SP01 General Specification

For:

232057

NPARC

NPARC Community Housing

at

Bamaga, Injinoo, New Mapoon, Seisia & Umagico Queensland

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Project Issue Table

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1.0 DISCLAIMER

- This specification is for the purpose of providing technical and other information, supported by the contract documents and design documents.
- Comply only with the necessary sections relating to the specific design, scope of works and BCA Class / Use (residential, industrial and commercial).
- This is a generic specification and the products / materials detailed herein shall only be adopted if they have not been selected / stipulated elsewhere in the design documents, not only from StruXi Design but other Design Consultants.
- Not all scope of works are illustrated on the drawings and the extents and supporting information etc may be stipulated in other contract and design documents including but not limited to the contract itself and this specification.
- This specification may not address all details and requirements to some parts of the scope of works that are to be undertaken by the Contractor. In this case, other design documentation is to be referred to in conjunction with the relevant standards, codes and other legislation.

2.0 GENERAL REQUIREMENTS

2.1 PROJECT DETAILS

The project consists of the construction of 13 residences and associated works located in streets at the following suburbs in Northern Queensland - Bamaga, Injinoo, New Mapoon, Seisia and Umagico.

The housing will be owned and managed by NPARC- The Northern Peninsular Area Regional Council.

In summary, the scope of project work includes, but is not limited to, the following components:

1 Select demolition of existing residences where sites have existing improvements that are not be retained

2 Site preparation- clearing vegetation and preparing platforms for building slabs

3 Site services- extending existing or providing new electrical and hydraulic services as required

4 Construction of new dwellings, with integrated porches, outdoor areas, stores and carports

5 External works consisting of concrete driveways, pedestrian paths, boundary fences, vehicular and pedestrian gates and clothes drying areas, and

6 Provision of a letterbox, house number, clothes line, water tank and any other nominated standard provision to each residence,

all as documented on design drawings.

The housing designs as documented generally comply with, or exceed, the “gold” level standards outlined in the following documents:

- *Livable Housing Design Guidelines*
- Queensland Government *Indicative Floor Plans for social housing projects* and
- *Design and Construction Standards for Remote Housing*

The cited “gold” standard is a minimum standard that must be maintained with all works.

2.2 OBJECTIVE OF THIS SPECIFICATION

- This specification is intended to provide a general guide to the standard of materials and workmanship required and to provide supplementary information to the following documents that the Contractor is to adhere to:
- Design and Construction Standards for Remote Housing
- Livable Housing Design Guidelines
  - The following principles of "Gold" standard Remote Housing design related to the "Gold" standard outlined in the Livable Housing Design Guidelines are to be provided for each residence:
  - Continuous and step-free path of travel from the parking area to the dwelling entrance
  - Internal space planning that facilitates unimpeded movement between spaces
  - A toilet at ground level that provides easy access
  - A bathroom that includes a hobless shower recess, and
  - Reinforced wall framing to a toilet, shower and bath that supports the installation of grabrails, either as part of the current build or as a future installation.
  - Refer to design drawings for detail of how each residence's design achieves these principles.
- Social Housing Design Guideline
- Social Housing Design Guideline Toolkit- Indicative Floor Plans
- Local Authority By-Laws.
- Conditions of Building and Town Planning approval.
- Building Code of Australia / NCC2022
- Building Act 1975
- Qld Development Code
  - Australian Standards referenced by the Building Code of Australia (BCA) and any other references herein (not limited to).
  - Manufacturer's specifications for the supply, handling, storage, erection, finishing & maintenance of products and systems manufactured by them.
  -

2.3 APPLICATION OF THIS SPECIFICATION

- It is intended that persons reading this specification are competent in the design and/ or construction of structures.
- This specification is to be read in conjunction with the design documents provided by StruXi and other Design Consultants, and is intended to provide the technical information required to carry out the works described therein.
- The Contractor shall ensure that it and any person engaged by it in relation to the project is in possession at all times of the latest amendment to all drawings, specifications, schedules, reports and other design documents.
- Under no circumstances is any part of the documentation to take precedence over any law, by law, Standard or Code as may be applicable.

- In the event of discrepancy, notify StruXi or the Project Superintendent immediately.

2.4 MATERIALS FOR USE TO BE IN ACCORDANCE WITH BCA

- All materials, products or assemblies proposed for use in or ancillary to the structure and associated works are required to be approved in accordance with BCA and relevant standards.

2.5 STANDARDS, CODES AND REFERENCED DOCUMENTS

- Use referenced Australian or other standards (including amendments), codes and referenced documents that are current one month before the date of the contract except where other editions or amendments are required by the local council or statutory authorities.
- Where a referred standard etc within this specification is found to have been superseded or withdrawn, the standard etc that it was superseded by is applicable. SAI Global on their website provides this service.
- Where a referred standard etc within this specification refers to another standard etc from within itself, then those standard(s) as referred from a standard are applicable; even if they are not listed in this specification specifically.
- Where a referred standard etc within this specification is incorrectly titled / numbered, the relevant standard to that application prevails.
- In addition or making clarity to the requirements of the standards, codes and referenced documents, the trade sections herewith shall apply.

2.6 ORDER OF PRECEDENCE

Where ambiguity exists:

- Between the StruXi drawings / schedule and this specification in regards to the selection of a product, the StruXi drawings / schedule takes precedence.
- between the requirements of this specification and the contract, the contract conditions take precedence.
- between the requirements of this specification and the design documents of another consultant, that consultant's design requirements is to take precedence.

2.7 SELECTION OF PRODUCTS

- If a finishes schedule is provided then it is to be read in conjunction with the drawings and these notes. The extent (locations and quantities) of the items / products listed in these appendices are defined on the drawings unless noted elsewhere or otherwise.
- If an alternative product to that specified / scheduled is submitted and subject to the reasons and benefits for such, the Contractor may incur costs from the review / administration by the Principal's design consultants. Such intent to claim these costs will be brought to the attention of the Contractor prior.

- Where a product / brand is not defined, the Contractor has allowed and is to propose a commercial type suitable for the application subject to approval by the principal.

2.8 INTERPRETATIONS & DEFINITIONS

- "Available": manufactured and able to be ordered, even if not stocked by a supplier locally.
- "BCA": Building Code of Australia or NCC: National Construction Code may be used interchangeabley
- "Contractor" and "Builder" and "Principal Contractor": when used in the context of the documents have the same meaning. If the design documents specify any matter or thing:
- to be carried out or any action performed or organised but do not specify which party is responsible to do so or another party other than the Principal or Contractor is nominated in the design documents, then (unless the context requires otherwise) it shall be deemed that the Contractor shall carry out the matter or thing or shall perform or organise such action, as the case may require; and/or
- to be submitted and/or approved but do not specify to or by whom the matter or thing will be submitted or approved, then (unless the context requires otherwise) it shall be deemed that the matter or thing shall be (submitted by the Contractor) to or approved by the Principal, as the case may require.
- "Design", "Documentation": undertaken by StruXi Design and any other Design Consultant and product manufacturer. Design / Documentation can be in any form, including but not be limited to: drawings, plans, sketches, specifications, schedules, reports, written instructions etc.
- "Install": install only – do not supply.
- "Prime Cost Item": A Prime Cost (PC's) is an agreed, reasonable estimate for the cost of the item (e.g. carpet, tiles, fixtures, fittings etc) that is part of the contract, but the specific type of item has either not been selected, or its price is not known at the time the contract is entered into. The unit measure for the item is that taken from the drawings as installed; the responsibility of the take-off is by the Contractor. Outside of this nominated cost, the Contractor has allowed for the waste of the item, delivery, other materials, equipment, labour within its contract price.
- A fitting that is part of the contract, but the specific type of item has either not been selected, or its price is not known at the time the contract is entered into. The builder needs to make a reasonable allowance for the supply and delivery of these items in the price included in the contract.
- "Proprietary": identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
- "Principal", "Proprietor", "Owner", "Client": when used in the context of the documents have the same meaning. If a Superintendent is engaged, then reviews

/ approvals required by the Principal are to be addressed to the Superintendent for a decision or coordination of the Principal's decision.

- "Provide", "Provision": supply and install.
- "Provisional Sum": A Provisional Sum (PS's) is a reasonable estimate for materials, equipment and labour of a particular part of the works which the Contractor cannot give a definite price for. Subject to contract conditions, a Provisional Sum must be within 20% of the final cost unless demonstrated extenuating circumstances are justified.
- "Representative": in the context of the Principal's representatives means its agent.
- "Required": required by the Contract documents, by the local council or statutory authorities to ensure safe building practices and compliant high quality finished works.
- "Site", "Land", "Property": where the Works are located.
- "Supply": supply only – do not install.

2.9 CONTRACTOR'S RESOURCES

- The Contractor shall employ sufficient suitable resources to carry out and complete the work in a proper and workmanlike manner with due diligence and expedition in accordance with the Contract.

2.10 WORKS PREPARED BY OTHERS

- Where the Contractor is required to carry out the work to/on works (including but not limited to structure, surface, work, material, formation or foundation) prepared by other persons, prior to commencing that work, the Contractor shall ensure that the other persons' works are suitable in all respects for the proper performance of the work under the Contract.
- If the Contractor considers that the other persons' works are not suitable for this purpose it shall notify the Principal in writing and seek instructions prior to commencing the relevant work under the Contract.

2.11 EXISTING SERVICES

- The Contractor is to identify, locate and protect all existing services, above and underground.
- The Contractor is to remove all redundant and unused services, equipment, fittings and elements from the existing building, even if these are not nominated in the design. Such building services are to be capped and terminated. The areas and surfaces from the removal activities are to be reinstated and made good.

2.12 MANUFACTURER'S' OR SUPPLIERS' RECOMMENDATIONS

- Select, store, handle and use proprietary products or systems in accordance with the current published recommendations of the manufacturer or supplier.

2.13 TEMPORARY SUPPORTS OR ADDITIONAL STRUCTURAL MEMBERS

- The Contractor is to provide additional structural support members / elements to that shown in the design documents deemed necessary for the likes of joinery, glazing, roller shutters, mechanical services and other trade-works to comply with the appropriate standards, regulations and manufacturer/supplier requirements to achieve the support and/or certification.
- Furthermore, if a structural member is architecturally shown but not structurally designed, the Contractor is deemed to have allowed to provide such member. In these cases, a commercial quality product is to be provided, whether a proprietary or custom made type.

2.14 BUSHFIRE PROTECTION

- If required by legislation, provide protection to AS 3959 Construction of buildings in bushfire-prone areas.

2.15 FINISHED SURFACES

- All finished surfaces adjacent to each other are to finish flush at their junctions unless the design specifically illustrates or states otherwise. This includes but is not limited to e.g.: carpet / vinyl, carpet / tiles, vinyl / tiles, resilient floors / other floor finishes, floor finishes / concrete, concrete / turf (grass or garden beds), door thresholds / entry matt recesses, etc. The Contractor will need to ensure that the concrete or other substrate is appropriately recessed (irrespective if not designed) to ensure compliance to this sub-section.

2.16 CLEANING

- Remove rubbish and surplus material from the site and clean the work throughout on a regular basis and at completion of the Works.
- Undertake trade clean and a Builder's Final Clean before handover.

2.17 OPERATION

- Ensure moving parts operate safely and smoothly.

2.18 WARRANTIES

- Name the Principal as warrantee and give the Principal copies of manufacturer's warranties.

2.19 SURVEYOR'S CERTIFICATE

- Give the Principal a certificate, which states that the work has been correctly located in both plan and elevation.
- This is by way of a surveyor undertaking as-builts of all work locations, and where discrepancies to that designed are dimensioned.
- Lengths and gradients of access paths and ramps are to be verified on completion

2.20 SERVICES AS-BUILT LAYOUT

- Give the Principal a plan that shows the location of underground services as they exist at the completion of work.

2.21 AUTHORITIES' APPROVALS

- Give the Principal evidence of approval of the local council and any statutory authorities whose requirements apply to the work.

2.22 TIMBER GENERALLY

2.22.1 UNSEASONED TIMBER

- If unseasoned timber is used, or variations in moisture content are likely, make allowance for shrinkage, swelling and differential movement.

2.22.2 DURABILITY

- Use timbers with natural durability appropriate to the conditions of use, or preservative-treated timbers of equivalent durability.

2.22.3 MINIMUM REQUIREMENTS

- Class 1: Timbers in contact with the ground.
- Class 2: Timbers above ground, not in continuous contact with moisture, well ventilated, protected from moisture but exposed to the weather.
- Class 3: Timbers above ground, not in continuous contact with moisture, well ventilated, protected with a finish, and well maintained.
- Class 4: Timbers fully protected from moisture, indoors, above ground, and well ventilated.

