

General Specifications

For domestic and other appropriate buildings
NOT exceeding 12m in height

2001
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Master Builders

ASSOCIATION

GENERAL SPECIFICATIONS

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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 the above.

1. EXCAVATIONS

- 1.1 **Preparation** Unless otherwise specified, the builder shall clear the site to be occupied by the building plus an additional area of approximately 1.2 metre width around the building. All grading and/or levelling to be in accordance with the approved drawings. Remove vegetable matter from ground where structural concrete slabs are to be constructed.
- 1.2 **Excavation Adjacent to Boundaries** Contact Relevant Building Surveyor if protection works are required.
- 1.3 **Strip and Pad Footings** Excavate ground straight and plumb to accommodate strip and pad footings to a depth and/or sizes as shown on the approved drawings.

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

Excavations are to be cleaned out and water to be removed prior to the placing of reinforcing steel.
- 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 NOTICE FOR ATTENTION OF OWNER

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

Advice for foundation maintenance is continued 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. CONCRETER

- 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.
 - **Site Mixed Concrete** All concrete shall be thoroughly, mechanically mixed and unless 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 strength of 20 MPa at 28 days.
- 2.2 **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 requirements of these specifications and/or drawings.
- 2.3 **Concrete Stumps** Unless otherwise approved by the Relevant Building Surveyor, concrete stumps shall be reinforced vibrated concrete manufactured by a specialist manufacturer.

Minimum size and reinforcement of stumps shall be as per Table 2.3.

Table 2.3

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

- 2.4 Concrete Porches, Patios and Ground Floor Balconies** Where not supported on solid ground or compacted fill all concrete slabs shall be constructed as suspended slab in accordance with Table 2.4 and Notes:

Table 2.4

Maximum Distance Between Walls	Slab Thickness	Reinforcing Fabric
1800 mm	100 mm	F 72
2100 mm	100 mm	F 828
2400 mm	100 mm	F 718
2700 mm	150 mm	F 928
3000 mm	150 mm	F 818

NOTES

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

- 2.5 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 Engineers design and/or approved plans.
- 2.6 Concrete Landings, Ramps and Steps** No part of the 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 Building Regulations and adopted codes, or 750 mm x 750 mm clear area, whichever is greater.
 - **Concrete Ramps** Concrete ramps shall be constructed with a gradient not less than the portions 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 Relevant Building Surveyor risers and treads respectively shall be of uniform size.
- 2.7 Concrete Paving** Concrete paving, unless otherwise specified, shall be Grade 20 (20 MPa) 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 1 metre. See project requirement for extent of paving to be provided.
- 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 10 mm below vents or weep holes installed in walls.
- 2.8 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.
- 2.9 Inspection** Concrete for footings, pads and slabs (on ground and suspended) shall not be poured until the trenches, form or boxing together with all reinforcing has been inspected and approved by the Relevant Building Surveyor.
- 2.10 Termite Protection** Where required by the Relevant Building Surveyor and/or specified in project specifications, provide protection against termites in accordance with the relevant regulations treatment or as approved by the Relevant Building Surveyor.
- 2.11 Covering** Over 30° wetting, ponding, covering or similar to poured concrete is recommended.

3. BRICKLAYER

- 3.1 Interpretation** Where these specifications use the word bricklayer 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.
- Brickwork** Shall include clay bricks, calcium silica bricks, concrete bricks, concrete blocks, mud bricks, etc.
- 3.2 Generally** Brickwork shall not be commenced until 1 week after the placement of the concrete slab or footings and veneer walling shall not be commenced until after construction of the wall and roof framing is substantially completed.
- 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 relevant Australian Standard and Standard & Tolerance Guideline publication.

Note: Perpends to be minimum 5 mm, maximum 15 mm as in AS 3700.98. Brick and brick veneer cavities shall be kept clear of mortar, to allow air movement and prevent the passage of moisture from outer skin to inner skin.

- 3.3 Materials** Subject to the approval of the Relevant Building Surveyor mortar having proportions as shown in Table 3.3 may be used for buildings not exceeding 12 metres in height.

Table 3.3

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

- 3.4 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 3.4 and be constructed on concrete footings.

