

MASTER BUILDERS SPECIFICATION

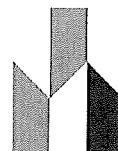
HOUSE OR ADDITIONS & ALTERATIONS

For:

Owner:

HS 2014

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SOUTH AUSTRALIA INCORPORATED**



**MASTER BUILDERS
SOUTH AUSTRALIA**

SPECIFICATION

HOUSE OR ADDITIONS & ALTERATIONS

Reference No:

of work to be done and materials to be used for the construction of :

in accordance with the Contract between the parties signed

on day of Year.....

Owner's Signature

Owner's Signature

Builder's Signature.....

Produced by the Master Builders Association of South Australia Incorporated, as a service to the industry. Use of this document does not imply that the Builder is necessarily a Member of the Association.

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DISCLAIMER

While every care has been taken to ensure that information contained in this Specification is accurate at the time of printing The Master Builders Association of South Australia Incorporated will not accept any liability for errors or omissions.

The Association will not accept any liability should anyone misinterpret information contained in this Specification or otherwise carry out work contrary to the provisions of the Building Code of Australia, The Regulations and Specifications under The Development Act or Local Authority and Statutory Requirements.

1. PRELIMINARIES

(A) SPECIFICATION

This Specification is part of the Contract between the parties.

This specification is a general specification, which details the works to be carried out. Where work, which is described in this specification, is not to be carried out the applicable sections shall be disregarded.

Any additional works not covered by this specification shall be separately specified or shall be deemed to be adequately performed provided such works comply with all relevant Codes and Regulations and are carried out in accordance with the Manufacturers or Engineers recommendations.

(B) STATUTORY REQUIREMENTS

The "Building Work" shall be constructed in accordance with the requirements of the Development Act and Regulations, and either Volume 2 of the Building Code of Australia.

(C) ENERGY EFFICIENCY

The minimum energy efficiency requirements of the Building Code of Australia are applicable to the construction of Class 1 buildings containing habitable rooms. The construction methods and materials to ensure compliance with the energy efficiency requirements are contained within the plans, or working drawings for this project.

(D) NOTICES AND FEES

The Builder shall give notices required in accordance with the Contract, and shall pay any relevant fees.

(E) SURVEY

The undertaking of a survey of the allotment will be as set out in the relative Building Schedule.

(F) WATER SUPPLY

A clean fresh, adequate water supply shall be supplied to the Builder on the site at the owner's expense - the builder shall pay the standard SA Water or other relevant authorities connection fee.

(G) SOIL INVESTIGATION AND FOOTING RECOMMENDATION

A soil investigation and footing recommendation complying with the Building Code of Australia, as set out in the relative Building Schedule and in accordance with AS 2870. The report shall be incorporated in and form a part of this Contract Specification.

Where an adequate site classification can be achieved, the selection of standard footing designs may be taken from Section 3 of AS 2870 or design of the footing system by engineering principles in Section 4 of AS 2870.

(H) OWNER'S SCHEDULE OF FINISHES

The Owner's attention is directed to the relative Building Schedule which provides for the selection of materials, fixtures and fittings, internal and external colour schemes, and treatment of walls, ceilings and floors required by the Owner together with any other special instructions which may be given to the Builder.

(I) TELEPHONE SERVICE WIRING

If the Owner requires the dwelling to be wired during construction for connection to Telstra or approved installed telephone system, as provided in the relative Building Schedule, the Owner will make application to Telstra or an approved installer for that wiring to be carried out and will liaise with the Builder and with Telstra or the approved installer for the work to be undertaken at the appropriate stage of construction.

All wiring for telephone, communications, computer, security etc., shall be undertaken or installed as per the supplier's directions or recommendations.

(J) SITE AMENITIES

A shed and water closet shall be provided on the site by the Builder and these shall comply with any relevant regulations under the Occupational Health, Safety and Welfare Act or requirements of a local authority.

(K) REMOVAL OF RUBBISH AND CLEANING

The Builder shall maintain the site in a clean condition by the removal of rubbish as necessary or the supply of an appropriate container for the collection of waste material.

On completion the Builder will leave the site clean with all building debris and rubbish removed, floors and windows cleaned, locks and hinges oiled, and shall touch up where necessary. Surplus spoil, unless otherwise specified is the responsibility of the owner.

The dwelling will be left ready for immediate occupation on completion.

(L) SURPLUS MATERIALS

All surplus materials are the property of the Builder and shall be removed on completion.

(M) STATEMENTS, CERTIFICATES AND GUARANTEES

The Builder must, at the time of giving notification of completion of the building work, provide the Council, (or Private Certifier where applicable), a signed written statement declaring that the building work is in accordance with any relevant approval and compliant with Regulation 83 of the Development Regulations.

Any certificates or guarantees given by sub-contractors, other specialist contractors or suppliers of materials or equipment shall be delivered to the Owner on completion in accordance with the contract.

(N) LABOUR AND MATERIALS

All materials shall be the best of their respective kinds, free from impurities, and imperfections, and new unless otherwise specified in the relative Building Schedule.