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3.0 SITE PREPARATION

3.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
  - **AS 3798** Guidelines on earthworks for commercial and residential developments.

3.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

3.3 SITE CLEARING

3.3.1 EXTENT

- Limit clearing to areas to be occupied by construction, paving or landscaping.

3.3.2 CLEARING OPERATIONS

- Remove everything on or above the site surface, including rubbish, scrap, grass, vegetable matter and organic debris, scrub, trees, timber, stumps, boulders and rubble.
- Remove grass to a depth just sufficient to include the root zone.

3.3.3 GRUBBING

- Completely remove any stumps within the building platform and replace with compacted fill to the satisfaction of the engineer.
- Grub out or grind stumps and roots over 75 mm diameter to a minimum depth of 500 mm below subgrade under construction, and 300 mm below finished surface in unpaved areas.

3.3.4 REMOVAL OF TOPSOIL

- Remove the topsoil layer of the natural ground which contains substantial organic matter over the areas to be occupied by construction and paving.

3.3.5 TOPSOIL STOCKPILES

- Stockpile site topsoil required for re-use. Protect stockpiles from contamination by other excavated material, weeds and building debris.

3.3.6 SURPLUS MATERIAL

- Take possession of surplus material and remove it from the site, unless the contract stipulates otherwise.

3.3.7 ENVIRONMENTAL PROTECTION

- Avoid erosion, contamination, and sedimentation of the site, surrounding areas, and drainage systems. Provide erosion protection measures.
- Comply at all times with relevant local authority requirements.

3.3.8 DEWATERING

- Keep the site free of water and prevent water flow over new work.

4.0 EARTHWORKS AND EXCAVATION

4.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 3798** Guidelines on earthworks for commercial and residential developments.
- **AS 1289.6.3.3** Methods of testing soils for engineering purposes — Method 6.3.3: Soil strength and consolidation tests — Determination of the penetration resistance of a soil — sand penetrometer test

4.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

4.3 DEFINITIONS

- Rock: Monolithic material with volume greater that 0.5m3 which cannot be removed until broken up by mechanical means such as rippers as percussion tools.
- Bad ground: Ground unsuitable for the work, including fill liable to subsidence, ground containing cavities, faults or fissures, ground contaminated by harmful substances and ground which is or becomes soft, wet or unstable.
- Line of influence: A line extending downward and outward from the bottom edge of footing, slab or pavement and defining the extent of foundation material having influence on the stability or support of the footings, slab or pavement.
- Subgrade: The trimmed or prepared portion of the formation on which the pavement or slab is constructed.

4.4 EXCAVATION

4.4.1 EXTENT

- Excavate to give the levels and profiles required for construction, site services, paving, and landscaping. Allow for compaction and settlement.

4.4.2 FOUNDATIONS

- After excavation, confirm that the bearing capacity is adequate as required by the Engineer's documentation.

4.4.3 REINSTATEMENT

- If excavation exceeds the required depth, or deteriorates, reinstate with fill to the correct depth, level and bearing value to the satisfaction of the engineer. (The Engineer may require testing by an approved person to confirm compaction or other properties of material reinstated).

4.4.4 REINSTATEMENT

- If excavation exceeds the required depth, or deteriorates, reinstate with fill to the correct depth, level and bearing value to the satisfaction of superintendent. (Superintendent may require testing by an approved person to confirm compaction or other properties of material reinstated).

4.4.5 EXISTING FOOTINGS

- If excavation is required below the line of influence of an existing footing, use methods that maintain the support of the footing and ensure that the structure and finishes supported by the footing are not damaged.

4.4.6 GRADING

- Grade the ground surface externally and under suspended floors to drain ground or surface water away from the building without ponding, and around finished works.

4.4.7 SURPLUS MATERIAL

- Take possession of surplus material and remove it from the site, unless the contract stipulates otherwise.

4.5 SURFACE PREPARATION

4.5.1 GENERAL

- Before placing fill, ground slabs or load bearing elements, remove loose material, debris and organic matter and compact the ground to achieve the required density.

4.5.2 PLACING FILL

- Place fill in layers and compact each layer to achieve the required density.

4.5.3 MOISTURE CONTENT

- If necessary to achieve the required density or moisture content, adjust the moisture content of the fill before and during compaction.

4.5.4 FINISHED GROUND LEVELS

- Ensure that finished ground levels do not compromise the integrity or effectiveness of termite barrier systems as installed.

4.6 SERVICE TRENCHES

4.6.1 EXCAVATION

- Make trenches straight between manholes, inspections and junctions, with vertical sides and uniform grades. Ensure base of service trenches has positive grade away from structure.

4.6.2 TRENCH WIDTHS

- Keep trench widths to the minimum consistent with the laying and bedding of the relevant service and construction of manholes and pits.

4.6.3 BACKFILLING

- Backfill service trenches as soon as possible after laying the service. Place backfill in layers. Compact each layer to a density sufficient to minimise settlement. Use excavated spoil or well graded inorganic material with maximum particle size of 75mm. Do not place any particles greater in size than 25mm within 150mm of services. Under paved areas use coarse sand, controlled low strength material or fine crushed rock, except in reactive clay sites classified M, H or E to AS 2870 where an impervious material shall be used.

4.7 RETAINING WALLS

- Provide membrane, backfill and protection systems to retaining walls as required by the manufacturer or engineer to ensure the intended performance is achieved.

5.0 TERMITE PROTECTION

5.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 3660** (Set) Termite management.
- **AS 3660.1** Termite management - New building work.
- **AS 3660.2** Termite management - In and around existing buildings and structures – Guidelines.
- **AS 3660.3** Termite management - Assessment criteria for termite management systems.

5.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

5.3 INFORM THE PRINCIPAL

- Inform the Principal of their choices and obligations in relation to the termite barrier proposed for use. Provide to the Principal a Certificate of completion stating compliance with the BCA and AS 3660 and ensure that they are aware of any requirements for follow up treatment or inspection as may be required for the system installed.

5.4 GENERAL

- Provide installation certificates, warranty and maintenance guide upon completion.
- Care shall be taken to NOT compromise the integrity of existing termite barriers by any Works undertaken as part of the Contract. Any area of potential breach or compromise of existing barriers shall be brought to the immediate attention of the Designer for review.
- If a member that provides structural support to the work is subject to attack by subterranean termites, provide protection by one or more of the following methods:
- Suspended floors: Termite caps or strip shielding to AS 3660.
- Slab on ground: A chemical barrier or physical barrier to AS 3660.
- Generally: A proprietary system which has:
- a current Australian Building Code board national accreditation certificate; or
- a current technical opinion issued by the Australian building systems appraisal council stating that the system is suitable for use against subterranean termite attack.

6.0 CONCRETING

6.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- AS 1379 Specification and supply of concrete.
- AS2327 Composite structures — Composite steel-concrete construction in buildings
- AS 2870 Residential slabs and footings
- AS 3600 Concrete structures
- AS5146 Part 1 Reinforced autoclaved aerated concrete — Structures
- AS5146 Part 3 Reinforced autoclaved aerated concrete — Construction

- TN61 Cement Concrete & Aggregates Australia- Technical Note- Articulated walling

6.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

6.3 VAPOUR BARRIER

6.3.1 MATERIAL

- Use a proprietary vapour barrier for all areas where the concrete can come into contact with the ground (except bored piers) which:
- Consists of high resistant polyethylene film minimum 0.2mm thick which has been pigmented and branded by the manufacturer;
- Has a current Australian Building Codes Board National Accreditation Certificate; or
- Has a current technical opinion issued by the Australian Building Systems Appraisal Council stating that it is suitable for use as a vapour barrier, when not subject to liquid water pressure, for concrete slabs on ground.

6.3.2 BASE PREPARATION

- Blind the surface with sufficient approved bedding material to cover any hard projections. Wet the sand just before placing the vapour barrier.

6.4 REINFORCEMENT

6.4.1 MINIMUM LAP

- Splice as follows unless otherwise required by the structural engineer:
- Mesh generally: 225mm.
- Trench Mesh: 500mm.
- Bars: Greater of either 600mm or 40 x bar diameter.
- Strip footing intersections and corners: For full width of intersecting reinforcement.

6.4.2 MINIMUM COVER

- Unprotected by membrane on ground or external surface: 40mm.
- Protected by membrane on ground: 30mm.
- Internal surfaces: 20mm.
- Aggressive soil or salty environment: 65mm.

6.5 CONCRETE

6.5.1 READY MIXED SUPPLY

- To AS 1379, by the batch production process.
- Maximum slump: 80mm.

6.5.2 CONCRETE PLACING

- If the concrete is deeper than 350mm, place it in layers so that each succeeding layer is blended into the preceding one by the compaction process.
- Slabs and pavements: Place the concrete uniformly over the width of the slab so that the face is generally vertical and normal to the direction of placing.

6.5.3 COMPACTION

- Vibrate concrete to remove entrapped air, but avoid over vibration that may cause segregation.

6.5.4 CURING

- Protect concrete from premature drying and from excessive hot, cold and/or windy conditions.
- Cure concrete by:
- Using a proprietary curing compound: or
- Keeping it covered and moist for the following periods:
  - in-ground footings: 2 days.
  - exposed footings, beams, columns and slabs: 7 days.
- Ensure the curing compound is compatible with any waterproofing agents or floor finishing glues to be applied directly to it; i.e. that they are still able to bond to the concrete with the prior application of the curing compound.

6.5.5 FORMWORK REMOVAL

- Remove timber formwork.

6.5.6 STRIPPING TIMES

- Unless otherwise required by the structural engineer, leave formwork for suspended structures in place after pouring concrete for the following period:
- Vertical surfaces: 2 days.
- Bottom surfaces: 7 days with shoring and back props left in position for 21 days.

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6.6 JOINTS & MISCELLANEOUS

6.6.1 CONSTRUCTION JOINTS

- Joint preparation: Roughen and clean the hardened concrete joint surface, remove loose or soft material, free water and foreign matter. Dampen the surface before placing the concrete.

6.6.2 SLIP JOINTS

- If concrete slabs are supported on masonry, provide proprietary pre-lubricated slip-joints.

7.0 STRUCTURAL STEEL

7.1 STANDARDS

Works shall be carried out in accordance with, but not limited to, the following standards, codes and referenced documents.

- **AS 1074** Steel Tubes and tubulars for ordinary service
- **AS 1163** Structural Steel Hollow sections
- **AS/NZS 1170** Part 0 Structural design actions — General principles (incorporating amendments 1, 3 and 4)
- **AS/NZS 1170** Part 1 Structural design actions — Permanent, imposed and other actions (incorporating amendments 1 and 2)
- **AS/NZS 1170** Part 2 Structural design actions — Wind actions
- **AS/NZS 1170** Part 3 Structural design actions — Snow and ice actions (incorporating amendments 1 and 2)
- **AS 1170** Part 4 Structural design actions — Earthquake actions in Australia (incorporating amendments 1 and 2)
- **AS 1214** Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series).
- **AS 1397** Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated.
- **AS 2312.1** Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Paint coatings
- **AS/NZS 2312.2** Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Hot dip galvanizing
- **AS 3566.1** Self-drilling screws for the building and construction industries - General requirements and mechanical properties.
- **AS 3566.2** Self-drilling screws for the building and construction industries - Corrosion resistance requirements.
- **AS/NZS 3678** Structural Steel - Hot rolled plates, floorplates & slabs
- **AS/NZS 3679.1** Structural Steel Part 1 - Hot rolled bars and sections
- **AS/NZS 3679.2** Structural Steel Part 2 – Welded sections

- **AS 4100** Steel structures.
- **AS/NZS 1554.1** Structural steel welding - Welding of steel structures.
- **AS/NZS 4600** Cold-formed steel structures
- **AS/NZS 4680** Hot-dip galvanized (zinc) coatings on fabricated ferrous articles.
- **AS/NZS 4792** Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process.
- **AS/NZS 5131** Structural steelwork—Fabrication and erection

7.2 MATERIALS AND COMPONENTS

7.2.1 GENERAL

- Workmanship and Materials to be generally in accordance with AS 4100 and AS/NZS 5131.

7.2.2 HOT-ROLLED STEEL MEMBERS

- Hot rolled steel members to comply with AS/NZS 3678 and AS/NZS 3679.1
- Hot rolled steel members to be grade 300 unless noted otherwise on Structural Engineer's drawings.

7.2.3 STEEL TUBE MEMBERS

- Structural steel hollow sections to comply with AS 1163.
- Extruded CHS, RHS & SHS members are to be grades C250, C350, C250L0 or C350L0- refer to Structural Engineers drawings.
- The ends of all tubular members are to be sealed with 3.0mm thick MS plates and continuous seal welds, unless detailed otherwise.
- Utilise custom proprietary fixings or bolts with sleeved spacers to avoid crushing tubular members with bolted connections
- Provide drilled 10mm diameter blow holes in caps to release hot air if members are to be hot dip galvanised.

