

RESIDENTIAL BUILDING SPECIFICATION

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RESIDENTIAL BUILDING SPECIFICATION

1.00 GENERAL

1.01 Scope

This Specification is to be used for Class 1a single detached houses and 10 buildings within the scope of the AS1684 Part 1 to 4.

The Specification also assumes that the following criteria apply to the construction and administration of the works:

- a) routine supervision of the building work by the Builder and inspection at the mandatory stages by the Building Certifier is carried out; and
- b) the site is suitable in respect of all matters including site and soil classification or other matters which have an effect on the structural stability of the proposed building work or the health or safety of the proposed inhabitants.

This Specification describes the finishes, materials and extent of work which must be carried out in accordance with the Conditions of Building Contract.

1.02 Extent of Work

Except as may be described in the Contract anything required by the drawings, Specification or Schedule is the responsibility of the Builder.

1.03 Definitions

In the Specification, unless otherwise stated:

- Owner/s also means Applicant/s; Proprietor/s
- Builder/s also means Contractor/s;
- Local Government also means Council;
- Contract also means the Conditions of Building Contract signed by both Builder and Owner;
- Completion also means Practical Completion.
- Building Certifier also means a private Building Certifier.

1.04 Statutory Obligations, Notices, Approvals, Fees and Inspections

All building work including all site works associated with the construction must comply with all Acts of Parliament and other relevant statutory requirements including the provisions of the Local Government planning scheme the Standard Building regulation 1993 (SBR), the Building Code of Australia (BCA), the Timber Utilisation and Marketing Act and the Workplace Health and Safety Act.

Unless otherwise stated in the Schedule or Conditions of Building Contract, the Builder must submit and pay for all applications, notices, inspections, approvals and fees relating to the carrying out of the building works including but not limited to Building Services Authority, Portable Long Service Leave Levy, Workplace Health and Safety, Building Permit, Environmental Charges and Waste Disposal but is not responsible for:

- any financial assurance or security required to be given in connection with any application or approval; or
- any applications, notices, inspections, approvals or fees required under the Local Government town planning scheme or relating to the particular use which may be made of the building works after completion.

1.05 Australian Standards, Code

Where the relevant Australian Standard Code is referred to in this Specification, it shall mean the most recent or amended issue published prior to the date of the signed Contract.

1.06 Discrepancies

Should any discrepancy occur between various references the following shall apply:

- the Contract takes precedence over all other documents;
- the Specification takes precedence over the drawings, except that any Local Government requirements which are a condition of the building approval shall be complied with whether specified or not;
- figured dimensions take precedence over scaled dimensions; and
- large scale drawings take precedence over small scale drawings.

1.07 Plant and Labour

The Builder must supply materials, scaffolding, tools, plant, and complete works in all trades necessary to carry out the true intent of the drawings and this Specification, to a satisfactory completion of the works in all respects. The provision of hoardings, signs and safety provisions is the responsibility of the Principal Contractor unless noted in the Schedule.

1.08 Materials

Unless otherwise shown on the drawings or included in the Contract, use new materials of good quality and in general conformity with the BCA and any referenced Australian Standards or Codes. Defective materials are not to be used.

1.09 Workmanship

Unless otherwise specified, perform all building work in a good and tradesman like manner in accordance with the BCA and any referenced Australian Standard or relevant manufacturers' specification, and to the satisfaction of the Local Government and/or the Building Certifier.

In all other cases, construct the building to prevent the penetration of rain and other water to the inner parts of the building.

1.10 Variations

Variations to this Specification and/or Schedule must be made by written agreement between the Builder and the Owner.

The conditions for variations are to be in accordance with the Conditions of Building Contract referred to in the Schedule.

1.11 Documents for Inspection

A copy of the drawings and Specification approved by the Local Government is to be available on the site for inspection when required.

1.12 Engineer's Foundation (soil) Investigation

Engage an Engineer or Geotechnical Consultant experienced in soil mechanics to investigate the soil conditions on the site and to classify the site in accordance with AS2870. Engage an independent professional Engineer to design the footing/slab/foundation structure to suit the prevailing soil conditions. Where the foundation material or site conditions vary to those shown in the soil report, further design and investigation may require additional work to footings and slabs. Whoever is responsible for engaging the Engineer or Geotechnical Consultant to classify the site shall be responsible for costs associated with its short comings.

1.13 Site Identification and Setting Out

Inspect the site and become fully familiar with all existing site conditions including levels and facilities in the area of the proposed building.

The Builder must advise the Owner of any variance to the site from that shown in documentation and shall make the required allowances for such, in agreement with the Owner.

The Builder must accurately set out the works in accordance with the plans and Specification. Dimensions from boundaries to be measured to the outmost projection (generally fascia). All other dimensions generally to be to framing before claddings are fixed, or to the masonry skin.

1.14 Protection of Items to be Retained

Protect any item (trees, buildings etc)., required by the drawings and/or the Schedule.

The Owner must advise the Builder of any Vegetation Protection Orders related to the site.

1.15 Site Services and Amenities

Sanitary Accommodation

The Builder must provide suitable temporary toilet facilities on site until completion of the works.

Water Supply

Unless otherwise specified, where no reticulated water supply is available to the site prior to the commencement of construction, the Owner must supply a temporary fresh water supply for use in building by means satisfactory to the Builder and when required by the Builder.

Power

Unless otherwise specified, a 240 volt power supply is to be available to the site for construction purposes. Where no supply exists, the Owner must provide a temporary supply by generator or other means satisfactory to the Builder, when required by the Builder.

1.16 Soil Erosion and Sediment Control

When required by the Local Government or a State code, provide on-site measures to manage the effects of stormwater runoff in accordance with the code or conditions of the development permit. Prepare and submit an Erosion and Sediment Control (ESC) plan indicating how the runoff will be managed in relation to the risk level identified for the site.

1.17 Items Supplied by Owner

Items which are noted in the Contract which are to be supplied by the Owner or where during construction it is agreed in writing for the Owner to supply any item, it is the responsibility of the Owner to arrange for delivery, payment and protection against damage and theft of such items prior to their installation.

The items supplied must be of good quality and be generally suitable for the performance of the specific works.

1.18 Substitution

Should any items or materials specified in this Specification or on the drawings, which are to be used in the construction, not be available for use until after a period, which would in the opinion of the Builder cause unwarranted delays, the Owner must within seven days after written advice from the Builder, select an alternate readily available item or material for use.

If there is any difference in the cost of such a re-selection then an adjustment may be made to the contract price in accordance with the Contract.

1.19 Colours

Selection

The Owner must provide to the Builder when requested selected colours for all items and materials available in colour choices.

Variation in Colour

Since variations in colour are inherent in all fired products such as porcelain, ceramics, clay products and vitreous china, the Builder cannot accept responsibility for any colour variations, provided always that the supplied items and materials are of the brand and colour specified.

Variations in colour between products of different materials or different manufacturers in the same colour are possible, and an exact colour match should not be expected.

1.20 Stairways and Ramps

Stairways and ramps must be shown on the drawings. Where not shown, they must be in accordance with the Building Code of Australia. The surface of a ramp or stair must have a non-slip finish.

1.21 Handrails and Balustrades

Provide a handrail and balustrade along every side of any stairway or ramp and any corridor, hallway, external access balcony, bridge, patio, mezzanine floor or the like in accordance with the Building Code of Australia - Section 3.9.

1.22 New Construction Techniques

Where new products or construction techniques are not specifically described in this Specification, but are shown on the drawings, the most recent certificate of conformity and/or manufacturers' specifications should accompany this Specification.