Table 3.4

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 then – 230 mm x 230 mm to underside of bearers

- 3.5 Sub-Floor Access Opening** Where required (Termite areas) for inspection purposes.
- 3.6 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 the Building Code of Australia or an alternative method approved by the Relevant Building Surveyor.
- 3.7 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.
- 3.8 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 10 mm.
- 3.9 Control and Articulation Joints**
- **General** Control and articulation joints shall be built into the brickwork as work progresses and joints shall be kept clean and free from obstructions. During construction, install masonry flexible anchors to the top half of the wall with not more than 5 courses between anchors in solid masonry. Install wall ties every fourth course on each side of the control or articulation course. On completion, joints shall be filled from the outside to a depth of 25 mm with a flexible sealant or mastic.
- 3.10 Walling** Solid brick walls shall be properly constructed with all parts of the wall being bonded or tied together. Cavity brick walling shall be carried out in such a manner to ensure that the cavity and flashings are kept clear of mortar and obstructions to prevent moisture entering the building. Unless otherwise specified and approved by the Relevant Building Surveyor the cavity in cavity brick Min 35 mm for cavity brick and brick veneer walls shall not be less than 25 mm or more than 65 mm.
- Bagged, sealed and rendered brickwork does not require cavity flashings and head flashings and weepholes, however when required weepholes must be provided in perpends at 1200 mm maximum spacings.
- 3.11 Angle Lintels** Angels as described in Figure 3.3.3.5 of the BCA shall be provided to support brickwork over openings in the walling.
- 3.12 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 (5 mm seasoned/first storey, 10 mm unseasoned – 10 mm seasoned/upper storey, 20 mm unseasoned) 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.
- 3.13 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 & JOINERY

- 4.1 Generally** All of the carpentry and joinery work shall be carried out in a tradesman like manner with all framing works being in compliance with the requirements of the Timber Framing Code AS 1684. Seasoned timber and joinery shall be kept clear of 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 components sizes approved by the Relevant Building Surveyor.
- 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 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 exposure rating as required to satisfactorily complete the works.
- 4.4 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 the 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 Relevant Building Surveyor.
 - **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 and 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 in 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 suitably protected timber laid to enable the shedding of water and to be fixed with galvanised 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.
- 4.5 Eave, Verge, Fascia and Barge** Refer to project specification 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 the 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.
- 4.6 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 the gutter sufficient support and a fall of not less than 1 in 100 towards the downpipe.
- 4.7 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 galvanised 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, or install pre moulded cover 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 shi lap or other similar moulded boards. The vertical or angled boards are to be lapped at least 25 mm and be fixed to each point of support by 2 nails.

- **Other External Cladding** Fibre cement sheet/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 joints.

4.8 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 batts or sheets shall be fixed between or to studs before the installation of internal linings. Where insulation materials are fixed between studs in brick veneer wall construction, the builder shall ensure that the insulation shall not fall or project into the cavity space.

4.9 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.

- **Nominal Timber Sizes (KDHN)**

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

Construction and Materials All timber steps, 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 and 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 galvanised 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 galvanised bolts at each connection and newel posts shall be set at 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 Relevant Building Surveyor and/or 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 tread 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 galvanised.

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 galvanised or have similar protective coating.

4.10 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 electric supply authority.

4.11 Bath Insulation Where abutting walls, the bath shall have flanges set into studs. Where not abutting a wall, the bath shall be supported by dwarf timber walls having dimensions of no less than 75 mm x 38 mm with studs at 450 mm maximum centres and 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.

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

4.13 Preparation for Wall Tiling Where areas of wall tiling are required for impervious 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 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 Standards.

4.14 Installation of Door and Window Frames Door and window frames need to be suitably sealed to protect water penetration.

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 watertight joint. Install in accordance with manufacturer's specification.

4.15 Joinery

- **Generally** All joinery work shall be manufactured according to recognised good trades practices with the choice of timber, preparation, matching construction, jointing and fixing being carried out in a tradesman like manner.
- **Timber** 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 of 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 Timber 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 or durable timbers having a thickness of not less than 32 mm.
- **Jamb Lining and Heads** Jamb lining and heads for internal doors shall be a width to suit the thickness of the wall and be not less than 19 mm thick. Jambs shall be trenched into head and 8 mm minimum 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 specification. 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 the fixed skirtings, scribed to floor if necessary, with external corners being mitred and internal corners being 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.
- **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 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. 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.