Only Labour sufficiently skilled in the works shall be employed and trade persons and labourers shall carry out work in a competent manner.

(O) SITE PREPARATION

The site will be cleared of all rubbish and debris, and all stumps and roots will be removed from the building area and to a minimum distance of 1.5 metres clear of the building, or to the boundaries of the allotment, whichever is the lesser, as provided in the relative Building Schedule.

It should be noted that in some cases excess soil will need to be tested for contamination prior to removal. All costs associated with the testing and disposal of any contaminated soil, unless otherwise stipulated is the responsibility of the owner.

Spoil from excavation on the site shall be disposed of as stated in the relative Building Schedule.

(P) SIGNIFICANT TREES

All significant trees associated with the development shall be protected as required by the Local Authority.

(Q) CONSTRUCTION IN BUSHFIRE PRONE AREAS

Bushfire prone Areas are declared as such in the Development Plan for individual Councils.

For construction in these areas, additional bushfire protection measures shall be incorporated in the building structure. The additional requirements shall comply with the Building Code of Australia and AS 3959.

(R) PLANS

The plans, sections and drawings represent the form and dimensions of the works. They should clearly demonstrate the construction and materials to be used on the project.

Plans shall show the following minimum information:

DRAWING MINIMUM SCALE / MINIMUM INFORMATION REQUIRED

Site Plan - scale 1:500

- Showing the boundaries and dimensions of the *site* and any easements.
- Structure outline with setbacks from boundaries indicated.
- Existing structures on the *site*.
- Temporary bench mark.
- Bench level
- Finished floor level
- *Site* levels
- Water table level (bottom of kerb) at point of stormwater pipe discharge
- Contours (if sloping *site*)
- Cut and fill lines
- Angle of batter – cut or fill, where applicable
- Show any trees which may affect the building (if none, state in writing on the *site* plan)
- Stormwater disposal system, with pipe sizes
- Approximate line of sewer run, in relation to *footings*
- SA WATER and other service locations
- Driveway location
- Proposed retaining walls position and height
- North point

Floor plan - scale 1:100

- All applicable dimensions (overall, rooms etc)
- Brick pier sizes and reinforcement
- Control joint locations in masonry walls
- Location of smoke alarms
- Location and sizes of window and door openings

Elevations & Sections – scale 1:100

- Heights and ceiling levels
- Type of roof cladding
- Type of outer wall cladding
- Control joints
- Roof Pitch
- Location and sizes of window and door openings

Plan and Section details – scale 1:20 min.

- Where required to clarify methods of construction or design

Footing layout Plan - scale 1:100 min.

- Beam locations
- Pier locations (if applicable)
- Cut and fill line
- Footing Beam dimensions
- Reinforcement specifications
- Ligature size and centres
- Concrete slab thickness
- Concrete slab reinforcement
- Footing on boundary details

Timber Framing Plans - scale 1:100 min.

- Wall and roof frame layout, nominating all member sizes and positions.
 - Wall bracing details and tie downs details in accordance with the designated wind speed.
 - Roof truss layout and manufacturer's bracing and tie down specifications (where roof trusses are used)
 - Floor framing design and member sizes (where applicable)
 - Lintel sizes and locations
- Specify types and stress grades of timbers

Steel Framing Plan – scale 1:100 min

- Steel framing details (where applicable)

Construction Details – scale 1:1-20

Drawings of elements of complicated and/or unusual construction; wet area treatments, construction for bushfire prone areas.

Any other plans/details, which may be required by local and statutory authorities, including the design, wind speed for the site, truss/wall layout plans with calculations and checklists.

Where any discrepancy exists between the measurements by scale on the drawings and the figured or written dimensions, the figured or written dimensions shall be taken as correct.

Note: Three copies of all documentation are required to be lodged with the local authority.

(S) EXCAVATION FOR FOOTINGS AND SERVICES

In the event that rock, underground water, or other sub-surface conditions not revealed by soil testing is encountered during excavation, the additional cost of excavation shall be as stated in the relative Building Schedule.

2. EXCAVATION FOR FOOTINGS AND SERVICES

(A) GENERAL

Excavation for footings shall be in accordance with the detailed design requirements specified by the Engineer. If no Engineer's recommendations exist then excavations shall be in accordance with the Building Code of Australia or AS 2870.

For excavations that may affect the stability of other land or premises, the building owner must notify the owner of the affected land or building as set out in Section 60 of the Development Act and Regulations under the Development Act.

Excavation for water supply, sewer, storm water, electricity and gas services shall comply in all respects with at least the minimum requirements of the respective service authority or other relevant authority having jurisdiction or, where specified to exceed such minimum requirements by the soil report or footing design, to those latter requirements.

(B) TERMITE PROTECTION

The building work shall be protected against termite attack in accordance with Clause 3.1.3. Treatment shall be in accordance with AS 3660.1 or Part 3.1.3 of the Building Code of Australia.

3. CONCRETE AND REINFORCEMENT

(A) GENERAL

All concrete and reinforcement shall be made and placed in accordance with AS 3600. All steel reinforcement shall comply with AS 1302 and all fabric will comply with AS/NZS 4671:2001.