7.2.4 COLD-FORMED STEEL FRAMING

- Cold-form sections from zinc-coated steel or aluminium/zinc alloy coated steel to **AS 1397/Z200** or **AZ175.**
- Where cold formed steel portals or structural framing is used, it must take into consideration wind category, site topography, site characteristics and be engineered by a Structural Engineer who provides a Form 15 for design and a Form 16 for the completed construction.
-

7.2.5 SELF-DRILLING SCREWS

- To **AS 3566** corrosion resistance class 2.

7.3 HOT DIP GALVANISING

- Hot Dip Galvanise structural steel components (including fasteners) to **AS 1214, AS 4680 or AS 4792** as appropriate, if:
- exposed to weather;
- embedded in masonry; or
- in contacted with chemically treated timber.

7.4 PROTECTIVE PAINT FINISHES

7.4.1 APPLICATION

- To be used where steel is not hot dip galvanised.

7.4.2 CLEANING

- To prepare steel for a protective paint system, Abrasive blast clean to Class 2.5

7.4.3 PRIMING STEEL

- Utilise Dulux Zincanode 402, minimum dry film thickness of 0.075mm.
- For topcoats, utilise protective paint system nominated by Structural Engineer or as nominated in PAINTING section of this specification.
-

7.5 CONSTRUCTION GENERALLY

7.5.1 WELDING

- To AS 1554.1.
- Welds to structural steel members are to be SP (Structural Purpose) Category welds, and 6.0 CFW all round, unless noted otherwise on Structural Engineer's Drawings.

7.5.2 CLEATS & BOLTS

- To AS 1554.1.
- Provide 10mm thick mild steel plates UNO.
- Bolts shall be 8.8/S high strength structural bolts, nuts and hardened washers to AS1252.

7.5.3 GROMMETS

- Use grommets to isolate piping and wiring from structural steel framing.

7.5.4 SWARF

- Remove swarf and other debris from steel framing immediately after it is deposited.

7.5.5 STEEL FRAMING

- Do not fix CCA treated timber in contact with steel framing.
-

8.0 STRUCTURAL FRAMING

8.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS/NZS 1170** Part 0 Structural design actions — General principles (incorporating amendments 1, 3 and 4)
- **AS/NZS 1170** Part 1 Structural design actions — Permanent, imposed and other actions (incorporating amendments 1 and 2)
- **AS/NZS 1170** Part 2 Structural design actions — Wind actions
- **AS/NZS 1170** Part 3 Structural design actions — Snow and ice actions (incorporating amendments 1 and 2)
- **AS 1170** Part 4 Structural design actions — Earthquake actions in Australia (incorporating amendments 1 and 2)
- **AS 1214** Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series).
- **AS 1397** Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated.
- **AS 1684.1** Residential timber-framed construction - Design criteria.
- **AS 1684.2** Residential timber-framed construction — Non-cyclonic areas
- **AS 1684.3** Residential timber-framed construction — Cyclonic areas
- **AS 1684.4** Residential timber-framed construction — Simplified — Non-cyclonic areas (incorporating amendment 1)
- **AS 1720.1** Timber structures — Design methods (incorporating amendments 1, 2 and 3)
- **AS/NZS 1720.4** Timber structures — Fire resistance of timber elements
- **AS 1720.5** Timber structures — Nail-plated timber roof trusses (incorporating amendment 1)
- **AS 1860.2** Particleboard flooring – Installation.
- **AS 2312.1** Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Paint coatings
- **AS/NZS 2312.2** Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings — Hot dip galvanizing
- **AS/NZS 2327** Composite structures — Composite steel-concrete construction in buildings

- **AS 3566.1** Self-drilling screws for the building and construction industries - General requirements and mechanical properties.
- **AS 3566.2** Self-drilling screws for the building and construction industries - Corrosion resistance requirements.
- **AS 3623** Domestic metal framing.
- **AS 4055** Wind loads for housing
- **AS 4100** Steel structures.
- **AS/NZS 1554.1** Structural steel welding - Welding of steel structures.
- **AS/NZS 1859.1** Reconstituted wood-based panels - Specifications – Particleboard.
- **AS/NZS 1859.2** Reconstituted wood-based panels - Specifications - Dry-processed fibreboard.
- **AS/NZS 1860.1** Particleboard flooring – Specifications.
- **AS/NZS 2908.2** Cellulose-cement products - Flat sheet.
- **AS/NZS 4600** Cold-formed steel structures
- **AS/NZS 4680** Hot-dip galvanized (zinc) coatings on fabricated ferrous articles.
- **AS/NZS 4792** Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process.
- NASH Standard Steel Framed Construction in Bushfire Areas
- **NASH Part 1** Residential and Low Rise Steel Framing — Design Criteria (incorporating amendments A, B and C)
- **NASH Part 2** Residential and Low Rise Steel Framing — Design Solutions (incorporating amendment A)

8.2 MATERIALS AND COMPONENTS

8.2.1 TIMBER FRAMING

- Timber to be H3 treated

8.2.2 COLD-FORMED STEEL FRAMING

- Cold-form sections from zinc-coated steel or aluminium/zinc alloy coated steel to **AS 1397/Z200** or **AZ175.**

8.2.3 SELF-DRILLING SCREWS

- To **AS 3566** corrosion resistance class 2.

8.2.4 FLASHINGS AND DAMP-PROOF COURSES

- To AS 2904.

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8.2.5 TIMBER FASTENERS

- Metal Washers: Provide washers to the head and nuts of all bolts and coach screws.
- Steel straps: Zinc-coated steel to **AS 1397/Z275**, minimum size 25 x 1mm or 30 x 0.8mm.

8.3 GALVANISING

Galvanise mild steel components (including fasteners) to **AS 1214, AS 4680 or AS 4792** as appropriate, if:

- exposed to weather;
- embedded in masonry; or
- in contacted with chemically treated timber.

8.4 CONSTRUCTION GENERALLY

8.4.1 WELDING

- To AS 1554.1.

8.4.2 GROMMETS

- Use grommets to isolate piping and wiring from cold-formed steel framing.

8.4.3 SWARF

- Remove swarf and other debris from cold-formed steel framing immediately after it is deposited.

8.4.4 CCA TREATED TIMBER

- Before placing bolts in contact with CCA treated timber, coat the shank of the bolt in grease or a bituminous coating.

8.4.5 STEEL FRAMING

- Do not fix CCA treated timber in contact with cold-formed steel framing.

8.4.6 PRIMING STEEL

- Before fixing, prime steel that is not galvanised or zinc-coated.

8.4.7 PRIMING TIMBER

- Prime all external timber including joints and laps prior to installation.

8.5 WALL FRAMING

8.5.1 TIMBER WALL FRAMING

- Use H3 treated 90X45 MGP12 timber wall framing unless noted otherwise on drawings

- Use gauged timber for studs, noggings and plates in double faced walls.

8.5.2 ADDITIONAL SUPPORT

- Provide additional support in the form of noggings, trimmers and studs for fixing lining, cladding, hardware, accessories, fixtures and fittings as required.
- Maximum spacing for noggings: 1200mm centres.
- Refer to Liveable Housing requirements for additional nogging requirements.

8.5.3 FLASHINGS

- Provide flashings to external openings sufficient to prevent the entry of moisture.

8.6 TIMBER ROOF TRIM

8.6.1 PRIMING TIMBER

- Prime all timber in exposed locations including cut ends, laps and joints prior to fixing and re-prime cut edges if trimmed in-situ.

8.6.2 FASCIA, VALLEY GUTTER AND BARGE BOARDS

- Do not use timber: Proprietary formed and pre finished metal products designed for purpose only will be accepted

9.0 INSULATION AND SARKING

9.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS 1366.4** Rigid cellular plastics sheets for thermal insulation - Rigid cellular polystyrene - Extruded (RC/PS-E)- not cited in NCC2022
- **AS/NZS 4200.1** Pliable building membranes and underlays – Materials.
- **AS/NZS 4200.2** Pliable building membranes and underlays — Installation requirements
- **AS/NZS 4859.1** Thermal insulation materials for buildings - General criteria and technical provisions.
- **AS/NZS 4859.2** Thermal insulation materials for buildings - Design

9.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

9.3 MATERIALS AND COMPONENTS

9.3.1 DEFINITION

- Sarking-type material: Flexible membrane material normally used for waterproofing, vapour retarding or thermal reflectance.

9.3.2 BULK INSULATION

- Cellulosic fibre: To **AS/NZS 4859.1.**
- Mineral wool batts and blankets: To **AS/NZS 4859.1.**
- Mineral wool and glass wool in loose fill: To **AS/NZS 4859.1.**
- Polystyrene: To **AS 1366.4.**
- Wool: To **AWC/A202**

9.3.3 SARKING MATERIAL

- To AS/NZS 4200.1.

9.4 INSTALLATION

9.4.1 BULK INSULATION

- Bulk insulation batts (thermal) are required to be provided to external walls, underside roof and/or on-top of ceiling to achieve the minimum ratings as noted in the design (refer specifically to the energy efficiency tables or report where provided).
- Ensure that installation is in accordance with the suppliers guidelines.
- Provide acoustic batts as nominated on drawings within the separating walls between units.
- Batts: Fit tightly between framing members. If support is not otherwise provided, secure nylon twine to the framing and stretch tight.
- Loose fill: Provide boxing to retain loose fill on external edges, cavities and penetrations, and to prevent spilling.

9.4.2 WALL SARKING

- Provide vapour-permeable sarking under cladding which does not provide a permanent weatherproof seal including:
- boards fixed vertically and diagonally;
- boards or planks fixed in exposed locations where wind driven rain can penetrate the joints;
- unpainted or unsealed cladding; and
- any cladding fixed directly to the frame that does not provide a cavity.
- Apply to the outer face of external stud walls from the top plate down over the bottom plate and flashing. Run across the studs and lap at least 150 mm at joints.

10.0 ROOFING

10.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS 3500.3.1** National plumbing and drainage - Stormwater drainage - Performance requirements.
- **AS 3566.1** Self-drilling screws for the building and construction industries - General requirements and mechanical properties.
- **AS 3566.2** Self-drilling screws for the building and construction industries - Corrosion resistance. requirements
- **AS/NZS 1562.1** Design and installation of sheet roof and wall cladding - Metal
- **AS 2179.1** Specifications for rainwater goods, accessories and fasteners — Metal shape or sheet rainwater goods, and metal accessories and fasteners
- **AS/NZS 2904** Damp-proof courses and flashings.
- **AS/NZS 2908.2** Cellulose-cement products — Flat sheets
- **AS/NZS 3500.3.2**National plumbing and drainage - Stormwater drainage - Acceptable solutions.
- **AS 4597** Installation of roof slates and shingles (Non-interlocking type)
- **HB 39-1997** Installation code for metal roof and wall cladding.

10.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

10.3 MATERIALS AND COMPONENTS

10.3.1 FLASHING MATERIAL

- To AS 2904.
- Tiled Roofs: 20kg/m2 Lead.

10.3.2 FASTENERS

- Self-drilling screws: To **AS 3566**, corrosion resistance class 3.
- Exposed fasteners: Use fasteners that are pre-finished to match the roof material, or provide matching purpose-made plastic caps.

10.4 METAL ROOFING

10.4.1 PARTICULARS

- Ridge and hip cap to be standard profile roll top ridge.
- Gables to be finished with gable rolls to top of barge board.
- Eaves and box gutters to Engineer's design unless noted elsewhere.

- Profiles and colours of all roofing materials to be from the standard colorbond range.
- Downpipe sizes Engineer's design unless noted elsewhere, minimum:
- 90mm PVC painted to match the colour of the external walls.
- Roofer to supply and fit all necessary flashings and cappings to ensure a good, water tight finish.
- Fascia board to be dressed timber to match existing profile.

10.4.2 VISIBLE ACCESSORIES

- Use materials with the same finish as roofing sheets.

10.4.3 EAVES

- Treat ends of sheets as follows:
- Generally: Close off ribs at top of sheets by mechanical means or by purpose-made fillers or end caps. Vermin proof bottom of sheets by purpose made fillers, screwing every rib or providing adequate bird wire.
- At gutters: Project sheets 50 mm into gutters.

10.4.4 SWARF

- Remove swarf and other debris as soon as it is deposited.

10.4.5 SELECTION AND INSTALLATION OF METAL RAINWATER GOODS

- To AS 3500.3.1 and AS/NZS 3500.3.2.
- Do not mix electrolytically incompatible materials.

10.4.6 SEALING

- Seal fasteners and mechanically fastened joints with silicone sealant.