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 instructions, 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 of the building.
- 5.2 **Terra Cotta, Concrete Tiled Roofs** Where specified in project specifications cover roof with tiles of selected manufacture, pattern and colour. Provide and fix battens of sizes and spacing 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 or flexible material if required by the tile manufacturer.
- 5.3 **Metal Deck and Contoured Steel Roofs** Where specified in the 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 recommend 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 and not cause corrosion.

- 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. On concrete or terra cotta tiled roofs, sarking, if required, is to be fixed **under** roof battens and dished between rafters.
- 5.5 **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 manufacturers instructions. Where concrete and terra cotta tiles are used, provide and store where directed by owner, 12 sound spare tiles of the type and colour used on the roof of the building.

6. PLUMBING

- 6.1 **Water Supply** Where a reticulated water supply is available, the plumber shall arrange for the main to be tapped and a connection is to be made to supply water to the building. Where a water main of water supply authority cannot be extended, the owner shall arrange, at their own expense, for an extension of water service to a location in the front boundary of the allotment and for the supply and installation of a meter as/if required and for a provision of a stop tap. If water supply is not available, provide rainwater storage tanks as specified in project requirements.
- 6.2 **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 be suitable material. 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.
- 6.3 **Taps and Fittings** See project specifications for taps and fittings.
Where hot and cold taps are located over, or supply hot water and cold water to the plumbing fixture, or for clothes washing machines and dish washing machines, the taps shall be matching and 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 dish washing 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.
- 6.4 **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 outside 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.
- 6.5 **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 council. 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.
- 6.6 **Drainage**
- **Sewer Drainage** Lay sewer drains in material 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 relevant authority. Make all necessary connections and after testing, inspection and approval by the relevant authority, all drainage trenches to be backfilled with approved material.

- **Stormwater Drainage** Unless otherwise specified, required or approved by the Relevant Building Surveyor, 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 by the Relevant Building Surveyor.
- **Agricultural Drains** Where specified in the 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 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.

Drains to be provided with 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 an impervious membrane to the face of the wall and backfill drain with coarse aggregate to within 250 mm of ground level. Construct pits where necessary as shown on drawings and complete backfill.

6.7 Roof Plumber

- **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.

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 **authorised** electrical contractor. All works to be carried out and materials to be used shall be in **strict** accordance with the regulations, 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/s provided in project specifications.

7.3 Main Switchboard

Provide and install, in a location as specified in project specification, 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 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 GPO's. GPO's shall be flat 3 pin mounted flush on walls and/or skirtings. Unless otherwise specified GPO's shall be mounted at 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.

- 7.7 **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 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 practices.

8.3 Plasterboard and Fibrous Plaster

See project requirements for type of wall and ceiling finishes. **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, recognised 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 centres, 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 plasterers 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 centres and unless otherwise specified shall be 13 mm minimum thick where battens or ceiling joists are spaced up to 600 mm centres. 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 joints occur in plaster and ceiling linings backblocking of a similar plaster material 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 jointing 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 Scotia cornice unless otherwise specified. Cornices to have all joints mitred, be securely fixed with adhesive and with nail holes, joints and abutting surfaces stopped up in a workman like manner. Where specified in project specifications provide and fix all accessories in a workman like manner.
- **Completion** On completion rectify all blemishes, ensure all joints 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 clean state.

9. WALL & 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 sub-strata 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 joints 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 glazing to AS 1288 and AS 2047. Glass in external wall openings shall be of type and 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 springs or pins and beaded with putty neatly struck at an angle of 45 degrees. For aluminium 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 practices and paint manufacturer's 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 manufacturer's 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's 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 galvanised 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 manufacturer's instructions.
 - **UPVC Surfaces** Shall where specified in project specification 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 manufacturer's recommendations 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 manufacturer's 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 and 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 OWNER'S 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 owners 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 builder's 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 licenced plumber and the Relevant Building Surveyor.