MASTER BUILDERS ASSOCIATION OF VICTORIA

Building Excellence

GENERAL SPECIFICATIONS

Specifications For Domestic And Other Appropriate Buildings Not Exceeding 12m In Height

1996
First Edition

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WARNING

If State regulations have a different requirement from that indicated for any particular item in these General Specifications then that requirement of the regulations shall prevail.

In accordance with the conditions of Contract the Builder must notify the Owner/s of changes and/or of cost variations occurring as a result of a Local Authority direction or a change in regulations as referred to above.

INTRODUCTION

These are the general specifications of works to be carried out and materials to be used in the construction of a building as shown and dimensioned on the accompany drawing or drawings.

These specifications specify minimum standards of work and finishes to be used in the construction of a building and under no circumstances is there to be any alteration, crossing out, addition to, amendment of or variation made to any clause or requirement in these specifications that would permit or infer a lesser standard than is specified.

The SAA Codes listed in the Appendix of these specifications shall be used to determine the minimum requirements acceptable where a material, standard of construction, design, installation, treatment or test is referred to in these specifications.

REGULATIONS

Where referred to in these specifications, regulations shall mean the building regulations and Codes statutorily enforceable at the time a builder applies for a permit, consent or approval to be granted by a Local Authority or licensed building surveyor.

SITE TOILET

The builder, prior to the commencement of works shall provide adjacent to the building works, a sanitary convenience to the satisfaction of the Local Authority, or alternatively, the builder shall obtain the consent of the owner to use existing on site toilet facilities.

On completion of the works the builder shall cause the removal of the temporary convenience and if necessary, place disinfectant on the ground where the convenience was located.

1. EXCAVATIONS

1.1 **Site Preparation** Unless otherwise specified, the builder shall clear the site to be occupied by the building plus an additional area of approximately 1.2m width around the building. All grading and/or leveling to be in accordance with the approved drawings. Remove vegetable matter from ground where structural concrete slabs are to be constructed.

1.2 **Strip and Pad Footings** Excavate ground straight and plumb to accommodate strip and pad footings to a depth and/or sizes as shown on approved drawings.

Place steel pegs in sides or bottom of excavation to indicate depth of concrete footing. Where steps are required in the foundation the depth of the site is to comply with the regulations or codes administered by the Local Authority.

Excavations are to be cleaned out and water to be removed prior to the placing of reinforcing steel.

1.3 **Concrete Slab Construction** Where required, excavate for edge and internal beams to depths required and ensure that the foundations for beams and slabs is capable of providing the required bearing pressure.

1.4 **Protection of Excavations** All excavations shall be protected against collapse and if necessary be provided with protection for the public.

1.5 **Backfill** After footings have been placed in position and works extend to ground level the remaining part of excavated trenches shall be backfilled with compressible material previously excavated.

IMPORTANT NOTE FOR ATTENTION OF OWNER

The owner's attention is drawn to the fact that foundations in all sites requires continuing maintenance to assist footing performance.

Advice for foundation maintenance is contained in the CSIRO Information Sheet No. 10-91 and it is the owner's responsibility to maintain the site in accordance with this document.

2. CONCRETOR

2.1 Equipment and Material – The builder should ensure that the concrete contractor or sub-contractor provides all equipment and materials including formwork, concrete pump, vibrators, finishing tools etc. to satisfactorily carry out the concrete works.

2.2

- **Materials** Shall comply with the relevant Australian Standards.
- **Cement** Cement shall be fresh, free of lumps and be delivered to the site in the manufacturer's sealed bags.
- **Sand** Sand shall be clean, sharp and not contain clay, loam, vegetable matter or other impurities.
- **Coarse Aggregate** Coarse aggregate shall consist of 20 mm maximum sized bluestone, granite or other aggregate permitted by AS 1465. Coarse aggregate shall be free of dust and other foreign matter.
- **Water** Water shall be clean, fresh and be free of salt or other harmful matter.
- **Reinforcement** Steel reinforcement shall be free of rust, oil, dirt and be of size and placed in position as required by the relevant regulations, adopted codes or structural design.
- **Ready Mixed Concrete** Ready mixed concrete shall unless otherwise specified, be Grade 20 (20MPa) and have a nominal slump of 80 mm.
- **Site Mixed Concrete** All concrete shall be thoroughly mechanically mixed and unless otherwise specified it shall consist of materials proportioned as follows:
  - 4 parts coarse aggregate:
  - 2 parts sand:
  - 1 part cement:
  - Sufficient water shall be added to provide a nominal slump of 80 mm:
    Unless otherwise specified site mixed concrete shall have a strength of 20MPa at 28 days

2.3 **Concrete Dimensions** The concreter shall ensure that excavated trenches, boxing and formwork is of sufficient strength and correctly proportioned to ensure that all finished concrete is in accordance with the requirement of these specifications and/or drawings.

2.4 **Concrete Stumps** Unless otherwise approved by the Local Authority, concrete stumps shall be reinforced vibrated concrete manufactured by a specialist manufacturer.

Minimum size and reinforcement of stumps shall be as Table 2.4.

Table 2.4

Length of stumps	Minimum size	Minimum Reinforcement
0 mm – 1400 mm	100 mm x 100 mm	One 5 mm hard drawn wire
1401 mm – 1800 mm	100 mm x 100 mm	Two 5 mm hard drawn wire
1801 mm – 3000 mm	125 mm x 125 mm	Two 5 mm hard drawn wire

Cracked stumps shall not be used

2.5 **Concrete Slab on Ground** Unless otherwise specified or directed by the local authority, concrete of floors, slabs on ground and draft slabs shall be prepared, reinforced and constructed in accordance with the mandatory requirements of the building regulations and the local authority.

Where approved by the local authority the mandatory requirements of the Residential Slabs and Footings Code AS 2870.1 may be used.

The concretor shall co-operate with other trades as is necessary to facilitate the installation of pipework for water supply, drainage, heating pipes or cables, electrical and telephone conduits or boxing required for built in facilities and architectural features.

2.6 **Concrete Porches, Patios and Ground Floor Balconies** Where not supported on solid ground or compacted fill all concrete slabs shall be constructed as suspended slabs in accordance with Table 2.6 and Notes:

Table 2.6

Maximum distance between walls	Slab Thickness	Reinforcing fabric
1800 mm	100 mm	F 72
2100 mm	100 mm	F828
2400 mm	100 mm	F718
2700 mm	150 mm	F928
3000 mm	150 mm	F818

NOTES

All slabs shall be constructed as one way slabs, ie. The main reinforcement (the larger and more closely spaced wires) shall be laid in the direction of the shorter span.

Concrete shall have a nominal slump of 80 mm and a characteristic strength of 20 MPa at 28 days.

Reinforcing shall be supported on bar chairs or other approved supports to provide not less than 20 mm concrete cover from the bottom of the concrete slab.

Reinforcing is to extend over the supporting walls for a distance of not less than 75 mm and the supporting walls are to be overlaid their full width with material (bituminous felt or similar) to provide a slip-joint between the supporting walls and concrete.

The concrete slab is to be supported around the perimeter on continuous load bearing walls.

Walls shall not be constructed over the portion of the slab located inside the edge of the supporting walls.

Terraces and porches shall be provided with a fall of 10 mm per meter from the external wall of the building to the external edge of the slab. A 10 mm minimum width joint, filled with compressible material and sealed with a flexible sealant shall be provided between the edge of the slab and the wall of the building.

All dimensions shown in the table and in these notes are minimum dimensions.

Suspended slabs other than provided for in this Clause and accompanying notes shall be designed and constructed in accordance with an engineers design and drawings.

2.7 **Concrete Footings** All concrete footings shall be placed on a foundation having the required allowable bearing pressure and be prepared, reinforced and constructed strictly in accordance with the mandatory requirements of the building regulations and the local authority. Where approved by the local authority and mandatory requirements of the Residential Slabs and Footings Code AS 2870.1 may be used.

2.8 **Concrete Landings, Ramps and Steps** No parts of concrete landings, ramps and steps shall be less than 100 mm thick. See project requirements for extent of concrete landings, ramps and steps.

