

GENERAL BUILDING SPECIFICATIONS

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Preliminaries

Scope

This Specification has been prepared for use with Class 1a and 10 buildings as determined by Part 1.3 Classification Volume Two of the National Construction Code (NCC) collated with the Building Code of Australia (BCA).

Works shall be performed in accordance with:

- The approved plans including the NSW Building Sustainability Index (BASIX) commitments in accordance with the BASIX Certificate and Section 96/455 changes.
- Any conditions of Development Consent or Complying Development Certificate.
- The National Construction Code (NCC) Volume Two and the documents such as Australian Standards (AS) adopted by reference in the NCC.
- Where works and materials are not appropriately detailed by the items above it shall be performed or installed with regard to manufacturer guidelines and acceptable building practices.

Statutory Requirements, Approvals, Fees and Inspections

All building and associated work shall comply with the relevant Acts and Regulations of Parliament and statutory requirements.

Appointment of Principle Certifying Authority

In accordance with Section 109E subsections (a) (b) (c), the Environmental Planning and Assessment Act 1979, the Owner/s is required to appoint the principle Certifying Authority. The Owner/s is responsible for providing the Builder a list of mandatory critical stage inspections as required by Clause 162A of the Environmental Planning and Assessment Regulation 2000.

Materials

Materials shall be new, unless otherwise identified in the Schedule.

Items supplied by Owner

Items to be supplied by the owner/s shall be identified in the Addendum. Where it is agreed that additional items are to be supplied by the owner/s during construction, such agreement and a description of the items shall be set out in writing to the builder.

It is the responsibility of the owner/s to arrange payment, for delivery and protection against damage and theft of such items. All items, unless otherwise indicated indicated in writing by the owner/s shall be new and fit for their intended purpose. If items are not available when required, the owner/s shall be obliged to make an alternative selection.

Work Health safety (WHS) Management System

The builder has statutory responsibilities in relation to the WHS Act 2011 (NSW) at regulation 309 states, all construction work costing \$250k or more must have a written WHS Management Plan prepared by the Builder before works on the construction commences.

Site Access

The builder has statutory responsibilities in relation to Work Health safety. In order to assist the Builder in maintaining a safe work site, The Owner/s agree to comply with any directions and instructions of the Builder/s concerning site access and movement on and around the site.

Site Sign

Before work commences, the Builder shall provide a signboard at least 600mm x 900mm, either landscape or portrait containing the following information: the Builders name and telephone number (including an after hours telephone number), the location of the site office for the project, Builders license number.

The **Principle Certifying Authority (PCA)** is required to have a sign erected and maintained on the site for the duration of the project which provides their name, address and day and after hours telephone of the PCA and the name, address and day and after hours business telephone number of the principle contractor. The sign should also state that **Unauthorised Entry to the Site is prohibited.**

Information relating to the builder and the PCA can be incorporated on a single sign.

Site fencing and Scaffolding

Unless otherwise stated, the Builder shall provide site fencing to secure the site and complying scaffolding necessary to undertake the building work, including work undertaken by trade contractors engaged by the builder.

Site Services and Amenities

Temporary Toilet Accommodation: shall be provided on site until the completion of the works.

Water Supply: unless otherwise specified and where no reticulated water supply is available to the site prior to the commencement of construction, the owner/s shall supply temporary water supply for use and as required at the direction of the builder.

Power: unless otherwise specified, 240 volt power is to be supplied to the site for construction and associated purposes. In the event power is not available and/or additional poles, service risers, underground wiring, etc., is required by the Electrical Authority, this additional cost, plus Builders margin shall be a cost to the owner/s.

On Completion

The builder upon completion will remove all surplus materials and construction debris from the site. The work shall be cleaned through out.

Geotechnical Investigation

An engineer qualified to investigate the soil conditions and classify the site in the area of the proposed building may be engaged by either the builder or the Owner/s. Where possible, the engineer will certify that the site will support the proposed footings, slab and building design.

Costs of such construction will be payable by the Owner/s as an additional cost not allowed for/or included in the contract sum, unless otherwise specified.

Site Identification and Setting Out

The builder is to visit the site and note the existing levels, site conditions and facilities. The builder shall advise the Owner/s of any variation found at the site from the documentation or information provided.