1.23 Completion

The building is to be constructed to practical completion stage. Sashes, doors, locks and all other equipment must be tested and left in a satisfactory operating condition.

Remove all plant, surplus building material and rubbish from the site. Clean all floors, windows and cupboards to remove construction markings and excess dirt etc. Gutters and drains must be cleared and the building generally to be clean and tidy.

Final connection of the power supply and telephone and payment of any security deposit is the responsibility of the Owner unless otherwise agreed to in writing.

Collect all certificates, warranties and instruction brochures, are to be provided to the Owner prior to occupation.

Refer to Contract for possession by the Owner.

1.24 Final Completion

On the expiry of the defects liability period and the making good of any defects by the Builder, then the works are deemed to be completed in accordance with the Contract.

1.25 Rock Excavation

The removal of rock is not allowed for unless noted in the contract or has been identified in the soil report.

Should rock of any type be encountered during excavations and its removal require the use of non-customary equipment, then the cost of removal will be an additional cost under the contract.

The Owner must be notified of any encounter with rock and the removal must be carried out in accordance with the Conditions of Contract.

1.26 Site Contamination

Unless otherwise expressly stated in the Schedule or Conditions of Building Contract, the Builder is not responsible for the removal or disposal of any hazardous or contaminated substance affecting the site at the time of commencement of the works.

2.00 EXCAVATOR (INCLUDING SITEWORKS)

2.01 Extent of Work

Excavate and backfill as required for all work shown on the drawings and/or included in the Contract.

2.02 Safety

Carry out the works in a safe and workmanlike manner and properly guard, shore and protect to prevent excavations from being dangerous to life and property and as required under the Workplace Health and Safety Act and associated Codes of Practice.

2.03 Site Clearing and Preparation

Carry out all site clearing in accordance with the Soil Report, but in any case, remove all stumps and roots over the area of the building and clear all trees and shrubs within 3 metres of the building. Refer to the Schedule for removal of trees.

For concrete slab-on-ground, clear the building area of the topsoil containing vegetable and organic matter, roots, etc. Provide a self-draining platform to an outfall where a "cut and fill" excavation is provided.

Compact where necessary to AS 2870 requirements and retain results of compaction test/s for inspection, as necessary.

Grade the ground around the perimeter of the slab away from the building at a minimum slope of 1:20 for a minimum distance of 900mm and drained to a discharge point.

2.04 Excavation for Footings

Excavations for footings must comply with the Engineer's design or the approved footing design.

See also Clause 1.12 and 1.25.

2.05 Existing Services

Obtain the required approval from the Local Government or service authority before altering or covering up any service encountered during the excavation.

2.06 Excess Soil and Spoil

Any excess soil and spoil from excavation, footings, drainage or other works must be spread evenly over the site unless otherwise specified in the Appendix to the contract.

3.00 CONCRETOR

3.01 Extent of Work

All concrete work is to be installed in accordance with the Engineer's requirements.

Provide concrete work as shown on the drawings and/or described in the Schedule of this Specification.

Refer Section 4.0 for the termite protection system and to the Schedule for details of system to be used.

Concrete Pumping

Unless nominated in the Contract, concrete pumping is not included. Where it is deemed necessary by the Builder to use a concrete pump because of extreme wet conditions or dangerous access situations where concrete delivery trucks are unable to reach the immediate building site, the Builder must advise the Owner prior to the use of the pump and, the cost of the pump will be an additional cost to the Owner.

3.02 Pre-Mixed concrete

Pre-mixed concrete used for structural purposes must have 20 Mpa characteristic strength at twenty-eight (28) days with a maximum slump of 100mm or in accordance with the Engineer's requirements.

3.03 Reinforcement

Where reinforcement is required to be continuous, stagger joints in adjoining bars and lap as per manufacturers' or Engineer's requirements.

Provide a minimum concrete cover to reinforcement as follows:

- 40mm where in contact with the ground
- 40mm in beams exposed to the weather
- 20mm in beams not exposed to the weather
- 40mm in slabs exposed to the weather
- 20mm in slabs not exposed to the weather

Tie all reinforcement with tie wire and support on suitable concrete, metal or other chair supports, spacers or ties to maintain minimum cover required. Place bar chairs, used on a vapour barrier, on 'tin lids' or other flat bases.

3.04 Placing

Carefully handle and place all concrete to avoid segregation and adequately compact to ensure maximum compaction, free of voids and air pockets.

3.05 Curing

Cure all concrete, except footings, by covering with plastic sheeting, by applying a suitable curing compound, by keeping it continually damp, or by other suitable means, for at least seven days.

Do not use chemical curing compounds where adhesive finishes are to be used, unless strict care is taken to ensure all chemical residues are removed two (2) days prior to the finishes being applied. Adhesive manufacturers' specifications are to be adhered to.

3.06 Pier and Beam Footings

Where pier and beam footings are required pier holes to be inspected by the supervising Engineer and/or Local Government before placing concrete. Piers to be provided where services are to be laid close to footings or where footings fall within the 'zone of influence' of existing services.

3.07 Footings and Slabs Generally

Footings and slabs must be constructed in accordance with Engineer's design and recommendations or the BCA.

3.08 Screw in Foundations

Where nominated in the Schedule, provide hot dipped galvanised screw in foundation system in accordance with the manufacturer's specification. The system must be certified by a registered practising Engineer in Queensland.

3.09 Concrete Paths and Patio Areas

Where shown on drawings, concrete paths must be at least 75mm thick and if unreinforced laid in sections not more than 1800mm in length. If reinforced the maximum length of each section shall not exceed 3000mm.

Provide surface finish as shown in the Schedule.

Unless otherwise required in the Schedule, provide a wood float or other non-slip finish. The top of the concrete must be finished at least 75mm below weep holes which drain cavity masonry walls. Provide falls away from the building of 1:50 for 900mm. Slope concrete up around overflow relief gullies (ORG) and set inspection openings etc flush with surface.

See also 5.02.

3.10 Concrete Driveways

Where shown on drawings driveways must be at least 100mm thick reinforced with F72 mesh with 40mm minimum top cover. The maximum size of each section shall be 3000mm x 3000mm between joints.

Provide surface finish as shown in the Schedule.

Apply to the Local Government to obtain the permanent ground level at the street alignment and unless otherwise approved, construct the driveway to that level. Where a permanent ground level is not available from the Local Government, the finished slab level at the street alignment must be, where practical, at the level of the crown of the road.

3.11 Joints in Paths

Joints must be provided in paths to limit their size to that specified above. Joints may be either through the full depth of the slab made as the result of a break in construction or may be a sawn or wet formed dummy control joint to at least one half of the depth of the slab. Stop reinforcement 40mm to 65mm short each side of the joint.

3.12 Vehicle Crossovers

Where required by the Schedule and/or shown on the drawing, provide a vehicle crossover to the requirements of the Local Government.

Install crossover after all heavy vehicles and machinery have completed work unless required for access.

4.00 TERMITE BARRIER INSTALLER

4.01 Extent of Work

Provide termite barrier to building in accordance with the Queensland amendment to the Building Code of Australia and AS3660.1, which forms part of the building Contract.

4.02 Safety

Carry out the works in a safe and workmanlike manner. Where chemicals are used ensure the chemicals are placed in accordance with AS3660.1.

4.03 Site Preparation

Prior to commencement of the works, inspect the site and remove any identified termite nests within the site or 50 metres of the building, whichever is the lesser.