Concrete Landings Landings shall be of dimensions not less than required by the buildings regulations and adopted codes, or 750 mm x 750 mm clear area whichever is the greater.

Concrete Ramps Concrete ramps shall be constructed with a gradient of not less than the proportions of 1 vertical to 8 horizontal (1:14 minimum gradient if otherwise specified for disabled persons).

Concrete Steps Concrete steps shall have treads (going) of not less than 250 mm but not more than 355 mm and risers of not more than 190 mm or less than 115 mm. Unless otherwise approved by the local authority risers and treads respectively shall be of uniform size.

2.9 **Concrete Paving** Concrete paving, unless otherwise specified, shall be Grade 20 (20MPa) concrete and have a thickness of not less than 75 mm. Paving abutting buildings shall be graded to provide a fall away from the building of not less than 10 mm over a distance of 1m. See project requirements for extent of paving to be provided.

Control joints shall be installed to limit the un jointed length of paving to a maximum of 1.5 times the width or 4.5 m whichever is the lesser. Joints to extend at least one third into the depth of the paving.

Where concrete paving abuts the wall of a building, or other vertical projection, provide a minimum 10 mm space and fill with a waterproof treated, compressible material between the concrete and wall or projection.

All concrete paving is to be located at least 10mm below vents or weep holes installed in walls.

2.10 **Placing of Concrete** Concrete shall only be placed in position after trenches have been cleaned out and boxing or forms are free from extraneous materials. All reinforcement is to be in correct position with the specified or required cover and having the specified or required laps.

2.11 **Inspection** Concrete for footings, pads and slabs (on ground and suspended) shall not be poured until the trenches formwork or boxing together with all reinforcing has been inspected and approved by the local authority or licensed building surveyor.

2.12 **Termite Protection** Where required by the local authority and/or specified in project specifications, provide protection against termites in accordance with the relevant chosen Australian Standard, or other treatment as approved by the local authority.

3. BRICKLAYER

3.1 **Interpretation** Where in these specifications the word bricklayers is used it shall also mean the person who lays clay bricks, concrete bricks and blocks and other materials that form units that have to be laid unit by unit in order to construct walling, fencing, chimneys, etc.

Brickworks Shall include clay bricks, calcium silica bricks, concrete bricks, concrete blocks, mud bricks etc.

3.2 **Generally** Brickwork shall not be commenced until 2 clear days after the placement of the concrete slab or footings and veneer walling shall not be commenced until after the construction of the wall and roof framing.

Brickwork shall be laid to a line with bed joints and perpends filled with mortar and being of uniform size. Unless otherwise specified brickwork shall be laid in stretcher bond and all corners and walls shall be straight and plumb to tolerances as set out in the relevant Australian Standards.

Brick and brick veneer cavities shall be kept clear of mortar. Timber stains shall be removed by use of solutions as recommended by the brick manufacturer.

3.3 **Materials**

- **Bricks and Blocks** Bricks and blocks shall be of colour size and manufacture as specified in the project requirements. Only bricks manufactured by a recognized manufacturer shall be used.
- Colour of mortar as per project requirements. Mortar shall be free of impurities and be uniformly mixed in proportions as specified in the relevant Australian Standard or building regulations
- Subject to the approval of the local authority mortar having proportions as shown Table 3.3 may be used for buildings not exceeding 12 m in height.

Table 3.3

	: 10 parts mortar sand
	: 1 part cement
	: 1 part hydrated lime or lime putty

3.4 **Base Structure Walling**All base walls are to be built up from concrete footings.

- On a sloping site weepholes shall be provided between each alternate brick in the first course of brickwork above the footing on the lower side of the building.
- Where the height of the base structure walling from the top of the footings to the underside of bearers does not exceed 1.4 m the base structure shall be not less than 90 mm in thickness with 190 mm minimum width engaged or tied brick piers projecting not less than 90 mm and spaced at not more than 1.8 m centres.

3.5 **Isolated Brick Piers** Where required, brick piers shall be constructed at centres and spacing to suit sub floor bearers. Piers to be of sizes as listed in Table 3.5 and be constructed on concrete footings.

Table 3.5

Height of Pier Above Footing	Minimum Size of Pier
Up to 1.5 m	230 mm x 230 mm
Over 1.5 to 2.4 m	350 mm x 350 mm from footing to 1.5 m below bearer then – 350 mm x 350 mm to 1.5 m below bearer then – 230 mm x 230 mm to underside of bearers

3.6 **Sub Floor Access Opening** Where required provide a 600 mm minimum width opening in the base structure brickwork, and install a 75 mm x 9.5 mm flat steel plate over openings up to 900 mm wide.

3.7 **Sub Floor Ventilation** Where the building is to have timber floor framing and flooring, build in sub floor ventilators so that the top edge of the ventilator is below the bottom of the bearers. Sub floor ventilation areas to comply with state variations to the Building Code of Australia.

3.8 **Damp Proof Course** immediately under the top brick course of the base brickwork which supports the lowest floor timbers provide a damp course of approved material. The damp proof course is to extend throughout the full thickness of the brickwork.

3.9 **Jointing** Unless otherwise specified all exposed face joints shall be neatly finished with a steel rod jointing tool. Where raked joints are

specified, the depth of raking shall not exceed 12 mm.

3.10 Control and Articulation Joints

Control Joints in straight unbroken lengths of brick walling which exceed a length of 10 m provide control joints not less than 15 mm wide placed within 3 m but not less than 600 mm from each corner.

Articulation Joints Where brick walls are articulated, unless otherwise specified or shown on plans, provide 10 mm wide joints at not more than 7 m spacings between straight lengths of full height walling and below one side of window openings.

General Control and articulation joints shall be built into the brickwork as work progresses and joints shall be kept clean and free of obstructions. During construction, install masonry flexible anchors to the top half of the wall with not more than 5 courses between anchors.

Install wall ties every 4th course on each side of the control or articulation joint. On completion, joints shall be filled from the outside to a depth of 25 mm with a flexible sealant or mastic.

3.11 Walling Solid brick walls shall be properly constructed with all parts of the wall being bonded or tied together. Cavity brick and brick veneer walling shall be carried out in such a manner to ensure that the cavity and flashings are kept clear of mortar and obstructions. Unless otherwise specified and approved of by the local authority for cavity brick and brick veneer walls the cavity shall be not less than 25 mm or more than 110 mm. Build in cavity or wall ties as specified in Table 3.11.

To brickwork constructed above concrete on ground floors and suspended slabs, build in continuous cavity flashing at the base of the walls but above ground level. Provide drainage to the bottom of the cavity or where weepholes are provided. They shall be installed in perpends at 900 mm centres in the first course of external walling immediately above the cavity flashing. Build in door and window frames as work progresses.

Table 3.11

Construction	Width of Cavity	Tie Size and Type	Maximum Spacing of ties
Masonry veneer	Up to 50 mm	3 mm Masonry veneer tie	600 mm x 600 mm
Masonry veneer	51 mm to 100 mm	5.3 mm Masonry veneer tie	600 mm x 600 mm
Cavity brick	Up to 50 mm	3 mm cavity tie	600 mm x 600 mm
Cavity brick	51 mm to 80 mm	5.3 mm cavity tie	600 mm x 600 mm

Note: Ties to be galvanized or protected to the satisfaction of the Local Authority.

3.11 Flashings Where brickwork extends over openings in external walls, build in an approved flashing to extend 300 mm past the sides of the opening. The flashing is to be built into the bed joints located immediately above the lintel carried across and up the cavity for at least 2 courses and built into the internal skin of brickwork or fixed to studwork as the case may be.

Provide weepholes at alternate perpends immediately over flashing in outer walling.

Build in flashing and weepholes as above to the base and full length of parapet walls.

3.12 **Angle Lintels** Angle lintels as described in Table 3.13 shall be provided to support brickwork over openings in the walling.