The land shall be block and peg surveyed and a survey certificate provided before work commences. The cost of this survey shall be included in the price unless otherwise specified. Any additional survey shall be subject to the allowance in the PC Schedule.

Excavations, Foundations and Footings

Protection of Services

Contact Dial-Before-You-Dig NSW/ACT between Mon-Fri 8am and 7pm to identify the location of underground assets (pipe work, service lines and network installations). www.1100.com.au or phone 1100.

Environmental

Soil Erosion and Sediment Control

Measures shall be taken to manage the effects of stormwater run-off to avoid erosion, sedimentation, contamination of the site, surrounding areas and drainage systems. Apply all site management requirements which are a Condition of Consent.

Tree Protection

Protect any tree/s identified for retention on the drawings or as a condition of consent. Mark all trees and shrubs to be retained with visible tape or other means. Where necessary, provide physical barriers to protect marked trees and shrubs. Limit excavation within the drip-line.

The Owner/s shall advise the Builder of any vegetation protection orders related to the site.

Site Preparation (NCC-BCA 3.1)

Rubbish, top soil and any vegetation within 1 metre of proposed building/s shall be cleared and removed.

Earthworks (NCC-BCA 3.1.1)

Excavation

Slope

Excavate and backfill as required for all work shown on the drawings. The excavation and placement of fill shall be undertaken in accordance with NCC-BCA 3.1.1.

Footings

Excavate trenches to Engineer's design or the approved footing design.

Termite Risk Management (NCC-BCA 3.1.4)

Termite barriers shall be installed in accordance with NCC-BCA 3.1.4.

Prior to the commencement of the works, the site shall be inspected for evidence of termite activity. Where termite nests are found on the site, treatment of the nests shall be carried out by a competent and qualified contractor.

Vapour Barrier (NCC-BCA 3.2)

Vapour barrier installed under slab-on-ground construction shall be in accordance with the NSW Variation NCC-BCA 3.2.

The vapour barrier shall be a high impact damp proofing membrane as per NSW Variation 3.2.

Formwork

Quality formwork shall be used to provide shape, line, true positioning and dimension to carry all imposed loads. Brace sufficiently to prevent bowing or buckling while concrete is being poured and cured.

Where the slab edge is to be exposed for termite management, the exposed edge shall be off-the-form, smooth and without honeycomb.

Reinforcement (NCC-BCA 3.2.3)

Steel reinforcement shall comply with NCC-BCA 3.2.3 and the Engineers details.

Bar chairs shall be placed to give the following clear cover:

- 40mm to unprotected ground
- 30mm to a membrane in contact with the ground
- 20mm to an internal surface
- 40mm to an external surface

Premixed Concrete (NCC-BCA 3.2.3)

Premixed concrete shall be supplied to comply with AS1379.

Unless otherwise specified, concrete shall have default strength at 28 days of not less than 20Mpa (Grade N20) and have a nominal aggregate size of 20mm.

Unless otherwise specified, a default slump of 100mm will apply to residential slabs and footings.

Placement

Trench and footings shall be dewatered and cleaned of loose and softened material prior to concrete placement.

Curing

Concrete shall be cured by covering with plastic sheeting, the application of a suitable curing compound, by keeping continually damp, or in accordance with AS3600.

Where adhesives to the slab surface in conjunction with floor coverings are to be used strict care should be exercised in the use and compatibility of curing compounds.

Footings and Slab on Ground

Concrete slabs and footings shall not be poured without the approval of the Engineer and the Principle Certifying Policy.

Pier and Beam Footings

Where nominated, pier and beam footings shall be constructed to the Engineer's design and shall not be poured without the approval of the Engineer and the Principle Certifying Authority.

Screw in Foundations

Screw in foundations and proprietary brand flooring systems based on composite design with pre-cast beams and in situ concrete shall be installed in accordance with the manufacturers recommendations and/or consulting Engineer.

Concrete Paths

Concrete paths shall be shown on the drawings and unless otherwise specified, shall 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.

Unless otherwise specified in the Addendum, a woo float or other non-slip finish shall be provided.

provide falls away from the building of 1:50 for 900mm.

Slop concrete up and around overflow relief gullies and set inspection openings, etc. flush with the surface.

Ensure weep-holes to adjacent structure are not obstructed.