4.04 Woven Mesh Barriers

Where finely woven mesh is specified in the Schedule, the mesh must be installed by a licensed installer. The mesh must be in accordance with AS3660.1 and installed in accordance with the manufacturer's specifications.

4.05 Graded Stone Particles

Where crushed granite stone is specified in the Schedule, the stone must be installed by a licensed installer. The stone must be in accordance with AS3660.1 and installed in accordance with the manufacturer's specifications.

4.06 Chemical Barrier System

Where a chemical barrier system is specified in the Schedule, the chemical must be installed by a licensed installer. The chemical must be applied in accordance with the label instructions and AS3660.1.

Where a reticulated system for chemicals is specified in the Schedule, the system and chemical must be installed by a licensed installer. The reticulated system must have a current Certificate of Conformity or Product Registration and the chemical must be applied in accordance with the label instructions.

4.07 Notices

Two durable notices must be fixed to prominent locations such as the meter box and kitchen cupboards identifying the termite barrier used in the building and the recommended management procedure for maintenance by the Owner.

5.00 DRAINER

5.01 Extent of Work

Provide sewerage, on site waste disposal system and stormwater drainage as shown on the drawings, approved drainage plan and/or included in the Schedule.

Any additional work required for the provision of new connections, digging of trenches deeper than 1500mm which has been allowed, shoring or pumps will be at an additional cost to the Owner in accordance with the Contract.

5.02 Workmanship

All household drainage shall be carried out by a licensed drainer in accordance with the Standard Sewerage Laws. The required notice shall be provided to the Local Government/Private Certifier concerned before covering up pipework and at other stages required for tests.

A certificate of "satisfactory completion" of drainage is to be provided by the Local Government.

All sanitary drainage must be completed in accordance with AS3500.2.1.

Provide as-built plans to the local Government when required.

6.00 BRICKLAYER AND BLOCKLAYER

6.01 Extent of Work

Provide masonry work including cavity masonry, masonry veneer, single clay and concrete masonry and AAC (Autoclaved Aerated Concrete) masonry work as shown on the drawings and/or included in the Schedule.

For reinforced concrete masonry columns and lintels, refer "3.00 Concretor".

6.02 Materials and Workmanship

Set out as shown on scale drawings, build to gauge to suit bricks used, maintain bond and grout all joints in solid mortar. Keep perpends plumb and uniform and carry up work true and plumb to the various heights shown on drawings. The footing course must be laid in a full mortar bed.

Lay masonry in stretcher bond unless otherwise required by the specific masonry unit. Joints must be nominal 10mm thickness and the type as nominated in the Schedule. Paving treads and capping joints must be struck flush.

Where the Schedule nominates raked joints, the rake must not be carried into reveals beyond the line of the storm moulds.

Clean down exposed brickwork and blockwork as work progresses and on completion. Do not acid wash without prior approval.

Mortar must consist of cement, hydrated lime or lime putty, and clean sharp sand, proportioned by volume and mixed with clean fresh water.

Mortar or adhesive for AAC masonry must be mixed using manufacturer's recommended mix with hand or power operated mixers. Prepare only sufficient for the immediate use.

Mortar for Calcium Silicate bricks must be in accordance with the manufacturer's specification.

Use mortar for clay and concrete masonry complying with the following table, provided that bricklayer's loam may be used with clay bricks as an alternative to sand.

LOCATION	MIX BY VOLUME
A) For clay bricks, general purpose, above level of floor framing, above DPCs.	1:1:6 cement, lime and sand or 1:4 cement and sand to which a plasticiser may be added for ease of working.
High durability, used in contact with earth, below DPCs.	1:1/2:3 cement lime and sand or sand to which a plasticiser is added for ease of working.
B) For concrete masonry, general purpose, above level of floor framing, above DPCs.	1:1:6 cement, lime and sand.
High durability, used in contact with earth, below DPCs.	1:1/2:3 cement lime and sand.

6.03 Damp Proof Courses and Flashings

A damp proof course (DPC) must be one of those listed in AS 2904. Flashings must be a flexible material compatible with the adjacent materials. (e.g. galvanised iron flashing must not be used with aluminium Windows.) Other DPCs or flashings may be used in accordance with the manufacturer's specification.

Provide damp proof courses in all masonry walls and columns, except walls and columns resting on a slab-on-ground, in such a position to prevent moisture from the ground rising to the lowest floor timbers and the wall above. Lap damp proof courses a minimum of 150mm at joints.

Provide flashings at the sills of openings and at other locations to prevent the penetration of moisture to the inner skin, except that flashing is not necessary over openings where a roof overhang is provided at a height of not greater than one third the width of the overhang above the top of the opening, measured to the underside of the fascia.

Turn sill flashings up 50mm at each end and 25mm at the back of the sill, bent down across the cavity and built into the veneer wall not less than one course below the sill. The flashing over openings must not be less than 225mm wide and extend 150mm beyond each end of the openings and bent down across the cavity and built into the veneer wall. Where aluminium windows are supplied with jambs, fitted flashings must also be supplied fitted under fins. Provide flashing over meter box.

For slab-on-ground, provide approved damp proof course one course below main floor slab turned up cavity and fixed to frame. Damp proofing must extend to external face of joint and to be visible.

Perpend joints must be left open as weep holes in external brick walls, spaced at approximately 900mm centres along the line of horizontal flashings.

6.04 Minimum Thickness of Walls

For habitable rooms build external walls (excluding masonry veneer wall) of a minimum combined thickness of inner and outer leaves of 200mm in the lower level of a two-storey building and 190mm elsewhere.

Single skin concrete and clay brick masonry external walls must be constructed to the manufacturer's specifications and finish. (Refer "Painter" and "Plasterer-Applied Finishes" for finishing details).

6.05 Cavities

Except for single skin masonry, build external walls of two leaves of masonry or one leaf of masonry and one leaf of timber or steel framing leaving a clear cavity between each leaf.

Provide cavities not less than 40mm and not more than 110mm for cavity brick, and not less than 25mm and not more than 50mm wide for masonry veneer walls.

Remove mortar droppings from wall ties, vermin proofing and flashing progressively during construction and on completion.

6.06 Wall Ties

Wall ties must comply with AS 2699 and are to suit exposure conditions were applicable.

Provide approved galvanised or polymer wall ties set staggered and where possible sloping downwards towards the external skin. Space ties at not more than 600mm vertically and horizontally, including gable ends. Provide additional ties at 300mm spacing at bearer level where a suspended timber floor is provided.

Fix each tie to timber studs or bearer with approved galvanised brick ties nails (Note:- Clouts are not acceptable for fixing brick ties).

NB: Stainless steel ties may be required in some circumstances.

6.07 Sills

Sills must be of a material impervious to moisture and be designed so that the top surface drains water away from the window or opening.

Unless otherwise noted, sills must be brick-on-edge with a uniform slope away from the window.

6.08 Single Skin Reinforced Concrete Masonry

Provide single skin concrete masonry walls as shown on drawings and/or included in the Schedule.

Reinforce external walls adjacent to every opening and at nominated centres between openings with anchor rod fixed to footing below and hooked into a reinforced concrete bond beam above. Concrete fill block cores and provide a continuous reinforced concrete or concrete block bond beam at the top of the wall or storey and under the sill of windows in excess of 1800mm wide. All joints must be fully filled and ironed particularly around windows and sills.

Refer to concrete block manufacturer's specifications for reinforcing details to suit particular wind speed classifications.

Unless otherwise noted on drawings, and/or included in the Schedule all single skin clay masonry must be finished with a suitable waterproofing treatment to the manufacturer's specifications.