Table 3.13

LINTELS

CLEAR SPAN OF OPENING (MM)

Brick Work	1000	1200	1500	1800	2100	2400	2700	3000
500	75 x 75 x 6	75 x 75 x 6	75 x 100 x 6	75 x 100 x 6	75 x 100 x 6	100x100 x 6	100x100 x 6	100x100 x 6
1000	75 x 75 x 6	75 x 100 x 6	75 x 100 x 6	75 x 100 x 6	100x100 x 6	100x100 x 6	100x100 x 6	150 x 90 x 8
1500	75 x 100 x 6	75 x 100 x 6	75 x 100 x 6	100x100 x 6	100x100 x 6	100x100 x 6	150 x 90 x 8	150 x 90 x 8
2000	75 x 100 x 6	75 x 100 x 6	100x100 x 6	100x100 x 6	100x100 x 6	150 x 90 x 8	150 x 90 x 8	150 x 90 x 8
2500	75 x 100 x 6	75 x 100 x 6	100x100 x 6	100x100 x 6	100x100 x 6	150 x 90 x 8	150 x 90 x 8	150x150x 10
3000	75 x 100 x 6	75 x 100 x 6	100x100 x 6	100x100 x 6	100x100 x 6	150 x 90 x 8	150x150x 10	
	1200	1500	1800	2100	2400	2700	3000	3300

LENGTH (mm)

NOTES: FIRST DIMENSION CORRESPONDS TO THE VERTICAL LINTEL LEG e.g. 75 x 100 x 6 LINTEL 75 mm LEG VERTICAL

FOR HIGHER LOAD CONDITIONS (E.G. POINT AND ROOF LOADS) SEEK THE ADVICE OF A DESIGN PROFESSIONAL

NOTES:

A separate lintel is required for each skin of brickwork in cavity brick construction.
In the case of a lintel supporting roof or floor beams carrying loads other than those imposed due to normal spacings and loadings the lintel shall be designed by a qualified engineer.

Angles shall be positioned with the longer leg vertically.

Steel lintels shall be galvanized or treated to the satisfaction of the Local Authority before being built into walling.

For corner windows, lintels to suit the above spans are to be used with the steel being accurately cut, mitred and welded. Support for the mitred corner of lintels to be steel columns of at least 39 mm internal diameter or equivalent square section hollow tube. Weld 178 mm x 178 mm x 9 mm plates to top and bottom of columns to provide support for the column and its load.

3.14 **Fireplace, Hearth and Chimney** When required, construct fireplace, hearth and chimney in accordance with approved drawings. The fireplaces hearth and chimney are to be constructed on concrete footings. Use only solid, hard burnt or fire bricks for the fireplace sides, inner hearth sloping back and smoke shelf to at least 2 courses above the fireplace opening. Construct a throat having a minimum width of 100 mm but not more than 140 mm. Construct gathering over smoke shelf and build up a flue with minimum internal dimensions of 230 x 230. Internal flue area should be approximately equal to one eighth of the fireplace's frontal opening area. The flue should be smoothly parged with mortar as work proceeds.

Chimney is to be built up to extend at least 300 mm above any point of the roof that is located within 3.6 m of the chimney. The outer hearth is to extend a minimum of 300 mm beyond the front of the fireplace and at least 150 mm beyond the sides of the fireplace opening and be constructed in brick on edge or as otherwise specified and approved.

Where required by building regulation provide a damper or flap to the chimney.

3.15 **Window Sills** Brick on edge or sill tiles shall be set to slope down from the window to shed water. Except for solid or cavity brick walls the top edge of sills shall be kept to a minimum of 15 mm clear of the frame sill to allow for settlement. Where the building is to be constructed on a concrete slab the clearance may be reduced to 10 mm.

3.16 **Building In** Build in bolts, lugs, plugs, fixings, ties and structural steelwork as work progresses. For solid or cavity brick construction build in galvanized hoop iron straps embedded not less than 75 mm into a horizontal bed joint of the masonry wall not less than 1200 mm below the level of the top plate. Unless otherwise required by the building regulations or local authority, plate straps shall be placed vertically within a cavity, between leaves in solid brick, or through penetrations vertically one above the other in brickwork.

Straps shall be spaced a maximum of 1800 mm centres for tiled roofing and at a maximum of 1200 mm centres for steel clad or

solid decked roofs. Leave at least 200 mm of strap above brickwork to enable the fixing of the top plate.

3.17 **Brick Fencing** Where shown on drawings or as otherwise specified construct brick fence on footings in accordance Part 2 of this specification. Unless otherwise specified, fence to have a maximum height of 900 mm and be of single skin face brickwork with engaged or tied piers having dimensions of not less than a nominal of 230 mm x 110 mm and with gate and end piers having a size of not less than 190 x 190. Fixings for gates to be built into brickwork as work progresses.

3.18 **Pointing and Cleaning** With mortar to match existing, point up putlog holes, pipe penetrations and other areas as necessary.

Clean exposed brickwork in accordance with the brick manufacturer's recommendations and remove all equipment and debris from the site.

4. CARPENTRY AND JOINERY

4.1 **Generally** All of the carpentry and joinery work shall be carried out in a tradesmanlike manner with all framing works being in compliance with the requirements of the Timber Framing Code AS 1684 or Timber Framing Manual. Seasoned timber and joinery shall be kept clear of the ground and be adequately protected from the weather.

4.2 **Timber** All timbers shall comply with the relevant Australian Standard grading rules applicable to the timbers and species used. All timber to be of size and spacing as required by the Timber Framing Code AS 1684 or where applicable, be designed to the Timber Engineering Code AS 1720 or in accordance with other tables of timber or component sizes approved by the local authority.

Seasoned timber shall have a moisture content of not less than 10 per cent and not more than 15 per cent at the time of fixing. On delivery to site all timbers shall be stacked to avoid twisting and warping. Where exposed to weather or in contact with the ground, Radiata Pine shall be pressure treated with preservative having penetration as required for the situation.

4.3 **Setting Out** The builder shall be responsible for accurately setting out the layout of the building in accordance with the drawings. In setting out, due allowance and consideration shall be given for the materials to be used by all tradesmen.

4.4 **Fixings and Fastenings** The builder shall provide and fix all nails, screws, bolts, fastenings and other items of fixings, ties and ironmongery to suit terrain category wind loadings and as is required to satisfactorily complete the works

4.5 **Floor Framing** Brick piers and/or stumps shall be provided to a height above the ground as required to provide clearance to the underside of bearers as required by the building regulations. Joints in bearers shall be carried out in such a manner that the bottom edge of each bearer is adequately supported by brick piers or stumps. Bearer and floor joists to be set true and level and be properly fixed. Remove all debris and extraneous building materials from sub floor area before fixing flooring material. For deep joisted floors, provide and fix herring bone strutting or solid blocking at a maximum of 1.8 centres. Strutting or blocking is to be kept at least 10 mm clear from the top and bottom of the deep joists.

4.6 **Flooring** Refer to project requirements for type of flooring.

General. All flooring is to be of sound quality and be properly supported by and fixed to joists. Where flooring is fitted between wall plates provide a 10 mm gap between the flooring and plates parallel to joists. The flooring should not be installed until the interior of the building is generally resistant to the weather. Where flooring is fixed prior to the installation of wall frames, the flooring shall be adequately protected against the weather.

Flooring shall not be laid and fixed prior to the inspection and approval of sub-floor framework by the local authority.

Strip Flooring Strip flooring shall be Tongue and Groove with a minimum thickness of 19 mm. Joints in flooring shall be staggered and unless end matched or finger jointed boards are used all joints shall be made over floor joists. Boards in excess of 75 mm wide shall be double nailed with 50 mm bullet head nails or staples. Boards are to be properly cramped before nailing and nails are to be punched where necessary. Boards having a width of less than 75 mm shall be fixed with not less than one nail.

Sheet Flooring Only approved materials shall be used (particularly in regard to the location within the building eg. wet areas) and all sheet flooring shall be installed and fixed strictly in accordance with the manufacturer's instructions.

External Flooring or Decking. External flooring or decking shall be of a durable or suitable protected timber laid to enable the shedding of water and to be fixed with galvanized or other suitable rust resistant nails or staples.

Finish. See project requirements for finish required. Flooring nails shall be driven or punched so that the heads are below the top surface of the floor and where specified the floors shall be given a basic machine sanding to provide an even surface. Fine sand floors, punch nails and stop with putty where a treated, urethane, oil, polish or similar surface is specified in the project requirements.

