5.2	Central systems only- Batteries—Lead acid	RECORD the electrolyte density and state of charge for each cell. NOTE: State of charge determined from the measured electrolyte density and the data provided in the operating and maintenance manual or by the manufacturer of the battery.	
5.3	Central systems only Batteries—All types	RECORD the overall battery voltage and each cell voltage with an instrument having an accuracy of 1.5% or better. Record each voltage to the second decimal place	
5.4	Central systems only- Batteries—All types	CHECK each battery and cell voltages obtained to ensure each battery is being charged correctly and operating within its required parameters	
5.5	Central systems only - Control, charger, batteries and indicating equipment - Voltmeter	VERIFY and record the calibration of each voltmeter used with an instrument having an accuracy of Class 1% or better	
5.6	Central systems only - Battery voltage—After mains fail test	RECORD the overall battery voltage immediately after the simulated mains fail test. Acceptable limits for the battery voltage are specified under particular requirements or exit signs in AS/NZS 2293.1	
5.7	Central systems only - Battery voltage—After mains fail test	Restore the system to normal operation, turn the battery charger on, and manually select the boost-charge mode, if provided. Carry out the following: a) Check that after the batteries have been recharged, the battery charger has changed over automatically to the float-charge mode. b) For d.c. reticulated systems, measure the maximum voltage at the origin of the emergency lighting distribution system during boost charging. The voltage measured as required by Item (b) shall be not more than 125% of the nominal system voltage. This check may require the connection of a suitable peak-reading voltage measuring instrument during boost charging.	

A4 – 10 YEARLY AND END OF LIGHT SOURCE LIFE REQUIREMENTS

The procedures specified in Table A6 shall be carried out at the 10-yearly service frequency, with a tolerance interval of ±3 months, or when maintained LED emergency luminaires and exit signs have reached the LSL.
NOTE: This means all applicable tests of the shorter service intervals are also required, i.e. apply tests of 6-monthly and yearly, unless LSL has been reached.

Item No.	**Item**	**Action required and pass/fail requirement**	**Inspection only (green), activity required (red)**
6.1	Six-monthly and yearly services—All systems	CONDUCT each activity set out in Schedules 1 to 5, as appropriate. Confirm each activity has been completed and record results	
6.2	Maintained LED emergency luminaires and dual function exist signs—LSL	Manufacturer declared LSL specified in the baseline data. The ongoing viability of the installed luminaire/exit sign shall be assessed (rounded to the nearest year) in accordance with Clause 3.5.2.5. Check the spacing between emergency luminaires is in accordance with the classification determined above	
6.3	LED exit signs or directional signs—LSL	Manufacturer declared LSL specified in the baseline data. The ongoing viability of the installed LED signs shall be assessed at the end of the specified LSL (rounded to the nearest year) in accordance with Clause 3.5.2.6	

Schedule 5 (Technical Specifications)

Table of Contents

Section 1 - Introduction

The document sets out technical requirements associated with the Maintenance Works under the Contract. The document is divided into the following Sections:

Section 1	Introduction (this section)
Section 2	Demolition
Section 3	Concreting
Section 4	Carpentry and Joinery and Minor Repairs
Section 5	Roofing
Section 6	Wall and Floor Tiling
Section 7	Carpet and Resilient Flooring
Section 8	Painting Preparation
Section 9	Painting Interior
Section 10	Painting Exterior
Section 11	Metal work
Section 12	Electrical
Section 13	Master Antenna Television Systems
Section 14	Plumbing
Section 15	Timber and Metal Fencing
Section 16	Tree Pruning
Section 17	Cleaning
Section 18	Pest Control
Section 19	Reinstatement of Fire Damaged Property
Section 20	Fire Safety Works
Section 21	Vacant Restoration

This document is to be read in conjunction with all other Contract Documents.

General

The Contractor must carry out and provide all activities, items materials and labour required to complete the Maintenance Works in accordance with this document and any other requirements of the Contract.

Building Classification: Building classifications are as defined in the Building Code of Australia (National Construction Code).

Drawings: The drawings in Schedule 6 (Component Requirements) are a **guide only** and must not be relied upon by the Contractor for the purposes of carrying out the Maintenance Works. The Contractor must complete all detailed drawings required to undertake the Maintenance Work, as required by the Principal.

Maintenance and operating instructions: The Contractor is responsible for periodic maintenance of installed products, equipment, appliances, surfaces, finishes, Equipment and buildings and structures in accordance with any maintenance instructions provided by manufacturers, suppliers or subcontractors.

Operating instruction manuals for gas and electrical equipment and appliances must be provided (or returned, if applicable) to the Tenant and the Contractor must instruct the Tenant in the use/cleaning of any new appliance provided by the Contractor or, in the case of Vacant Properties, leave the instruction manuals in the kitchen.

Standards: All work must comply with relevant regulatory codes and Standards including the *Work Health and Safety Act 2011 (NSW)* and *Work Health and Safety Regulation 2011 (NSW)*.

Where tolerances or Standards are not specifically identified in a particular relevant code or standard, reference must be made to the Guide to Standards and Tolerances 2017 for compliance.

Standard of Finish: Maintenance Works must be finished to the same specification, standard, surface preparation and paint finish as the adjoining finish unless otherwise specified by the Principal. The amenity or Equipment of a Property must not be downgraded as a result of maintenance work.

Colour Schemes: The Contractor **must provide** 5 external and internal colour schemes for approval by the Principal prior to the Maintenance Works Commencement Date.

Samples: Where the Contract requires prior approval of samples the Contractor must submit samples and adequate technical literature for the Principal to assess the proposed products or systems. The Contractor must not proceed with the work before receiving approval and must retain approved samples for comparison with the finished work.

Prior approval is required for finished colours of painted and other surfaces including, laminates, tiles, roofing (all roofing material must be Solar Absorptance and have a rating less than <0.45) Roof colour schemes should be equivalent to colorbond colours considered 'light' by BASIX classification with the exception of Dover White which should not be installed, tile patterns and carpets. The Contractor is to provide 5 generic colour schemes during the Transition In Period. The colour schemes are to be provided on sample boards sufficient to show the colour scheme for a complete Property.

During the Transition In Period, the Contractor must provide samples of floor coverings and tiles to the Principal together with all the technical information required to demonstrate the proposed carpets compliance with Schedule 6 (Component Requirements).

Terminology: The Glossary of Building Terms (HB 50 – 2004) published by the National Committee on Rationalised Building (NCRB) and Standards Australia is used as a reference source for building terminology in this document.

Rubbish and waste: The Contractor must remove from a Site all rubbish and waste resulting from any Maintenance Works:

- progressively as required (e.g. to prevent a safety hazard or to maintain access)
- at the end of any day on which Maintenance Works are carried out; and
- when a Work Order is completed.

Disposal of waste, materials and equipment: The Contractor must dispose of all waste and redundant material.

Testing: The Contractor must:

a) test (at its own cost) all Equipment and parts of the Maintenance Works specified in the Contact to be tested;

b) give the Principal the opportunity to witness any tests the Principal has instructed or requested to witness by giving reasonable notice; and

c) make the results available to the Principal.

Any testing that is required to be by an independent authority or other third party shall be carried out by an authority or third pary registered with the National Association of Testing Authorities Australia (NATA) to perform the specified Testing.

The Principal reserves the right to attend and witness any test, at its convenience.

The Principal may instruct the Contractor at any time to test any part of the Maintenance Works and the method of testing. The Principal must pay for the tests it has instructed if the results of the tests show full compliance with the Contract unless the test is consequent on the failure of the Contractor to comply with a requirement under the Contract, in which case the Contractor must pay.

The Contractor must record and make good any part of the Mainteannce Works where Defects have been identified due to the tests and must repeat the tests at its own cost, until the results of the tests, as reported in writing to the Principal, confirm that the Mainteance Works comply with the Contract.

Cleaning up prior to Completion: Maintenance Works work at a Site is not considered complete until the following activities, where relevant, have been finished in their entirety:

- any work of a temporary nature has been removed;
- all debris associated with the work has been removed from the Site;
- in the case of sewer, toilet, trap or gully repairs all waste has been removed and/or cleaned from the Site;
- all facilities, utilities, Equipment and appliances are clean and ready for use;
- all temporary markings, covering and protective wrappings have been removed;
- all glass has been cleaned both inside and out;
- all carpets have been vacuum cleaned;
- any item or Equipment which has been damaged during the performance of the work has been replaced or repaired;
- any paint damage has been touched up, carefully matching the colour, and feathering in edges (badly marked areas must be repaired back to a suitable break or junction) in accordance with sections 8, 9 and 10;
- all doors, windows, drawers, hardware, appliances and the like and any other related parts have been adjusted and lubricated as necessary to ensure easy and efficient operation;
- all utilities and appliances are operating and all Equipment in good working order; all items of equipment have been tested and are in good working order;
- maintenance instructions for any new appliances have been submitted to the Tenant or left in the case of a Vacant Property left in the kitchen; and
- paths, fences, lawns, grounds, gardens, and the like, including any item of personal property of any Tenant that was disturbed or in any way affected by the performance of the Services have been replaced or restored so that the items so disturbed or affected are in the same order and condition as they were at the start of the work.

Warranties: Warranties must be provided in accordance with the Contract.

The Contractor must also:

- fix, install or repair appliances, Equipment, utilities and fittings in accordance with the requirements of any relevant authority and the written specifications and directions of the relevant manufacturers so as not to void the manufacturer's warranties;
- test all systems and appliances after installation for correct and reliable operation; and

- leave all appliances in clean and full working order.

Schedule 6 (Component Requirements) specifies the third party warranties that the Contractor is required to provide for new or replacement Equipment and appliances.

Room Definition

Combined Rooms, Kitchen, Dining, and Living Rooms etc.: - a room is only considered to be a combined room where the opening between different functional spaces is greater than 900mm and the consistency and standard of floor or wall finishes cannot be maintained when carrying out Maintenance Works.

Heritage Works

Statutory requirements: Heritage work must be carried out under the requirements of the *Heritage Act 1977 (NSW)* and the *Heritage Regulation 2012 (NSW)*, the heritage requirements of the applicable local authority (e.g. the Local Environment Plan and Development Control Plan), the Principal's Heritage Asset Management Strategy (HAMS), and any specific conservation guidelines issued or exemptions granted by the Minister for Heritage and/or the Heritage Council of NSW to the Principal specifically or all NSW Government Agencies generally.

Maintenance Works carried out on Properties of State significance are to meet the Principal's statutory maintenance obligations under s118 of the Heritage Act, 1977 and the Heritage Regulation 2012, for State significant heritage items on the State Heritage Register.

Maintenance Works carried out on other Properties listed on the Principal's s170 Heritage and Conservation Register, for which it has care, control and management, are to meet the Principal's obligations under s170A (2) and (3), and are to be maintained with due diligence in accordance with the State Owned Heritage Management Principals and the Heritage Asset Management Guidelines issued by the Heritage Council of NSW.
The heritage maintenance work required under the Contract includes the repair and maintenance of Properties of heritage significance in the categories set out in Table 1 below.

Contract	Description of Category	Maintenance Standard
Category HA	Properties listed on the **State Heritage Register** (SHR) under the ***Heritage Act, 1977*** (e.g. the Millers Point Precinct).	Properties Requiring HERITAGE Maintenance
Category HB	Properties of significant to the history of social housing in NSW. Examples include Ways Terrace at Pyrmont, the Strickland Buildings at Chippendale, the Erskineville Estate and the Daceyville Garden Estate.	
Category HC1	Properties of **local significance**, generally related to building style, setting or history. They can be listed on Council **Local Environment Plans** (LEP) under the ***EP&A Act, 1979*** as: Individual buildings or groups of buildings; or as a significant streetscape within a Conservation Area.	