Tolerance for Concrete Floors

Shrinkage cracking can be expected in concrete floors.

Concrete floors can also be damaged by foundation movement caused by localised drying and wetting. The Builder is not responsible for foundation movements caused by the Owner/s failure to maintain drainage systems and the overwatering and misuse of watering systems to gardens located adjacent to slabs and footings. reference: CSIRO PublicationBTF18, Guide to Home Owners on Foundation and Footing Performance.

Retaining Walls

Retaining walls shall be constructed as identified by the approved plans.

retaining walls shall be constructed of a material or proprietary retaining wall systems shall be constructed to the manufacturers requirements.

The location of retaining walls to boundaries shall be confirmed by a qualified Engineer prior to construction.

Drainage (NCC-BCA Part 3.1.3)

General

All drainage work shall be carried out by a licensed plumber. stormwater drainage shall be carried out in accordance with the NCC-BCA.

Onsite Wastewater Treatment Systems

Wastewater onsite treatment systems shall be installed in accordance with the manufacturers requirements and the requirements of the Local Authority. Following commissioning of the onsite wastewater treatment system the Owner/s will be responsible for the maintenance requirements of the wastewater system provided.

Bricklaying/Masonry (NCC-BCA Part 3.3)

Masonry Units

Masonry units are to be selected and as identified in the Schedule. Masonry units produced from clay, concrete and calcium silicate shall comply with AS/NZS 4455.

Masonry units exposed to salt attack shall comply with the durability requirements of AS3700.

Autoclaved Aerated Concrete (AAC) blocks shall be selected and installed to the manufacturers specification.

Workmanship

Masonry construction shall comply with AS4773.1 to Part 1, 2 and NCC-BCA Part 3.3. Set out masonry as shown on the drawings, build to gauge to suit masonry units, maintain chosen bond with full mortar joints to a nominal 10mm (+/- 3mm).

Mortar joints shall be finished to the type nominated in the Schedule. Where the Schedule nominates raked joints, the rake must not extend into reveals and sills beyond the line of the storm moulds.

The cleaning of masonry should take place as work progresses and upon completion in a manner so that the work is not damaged. Pressure cleaning and acid wash should not be carried out without prior approval of the builder.

Where masonry is to be high pressure cleaned, the following restrictions shall apply:

- A. Maximum pressure shall be 7000 kpa
- B. use a wide fan spear nozzle of 15° to 20°
- C. Keep the nozzle about 500 mm from the wall and never closer than 300 mm
- D. Test the procedure first on a section of wall that is less noticeable.

Mortar

Mortar mixes shall comply with AS3700 and may be mixed in volume according to NCC-BCA Part 3.3.

Mortar shall consist of a mixture of cement, sand and water, with the addition of lime and admixtures. Where water thickener is used, it shall be a cellulose-based product, suited for its application according to the manufacturers and suppliers directions.

Mortar for reinforced masonry shall be of mortar class either M3 or M4.

Cavities and Weepholes

In brick veneer construction, the minimum cavity shall be 25 mm, measured clear of any conduit, insulation or services placed in the cavity. In cavity masonry walls, the minimum cavity width shall be 35 mm, measured clear of any conduit, insulation or services placed within the cavity.

Remove mortar droppings from wall ties and cavity flashings progressively during construction and upon completion of the work.

Weepholes shall be created by opening perpend, free of mortar and other materials, at centres not exceeding 1200 mm centres and in accordance to NCC-BCA Part 3.3.

Wall Ties

Wall ties are to comply with NCC-BCA Part 3.3 and shall be manufactured in accordance with AS/NZS 2699 and installed to AS 4773.3.

Wall ties shall suit the exposure conditions of the site. Ties shall be spaced at a maximum of 600 mm apart in both directions and at 300 mm around openings and edges of brickwork, control joints and at bearer level where a timber floor is provided.

Wall ties are to be built in as work progresses, and to a minimum of 50 mm into the mortar joint, with the other end secured to the frame with approved galvanised fixings. (Note: Clouts are not acceptable for fixing brick ties). Ties shall be installed in a manner that prevents moisture travelling along their length to the inner leaf.

Lintels

Brickwork over openings may be supported by steel lintel, reinforced masonry lintel or reinforced concrete member complying with AS 3600.