4.7 **Wall, Ceiling and Roof Framing** All framing to be carried out in a tradesmanlike manner with all members accurately cut to shape, length and be properly fixed. Provide and fix all noggins, trimmers, blocking, bracing, props, ties, straps and supports necessary for the structural integrity and satisfactory completion of the works. Where dwarf or fender walls are constructed above the top of ceiling joists, and are required to support rafters, a tie shall be fixed above the birdsmouth of the rafter and opposing rafters. Roof trusses when used shall, unless otherwise designed, be supported at ends and not on intermediate walls. Provide at least 12 mm clearance between bottom chord of truss and internal top wall plates. For cavity or solid brick construction install and fix nominal 100 mm x 38 mm timber top

plates to top of brick wall. Plates to be halved at joints, corners and intersections and be securely fixed to hoop iron straps with at least two 30 mm galvanized clouts per strap.

Unless otherwise specified all exposed timber shall be dressed.

4.8 **Eave, Verge, Fascia and Barge** Refer to project specifications for type of fascia, etc. Provide and fix fascia and barge boards in position as shown on plan. Fascia and barges to be properly fixed to correct height and in a straight line to allow the correct placement of exposed eave gutters, concealed gutters, spoutings and roof coverings. Unless otherwise specified line eave soffit including verandah and porch linings and verge overhang with 4.5 mm thick cement fibre sheet properly fixed to framing members and finished with all necessary moulds, jointing strips or cover straps as necessary.

4.9 **Framing for Parapet, Box and Concealed Gutters** Where required and shown on drawings, frame up with 75 mm x 38 mm timbers to allow for the proper installation of parapet, box or concealed gutters. The framing shall be set up to give to the gutter sufficient support and a fall of not less than 1 in 200 towards a downpipe.

4.10 **Manhole** Where required for access into the roof space, trim between ceiling joists in a convenient position to provide a manhole having clear dimensions of at least 400 mm x 600 mm. Fit to the manhole a cover of material similar to the ceiling lining or otherwise specified.

4.11 **Service Platform in Roof Space** Where a hot water tank or similar is to be installed within a roof space, construct a platform supported 25 mm above the top plate. The platform is to be fully decked with timber and shall not be supported on wall framework over door or other openings or on ceiling joists or roof trusses unless provision is made to take the added load. The deck is to be of sufficient size to allow full support of the tank and a drip tray under.

4.12 **External Cladding**

General Refer to project requirements for type of material to be provided.

Except where western red cedar or treated pine cladding is to be used, or unless otherwise specified, all timber cladding shall be primed, or treated with a penetrating wood preservative to all exposed faces and edges before fixing. All timber cladding to be fixed with galvanized or similar plated bullet head nails.

Weatherboards Weatherboards shall be of quality timber and be provided in long lengths laid to a true line and be lapped vertically not less than 30 mm. Butt joints shall be staggered and at corners ends shall abut stops which shall have minimum dimensions of 55 mm x 30 mm for external angles and 30 mm x 30 mm for internal angles.

Vertical/Angled Boarding Vertical/Angled boarding shall be fixed to plates and noggins or battens located at the ends of boards and at 600 mm maximum centres between ends. The lower end of boards are to be undercut and to finish against a metal flashing, turned up behind the board and turned down at the front line of the board.

Except for shiplap or other similar moulded boards. The vertical or angled boards are to be lapped at least 25 mm and to be fixed to each point of support by 2 nails.

Other External Cladding Fibre Cement sheets/planks, vinyl, aluminium or other external cladding shall be fixed in accordance with manufacturer's instructions to plates, studs, noggins or battens as the case may be. Provide and fix all necessary flashings, coverstraps, etc to ensure weathertight joins.

4.13 **Wall Insulation and Sarking** When specified in the project specifications sarking or reflective foil insulation shall be securely fixed to the outside edge of studs prior to the fixing of external claddings. Sarking or insulation sheets shall have the top sheets lapped externally over the lower sheet and care shall be taken to prevent tears or holes from occurring in the sheets. If required by building regulations, rockwool, fibreglass, foam or other insulation foam or other insulation batts or sheets shall be fixed between or to studs before the installation of internal linings. Where insulation materials are fixed between studs in cavity wall construction, the builder shall ensure that the insulation shall not fall or project into the cavity space.

4.14 **Installation of External Timber Posts or Columns** Except in the case of red gum, jarrah or other similar timbers and suitably treated pine posts or columns all timbers are to be kept 25 mm clear of the finished paved surface and be supported on and fixed to galvanized steel columns or saddles set into a concrete base.

4.15 **Sub Floor Access Door** If required and where shown on drawings install a ledged or otherwise specified sub floor access door complete with frame, hinges and securing device.

4.16 **Timber Steps, Ramps, Landings, Balustrades and Handrails**

General Where indicated in project specifications construct and install any timber step, stairs, ramp, landing, balustrade and handrail strictly in accordance with the local authority's requirements.

- **Steps** Shall have a rise of not more than 190 mm or less than 115 mm and going of not less than 250 mm or more than 355 mm treads and risers respectively of uniform size.

  Maximum space between open treads shall not exceed 125 mm.

- **Ramps** shall have a gradient of not less than 1 in 8 and where wheelchair access is required the gradient shall be not less than 1 in 14.

  If handrails and/or balustrades are required by the building regulations or project specifications, the handrails shall have a height of not less than 865 mm vertically from a line connecting nosing of treads. Balustrades to landings, balconies, etc.

shall have a height of not less than 1 m above the floor of the landing or balcony, etc. Provide Balusters at 125 mm spacing except where sheet type infills are used.

Nominal Timber Sizes

Treads up to 1000 mm wide	-	32mm minimum thickness
Treads over 1000 mm wide	-	44mm minimum thickness
Strings	-	220mm x 35mm
Newel posts	-	85mm x 85mm
Landing etc bearers	-	100mm x 50mm
Landing etc joists	-	100mm x 38mm
Landing flooring etc	-	19mm minimum thickness

- **Construction and Materials** All timber steps, stairs, ramps, landings, balustrades and handrails shall be constructed in such a manner that all members are securely fixed together in accordance with accepted trade practices. Treads, if not housed into strings, shall be securely fixed to and fully supported by not less than 38 mm x 38 mm x 5 mm MS angles fixed to both string and tread with not less than two 10 mm diameter galvanized bolts in both sides of the tread and strings.

  For external stairs, strings shall be housed in or bolted to newel posts with two 10 mm diameter galvanized bolts at each connection and newel posts shall be set at least 450 mm into ground and set on 300 mm x 1250 mm x 38 mm sole plates or 75 mm thick concrete pads. Where required by the local authority and/or as specified for both internal or external stairways, provide and fix balusters or enclose balustrades and handrails that are not fixed to a wall. Openings in balustrades to be not more than 125 mm. Stair treads and ramp decking may be constructed with solid timber or timber having a width of not less than 75 mm spaced up to 5 mm apart. For external stairs or steps only durable or pressure treated timbers shall be used and all nails, bolts, screws, etc shall be galvanized.

4.17 **Meter Box** Meter box to be of size and type approved by the local electrical authority and be securely fixed to studs that have been trimmed with noggins or to openings in brickwork to suit the height of the meter box which shall be located at a height above the ground or floor as required by the electric supply authority.

4.18 **Bath Installation** Where abutting walls, the bath shall have flanges set into studs. Where not abutting a wall, the bath shall be supported by risers framed up with timber having dimensions of no less than 75 mm x 38 mm with studs at 450 mm maximum centres and risers to be covered with fibre cement sheet, or WR Plasterboard installed to manufacturer's instructions or other suitable material impervious to water. When required by the bath manufacturer, provide further support under the bath in accordance with manufacturer's instructions.

4.19 **Shower Base Installation** Install the shower base in accordance with the manufacturer's instructions and in such a manner that an impervious finish can be applied to walls with all joints caulked or sealed with suitable sealants and provided with all necessary flashings to ensure that the junction of the base and enclosed sides are watertight. The full area of the base is to be fully supported.