See also clause 6.04 for thickness.

6.09 Single Skin Clay Masonry

Provide single skin clay masonry walls as shown on drawings and/or included in the Schedule.

Reinforce external walls adjacent to every opening and at nominated centres between openings with anchor rod fixed to footing below and hooked into a reinforced concrete bond beam above. Concrete fill block cores and provide a continuous reinforced clay bond beam at the top of the wall or storey. All joints must be fully filled and ironed particularly around windows and sills. Provide damp proof course below floor level.

Refer to clay masonry manufacturer's specifications for reinforcing details to suit particular wind speed classifications.

All single skin clay masonry shall be finished with a suitable waterproofing treatment to the manufacturer's specifications.

See also clause 6.04 for thickness.

6.10 Autoclaved Aerated Concrete (AAC)

Provide AAC masonry panels as shown on drawings and/or included in the Schedule.

Fix AAC panels in accordance with manufacturer's specifications. Finish external face as nominated on the drawings in the Schedule.

6.11 Glass Blocks

Install glass blocks where shown on drawings in accordance with the manufacturer's specifications.

Lay glass blocks in stack bond and provide reinforcement to horizontal and vertical joints in installations in external walls and to large panels in internal walls.

Provide a continuous silicone sealant to joints on external walls and to wet areas. Uncoloured mortar joints white pointing or coloured tiling grout must be suitable for protected situations.

6.12 Clearance for Shrinkage

In masonry veneer construction generally leave the following clearances between window frames and brick sills and between the roof structure and masonry veneer.

- 5mm at sills of lower or single storey windows
- 8mm at roof overhangs of single storey buildings
- 10mm at sills of two storey buildings
- 12mm at roof overhangs of two storey buildings

Increase this clearance where necessary to accommodate expected timber shrinkage e.g. double the clearance for unseasoned hardwood.

6.13 Masonry Arches

Masonry arches, where required, must have "centres in position for at least 21 days after completion.

Reinforce all walls in which arches are located.

6.14 Masonry Fireplaces

Provide masonry fireplace where required and in accordance with details shown on drawings.

Provide a copper tray above the roofline turned up inside the flue and provided with weep holes to discharge water to the outside. Provide flashing between copper tray and roofing material around sides of chimney.

Top of chimney to be minimum 400mm above ridgeline or 400mm above any part of the roof within 3600mm of the chimney.

Where a propriety metal firebox is to be used, install in accordance with manufacturer's specification.

6.15 Engaged Piers, Columns and Cross Walls

Provide engaged piers at support point of bearers in timber floor construction.

Provide engaged piers and/or steel mullions to masonry walls in accordance with engineering details and as shown on drawings.

6.16 Freestanding Piers

Clay brick freestanding must be a minimum of 350 x 350mm up to 2700mm.

For heights above 2700mm and wind loading above W41C, refer to an Engineer's detail.

Concrete masonry freestanding piers must be a minimum of 400 x 400mm up to 2700mm.

For footing details refer "Concretor".

6.17 Bracing and Tie-Down

Requirements for bracing and tie down must be in accordance with AS1684 or to Engineer's details.

7.00 CARPENTER

7.01 Extent of Work

Provide carpentry work as shown on the drawings and/or noted in the Schedule.

7.02 Handling and Storage

Timber and timber products delivered to the site must be stored in accordance with Appendix I of AS 1684.

7.03 Moisture Content

Where timber is specified as seasoned then it must be in accordance with Appendix 9 of AS 1684.

7.04 Dressed Timber

Unless otherwise specified exposed dressed timber shall be graded in accordance with the relevant Australian Standard.

7.05 Stress Grade

Timber used for structural purposes must be allocated a stress grade by one of the following methods:

Timber that has been branded with the stress grade symbol (e.g. F4, F7, F11 etc) or with the stress grade colour identified in the following tables must be used at the stress grade branded thereon;

STRESS GRADE COLOURS

Colour	Stress Grade of Timber
Red	F4
Black	F5
Blue	F7
Green	F8
Purple	F11
Orange	F14
Yellow	F17
White	F22

or

- 2) Timber that is unbranded, but which is accompanied by a certificate from the supplier clearly identifying the job description, the stress grade of timber and schedule of the timber supplied, must be used at the stress grade certified (the certificate must be kept on site for inspection); or
- 3) Timber that is unbranded and uncertified must be approved by a building certifier.

7.06 Species

All timber must be of a species scheduled for the appropriate conditions of use in table IV of Queensland Department of Forestry Pamphlet No.5 "Queensland Building Timbers and Specifications for Their Use". Species other than those listed but with properties endorsed by Queensland Forestry Department as being suitable for the specified use may be permitted subject to prior approval by the building certifier.

7.07 Wood Based Products

Wood based products when used in a situation likely to be damp must be bonded with a waterproof adhesive for the following products:

- for plywood, be bond quality Type A complying with AS 2098, AS 2269 AND AS 2271.
- for particleboard, be Class 1 as complying with AS 1859 and AS 1860.

Particleboard flooring must not be used as a subfloor to bathrooms, shower rooms, laundries and closet compartments unless manufactured as a special wet area tongue and grooved edge sealed particleboard flooring.

Joist span must not exceed that branded on the sheet.

7.08 Preservative Treated Timber

Lycius susceptible sapwood and sapwood exposed to the weather or located in the ground must be preservative treated. Preservative treated timber or wood based products must be treated in conformity with the provisions of the relevant Australian Standard and the Timber Utilisation and Marketing Act.

7.09 Pine Framing

When not preservative treated, protect surfaces of Hoop, Bunya, Kauri, Klinkil and Parana Pine exposed to attack by the Queensland Pine Beetle (*Calymnaderus Incisus*), with a film sealant (paint) or surface chemical application approved by the Queensland Forestry Department when used within the zone south to Murwillumbah, north to Monto and west to the Dividing Range; and when not fully enclosed in construction (including framing in a roof space, except below unsarked metal roofs).

This protection must be done prior to or as soon as possible after installation.

7.10 Damp proof Courses (DPC s), Flashing and Sarking

A) DAMP PROOF COURSES (DPCs)

Where timber is resting on, or built into masonry which may be subject to dampness including an external single skin masonry wall and where the timber is not separated by at least 12mm wide gap, isolate the timber with a DPC.

For DPC s and flashings, refer "Metal Roofer and Sheet Metal Plumber".

Refer to "Bricklayer and Blocklayer" for DPC s required in masonry walls.

B) FLASHING

Provide flashings at the sides, top and sills of all openings in a timber framed wall including masonry veneer wall and at other locations to prevent the penetration of moisture to the inner skin, except:

- that flashing shall not be necessary over openings where a roof overhang is provided at a height of not greater than one-third the width of the overhang above the top of the opening measured to the level of the underside of the fascia board.
- that flashing is not necessary around openings in a timber framed wall clad with material providing a permanent weatherproof seal (such as painted fibre cement, painted or sealed pine cladding or chamferboards) where aluminium frames or other prefabricated metal windows are used and where built-in returns and corner details are adequate to prevent water penetration.

Use flashing at least 100mm wide. Flashing over openings and under sills shall extend at least 150mm beyond the opening.

Refer "Metal Roofer and Sheet Metal Plumber" for roof flashing.

C) WALL SARKING

Provide wall sarking as shown on the drawings and/or noted in the Schedule.

Sarking in all timber-framed walls including brick-veneer, must be a waterproof fire resistant type.