Where steel lintel's are used over openings, they shall be hot dip galvanised mild steel angles or flat bars complying with AS 4100, AS/NZS 4600.

For lintels with a clear span of 1000 mm or more each end of the lintel is to have a minimum bearing length of 150 mm. For shorter spans the minimum end bearing is to be 100 mm.

Not less than three (3) courses of brick must be used above steel lintels and brickwork shall not overhang the lintel by more than 25 mm. Prop lintels until mortar has reached its design strength. Props should be no more than 1200 mm apart. The long leg of angle lintels must be vertical.

Damp Proof Courses (DPC) and Flashings

Flashings and damp proof membrane shall be manufactured to AS/NZS 2904 and comply with NCC-BCA Part 3.3.4 and built in as work proceeds. Flashings shall be a flexible material compatible with the adjacent materials to prevent electrolytic action.

Install damp-proof courses in all masonry walls between 150 mm and 250 mm from finished ground level and to the full width of the wall. Step damp proof course on a sloping ground to maintain the height above ground.

At timber floor, install not higher than the bottom of the floor bearers. Damp course material shall be run in long lengths, lapping a minimum of 200 mm at joins and to the full width of course at all intersections. Flashing extending the full width of the masonry course may also be used as a DPC.

Cavity Flashing

In brick veneer construction the fishing shall extend the full width of the brick wall, across the cavity and turned up not less than 150 mm and fixed to the frame. For slab-on-ground, provide approved flashing one course below main floor turned up cavity and fixed to frame. Flashing to extend to external face of outer leaf and be visible.

In masonry cavity construction, the flashing shall extend the full width of the external masonry wall, across the cavity and turned up not less than 150 mm and built a minimum of 30 mm into the inner masonry wall.

Head and Sill Flashing, Stepped Flashings and Flashings at Roof/Wall Junctions. Sill and Head Flashings shall be installed in accordance with NCC-BCA Part 3.3.4.

Stepped flashings shall be installed in accordance with NCC-BCA Part 3.3.4.

Flashings at roof and wall junctions shall be installed in accordance with NCC-BCA Part 3.3.4.

Access and Sub-Floor Ventilation

Sub-floor ventilation shall be provided in accordance with NCC-BCA Part 3.4.1.

Provide cross ventilation to the space between the ground and the underside of the timber floor by installing brick or proprietary brand vents to external walls enclosing the space.

The air-flow through the vents must be unobstructed and where external walls are of cavity brick construction, internal openings shall be provided adjacent to the vent. Openings will also be provided to internal sub-floor walls to ensure cross-ventilation.

Provide access to sub-floor area where identified on the plans or as instructed. Opening is/are to be approximately 600 mm in from corners unless otherwise specified.

Clearances

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

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

Clearances should be increased to accommodate expected timber shrinkage e.g.: unseasoned hardwood.

Carpentry (NCC-BCA Part 3.4)

Timber Generally

All timber used shall be of the durability and stress grade specified and/or comply with the provisions of AS 1720 and AS 1684. All structural timber used will be of a durability class appropriate to the expected service life and exposure conditions. All structural timber used will be stamped or otherwise identified in respect of stress grade. Sizes of timber for constructional purposes to be nominal size mentioned with allowable tolerances as provided by the relevant supplement of AS 1684. Scantlings to be in long lengths, accurately cut and fitted and securely fixed.

Engineered Timber Products

Fabricated glue-laminated timber beams are to conform to AS 1328. fabricated I-Beams, laminated veneer lumber (LVL) beams are to be designed in accordance with AS 1720.1.

Handling and Storage

Timber and timber products delivered to the site shall be stored at least 150 mm off the ground, stored level, evenly supported, well ventilated and protected from the rain and sun. Pre-fabricated trusses should be handled in a vertical position to avoid distortion and over stressing of the timber and connecting plates. Where pre-fabricated roof trusses are required to be handled horizontally, provide intermediate support. Do not site repair damaged trusses and report them to the truss fabricator immediately to avoid delays in rectification.

Corrosion Protection

All connectors, fixing plates, brackets and general fixings and related components shall suit exposure level and be compatible to avoid galvanic or electro-chemical action.

Floor Framing

All floors not specified to be concrete are to be framed at the level shown. Floor structure sizes and spacing are to be in accordance with AS 1684 or otherwise specified by a Practising Structural Engineer. Bearers, joists and plates shall be laid true and level.