4.20 **Preparation for Wall Tiling** Where areas of wall tiling is required for imperious surfaces, install and fix sufficient studs and noggins to permit the proper fixing of approved sub strata material which shall be fixed strictly in accordance with manufacturer's instructions and suitably flashed and sealed at all junctions to provide watertight joints. For brick plastered or rendered walls the substrate is to be prepared in accordance with the relevant Australian Standard.

4.21 **Internal Wall and Ceiling Linings** Where specified in the project specifications provide and install timber boards, plywood sheets or other claddings normally fixed by carpenters. Provide and install sufficient studs, noggins, battens etc necessary for the proper support and fixing of cladding.

Claddings or linings to be neatly fixed with suitable fastenings and where necessary provided with jointing strips, cover straps and moulds to satisfactorily complete the works.

(**NOTE:** Refer to **PLASTERER** for plaster or similar lining materials)

4.22 **Pan Closet Building and/or Rainwater Tank Stand** Where required in the project specifications solidly construct a pan closet building and/or rainwater tank stand and in accordance with normal trade building practices and to local authority requirements.

4.23 **Installation of Door and Window Frames** Prior to the installation or erection of external claddings the builder shall install and fix in position all door and window frames. Aluminum window frames shall be installed in accordance with the manufacturer's instructions. Unless windows have incorporated self flashing, the windows shall be flashed under their sills for their full length using approved metal or sheet polythene not less than 0.25 mm thickness. Flashings shall be turned up at ends of sill to cover the joints of sill and stile and turned up not less than 10 mm at the rear of sill. Flashings to extend under sill to turn down into cavity of brick veneer construction or to the outside of timber or other cladding where it shall be turned down at least 15 mm. In clad frame construction provide and fix flashings or effectively seal sides of window and door frames and to the head where cladding extends between the head of the frame and overhanging eaves.

In brick and brick veneer construction timber window and door frames to have jambs and heads fitted with windmoulds to abut the brickwork. Where necessary caulk or seal the joint between the windmould and brickwork to achieve a weathertight joint.

In cavity or solid brick construction window and door frames shall be fixed to brickwork with nominal 50 mm x 25 mm cavity cleats fixed to the frame with galvanized clouts, or galvanized frame ties spaced not more than 600 mm apart. Frames shall be built in as work progresses.

4.24 Joinery

- **Generally** All joinery work shall be manufactured according to recognized good trade practices with the choice of timber, preparation, matching construction, jointing and finish being carried out in a tradesmanlike manner.
- **Timber** Timber used shall be appropriate for its intended use and be visibly free of defects. Where exposed to weather or adverse conditions, the timber and non-glued joints shall be primed or treated with a penetrating wood preservative.
- **Protection of Joinery** Unfixed seasoned timber and joinery shall be stored under cover or protected from the weather and all fixed joinery shall be protected from damage during the course of construction.
- **Windows** Windows shall be of type referred to in project specifications and may be of stock pattern or specialist manufacture. Fix all linings, moulds, nosing, architraves, hardware, fastenings, hinges, stays, balances, catches and locks as may be necessary to ensure satisfactory installation and operation of the window.
- **External Door Frames** External door frames shall be framed up out of solid timber not less than 30 mm thick with rebates not less than 10 mm deep by a width to suit the thickness of the main and flywire doors. Timber thresholds where specified in the project requirements, shall be of jarrah or other similar density timber having a thickness of not less than 32 mm.
- **Jamb Linings and Heads** Jamb linings and heads for internal doors shall be of a width to suit the thickness of the wall and be not less than 19 mm thick. Jambs shall be tongued into head and a 8 mm thick stop shall be installed to the jambs and head to form a rebate for the door.
- **Doors** External and internal doors to be as specified in the project specifications. When hung the doors shall be installed to provide a uniform gap between the jambs and head. Doors shall be set sufficiently clear of the floor to allow for the selected floor coverings.
- **Door Hardware and Furniture** Fit to all doors, hinges, sliding tracks, latches, locks and furniture as specified in the project requirements. All fitments to be securely installed with check-outs neatly and accurately executed.
- **Architraves and Skirtings** Unless otherwise required or detailed provide and fix architraves internally to all door and window frames. Architraves to be accurately cut, mitred at angles and securely and neatly fixed. Where required provide and fix skirtings, scribed to floor if necessary, with external corners being mitred and internal corners scribed.

  Refer to project requirements for type and size of skirting and architraves.

- **Angle Moulds** Where necessary, fix quads or other suitable moulds to internal angles.
- **Bathroom Cabinet** Where specified in the project specifications, build in or fix to the wall a bathroom cabinet and/or mirror.
- **Built in Wardrobes and Cupboards** Where wardrobes and other cupboards are shown on drawings to be built in they shall be manufactured or framed and lined similar to walls and ceilings. Provide jambs, stops, doors, fitments, architraves and moulds as necessary together with a shelf or shelves and hanging rail as specified in the project specifications.
- **Kitchen Cupboards** Provide and fix properly manufactured kitchen cupboards to the extent as shown on drawings. Generally, base cupboards shall have an overall depth of not less than 450 mm and be finished with a laminate or other specified top surface. Provide and install a sink, shelf, drawers or fitments and doors as specified in project requirements. Cupboards not fully suspended at least 150 mm above the floor shall be provided with a base having a kick board set back to provide a toe space.
- **Laundry Trough and Base** Where shown on drawings, install a laundry trough and base as specified in the project specifications.
- **Bathroom Vanity Cupboard** Provide and install a bathroom vanity cupboard as and if required in the project specifications.
- **Other cupboards** Provide and install other cupboards as and if detailed in project specifications.

5. ROOFING

5.1 Generally Roof covering materials shall be as specified in the project specifications, of specialist manufacture, fixed in accordance with the relevant Australian Standard and manufacturer's instruction, and be completed with all gradients, cappings, flashings, bedding and sealing necessary to prevent the penetration of rain or other water to the inner parts the building.

Roof coverings and cappings shall be fixed in accordance with the requirements, adopted by the local authority, to prevent uplift of the roof cladding by the wind.

5.2 Terra Cotta, Concfete and Metal Tiled Roofs Where specified in project specifications cover roof with tiles of selected manufacture, pattern and colour. Provide and fix battens of sizes and spacings to suit roof construction, tile cover, and tying or other fixing or hold down requirements to ensure that on completion of tiling the tiles are laid with straight courses, of level surface together with proper

support for mortar bedding and pointing of matching colour if required by the tile manufacturer or in the case of metal tiles, of support and fixing of all cappings and flashings.

5.3 **Metal Deck and Contoured Steel Roofs** Where specified in project specifications cover roof with metal roofing of selected manufacture, contour and finish. Metal roofing is to be installed and fixed with a gradient of not less than that recommended by the manufacturer and with fixings, clips, screws or nails that will not allow penetration of water into the building and that are of sufficient strength and number to resist uplift of the roofing.

5.4 **Roof Sarking and Sheet Insulations** When required by the building regulations, relevant Australian Standard, or where otherwise specified in the project specifications, install foil-type sheet sarking or insulation under metal clad roofs. Sarking shall be, if required, fixed on top of and dished between battens or purlins with other (if specified in project requirements) insulation placed between the sarking and roof cladding. On concrete or terra cotta tiled roofs, sarking, if required, is to be fixed **under** roof battens and dished between rafters. All sarking is to be laid with a minimum of 100 mm end lap over the lower sheet and be extended to discharge neatly into roof guttering.

5.5 **Guarantees** Roofing guarantees or warranties provided by manufacturer's and/or roofing contractors shall be provided to the owner by the builder.

5.6 **Completion** On completion, the roof cladding is to be properly cleaned down with all mortar, metal particles and dirt removed from the roof and gutters. Where necessary, apply touch up lacquer or paint supplied by the manufacturer to small blemishes on roof surface and in accordance with manufacturer's instructions. Where concrete or terra cotta tiles are used, provide and store where directed by the owner, 12 sound spare tiles of the type and colour as used on the roof of the building.