Where unpreservative treated pine (except cypress pine) and non-durable hardwood framing is used under a cladding material that does not provide a permanent weatherproof seal (such as unpainted fibre cement, sawn weatherboard, unsealed pine cladding or vertical/diagonal timber cladding) fully sark the walls with a vapour permeable sarking.

Fix sarking on the outside of the studs from bottom plate (lapped over flashing if any) up to at least the level of the underside of the fascia. Allow a gap at the top plate for wall ventilation.

Refer "Roofer" and "Metal Roofer and Sheet Metal Plumber" for roof sarking.

7.11 Minimum Timber Sizes

Timber to be of a size shown on the drawings and/or noted in the Schedule. Where not shown it is to be in accordance with AS1684 as appropriate.

Refer to the timber schedule in the Schedule.

7.12 Fixings

Provide fixings such as straps, screws, nailing plates etc. as required to resist wind forces as shown on the drawings, or if not shown, as specified in Section 9 of AS 1684.

Where no specific fixing is specified or shown provide fixings to locate members in position in accordance with normal trade practice.

Fix patent fasteners in accordance with the manufacturer's printed directions.

Fixing for preservative treated timber to be galvanised, chromed or non-ferrous.

Drill timber where necessary to prevent splitting.

7.13 Timber Framed Stairs

Timber framed stairs to be as shown on the drawings.

Where not detailed stairs must be in accordance with BCA.

7.14 Timber Framed Walls

Timber framed walls must be in accordance with Section 6 of AS 1684.

7.15 Roof and Ceiling Framing

Roof and ceiling framing must be in accordance with Section 7 of AS 1684 (provide roof and ceiling plans as shown on drawings).

A) ACCESS TO ROOF SPACE

Where the space between the roof and ceiling structure exceeds 900mm in height, services access of min 500 x 500mm must be provided to that space.

B) CEILING BINDERS

Provide ceiling binders in accordance with Section 7 of AS 1684.

C) TRUSSED ROOFS

Timber roof trusses and prefabricated timber framing systems and their fixings must be engineer designed and certified in accordance with AS 4440 and must be suitably branded to identify the manufacturer and conditions of use. Unless otherwise required by the truss manufacturer provide clearance between bottom chord of truss and internal partition walls.

Provide all bottom chord bracing as required by truss manufacturer. At each end, bracing to be fixed to rigid end wall top plates, or diagonally braced to sidewalls.

D) ROOF BRACING

Provide roof bracing in accordance with Section 8 of AS 1684.

E) ROOF BATTENS

Provide roof battens sized in accordance with Section 7 of AS 1684. Fix battens at the spacing recommended by the roofing manufacturer. Fixings shall be as shown on the drawings and in accordance with AS 1684.

See also "Roofer" for battens over fire-rated walls.

F) FASCIAS AND BARGES

Provide cypress pine, seasoned hardwood, and preservative treated pine, in accordance with Section 7 of AS 1684. All timber fascias must be primed all around before fixing. (Refer "Painter" for priming).

G) EAVES SOFFIT

Where overhang is less than 600mm. Support linings on 45mm x 32mm soffit bearers at not more than 450mm centres. Where the overhang is between 401mm and 1500mm support soffit linings on 70mm x 35mm soffit bearers at not more than 450mm centres.

Ventilate the roof space at the ridge, gable and/or eaves to effectively cross ventilate the whole of the space. (Refer manufacturer of ceiling material. Ventilation equal to approximately 1/160 of the ceiling area is generally recommended).

Refer "Clearance for Shrinkage" in "Bricklayer and Blocklayer".

H) HOT WATER TANK PLATFORM

Where a hot water storage tank is to be installed in the roof space support the tank on a platform directly over a load-bearing wall.

Where solar water heaters incorporating a roof storage tank are installed, provide additional support, in accordance with AS 1720.1.

I) VERMIN PROOFING

Close off the roof space to the entry of birds and other vermin.

7.16 Wall and Ceiling Insulation

Where shown on drawings and/or noted in the Schedule, provide wall and/or ceiling insulation in accordance with the manufacturers' installation instructions.

8.0 STRUCTURAL STEEL AND METAL WORKER

8.01 Extent of Work

Provide structural steel and metalwork as shown on the drawings and/or included in the Schedule.

For reinforcement steel, refer to "3.0 - Concretor" etc., refer to "9.0 Metal Roofer and Sheet Metal Plumber".

For valleys, gutters and downpipes.

8.02 Materials

All materials must comply with the relevant Australian Standard including AS1250, AS1657, AS2327 and AZ/NZS4600.

Use metals suited to their required function, finish and method of fabrication in section of adequate strength and stiffness for their purpose.

8.03 Corrosion Protection

Before erection, wire-brush and finish with one coat of zinc-chromate or other equivalent metal primer, all steel members unless otherwise specified. Prime any damage to paint finish after erection.

Provide hot dip galvanising or zinc plating to all steel and structural metal components where exposed to the weather in accordance with manufacturers' recommendation.

8.04 Bolts, Straps, Screws Etc.

Provide bolts, straps, screws, angles and brackets necessary and appropriate for the proper completion of the work whether expressly specified or not, including the use of proprietary fixings as recommended by the manufacturer.

8.05 Steel Framed Stairs

Provide steel stringers fabricated and welded from mild steel rolled sections with pre-drilled brackets and fixing plates for attachment to building as shown on drawings and/or noted in the Schedule.

8.06 Steel Columns

Steel columns may be used for:

- load bearing (to transfer loads only resulting from the weight and function of the structure down to the foundation),
- tie-down (to act as a load bearing column and to tie the building down against wind uplift),

- bracing (to act as a load bearing column, a tie-down column and to act as a cantilever to resist horizontal wind forces) and in bracing sets (to act in combination with diagonal timber or steel braces, to resist horizontal wind forces).

Provide steel columns where shown on the drawings and to their sizes shown. Where no sizes or details shown steel columns must be in accordance with manufacturer's recommendation.

Concrete footings must be as specified or in accordance with AS2870.

8.07 Steel Lintels

Steel lintels must be provided as shown on drawings and where necessary for support if not expressly shown.

Refer 6.0 Bricklayer and Blocklayer for installation.

Where other proprietary lintels are used, they must be in accordance with manufacturer's specification.

8.08 Anchor Rods

Provide steel anchor rods as shown on drawings or as required by AS1684 for tie-down and bracing. Join anchor rods by lapping and welding both sides for a minimum of 50mm to achieve strength equal to that of the rod or by using approved joiners.

Where using threaded joiners, screw both lengths of rod fully into joiner.

8.09 Handrails and Balustrades

Provide handrails and balustrading as shown on the drawings and/or noted in the Schedule.

Balustrades to be in accordance with the Building Code of Australia - Section 3.9.

8.10 Skylights

Provide skylight/s where shown on drawings and/or noted in the Schedule.

The skylight/s must be installed in accordance with the manufacturer's specifications. Flashings and upstands to suit roofing material.

9.00 METAL ROOFER AND SHEET METAL PLUMBER

9.01 Extent of Work

Provide metal roofing and sheet metal plumbing as shown on the drawings and/or included in the Schedule.

9.02 Materials and Workmanship

Where different metals are used in conjunction, they must be compatible or separated to prevent corrosion (eg. lead flashing must not be used with an aluminium or zincalume roof or rain water plumbing).

Use only sealants recommended by the manufacturer of the sheet material to be joined.

Fixing of Metal Roofing must be in accordance with AS 1562.

Flashing Materials:

For Use in Masonry

(Refer "Bricklayer and Blocklayer").

For Use Elsewhere

Materials must comply with Australian Standard AS2904.