Bearers and Joists

Span and spacing of bearers and joists are to conform to AS 1684 series of Standards in conjunction with supporting supplements relevant to the applicable wind classification and stress grade.

Blocking

Where the depth of floor joists is equal to or exceeds 4 times their width, herringbone strutting or solid blocking must be provided between the outer pairs of joists and between intermediate pairs of joists at not more than 1800 mm centres, or continuous trimming joists can be provided to the ends of joists above external bearers or wall plates.

Trimmers or solid blocking may be 25 mm less in depth than the joists and solid blocking shall be a minimum of 25 mm.

Joists Under Walls

Provide double joists under all external walls running parallel with the floor joists under the wall. Where a joist is not provided directly under an internal tie-down or bracing wall provide noggins or bridging between adjacent joists at all required fixing points.

Flooring

Strip Flooring

Flooring is to be clear finished and shall not be laid until the building is weather tight. Check supplier certificate for species, grade size and moisture content prior to laying.

Where machine nailing is to be used, ensure boards are in contact with the joist as this type of nailing cannot be relied upon to pull board down to joist.

All floors require a 12 mm expansion gap between the floor boards and any internal or external wall structures.

Plywood Structural Flooring

Structural plywood must be manufactured in accordance with AS/NZS 2269 and sheets stamped with the manufacturers name or trademark.

Sheets shall be installed in accordance with AS 1684. Plywood face grain must run at right angles to the joists and shall be continuous over at least two spans. Where possible, panel ends shall be staggered.

Particleboard Flooring

Particleboard flooring shall be laid and fixed in accordance with AS 1860.2.

Sheets shall span not less than two floor joist spacings. Square edges and ends of sheets shall be butted over joists and trimmers.

Wall Framing

Wall frame, sizes and spacing shall be in accordance with AS1684 or as specified by a Practising Engineer.

Wall Sarking

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

Provide vapour permeable sarking under cladding material that does not provide a permanent weather proof seal (such as unpainted fibre cement, sawn weatherboards).

Fix sarking on the outside of the studs from the 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.

Timber Stairs

Timber stairs are to be designed and constructed to riser, going and balustrade dimensions and comply with NCC-BCA Part 3.9.

Roof Trusses

Roof trusses shall be fabricated in accordance with designs prepared by a Practising Structural Engineer and AS 1720.1.

Roof Bracing

Provide roof bracing in accordance with truss manufacturers detail and Section * of AS 1684.

Access to Roof Space

Where the space between roof and ceiling exceed 900 mm in height, trim as required between roof trusses for a manhole, line the opening and provide a suitable cover.

Veranda Posts

Veranda posts unless otherwise specified shall be a minimum of 100 mm x 100 mm or as required by AS 1684, checked at the top plate and secured to the floor structure. Where fixed to concrete the base of the veranda posts shall be supported by galvanised shoes, stirrups or similar supports.

Eaves Soffit

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

Cross Ventilation

Ventilate the roof space at the ridge, gable and/or eaves to effectively cross ventilate the whole of the roof space.

Hot Water Storage Tank Support

Where solar water heaters incorporating a roof storage tank are installed, ensure additional loading has been incorporated into the roof design.

Steel Framing (NCC-BCA Part 3.4.2)

General

Steel framing will comply with NCC-BCA Part 3.4.2.
Steel framing shall be designed and constructed to either:

- A. AS 4100 - Steel Structures
- B. AS/NZS 4600 - Cold formed Steel Structures
- C. NASH - Residential and low rise steel framing - Part 1 Design criteria.

The frame is to be assembled with fixings as per the design or in accordance with the manufacturers recommendations.

Corrosion Protection

The steel frame must be protected from corrosion in accordance with NCC-BCA Part 3.4.2.2.

Hole cutting or cutting of members should be done in a way which does not leave swarf. Compatible materials and fixings to be used to avoid galvanic or electro-chemical action. Direct contact with CCA treated timber is to be avoided. For slab-on-ground, use damp-proof course under wall frame bottom plates, to prevent corrosion.

The frame is to be permanently earthed.

Channels should be clean of any swarf and mortar droppings.