6. PLUMBING

6.1 **Generally** Plumbing works shall be carried out in accordance with the best trade practices and by plumbers who have the necessary licenses and/or registrations required by the governing State or local authorities. All works and materials shall be in accordance with the requirements of the governing authority and the plumber shall submit all necessary notices, arrange inspections and obtain satisfactory completion certificates.

6.2 **Water Supply** Where a reticulated water supply is available, the plumber shall arrange for the main to be tapped and a connection to be made to supply water to the building. Where a water main of the water supply authority cannot be extended, the owner shall arrange, at their own expense, for an extension of water service to a location inside the front boundary line of the allotment and for the supply and installation of a meter as/if required and for the provision of a stop tap. If water supply is not available, provide rainwater storage tanks as specified in project requirements.

6.3 **Water Service** Supply and install all pipework, fittings, supports, clips, materials and fixings necessary for the correct and satisfactory operation of this service. All pipework from the hot water system to the outlets shall be lagged copper. All pipework shall be correctly sized, located to avoid excessive cutting of timber and be securely clipped to framework with compatible material saddles.
Pipework installed and concealed in cavity and solid brickwork shall be run in straight lines. Where required to be chased into walls, such chases shall be neatly cut out, be of minimal depth and not detract from the structural sufficiency of the wall.

6.4 **Taps and Fittings** See project specifications for taps and fittings. Where hot and cold taps are located over, or supply hot and cold water to a plumbing fixture, or for clothes washing and dishwashing machines, the taps shall be matching and the hot water shall be provided to the left-hand tap and cold water to the right-hand tap. Where specified in the project specifications, the clothes washing and dishwashing machines are to be provided with taps, the taps shall be fitted with screwed outlets for the connection of 12 mm hose fittings. Unless otherwise specified, all internal exposed taps and fittings shall be chromium plated. External taps if required in project specifications, shall be fitted with screwed outlets for 12 mm hose fittings.

6.5 **Hot Water Unit Installation** See project specifications for type, size and location of hot water unit. When installed in the roof space, the hot water unit shall be located on an overflow or drip tray which is provided with an outlet to a noticeable location on the outside of the building. The cold water supply pipe to the hot water unit shall be provided with a stop cock located in a convenient position. Ceiling type, roof type, floor type and external hot water units shall be properly supported and installed strictly in accordance with the manufacturer's instructions.

6.6 **Sanitary Plumbing** To sewer or septic tank

- **Pipework and Fixtures** To all sanitary fixtures installed as specified in the project specifications, supply and fit all necessary waste pipes, traps and vents to the size and of such material as approved of and required by the governing authority. All pipework to be properly installed, suitably supported and wherever possible, concealed but with allowance made for access to inspection openings.
- **Septic Tank** The manufacture and installation of septic tanks shall be to the requirements and satisfaction of the local authority. Make all connections and lay all pipes necessary for the operation of the tank including effluent drains laid to falls,

pits and covers as are necessary.

6.7 DRAINAGE

- **Sewer Drainage** Lay sewer drains in materials acceptable to the local authority. Where possible excavate trenches well clear of the building and grade the bottom of the trench away from the building with a fall towards the sewer connection point. Install all necessary bends, junctions, traps, vents and inspection openings and lay drains to a straight line with an even fall on bedding material all to the satisfaction and approval of the local authority. Make all necessary connections and after testing, inspection and approval by the local authority, all drainage trenches to be backfilled with approved material.
- **Stormwater Drainage** Unless otherwise specified, required or approved by the local authority, lay drains in not less than 90 mm UPVC pipes. Drains to be set to line and laid with an even fall to discharge to a point or connection as approved of by the local authority.

  Install all necessary bends, junctions, pits and inspection openings and have drains inspected and approved by the local authority before backfilling. Except where suspended under a timber floor drains should have a minimum earth cover of 150 mm and for trafficable areas such as driveways, a minimum cover of 450 mm shall be provided unless such drains are protected by concrete or other approved method.
- **Grease Trap and Sullage Drains** When required by the local authority provide and install a 3 compartment pre-cast concrete grease trap complete with baffles and lid. The trap is to discharge through sullage or storm water drains as directed and to a discharge point approved by the local authority.
- **Agricultural Drains** Where specified in project specifications, install agricultural drains of slotted UPVC, terra cotta, vitrified clay pipe or other approved pipes. Agricultural drains shall be laid in narrow trenches and when laid for the purpose of **DISCHARGING** sullage or other water, shall be laid on 75 mm thickness of 20 mm screenings installed in the trench which shall be located not less than 1000 mm clear of building footings. Backfill trench to a depth of 75 mm above the pipes with 20 mm screenings, cover screenings and complete backfill with excavated lump free soil.

  Drains laid for the purpose of **COLLECTING** and transporting sub-surface water shall be laid in clay or a hard strata with a fall to discharge to storm water drains or other point as approved by the local authority.

  Drains to be provided with a 150 mm deep cover of 20 mm screenings before backfilling with lump free soil.

  Where drains are located at the base of retaining walls, provide a vertical damp proof course to the face of the wall and backfill drain with course aggregate to within 250 mm of ground level. Construct pits where necessary as shown on drawings and complete backfill.

6.8 ROOF PLUMBER

- **Eaves Gutters** Unless otherwise specified in project specifications, provide and install standard quadrant type gutters to all eaves. Gutters to be provided with mitred angles, stop ends, lapped joints and set to a uniform fall to down pipe outlets. Gutter to be secured to fascia with standard brackets located at not more than 900 mm centres and all joints in gutter to be pop-riveted where applicable and sealed with silicone or other approved material to ensure watertight joints all in accordance with manufacturer's instructions and good trade practice.
- **Down pipes** Provide and install standard circular or rectangular down pipes (unless otherwise specified) of compatible materials to suit guttering. Provide sufficient down pipes at suitable locations to allow discharge of water from eaves gutters. Secure down pipes to wall with straps at maximum of 1800 mm centers and connect down pipes to storm water drains or other connection as approved by the local authority.
- **Cappings, Flashings** Provide and install all necessary cappings and flashings of compatible materials to the roofing, all neatly fitted, sealed and fixed to prevent the entry of water into the building. All work to be carried out in a tradesman like manner and in accordance with the best trade practices.

  Flash around chimney stacks, flues, vents, skylights and other roof penetrations. Flashings to be stepped, lapped and to be securely fixed to penetrations and be neatly dressed to suit contours of roof cladding.

  Where flashings abut brickwork the flashing is to be set not less than 20 mm into brickwork joint, wedged with lead or patent plugs and the joints filled and pointed up with mortar of matching colour.
- **Installation of Flues** Where the project specifications require the installation of slow combustion stoves, solid fuel heater, hot water units or oil and gas burning units install a flue strictly in accordance with manufacturer's instructions. Ensure flue is distant from timber or combustible materials as required by the building regulations and/or relevant Australian Standard or gas authority regulations. Extend flue through roof and seal the flue to the roof with flashings as previously specified.
- **Completion** On completion of works, clean down roof and remove all extraneous materials. Check to ensure that the roof is waterproof and that all members are securely fixed.

6.9 **Gasfitter** For gas appliances and connections refer to project specifications.

Supply and install all sized piping and materials necessary for the supply and connection of gas to appliances. All materials and work to be carried out strictly in accordance with the requirements of the State, local or governing authority. Install flues, cowls, stopcocks as necessary and arrange for testing and obtain all necessary certificates for final approval and completion.

At an early stage the gas fitting contractor shall, through the builder, advise the owner to make application for permanent supply from the gas supply authority.

7. ELECTRICAL

7.1 **Generally** The whole of the electrical installation shall be carried out by an authorized electrical contractor.

All works to be carried out and materials to be used shall be in strict accordance with the regulations, bylaws or codes as administered or required by the electric supply authority. The electrical contractor shall give all notices in respect of the works and obtain all necessary approvals and consents. The electrical contractor shall be responsible for strict compliance with all safety standards, regulations and requirements and shall make good any damage to mains and equipment under the control of the electric supply authority.

7.2 **Consumer's Mains** Supply, install and connect mains of adequate and approved capacity from the point of connection determined by the electric supply authority, to the electric meter and switchboard enclosure as provided in project specifications.