Other flashings may be used in accordance with the manufacturer's specification.

9.03 Installation of Roofing

Install roofing in accordance with the manufacturer's specifications and AS1562.

9.04 Roof Sarking

Provide sarking where shown on the drawings and/or noted in the Schedule.

Sark with a fire-resistant, double-faced aluminium foil covered reinforced fabric. Fix sarking with 100mm side lap and with end laps folded and fixed to line of rafter. Keep folded joints clear of valleys. Fix sarking over rafters to ensure the discharge of water without ponding into eaves gutter.

Secure sarking to the top edge of the fascia, and dress 25mm down into gutter. Where the design of the roof incorporates a valley, turn the sarking neatly up the edge of the valley board and extend over the side beading of the valley.

Where ceiling lining is to be fixed on top of rafters and sarking is to be provided, provide counter battens fixed to each rafter over lining so as to allow sarking to sag between roof battens to eliminate ponding.

9.05 Flashing

Flash all junctions between roof and walls with lead, soft aluminium or zinc. NOTE: lead must not be used with aluminium or zincalume roofing or rainwater plumbing or anywhere where water supply is by rainwater storage. Flashing to lie 150mm on roof and carry up 150mm behind sheeting and be fixed securely or stepped and built into brickwork.

Each flue or ventpipe passing through a roof must be fitted with a collar and overflashing. Collar base to be 450mm x 450mm in the case of metal roofs. Apply silicone sealant to underside of collar base, fit collar firmly to roof and fix with monel rivets at 174mm maximum spacing for metal roofs. Over-flashing to be overlapped 75mm over collar. Set top to overflashing in silicone sealant and clamped to flue or pipe.

Alternative proprietary flashings may be used where approved by the roofing manufacturer.

Refer "Bricklayer and Blocklayer" for chimney tray.

NOTE: Copper and lead pipes are not to be used when passing through metal roof.

Provide all flashings necessary to render the building waterproof.

9.06 Valleys, gutters and Downpipes

Unless otherwise shown on the drawings or included in the Schedule, provide gutters and downpipes of at least 0.60mm nominal thickness of base steel and valleys of at least 0.45mm nominal thickness of base steel; galvanised, zincalume or otherwise finished accordance with the manufacturer's specifications.

Provide valleys at least 375mm wide and extend 125mm under roofing each side, bead edges, lap end joints 225mm decreasing to 150mm for slopes above 1:2 (26.5°).

Provide eaves gutters at least 150mm wide secured at 900mm centres. Lay eaves gutters to a minimum fall of 1:400 for metal gutters and 1:500 for fibre cement gutters. Provide downpipes of adequate capacity at a maximum of 12 metres spacing secured twice to walls with straps.

Sizing of gutters and downpipes to be in accordance with relevant Australian Standard.

Metal roof and gutters to be swept clean of metal shavings and disposed fixings at the end of each day's work during installation and on completion.

9.07 Window Flashings

Provide zincalume flashing in either small or wide section over all exposed window and door openings other than brick veneer where brickwork is carried over opening. Flashing must be right angle formed with rolled front edge and minimum 75mm upstand to rear.

10.0 ROOFER (TILES AND OTHER ROOFING)

10.01 Extent of Work

Provide concrete, terracotta tiles or other roofing as shown on drawings and/or noted in the Schedule.

10.02 Workmanship and Materials

Concrete and terracotta roof tiles must comply with the requirements of AS1757 and AS2050 for concrete and AS2049 and AS2050 for terracotta tiles for manufacture and installation. Fixing of roof tiles also must comply with the requirements of the B.C.A. and AS1170.

10.03 Roof Sarking

Sark tiled roofs below 20 °, to all roofs where design wind velocity exceeds 47M/S, to all areas over ceilings lined on rake, and to other roofs as shown on drawings and/or in the Schedule.

Sarking must comply with AS/NZS 4200.

Where a gutter discharges onto a tile roof through a spreader, irrespective of the roof slope, sark the roof from the point of discharge over a width of 1800mm down to the gutter. Where one section of a roof fully discharges onto a lower section, fully sark the lower section.

Where ceiling lining is to be fixed on top of rafters and sarking is to be provided, provide counter battens fixed to each rafter over lining so as to allow sarking to sag between roof battens to eliminate ponding.

Fix sarking over rafters to ensure the discharge of water without ponding into eaves gutter. Secure sarking to the top edge of the fascia and dress down 25mm into the gutter.

Extend sarking over the bead of valley gutters and turn up neatly along valley. Keep folded joints clear of valleys.

Where tiles abut a wall, turn the sarking neatly up behind flashing a minimum of 50mm.

10.04 Roof Battens

Roof battens must be timber or steel sized and installed in accordance with AS 1684 to centres specified by roofing manufacturer.

Refer also "Carpenter" and "Metalworker".

10.05 Flashings

Flash all junctions between roof and walls with lead or soft aluminium. Flashings must lie minimum 150mm onto roof and carry up 150mm behind sheeting and fixed securely or to be stepped and built into brickwork.

Each vent pipe or flue passing through a roof shall be fitted with a collar and over flashing. Collar base to be taken up a minimum of 150mm under tiles.

Proprietary flashings may be used in accordance with manufacturer's specifications.

Refer also carpenter and metal worker.

10.06 Bedding and Pointings

Bed hip and ridge tiles to provide weatherproof seal. Provide drainage holes to bedding where tiles have no weather check.

All bedding and pointing must be carried out in one operation. Mortar for bedding and pointings to be as per AS A123.

Pointing to be regular in appearance and have a uniform colour, texture and thickness. Colour to match capping tile.

10.07 Birdproofing

Birdproof any gaps of eaves, valleys or other penetrations by means of birdmesh or other approved material.

10.08 Clean Up

Clean up all broken pieces from roof and gutters. Sweep any loose material, mortar off roof and replace any cracked or any loose material, mortar off roof and replace any cracked or defective tiles. Spare tiles to be left on site.

11.00 PLASTERER (DRY WALL)

11.01 Extent of Work

Provide wall and ceiling linings to all rooms and areas as shown on drawings and/or noted in the Schedule.

All internal walls and ceilings must be sheeted unless otherwise noted.

11.02 Workmanship and Materials

All materials and installation procedures must be in accordance with manufacturer's specifications and AS 2589.

All linings must be securely fixed and at centres recommended by manufacturer for the application and situation required.

11.03 Ceiling Linings

Provide 13mm plasterboard or 10mm high-density plasterboard fixed directly to underside of ceiling joists or floor joists where required.

Ceiling battens in either steel or timber to be provided only where shown on drawings and/or noted in the Schedule. Provide 90mm scotia cornice mould to all general areas and 55mm scotia cornice mould to inside of cupboards unless otherwise noted in the Schedule.

Pull all electrical wires through in positions nominated.

11.04 Wall Linings

Provide 10mm plasterboard fixed directly to studs. Leave minimum 10mm gap top and bottom of wall for shrinkage. Where linings are carried down across floor framing (as may be the case in stairwells) a gap must be provided between the linings of the upper and lower level. The gap must be near the bottom of the bearer with the sheets separated sufficiently to allow for shrinkage in the framing. Provide cover mould over the join which shall be fixed to the lower sheeting only.

Finish off all joints and fixings in accordance with manufacturer's specification.

11.05 Wet Area Linings

Provide water-resistant plasterboard; water resistant fibre cement or tempered hardboard to walls in wet areas or as otherwise noted in Schedule.