Electrical wiring, water pipes and other services passing through the frame are to be isolated from it by rubber grommets or other suitable material.

Roofing (Tiles and Metal) NCC-BCA Part 3.5

General

All roof cladding shall comply with NCC-BCA Part 3.5.1 &/or Part 3.5.2 and one or more of the following NCC=BCA referenced documents relevant to the work:

- A. AS 2049 - Roof Tiles
- B. AS 2050 - Installation of Roof Tiles
- C. AS 1562.1 - Design and installation of Sheet Roof and Wall Cladding - Metal
- D. AS/NZS 4256 Part 1, 2, 3 and 5; and AS/NZS 1562.3 Plastic Sheet Roofing.

Ensure appropriate fall prevention requirements are installed prior to the commencement of roofing work.

Roof Tiles

Provide roof tiles as shown on drawings. Roof tiles shall be of a colour, profile and material noted in the Schedule.

Roof tiles shall be fixed in accordance with the NCC-BCA and referenced Standard and the nominated design wind speed for the project.

Metal Roofing

Provide metal roofing as shown on the drawings. Metal roofing shall be of a profile and colour as provided in the Schedule. Metal roofing and accessories shall be installed to the manufacturers recommendations.

Metal roofing must be corrosion resistant in accordance with Table 3.5.1.1a of the NCC-BCA. Where different metals are used they must be compatible in accordance with Table 3.5.1.2 of the NCC-BCA.

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

Battens

Roof battens may be of timber or steel.

Timber battens shall be sized and installed in accordance with AS 1684.2 and AS 1684.3. Where battens are joined in a run, they shall be butt joined at the centre of the truss or rafter.

Metal battens shall be corrosion resistant and fixed to the manufacturers recommendations. Metal battens are to be joined over trusses with a minimum lap of 40 mm. Advice should be obtained from the manufacturer on the use of metal battens in high corrosive areas.

Sarking

Reflective foil sarking shall comply with AS 4200.1 and be installed in accordance with AS 4200.2.

sarking shall be provided for all roofs where the design wind classification is greater than N3. the requirement for sarking will be influenced by roof pitch, length of rafter and bushfire prone areas.

For tiled roofs at a slope below 20°, provide sarking and anti-ponding board at eaves.

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 1800 mm down to the gutter. Where one section of roof discharges onto a lower section, fully sark the lower section.

Fix sarking over rafters/trusses to ensure the discharge of water without ponding into the eaves gutter. Secure sarking at the top edge of the fascia and dress down 25 mm 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 50 mm.

Roof Flashings

Flashings shall be installed in accordance with NCC-BCA Part 3.5.1.3.

Lead flashings must not be used with aluminium or zincalume roofing or rainwater plumbing, or anywhere where water supply is by rainwater storage.

Gutters and Downpipes NCC-BCA Part 3.5.3

Gutters and downpipes shall be designed and installed in accordance with NCC-BCA Part 3.5.3.

Where high front gutters are installed, attention is required to prevent overflow back into the roof or building.

Note: The home owner is advised that gutters will require periodic cleaning to maintain their efficiency.

Internal Linings

Walls

Walls shall be fixed in accordance with the manufacturers recommendations. Provide recessed edge gypsum plasterboards of 10 mm thickness or greater to all internal walls, except as required for wet areas, or other type of panelling as indicated in the Builders Schedule and/or plans.

Wet Area Linings

Wet area linings shall be of a water resistant material for full wall height in accordance with NCC-BCA Part 3.8.1.

Ceiling Linings

Ceiling linings shall be 13 mm gypsum plasterboard or 10 mm high density plasterboard.

The junction of walls and ceilings shall be set as required. Fix suitable cornice as identified in the Builders Schedule, neatly mitred and set at all angles.

Provide back-blocking where three or more consecutive recess joints are present in ceilings.

Waterproofing

General

From the drawings, identify the areas to be waterproofed.

Water proofing to internal wet areas and balconies over habitable areas shall be in accordance with NCC-BCA Part 3.8.1.

Waterproofing System Selection

The waterproofing system should be selected according to the project requirements and the manufacturers specification, taking into account of product suitability and compatibility with surface materials.

Compatibility of Materials

The waterproofer is to ensure component to component compatibility.

Flood Testing

On completion and after the membrane has fully cured, floor waste outlets should be sealed and the area flooded with water to test for water leaks.