10.4.7 FLASHINGS AND CAPPINGS

- Flash projections above and through the roof with two part flashings consisting of an apron flashing and an over-flashing, with at least 100 mm vertical overlap. Provide for independent movement between the roof and the projection.
- Wall abutments: Where a roof abuts a wall, provide over-flashing as follows:
- Masonry: Stepped and built in to the full width of the leaf.
- Planked cladding: Stepped.
- Other: Raking.

10.4.8 GUTTERS

- Minimum slope of eaves gutters: 1:200.
- Minimum width overall of valley gutters: 400 mm.

11.0 FAÇADE CLADDING

11.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS 3566.1** Self-drilling screws for the building and construction industries - General requirements and mechanical properties.
- **AS 3566.2** Self-drilling screws for the building and construction industries - Corrosion resistance requirements.
- **AS/NZS 1562.2** Design and installation of sheet roof and wall cladding - Corrugated fibre-reinforced cement.
- **AS/NZS 2904** Damp-proof courses and flashings.
- **AS/NZS 2908.2** Cellulose-cement products - Flat sheet.
- **AS/NZS 4680** Hot-dip galvanized (zinc) coatings on fabricated ferrous articles.
- **AS/NZS 4284** Testing of building facades
- **AS/NZS 4792** Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process.
- **HB 39-1997** Installation code for metal roof and wall cladding.
- **ASTM E72-15** Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
- **ASTM E695-03** Standard Test Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to Impact Loading
- **ASTM E96** Standard Test Methods for Water Vapor Transmission of Materials

11.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

11.3 MATERIALS AND COMPONENTS

11.3.1 FLASHING MATERIALS

- To AS 2904.

11.3.2 FASTENERS

- Steel nails: hot-dip galvanised to **AS 4680** or **AS 4792** as appropriate.
- Self-drilling screws: To **AS 3566**, corrosion resistance class 3.

11.4 FIBRE CEMENT CLADDING

11.4.1 STANDARD

- To AS 2908.2, type A, category 2.

11.4.2 FIBRE CEMENT WALL CLADDING SYSTEM

- Use a proprietary system of sheets and backing battens with expressed joints where nominated on drawings. James Hardie Sycon Matrix or equal approved system.
- 8 mm thick sheets of sizes 2990x1190 or 1190x1990 chosen to suit application
- 70x19x3000 Cavity trim behind all expressed joints and along edges of sheets, as detailed on drawings.
- Cavity trim running vertically and spaced in accordance with manufacturer's specifications.
- Provide cavity trim along top and along bottom of sheets as support.

11.4.3 FIBRE CEMENT PLANKS

- Use a proprietary system of single faced fibre cement planks 7.5 mm thick.
- Joints and edges: UPVC extrusions.
- Corners: Preformed metal joining pieces.

11.4.4 FIBRE CEMENT SHEET

- Use single faced fibre cement sheets 6 mm thick.
- Joints, corners and edges: UPVC extrusions.

11.5 EAVES LINING

11.5.1 PARTICULARS

- Prime laps and ends prior to installation.

11.5.2 MATERIALS

- Use a proprietary system of single faced fibre cement sheets selected and fixed in accordance with Manufacturer’s requirements appropriate to the terrain category.

11.5.3 SUPPORTS

- Minimum bearer size: for rafter overhang:
- 300 – 600 mm: 50 x 38 mm.
- 601 – 750 mm: 75 x 38 mm.

11.5.4 JOINTS

- UPVC extrusions.

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12.0 ALUMINIUM WINDOWS AND DOORS

12.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS 1231** Aluminium and aluminium alloys - Anodic oxidation coatings.
- **AS 1288** Glass in buildings - Selection and installation.
- **AS 1428** (Set) Design for access and mobility Set.
- **AS 1428.1** Design for access and mobility - General requirements for access - New building work.
- **AS 1428.2** Design for access and mobility - Enhanced and additional requirements - Buildings and facilities.
- **AS 1428.3** Design for access and mobility - Requirements for children and adolescents with physical disabilities.
- **AS 1789** Electroplated zinc (electro galvanized) coatings on ferrous articles (batch process).
- **AS 2047** Windows in buildings - Selection and installation.
- **AS 2047.2** Windows in buildings - Construction, installation and maintenance.
- **AS 3715** Metal finishing - Thermoset powder coating for architectural applications of aluminium and aluminium alloys.
- **AS 5039** Security screen doors and security window grilles.
- **AS 5040** Installation of security screen doors and window grilles.
- **AS/NZS 2804.1** Installation of security screen doors – Hinged.
- **AS/NZS 2904** Damp-proof courses and flashings.

12.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

12.3 PARTICULARS

- Refer first to the window and door schedule within the drawings and then to the finishes schedule.
- Glass to be selected in accordance with the relevant Australian Standards.
- Sliding door thresholds are to be selected and installed to provide AS 1428.1 compliant path of travel. Include threshold ramps and cover plates as required.
- Aluminium frames to be powder coated in standard colour range.
- Glazing to be minimum 6.38 laminated with greater level of safety glass provided as or where required by standard.
- All windows and sliding doors to be fully screened in colour to match aluminium windows.

- As a minimum, fly screens are to be provided to all windows and doors unless otherwise stipulated elsewhere.
- Internal aluminium window frames to be clear anodised finish unless stipulated elsewhere.

12.4 MATERIALS AND COMPONENTS

12.4.1 FLASHINGS

- To AS 2904.

12.4.2 METAL FINISHES

- Zinc plating: To **AS 1789**, at least service condition number 2.
- Anodising: To **AS 1231**, at least class AA10.
- Thermoset powder coating: To **AS 3715.**

12.4.3 GLASS

- Selection and installation: To **AS 1288.**

12.4.4 WINDOWS

- Aluminium: To **AS 2047.**

12.4.5 DOOR SETS

- Security screen doors: To **AS 5039.**

12.4.6 PRE-GLAZING

- If possible, pre-glaze windows and doors.

12.5 CONSTRUCTION GENERALLY

12.5.1 STANDARDS

- Metal window installation: To **AS 2047.2.**
- Security screen door installations: To **AS/NZS 2804.1.**
- Selection of glazing: To **AS 1288.**

12.5.2 FLASHINGS AND WEATHERINGS

- Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between frames and the building structure.

12.5.3 INSTALLATION

- Install windows and door sets so they:
- are plumb, level, straight and true;
- are adequately fixed and anchored to the building structure; and

- will not carry building loads, including loads caused by structural deflection or shortening.

12.5.4 FIXING

- Packing: pack behind fixing points with durable full width packing.
- Prepared masonry openings: If fixing of timber windows to prepared anchorages is by fastening from the frame face, conceal the fasteners by sinking the heads below the surface and filling the surface flush with a material compatible with the surface finish.

12.5.5 LININGS

- Provide reveal and jamb linings as necessary.

12.6 SHOWER SCREENS

- Shower screens to be powder coated aluminium frame with single pivot door and clear laminate.

13.0 ROLLER SHUTTERS

13.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents:

- **AS/NZS 4505** Garage doors and other large access doors.

13.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

13.3 GARAGE DOORS

13.3.1 MOTORISED OPERATION

- Provide a proprietary operator with a limit switch, manual safety stop and reversing mechanism, and overload cut out operated by a battery-powered radio remote controller and by a direct push-button or key switch. Locate operating switch 1.5m above floor level.

13.3.2 MOTORISED OPERATION

- Provide a proprietary operator with a limit switch, manual safety stop and reversing mechanism, and overload cut out operated by a battery-powered radio remote controller and by a direct push-button or key switch. Locate operating

switch 1.5m above floor level. As a back-up for 3.6m wide doors, provide a chain operation. Provide 10A power supply within one meter of motor location.

14.0 MISCELLANEOUS METALWORK

14.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS/NZ 1554.1** Welding of Steel Structures.
- **AS 4100** Steel structures.
- **AS 1657** Fixed platforms, walkways, stairways and ladders — Design, construction and installation
- **AS/NZS 1664.1** Aluminium structures — Limit state design
- **AS/NZS 1664.2** Aluminium structures — Allowable stress design
- **AS/NZS 4600** Cold-formed Steel Structures.

14.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

14.3 HANDRAILS & BALUSTRADES

- Comply with relevant section of BCA and Australian Standards.
- Provide workshop drawings for approval by the Principal prior to ordering or commencing fabrication.
- Engineer the handrails to be appropriate for their location / use. Provide a Form 15.
- Provide a Form 16.

15.0 CEILINGS PARTITIONS AND MISCELLANEOUS CARPENTRY

15.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS 1397** Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated.
- **AS 1191** Acoustics — Method for laboratory measurement of airborne sound transmission insulation of building elements
- **AS/NZS 2588** Gypsum plasterboard
- **AS/NZS 2589** Gypsum linings - Application and finishing
- **AS/NZS 2908.2** Cellulose-cement products - Flat sheet.

- **AS/NZS ISO 717.1** Acoustics — Rating of sound insulation in buildings and of building elements — Airborne sound insulation
- **AS ISO 71.2** Acoustics — Rating of sound insulation in buildings and of building elements — Impact sound insulation
- **ISO 140 Part 6** Acoustics — Measurement of sound insulation in buildings and of building elements — Laboratory measurements of impact sound insulation of floors
- **ISO 8336** Fibre-cement flat sheets

15.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

15.3 STEEL FRAMED PARTITIONS

15.3.1 GENERAL

- Provide proprietary non-load-bearing partition wall framing and lining comprising cold formed steel or extruded aluminium members, or both in accordance with manufacturer's recommendations to suit the application.

15.3.2 BUILDING MOVEMENTS

- Provide clearances or movement joints so that partitions are not damaged by structural building movements such as long term slab deflection. Where fire resistance or acoustic properties are specified provide a resilient foam or mastic seal having properties equal to those required for the partition.

15.3.3 METAL FRAMES

- Not to be used without prior agreement if timber is specified.
- If used it shall be of a proprietary system independently certified.

15.3.4 CONTROL JOINTS

- Provide for control joints in sheet finishes where required by the structural frame or the Lining work section.

15.3.5 ERECTION

- Install the partitions so they:
- Are plumb level, on their correct alignments, and firmly fixed.
- Have adequate top support by fixing the top plate to the ceiling structure or slab soffit, or are stabilised by lapping and fastening intersecting or butting plates together.
- Have bottom plates at 600 mm maximum centres generally, and 100 mm maximum from ends.

- Have studs fixed to the bottom plates at door frames, corners and intersections with self-tapping screws, not with pop rivets or crimping.
- Have studs spaced as required by the lining, but in any case at 600 mm maximum centres.
- Provide additional framing as required to support fittings and fixtures attached to partition walls.
- Provide continuous line of noggings behind handrails and other wall mounted items such as toilet grab rails etc..

15.3.6 FASTENING

- Assemble the frames at door openings with self-drilling self-tapping screws or with blind rivets.

15.3.7 FIXING

- General: Conceal fixings. For demountable items provide fixings capable of being repeatedly removed and replaced without damage to finishes.
- Fixing to masonry: Provide expansion type masonry anchors. Do not provide explosive-driven fastenings.
- Fixing to suspended ceilings: Provide adequate top support to the partition without damage to the ceiling components.

15.3.8 PREPARATION

- Prepare the base to receive the partitions. If fixing partitions on carpet, fix bottom track over polyethylene film.

15.3.9 PROTECTION

- Protect existing work from damage during the installation and make good any damage. Provide temporary coverings if necessary.

15.3.10 SERVICE HOLES

- For services within the partition provide either factory pre-cut flared holes, or site cut holes punched or drilled on the centreline of the member. Provide proprietary plastic bushes or grommets to site cut holes. Where service holes cut on site exceed D/3 provide additional strengthening to the member. D is the depth of the member.

15.3.11 SET OUT

- Set out the partitions so that the partition grid, as expressed in panel joints and centrelines of frame members, coincides with the ceiling grid and the building grid, as applicable.

15.3.12 SPLICING

- Splice plates at ends to maintain continuity and alignment.

15.3.13 SOUND PROPERTIES

- General: Preserve the sound reduction properties of Rw rated partitions by sealing flanking sound transmission paths during installation, including junctions between partitions and other building surfaces, air gaps around door sets, recesses, such as pelmets and blind boxes and cut-outs for services. Avoid cut-outs next to or back-to-back with each other.
- Sealing methods: Use appropriate sealing methods, such as purpose-made solid profiled inserts, durable resilient gaskets or closed cell foam strips. Provide solid resilient materials in preference to foamed materials whenever possible.

15.3.14 SUPPORT

- General: Provide additional support in the form of noggings, trimmers and studs for fixing hardware, fixtures and fittings. Box studs to frame door openings, and provide additional top support independent of the ceiling, where the studs are fixed to the underside of an exposed grid ceiling.
- Bracing: Independently brace the partition if sufficient bracing is not provided by the building structure.