All edges must be adequately protected, fixed and flashed in accordance with the manufacturer's specifications and especially around all service pipe penetrations.

Wet area board must be used:

- immediately adjoining or behind a bath to a minimum height of 1200mm above floor level where no shower is fitted and 1800mm where a shower is fitted;
- for a shower compartment, including the walls about an open shower to a height of not less than 1800mm above the floor;
- as a splashback to a height of at least 100mm behind all sinks, hand basins and laundry tubs; and
- on walls where wall tiles are fixed by adhesive and through which pass service pipes.

12.00 JOINER

12.01 Extent of Work

Provide all joinery either site assembled or factory assembled, trims and internal and external joinery as shown on drawings and/or noted in Schedule.

12.02 Workmanship

Timber sizes referred to in this clause are nominally finished sizes. All fixing timbers must be seasoned and free of defects.

Properly fit frames and join together with linings; mouldings and trimmings properly mitred or scribed. All surfaces must be left free of machine marks and ready for painting or staining.

All frames must be packed plumb and square and fixed securely into jamb studs or brickwork.

Dip treat all sashes exposed to the weather (either finally or during construction) at the place of assembly with water repellent preservative or completely prime on all faces at place of assembly.

All vanity cabinets must be constructed to AS 4386 and AS 4387.

12.03 Timber Doors and Frames

Doorframes must be in accordance with the manufacturer's specification or at least either 70mm thick solid rebated, or 40mm thick with planted stop. Mullions must be either 70mm thick double rebated or 40mm thick with planted stops.

Jamb linings must be a minimum 35mm thick solid rebated, for external and for internal doors only, 19mm thick with planted stops.

Stops must be 12mm thick for external and internal doors.

External type doors must not be less than 2040mm x 820mm x 38mm thick. Internal doors shall be not less than 35mm thick. All doors must be free of warping, not binding on stops, and securely held by furniture.

Unless otherwise shown provide:

- weather moulds to inward opening external door.
- at least two 85mm herline hinges to internal swing doors and three 85mm butt hinges to external doors.
- 100mm cabin hook and soft bumper stop screwed to door. Alternatively, a combined door stop/gripper catch may be provided.
- a key operated lock to timber external doors
- a knob or lever operated latchset to internal doors.

12.04 Aluminium Door and Window Frames

Provide aluminium door and window assemblies in accordance with AS 2047 and AS 2048 and to minimum sizes required by the Standard Building Regulations.

Install metal door and window frames in accordance with the manufacturer's specification.

Sizes must be as shown on drawings and/or noted in the Schedule.

Finish and colour must be as noted in the Schedule.

12.05 Insect Screens

Where shown on drawings and/or noted in the Schedule, provide fibreglass mesh screens glazed into a suitable frame and securely fitted to windows and doors.

12.06 Garage Doors

Where shown on drawings or required by the Schedule, provide garage doors of the type as nominated.

12.07 Trims

Fix storm moulds to all external door and window frames.

Provide architraves or suitable mouldings to all doors and window openings.

Except for masonry walls on concrete floors provide skirtings at junctions of all wall and floors.

Profile and finish must be as noted in the Schedule.

12.08 Clearance for Shrinkage

Refer "Clearance for Shrinkage" in "Bricklayer and Blocklayer".

12.09 Flashings

Refer "Damp Proof Courses (DPCs)", Flashing and Sarking in "Carpenter".

12.10 Glazing

All glazing shall comply with AS 1288. Use toughened safety, wired glass or laminated safety glass where required by the Standard in doors, panels adjoining doors, shower screens, roof lights, etc.

Glazing to external windows and doors is to be suitable for the wind loading noted in the Schedule.

12.11 Shower Screens, Mirrors

Provide aluminium framed shower screens with sliding, pivot or hinged doors as shown on drawings or noted in the Schedule.

Glazing must be laminated toughened or wired safety glass in colour and finish as noted in the Schedule.

Provide mirrors with minimum 2 coats protective backing paint as shown on drawing and/or noted in the Schedule. Unless otherwise noted mirrors must be aluminium framed to match shower screen.

12.12 Full Height Cupboards and Wardrobes

Provide cupboards where shown on drawing and or included in the Schedule and unless otherwise shown -

- Cupboards must have doors and must be lined to match linings and ceilings of rooms into which they open.
- For linen or pantry cupboards provide 4 rows of shelving equally spaced with top shelf 1650mm above main floor. For broom cupboard and wardrobes provide one shelf at 1650mm above main floor.

12.13 Bench and Wall Cabinets (including Vanity)

Provide cabinets where shown on the drawings and/or included in the Schedule and unless otherwise shown must be 900mm high by 600mm deep for bench cabinets and 300mm deep for wall cabinets. Wall cabinets must be fixed a minimum of 1350mm from floor to underside of cabinet.

Unless otherwise included in the Schedule, provide:

- i) self closing hinges, handles and/or catches to all doors;
- ii) handles and drawer guides to all drawers;
- iii) cutlery compartment to one kitchen drawer.

Refer to the Schedule for list of accessories and fittings included in cabinets.

12.14 External Screens

Provide external screens as shown on drawings and/or included in the Schedule.

Where preservative treated timbers are used, stainless fixings must be used.

13.00 CERAMIC TILER

13.01 Extent of Work

Provide wall and floor tiles as shown on the drawings and/or included in the Schedule.

Refer also "Sanitary Plumber" (for floor wastes).

13.02 Surface Preparation

Where necessary to provide the required alignments and levels, render surfaces of brickwork, blockwork and concrete as specified in "Plasterer – 14.0". Install fixings for other trades and built-in elements as required prior to tiling. All surfaces to be tiled must be dry, and free of grease and other debris. Avoid where possible, changes in background material, (e.g. concrete block to brickwork). Where not possible, allow a waterproof control joint.

Provide waterproof caulking to bottom of wall lining over pre-formed shower base prior to tiling.

13.03 Ceramic Wall Tiles

Fix wall tiles in accordance with the manufacturer's specification, with an adhesive applicable to the conditions of use, level and plumb, with all tile faces in a constant plane with straight lines and even joints.

Allow tiles to cure for at least forty-eight (48) hours after laying before pointing. Point tiles in accordance with manufacturer's specifications. Colour pointing mortar as noted in the Schedule.

13.04 Ceramic Floor Tiles

Fix floor tiles with an adhesive on bedding with tiles fully bedded and joints flushed up in accordance with the manufacturer's specification applicable to the conditions of use.

Provide waterproof membrane under bedding to all timber floor bases.

Finish floor level around all walls with a fall to floor wastes where they occur.

13.05 Finishing

When required by the tile manufacturer, seal the surfaces in accordance with the manufacturer's specification on completion.

13.06 Cleaning

Thoroughly clean tiles and surrounding finished surfaces on completion.

14.0 PLASTERER (CEMENT AND APPLIED FINISHES)

14.01 Extent of Work

Provide the work as shown on the drawings and described in the Schedule.

14.02 Cement Render

External Render shall be 6 parts clean sand, 1 part fresh cement, 1 part lime.

14.03 Applied Finishes (External)

External finishes must be applied in accordance with manufacturer's specifications.

Provide vee joints at junctions of different background materials, abutment with other finishes, and at abutments with metal frames.

14.04 Completion

Remove all material on completion and leave the job clean and tidy. Remove marks from all finished surfaces.

15.00 SANITARY PLUMBER

15.01 Extent of Work

Install all fixtures and fittings and provide sanitary plumbing and water service as shown on the drawings and/or included in the Schedule.

All water plumbing must be installed and tested by a licensed tradesperson, as required by the Standard Water Supply Law.

15.02 Materials

Where different materials are used, they must be either compatible or separated to prevent corrosion (e.g. isolate copper tube from steel frame).

15.03 Cold Water Service

Installation of the cold water service must be in compliance with AS3500.1.1.

Piping shall not be cast into or under concrete floor slabs. Copper must be used where pipes are inaccessible. All pipes to be tested to 1.5 times working pressure and approved by Local Government or Certifier before concealing.

Connect to all points unless otherwise nominated in the Schedule.

15.04 Hot Water Service

Provide a hot water unit, as nominated in the Schedule, in the position shown on the drawing. Installation of the hot water service must be in compliance with AS3500.4.1.

15.05 Fixtures and Fittings

Provide sanitary grade fixtures and fittings to positions shown on drawings and in accordance with the relevant Australian Standards.

Install in accordance with manufacturer's specifications.

Type and colour of fixtures and fittings must be as shown on drawings and/or noted in the Schedule.

15.06 Tapware

Install hot and cold water taps and fittings as nominated in the Schedule.

15.07 Floor Wastes

Provide floor wastes as required by the BCA and as shown on the drawings.

15.08 Fixtures, Wastes, Traps and Vents

All wastes must be trapped and connected to drains as required by the Standard Sewerage By-Laws.

Provide vermin seals to all pipe penetrations.

15.09 Shower Trays In-situ

Pre-fabricated shower trays are to be installed in accordance with AS3500.2.2 and the manufacturer's instructions. All trays must be installed in accordance with the Building Code of Australia.

For in-situ membrane showers use a seamless waterproof membrane with current certificate of conformity or CSIRO opinion and installed in accordance with manufacturer's specifications.

16.00 GAS FITTER

16.01 Extent of Work

Provide gas plumbing from point of supply to all fixtures requiring gas service.

16.02 Materials and Workmanship

Test all pipework before concealment and securely fix pipework to prevent movement.

Gas lines must not be installed in cavities or run horizontally in stud framing.

16.03 Fixtures and Fitting

Provide Supply Authority approved fixtures and fittings to location shown on drawings and/or noted in the Schedule.

16.04 Separation of Fixtures

Gas supply bottles and fixtures to have the following minimum clearances or as directed by Supply Authority.

- | | |
|------------------|-------------------------------------------------|
| i) Gas Bottles: | 1500 mm from meter box |
| (exchange) | 5000 mm from gas HWS |
| | 3500 mm from elec HWS |
| | 1000 mm from an opening |
| | 1000 mm from weep holes |
| ii) Gas Bottles: | 3500 mm diag from meter box |
| (insitu fill) | 500 mm from gas HWS |
| | 3500 mm from elec HWS |
| | 1000 mm from an opening |
| | 1000 mm from weep holes |
| iii) Gas Cooktop | 450 mm to underside of downward facing material |

- | | |
|----------------|----------------------------------|
| iv) Gas H.W.S. | 500 mm FROM METER BOX |
| | 500 mm from openable window/door |
| | 500 mm from a corner |
| | 500 mm from an air intake |
| v) Gas meter | As for gas bottles (exchange) |

17.0 ELECTRICIAN (INCLUDING TV & TELEPHONE)

17.01 Extent of Work

Work must be carried out by a licensed person in accordance with AS 3000 on wiring rules.

Carry out testing on all installations and lodge necessary test notices with electricity supply authority.

Provide facilities for attachment, support or protection of the service line and connect from consumers' terminals to meters and switchboard.

Install meter box and switchboard. Allow for single-phase power unless otherwise noted in the Schedule.

Install all lights, power outlets and electrical appliances nominated in the Schedule. Positioning of all outlets and switches must be as shown on drawings or as directed by the Owner.

Install all fixtures included in the Schedule.

17.02 Switchboard and Meterbox

Meters and control relays (time switches) are to be installed in one waterproof box maximum of one metre from the front down either side of the building. Box to be of sufficient size to accommodate all equipment, and the switchboard where required by the Schedule to be installed in the meter box.

Install earth leakage system to meterbox to cover all power circuits as required by the Australian Standard.

17.03 Outlets

Outlets must be distributed among circuits as follows:

Lighting: Outlets must be connected as evenly as possible over the lighting circuits.

General Purpose Outlets: The outlets must be distributed as evenly as possible over circuits.

Provide special purpose outlets (for clothes driers, air conditioners etc.) where required by Schedule.

When lamp fittings are nominated they must be properly installed. An earthing conductor must be run to lighting outlets in earthed situations.

17.04 Smoke Alarms

Provide hard wired approved smoke alarms as shown on drawings and in accordance with the BCA.

17.05 TV Outlets

Provide co-axial cable from position of TV outlet as shown to roof space or eaves leaving sufficient length of cable for fitting of external aerial in optimum position for receiving transmissions.

Location of outlets to be as shown on drawings and/or noted in the Schedule.

17.06 Telephone

Provide concealed conduit and cabling from the Telstra lead-in cable to the telephone outlets points shown on the drawings and/or noted in the Schedule.

18.00 PAINTER

18.01 Extent of Work

Provide paint finish to all exposed surfaces and prime as necessary and as noted in the Schedule.

The surfaces to be painted or papered must be in suitable conditions for the specified finish.

18.02 Materials and Workmanship

All paint must be supplied by a reputable manufacturer.

All paint must be supplied and painting undertaken in accordance with manufacturer's specifications for the particular system used.

18.03 Preparation

All surfaces must be properly prepared. All external woodwork that is not primed before delivery to site must be given a coat of external primer.

For all preservative treated pine cladding, for natural finish, apply a final flood brushing with a water repellent preservative on completion. Follow paint manufacturer's specification for paint finish.

Prime dressed chamferboards and all fascias all around before fixing. Prime outer faces and ends, including laps and rebates of weatherboards before fixing.

18.04 Finish

All surfaces must be uniform in colour, finish and gloss and free from lap and brush marks. All paint applications must be done in accordance with the paint manufacturer's specification and the specification of the manufacturer of the product being painted specifications.

EXTERNAL

- Woodwork

All external woodwork must be cleaned prepared, primed then given two coats of acrylic finishing paint or one coat of undercoat and one coat of enamel top coat paint.

- Metalwork

All metalwork must be cleaned of dirt and grease and given two coats of external acrylic paint or one coat of metal primer and two coats of enamel.

- Fibre Cement

Clean off all dirt and apply two coats of acrylic.

INTERNAL

- Woodwork

All internal woodwork must be cleaned and sanded then given a coat of undercoat/sealer and one coat of plastic or enamel paint.

Alternatively woodwork may be finished with a two-coat stain finish.

- Plasterboard

Clean down surfaces and ensure joints and patching are sanded, then give one coat of sealer/undercoat and one coat of premium plastic paint.

- Fibre Cement

Clean down surfaces and ensure joints and patching are sanded then give one coat of sealer/undercoat and one coat of premium plastic paint.

- Polished Floors

Rough sand and fine sand flooring timbers. Fill all holes and defects in colour matched putty. Finish with polyurethane or enamel varnish in accordance with manufacturer's specification.

18.05 Colour Scheme

Colour scheme must be shown in the Schedule.

18.06 Completion

Remove all equipment and empty paint tins etc. on completion, and leave the works in a clean and neat condition. Refix fittings where removed for painting, and remove paint splashes from door handles, window fittings, switch plates, etc.

This is the Specification referred to in the Building Contract

Dated:

Between:

(Owner)

(Owner)

and

(Builder)

at

(Location)