7.3 **Main Switchboard** Provide and install, in a location as specified in project specifications, a switchboard of approved design and size required to adequately accommodate the electrical distribution and metering equipment required for the building.

Mount all switches, fuses, circuit breakers or residual current devices (RCD) and other equipment in a neat, orderly and workmanlike manner to ensure identification and access. Permanently mark all switches, fuses and/or circuit breakers in a neat manner to indicate the areas and number of circuits provided for.

7.4 **Light Circuits and Switches** Refer to project specifications and/or drawings for number, type and location of lights. Provide and install flush, architrave or wall mounted switches necessary for the control of all light outlets. Switches to be located at a uniform height throughout the building. External switches shall be of a weatherproof protected type approved for use by the electric supply authority.

7.5 **General Purpose Outlets** Refer to project specifications and/or drawings for number, type and location of GPOs. GPOs shall be flat 3 pin mounted flush on walls and/or skirting. Unless otherwise specified GPO's shall be mounted a height of 230 mm above the floor and above fixed cupboards and bench tops. The location of all GPO's and other electrical switches, gear and equipment to comply with the requirements of the electric supply authority with particular reference when installed adjacent to wet areas.

7.6 **Accessories and Appliances** Provide and install all lamp holders, special outlets and other accessories specified in the project specifications. Where specified in project specifications install wiring and connect electric stove, heating/cooling units, fans, range hoods, hot plates, bells, other nominated appliances, etc. and storage hot water services. Where a storage type electric hot water unit is to be installed provide and install wiring, metering, time switch control and switch and any additional control and protection on the main switchboard for both the off peak and booster circuits all to the requirements and satisfaction of the electric supply authority.

7.7 **Completion** On completion of all works the electrical contractor shall arrange for the complete installation to be tested and approved by the electric supply authority and shall forward, through the builder any written approvals issued by that authority, to the owner.

At an early stage the electrical contractor shall, through the builder, advise the owner to make application for permanent supply from the electricity supply authority.

8. PLASTERING

8.1 **Generally** The whole of the plaster work shall be carried out by tradesmen experienced in the type of plaster work specified. The plasterer shall ensure that all background and framing work is complete and satisfactory before the application of plaster works.

8.2 **Hard Plastering and Rendering**

- **External Cement Rendering** Where required by project specifications provide cement render in two coats on prepared walls. Each coat shall be ruled for a flat even surface.

  First coat shall comprise by volume:

  2 parts cement
  1 part hydrated lime
  2 parts sieved, clean, sharp coarse sand free from vegetable or organic matter

  Finishing coat shall comprise by volume:

  1 part cement
  1/5 part hydrated lime
  4 parts sieved, clean, sharp fine washed finishing sand

- **Internal Solid Plaster** Where required by project specifications provide internal solid plaster in two coats. Each coat shall be ruled for a flat even surface free of blemishes, air pockets and trowel marks.

  First coat shall comprise by volume:

  2 parts cement
  1 part hydrated lime
  2 parts sieved, clean, sharp coarse sand free from vegetable or organic matter

  Finishing coat shall comprise by volume:

  1 part hydrated lime (putty)
  1 part hard finish plaster

  Provide all angles, reinforcing, grounds, edging accessories, metal lathing as recommended or required according to good trade practice.

8.3 **Plasterboard and Fibrous Plaster** See project requirements for type of wall and ceiling finishes.

8.4 **Generally** Plasterboard, fibrous plaster and glass fibre reinforced sheets shall be manufactured and fixed in accordance with the Australian Standards. Fixing and finishing shall be carried out by competent tradesmen in accordance with the manufacturer's instructions and good, recognized trade practices. Sheet sizes shall be of lengths and widths to ensure the least amount of joints and when stored on site shall be carefully stacked and covered to prevent damage from the weather. The method of fixing shall be in accordance with the manufacturer's recommendations for the material used with clouts and screws being set below the surface and approved adhesives being properly applied. Provide and fix all necessary tapes, angles, reinforcing, moulds and unless otherwise specified, cornices shall be nominal 50 mm Scotia type fixed in a straight line.

- **Walls** Where studs are placed at not more than 600 mm centers, 10 mm minimum thick plasterboard and fibrous plaster sheets or 6 mm minimum thick glass fibre reinforced sheets shall be used where plaster finished walls are specified in project requirements. Wall sheets shall be kept 10 mm clear above floor level. Supply and fix metal plasters angle behind all internal corners and metal reinforcing angle behind external corners.
- **Ceilings** Plasterboard and Fibrous Plaster sheets shall be a minimum of 10 mm thick where fixed to battens or ceiling joists spaced up to 450 mm centers and unless otherwise specified shall be 13 mm minimum thick where battens or ceiling joists are spaced up to 600 centers. Plaster type ceiling linings shall be fixed to ceiling joists unless battens are required in project requirements. Where battens are provided they shall be fixed to line, packed where necessary to ensure a flat surface to the ceiling.
- **Back Blocking** Where unsupported joins occur in plaster and ceiling linings back blocking of a similar plaster material having a minimum width of 75 mm shall be provided and fixed to the backs of sheets.
- **Jointing** To all joints in plaster type wall and ceiling lining (except the junction of wall and ceiling sheets where cornices are provided) supply and install bed jointing tape set in with an approved jointing cement and when dry apply a second coat of joining cement of thickness to allow for a coat of finishing cement to produce a flush flat surface over the wall. All joints to be trowelled smooth with feathered edges and lightly sanded. Stop up all nail holes and blemishes to a smooth finish.
- **Cornices and Accessories** Provide and fix 50 mm Scotia cornice unless otherwise specified. Cornice to have all joints mitred, be securely fixed with adhesive and with nail holes, joins and abutting surfaces stopped up in a workmanlike manner. Where

specified in project specifications provide and fix all accessories in a workmanlike manner.

- **Completion** On completion rectify all blemishes, ensure all joins are flush and sanded. Clean dust off walls in readiness for painter.

  Remove all waste materials and clean floor of plaster droppings, sweep floors and leave building in a clean state.

9. WALL AND FLOOR TILER

9.1 **Generally** Refer to project specifications for extent and type of wall and/or floor tiling. All tiling shall be performed by competent tradesmen and in accordance with good trade practices. Prepare substrata for tiled surfaces strictly in accordance with accepted good trade practices and where cement fibre or water resistant plasterboard is used it shall be fixed and treated strictly in accordance with manufacturer's instructions. Where tiling is to be fixed with adhesives ensure adhesive is compatible and in accordance with requirements of the sub-strata and tile manufacturer. Adhesives shall be applied to the sub-strata with a toothed spreader worked to leave horizontal lines and only sufficient adhesive to be applied which will enable the placing of tiles without a skin being formed on the adhesive.

9.2 **Wall and Floor Tiling** Where specified in project requirements fix wall and floor tiles with uniform size joints set to straight lines. Where necessary,. Tiles shall be neatly cut with cut edges being treated or located so as not to leave a sharp exposed edge. Neatly cut holes in wall tiles for plumbing fittings and floor tiles to skirtings and around doorways. After tiles are fully set in position grout up joins and exposed edges with approved grout of selected type and colour. Leave a minimum of a 8 mm gap between tiles and skirtings/architraves etc. and fill gap with a compressible material.

9.3 **Completion** On completion remove all debris, remove excessive grout, clean down tiled surfaces and leave in a clean condition.

NOTE: Refer to Australian Standard for Floor and Wall Tiling

10. GLAZING

10.1 **Generally** Supply and install glass as specified in project requirements. Glass in external wall openings shall be of thickness to suit terrain category wind loadings.

When installed in timber framing, glass is to be bedded in putty or sealant and where necessary be finished with timber beads properly sealed with mitred or scribed junctions or provided with sprigs or pins and beaded with putty neatly struck at an angle of 45 degrees. For aluminum frames, glass shall be firmly fixed with neoprene or similar extruded glazing strips.

10.2 **Safety Glass** Where required by the Glass Installation Code AS1288, install safety glazing in accordance with the requirements of the Code.