Concrete shall be ready mixed in accordance with AS 1379.

Concrete shall have a minimum compressive strength at 28 days of 20M Pa (N20 grade).

Structural concrete exposed to the elements shall have the strength required by AS 3600 section 4.

Additives such as colouring pigments may be used providing they conform to AS 2700.

Certificates and delivery dockets are to be kept on site for inspection by the Engineer.

Steel ligatures shall be bent, lapped and placed in accordance with AS 3600 section 13.

Cover to concrete shall be in accordance with AS 3600 clause 4.10.

Under floor fill shall be in accordance with AS 2870 clause 6.4.2.

Footings and slabs shall be constructed in accordance with Part 3.2 of the Building Code of Australia with particular regards to South Australian variations.

(B) CONCRETE SLABS

Thickness and reinforcement to concrete slabs shall be in accordance with the Engineer's recommendations or, if no Engineer's recommendations exist, then in accordance with AS 2870.

Concrete slabs shall be cured and compacted in accordance to the Building Code of Australia, Part 3.2.

All reinforcement shall be supported where necessary by approved means such as steel cradles (bar chairs), concrete blocks or any other method approved by the Engineer.

(C) VAPOUR BARRIERS

A continuous damp-proofing membrane must be installed in accordance with SA 3.2.3.6 of the Building Code of Australia.

(D) INSPECTION

The responsible officer of the Local Council shall be given the following notices:-

- i. one business day's notice of the commencement of building work on the site.
- ii. one business day's notice of the commencement or completion of any stage of the building work specified by the Council by notice in writing to the owner.
- iii. one business day's notice of completion of building work.
- iv. Any additional notices prescribed in the Development Regulations.

4. MASONRY

(A) GENERAL

Masonry shall be constructed to comply with the Building Code of Australia and compliance with the provisions of AS 3700 will be deemed to have satisfied these requirements. Generally bricks and blocks shall be laid plumb and true with even joints, fully bedded on mortar, perpends well filled and the work shall rise evenly with no part rising more than 1200mm above adjoining parts. Beds and joints shall be 10mm nominal thickness. Corners and intersections shall be properly bonded. All exposed work shall be cleaned down on completion.

Clay and shale masonry units shall be sound, hard, well burnt and of good even colour, shape and size and comply with AS/NZS 4455/97.

Clay bricks shall be well wetted prior to laying.

Concrete masonry units shall be machine pressed, of even shape and well cured and comply with AS/NZS 4455/97, AND AS/NZS 4456.8/97, 4456.12/97, 4456.16/97.

Concrete masonry units shall be dry at the time of laying.

Other masonry units such as natural stone and calcium silicate where specified shall comply to BS 5390 and AS 1653 respectively.

Bricks shall be of the make, type, style and colour specified in the relative Building Schedule. Articulated joints where necessary shall be provided in accordance with Cement and Concrete Association (Australia) Construction Note Technical Note 61 and/ or the Engineer's recommendations.

(B) MORTARS

Mortar for masonry shall comply with the provisions of Section 2 of AS 3700. Unless otherwise specified the following mortar mixes shall be used:

Construction	Cement	Lime	Sand
General walling and pointing to flashings	1	1	6

Other mixes may be used in special circumstances providing they comply with AS 3700 sections 2 and 3.

Additives such as plasticisers and colouring pigments may be used providing they conform to AS 3700 and are mixed in strict accordance with Manufacturers Recommendations.

Materials for mortar mixes shall be batched by volume using containers in which the material is in a dense packed condition.

5. WALLING

(A) CAVITY BRICK AND MODULAR BLOCK BUILDINGS EXTERNAL WALLS

Shall be of two leaves of brickwork, or blockwork, separated by a cavity of not less than 40mm which is free of obstructions which bridge the cavity. Leaves shall be tied with wire ties complying with clause 3.8 of AS 3700 built in every 600mm horizontally and 600mm vertically. In addition, one row of such ties shall be placed in the second bed-joint below the top of the wall and two ties shall be inserted per 600mm of height at each opening or discontinuity.

All brick-on edge walls shall be reinforced with purpose made galvanised wire reinforcement above window and door head level. Brick-on-edge and modular walls shall not be chased.

For brick veneer buildings external walls shall have one thickness of masonry separated from the internal structural frame by a cavity of not less than 25mm which is free of obstructions which bridge the cavity. The external masonry wall shall be tied to the internal frame by wire ties complying with clause 3.8 of AS 3700.

Mortar droppings shall be prevented from accumulating in the cavity by placement of suitable material at the base of the cavity on to which mortar may drop during construction. That material and the accumulated droppings shall be removed from the cavity before internal wall linings are fixed in position.

(B) EARTH WALL CONSTRUCTION

A building of earth wall construction must be constructed in accordance with the recommendation contained in CSIRO - NBTC Bulletin 5 Earth wall Construction 4 Edition 1987.

6. DAMP PROOF COURSE

(A) GENERAL

Damp-proof courses installed in masonry walls shall comply with Part 3.2.2. of the Building Code of Australia.