15.3.15 TOLERANCES

- Deviation (from true grid lines and planes): 1:1000 up to 3 mm maximum.
- Misalignment (of adjoining surfaces at grid junctions): 1 mm maximum.
- Panel thickness: + 1 mm maximum, - 0.

15.4 TIMBER PARTITIONS (RESIDENTIAL)

- Non-structural studs: min. 70x45 H3 treated at 450mm centres to internal walls.

15.5 SERVICES ACCESS & ACCESS PANELS

- Conceal reticulation of associated building services, either within cavities in the partition structure, or within ducted skirtings supplied as part of the partition system, or both.
- Access Panels: Provide removable, demountable or hinged panel components of the partition system, for access to services concealed within partition and flush set ceiling cavities. Particulars:
- The number of access panels is not limited. The Contractor is to provide such to allow safe access to all ceiling and wall cavities for maintenance of service equipment or general access to the ceiling spaces.
- Trim an opening and provide an access panel of sizes 600 x 600mm, 900 x 900mm or as designed.

- When accessed externally provide a door, complete with lock, minimum size 720mm wide x 600mm high.

15.6 LININGS

15.6.1 MATERIALS AND COMPONENTS

- Plasterboard to **AS 2588**.
- Fibre Cement to **AS 2908.2**, type B, category 2.

15.6.2 CEILING SYSTEMS

- Unless noted otherwise on the design drawings:
- Flush Set means: Screw-up Suspended Ceiling System to be one of the following:
- 6.0mm thick fibre cement recessed edge flush-jointed or
- flush jointed impact resistant 10mm plasterboard screw fixed to suspension grid system, as nominated on drawings.
- Fix all plasterboard in accordance with Gyprock Brochure 540.
- Both concealed and exposed grid ceiling systems shall be “Rondo” or equal, fixed in strict accordance with manufacturers details.
- Drop in panels to exposed grid ceilings shall be USG Eclipse Clima Plus in nominal 1200 x 600mm with FL edge profile.

15.6.3 SHEET LINING

Unless noted otherwise on the design drawings:

- Wall linings generally 9.0mm thick fibre cement recessed edge flush-jointed sheeting or 10mm minimum thickness impact resistant flush-jointed plasterboard.
- Wet areas (bathroom, ensuite toilet, laundry) to be lined with structural 12mm C/D faced plywood under fibre cement for fixing of grabrail and handrails.
- Partition walls surrounding WC to have villaboard lining overlayed on 10mm sound check.
- All partitions to include R2.0 soundstop batts.
- Wall to ceiling junction to be 10mm shadow line.
- Cornices inside robes to be 50mm Scotia.
- Supports, install timber battens or proprietary cold-formed galvanised steel furring channels:
- if framing member spacing exceeds the recommended spacing
- if direct fixing of the sheeting is not possible due to the arrangement or alignment of the framing or substrate; and
- to support fixtures.
- Installation:
- Plasterboard: To AS 2589 specifically in accordance with manufacturers recommendations.
- Framed construction: Screw or nail or combine with adhesive.

- Masonry construction: Fix via metal furring channel attached to masonry.
- Wet areas: Do not use adhesive.
- Joints:
- Use recessed edge sheets and finish flush using perforated reinforcing tape.
- External corner joints: Make over zinc-coated steel corner beads.
- Wet areas: Install the flashings, trim and sealants necessary to ensure wet areas are waterproofed.
- Joints to tiled areas: Do not apply a topping coat after bedding perforated paper tape in bedding compound.
- Control joints: Install purpose-made zinc-coated control joint beads in walls and ceilings at the following maximum centres and to coincide with structural movement joints (manufacturer's recommendations override this):
- Plasterboard: 12m.
- Fibre-cement: 7.2m.

15.7 WARDROBES AND LINEN CUPBOARDS

15.7.1 PARTICULARS

- Unless noted otherwise on the design drawings or in a schedule:
- Shelving, if not detailed within the drawings shall be constructed of 450w x 16mm edge stripped white melamine as follows:
- Broom Cupboards shall have a single fixed shelf 1700mm above floor level.
- Linen & Store Cupboards shall have 4 No. fixed shelves equally spaced up to 1700mm above floor level.
- Robes shall have a single fixed shelf 1700mm above floor level and a bank of 3 No. fixed shelves 600mm wide equally spaced supported on a 16mm gable. A hanging rail is to be provided to the full length of the remaining top shelf.
- Hanging Rails where required are to be 19mm chrome plated rail with supports at 900mm maximum centres.
- Internal lining to be plasterboard with 50mm Scotia cornice.

15.8 MOULDINGS

Unless noted otherwise on the design drawings or in a schedule:

- A 68mm x 12mm finger jointed pine, colonial mould skirting board is to be supplied and installed to all walls regardless of wall type or finish.
- A 42mm x 12mm finger jointed pine, colonial mould architraves to be supplied and installed to all locations as required.
- Reveals to all windows and sliding doors to be min 19mm finger jointed pine.
- Jambs to external doors to be CCA treated pine if painted or dressed, durability class 2 hardwood elsewhere.

- Bump rail / hand rail to be dressed and polished finger jointed pine mounted at 1000mm AFFL – refer drawings for detail. Polished means timber to be stained with clear oil based impregnating stain.
- Sliding cupboard door jambs to be dressed 19mm with 10mm shadow line junction to adjacent flush plasterboard finishes.

16.0 TIMBER DOORS

16.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 1909** Installation of timber door sets.
- **AS 2688** Timber Doors.
- **AS 2689** Timber Door Sets.

16.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

16.3 GENERAL

16.3.1 PARTICULARS

- Unless otherwise stipulated in the design or elsewhere…
- Doors shall be:
- External Doors to be solid construction, flush face, of exterior grade.
- Internal Doors to be honeycomb core, flush face.
- Wardrobe doors to be of size and type noted with the head height set to match internal doors.
- All accessible doors by BCA to comply with **AS1428.1** (including minimum width).
- Centreline of spindle to be 1000mm above floor level.
- Privacy adaptors to be provided to bathroom and WC doors.
- All external swinging doors to have full perimeter weather seals.
- Internal door separating garage to have full perimeter weather seal.

16.3.2 DOOR CONSTRUCTION

- External doors: Solid construction.
- Internal doors: Flush panel semi solid.
- Use a door designated by the manufacturer as having a moisture resistance that is suitable for the exposure of the door.

16.3.3 PAINTING

- Paint timber on top and bottom edges before installation.

16.3.4 DOOR STOPS

- Provide doorstops to prevent door furniture striking the wall or other surface.

16.3.5 HINGE TABLE

- Use 3 hinges for external doors and door leafs over 2040 mm in height or 820 mm in width and as follows:

Thickness of door (maximum)	Weight of door (maximum)	Number of hinges (per door leaf)	Size of hinges (steel)
All doors	68kg max	3	100 x 75 x 1.6mm

In excess of the above refer to specialised manufacturer for advice

16.4 SLIDING INTERNAL DOORS

16.4.1 GENERAL

- Suspend sliding doors from overhead tracks and wheel carriages appropriate to the size and mass of the doors.

16.4.2 ACCESSORIES

- Provide overhead track supports and head and jamb linings appropriate to the arrangement of the door, and removable pelmets at the head to allow access to the wheel carriages for adjustment.
- Use fully adjustable precision ball race type wheel carriages providing smooth quiet operation.

17.0 DOOR HARDWARE & MASTER KEYING

17.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 2689** Timber Door sets.

17.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

17.3 LOCKSETS & HARDWARE PARTICULARS

- Specific items required might be noted elsewhere in the design. The design elsewhere takes precedence over the following requirements where ambiguity exists: This section provides the minimum items to be provided should no other information be provided.
- External doors - Provide a push-button key and knob set and a double cylinder dead bolt to each door.
- Internal doors - Generally provide passage sets.

- Offices, meeting rooms, bathrooms, showers and toilets - Generally provide privacy sets.
- Sliding patio doors and windows - Provide key lockable surface mounted bolts.
- Door lockset mounting heights - Mount locksets 1000mm above finished floor to centre of spindle.
- Doorstops to all doors to be Dalco DA12901 (SCP).
- Install doorstops to prevent door furniture striking the wall or other surface.
- Ensure compliance with **AS 1428.1** at all times.
- Ensure compliance with 'exit' requirements of the BCA.

17.4 MASTER KEYING

- Unless stipulated elsewhere in the contract or design:
- Use the Principal's supplier and adopt their chosen master keying system; propose the keying setup for review and approval. Ask the Principal if a new keying system is to be used or the existing one. In either case, the Contractor is to undertake and provide such.
- Key doors (excluding roller doors) alike and key windows alike unless overridden by the above.
- Give the Principal two keys for each set of locks keyed alike and two keys for each lock keyed to differ.

18.0 JOINERY

18.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS/NZS 1859.1** Reconstituted wood-based panels - Specifications - Particleboard.
- **AS/NZS 1859.4** Reconstituted wood-based panels – Hardboard.
- **AS/NZS 2924.1** High pressure decorative laminates - Sheets made from thermosetting resins - Classification and specifications.
- **AS/NZS 2924.2** High pressure decorative laminates - Sheets made from thermosetting resins - Determination of properties.

18.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

18.3 GENERAL

- The design drawings and schedule take precedence where any ambiguity exists with these subsections.

18.4 MATERIALS AND COMPONENTS

18.4.1 MOISTURE CONTENT

- Make milled products from timbers seasoned:
- to within 3% of the equilibrium moisture content appropriate to the timber and its intended conditions of use; and
- with no more than 3% difference between any 2 pieces in any one group.

18.4.2 FINISHED SIZES

- Use milled timbers with actual dimensions which are at least the required dimensions, except for dimensions qualified by a term such as “nominal” or “out of” to which industry standards for finished sizes apply.

18.4.3 DEFINITIONS

- High moisture resistant: Designated by the manufacturer as having improved moisture resistance.
- Melamine overlaid: A proprietary board overlaid on both sides with low pressure melamine.

18.4.4 STAINLESS STEEL

- All stainless steel unit frames, benchtops, and shelving will be grade 316 polished stainless steel.

18.4.5 HARDBOARD

- To AS 1849.4.

18.4.6 PARTICLEBOARD

- To AS 1859.1.

18.4.7 DECORATIVE LAMINATED SHEET

- To AS 2924.

18.4.9 DECORATIVE LAMINATED SHEET APPLICATION TABLE

- Use classes as follows:

Class to AS 2924	Application
HG or HGP	Kitchen work-tops
VG	Kitchen front panels
VL	Other locations

18.4.10 MISCELLANEOUS

- Provide materials in single lengths whenever possible. If joints are necessary, make them over supports.
- Do not split, discolour or otherwise damage visible finishes.
- Scribe plinths, bench tops, splashbacks, end of cupboards, kickboards and returns to follow the line of floors or walls.

18.5 CONSTRUCTION GENERALLY

18.5.1 GENERAL

- Build components square and install plumb.
- Joints: Use materials in single lengths whenever possible. If joints are necessary, make them over supports.

18.5.2 FASTENERS AND ADHESIVES

- Use fasteners and/or adhesives to transmit the loads imposed and ensure the rigidity of the assembly. Do not split, discolour or otherwise damage timber or sheets.
- Visibility: Do not use visible fixings except in the following locations:
- Inside cupboards and drawer units.
- Inside open units, in which case use proprietary caps to conceal fixings.

18.5.3 FINISHING

- Junctions with structure: Scribe plinths, bench tops, splashbacks, end or cupboards, kickboards and returns to follow the line of floors or walls.
- Edge strips: Finish exposed edges of sheets with edge strips that match sheet faces.

18.5.4 TRIMS

- Provide timber or medium density fibreboard trim, such as beads, skirtings, architraves, mouldings and stops, where necessary to make neat junctions between components and finishes.

18.5.5 STRUCTURAL SUPPORT

- The Contractor is to provide structural support (e.g. sub-frame, brackets, fins etc) to any joinery type or component irrespective if the support is not shown in the design and such support cannot interfere to the use of that joinery.

18.6 CUPBOARD AND DRAWER UNITS

18.6.1 PLINTHS, CARCASSES, DRAWER FRONTS, SHELVES AND DOORS

- Material: Use melamine overlaid high moisture resistant particleboard or melamine overlaid high moisture resistant medium density fibreboard.
- Minimum thickness: 16mm
- Finish: Use decorative laminated sheet if necessary:
- to conceal fasteners; or
- to provide selected colours.
- Installation: Secure plinths and carcasses to floors and/or walls at not more that 600mm centres.
- Drawer fronts: Rout for drawer bottoms.
- Adjustable shelves: Support on proprietary pins in holes bored at 32mm centres vertically.

18.6.2 DRAWER AND DOOR HARDWARE

- Hinges: Use concealed all-metal hinges with the following features:
- adjustable for height, side and depth location of door.
- self closing action.
- hold open function.
- nickel plated.
- Slides: Use metal runners and plastic rollers with the following features:
- 30kg loading capacity.
- closure retention.
- white thermoset powder coating or nickel plated.

18.7 LAMINATED BENCH TOPS

18.7.1 MATERIAL

- Use high moisture resistant particleboard or medium density fibreboard.
- Minimum thickness: 32mm.

18.7.2 FINISH

- Decorative laminated sheet adhesive fixed.
- Sealing underside: Laminate undersides of bench tops if:
- likely to be subject to excessive moisture from equipment such as dishwashers; or
- the bench top is not restrained against warping by cupboard carcass or support framing.

18.7.3 INSTALLATION

- Fix to carcass at least twice per 600mm length of bench top.
- Fill joints with sealant matching finish colour and clamp with proprietary mechanical connectors.
- Seal to walls and carcasses with a sealant that matches the finish colour.

19.0 WATERPROOFING

19.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 3740** Waterproofing of domestic wet areas.
- **AS/NZS 4858** Wet area membranes
- **AS4654.1** Waterproofing membranes for external above-ground use — Materials
- **AS4654.2** Waterproofing membranes for external above-ground use — Design and Installation
- **DR 99449** External waterproofing membrane systems - Part 1: Materials.
- **DR 99450** External waterproofing membranes - Part 2: Design and installation.
- **BCA** section F1.7 and table F1.7.

19.2 CROSS-REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

19.3 WET AREAS

19.3.1 MEMBRANE

- Use a proprietary liquid applied or sheet membrane system which:
- has a current Australian building codes board national accreditation certificate; or
- has a current technical opinion issued by the Australian building systems appraisal council stating that the system is suitable for use as a waterproofing system for use in wet areas, shower recess bases and associated floors and wall/floor junctions which are to be tiled.

19.3.2 INSTALLATION

- Floor wastes: Turn membrane down into the floor waste puddle flanges, and adhere.
- Hobs: Extend membrane over the hob and into the room at least 50mm. For hob-less showers, extend 1800mm into the room.
- External tiling: Provide a waterproof membrane under external floor tiling, to balconies and over habitable rooms, which forms a drained tank suitable for continuous immersion. Do not run under bounding walls.

- Curing: Allow membrane to cure fully before tiling per the manufacturer's recommendations.

20.0 TILING

20.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 2358** Adhesives - For fixing ceramic tiles.
- **AS 3958.1** Ceramic tiles - Guide to the installation of ceramic tiles.
- **AS 3958.2** Ceramic tiles - Guide to the selection of a ceramic tiling system.
- **AS 3972** Portland and blended cements.
- **AS/NZS 1428.4** Design for access and mobility - Tactile indicators.

20.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

20.3 GENERAL

20.3.1 EXPOSED EDGES

- If available, use purpose-made border tiles with the exposed edge (whether round, square or cushion) glazed to match the tile face.

20.3.2 ACCESSORIES

- If available, use tile accessories such as round edge tiles, cove tiles, step treads and nosings to stairs, landings, and thresholds, skirtings, sills, copings and bath vents, which match the surrounding tiles, composition, colour and finish.

20.3.3 ADHESIVES

- Make sure the adhesives used are compatible with its location / environment.

20.3.4 MORTAR MATERIALS

- Sand: Fine aggregate with a low clay content selected for grading.
- Cement: To AS 3972, type GP.

20.3.5 BEDDING MORTAR

- Proportioning: Select proportions from the range 1:3 to 1:4 cement:sand to obtain satisfactory adhesion. Use minimum water.

20.3.6 GROUT

- Cement based proprietary grout: Mix with water. Fine sand may be added as a filler in wider joints.
- Portland cement based grout: Mix with fine sand. Use minimum water consistent with workability.
- Proportioning:
- for joints up to 3mm: 1:2 cement:sand.
- for joints over 3mm: 1:3 cement:sand.

20.3.7 PREPARATION OF SUBSTRATE

- Prepare the substrates, including the following:
- remove deleterious and loose material and leave the surface dust-free and clean.
- for mortar bedding, wet the substrate as necessary to achieve suitable suction. Alternatively, apply a proprietary bonding agent to the substrate to improve adhesion.

20.3.8 CUTTING AND LAYING

- Cut tiles neatly to fit around fixtures and fittings and at margins where necessary. Drill holes without damaging tile faces. Rub edges smooth without chipping.
- Return tiles into sills, reveals and opening. Butt up to returns, frames, fittings and other finishes.

20.3.9 VARIATIONS IN TILE HUE, COLOUR AND PATTERN

- If necessary, distribute variations in hue, colour or pattern uniformly, by mixing tile or tile batches before laying.

20.3.10 PROTECTION OF BEDDING

- Keep traffic off the floors until the bedding has set and attained its working strength.

20.3.11 SETTING OUT

- Set out tiles to give uniform joint widths within the following limits:
- Internal ceramic tiling: 1.5 – 3 mm.
- Mosaic tiling: As dictated by pattern.
- Quarry tiles: 6 – 12 mm.
- Vitrified floor tiles: 3 – 5 mm.
- Joint alignment: Set out tiling with joints accurately aligned in both directions and wall tiling joints level and plumb.
- Joint position: Set out the tiles from the centre of the floor or wall to be tiled and if possible, ensure cut tiles are a half tile or larger.
- Fixtures: If possible, position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or in the centre of the tiles.

20.3.12 FALLS AND LEVELS

- Grade floor tiling to even and correct falls generally, and to floor wastes and elsewhere as required. Make level junctions with walls. If falls are not required, lay level.
- Minimum fall generally: 1:100
- Minimum fall in shower areas: 1:60
- Change of finish: Maintain finished floor level across changes of floor finish including carpet.

20.3.13 PREPARATION OF TILES

- Adhesive bedding: Fix tiles dry.
- Mortar bedding: Soak porous tiles in water for half an hour and then drain until the surface water has disappeared.

20.3.14 FLOOR FINISH DIVIDERS

- Finish tiled floors at junction with different floor finishes with a corrosion-resistant metal dividing strip fixed to the substrate. If changes of floor finish occur at doorways, make the junction directly below the closed door.

20.3.15 SEALED JOINTS

- Fill joints with silicone sealant and finish flush with the tile surface where tiling joins sanitary fixtures, joinery and at corners of walls in showers.

20.3.16 PARTICULARS

- Extent of tiling, unless otherwise detailed shall be as detailed within the design drawings

21.0 PAINTING

21.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS/NZS 2311** Guide to the painting of buildings.
- **AS/NZS 2312** Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.

21.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

21.3 SPECIAL MENTION

- All exposed and unfinished external elements / materials are to be painted by the Contractor, irrespective if such stipulation / selection is missing from the design. If this condition is triggered, the colour and paint type must first be proposed to the Principal for review.
- In this regard, 'external' means all surfaces exposed to the weather. Included but not limited to: alcoves, ceilings to patios and covered areas, inside leaf of an external doors etc.

21.4 GENERAL

21.4.1 COMBINATIONS

- Do not combine paints from different Manufacturer's in a paint system.

21.4.2 DELIVERY

- Deliver paints to the site in the Manufacturer's' labelled containers. Ensure containers are marked with the GPC (Government Paint Committee) specification number.

21.4.3 ORDER OF WORK

- Complete clear timber finishes before commencing opaque paint finishes in the same area.

21.4.4 PROTECTION

- Remove door furniture, switch plates, light fittings and other fixtures before starting to paint, and refix in position on completion of painting.

21.4.5 RESTORATION

- Clean off marks, paint spots and stains progressively. Touch up damaged decorative paintwork or misses only with the paint batch used in the original application.

21.4.6 SUBSTRATE PREPARATION

- Use a filler tinted to match the substrate if the finish is transparent.

21.4.7 SUBSTRATE PREPARATION FOR CONCRETE TILT PANELS

- Irrespective of the paint specified there are to be no air holes visible in the surface of the panels. The contractor is to fill/repair any visible air holes or defects in the panel face, in lieu of the fill the contractor at the contractors expense may propose an alternate textured finish to be approved for use.

21.4.8 PAINT APPLICATION

- Apply the first coat immediately after substrate preparation and before combination of the substrate can occur. Ensure each coat of paint or clear finish

is uniform in colour, gloss, thickness and texture, and free of runs, sags, blisters and other discontinuities.

21.4.9 SPRAYING

- Clear finishes: Do not use airless spray for clear finishes.

21.4.10 PRIMING BEFORE FIXING

- Timber: Apply a first coat (two coats to end grain) to exposed roof trim, timber floors and window frames, tops and bottoms of doors, associated trims and glazing before fixing in position.
- Steel: Apply a priming coat of zinc-rich organic binder to GPC-29/16.

21.4.11 REPAIR OF GALVANISING

- If galvanised or zinc-coated surfaces have been cut or welded after galvanising, prim the affected area with a zinc-rich organic binder to GPC C-29/16.

21.4.12 FINISHING TIMBER AND CORK FLOORS

- After sanding, finish with 3 coats of clear floor sealer to GPC P-93/5.

21.4.13 PAINT SYSTEM DESCRIPTION

- If a system is referred to only by its final coat (for example by the manufacturer's brand name, the GPC specifications code or the generic name) use stains, primers, sealers and undercoats which are suitable for the substrate and are compatible with the finish coat and each other.
- Use paints as follows:
- All paint work is to be first quality trade paint applied in accordance with manufacturer's specifications.
- One primer coat to be applied followed by two coats of finish colour (unless stipulated elsewhere):
- "Low sheen" acrylic to ceiling and cornice.
- "Semi gloss" acrylic to walls.
- "Gloss" enamel to doors.
- "Gloss" enamel to architraves and skirtings.
- "Gloss" acrylic to exterior.

23.0 FLOOR FINISHES

23.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS/NZS 2455.1** Textile floor coverings - Installation practice – General.
- AS/NZS 2455.2 Textile floor coverings - Installation practice - Carpet tiles.
- AS 1884 (obsolescent) Floor coverings - Resilient sheet and tiles - Laying and maintenance practices.

23.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

23.3 GENERAL

23.3.1 SUBSTRATE

- Prepare the substrate including the following:
- Stripping and cleaning: Remove deleterious and loose material, including existing floor coverings and any surface treatment that could adversely affect adhesion.
- Repairs: Make good of the surface finish where necessary. Fill depressions with a suitable filler, and remove high spots of projections. If necessary lay a steel-trowelled underlay to concrete substrate.
- Fixtures and fittings: Remove door stops and other fixtures, and refix in position undamaged on completion of the installation.
- Basic sanding: Produce an even plane sanded surface on strip flooring to be covered with carpet or resilient sheet or tile. Lightly sand the junctions of sheet flooring.
- Fine sanding: If flooring is to be clear finished, stop with matching filler and produce a smooth sanded surface free from irregularities and suitable to receive the finish.

23.4 RESILIENT FINISHES

23.4.1 SHEET SET OUT

- Sheet set out to give the minimum number of joints. Run sheet joints parallel with the long sides of the floor areas.

23.4.2 JOINTS

- Butt edges together to form tight neat joints showing no visible open seam and cold weld.

23.4.3 JUNCTIONS

- Scribe neatly up to returns, edges, fixtures and fittings. Finish flush with adjoining surfaces.

23.4.4 CLEANING AND PROTECTION

- Keep traffic of floors until bonding has set or for 24 hours after laying, whichever period is the longer. Do not allow water in contact with the finish for 7 days.

24.0 HYDRAULIC SERVICES

24.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- Plumbing and drainage products: To **SAA MP52.**
- **AS 1056.1** Storage water heaters — General requirements
- **AS 1273** Unplasticized PVC (UPVC) downpipe and fittings for rainwater
- **AS 1697** Installation and maintenance of steel pipe systems for gas.
- **AS/NZS 3500.1** Plumbing and drainage - Water services.
- **AS/NZS 3500.2** Plumbing and drainage - Sanitary plumbing and drainage.
- **AS/NZS 3500.3** Plumbing and drainage - Stormwater drainage.
- **AS/NZS 3500.4** Plumbing and drainage - Heated water services.
- **AS/NZS 4020** Testing of products for use in contact with drinking water
- **NSF/ ANSI/ CAN 372** Drinking Water System Components - Lead Content
- **AS/NZS 4234** Heated water systems — Calculation of energy consumption
- **AS 4552** Gas fired water heaters for hot water supply and/or central heating
- **AS/NZS 5601.1** Gas Installations – General Installations
- European Union Commission Regulation 547/2012
  Eco-design requirements for water pumps
- European Union Commission Regulation 622/Annex II, point 2
  Eco-design requirements for glandless standalone circulators and glandless circulators integrated in products

24.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

24.4 GENERAL

24.4.1 CONNECTIONS

- Excavate to locate and expose the connection points and connect to the authorities' mains. On completion, backfill and compact the excavation and reinstate surfaces and elements which may have been disturbed such as roads, pavements, kerbs, footpaths and nature strips.

24.4.2 FINISHES

- Finish exposed piping, including fittings and supports as follows:
- Internal locations such as toilets and kitchen areas: Bright chrome plate.
- Externally: Paint.
- Concealed but accessible spaces (including cupboards and non-habitable enclosed spaces): Leave unpainted except for required identification marking.

24.4.3 VALVES

- Finish valves to match connected piping.

24.4.4 CONSTRUCTION IN GENERAL

- Install piping in straight lines and to uniform grades. Arrange and support the piping so that it remains free from vibration and water hammer, whilst permitting thermal movement. Keep the number of joints to a minimum. Prevent direct contact between incompatible metals.

24.4.5 CONCEALMENT

- If practicable, conceal piping and fittings requiring maintenance or servicing so that they are accessible within non-habitable enclosed spaces such as roof spaces, subfloor spaces and ducts. Keep pipelines in subfloor spaces at least 150 mm above ground and ensure access can be provided throughout for inspection. Provide at least 25 mm clearance between adjacent pipelines (measured from the piping insulation where applicable.

24.4.6 BUILDING PENETRATIONS

- If piping passes through the building elements provide purpose-made metal or plastic sleeves formed from pipe sections. Prime steel or iron before installation.

24.4.7 PIPE SUPPORTS

- Materials: The same as the piping, or galvanised or non-ferrous metals, with bonded PVC or glass fibre woven tape sleeves where needed to separate dissimilar metals.

24.4.8 COVER PLATES

- Where exposed piping emerges from wall, floor or ceiling finishes, provide cover plates or non-ferrous metal, finished to match the piping, or of stainless steel.

24.5 STORMWATER

24.5.1 PARTICULARS

- Roof water to be discharged via underground system not less than 6m from any building on site and not in any position so as to cause nuisance to downhill properties.
- Stormwater disposal to be at all times in accordance with Local Authority requirements.

24.5.2 CLEANING

- During construction, provide temporary covers to openings and keep the system free of debris. On completion, flush the system with water and leave it clean.

24.5.3 PIPE LAYING

- Lay pipelines with the spigot ends in the direction of flow.

24.5.4 DOWNPIPE CONNECTIONS

- Turn up drain branch pipelines to finish 50 mm above finished ground or pavement level.

24.5.5 SUBSOIL DRAINS

- Connect subsoil drains to the stormwater drainage system.
- Trench width: Minimum 450 mm.
- Subsoil drains: Use proprietary perforated plastic pipe.
- Filter fabric: Use a polymeric fabric formed from a plastic yarn containing stabilisers or inhibitors to make the filaments resistant to deterioration dur to ultraviolet light.
- Filter sock: Use a polyester permeable sock capable of retaining particles of 0.25 mm size. Securely fit or join the sock at each joint.
- Back filling: Backfill with 20 mm nominal size washed screening, to the following depths:
- to the underside of the bases of overlying structures such as pavements, slabs and channels.
- to within 75 mm of the finished surface of unpaved or landscaped areas.

24.5.6 PITS

- Cover levels: Locate the top of covers or gratings, including frames as follows:
- In paved areas: Flush with the paving surface.

- In landscaped areas: 25 mm above finished surface.
- Gratings taking surface water runoff: Set to receive the runoff without ponding.

24.6 SANITARY

24.6.1 CLEANING

- During construction, provide temporary covers to openings and keep the system free of debris. On completion, flush the system with water and leave it clean.

24.6.2 VENT PIPES

- Staying to roof: If fixing for stays penetrate the roof covering, seal the penetrations and make watertight.
- Termination: Provide bird-proof vent cowls made of the same material and colour as the vent pipe.

24.7 WATER

24.7.1 PARTICULARS

- Hot (untempered) and cold water to be provided to kitchen and laundry.
- Tempered and cold water to be provided to all other fixtures
- Cold water only to be provided to toilet suites, external hose cocks and dishwasher.
- Cold water only to be provided to toilet suites.
- External pipework to be insulated to comply with Energy Efficiency provisions of BCA.
- Locate tempering valves to minimise length of dead leg to taps.

24.7.2 TAP POSITIONS

- Locate hot water tap to the left of, or above, the cold water tap.

24.7.3 ACCESSORIES

- Provide the accessories and fittings necessary for the proper functioning of the plumbing systems, including taps, valves, outlets, pressure and temperature control devices, strainers, gauges and pumps.

24.7.4 HOT WATER HEATER

- HWS to be suitable for application. If not already stipulated elsewhere in the design, propose an energy saving type for review and approval by the Principal. This has already been allowed for by the Contractor.

24.7.5 TEMPERATURE

- Maximum temperature at ablution outlets: 43oC.
- Comply with local by-laws.

24.7.6 ISOLATING VALVES

- Provide insulation valves to water heaters.

24.7.7 CLEANING

- On completion, flush the pipelines with water and leave it clean.

25.0 ELECTRICAL & COMMUNICATIONS SERVICES

25.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS/NZS 3000** Electrical installations (known as the Australian/New Zealand Wiring Rules)
- **AS 1668.2** The use of ventilation and air-conditioning in buildings - Ventilation design for indoor air contaminant control
- **AS 1680** Interior lighting — Safe movement
- **AS 3786** Smoke alarms
- **AS 3823 Parts 1.2** Performance of electrical appliances — Air conditioners and heat pumps — Ducted air conditioners and air-to-air heat pumps — Testing and rating for performance

25.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

25.3 PARTICULARS

25.3.1 ELECTRICAL

- Unless otherwise stipulated elsewhere:
- Safety switches are to be installed.
- GPO's, luminaries and switches location is to be determined in consultation with Owner prior to installation unless already documented in the design.
- Provide appropriate connections and allow to install all electrical equipment noted (on drawings or in specification) including exhaust fans, air conditioning, range and range hood, hot water system and alarm system.
- Conceal cables and conduits in a manner that will allow wiring replacement without structural work or the removal of cladding or lining.
- Light switches typically install wall plates 1000mm above F.F.L. unless otherwise indicated.
- GPO's Typically install wall plates 300mm above F.F.L. unless otherwise indicated.
- Irrespective if not designated on drawings, provide DGPO to locations such as HWS, microwave spot in joinery, fridge, TV, fans, roller doors / shutters.

25.3.2 SECURITY SYSTEM

- Refer to other design documentation if relevant (i.e. provided).

25.3.3 COMMUNICATIONS

- Coordinate the location of the RJ45 outlets with the power outlets in consultation with Owner prior to installation unless already documented in the design.

25.3.4 CONSUMER MAINS

- Provide consumer mains and connect to the main service.

25.3.5 UNDERGROUND MAINS

- Excavate to locate and expose the connection points. On completion, backfill and compact the excavation and reinstate surfaces and elements which have been disturbed such as roads, pavements, kerbs, footpaths and nature strips.

25.3.6 SWITCHBOARDS

- Provide control switchgear and circuit breakers on a wall- mounted switchboard enclosed in a case with a hinged door. Make provision for the supply authority's equipment and arrange with the authority for its installation.

25.3.7 WIRING

- Conceal cables and conduits, including underground cable or conduit entering the building, in a manner that will allow wiring replacement without structural work or the removal of cladding or lining. Do not penetrate damp-proof courses.

25.3.8 ACCESSORIES

- Install flush mounted accessories in wall boxes in masonry and in mounted brackets in stud walls.

25.3.9 APPLIANCE WIRING

- For permanently connected appliances, provide standard wall boxes (or a wall bracket in stud framed structures) with flush blank plate, angle take off terminator, and approximately 900 mm of flexible PVC conduit terminated at the appliance and supported in accessible locations.

25.3.10 TELEVISION ANTENNA

- Provide television antenna outlet plates as required and from them run concealed cables to a roof-mounted antenna position.
- Satellite TV receiving angtenna/dish

25.3.11 SMOKE DETECTORS

- Provide smoke detectors and connect to a mains primary power supply as required by NCC.

25.3.12 TELEPHONE PRE-WIRING

- Arrange for the statutory authority to pre-wire installation of linings, paving and landscaping.

26.0 MECHANICAL SERVICES

26.1 STANDARDS

Refer to Mech Services Spec;

27.0 WINDOW FURNISHINGS

27.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 2663.1** Textiles - Woven and knitted fabrics for window furnishings - Uncoated fabrics.
- **AS 2663.2** Textiles - Fabrics for window furnishings - Coated curtain fabrics.
- **AS 2663.3** Textiles - Fabrics for window furnishings - Vertical and holland blinds.

27.2 GENERAL

- The Contractor shall co-ordinate the timely supply and installation of the window furnishings as per the schedule.
- Spaces are to be site measured prior to fabrication / purchase and if required, changes to the sizes will most likely be required to ensure that they fit within the rooms / spaces.
- Blinds to high level glazing are to be supplied in the largest single width possible.
- All operations of the window furnishings must be in reach of a person standing on the floor.

28.0 PAVING & PATHS

28.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- **AS 1379** Specification and supply of concrete.

28.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

28.3 GENERAL

28.3.1 GRADING

- Grade paving to even falls to drain away from buildings to drainage outlets without ponding.
- Minimum fall for drainage: 1:100.

28.3.2 BASE COURSE PREPARATION

- Prepare the subgrade to accommodate thickness of the base course and paving. If necessary, loosen the ground to a depth of 200 mm and adjust the moisture content before compaction. Compact the ground to a firm even surface using at least 2 passes of a vibrating plate compactor or roller. Remove and replace any soft areas.

28.3.3 BASE COURSE MATERIAL

- Use crushed rock consisting of hard, dense, durable particles free from deleterious material, of nominal size 25 mm, uniformly graded; with no more than 10% passing a 0.075 mm sieve.

28.3.4 BASE COURSE PLACING

- Spread and compact the base course to a firm, tight, close textured surface using at least 3 passes of a vibrating plate compactor or roller. Adjust the moisture content as needed to facilitate compaction.

28.3.5 BASE COURSE MINIMUM THICKNESS TABLE

- Comply with the following minimum thicknesses:

28.4 IN SITU CONCRETE PAVING

28.4.1 CONCRETE SUPPLY

- To AS 1379.

28.4.2 MINIMUM THICKNESS

- In all cases not less than 100mm

28.4.3 PREPARATION

- Trim the ground to accommodate the required thickness of concrete and compact to a firm, even surface.

28.4.4 CONTROL JOINTS

- Form tooled joints at maximum 2m spacing.

28.4.5 EXPANSION JOINTS

- Cast-in 10mm thick bitumen impregnated fibreboard joint filler at maximum 6m spacing.

28.4.6 ABUTMENT WITH BUILDING

- If concrete paving more than 1.5m abuts the walls of the building, provide a strip of 10mm thick bitumen impregnated fibreboard between paving and the wall.

28.4.7 FINISHING METHODS

- Broom finishing: Wood float and broom to an even textured slip-resistant surface with steel tooled margins. On gradients steeper than 10%, roughen the surface by scoring.
- Exposed aggregate finish: Steel trowel to a smooth surface. After final set use clean water and brushes to remove the surface film of mortar until the aggregate is uniformly exposed without under cutting of the matrix.
- Sponge finish: After floating, produce an even textured sand finish by wiping the surface with a damp sponge.

29.0 FENCING & SCREENING

29.1 STANDARDS

Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.

- **AS1725.1** Chain link fabric fencing Security fences and gates - General requirements.
- **AS 2423** Coated steel wire fencing products terrestrial, aquatic and general use.
- **AS 1214** Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series).
- **AS 1379** Specification and supply of concrete.
- **AS 1397** Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated.
- **AS/NZS 2728** Pre-finished/pre-painted sheet metal products for interior/exterior building applications - Performance requirements.
- **AS/NZS 4680** Hot-dip galvanized (zinc) coatings on fabricated ferrous articles.
- **AS/NZS 4792** Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process.
- **AS3715** Metal Finishing–Thermoset powder coating for architectural applications of aluminium and aluminium alloys
- Nominated Manufacturers' installation guides.

29.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

29.3 MATERIALS AND COMPONENTS

29.3.1 GALVANISING

- Galvanise mild steel components as follows:
- Threaded fasteners: To **AS 1214.**
- Other components: To **AS 4680** or **AS 4792** as appropriate.

29.3.2 CONCRETE

- To **AS 1379** or proprietary packaged mix.

29.3.3 ALUMINIUM PRIVACY SCREENING

- Where nominated, aluminium batten fencing shall be installed to Oxworks proprietary design and details.
- Powder coat finish to **AS3715**

29.3.4 STEEL POSTS

- Galvanise to **AS 4680** or **AS 4792** as appropriate.

29.4 CONSTRUCTION

29.4.1 CLEARING

- Clear vegetation on the fence alignment. Grub out the stumps and roots of trees or shrubs removed and trim the grass to ground level, but do not remove the topsoil.

29.4.2 EXCAVATION

- Excavate footings so that they have vertical sides and a firm base.

29.4.3 MINIMUM FOOTING SIZE

- In accordance with AS1725.1.

29.4.4 LINE AND LEVEL

- Erect posts vertically to follow the contours of the natural ground.

29.4.5 CONCRETE FOOTINGS

- Place mass concrete around posts and finish with a weathered top falling from the post to ground level.
- Use no fines concrete.

29.4.6 ALUMINIUM FENCING

- In accordance with provided design drawings.
- Ensure bottom rails have drain holes and are at least 50mm clear of the ground.
- All open ends are to be capped.
- All burring and swarfing to be removed.

29.5 GATES

29.5.1 GENERAL

In accordance with provided design drawings.

- Hardware: Provide the following:
- Drop bolt and ferrule to each leaf of double gates.
- Latch to one leaf or double gates.
- Provision for locking by padlock.
- Hinges to ensure smooth operation.
- Hand access: Provide hand holes to give access from outside to reach locking provision.

30.0 LANDSCAPING

30.1 STANDARDS

- Works shall be carried out in accordance with but not limited to the following standards, codes and referenced documents.
- AS 1379 Specification and supply of concrete.
- AS 4419 Soils for landscaping and garden use.

30.2 CROSS REFERENCING

- The notes and details on the design drawings and/or other documents pertaining to these works shall take precedence where ambiguity exists in part or whole to this section.

30.3 MATERIALS & COMPONENTS

30.3.1 CONCRETE

- To **AS 1379** or proprietary packaged mix.

30.4 PREPARATION

30.4.1 WEED ERADICATION

- Eradicate weeds using a non-residual glyphosate herbicide in any registered formulae, at the recommended maximum rate.

30.4.2 SURPLUS SOIL AND MATERIALS

- Remove surplus spoil from site.

- Take possession of surplus soil and material and remove it from the site, unless the contract stipulates otherwise.
- Do not burn vegetative material.

30.5 SUBSOIL

30.5.1 RIPPING

- If practicable rip parallel to the final contours. Do not rip when the subsoil is wet or plastic. Do not rip within the drip line of trees to be retained.
- Ripping depths: Rip the subsoil to the following typical depths:
- Compacted subsoil: 300mm.
- Heavily compacted clay subsoil: 450mm.

30.5.2 CULTIVATION

- Cultivate to a minimum depth of 100mm. Do not disturb services or tree roots; if necessary, cultivate these areas by hand. During cultivation, thoroughly mix in any materials required to be incorporated into the subsoil. Remove stones exceeding 25mm, clods of earth exceeding 50mm, and weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to the required design levels after cultivation.

30.5.3 ADDITIVES

- Apply additives after ripping or cultivation and incorporate into the upper 100mm layer of the subsoil.
- Gypsum: Incorporate at the rate of 0.25kg/m2.

30.6 TOPSOIL

30.6.1 GENERAL

- Use topsoil that is free from unwanted matter and is suitable for reuse on site as topsoil.

30.6.2 SOURCE

- If it is available, use site topsoil.

30.6.3 PLACING TOPSOIL

- Spread the topsoil on the prepared subsoil and grade evenly, making the necessary allowances so that
- required finished levels and contours are achieved after light compaction; and
- grassed areas may be finished flush with adjacent hard surfaces such as kerbs, paths and mowing strips.

30.6.4 CONSOLIDATION

- Compact lightly and uniformly in 150mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface that is:
- finished to design levels;
- smooth and free from stones or lumps of soil;
- graded to drain freely, without ponding, to catchment points;
- graded evenly into adjoining ground surfaces; and
- ready for planting.

30.6.5 TOPSOIL DEPTHS

- Spread topsoil to the following typical depths:
- Planting areas: 225mm.
- Irrigated grassed areas generally: 150mm.
- Grass areas: 100mm.

30.7 TURFING

30.7.1 LOCAL AUTHORITY WATER RESTRICTIONS

- Obey all local authority rulings in regards to establishment of turf because of possible water restrictions, which may not permit some of the following sub-points.

30.7.2 TURF

- Obtain turf from a specialist grower of cultivated turf. Use turf of even thickness, free from weeds and other foreign matter. Use turf that will establish and maintain itself in the locations for placement.

30.7.3 SUPPLY

- Deliver the turf within 24 hours of cutting, and lay it within 36 hours of cutting. Prevent it from drying out between cutting and laying.

30.7.4 FERTILISING

- Mix fertiliser thoroughly into the topsoil before placing the turf.

30.7.5 LAYING

- Lay turf:
- in “stretcher” pattern with the joints staggered and close butted;
- parallel with the long sides of level areas, and with contours on slopes; and
- to finish flush, after tamping, with adjacent finished surfaces of ground, paving edging, or grass seeded areas.

30.7.6 TAMPING

- Lightly tamp to an even surface immediately after laying. Do not use a roller.

30.7.7 WATERING

- Water immediately after laying until the topsoil is moistened to its full depth. Adhere to the local authority water conditions. Importing of water may be necessary.

30.8 PLANTING

30.8.1 LOCAL AUTHORITY WATER RESTRICTIONS

- Obey all authority council rulings in regards to establishment of plants (trees, shrubs, plants) because of possible water restrictions, which may not permit some of the following sub-points.

30.8.2 EXCAVATION

- Excavate a plant hole for each plant large enough to accept the root ball plus 0.1m3 of backfilling with topsoil.

30.8.3 PLANTS

- Use plants which:
- have large healthy root systems, with no evidence of root curl, restriction or damage;
- are vigorous, well established, free from disease and pests, of good form consistent with the species or variety; and
- are hardened off, not sift or forced, and suitable for planting in the natural climatic conditions prevailing at the site.
- Trees: Use trees, which, unless required to be multi-stemmed, have a single leading shoot.

30.8.4 LABELLING

- Label at least one plant of each species or variety in a batch with a durable, readable tag.

30.8.5 PLANTING CONDITIONS

- Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

30.8.6 WATERING

- Thoroughly water plants before planting and immediately after planting. Adhere to the local authority water conditions. Importing of water may be necessary.

30.8.7 FERTILISING

- In planting beds and individual plantings, place fertiliser pellets around plants at the time of planting.

30.9 MULCHING

30.9.1 MULCH

- Use mulch that is free of deleterious and extraneous matter such as stones, soil, weeds and sticks.
- Application: Place mulch clear of plant stems, and rake to an even surface flush with the surrounding finished levels.
- Depth: 75mm

30.10 STAKES AND TIES

30.10.1 STAKES

- Use hardwood, straight, free from knots or twists, pointed at one end. Drive stakes into the ground at least one third of their length, avoiding damage to the root system.
- Stake sizes:
- For plants 1 to 2.5m high: Tow 50 x 50 x 1800mm stakes per plant.
- For plants smaller than 1m high: One 38 x 38 x 1200mm stake per plant.

30.10.2 TIES

- Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant.
- Webbing: Use 50mm hessian webbing stapled to the stake.

31.0 OPERATIONS AND MAINTENANCE MANUALS

31.1 GENERAL

- If the Contract conditions cover the requirements for the O&MM, then those conditions take precedence to the following where ambiguity exists.

31.2 O&MM GENERAL REQUIREMENTS

- The Operations & Maintenance Manual (O&MM) shall be sufficiently comprehensive for routine maintenance, equipment overhaul and system repairs to be carried out by personnel who are qualified to undertake maintenance work but who are not necessarily familiar with the equipment.
- The O&MM shall contain the following information for each trade (element / finish / service):

- a comprehensive list of contents including illustrations and drawings;

- function, application, specification and comprehensive technical data of all equipment including sub-assemblies, proprietary items, and system circuit and schematic diagrams where applicable;
- a description of the equipment and its principles of operation;
- routine maintenance and lubrication schedules;
- dismantling and re-assembly procedures;
- trouble-shooting suggestions;
- a complete lists of parts;
- a list of spare parts recommended to be held in stock;
- the procedure for ordering spare parts;
- testing and commissioning results, certification sheets and all quality assurance results;
- shop drawings; and
- as-constructed drawings and documents for : all structures / all services detailing service description and showing extent (RL's, setout dimensions), type (material, model) and size (mm, diameter, length). (Each drawing is to be provided in pdf, CAD DWG filetype and hardcopy versions. Only one drawing to each filename).

31.3 O&MM ORGANISATION

- The organisation of information to each O&MM set is to comply with the following in the order listed by volumes. This is the suggested broad framework. Each section and sub-section within each volume is to be appropriately titled and numbered for ease of reference:

31.3.1 VOLUME 1: PROJECT INFORMATION:

- Project Information & Contractor (Builder) Contact Details.
- Subcontractor & Supplier Contact Details comprising trade or product, company name, person name, phone, fax, mobile, email.
- Defects Notification during the Defects Liability Period (DLP) comprising procedure for occupant lodging defects requests. Contractor to maintain a log of history.

31.3.2 VOLUME 2: DECISION NOTICES:

- Superintendent's Notice of Practical Completion (leave space for such).
- Building Certifier's Certificate of Classification (Form 11) pertaining to sub-clause 61(a).
- Consultants' and Subcontractors' Form 16's leading to Form 11. Note that the Contractor's subcontractors or other licensed person will need to provide Form 16's for electrical, mechanical, hydraulics (fire), fire fighting and protection devices; not the design consultants (unless advised).
- Referral agency approvals (e.g. Queensland Fire & Rescue Services).

- Local Authority Decision Notices (and Final Certificates) for Building Assessment, Plumbing & Drainage Assessment, Operational Works Assessment and other application approvals.

31.3.3 VOLUME 3: FINISHES AND SCHEDULES:

- Architectural schedules comprising finishes, colours, furniture, fittings and equipment, etc.
- Door and Hardware schedules.
- Washroom Equipment schedule.
- Master Keying schedule.
- Other schedules.
- Paint colours swatches with paint codes, referenced back to finishes schedules.

31.3.4 VOLUME 4: MISCELLANEOUS TRADES:

- Setout in Trade sections and include information pertaining to sub-clause 61(b) iii) where relevant for:
- All miscellaneous trades other than the building services (in other volumes) such as: civil / stormwater, termite protection, roofing, roof safety system, roller doors and shutters, glazing, cladding, ceiling systems, floor coverings (carpet, tiles, vinyl), joinery, toilet partitions, operable walls, racking / shelving, etc.
- Structural and Civil works' test results and inspection certificates.
- Shop Drawings (excluding mechanical services in other volume).
- Other testing, commissioning and quality assurance information not contained in other volumes.

31.3.5 VOLUME 5: ELECTRICAL & COMMUNICATIONS SERVICES.

31.3.6 VOLUME 6: MECHANICAL SERVICES.

31.3.7 VOLUME 7: HYDRAULIC SERVICES.

31.3.8 VOLUME 8: DESIGN CONSULTANT DOCUMENTS:

- Include the latest of all design documents comprising specifications and drawings accompanied by a document transmittal listing each document with numbered code and revision.
-

31.4 O&MM ISSUE FORMATS

- Provide three (3) individual sets of O&MM. Each set is to be represented in electronic (pdf*) and hard copy formats (* i.e., all information, not just drawings).

1.1.1 HARD COPY FORMAT

- The hard copy sets of O&MM are required:

- to be provided in A4 ring binders, white plastic folders (volumes) with clear covers at the front and spine for insertion of the appropriate labelling;
- to have each volume appropriately labelled on its front cover and spine for ease of reference in advising the volume number, project name and description of the volume (e.g. Mechanical Services);
- to have each volume can be of a different thickness (spine) to suit its contents; and
- to include a main Table of Contents (TOC) for the entire set of volumes. It is to be inserted in the front of the first volume. Each content of information is to refer to a specific volume number where it is located. The TOC is to be located inside the front of each volume is to be a Supplementary TOC in line with the Main TOC. Tabs with an appropriate label in reference to the TOC are to be used in each volume to divide up the information for ease of reference.

1.1.2 ELECTRONIC FORMAT

- The electronic sets of O&MM are required to be stored on CD's that contain an electronic directory / sub-folder structure in line with the set-out of the hard copy set.
- Prior to the final issue of the O&MM, the Contractor is to directly submit the relevant O&MM volumes to the respective building services' consultants for their review. Subsequently, the Contractor is to make any amendments as instructed by the consultants for their re-review and approval.

---------- end of specification ----------

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