11. PAINTING

11.1 **Generally** All painting and finishes to be carried out by competent tradesmen in accordance with recognised good trade practice and paint manufacturers recommendations. Prior to painting, all hardware and door/window furniture to be removed and replaced on completion of painting work. Surfaces to be painted or sealed shall be sanded to a smooth finish and all nail holes, or imperfections filled with putty in the case of timber and plaster for plaster type finishes. Ensure that all surfaces to be painted are free of dust and take such steps to ensure that dust, water or other particles do not settle on fresh paintwork until it is dry.

All paints and other finishes shall be applied, and thinned if necessary, strictly in accordance with the manufacturer's instructions.

11.2 **Materials** Sealing materials, primers, stains, enamels, oil and acrylic paints shall be ready prepared and brought on to the job in the manufacturers original sealed containers. Ensure that all equipment is to hand including brushes, rollers, sprays etc. necessary to facilitate the completion of the works.

11.3 **Protection** The painter shall take all necessary precautions and provide such protection to protect adjacent surfaces from paint spray, drips, splashes, or spillages.

11.4 **Exterior Finishes** Refer to project requirements for colour schedule and unless otherwise specified finishes shall be applied as follows or to manufacturer recommendations for type :-

- **Painted Timber Surfaces** Shall be given one coat of primer, one coat undercoat and one coat exterior gloss **OR** alternatively two coats of exterior acrylic paint.
- **Steel Surfaces** Shall be cleaned down and be given one coat of metal primer, and one coat undercoat and one coat gloss enamel **OR,** alternatively, two coats exterior acrylic paint over a metal primer. New galvanized steel shall be washed down with an approved degreasing solution before the application of the metal primer.
- **Masonry and Fibre Cement Sheet Surfaces** Shall be given two coats of exterior acrylic paint in accordance with manufacturers instructions.
- **UPVC Surfaces** Shall where specified in project specifications be given two coats of exterior acrylic paint.

11.5 **Interior Finishes** Refer to project specifications for colour schedule and unless otherwise specified finishes shall be applied as follows or to manufacturers recommendation for type of finish used.

- **Painted Timber Surfaces** Shall be given one undercoat and two top coats of paint.
- **Stained Timber Surfaces** Shall be given two coats of stain.
- **Plasterboard, Solid Plaster, Plaster, Hardboard and Fibre Cement Surfaces** Shall be given one coat of sealer and two top coats of paint.
- **Metal Surfaces** As for exterior finishes.
- **Wallpaper and Vinyl Fabrics** Where specified in project specifications, the specified wallpaper shall be hung by competent, skilled tradesmen. Walls to be papered shall be sealed and wallpaper to be applied in accordance with manufacturers instructions. Wallpaper shall be cut to ensure accurate matching of pattern and shall be fixed with plumb, close butted joints and with ends neatly trimmed to abutting surfaces.
- **Built in Wardrobes, Cupboards** Except in the case of kitchen and other workbench type cupboards, unless otherwise specified, all built in wardrobes, cupboards, etc. shall be finished as for internal walls.

11.6 **Completion** Touch up all painting where required to make good after other trades, remove all paint spots, securely refix all furniture, remove all paint cans and leave the building in a clean and tidy condition

12. FENCING

12.1 **Generally** For type and extent of fencing refer to project specifications and drawings. Where fencing is required the builder shall include the full cost of all fencing in his tender and state the cost per metre run that is allowed for the supply and erection of fencing to adjoining properties together with the full cost and rate per metre run for other fencing. **IT IS THE OWNERS RESPONSIBILITY TO SERVE THE REQUIRED FENCING NOTICES ON THE ADJOINING OWNERS** and the builder shall not proceed with fencing works until the owner has furnished to the builder confirmation of approval from the adjoining owner together with written instructions for the builder to proceed with the fencing works. Any adjustments to the extent of fencing actually erected shall be made at the rate for the metre run stated by the builder in the project requirements.

12.2 **Sawn Paling Fence** Shall be nominally 1650 mm high unless otherwise specified in the project requirements.

12.3 **Other Fences and Gates** Shall be constructed as required by project requirements.

12.4 **Completion** Fencer shall remove all off cuts and check out timber and leave job in a neat, tidy condition.

13. FINAL COMPLETION

Where such work is within the scope of the contract, the builder shall remove all builders equipment and debris from the site, check satisfactory operation of installed equipment, doors, windows, locks, remove paint spots, clean windows, sweep floor, clean all plumbing fixtures and fittings, clean cupboards, clear gutters and down pipes and leave the building and site in a clean and tidy condition: the builder shall obtain and give to the owner all necessary certificates of final approval from the various authorities.

APPENDIX
Australian Standards That Prescribe
Minimum Requirements of Works Referred To in These Specifications

(Refers to Australian Standards of the date as prescribed in the Building Code of Australia and as applicable when applying for a Building Approval)

NUMBER		TITLE
AS 1170		Minimum design loads on structures (SAA Loading Code)
	Part 1	Dead and live loads and load combinations
	Part 2	Wind loads
	Part 3	Snow loads
AS 1250		The use of steel in structures (SAA Steel Structures Code)
AS 1288		Glass in buildings – Selection and installation (SAA Glass Installation Code)
AS 1530		Methods of fire tests for building materials components and structures
	Part 1	Combustibility test for materials
	Part 2	Test for flammability of materials in building construction
AS 1538		Rules for the use of cold-formed steel in structures (SAA Cold-formed Steel Structures Code)
AS 1562		Design and installation of metal roofing
AS 1639		The design and installation of corrugated fibre-reinforced cement roofing and wall cladding
AS 1664		Rules for the use of aluminum in structures (SAA Aluminum Structures Code)
AS 1668		The use of mechanical ventilation and air-conditioning in buildings
	Part 2	Ventilation requirements
AS 1684		Code of practice for construction in timber framing (SAA Timber Framing Code)
AS 1691		Rules for the installation of domestic oil-fired appliances (SAA Domestic oil-fired appliances Installation Code)
AS 1694		Code of practice for physical barriers used in the protection of buildings against subterranean termites
AS 1720		Timber structures (SAA Timber Structures Code)
	Part 1	Design methods
	Part 4	Fire resistance of structural timber members
AS 1736		Code of practice for pliable roof sarking
AS 1757		Concrete roofing tiles
AS 1860		Code of practice for the installation of particleboard flooring
AS 1903		Reflective foil laminate
AS 1904		Code of practice for installation of reflective foil laminate in buildings
AS 1926		Fences and gates for private swimming pools
AS 2049		Terra-cotta roofing tiles
AS 2050		Fixing of roofing tiles
AS 2057		Protection of buildings from subterranean termites – Chemical treatment of soil for buildings under construction

APPENDIX
Australian Standards That Prescribe Minimum Requirements of Works Referred To in These Specifications

(Refers to Australian Standards of the date as prescribed in the Building Code of Australia and as applicable when applying for a Building Approval)

Continuation

AS 2121		The design of earthquake resistant buildings (SAA Earthquake Code)
AS 2159		Rules for the design and installation of piles (SAA Piling Code)
AS 2327		Composite construction in structural steel and concrete (SAA Composite Construction Code)
AS 2376		Plastic building sheets
	Part 1	Extruded PVC
	Part 2	Plastic building sheets – General installation requirements and design of roofing systems
AS 2818		Guide to swimming pool safety
AS 2870		Residential slabs and footings
	Part 1	Construction
AS 2904		Damp-proof courses and flashings
AS 2908		Cellulose cement products Corrugated sheets for roofing and cladding
AS 2918		Domestic solid-fuel burning appliances – installation
AS 3500		Sanitary plumbing and domestic water supply
AS 3600		Concrete structures
AS 3666		Air-handling and water systems of buildings – Microbiological control
AS 3700		Masonry in buildings (SAA Masonry Code)
AS 3740		Waterproofing of wet areas in residential buildings
AS 3958.1		Ceramic tiles
	Part 1	Guide to the installation of ceramic tiles
AS 4100		Steel structures

DATE OF AUSTRALIAN STANDARDS TO BE AS NOMINATED IN BUILDING REGULATIONS AND BUILDING CODE OF AUSTRALIA.