	They include much of the Glebe Estate, areas of Waterloo, Woolloomooloo, and individual local heritage items.	

Contract	Description of Category	Maintenance Standard
Category HC2D	Properties considered to have some degree of heritage significance but due to the nature of that significance or the degree of change heritage maintenance is not required to retain those values. Properties as listed on the HNSW s170 Heritage and Conservation Register with no intrinsic heritage values. They may be located within Local Conservation Areas e.g. modern infill developments etc.	**Properties Requiring STANDARDS Maintenance**

Category HA & HB Properties Category HC1 Properties

Local Heritage Value Maintenance addresses the repair and maintenance of nominated Housing NSW Buildings and precincts of local heritage significance requiring specialist heritage maintenance to retain their heritage significance. The Principal's maintenance principles to retain local heritage significance are similar as high heritage value properties, specifically:

- if repair is not feasible, replace like with like, and
- do as much as necessary but alter as little as possible (The Burra Charter 1999).

Category HC2D Properties

Not all Properties on the S.170 Register are nominated for heritage maintenance.

Heritage Properties are contained predominantly in the Inner City, Inner West and Eastern and Southern Suburbs Contract Areas.

The Principal also manages the maintenance of residential heritage properties for other organisations. The Contractor may or may not be required to undertake works on such Properties. The decision to direct such work to be carried out under the Contract shall be at the absolute discretion of the Principal.

Documentation - Heritage work: The Contractor must fully document Heritage work required and provide a report to the Principal. The work must not start before the Principal's approval is received.

Storage of Removed Elements - Heritage Works: Any elements of the heritage significant fabric that are temporarily removed from a place during the performance of Heritage work, including contents, fixtures and objects, must be properly catalogued, protected and stored temporarily in a secure area protected from weather. Details of each salvaged elements/objects must be stored at an approved designated area by the Principal. All stored materials remain the Property of the Principal.

Building Essential Services - Heritage work: The Contractor must adhere to best engineering building services conservation practice when carrying out work on mechanical, electrical, plumbing, fire protection, and security systems and the following:

- install services in areas and spaces that will require the least possible alteration to the structural integrity and physical appearance of the building or Property do not cause damage to the heritage significant fabric and appearance of the building or Property when installing new mechanical systems or additional mechanical services. Where practicable re-use service ducts and pipes, including plumbing and early lighting fixtures, fittings, switches etc.; install exterior electrical and telephone cables underground, where possible, to preserve the historic setting, unless they were part of the historic scene; where practicable install services such as ducts, pipes, and cables in closets, service rooms and wall cavities; do not install vertical runs of ducts, pipes and cables in areas where they will be a visual intrusion;

END OF SECTION 1

Section 2 - Demolition

General

Scope: This section sets out the requirements for the demolition required to carry out work under the Contract. It covers the whole or partial demolition of structures. Any demolition must be carried out in such a way to minimise risks to health and safety and damage to the environment.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 2601: Demolition of structures;
- AS/NZS 4576 : Guidelines for scaffolding;
- NSW Code of Practice for the Safe Removal of Asbestos, available on Safe Work NSW website https://www.safework.nsw.gov.au/; and
- Urban Growth NSW - Managing Urban Storm water: Soils and Construction, (the Blue Book) available on the website of the NSW Office of Environment and Heritage https://www.environment.nsw.gov.au/

And all other relevant standards, Acts, codes of practice and guidelines including WHS Management and safe working practices, Environmental Management, and Waste Management.

Authorities: Obtain all relevant permits and consents prior to commencing any work under the Contract. Pay all fees and charges.

Meters for Utilities (Water, Power and Gas): On Completion of demolition of Utilities the Contractor must remove and return all redundant meters to the relevant local authorities return and documentation to the Principal.

Extent of demolition work: Demolish existing structures, to the extent required to enable the new work to be carried out.

Complete demolition: If complete demolition is required:

- demolish Building and structures down to existing finished ground level. Do not remove any support to adjacent property;
- remove and dispose of old foundations, floor slabs and paths;
- remove and dispose of waste materials from redundant Utilities;
- cap disused drains and manholes in accordance with local authority requirements; and
- remove old tanks and underground structures and dispose of waste material off the Site; and
- place an adequately compact backfill in trenches from which Utilities have been removed.

Make good damage: if the demolition work results in any damage to Property or Structures on adjoining the Site or to reinstate and make good the damage at no additional cost to the Principal.

Mains power supply: ensure the disconnection and re-connection of mains power is undertaken by the local energy authority or by a suitably licensed and qualified electrician. Obtain approval from the local energy authority before disconnecting or re-connecting of the mains power.

Fixed appliances: The disconnection and re-connection of fixed appliances must be undertaken by a licensed and qualified tradesman, i.e.: electrician, plumber or gasfitter.

Burning off: Do not burn off waste on any Site.

Demolition licensing: Contractors are required to be properly licensed to carry out demolition work in accordance with the *Work Health and Safety Act 2011*, and the requirements of regulatory authorities including SafeWork NSW.

Demolished materials: except where otherwise specified in the Contract demolished materials become the property of the Contractor and must be removed from the Site as work proceeds and disposed of at waste management facilities that can lawfully receive the types of materials.

Site clearing - HERITAGE PROPERTIES: Do not make changes to the appearance of the Site by removing old plants, trees, fencings, outbuildings, and other elements without approval from the Principal. To seek approval the Contractor must submit to the Principal, a report on the feature to be removed including details of its importance in the history and development of the Facility.

Salvaged items or Heritage items: salvaged items and heritage items which the Principal identifies are to remain the property of the Principal must be carefully dismantled, stored safely and recorded on a register for salvaged/heritage Equipment. Refer Section 1 Storage of Removed Elements – Heritage Works.

Stockpile topsoil: Where required for reuse, stockpile excavated topsoil on Site. Keep separate from other excavated materials. Spread and level where required before Completion of the works.

Explosives: Do NOT use explosives in demolition

Preparatory Work

WHS Management Plan: Refer to AS 2601, Appendix A - Demolition Checklist. Undertake preliminary investigations to obtain relevant information and then develop and prepare a WHS Management Plan for the proposed demolition work.

Utilities: Before starting demolition ensure all Utilities are disconnected or removed as required.

Soil and water management: Implement erosion and sediment control measures on the Site prior before starting any demolition, clearing, scrub removal, bulk earthworks or excavations. Maintain and adjust these controls as necessary to protect the environment during the course of the work. Refer to Urban Growth NSW - Managing Urban Stormwater: Soils and Construction (the Blue Book).

Precautionary Measures

Adjoining Properties: Take all precautionary measure necessary to avoid damage or nuisance to adjoining Properties. Where it is considered necessary prepare a dilapidation report with photos of neighbouring properties, particularly where the Buildings to be demolished abut adjoining boundaries. Provide a copy of any dilapidation report to the Principal before starting the associated work. Provide supports to adjacent structures, where necessary, to prevent damage resulting from the works.

Protection: Protect parts of the Site that are not affected by the demolition and existing structures that are to be retained. Cut away and strip out with care to reduce the amount of making good to a minimum. Any Damage resulting from failure to protect adequately must be made good at no cost to the Principal.

Temporary screens: Erect suitable screens wherever required to prevent penetration by weather, dust and dirt and adjust as necessary as work proceeds.

Supports: Provide supports and brace existing Structures as necessary during cutting of new openings or replacing structural parts. Prevent debris from overloading any part of any affected structure. Do not remove supports until new work is strong enough to ensure all Structures on the Site at all times structurally stable and sound.

Security: Prevent access by unauthorised persons. Leave the Site safe and secure at the end of each days.

Dangerous hazards: protect the Site as necessary in accordance with the Contract.

Flammable or explosive conditions: Take precautions to prevent fire or explosion and where a risk of fire or explosion exists take all necessary actions to alert appropriate authorities.

Existing trees: Protect all trees and shrubs from damage, throughout the course of the work or unless otherwise approved by the Principal.

Separation of hazardous materials: Where it is difficult to separate hazardous materials for disposal, e.g. fire affected hazardous materials, all combined materials must be disposed of as if classified hazardous. Refer to NSW Environment Protection Authority for further direction where uncertain.

END OF SECTION 2

Section 3 - Concreting

General

Scope: This section sets out the requirements for the demolition and removal of existing concrete, excavation and filling of foundations, base preparation, reinforcement and for the supply and laying of concrete for paths, driveways, ramps, stairs and the like.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 2870: Residential Slabs And Footings – Construction;
- AS 3727: Guide To Residential Pavements;
- AS 3600: Concrete structures;
- AS 3799: Liquid membrane-forming curing compounds for concrete;

and all other relevant standards, Acts, codes of practice and guidelines.

Drainage: Before starting work the Contractor must ensure that the proposed surface levels and grades will drain all surface water to a suitable storm water drainage system.

Define boundaries: The Contractor must ensure that the completed work lies within the defined boundaries of the particular Facility.

Concrete Specification

Concrete may be either ready mixed or mixed on Site, as specified in this section.

Concrete mix:

- Water: must be clean, free from oil, salt, acid, alkali or other deleterious substances.
- Sand: must be clean, sharp and free from salt or other impurities.
- Cement: must be fresh and taken from unopened bags. Cement stored on Site must be adequately protected from moisture.
- Coarse Aggregate: must be clean, hard tough and durable crushed stone and/or gravel, free from elongated pieces, dust clay or other deleterious matter.

Site mixed concrete: Concrete may be mixed on Site where it is required for work involving up to $1m^2$. Accurately measure all the required materials using suitable gauge boxes. Mix in a suitable power mixer with the addition of sufficient water to ensure workability of concrete. When the wet concrete leaves the mixer, the slump must not be not less than 50mm or more than 100mm using a standard cone. Take slump tests and record the results for quality purposes. Add no water to concrete after it leaves the mixer.

Ready mixed concrete: The company supplying ready mixed concrete may be required to submit statistical evidence of the quality control measures adopted to ensure that the concrete supplied conforms to the specified requirements.

Strength: Concrete must have an average strength appropriate to the requirements for the finished structure. For example 20 MPa concrete is required for pedestrian traffic and 25 MPa for vehicular traffic.

Clearing

Site Preparation: Remove all turf, vegetation, trees, topsoil, stumps and rubbish from the area to be concreted.

Excavation

General excavation: Trim ground to required profiles, batters, falls and levels. Remove all loose material. Protect all cut faces from collapse. Keep all excavations free from water.

Filling: Provide and thoroughly consolidate suitable filling (75mm thick road base where required under reinforced concrete driveways) where required to achieve a suitable foundation within the area to be paved. Compact fill to the relevant Standards using a mechanical plate compactor.

Concrete Pavement

Workmanship: Lay and finish paving in alternate bays not exceeding 20m² in area. Paving thickness must be between 75 to 100mm thick as specified in this section.

Formwork: Securely fix and brace formwork as required to ensure it has sufficient strength to support all loads. Make joints and linings tight enough to prevent loss of water. Ensure curves are smooth in appearance. Hose out to clean thoroughly before pouring concrete and keep wet before and after concrete is placed.

Control joints: Provide control joints to be provided as specified in AS3727, Table 2.

Reinforcement: Reinforce slabs with reinforcing mesh, free from rust or any coating. Place reinforcement centrally in the slab and support on suitable saddles.

Surface finish: Provide a non-slip finish (broom or as directed) to surfaces. Use a smooth edging tool for joints and edges in accordance with standard practices.

Concrete Paths, Wheel Tracks and Driveways

Workmanship: Place concrete between properly supported forms in bays. Thickness must be 75mm thick for paths, 100mm thick for wheel tracks, and 100mm thick for driveways. Provide 10mm thick bituminous expansion strips between every third bay to full depth of concrete.

Broom finish concrete to a non-slip finish. Run a clean tooled joint between each pair of slabs. Rounds off all free outer edges with a suitable edging tool.

Repairs to paths / wheel tracks / driveways: Cut back broken paving to a solid edge. Break up and remove broken sections of concrete from Site. Supply and lay 75mm/100mm thick concrete for paths, wheel tracks and driveways respectively. Make joints and finish, and cure as specified below.

Concrete Ramps and Stairs

Mass concrete ramps: Form up and pour mass concrete ramps to a maximum rise of 450mm, gradient not to exceed the requirements of the relevant Australian Standard. Ramps must be a minimum of 1200mm wide and finished to a non-slip finish.

Provide termite treatment for mass ramps.

Install a suitable flexible membrane between the ramp and existing Buildings.

Mass concrete stairs: Construct to AS 2870 and AS 3600. Form up and pour mass concrete stairs to a maximum height of 600mm, with:

- equal risers and goings in accordance with BCA Table D2.13 Riser and Going Dimensions;
- broom finish;
- treads pitched forward at 1% to drain surface water;
- vertically splayed risers with non-projecting bevelled nosings; and
- 25mm rounding to nosings of all treads.

In common areas of a Facility provide two (2) 25mm wide carborundum strips to all stair nosings. Provide strips for the full length of treads. Cast strips in-situ and fixed to manufacturer's instructions.

Handrails to ramps and stairs: Refer to Section 11 Metal Work for specification for handrails.

Curing of Concrete

Protect fresh concrete from premature drying and extremes of temperature. Use suitable methods to limit evaporative drying and keep damp for not less than seven days. Cure all concrete, including exposed edges of slabs or edge beams, for the minimum period specified in the relevant Australian Standards.

Ensure curing of slabs commences as soon as practicable after final finishing of any unformed finish. Achieve curing by the application of water to, or the retention of water, in the freshly cast. Where the retention of water in the fresh concrete relies on the application to exposed surfaces of sprayed membrane-forming curing compounds, use compounds complying with AS3799.

Ensure any membrane used will not affect subsequent applied finishes.

Concrete Laybacks

Construct concrete laybacks to meet the requirements and approval of the relevant local authority

Vehicle Crossovers

Construct vehicle crossings to meet the requirements and approval of the relevant local authority.

Making Good - Top Soil, Grass Seeds and/or Turf

Make good adjoining areas with top dressing soil and grass seeds and/or turf of similar type to the surrounding grasses.

Remove all surplus excavated soil from the Site. Use clean topsoil and sow with grass seeds or turf to finish level with top of concrete. Remove all broken and surplus concrete and trade rubbish from the Site

END OF SECTION 3

Section 4 - Carpentry and Joinery and Minor Repairs

General

Scope: This section sets out the requirements for carpentry, joinery, reglazing of windows, internal glazing and mirrors, the provision of all door and window hardware, the repair and/or supply and installation of timber and or aluminium windows and doors, the repair/renewal of kitchen cupboards, timber joinery, wall and ceiling linings, clothes hoists, fly screens to doors and windows, floors, porches, exterior wall cladding and minor brickwork, including related heritage conservation work.

Standards: All work must be carried out to the current requirements of regulatory authorities as applicable to the type of work being performed (whether specifically mentioned or not). Examples of Standards applicable to minor repairs include (but are not limited to) the following:

AS1214: Hot-dip galvanised coatings on threaded fasteners (ISO metric coarse thread series)

AS 1231: Aluminium and Aluminium alloys

AS 1288: Glass in buildings - Selection and installation

AS 1397: Continuous hot-dip metallic coated steel sheet and strip

AS 1604: Specification for preservative treatment – Sawn and round timber

AS 1684.1: Residential timber-framed construction

AS/NZS 1859.1: Reconstituted wood-based panels - Specifications – Particleboard

AS/NZS 1859.2: Reconstituted wood-based panels - Specifications - Dry-processed fibreboard

AS/NZS 1859.4: Reconstituted wood-based panels - Specifications - Wet-processed fibreboard

AS/NZS 1860.1: Particleboard flooring – Specifications

AS 1905.1: Components for the protection of openings in fire-resistant walls - Fire-resistant door sets.

AS 2047: Windows in buildings - Selection and installation

AS/NZS 2269: Plywood – Structural - Specifications

AS/NZS 2588: Gypsum plasterboard

AS/NZS 2699.2: Built-in components for masonry construction - Connectors and accessories

AS/NZS 2699.3: Built-in components for masonry construction - Lintels and shelf angles (durability requirements)

AS/NZS 2699.1:Built-in components for masonry construction - Wall ties

AS 2796.1: Timber - Hardwood - Sawn and milled products - Product specification

AS 2904: Damp Proof Courses and Flashings

AS/NZS 2908.1: Cellulose-cement products - Corrugated sheets

AS 3566: Self-drilling screws for the building and construction industries

AS 3700: Masonry structures

AS 3715: Metal Finishing - Thermoset powder coating for architectural applications of aluminium and aluminium alloys

AS 4055: Wind loads for housing

AS 4145.2: Locksets and hardware for doors and windows- Mechanical locksets for doors and windows in buildings

AS4200.1: Pliable building membranes and underlays - Materials

AS4200.2: Pliable building membranes and underlays - Installation requirements

AS4456: Masonry units and segmental pavers and flags - Methods of test

AS 4506: Metal Finishing – Thermoset Powder Coatings

AS4600: Cold-formed steel structures

AS/NZS 4680: Hot –dip galvanized (zinc) coatings on fabricated ferrous articles

AS 4785.1: Timber - Softwood - Sawn and milled products - Product specification

Glazing

Materials: Provide glazing to AS1288 unless otherwise specified or directed and in accordance with Schedule 6 (Component Requirements).

Glazing Material:

- **Clear Glass:** Provide clear float glass processed to give flat parallel surfaces.
- Wired Polished Glass: Provide Georgian wired steel mesh clear glass.
- **Laminated Glass:** Provide standard clear glass with a high adhesion interlayer, min 0.38mm thick.
- **Glass Mirror:** Provide silvered float glass with back face plastic sprayed.
- **Obscure Glass:** Where located in a bathroom or WC, glaze with cast pattern on the inside face. Match pattern to existing or similar.
- **Double Glazed:** Provide double glazed windows, two panes of glass separated by a vacuum:
- **Safety Glass:** Provide permanently branded safety glass of the following grades:
- Clear toughened safety glass grade 'A', or
- Clear laminated safety glass grade 'B'.
- **Louvre Blades:** Provide safety glass, with ground and arrised edges.

Glazing Accessories: Provide accessories including putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks and the like appropriate for the application and required performance and to manufacturers written specification.

Workmanship:

Installation: Ensure each piece of glass is held firmly in place by permanent means applicable to its location without damage to, or failure of, glass or glazing materials. Ensure external glazing is watertight and prevents the entry of rainwater into the Building. Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the Building between the frames and the Building fabric.

Broken Glazing: Dismantle and remove from the Site all broken glazing, including mirrors. Clean out rebates. Repair glass to match existing.

Glass replacement in high vandalism areas: When replacing broken glass in high vandalism areas, Polycarbonate material may be used.

Windows and Sliding Doors

General: Provide proprietary windows and sliding doors including all the necessary hardware and accessories. Comply with the testing and performance requirements in Schedule 6 (Component Requirements).

Samples: Submit samples, when requested by the Principal, of full size sections with the selected finish and hardware for all profiles offered.

MATERIALS – ALUMINIUM WINDOWS AND SLIDING DOORS: as above for glazing materials

MATERIALS – TIMBER WINDOWS AND SLIDING DOORS: Provide only where required to match existing.

Exterior frames:

- provide heads, jambs, frames, mullions and transoms manufactured to existing in accordance with the details in Schedule 6 (Component Requirements - Timber Schedule and Drawing Details);
- provide frames to match existing available; and
- select glazing type and thickness to suit performance requirements, with particular consideration for human impact.

Sashes and Reveals: Match the existing where available, or provide similar.

Workmanship:

Handling: Handle, unload and store Equipment in accordance with the manufacturer's written specifications. Prevent distortion, pre-finished surfaces rubbing together, and contact with mud, moisture and other damaging materials.

Corrosion protection: Before fixing glazing, apply suitable barriers of bituminous coatings, slips or underlays between dissimilar metals and between concrete or masonry and aluminium.

Fixing: Fit flashings to frames and framing as required. Fix frames in place in accordance with the manufacturer's written specifications, plumb, level and true to line and face without distortion and with all opening sashes operating easily. Fit all architraves, mouldings and trims as required. Seal frames to adjoining Buildings as recommended by the manufacturer to ensure the Building is weather tight.

Protective covering/coatings: Retain these in place during fixing wherever possible. Provide additional protection as necessary to prevent the marking of surfaces in completed work.

Repairs – Existing Aluminium windows and sliding doors: Straighten or replace aluminium sections and reinstate all aluminium. Where matching beads are unobtainable provide a solid rectangular extrusion screw fixed and bedded with sealant or neoprene weather-strips. Replace weather-strips to match existing. Supply and fit rollers to match existing. Fix sealing strips as required with profile sizes to suit.

Repairs – Existing Timber windows and sliding doors: Repair by replacing timber sections with similar profiles to those existing, e.g. head, jamb, sill, mullion, sash, stile, transom, etc. Reinstate all weather grooves. Check for and ensure full swing and ease of action. Supply and fit rollers to match existing. Re-seat or replace hinges where required and if needed plane sashes and paint bare timber providing an even gap all around that is sufficient to allow finishing without binding. Replace rusting screws with non-ferrous type screws. Replace/install window seals to reduce draughts.

Replacement of all windows in a Building: Prior to ordering the windows, confirm by calculations that the aggregate solar heat gain from the proposed replacement windows is equivalent to that of the existing windows and in accordance with Schedule 6 (Component Requirements).

Timber Doors

Timber doors: Comply with Schedule 6 (Component Requirements).

Timber/Steel door frames: Comply with Schedule 6 (Component Requirements).

Fire rated door frames: Comply with Schedule 6 (Component Requirements). Install as part of an approved fire-rated door set assembly in accordance with the BCA.

HARDWARE:

Materials: Provide new hardware to windows and doors to match the existing in the Property. Hardware must comply with Schedule 6 (Component Requirements).

Workmanship:

Installation: Fit replacement hardware to doors, windows and joinery furniture in existing positions. Unless otherwise directed by the Principal, match existing door, window and joinery furniture existing throughout. Provide all necessary fixings to suit the conditions. Conceal fixings where possible. For exterior work, provide aluminium, stainless steel or brass screws and fixings are to be used as appropriate. Avoid contact between incompatible materials and replace affected items where this occurs. Provide fixings of sufficient strength and dimensions to suit the items and materials concerned and to sustain the loads and operation of the equipment. Remove any non-standard hooks, nails, screws and fittings from windows and doors, and make good as required.

Doors: Hang exterior doors on a minimum of 3 x 100mm fixed pin hinges, with electro galvanised finish or in brass. Hang interior doors on a minimum of 2 x 90mm loose pin hinges for doors up to 2040mm high and a minimum of 3 x 90mm loose pin hinges for solid core doors and doors over 2040mm high. Toilet door where the toilet pan and the door is less than 1200 mm is not considered large enough to allow safe removal of an unconscious occupant within the compartment then lift off hinges must be used. Re-hang existing doors and windows with existing hinges when the hinges are in good condition.

Door closers: Provide door closers where required for fire egress purposes, for example for access doors to common stairwells in multi-level, and multi-unit Buildings. Provide types and sizes in accordance with relevant codes. The Contractor must provide and retain certification of compliance with the relevant code where a door closer is fitted on a fire resistant door set assembly.

Door handles: Replace internal door handles like for like, unless otherwise directed.

Door locks: Changing of locks must be undertaken by an accredited Locksmith and precautions must be in place to not key alike properties across the portfolio. The accredited Locksmith must provide certification to Contractor to be held by them but be provided to Principal on request.

Replacement door locks must comply with Schedule 6 (Component Requirements).

Door stops: Provide standard rubber or cushion type door stops and fix to timber or masonry.

Changing/re-keying locks: Remove the cylinder to all entrance doors, including front and rear doors and any keyed patio doors and, for Vacant Properties when directed, keyed screen doors, garage door, external laundry door or lockable internal access door from the garage to the Property, letter box and keyed window locks. All new/replacement lock cylinders are to be keyed alike within the property to the existing lock system, unless the Property is Vacant and lock cylinders must be

replaced; in which case all new lock cylinders must be keyed alike within the property to a new combination. Provide two new keys for each new lock installed. If locks are master keyed all replacement locks and cylinders must be keyed alike to the master key.

Where key-alike is not possible across all key locks, key-alike across groups, e.g. key-alike all window locks.

WINDOWS - ALUMINIUM/TIMBER: Provide the following hardware:

Double Hung:

- keyed window lock, all windows must be capable of being locked in a closed position, and provide safe ventilating locking points 50mm and 100mm from closed position
- sash fastener
- sash balances
- sash lifts

Casement/Hopper:

- keyed window lock
- sash fastener
- window stays

Sliding:

- keyed window lock
- sash fastener

Awning:

- keyed window winder
- window stays

MISCELLANEOUS: Provide the following hardware:

Kitchen Cupboards (HMR/MDF):

- 'D' Handle
- concealed side wall-mounted hinges with 170^0 swing
- full height brass piano hinges for split or bi-fold corner units doors
- Cupboard vent (Timber Only)

Kitchen Cupboards (Timber)

- 'D' Handle

Kitchen Drawer:

- 'D' Handle
- integrated drawer slide system

Kitchen other:

- Tea towel bar

Bathroom:

- Toilet paper holder

- bath towel rail
- shower curtain rail
- stainless steel grab rails
- soap holder
- robe hooks
- shaving cabinet and/or mirror

Joinery

General: Comply with the details applicable to joinery found in Schedule 6 (Component Requirements - Timber Schedule and Drawing Details) if applicable. Prevent or rectify any surface defects.

Architraves/skirting/mouldings: Match existing profiles. Scribe or mitre skirting corner joints and mitre in length joins.

Timber stairs: Provide closed type stairs (i.e. no open risers).

Handrails: Provide and fix handrails to match existing. Where new stair handrails are required, comply with the requirements of the current Australian Standard and the Building Code of Australia.

Linen cupboard: Fit out cupboards with full depth 16mm melamine faced moisture resistant particleboard or moisture resistant medium density fibreboard, clear finished. Finish edges with a 2mm PVC edge strip or equivalent. Screw-fix shelves at max 360mm centres to 25mm thick rails along the back and sides.

Built-in-wardrobes: Comply with Schedule 6 (Component Requirements) unless replacing components only, then replace like with like.

Trim: Where a whole section of trim is defective remove, scribe and fit architraves to interior joinery, skirting to all walls, and timber bead to match existing. Use single lengths. Pieces in short sections will not be accepted.

Easing of doors: Check door closing and swing and ensure ease of action. Re-seat or replace hinges where required and, where needed, plane doors to provide an even gap all around that is sufficient to allow closing without binding. Adjust striker plate. Paint disturbed surfaces and raw edges following easing to match existing.

KITCHEN CUPBOARDS

General: Comply with Schedule 6 (Component Requirements) and the standard details in Drawing Nos. KD02 to KD11 in Schedule 6 (Component Requirements) if applicable.

Construct kitchen cabinetry in modular fashion to facilitate any subsequent replacement that may be required.

Seal bench tops to walls with a silicone sealant and provide a flexible waterproof sealant between tiles and bench top. Ensure that all openings or spaces between or behind kitchen cupboards and walls are sealed and vermin proof. Relocate or close and patch wall vents as required to suit the installation of kitchen cupboards.

Replacement doors and drawers to cabinets: Match existing fittings.

Replacement shelves: Provide either a Melamine or painted finish to match existing.

Replacement sinks: Refer to Schedule 6 (Component Requirements).

Kitchen replacements: Where the condition of a kitchen is assessed as requiring replacement, replacements must include all subcomponents and in accordance with this Section 4 and Section 6.

All units are to be manufactured to AS/NZS 4386.1 and installed in accordance with the appropriate standards, codes and or guidelines ensuring the use of approved Equipment, subcomponents and products.

Floor cupboards and benches to be 850mm high for aged Properties and 900mm high for Properties other than aged and for disabled.

Benchtops must be continuous over units without joints (except where a change of direction in the benchtop is required in which case a toggle joint must be used).

The Contractor must prepare and supply work as executed drawings to the Principal for all kitchen replacements.

BATHROOM

General: Comply with Schedule 6 (Component Requirements) applicable to bathroom accessories and fittings.

Shaving cabinet: Surface mount or recess the cabinet, complete with perimeter bead/quad trim.

Vanity unit: Construction, repairs and installation is as for kitchen cupboards.

Bathroom fittings: Screw fit fittings (e.g. towel rails, toilet roll holder, grab rails etc.) using countersunk S.S. screws.

Refixing fittings: Where fittings (e.g. towel rails, toilet roll holder, grab rails etc.) are to be refixed, reinstall the fittings in the existing locations. Where the existing location is no longer appropriate, either:

- refix in a new location as agreed (only for Modifications) or
- provide a surface mounted screw fixed nom. 75mm x 25mm DAR cleat fixed to wall framing; or
- remove wall sheet, install additional noggings to wall, re-sheet and make good wall and refix fitting.

Bathroom replacements: Where the condition of a bathroom is assessed as a condition grading of 1, replacements must include all new bathroom accessories and fittings and all subcomponents detailed in Section 6.

Wall and Ceiling Linings

MATERIALS:

Plasterboard sheeting: Internal wall, ceiling and cornice etc lining boards are to be impact and moisture resistant and meet the required Fire Resistant Level (FRL) for the Building type.

Cornice: Provide plasterboard 90mm Scotia type cornices. Where walls are masonry, nail to ceiling framing. Do not nail to wall plates.

Accessories: Supply and install in accordance with the relevant manufacturers written specification adhesives, including nails and clouts, perforated angles, jointing tape, jointing cement etc.

Wall linings - plasterboard: Fix horizontally and in single length for walls up to 4800mm high then stagger butt joints on both sides of internal walls, with no joints occurring in line with window or door studs.

Fix plasterboard wall lining by the adhesive-nail/screw on system in accordance with the manufacturers written specification.

Wall linings – fibre cement sheet: Fix horizontally using maximum length sheets for walls to minimise butt joints.

Wet areas: Provide the flashings, trims and sealant necessary to ensure that wet areas are waterproof.

Tiled walls: Fix fibre cement wall lining sheets with nails or screws only. Use furring in accordance with the manufacturer's written specification. Take special care when fixing fibre cement sheets, where junctions between walls and floors are flashed, that fasteners do not penetrate the flashings.

External angles: Where no other corner finish is specified or detailed, finish with 25mm x 25mm x 0.5mm gauge galvanised iron purpose made perforated angle. Fix metal angle to corners with galvanised nails spaced max.150mm apart, with the edge plumb. Fill and set as specified for butt joints.

Ceiling linings – gypsum plasterboard/fibre cement sheet: Fix all ceiling lining before wall sheeting is applied.

Fix ceiling lining by the adhesive-nail/screw on system in accordance with manufacturer's written specification.

Only provide butt joints in ceiling sheets where the length exceeds 4800mm.

External Wall Cladding

MATERIALS:

General: Provide vapour permeable sarking and insulation under cladding, which provides a permanent waterproof seal, including:

- Boards fixed vertically or diagonally
- Boards or planks fixed in exposed locations where driven rain can penetrate the joints, and
- Unpainted or unsealed cladding

Fibre cement: Use Type A, Category 2 for low impact areas and Type A, Category 3 for impact and pedestrian areas.

Flat sheet proprietary systems, (smooth or textured) must be minimum 6.0mm thick.

Plank proprietary systems (smooth or textured) must be minimum 7.5mm thick.

Flat sheet and plank proprietary systems must be:

- manufactured in accordance with AS2908.2;
- manufactured pre-primed;
- early fire hazard index (AS1530.3) of 0 Ignitability, 0 Spread of Flame, 0 Heat evolved and 0-1 Smoke Developed index; and
- resistance to Termite attack.

Hardboard: Provide exterior grade proprietary system planks, smooth or textured, minimum 9.5mm thick.

Sarking: Supply to AS4200.1 and installation to AS4200.2

Wall sarking and insulation: Insulate walls to comply with BASIX optimum rating for the appropriate climate zone when renewing either internal wall lining or external wall cladding.

Workmanship:

Installation: 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 150mm at joints.

Wall cladding - complete: Cover framing with reflective foil. Provide proprietary plank or sheet cladding systems to manufacturer's written specification, including any necessary jointing and flashing.

Wall cladding – repair: Cut damaged external wall cladding to a line of suitable fixings (studs etc) and replace with necessary jointing and flashing.

Eaves, soffits, bargeboard – repair: Cut damaged eaves, soffits, bargeboards etc. to a line of suitable fixings (rafters, beams etc.) and replace. Provide necessary jointing and flashing.

Finishing: Paint to match existing. Comply with Section 10, (Painting Exterior).

FRAMING:

Materials/Workmanship: Provide additional timber members as required to support lining, cladding, hardware, fixtures and fittings. Provide fastenings of types appropriate for their purposes, sufficient to transmit the loads and stresses imposed and to ensure the rigidity of the assembly. Install without splitting or otherwise damaging the timber.

Flooring

MATERIALS:

Timber strip flooring: Provide grades equal to those required by the Timber Schedule in Schedule 6 (Component Requirements).

Structural particle board: Use Bond Type A tongue and grooved sheets on the longitudinal edge. Minimum thickness must be 19mm for 450mm joist spacing, and 22mm thick for 600mm joist spacing.

Structural plywood: Use Bond Type A tongue and grooved sheets on the longitudinal edge.

Minimum Thickness for F8 sheeting must be as follows:

- For joint spacing up to 450mm = 14mm
- For joint spacing 450mm up to 600mm = 19.5mm

Minimum Thickness for F11 sheeting must be as follows:

- For joint spacing up to 450mm = 13mm
- For joint spacing 450mm up to 600mm = 18.5mm

Compressed fibre cement: Use Type A, Category 4 for wet area flooring, minimum thickness must be 15mm for 450mm joist spacing, and 18mm for 600mm joist spacing.

Adhesive: Provide adhesive as per manufacturer's written specification.

WORKMANSHIP:

Setting out for services: At the earliest opportunity set-out the position and size of all holes, recesses and chases for services, pipes, conduits, equipment and their trimming out.

Fixing timber strip flooring: Lay strip flooring across joists with staggered joints. Cramp and double nail flooring at regular intervals to ensure there are no gaps between boards. Punch and stop all nails.

Fixing plywood: Lay sheets across joists in a staggered pattern with all edges and joints fully supported. Provide fixings in accordance with the manufacturer's written specification. Provide a 2-3mm gap at the perimeter of floors for sheet expansion.

Fixing particleboard: Do not expose particleboard flooring to the weather. Lay sheets across the joists in a staggered pattern from the centre of large areas with all edges and joints full supported. Do not allow water to pond on the floor surface.

Fixing compressed fibre cement: Lay sheets across joists in a staggered pattern with sheet ends fully supported. Screw fix in accordance with the manufacturers written specification.

Penetrations: Site measure for all penetrations and cut to tight fit with a hole-saw or similar for pipe work and the like where penetrations of flooring occur. Repair existing penetrations as required.

Brickwork

MATERIALS:

Bricks: Provide metric standard bricks of even size and shape with true arrises.

Clay brick durability: Below damp proof course, use exposure category bricks to AS4456.

Blocks: Provide concrete masonry bricks in accordance with the appropriate Australian Standards.

Lintels: Use proprietary cold-formed flat based type designed to AS4600. Lintels must be mild steel galvanised to AS4680, with minimum coating mass 600g/m2. Do not cut after galvanising. Mild steel sections must be hot dip galvanised after fabrication.

Damp Proof Course: Supply and install to the appropriate Australian Standards.

WORKMANSHIP:

Wall ties: Comply with AS 2699.1.

Mortar: Use fine aggregate sand with low clay content and free from efflorescing salts, selected for grading and colour of face work.

Use admixtures to suit the manufacturer's written specification. Provide to the maximum practical density, fully laid, firmly placed, correctly cured and not re-tempered. Ensure joints are 8mm minimum to 10mm maximum wide and uniform.

Mortar mix must be in accordance with AS 3700.

Vermin stop: Provide galvanised steel wire "chicken mesh" netting strips with reinforced edges and galvanised staples for fixing.

Brick work: Lay bricks on a full bed of mortar and ensure the joints are completely full. Do not mix or change the brick type laid from course to course. In face work, distribute the colour range of units to prevent colour concentrations.

Bond: Lay using stretcher bond unless otherwise required to match existing.

Pointing: Integrate pointing colouring with the mortar, and point as the laying work proceeds after an initial stiffening period.

Weathering: Joint to a concave tooled form as the laying work proceeds and after an initial stiffening period.

Weepholes: Rake out every third perpend where weep holes are required.

Control joints: Expansion Joints: Form from footing level to top of wall and infill with a strip of an approved compressible material the full depth of the joint.

Articulation joints: Form from footing level to top of wall and infill with a strip of an approved compressible material the full depth of the joint. Install flexible ties and finish with sealant bead to match mortar colour.

Sub-Floor Ventilation: Where required, provide new sub-floor ventilation system in damp subfloor areas. Supply fans similar or equal to Solar Fan SF5 and install in accordance with the manufacturer's recommendations. Locate on the front and back walls for cross ventilation where possible. Use existing sub-floor openings and vents where possible. Make provision for access to the fans for inspection and maintenance purposes by means of a floor hatch or removable air vent.

Co-ordination: Co-ordinate the building-in of all exterior joinery and items required to be fitted as the work proceeds. Rake out for or build-in flashings as required.

Aluminium: Ensure that all mortar droppings are cleaned off aluminium immediately.

Repairs: Carry out repairs using the required materials to match existing.

Efflorescence: Remove this where it appears, with a stiff bristle broom, wiping with a damp sponge and washing well with clean water.

Cleaning: Clean the face of brickwork with acid wash in accordance with the brick manufacturer's written specification to remove all stains and excess mortar.

Flyscreens

Screen Doors – hinged and sliding: Where required or as directed comply with the requirements in Schedule 6 (Component Requirements).

Fly screens to windows: Where required or as directed, provide aluminium extruded or folded box frame sections nom. 25mm x 11 mm with mesh fixing channel, mitred, staked and screwed at corners. Provide an extended frame section where necessary to adapt to window opening gear. Provide hard grade anodised aluminium or stainless steel (in bushfire prone areas) and fibreglass flyscreen mesh fixed in position within the frame with continuous tubular P.V.C. retaining strip for the full perimeter of frame so that the mesh is taut and without distortion. Provide cross bracing when the height or width of a screen exceeds 1200mm.

Use one of the following methods, to suit application, when installing window screens:

- Fixed screens: Face fix using stepped turn buttons, minimum 4 per screen, or fix externally on a 50mm x 25mm timber frame screw fixed (where structural integrity of the window is not compromised).

- Sliding screens: Provide a matching aluminium head guide, sill runner, and frame stile sections for screens not part of the window frame.
- Hardware: Provide nylon slide runners and finger pull handle. Provide pile strip closers against sash where necessary to close gaps.
- Anodised aluminium frame colour must match windows
- Internally fit screen with “Magi Flap” type access to the window fastener.

External Work

GENERAL: This clause deals with the repair or replacement and supply and installation of the following items, including hardware:

- Existing and new clotheslines (Refer to Schedule 6 (Component Requirements))
- Existing and new letterboxes (Refer to Schedule 6 (Component Requirements))
- Existing and new timber decking and landings
- Existing and new veranda posts
- Existing and new handrails

MATERIALS:

Site-mix concrete: Comply with Section 3 Concreting.

Pipe handrails and balustrades: Comply with Section 11 Metal work.

Galvanising: After fabrication surfaces must be protected to achieve a 25+ year protection performance for a medium to high level of atmospheric corrosivity as set out in AS2313 “Guide to the protection of Structural Steel against atmospheric corrosion by the use of protective coatings.”

Timber: Provide grades equal to those required by the Schedule 6 (Component Requirements - Timber Schedule and Drawing Details) or another appropriate standard applicable to the application.

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

DURABILITY:

General: Provide timbers with natural durability appropriate to the conditions of use, or preservative treated timbers or equivalent durability.

Natural durability classification: To AS1604 (*Timber – Preservative treated – Sawn or round*) Table F2.

Minimum requirements: Use classified timbers as follows:

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

PREVENTATIVE TREATMENT:

Standard: Comply with AS1604 (Timber – Preservative treated – Sawn or round) Table D1.

Fixings – bolts, screws and nails: Provide galvanised steel, brass or stainless steel fixings to suit the location and application.

Standard: Comply with AS3566 (Screws – Self drilling – For the building and construction industries) corrosion resistance class 2.

TIMBER FASTENERS:

Metal washers: Provide washers to the heads and nuts of all bolts and coach screws.

Steel straps: Use zinc-coated steel to AS1397 (Steel sheet and strip – Hot dipped zinc coated or aluminium/zinc-coated)/Z275, minimum size 25 x 1mm or 30 x 0.8mm.

Galvanising: Galvanise mild steel components (including fasteners) to AS1214 (*Hot-dip galvanised coatings on threaded fasteners* (ISO metric coarse thread series)) or AS/NZS4680 (*hot-dip galvanised* (zinc) *coatings on fabricated ferrous articles*), as appropriate, if:

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

Workmanship: All work must be in accordance with the best trade practice, and include those methods, practices and processes contained in all relevant manufacturers' written specification.

Clothesline (extendaline): Install and repair to the manufacturer's written specification.

Clothesline (awning type): Install and repair to the manufacturer's written specification.

Clothesline (rotary type): Install and repair to the manufacturer's written specification.

Clothesline Maintenance: Ensure any parts supplied are compatible with the existing clothesline. Where re-wiring is required, refer to Component Requirements, remove the existing wire and replace with new and tension the wire as required. Plumb clotheslines and re-concrete as required.

Footings – clothesline/letterbox: Dig 200mm dia x 500mm deep footings for clotheslines and 250mm x 250mm x 350mm deep footings for individual letterboxes. Set clothesline and letterbox posts plumb in the excavated footings and set in concrete.

Letterbox repairs: Complete the repairs with suitable new components, unless otherwise specified to return the fixture to its original condition.

Where components require re-securing, use new non-corroding fasteners to effect permanent repairs. Prior to completing work test for the soundness of fixings.

New letterbox: Where required, replace existing letterboxes with new to Australia Post requirements, in accordance with Schedule 6 (Component Requirements). Provide new pre-finished posts in 38mm square or 38mm dia. round tubular steel fitted with a 75mm x 75mm attachment plate to match letter box. Site the letterbox to allow good access. Provide new riveted 50mm high street numbers.

Numbering (street/unit): Comply with Schedule 6 (Component Requirements).

Landing flooring: Remove existing damaged flooring and supply and fit new strip flooring to match the existing. All joints must be staggered, nails HD galvanised and punched below surface and stopped.

New veranda post: Where required, remove existing veranda posts and replace them with like sized, full height H3 treated pine veranda posts full height, complete with galvanised stirrup bases. In all cases prime mortises, housings, cut ends and all faces of dressed all round (D.A.R.) timber with suitable timber primer and fix galvanised stools with M12 galvanised bolts. Fix the stools to concrete using minimum 12mm masonry anchors.

Replace existing porch blade and sole plate: Where required, remove existing porch blades and sole plates and replace them with H3 treated pine to match the existing. Chamfer edges and paint to match the existing.

Replace existing handrails: Where directed to remove damaged/unsound existing timber handrails, replace them with timber handrails to match existing. In all cases prime mortises, housings, cut ends and all faces of D.A.R. timber with suitable timber primer prior to fixing or assembly.

Comply with Section 11 Metal work, for galvanised steel pipe handrails.

Fencing repairs: Comply with Section 15 Timber and Metal Fencing.

Street and common area furniture: Table and seats must have a minimum 1 year written warranty and be:

- vandal proof and durable street furniture and tables
- 98% recycled wood/plastic composite;
- recycled co-mingled wood/plastic independently tested not to crack, splinter, rot, rust or warp;
- CCA and toxin free;
- UV stabilised and non permeable;
- fixed with vandal proof galvanised or stainless steel fixings; and
- framed in galvanised steel or other vandal proof material.

Heritage Specific Works (Only on nominated properties)

HERITAGE CONSERVATION WORK - woodwork generally: The best woodwork Conservation practices must be adhered to and including but not limited to the following:

- retain and preserve heritage significant timber architectural features whenever possible;
- do not reclad timber-framed Buildings with new materials which were not available when the Building was constructed;
- only repair/replace deteriorated heritage significant material where necessary. Replacement material must match the original in size, shape, colour, texture and pattern;
- use timbers that have natural durability appropriate to the conditions of use, and matching that of the adjacent original timber;
- use recycled timber where possible;
- match new timber to existing original timber species;

- protect new and existing timberwork with a borate preservative in order to prevent rot and termite attack. Allow to dry fully before other surface coatings are applied;
- retain as much as is practically possible of the original/early Building fabric. For example, a timber sill which is rotted out on the two ends should have the central section remain with the two new ends jointed onto the existing central section. Whole sections of work such as windows are not to be taken out and replaced with new;
- to retain original timber members affected by termites, methods of steel reinforcement and epoxy may be used where approved by the Principal; and
- to retain an existing timber beam with rotted ends, concealed steel reinforcement and spliced timber replacement to damaged area may be used where approved by the Principal.

Also refer to:

Heritage Council Victoria “Timber Repairs”:

https://www.heritage.vic.gov.au/__data/assets/pdf_file/0019/505270/Timber-repairs.pdf

HERITAGE CONSERVATION WORK - Windows and Doors: The best Conservation practices must be adhered to and including but not limited to the following:

- retain and preserve heritage significant windows and doors whenever possible;
- retain and repair existing window and door materials and openings, including window sashes, glass, lintels, sills, architraves, doors, hoods, steps and all hardware, etc.;
- repair rather than replace heritage timberwork. Duplicate the material, design and hardware of the heritage significant window sashes and doors of the Building if new sashes and doors are necessary;
- retain all original door and window hardware where it can be repaired. Subject to approval, individual items only may be replaced with new hardware;
- repair or install doors and windows so that the frames are plumb, level, straight and true within acceptable Building tolerances unless otherwise required to match;
- ease and adjust all doors and make operable, oil hinges and lock as necessary. Retain all original door hardware on doors. Re-putty glazing where required to give a watertight seal;
- ease and adjust all frames and sashes so as to make all windows operable, replace all sash cords, repair sashes if broken, repair parting beads if damaged. Retain all original window hardware on windows. Re-putty glazing where required to give a watertight seal, retain original glass;
- to retain extremely weathered timber window sills, epoxy patch methods may be used where approved. Repair and repaint timber window joinery, especially sills and frames which may are semi decayed or split allowing water into the timber;
- do not introduce new window and door openings into the external facade of a Building;

- do not alter the size of window panes, sashes, window openings or doors, to facilitate the fitting of replacement stock windows or doors, as such changes destroy the scale and proportion of the Building;
- do not install inappropriate new window or door features such as aluminium, canvas or metal strip awnings or fake shutters that detract from the character and appearance of the Building; and
- store and catalogue original doors and door hardware when they can be repaired and reused. Do not replace original timber windows and doors with aluminium.

HERITAGE CONSERVATION WORK - Internal Finishes & Fitments, Plastering & Stucco:

The best internal finishes and conservation practice must be adhered to, including but not limited to the following:

- retain original material, architectural features and hardware, whenever possible, such as stairs, handrails, balusters, ornamental columns, cornices, wall ceiling plaster ceilings and pressed metal ceilings, picture rails, skirtings, doors, doorways, windows, mantle pieces, panelling, lighting fixtures, flooring, built in furniture, etc.;
- repair where possible or replace where necessary deteriorated material with new material that duplicates the old as closely as possible;
- retain stucco with a stucco mixture that duplicates the original as closely as possible in appearance and texture. Prepare sample areas for approval by the Principal before commencing the repair works;
- repair cracked, drummy and loose lath and plaster wall and ceilings where possible with approved re-attachment methods rather than replacing with new plaster;
- repair cracked and drummy set plaster walls with approved re-attachment methods rather than replacing with new material;
- do not remove original material, architectural features and hardware, except where essential for safety or as directed by the Principal;
- do not replace interior doors and transoms. For fire safety upgrading refer to the Principal's Fire Safety Program alternative solutions for fire safety in heritage properties;
- do not install inappropriate decorative material and panelling, which may distort the original architectural features or heritage significant fabric, without approval;
- do not destroy original plaster or pressed metal ceilings;
- do not remove plaster to expose brickwork or stonework etc. to give the wall an appearance it never had;
- do not change the texture and patina of exposed timber architectural features (including structural members) and masonry surfaces through sandblasting or use of other abrasive techniques to remove paint discolouration and plaster; and
- do not replace deteriorated material with new materials that differ to such an extent from the original in composition, size, shape, colour, texture and pattern that the appearance of the Building is altered.

For traditional methods, refer to the following:

http://www.environment.nsw.gov.au/Heritage/conservation/techadvice.htm

Use pozzolanic additive such as “Trass” for promoting a chemical set where required to match original traditional mix.

Refer to NSW Heritage Office Maintenance of Heritage Assets Information Sheets, Plaster finishes.

HERITAGE CONSERVATION WORK - Building Structure repair: The Contractor must adhere to best Conservation practice for Building structures, including but not limited to the following:

- where existing structural systems are damaged or inadequate the Contractor must submit a report to the Principal. Replacement of heritage significant structural members may only be undertaken with the Principal’s approval. The report must describe the damage, its cause and recommended remedial treatment, to carry out the recommended work and seek a Direction on the extent of any further work to be performed;
- where, in the opinion of the Contractor, it is necessary to engage a structural Heritage Engineer to advise on structural matters, the Contractor must obtain prior approval from the Principal. In seeking approval to engage a structural Heritage Engineer the Contractor must submit a preliminary report to the Principal. The preliminary report must describe the issue and its likely cause, and prepare a detailed report recommending a solution;
- where problems are inherent in the structural systems of heritage Buildings, treat with minimal visual and physical intervention to heritage fabric, especially where there is any sign of cracking, deflection, or failure;
- all stabilisation and repair to weakened structural members and systems must be undertaken with minimal physical intervention to heritage significant fabric;
- do not disturb existing footings with new excavations that may undermine the structural stability of any heritage Building; and
- do not leave untreated, structural problems that may cause continuing deterioration and shorten the life of the Building.

Consistent with the objective of retaining the original fabric and features, consider the use of interventions in concealed locations which will extend the life of the original Building fabric.

Where necessary use an appropriate grade of stainless steel, in concealed locations, to extend the life of original structural Fabric.

Only replace damaged portions of timber beams and posts. Use traditional jointing methods to splice repair rotted ends.

Do not fill chimneys with reinforced concrete.

Do not use expanding fixings in stonework.

Methods of repair and stabilisation must be such as to avoid damage to the adjacent Fabric, e.g. do not use methods of fixing which cause vibrations which lead to failure of lath and plaster ceilings.

HERITAGE CONSERVATION WORK: - Masonry

The Contractor must adhere to best masonry Conservation practice including but not limited to the following:

- retain all existing masonry and mortar, wherever possible, without the application of any surface treatment;
- re-point only those mortar joints where there is evidence of moisture problems or where missing mortar allows water to penetrate into the mortar joint;
- clean masonry only when necessary, for example to inspect for repairs, or to halt deterioration, and always with the gentlest method possible such as low-pressure water and soft natural bristle brushes. Do not clean masonry to make it look new;
- graffiti must only be removed by appropriately experienced personnel. A work method statement for graffiti removal must be submitted to the Principal prior to removal;
- repair rather than replace. Where replacement is necessary, match deteriorated material with material that duplicates the old as closely as possible – recycled material is preferable to new;
- retain the original or early finish, colour and texture of masonry surfaces, including early signage, wherever possible. Brick or stone surfaces may have been tinted or whitewashed for practical or aesthetic reasons;
- where brickwork repairs are required, match old mortar in method, joint size, composition, colour, application and texture. Provide samples and sample areas to the Principal for approval prior to commencement of the work. Never point with hard mortar that may allow brickwork to deteriorate;
- do not apply new material, which is inappropriate or was unavailable when the Building was constructed, such as artificial brick panelling, artificial cast stone or brick veneer;
- do not apply waterproof or water repellent coatings or surface consolidant treatments unless required to solve a specific technical problem that has been specifically studied and identified, and only after extensive trials and study for the task. Coatings are frequently unnecessary, expensive and can accelerate deterioration of the masonry. Coatings can change the appearance of a masonry wall;
- do not sandblast using dry or wet grit and other abrasives, on brick or stone surfaces. This method of cleaning erodes the surface of the material and accelerates deterioration. Do not use chemical cleaning products that would have an adverse chemical reaction with the masonry materials, e.g. acid on limestone or marble;
- do not remove architectural features such as cornices, chimneys, brackets, and doorway pediments;
- do not remove paint from masonry surfaces indiscriminately. This may subject the Building to damage and change its appearance;
- do not re-point mortar joints in a differing size or joint profile, texture, or colour to the original pointing and jointing; and
- do not re-point mortar joints that do not need re-pointing. Do not use electric saws and hammers to remove mortar as their use can seriously damage the adjacent brick or stone arises and faces.

Refer to drawings in Schedule 6 (Component Requirements - Timber Schedule and Detail Drawings).

HERITAGE CONSERVATION WORK - Sub-Floor Ventilation: Where required, provide new sub-floor ventilation system in damp subfloor areas. Supply fans to be

solar fans so as not to place electrical load on the Tenants power supply and installed in accordance with the manufacturer's recommendations. Locate on the front and back walls for cross ventilation where possible. Use existing sub-floor openings and vents where possible. Make provision for access to the fans for inspection and maintenance purposes by means of a floor hatch or removable air vent.

END OF SECTION 4

Section 5 - Roofing

General

Scope: This section sets out the requirements for the complete re-roofing and/or repair of existing sheet or tile roofing together with the requirements of the accessories necessary to make a watertight roof.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 1684.1: Residential timber-frames construction.
- AS/NZS 1170.0: Structural design actions.
- AS 1720.1: Timber structures Part 1 Design methods.
- AS 1562.1: Design and installation of sheet roof and wall cladding.
- AS 2049: Roof tiles.
- AS 2050: Installation of roof tiles.
- AS/NZS 4200.1: Pliable building membranes and underlay (sarking).

and all other relevant standards, Acts, codes of practice and guidelines as amended.

Materials

General: Supply roof tiles and roof sheeting and associated accessories complying with the relevant Standards and Schedule 6 (Component Requirements). Where no listing is found, provide recommendation and details of Manufacturers warranties.

Roofing tiles: Must be concrete or terracotta to current Australian Standards and have a minimum 25 year written manufacturer's warranty. Installation must be in accordance with current Australian Standards and the manufacturer's specification.

Metal roofing: Metal roofing must have a minimum 15 year written warranty from the manufacturer and be:

- designed and installed to current Australian Standards and to the manufacturers written specification; and
- Provide fall arrest to meet AS1891.1-4

Sarking/Vapour barrier: Must have a minimum 7 year written warranty and:

- Be manufactured in accordance with AS 4200.1 and installed to AS4200.2;
- provides required Thermal Performance in accordance with AS4859 and ICANZ;
- if a Vapour Barrier, be rated Medium to High (<2 ng/Ns);
- If a Water Barrier be rated high AS4200 or better than 0.5 MNs/g; and

  For tiled roofs sarking must:

- have low flammability and Heat Factor of 5 or less AS 1530.2;
- have high Tensile Strength greater than 18 kN/M in both directions; and
- have UL2218-1998 (impact resistance) pass.

For metal decked roofs, when bulk insulation is laminated directly to sarking membrane the composite product must achieve a fire hazard rating (AS 1530.3) of:

Ignitability Index	0
Spread of Flame	0
Heat Evolved	0
Smoke Developed	0-1
Tensile strength >	12kN/M in both directions

Workmanship

REPAIRS AND MAINTENANCE

Repairs to existing fascia – timber: Replace defective sections with new timber fascia to match existing. Prime all faces before restoring guttering.

Do not over clad existing timber fascias with pre-finished metal fascias unless approved by the Principal.

Repairs to existing fascia – prefinished metal: Replace defective sections with new fascia to match existing. Conceal fixings.

Repairs to concrete or terracotta tile roof: Replaced damaged tiles with new tiles matching existing or, where suitable new tiles are unavailable, recycled tiles of matching pattern and colour of a minimum standard equal to the remainder of the roof.

Ensuring compatibility of roof sheeting: Prevent direct contact between incompatible metals.

If only some sheeting is replaced then the material will also not be compatible to galvanised steel sheeting adjoining it.

When fitting a new roof sheet to an existing corrugated galvanised iron roof, install either a foam or plastic isolation barrier to separate the new and old sheets. See Compatibility Table below:

Compatibility Table

System 1:	System 2:
Drainage flow from higher to a lower surface:	**Drainage flow from higher to a lower surface:**
Flashing Zinc, Alum, Alcor, Galvanised Steel	**Flashing** Lead, Galvanised steel
Roofing Metal roofing, Tiles, Glass	**Roofing** Galvanised steel, Unglazed tiles
Guttering and downpipes Metal	**Guttering and downpipes** Galvanised steel

Investigate roof leaks: Locate roof leak and carry out required repair. Where repairs would be extensive, precluding an immediate repair Make Safe and provide a written report to the Principal on the condition, and a Scope of Works required.

Replace roofing sheets and fix new sheets: Use a fastening system recommended by the manufacturer of the specified profiled metal roofing making due allowance for dynamic local wind pressures on the Building and thermal movement in the sheet.

Sealant: Use a neutral curing silicone or synthetic rubber based paintable sealant recommended by the roofing manufacturer.

Closure strips: Provide compressible foam strips to fit profiled sheets where required.

Profiled metal roofing: Fold ends and seal cut edges all to manufacturer's written specification.

Metal separation: Prevent direct contact between incompatible roofing systems, fixings and other products. Metal sheets can be used as replacement sheets for damaged galvanised sheets as a galvanised steel roof. Follow the manufacturer's written specification. Refer to Compatibility Table above.

Gutter guards: Replacement Gutter Guards must be factory pre-painted metal roofing steel and in a colour to match guttering. Prior to installing gutter guard the Contractor is to clean out, re-fall guttering and re-seal all joints prior to installing gutter guard.

When installed in designated bush fire prone areas gutter guards must be non-combustible metal and securely fixed underneath the roof and to the gutter in accordance with AS 3959.

Re-Roofing - General

Roof Sheeting: When undertaking a complete roof replacement new roof sheeting must comply with the approved products as supplied by the contractor and approved by the Principal and have a maximum Solar Absorptance of <0.45.

Wind and earthquake loadings: Use fixings and methods that will be capable of sustaining the loads appropriate to the area.

Vermin proofing: Ensure the roof, wall, down pipes and vents are completely bird and vermin proof. Provide and fix all materials required for this purpose.

Battens: Fix to the roofing manufacturer's written specification and with all joints fully supported and staggered.

Insulation: Insulate to comply with BASIX optimum rating for the appropriate climate zone. Refer to Component requirements for full details.

Do not install Foil Laminates and Bubble Foil on top of any ceiling to cover joists, rafters and any services. Foil Laminates and Bubble Foil may only be installed as a sarking on top of the roof trusses and battens underneath the roofing. Sarking must be installed in the roof with roofing wire underneath to ensure the sarking remains in place and does not sag.

Ensure that appropriate separation is maintained between electrical services and installed Foil Laminates and Bubble Foil Sarking in roofs and external walls.

Tile Roofing

Concrete / terracotta tiles: Fixed to manufacturers written specification, flashed to all roof features and penetrations, fitted with anti-ponding boards all to manufacturers written specification.

Fixing concrete tiles - ridge: Fix to the manufacturer's written specification. Point raked joints with a flexible pointing product.

Concrete tiles to ridges and hips: Support and bed edges and joints of ridge and hip tiles with a flexible pointing product to the manufacturer's written specification.

Valley (concrete tiles): Machine cut tiles to a neat clean line leaving a minimum gap of 100mm. Form and fix bird proofing to valley battens. Fix all cut tiles.

Verge (concrete tiles): Fix gable end barge tiles to the manufacturer's written specification.

Sheet Metal Roofing

Sheet metal roofing: Supply and fix complete with all matching accessories, flashed to all roof features and penetrations, all to the manufacturers' written specifications. Form stop-ends, profiled foam rib closers and downturns as necessary to aid in flashing.

Set out: Set out the planned layout before commencing fixing to ensure true lines, correct relationship to module, grid and roof features. The Principal prefers all roofing to be factory pre-cut to minimise on-site cutting.

New sheets: Fix in place using the fastening system recommended by the manufacturer of the specified profiled metal roofing making due allowance for dynamic local wind pressures or earthquake loadings on the Building and thermal movement in the sheet.

Weathering: The under corrugations of the sheet must be turned up the full corrugation height, where covered by the ridge or hip ridge capping.

Insulated Metal deck roofing and ceilings: Install Roofing Blanket consisting of a glasswool blanket adhered to an impermeable reinforced reflective foil facing (equal to Anticon) installed on roofing wire laid over the roof battens. Foil faced insulation blanket must be a minimum of 50mm thick. Install Ceiling batts between the ceiling rafters and joists.

Roof flashings: Fix to verges, ridges, hips, walls and penetrations where required to comply with the manufacturers written specification and to ensure the Building is completely watertight. Co-operate with the plumber for flashing penetrations related to plumbing work. Step and apron flashings shall be 0.6mm to match roof sheets. Apron flashings shall be turned a minimum of 60mm under step flashings and gutters.

Valley (profiled metal roofing): Machine cut sheet to a neat, clean line leaving a minimum gap of 100mm. Form and fix bird proofing to valley battens. Fix all cut sheets. Valleys must be 0.6mm base Metal Thickness, colour to match roof sheeting, machine formed and beaded 19mm at edges to stand up at least 10mm. Valleys must not be nailed through the iron and care must be taken to prevent the beaded edge from being flattened. Valley gutters must be fixed in a straight line to true planes.

Ridges: All hip and ridge covering must be 400mm width x 0.6mm base Metal Thickness, colour to match roof sheeting, and securely fixed with fasteners to the top batten not more than 50mm from the edge and through an over corrugation. All edges must be dressed down into under corrugation on hips and ridges. Hip and gable ends of ridging to finish with stop ends. Ridges at apexes must be mitred and all apexes to be flashed with a suitable flashing material in a colour to match the roof sheets.

NOTE: Installation to manufactures specifications.

Heritage Specific Works

HERITAGE CONSERVATION TRADE PRACTICES: Use good conservation trade practice including but not limited to the following:

- preserve the original roof form;

- do not remove from the roof any architectural features important to its heritage significant character. Preserve or repair/replace where necessary all architectural features that give the roof its essential character, such as dormer windows, cupolas, cornices, brackets, chimneys, cresting, weather vanes, gutters, downpipes, rainwater heads and lighting rods;
- do not change the essential character of the roof by adding inappropriate features such as dormer windows, vents, skylights, or air conditioning plant and equipment. Retain the original roof covering where possible;
- do not apply new roof cladding which is inappropriate to the style and period of the building and environs, except with the Principal's approval; and
- do not replace deteriorated roof covering with new materials that differ to such an extent from the old in composition, size, shape, colour, texture or pattern that the appearance of the Building is altered, except with the Principal's approval.

Refer NSW Heritage Office Information Sheet 4.2 – Slating, tiling and roof plumbing and Information Sheet 3.1 Metalwork.

Slate tile roofing: Salvage slate tiles that are in good condition and re-use, preferably concentrated in one area.

New slates tiles must be best grade complying with current Standards for matching the existing slates in appearance and size.

Use copper nails, complying with current Standards, with large heads for slate tiles.

Corrugated steel sheet roofing: New galvanised steel roofing shall be used to match existing in length, lapping and profile. Do not use modern alternatives such as Colorbond unless approved by the Principal.

Also refer to Heritage Council Victoria "Galvanized Roof Coverings":

https://www.heritage.vic.gov.au/__data/assets/pdf_file/0021/505263/Metalwork.pdf

Galvanised steel rainwater goods: Supply and install to relevant Australian Standards. Use existing gutter and downpipe brackets where possible. Use soldered joints in galvanised steel vents, gutters and rainwater goods.

Copper rainwater goods and copper work jointing: Carry out work in accordance with Traditional Copper Roofing Technical Notes TN6 by the Copper Development Association.

Lead capping and flashings: Carry out work in accordance with relevant provisions of Rolled Lead Sheet – The Complete Manual https://leadsheet.co.uk/service/rolled-lead-sheet-the-complete-manual/

Completion

General: Roofing work must be completed with all necessary flashings, valleys, ridges and hips all properly installed as the work proceeds so that the finished roof is completely weather-tight.

Maintenance manual: On Completion of a complete re-roofing the Contractor must keep a manual of recommendations from the roof manufacturer or supplier for the maintenance of the roofing system including: frequency of inspection and recommended methods of access, inspection, cleaning, repair and replacement.

END OF SECTION 5

Section 6 - Wall and Floor Tilings

General

Scope: This section sets out the requirements for the supply and installation of ceramic tiles to flooring, walls and bench tops, for both new work and repairs, and the supply and installation of waterproofing to wet areas.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- ISO 10545: Ceramic Tiles
- AS 3958.1: Guide to installation of ceramic tiles
- AS 3958.2: Guide to the selection of a ceramic tiling system
- AS 2358: Adhesives – For fixing ceramic tiles
- AS 3972: General Purpose and blended cements
- AS 1672.1: Limes and limestone
- AS3740: Waterproofing of Domestic Wet Areas

and all other relevant standards, Acts, codes of practice and guidelines.

Materials

Wall and skirting tiles: wall and skirting tiles must have a minimum 10 year written manufacturer's warranty and:

- be first Quality to ISO 13006;
- compliant to AS 4586;
- be vitrified or porcelain;
- have a minimum tile thickness ≥ Min 5.5mm;
- be fully glazed over face ceramic tile;
- if ceramic biscuit (Bisque), must be engobed;
- have a minimum surface hardness of MOHS Min 3 - test method EN101;
- be laid with extruded PVC or aluminium tile trims on exposed edges and silicon seal to cupboard boundaries; and
- extended to floor behind upright stoves

Floor tiles: floor tiles must have a minimum 10 year written manufacturer's warranty and:

- be within the range of 50 x 50 mm up to 600 x 600 mm
- be first quality to ISO 13006
- comply with AS 4586;
- be vitrified or porcelain;
- in colours as appropriate to the Principals colour scheme;
- have warpage not exceeding 0.5mm for any tile batch;
- have a minimum surface hardness of MOHS Min 6 - test method EN101;
- be capable of water absorption to ISO10545-3/EN99;
- have a chemical resistance to ISO10545-13/EN16;
- be slip resistance to current Australian Standards AS4586;

- have a slip rating of R10 and Pendulum test score of 'X' for Wet areas, common areas and external areas;
- have a slip rating of R9 and pendulum test score 'Z' for all other areas;
- have a minimum tile thickness ≥ 7.0mm; and
- be laid with extruded PVC or aluminium tile trims on exposed edges.

Entrances/Exits, outdoor terraces and verandas etc: Tiles must be quarry tiles with a minimum 10 year written manufacturer's warranty and meet the following:

- be unglazed quarry tiles and quarry nosing tiles shall be first quality;
- comply with the requirements of ISO 10545;
- used only at external locations and external doors above the damp proof course; and
- be installed with an appropriate waterproof membrane.

Grouting: must comply with AS3958.

Thin bed tile adhesive: must be flexible rubber based Type 1 to AS2358.

Leak control flange: Provide leak control flanges around floor wastes to all wet area floors. Install to the manufacturer's written specification.

Movement joint filling sealer: Use silicone sealant or equal with mould inhibitor.

Waterproofing – all internal wet areas: must be installed to the manufacturer's specification and have a minimum 10 year written manufacturer's warranty and:

- waterproofing membrane must be applied in accordance with AS3740 and AS4654.1;
- work must comply with AS3740 Waterproofing of domestic wet areas;
- all junctions must be tiled to current Australian Standards with caulked joint sealants;
- tiling of wet area floors and walls must comply with AS4858 for a wet area membrane class III for high extensibility;
- wet area membrane must be water based (no solvent release); and
- retain a certificate of installation and provide to the Principal upon request.

Waterproofing – external floors (balconies, terraces, decking, planter boxes, terrace gardens etc): must be installed to the manufacturer's specifications and have a minimum 10 year written manufacturer's warranty and:

- waterproofing membrane must be applied in accordance with AS3740 and AS4654.1;
- membrane must satisfy tests to class III high extensibility AS4858; and
- retain a certificate of installation and provide to the Principal upon request.

Extent of work

General: Tiles for repair must match existing installations. Projects requiring complete retiling of walls, floor or both, must be tiled with colours as per the approved colour scheme, with tile sizing and patterns to current trends.

Kitchen: Wherever the benchtop meets a wall, provide tiled splashback. Provide to walls over sink, stove and for full length of all fixed floor cupboards, including returns as applicable, extending behind stove for full width of stove. Where applicable provide tiles from the benchtop to the underside of the wall cupboards. Extend wall tiles to rear of stove down to floor, remove skirting boards, supply and fix mould or quad to

close off any gaps between face of tiles and floor. In addition to the above provide border, frieze or feature tiles to the tiled area in kitchen as per the approved colour scheme.

Where stove abuts a return wall, return tiles on that wall for a distance of 600mm.

Under windows, tile to sill nosing or to sill-returning tiles in reveals.

Bathroom shower recess and bath riser wall: Tile walls to a minimum height of 1800mm from floor level at showers and 1350mm from top of the bath.

Provide border, frieze or feature tiles to tiled area in bathroom as per the approved colour scheme.

Tile riser and hobs to bath, finishing tiles flush with external lip of bath, neatly cut and fitted to bath. Provide two (2) 150 x 75mm matching glazed tile vents to bath riser if the bathtub is renewed.

Where hobs remain, fully tile all exposed surfaces.

Provide skirting tiles to walls to a minimum height of 150mm at junction with floor and bath riser.

Remove existing towel rails, shower curtain rails, toilet roll holder and grab rails in the area to be tiled and refixed after tiling.

Where distance from edge of bath and bathroom door architrave is less than 300mm, tile to back of architrave.

Where hob at opposite end exceeds 450mm, brick-in end of bath, remove bath plinth concrete where necessary and tile floor. Extend wall tiles in bond from over bath to corner and return wall up to door architrave or as indicated above.

For refurbishments for a Disabled Modification, tile all walls to a height of 1800mm

Laundry: Provide tiles over laundry tub, a minimum 300mm high. Where tub is located in a corner, return tiling to full depth of tub minimum, and work to full tiles.

Separate W.C.: Provide skirting tiles to walls at junction with floor to a minimum height of 150mm.

Separate hand basin: Supply and fix wall tiles to full width of hand basin extending from floor, bonding with skirting tiles to underside of new/existing wall cabinet or mirror above basin.

Where basin is on wall adjacent to bath, tile that wall complete to height of window sill.

Workmanship

General: Set out tiles to give joints of uniform widths. Grade floor from all walls to floor wastes. Suitably prepare the substrates to receive the bedded finish.

Ensure all internal wet area floor tiling falls directly to floor wastes. Ponding in wet areas will not be accepted.

Preparation: Prepare area for tiling to tile and adhesive manufacturers' requirements. Include removal of all previous floor coverings, including existing tiling.

Floor tiling: Apply tile adhesive to meet manufacturer's specifications.

Shower hobs: Where required, form new brick / concrete hob one course high to suit tiling.

Waterproof shower recess: Where a shower recess is found to be leaking, remove floor tiles and wall tiles up to 2 courses high from floor and one tile each side of corners between walls. Waterproof floor and corners at the floor/ wall junction. Install a vertical waterproof angle to corners of walls weathered over floor/wall junction flashing. Supply and fix a suitable floor waste to replace existing and provide leak control flange around floor waste. An approved bond breaker is to be used at wall and floor junctions. Retile the treated areas to match existing.

Waterproof bathroom floor: Where a bathroom floor is found to be leaking, remove the floor tiles and skirting or wall tiles up to 2 courses high off floor level. Waterproof the whole of the floor and corners between floor and walls. Take care to ensure that all penetrations are sealed in with the general floor surface; particularly ensuring that water is not contained by the penetration. Renew floor wastes and provide leak control flange around floor waste. Retile the treated areas to match existing tiling.

Waterproofing walls: Provide a waterproofing system to connect with any existing or proposed waterproofing floor system.

Waterproofing must be carried out by suitably qualified tradespersons.

FIXING OF TILES:

Wall: Fix tiles in accordance with the written specifications of the tile and adhesive manufacturers.

Floor: Prime, seal or otherwise treat floors as recommended by the manufacturer of the tile adhesive.

Set floor tiles with a suitable waterproof floor tile adhesive, applied strictly in accordance with manufacturer's written specification. Finish tiles flush with top of floor waste and brass angle to door opening.

Where a new pedestal pan is to be installed, tile continuously under the pan position, leaving a 50 x 50mm key recess in centre.

Clean off after pointing up, leaving joints full and smooth.

Core holes in floor under bath to be sealed to prevent entry of vermin.

Neatly fix tiles to bath flange, basin, or sink as applicable.

JOINTING AND FINISHING

Joints: Ensure joints are even and not more than 3mm wide to wall and floor tiles. Set quarry tiles with 10mm joints.

Grouting: Grout as specified in applicable Standards.

Wall tiles: Grout wall tiles with "white" coloured cement based sanitised grout, leaving joints full and smooth.

Floor tiles: Grout up with a suitable grout mix worked well into joints when bed is sufficiently firm to prevent disturbance of the tiles. Clean off surplus grout from face of tiles.

On Completion of all work, clean down with suitable solution to remove all traces of mortar and acid stains.

Movement joints: Provide movement joints not less than 6mm or more than 10mm wide through the tile and bed to the floor being tiled. Locate joints over structural movement joints, at junctions between different background materials and/or to divide large tiled areas into bays, preferably rectangular, at 3m to 5m joint spacings in both directions, in accordance with AS 3958.1.

Floor waste: Adjust height of floor waste as necessary to suit new tiling levels. Where necessary provide new suitable floor waste, equal to the diameter of the existing waste (and sealed to the existing drainage with suitable sealant).

Door angle: Provide 3mm thick brass or bronze angle or 5mm thick aluminium angle across the door opening. Securely fix to concrete floor with suitable 25mm stainless steel screws and suitable plastic plugs.

Angle must is to extend a minimum of 25mm under tiles and is to finish flush with the finished surface of tiles.

Where tiles are to be glued, recess angle to finish flush with tiles and adjacent surfaces.

Tile trims: Install PVC or aluminium tile trims at termination of wall tiles, all vertical returns and horizontal returns. Do not mitre tile junctions. Thickness and colour must match tiles.

Removing and refitting of taps: Work must comply with Section 14 Plumbing, Draining and Gas Fitting.

Removing and refitting of fittings: (e.g. towel rails, toilet roll holder, grab rails etc.) Work must comply with Section 4 Carpentry and Joinery and Minor Repairs.

Traffic: The Contractor is responsible for protecting the works and must make or arrange for adequate protection of the works during the initial curing period.

Finish: After washing down with acid solution, allow to dry and then polish with a soft dry cloth to a clean finish. Protect all floor wastes, waste pipes and sumps from excess cement deposits when washing and sponging tiles during grouting, jointing, finishing and cleaning after Completion.

END OF SECTION 6

Section 7 - Carpet and Resilient Flooring

General

Scope: This section sets out the requirements for the supply of all necessary materials, associated work and labour for the installation of Carpet and Resilient Flooring, and the repair of existing carpets as specified.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 1884: Floor Coverings – Resilient Sheet And Tiles – Installation Practices
- AS/NZS 2455/1: Textile floor coverings – Installation practice
- AS/NZS 3733: Textile floor coverings – Cleaning maintenance of residential and commercial carpeting,
- The National Standard for Manual Tasks (2007) and to the NSW Safe Work NSW Regulation and Code of Practice,

The Contractor must ensure that the moisture content of the floor surface is satisfactory for the product being to applied or installed prior to installation.

The Contractor must rectify any unsatisfactory surface before commencing any installation work.

Materials

Comply with Schedule 6 (Component Requirements) and the colour schemes as approved by the Principal.

The Principal is committed to ecologically sustainable development and products which contain recycled products or which can be recycled (to minimise waste) will be supported.

Quality and Work Practices

Inspection: Before starting work inspect the base surface of the floor to ensure that it will allow first class Workmanship and that all fittings and fixtures, around which the carpet and Resilient Flooring is to be scribed, are in place.

Commencement: Do not begin work before the Building is enclosed, all wet work is complete, doors are hung and lockable, finishes and trim are complete, all outlets, duct covers and fixtures round which the carpet and Resilient Flooring need to be cut have been fitted and good lighting is available.

Commencement of installation work means that the base floor is warranted by the Contractor as satisfactory for first quality work.

Protection: Protect adjoining work surfaces and finishes during installation and make good any damage to them at no expense to the Principal.

Testing: All carpet, and resilient flooring products submitted for approval must have a current copy of the following tests in accordance with AS/NZS 2111:

- flammability test;
- AS 1530-Methods for fire tests on building materials, components and structures Part 3 Simultaneous determination of ignitability, flame propagation, heat release and smoke release; and

- AS ISO 9239.1 Reaction to Fire Tests for Floor Coverings.

Total mass pile must be determined in accordance with AS/NZS 2111.

PREPARATION

Timber floor - existing: Strip off all existing floor coverings completely, including all adhesives and surface contaminants. Sand all floors to a flat finish. Vacuum to remove all dust. Overlay all tongue and groove floors to receive Resilient Flooring or direct stick on carpet \ with 5.5mm hardboard underlay or equivalent with staggered joints. Allow 1mm expansion gaps between sheets and 3mm gaps at the perimeter. Fix with 25 x 2mm flooring staples at 150mm centres throughout sheets and 75mm centres to perimeter of sheets, and a maximum 12mm from sheet edges in accordance with the manufacturer's written specification.

Concrete floor - existing: Remove all existing coverings completely including adhesives and surface contaminants. Patch cracks and depressions with a suitable levelling compound to the manufacturer's written specification. Leave the surface level, smooth and clean with all loose material and dust removed. Seal powdery surfaces where required.

Handling: Avoid distortion, stretching, marking and damage to edges while shifting, unrolling and handling carpet and Resilient Flooring and accessories. Do not use damaged material.

Follow the manufacturer's written specification in relation to handling and working temperatures and conditions for vinyl.

CARPET LAYING

Planning and general layout: Determine the layout of carpet in accordance with the following general principles:

- seams run in lengths as long as possible, straight and parallel with the main access of the Room;
- traffic runs along the seams;
- light from windows is not across the seam;
- pile faces away from the light source;
- pile faces towards the main entry to the area of installation;
- on stairs, pile lay runs towards leading stair edge;
- selvedge seams are accurately aligned throughout the entire installation;
- textile floor coverings start with a full width on the door side;
- part width fill-outs are placed on the opposite side of the Room from the door;
- floor coverings are accurately and closely fitted to skirting, architraves and other perimeters;
- where different floor coverings abut at doorways and there is a fitted door, the junctions of the floor coverings are within the thickness of the closed door;
- fill-outs are not used in doorways where the same textile floor covering is on both sides;
- in circumstances where two fill-outs are used in one room, they do not abut; and
- fill-outs are not positioned between full widths.

Seaming and joining: For all seams and cross-joins the following applies:

- seams and joins must be installed to prevent break down when under traffic use or being stretched;
- the pile lay must be in the same direction on either side of a seam or cross-join;
- pile lay must not be caught down into a seam or cross-join and there must be no gaps in the pile;
- the seams and cross-joins must be straight and aligned and as flat as possible;
- where there are diagonals or designs straight seams must be correctly aligned;
- backing edges must butt and not overlap or gap;
- cross-joins in an installation must be minimised without resulting in excess wastage;
- cross-joins must not be used in high traffic areas;
- cross-joins must:
  - be unobtrusive;
  - not be placed in main traffic ways;
  - be not less than 1m apart;
  - have a seaming adhesive applied prior to seaming
- the number of cross-joins in a filler is not greater than:
  - in a half-width, one cross-join;
  - in a third width, two cross-joins; and
  - in a quarter width, three cross-joins; and
- where the pattern of a textile floor covering requires cross-joins less than 1m apart, they must be the closest multiple of the pattern to 1m.

Dye lot: Contractors must ensure that carpet laid in a single area must be of a single specified type, quality, colour and design comes from one manufacturing batch and dye lot.

Heat bonding tapes: When binding or seaming use the tape type and width recommended by the tape and carpet manufacturers to suit the specified carpet and the standard of performance required. The seams and cross joins must have an appropriate seam adhesive applied to both edges prior to heat tape joining.

Carpets are to be joined using low odour and low smoke foil backed heat-bonding tape.

Installation – carpet direct-stick system: Carpet must only be installed using the direct-stick system in Properties modified for disabled Tenants, and in BCA Class 3 and Class 9 Properties.

Underlay seams: Seams of underlay shall not coincide with those of the carpet when laid in the same direction. Ensure seams of underlay do not shadow through the carpet. Join seams of underlay with tapes at least 50mm wide, with non-staining adhesive.

Smooth edge (carpet gripper): All conventionally laid carpet must be installed on commercial grade architectural type carpet gripper (smooth edge) to the following specifications:

- Length: >1200 mm
- Thickness: Minimum 6.8 mm, Maximum 8.00 mm

- Width: Minimum 33 mm
- