCA parts 3 3 1 6 and 3 3 1 7) 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 perpendis 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

AUTOCCLAVED 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 perpendis The first course must be made true and level using a normal thick bed mortar with thin bed adhesive to fully seal the perpendis 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 weak 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								
		12 Below 300m AHD altitude	12 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
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
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
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
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
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

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

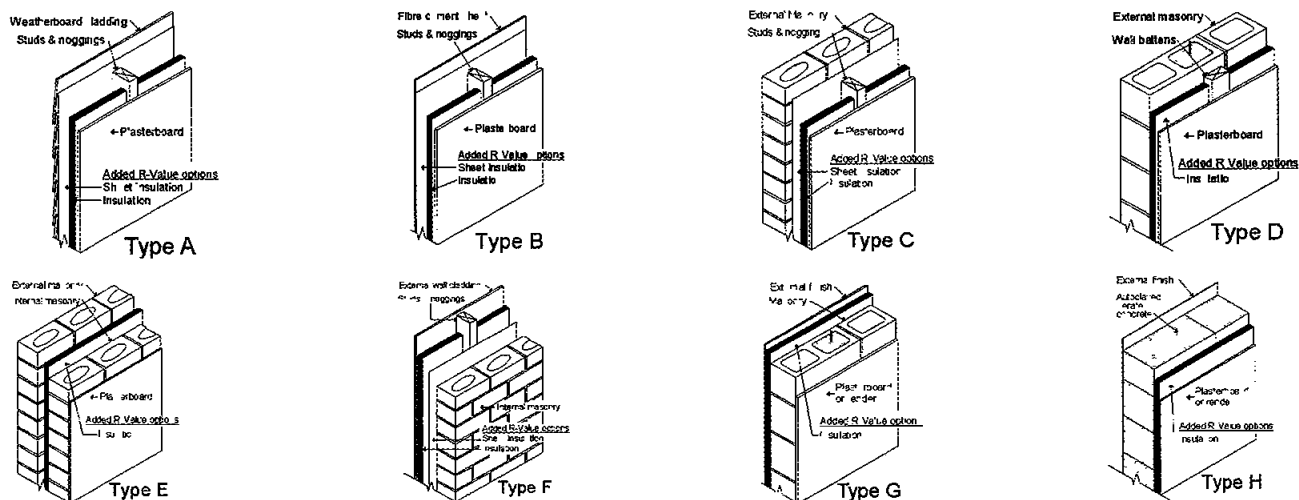
Slate (dark grey)	0 9			Light Grey	0 45
Red Green	0 75	Zinc Aluminium (dull)	0 55	off white	0 35
Yellow Buff	0 6	Galvanised steel (dull)	0 55	Light Cream	0 3

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			
	Total R Value of Wall Materials		0 4						
(B) Cement or Metal Sheet 70mm timber frame	Minimum R Value of insulation to add		1 0	1 3	1 5	2 4			
	Total R Value of Wall Materials		0 54						
	Minimum R Value of insulation to add		0 86	1 16	1 36	2 26			
(C) Clay Masonry Veneer minimum 110mm Veneer	Total R Value of Wall Materials		0 52						
	Minimum R Value of insulation to add		0 88	1 18	1 38	2 28			
	Total R Value of Wall Materials		0 67						
(D) Concrete Block Masonry minimum 140mm Masonry	Minimum R Value of insulation to add		0 73	See note above					
	Total R Value of Wall Materials		0 5						
	Minimum R Value of insulation to add		0 9	1 2	1 4	2 3			
(E) Cavity Clay Masonry 110 ext veneer 90mm internal (min)	Total R Value of Wall Materials		0 48						
	Minimum R Value of insulation to add		0 92	1 22	1 42	2 32			
	Total R Value of Wall Materials		1 73						
(F) External insulated Clay Masonry Minimum 110 mm masonry	Minimum R Value of insulation to add		Nil	Nil	Nil	1 07			
	Total R Value of Wall Materials								
(G) External insulated Corner Masonry minimum 140mm thick									
(H) Autoclaved Aerated Masonry minimum 200mm thick									

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

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

EAVES

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

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

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

MASSSES OF TYPICAL ROOF CONSTRUCTION

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

DEFINITIONS

Spacing Where this term is used the measurement shall be the centre to centre distance between members
Span Where this term is used the measurement shall be the face to face distance between members
Reference is made to effective roof spans in the tables the span is an indicator of the mass of roof being carried by the outer wall members



TABLES OF TIMBER SIZES

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

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				Seasoned			
			F5	F7	F8	F11	F5	MGP10	MGP12	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

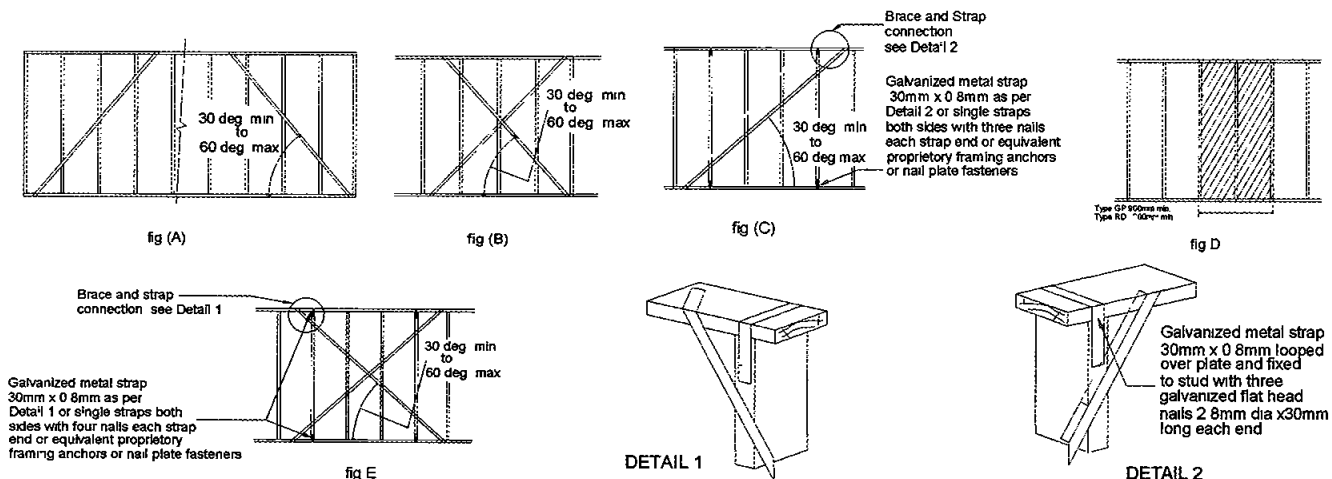
- 1 A pair of diagonal timber or metal section braces in opposite directions from each end of the wall as per fig (A) OR galvanised metal tensioned strap bracing as per fig (B)
- 2 Single diagonal timber or metal section brace as per figure (C)
- 3 A 900mm minimum wide panel of structural plywood as 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 plyFixing 2 8mm dia x 30mm long galvanised flat head nails at 50mm centres along top and bottom plates 150mm centres along vertical edges and 300mm centres along intermediate studs



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

TIEDOWN REQUIREMENTS BCA tables 3 4 3 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
 - b) floor joists to bearers
 - c) Bottom plates to floor joists or concrete slabs
 - d) studs to bottom and top plates
 - e) rafters to top plates
 - f) rafters to ceiling joists
 - g) battens and/or purlins to rafters
 - h) collar ties to rafters
 - i) verandah plates and eaves beams to posts

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

CYCLONIC AND OTHER HIGH WIND AREAS BCA part 3 10 1

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

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

STEEL FRAMING AND OR TRUSSES BCA part 3 4 2

MATERIALS

All framing sections shall be manufactured from galvanised steel conforming to AS1397 Galvanised materials up to 3 2mm thick shall have minimum coating mass of 200 g/m2 Design fabrication and fixing shall be as per recommendations of the component manufacturers design manual Design for Residential and Low Rise Steel Framing may conform to NASH standard as alternative to AS3623

FABRICATION AND ERECTION

All structural components 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 plumb 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 manufacturers recommendations. Roof is to be bird proofed. Sheet fixings and spacings are to be strictly as per manufacturers recommendations for the design wind speed for the area. Design and installation shall be in accordance with AS/NZS 1562

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 sheathed 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 proprietary linings may be approved by the owner.

DOORS

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

WINDOWS AND FRAMES

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

INSTALLATION

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

STAIRS 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 1/3.5 unless otherwise directed or as permitted in AS1657. Balustrades shall be provided to all landings decks roofs other elevated platforms where the vertical distance from that level is more than 1 metre above the adjoining floor or finished ground level. Height of the balustrade must be a minimum of 1 metre above landings etc and not less than 865mm above the nosings of any stair treads or floor of a ramp. Openings in balustrades (decorative or otherwise) and space between treads eg riser opening must not allow a 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 sewerage 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 Accreditation 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 purposely 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 sewerage 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)(1) 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)(1)
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

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 / /

Date for Completion / /

PROPRIETOR / /

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 MATCH.		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	3.0	Bulk Insulation Rating R	3.0		
	Walls	☒	Reflective Insulation Rating R	2.0	Bulk Insulation Rating R	2.0		
	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 MATCH EXIST.		Size	mm				
DOOR JAMBS	Timber	☒	Galvanised Steel	☐				
WINDOWS	Timber	☒	Aluminium	☐	Type/Manufacturer			
FLYSCREENS	Timber	☐	Aluminium	☒	Other	☐		
JOINERY	Timber	☐	Species		Stained/Polished	☐	Other	☐
TO MATCH EXISTING.	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	12	Single Switches	12	Two way switches	-
			Power Outlets	24	Double	24		
Light Fittings			Smoke Detectors	1	Exhaust Fans	2		
ROOF PLUMBER	Quad Gutters (size)	☒	Box Gutters	☐	Sheerline Gutters	☐		☐
GUTTERS/DOWNPINES	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

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