The height of the water should be 5 mm below the overflow levels of the waterstops.

Protection

Membrane area shall be protected by barriers or signage until the membrane is fully cured.

Joinery

General

All fixing out timber to be seasoned and free from defects which might affect appearance or durability. All timbers to be D.A.R. accurately cut and securely fixed, mouldings and trimmings are to be properly mitred or scribed. All surfaces must be free of machine marks and ready for painting. External joinery to be inherently durable and primed prior to fixing.

Door Frames

Door Frames shall be solid rebated frames, packed plumb and true and fixed securely to door opening studs or masonry. Metal door frames shall be installed to manufacturers recommendations.

Doors

External doors are to be solid core or framed and glazed and not less than 2040 x 820 x 40 mm thick. Front and rear external doors shall be hung with three 88 mm (min) butt hinges of suitable finish and durability. Where external doors are sheeted with plywood, only waterproof plywood is to be used. Top and bottom door edges are to be painted or similar sealed prior to hanging.

Internal doors shall be not less than 35 mm thick fitted with suitable door furniture and be installed with a clearance off the floor of 30 mm unless otherwise specified. Double doors and sliding doors to be installed where shown on the drawings. Doors shall swing in the direction as shown on the drawings.

Windows

Aluminium and timber windows shall be manufactured and installed in accordance with AS 2047. Windows are to be supplied with Performance Label attached confirming compliance with AS 2047.

Windows shall be protected from mortar droppings.

Window flashings - Refer to "Damp Roof Courses (DPC) and Flashings" in this specification.

Glazing

All glazing shall comply with NCC-BCA Part 3.6 and AS 1288. Glazing shall meet the BASIX/NATHERS commitments where identified on the drawings.

Storm Moulds

Provide storm moulds to external doors and windows and other openings.

Architraves

Provide architraves to all window, door and other openings where necessary and of a type, finish and size as identified in the Builders Schedule.

Skirtings

Provide skirtings where required of a type, finish and size as identified in Builders Schedule.

Kitchen Cupboards

Provide kitchen cupboards as included on the drawings and/or included in the Builders Schedule.

Linen/Storage Cupboards

If shown, to be constructed as detailed on the drawings.

Plumbing (NCC Volume 3 - Plumbing Code of Australia (PCA))

General

All plumbing work is to be in accordance with the PCA and comply with the requirements of the Plumbing and Drainage Regulator or Local Authority.

All plumbing and drainage works must be carried out by a licensed plumber.

Ensure all inspections are carried out and certificates issued, including a Certificate of Compliance upon final inspection.

Water Service

Unless otherwise specified, copper tubing shall be used for all internal plumbing work.

Where polyethylene or similar approved piping products are specified, pipes and fittings are to be used and installed to the manufacturers recommendations.

Taps and tap sets are to be selected by the owner and a P.C. amount is allowed for in the Builders P.C. Schedule. Water saving devices shall achieve the BASIX commitments outlined in the BASIX Certificate.

Hot Water Service

An approved water heater is to be installed in accordance with the manufacturers instructions and located to ensure ease of maintenance.

The selection of hot water service shall comply with the BASIX commitments provided for water heating in the BASIX Certificate.

Where a solar system is specified, the solar collectors shall be positioned as identified on the drawings. Where storage tanks are located to the roof, the roof design will account for point loading.

Stormwater Drainage

Guttering shall be designed and installed in accordance with NCC-BCA Part 3.5 and AS 3500.

Locate downpipes as shown on the drawings. the number, size and location of downpipes shall be in accordance with AS 3500.

Stormwater pipes are to be minimum of 90 mm in diameter of UPVC material and where not feeding rainwater tanks, shall drain to the street gutter or alternative retention device constructed to approval of the Regulator or Local Authority.

Sanitary Plumbing and Drainage

Sanitary plumbing and drainage shall be undertaken in accordance with the PCA and the requirements of the Regulator and Local Authority.

Sanitary plumbing and drainage work shall be undertaken by an appropriately licensed person.

Rainwater Tank

Rainwater tank shall be of a size to meet the BASIX commitments as identified on the BASIX Certificate and/or to local council area requirements. The rainwater tank shall be located as shown on the drawings.