(B) CAVITY BRICK WALLS

The damp proof course membrane shall be laid directly on to the concrete slab beneath the first course of external leaf brickwork. It shall extend horizontally across the cavity and then vertically up the cavity face of the inner leaf or footing rebate not less than 75mm above floor level and the top edge built into the internal leaf the masonry wall.

(C) BRICK VENEER WALLS

The damp proof course membrane shall be laid directly on to the concrete slab beneath the first course of face brickwork. It shall extend horizontally across the cavity and then vertically up the studwork to a minimum height not less than 75mm above floor level and the top edge fixed with clouts to each timber stud.

(D) OTHER CONSTRUCTIONS

A damp proof course membrane shall be provided to all chimneys below roof level and above ceiling level.

A vertical damp proof membrane or other accredited product shall be provided where any fill, paving or other concrete floors abut masonry walls.

Where disappearing screens are installed in double brick walls, damp-proof render shall be applied to the cavity face of the internal leaf, extended down to plate level, at least 300mm beyond each side of the opening, and up the sides above sill level to a minimum height of 150mm.

7. SUB-FLOOR VENTILATION

Sub-floor ventilation must be provided for any floor not founded directly on the ground surface in accordance with the Building Code of Australia.

These requirements are satisfied if an adequately cross-ventilated space is provided between the underside of the floor and the ground surface; or an impervious cover is provided over the ground surface beneath the building; or the floor members are suitably treated.

For any materials used the manufacturers recommendations shall be the minimum standard required.

8. BUILDING IN

(A) ROOF TIES

Where buildings are constructed in wind areas classified in accordance with AS 1170.2 or AS 4055 as having a maximum design gust wind speed for sheet roofing of 33m/s and 41m/s, and for tiled roofing of 41m/s, the tie downs shall be in accordance with AS 1684 section 9.6 - Specific Tie Down Requirements.

Roof ties shall be installed in accordance with AS 1684.2, AS 3700 or as per the Structural Engineers directions.

(B) DOOR AND WINDOW FIXING

Timber door and window frames shall be secured with purpose made galvanised steel straps, secured to frames at 600mm maximum centres. Alternatively, box frames may be fixed with cavity cleats the full width of the cavity.

Steel and aluminium doors and windows of approved manufacture are to be built-in according to manufacturer's recommendations.

(C) FLASHINGS

All flashings shall comply with AS 2904. Flashings of approved material shall be built in over all exposed window and external door openings. Flashings are not required over openings where the eaves projection is more than 400mm.

For brick veneer buildings, flashings of approved material shall be built in under all windowsills, turned up 25mm at the back and 50mm at each end of wood sills, and bent down into the cavity.

(D) LINTELS

Mild Steel

Mild steel arch bars and angles used for lintels shall be in accordance with the table below for each leaf of brickwork.

All angles and bars shall be painted with an effective anti-corrosion primer prior to erection, except where buildings are exposed to the elements within 1km of the sea then they shall be hot dip galvanised.

Steel Selection	Load Type			
Angles	Brickwork only	Tiled Roof	Metal Roof	Timber Floor
75x8 FMS	640	-	-	-
90X90X6 FMS	3060	1550	1930	1680
90X90X8 FMS	3310	1670	2100	1820
100x100x6 EA	3400	1730	2160	1870
100X100X8 EA	3660	1870	2340	2020
150X90X8 UA	4200	2710	3380	2840
150 UB 14.0	4200	3140	3840	3270
150 UB 18.0	4200	3480	4140	3590
180 UB 22.2	4200	4000	4200	4050
Minimum Bearing Length of Steel Lintels				
Openings	Minimum bearing length (mm)			
Up to 1m	100			
Over 1m	150			

Galvanised

Cold-formed lintel sections installed in accordance with the Manufacturers Recommendations may be used.

Corner Windows

In brick buildings, steel angles shall be welded at corner window intersections, with the longer leg vertical, and supported at the corner by 50 mm x 50 mm x 4.9 RHS or other approved material welded to 170mm x 160mm x 10mm base plates and painted with an approved metal primer or, where the building is exposed to sea air conditions, galvanised. The corner support shall extend down to the footing.

In brick veneer buildings timber beams may be used for corner windows, and shall comply with the requirements of AS 1684 for the span and shall be supported by 50 x 50 x 4.9 RHS with mild steel cap and base plates welded on, the whole being painted with an approved metal primer, or where exposed to sea air conditions, galvanised. Base plates shall be 170mm x 170mm x 10mm mild steel and top plates are to be constructed so as to provide adequate bearing.

PLEASE NOTE

Large point loads such as girder trusses or beam loads over corner windows must be designed by a suitably qualified Engineer.

(E) FIREPLACE AND CHIMNEY

Heating appliances, fireplaces, chimneys and flues must be adequately constructed or separated to prevent:-

- i. ignition of nearby parts of the building, or
- ii. escape or discharge of smoke to the inside of the building or to adjacent windows ventilation inlets or the like.

All work shall comply with the Building Code of Australia and AS 2918.