Rainwater tank to be used for toilets and washing machines shall be connected by a licensed plumber. All tank outlets and pipes carrying rainwater must be appropriately labelled.

Gas

All gas-fitting work to be installed and connected in accordance with the supply authorities requirements.

Gas plumbing shall be provided as detailed on the plans and to all fixtures requiring gas service from the point of supply.

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

In-ground gas lines shall be identified with plastic warning tape 300 mm above and for the full length of the line while backfilling.

Electrical

General

All electrical work shall be undertaken by a licensed electrician and in accordance with AS/NZS 3000.

A Certificate of Compliance Electrical Work shall be provided at the completion of the electrical work.

Confirm the position of the meter box when deemed necessary. Single phase is to be provided unless otherwise noted in the Builders Schedule.

Install all lights, power outlets and electrical fixtures nominated in the Builders Schedule.

Smoke Alarms

Smoke alarms shall be installed in accordance with NCC-BCA Part 3.7.2 and AS 3786.

Photo-electric smoke alarms should be the preferred type for installation in the path of travel between sleeping areas and exits.

Solar PV

Installation must be compliant with AS/NZS 5033 and AS 3000.

PV modules shall be compliant with IEC/EN61730 and either IEC/EN61215 or IEC/EN61646.

Grid content inverters shall be compliant with AS 4777.

Solar panels are to be installed by either the licensed builder or licensed electrician. All electrical wiring and connection of the solar PV system must be undertaken by an appropriately licensed electrician.

Meters are to be installed by an Authorised Service provider.

Where the location of PV modules is not shown on the plans, it will be the responsibility of the accredited installer to undertake an onsite assessment and identify the precise location for the modules. The assessment is to identify any overshadowing or other influences which may affect the operation of the installation.

A Certificate of Compliance for electrical installation work is to be issued upon completion and commissioning of the work.

Wall and Floor Tiling

General

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

Surface Preparation

All tiling substrates shall be dry and free of dust, debris and deposits.

Lay selected floor tiles in sand and cement mortar or approved adhesive to area indicated on the drawings. If required, fit approved edge strips or metal angle to expose edges in doorways or hobless showers as per AS3740.

Very smooth trowel finishes on slabs; with slabs inadequately cured, releasing agent and curing compounds can lead to tile adhesion problems. Care should be taken where there is paint overspray on floors adjacent to walls.

The preparation of smooth trowel floors and floors which are contaminated should be undertaken in consultation with the builder, tiler and adhesive supplier and/or manufacturer.

Adhesive manufacturers recommendations on surface preparation should be followed.

Compatibility

Ensure tile adhesives are compatible with the waterproofing membranes used. Waterproofing membranes to be properly cured prior to tile laying.

Tile adhesives, primers and related products must be compatible. The use of mixed brand products is not recommended.

Selections of tile adhesives in wet areas are to be made in consultation with the builder, floor tiler and adhesive supplier and/or manufacturer.

Movement Joints

Movement joints are to be provided in accordance with AS 3958.1 to:

- Separate the tiled elements from fixed elements such as walls and columns
- over movement joints in the substrate
- In large tiled areas, immediate movement joints at evenly spaced locations at approximately 4500 mm.

Falls in Wet Areas

Grade floor tiles to floor wastes and elsewhere as required.

The recommended ratio of fall within a shower is between 1:60 and 1:80.

The recommended ratio of fall in other wet areas is between 1:80 to 1:100.

Painting

General

All paint and related products such as primers, sealers and fillers shall be compatible, suitable for purpose and used in accordance with the manufacturers recommendations and the manufacturers safety data sheets.

Colour Selection

Unless specified elsewhere, colours are to be selected by the owner and shown in the Builders Schedule.

Preparation

All surfaces shall be prepared to the manufacturers product recommendations. Final preparation shall be the responsibility of the painter/applicator.

Spraying

Spray application to plasterboard is to be 'Backrolled'.
If floor surfaces are to be tiled, ensure floor surface is protected from overspray.

Completion

The contractor shall remove empty paint tins and associated waste from site and is to ensure the clean-up of equipment does not contaminate the site.

Where removed for painting, all fittings, door furniture, switch plates and the like are to be re-fixed or re-installed.

Paint splashes, runs and drips are preferably to be removed during the course of work or removed and repaired upon completion.

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