Manufactured fireplaces and heating units shall be installed in accordance with the manufacturers recommendations as tested to AS 2918.

9. STEEL FRAMING

Steel roof, wall and floor framing shall be installed in accordance with AS 4100 NASH standard "residential and low-rise steel".

10. TIMBER FRAMING

Timber Floor, Wall and Roof Framing shall be designed and constructed in accordance with the requirements of AS 1684 and/or AS 1720 as applicable or 3.4.3 & 3.4.4 of the Building Code of Australia.

(A) ROOF FRAMING

The minimum roof pitches for tiled roofs shall be as follows:

	Unsarked	Sarked
For Terra-cotta tiles	22° (1:2.5)	18.5° (1:3)
For cement tiles	17.5° (1:3.2)	15.0° (1:3.7)

For other types of roof cladding, refer part 3.5.1 of Building Code of Australia.

The pitch of skillion or flat roofs shall be in accordance with the requirements specified by the design.

(B) EAVES

Construct to the size indicated on the drawings and line with 4.5mm fibre cement sheet finishing against fascia and walls. The junctions of the eaves lining to walls and fascia shall be finished to an acceptable standard.

(C) TIMBER ROOF AND/OR FLOOR TRUSSES

Trusses designed in accordance with Truss Manufacturers Software and constructed in accordance with AS 1720 and AS 4440 may be used.

Alterations to truss members shall not be made under any circumstances unless approved by a Structural Engineer.

Truss design and installation to be in accordance with Planning SA's guidelines and recommendations following the Ministers Taskforce on Trusses, including use of approved checklists for approval and installation.

(D) GENERAL

Manhole openings shall be 610mm x 510mm minimum and shall be trimmed all around. Trimmers shall not be less in section dimensions than the joists, which they support. Openings should be sized to enable removal of equipment items, such as water system feeder tanks from the roof space for replacement without damage to the ceiling or finished opening.

Platforms for hot water storage tank or other equipment items installed in the roof space shall be supported directly on wall plates and must NOT be supported on ceiling joists, unless in accordance with the Engineer's designed requirements.

11. JOINERY

(A) GENERAL

Timber used for joinery shall be well seasoned, fit for its purpose, and free from all defects.

All joinery shall be properly framed with mortice and tenon or housed joints, linings tongued, mouldings and trimmings properly mitred or scribed. Joinery, where load bearing, shall be constructed in accordance with the approved design.

All external joinery shall be assembled with oil based priming paint or waterproof adhesive. All surfaces shall be left free from mill marks or other defects and finished ready for painting.

All joinery, which is exposed to the weather during construction, shall be treated at the place of assembly before delivery to site with an effective preservative applied in accordance with the manufacturer's recommendations.

(B) FRAMES AND JAMBS

Timber door frames may comply with AS 1909, AS 2688 and AS 2689

Metal door frames built into brickwork shall be completely filled with mortar.

(C) DOORS

Doors shall be as specified in the relative Building Schedule and shown on the drawings. Internal flush doors shall be 35mm thick. External flush doors shall be 35mm thick, sheeted on each face with 4mm thick waterproof ply or tempered hardboard, edge stripped on two edges as required and hung on three 90mm butt hinges.

Glass doors and glass slide panels shall comply with AS 1288 and AS 2047.

(D) WINDOWS AND FRAMES

Windows and frames shall be as specified in the relative Building Schedule and shown on the drawings.

Windows and frames shall comply with AS 2047 and the Building Code of Australia.

Glazing shall be in accordance with the requirements of AS 1288.

(E) TRIMS

Storm moulds shall be fixed to all external door and window frames.

Architraves where required shall be provided to all door and window openings.

Skirtings where required shall be fixed at the junction of all walls and floors.

12. ROOFING

(A) TILE ROOFING

Concrete and Terra Cotta roofing tiles shall be manufactured and installed in accordance with AS 2049 and AS 2050. Emphasis on correct batten splicing over roof trusses to ensure compliance with required standards and safe installations occur.

Roof tile style and colour shall be as specified in the relative Building Schedule.

(B) CORRUGATED FIBRE CEMENT ROOFING

Corrugated fibre cement roofing shall be installed in accordance with AS/NZS 4389/96 and AS/NZS 1562.2/99 and the manufacturer's recommendations.

(C) STEEL ROOFING

Preformed sheet metal roofing shall comply with AS 1562.1 and shall be fixed in accordance with the manufacturer's recommendations.

Sheets shall be supplied in long lengths to minimise end lapping.

(D) OTHER ROOFING MATERIALS

Other roofing materials may be used in accordance with the manufacturer's recommendations and the drawings as approved.

(E) SARKING

Pliable roof sarking shall be installed as required by this specification or if nominated in the relative Building Schedule or by the drawings as approved.

Sarking shall comply with, and be fixed in accordance with, AS 4201 and 4200, which is applicable.

Note: Any sarking-type material used in the roof of a "Class 1" building must have a Flammability Index of not more than 5.

Sarking shall be fixed with 100mm side laps. End laps shall be folded and fixed to the line of rafters. Folded joints shall be kept clear of valleys. Sarking shall be fixed over rafters, secured to the top edge of the fascia, and dressed 25mm down into the gutter. Where the design of the roof incorporates a valley, the sarking shall be turned neatly up the edge of the valley board and extended over the side heading of the valley.

Where tiles abut walling, the sarking shall be turned neatly up the valley a nominal distance of 50mm.

(F) RAINWATER GOODS

Rainwater goods, including all gutters, downpipes and flashings shall comply with the requirements of AS 2179 for metal and AS 1273 for UPVC components.

Gutters shall be installed to a minimum fall of 1:500 for eaves gutters and 1:100 for box gutters. Eaves gutters shall be supported by brackets at a maximum of 1200mm centres and at stop ends. Brackets shall be fixed as specified by the Manufacturer. Box gutters shall be continuously supported. Downpipes shall be securely fixed to walls.

(G) FLASHINGS

All flashings shall comply with AS 2904.

Flashings shall be provided around chimneystacks, vent stacks, and other roof penetrations, and where the roofing abuts a wall or parapet and at all other discontinuities where it is required or may be necessary to install flashing to ensure that water is excluded from the interior of the building.

The flashings shall be dressed down on to roof slopes with vertical faces stepped, embedded 20mm into masonry joints, lead wedged and pointed in composition mortar.

13. PLUMBING

(A) GENERAL

Plumbing work shall be performed only by the holder of appropriate registration authorising the holder to carry out such work. All work shall be performed in accordance with the requirements of AS/NZS 3500. All gas fitting work shall comply with the Gas Act

All services shall be tested fully on completion and any unsatisfactory operation corrected and any leaks rectified.

Services shall be installed as shown by the drawings and using fixtures, fittings and plumbing service equipment as specified on the drawings and in the relative Building Schedule.

All open service pipes installed prior to completion of the service installation shall be suitably protected to prevent the accidental entry of any type of debris, rubbish or other foreign material which may give rise to defective operation of the service.

Footings shall not be cut or chased for any plumbing pipes unless in accordance with approval of the design engineer and Relevant Authority.

The plumber shall comply with the Engineer's recommendations in the method of penetration of pipes through footings.

(B) WATER SERVICE

The water service shall comply with AS/NZS 3500 and shall be trenched not less than 300mm into the ground for vehicular access and 225mm in all other cases into the ground.

Main service runs are to be kept not less than 1000 mm clear of external wall footings.

Brick or Block walls of 90mm thickness or less shall not be chased for water service piping in vertical joints but may be chased in horizontal joints using masonry saws.

(C) WATER EFFICIENCY

Mandatory plumbed rainwater tanks for Class 1 buildings, required to be installed as required by Advisory Notice 09/06, the Building Code of Australia Part SA 2.Vol 2

(D) GAS SERVICE

Where a gas service is specified by the drawings and in the relative Building Schedule, it shall be installed and connected to the supply authority's service connection and in accordance with the requirements of the supply authority and the provisions of the Australian Gas Association - Australian Liquefied Petroleum Gas Association Code.

(E) DRAINAGE

In unsewered areas, sanitary and drainage plumbing and the septic installation shall be carried out in accordance with the requirements of the South Australian Health Commission.

Stormwater from the roof and from paved areas shall be disposed of by a storm water drain installation as shown by the drawings and in the relative Building Schedule or, if no installation is specified or the installation is to be provided by the Owner.

Temporary drainage will be provided so that stormwater is prevented from depositing pollutants into the stormwater system.

14. ELECTRICAL WORK

(A) GENERAL

All electrical work shall be performed by the holder of a current electrical contractor's licence and in accordance with the requirements of ETSA Corporation or other electricity supply authority AS 3000.

(B) SPECIFIED INSTALLATIONS

A meter board shall be installed for connection of the building to the supply authority's mains.

Electrical equipment, appliances, power outlets, light fittings and light switches shall be installed in accordance with the details set out in the relative Building Schedule and on the drawings. Light fittings, unless specified otherwise, shall be standard batten fittings.

(C) SMOKE ALARMS

Externally energised smoke alarms complying with AS 3786 or listed in the SSL Register of Accredited Products and connected to the consumer mains power shall be installed in a Class 1a building on or near ceiling in any storey containing any bedrooms and interconnected.

Not less than one alarm shall be located:

- i. between each part of the dwelling containing bedrooms and the remainder of the dwelling; or
- ii. where bedrooms are served by a hallway, in that hallway; or
- iii. in each bedroom; and any other storey not containing any bedrooms.

15. PLASTERING

(A) GENERAL

Except where exposed finished face stonework, brickwork or blockwork is specified by the drawings, all internal wall surfaces of internal walls constructed of masonry shall be either floated and set or cemented rendered to a minimum thickness of 12mm.

(B) FLOAT AND SET

The floating coat shall be 1 part hydrated lime or lime putty, 1 part cement and 6 parts clean sand by volumes and the setting coat shall be 1½ parts hydrated lime or lime putty to 1 part of an approved hard plaster by volume.

(C) CEMENT RENDER

Cement rendering shall be 3 parts by volume clean sand to 1 part by volume cement with 1/10 part by volume hydrated lime or lime putty added. If lime putty is used, is to be run 24 hours before use by slow addition of the lime to the water.

Unless an approved bonding agent is used, concrete surfaces are to be roughcast before rendering.

16. TILING

(A) GENERAL

All wall and floor tiles shall be of the types and colours selected or specified in the relative Building Schedule.

Wall tile adhesive shall be in accordance with AS 2358. Cement shall comply with AS/NZS2350 and sand shall be clean sharp washed sand free from impurities.

Floor tiles shall not be applied to concrete floors unless the concrete has been properly cured and constructed in accordance with AS 2870.

(B) WORKMANSHIP

Wall and floor tiles shall be laid on a 3 in 1 sand cement mortar bed or on a full bed of a recommended wall/ floor adhesive approved by the Local Authority.

All excessive adhesive and grout shall be cleaned off before it sets and all joints shall be of uniform width. Finished tiling shall have a true flat surface and joints at all corners square and straight. Where brass angles are required, tiler shall finish flush with the top of the angle and neatly about the back.

(C) WET AREAS

Joints between floor and wall surfaces in bathrooms, shower rooms, water closets, kitchens and laundries shall be impervious.

Joints of floor and wall tiles shall be filled with a flexible self-curing sealant.

All floors in wet areas, except separate water closets, shall be graded to floor traps.

Joints between bench tops and sanitary fixtures and walls shall be impervious.

All work shall comply with AS 3740 and National Construction Code (NCC).

17. SOLID WALL AND FLOOR FINISHES

Where wall or floor finishes are specified in the relative Building Schedule or by the drawings to be cement concrete or terrazzo, coves are to be formed at floor and wall junctions only if so specified.

Concrete floors shall be finished in one operation and shall be coloured by the addition of pigment as specified in the relative Building Schedule and by the drawings.

18. INTERNAL WALL LININGS

(A) GENERAL

Internal walls of framed construction, other than walls to bathrooms, laundries and toilets shall have the wall framing covered with materials as specified in the relative Building Schedule or by the drawings. All internal wall linings shall be fixed and jointed to manufacturer's recommendations, unless otherwise specified Level 4 Finish is the default level for gypsum linings as per AS/NZS2589.1:1997.

(B) WET AREAS

Linings to bathrooms, toilets and laundries in brick veneer and timber frame buildings shall be in accordance with the provisions of the Building Code of Australia and fixed in accordance with the manufacturer's recommendations.

19. CEILINGS

(A) CEILINGS

Ceilings of all rooms shall be covered with materials as specified in the relative Building Schedule.

Plasterboard sheets shall be fixed and finished in accordance with AS/NZS 2589.1 to Level 4 finish, unless otherwise specified.

(B) CORNICES

Suitable cornice moulds as specified in the relative Building Schedule or by the drawings shall be fixed to intersections of beams and wall junctions with ceilings.

(C) EAVES LININGS

Ceilings of open verandahs, porches, carports and garages, and eaves soffits shall be of flat fibre-reinforced cement sheet or other material fixed in accordance with the manufacturers recommendations.

20. VENTS

Vents will be installed in accordance with the Building Code of Australia (NCC).

21. GLAZING

All windows and roof lights shall be glazed as indicated on construction drawings or the relative Building Schedule.

If glass is used as a glazing material it shall be installed in accordance with AS 1288 – Glazing assemblies to be in accordance with AS 2047.

External Glazing thermal efficiency must satisfy Part 3.12.2 of Vol 2 of the Building Code of Australia (NCC).

22. PAINTING

(A) *PREPARATION - REFER AS 2311/2000*

All surfaces to be painted shall be smooth, clean, free of dirt and other contaminants, and free of imperfections and damage, with all nail holes and other defects or evidence of fixing stopped. If necessary, such as on metal or galvanised surfaces, special treatment shall be carried out to ensure proper adhesion of the paint coating.

All sealers, paints, stains and finish coats shall be thoroughly mixed before use. The type and colour of finished paintwork shall be as specified in the relative Building Schedule.

(B) *EXTERNAL WOODWORK*

Paint shall be applied strictly in accordance with the manufacturer's recommendations and AS 2311/2000.

Where staining or other 'natural' wood finish coatings are specified, they shall be applied strictly in accordance with the manufacturer's recommendations.

(C) *INTERNAL WOODWORK*

Internal woodwork shall be painted or stained as specified.

Paint shall be applied strictly in accordance with the manufacturer's recommendations and AS 2311/2000.

(D) *INTERNAL WALLS AND CEILINGS*

All internal walls and ceilings shall be painted or stained as specified in the building schedule.

Paint shall be applied strictly in accordance with the manufacturer's recommendations and AS 2311/2000.

(E) *METAL AND OTHER MATERIALS*

Exterior metal work specified to be painted shall be thoroughly cleaned to remove oils and greases prior to painting.

Exterior metal work shall be painted as specified in the building schedule.

Paint to be applied strictly in accordance with the manufacturer's recommendations and AS 2311/2000.

23. SUNDRY ITEMS

Sundry materials and fittings as specified in the relative Building Schedule or shown on the drawings will be installed.

24. SPECIAL REQUIREMENTS

Special requirements designated by the Owner in the relative Building Schedule shall be incorporated in the Works by the Builder.

The parties may include requirements for firewall and ceiling insulation, heating, cooling or air conditioning systems, incorporation of second-hand joinery such as mantelpieces or fireplace surrounds salvaged from demolished buildings, rainwater tank, retaining walls, storm water drainage, provisions for access by disabled persons, and so on, in this item.

LIST OF REFERENCED DOCUMENTS

BUILDING CODE OF AUSTRALIA

The following is a list of some of the referenced documents/standards in the Building Code of Australia. The reference to a document/standard refers to the specific edition or issue as shown in the Building Code of Australia.

AS/NZS 1170	Structural design actions - Parts 0,1,2,3
AS 1170	Structural design actions - Part 4
AS/NZS 1200	Pressure equipment
AS 1273	Unplasticized PVC (UPVC) downpipe and fittings for rainwater
AS/NZS 1276	Acoustics - Rating of sound installation in buildings and of building elements - Part 1
AS 1288	Glass in buildings- Selection and Installation
AS 1289	Methods of testing soils for engineering purposes
AS 1397	Continuous hot dip metallic coated sheet steel and strip - coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1530	Methods for fire tests on building materials, components and structures - Parts 1, 2, 4
AS/NZS 1530	Methods for fire tests on building materials, components and structures - Part 3
AS 1562	Design and installation of sheet roof and wall cladding - Part 1
AS/NZS 1562	Design and installation of sheet roof and wall cladding - Parts 2 & 3
AS 1657	Fixed platforms, walkways, stairways and ladders - Design, construction and installation
AS/NZS 1664	Aluminium structures - Parts 1 & 2
AS 1668	The use of ventilation and air-conditioning in buildings - Part 2
AS/NZS 1680	Interior lighting - Part 0
AS 1684	Residential timber-framed construction - Parts 2, 3 & 4
AS 1720	Timber structures - Part 1
AS/NZS 1859	Reconstituted wood-based panels - Specifications - Part 4
AS 1926	Swimming pool safety - Parts 1, 2 & 3
AS 2047	Windows in buildings - Selection and installation
AS 2049	Roof tiles
AS 2050	Installation of roof tiles
AS 2159	Piling - Design and installation
AS/NZS 2179	Specification for rainwater goods, accessories and fasteners - Part 1
AS/NZS 2269	Plywood - Structural - Part 0
AS 2327	Composite structures - Part 1
AS 2870	Residential slabs and footings
AS/NZS 2904	Damp-proof courses and flashings
AS/NZS 2908	Cellulose cement products - Part 2
AS/NZS 2918	Domestic solid fuel burning appliances - Installation
AS/NZS 3500	Plumbing and drainage - Parts 3 & 5

AS 3600	Concrete structures
AS 3660	Termite management - Part 1
AS 3700	Masonry structures
AS 3740	Waterproofing of domestic wet areas
AS 3786	Smoke alarms
AS 3959	Construction of buildings in bushfire-prone areas
AS 4055	Wind loads for housing
AS 4072	Components for the protection of openings in fire-resistant separating elements – Part 1
AS 4100	Steel structures
AS/NZS 4200	Pliable building membranes and underlays - Parts 1 & 2
AS 4254	Ductwork for air-handling systems in buildings - Parts 1 & 2
AS/NZS 4256	Plastic roof and wall cladding material - Parts 1, 2, 3 & 5
AS/NZS 4505	Garage doors and other large access doors
AS 4586	Slip resistance classification of new pedestrian surface materials
AS/NZS 4600	Cold-formed steel structures
AS 4654	Waterproofing membranes for external above-ground use - Parts 1 & 2
AS 4773	Masonry for small buildings - Parts 1 & 2
AS/NZS 4859	Materials for the thermal insulation of buildings - Part 1
ASTM D3018-90	Class A asphalt shingles surfaced with mineral granules
ABCB	Protocol for Structural Software, Version 2011.1
ABCB	Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.2
ISO 717	Acoustics - Rating of sound insulation in buildings and of building elements - Part 1
ISO 8336	Fibre cement flat sheets
NASH Standard	Residential and low-rise steel framing - Part 1
CSIRO – NBTC	Bulletin 5 – Earth wall construction 4 th Edition - 1987

SOUTH AUSTRALIAN REFERENCED DOCUMENTS

SA 3.12.0.1(a)	South Australian Minister's Specification - Heating and cooling loads for elevated buildings with a lightweight framed flooring system and transportable buildings
AS 1428	Design for access and mobility - Part 1
AS 1530.8	Tests on elements of construction for buildings exposed to simulated bushfire attack - Parts 1 & 2

Department of Health and Ageing	Guidance on the use of rainwater tanks
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Members of the public using a Member of the Master Builders Association and this contract will have access to Association resources in the unlikely event of any dissatisfaction or dispute.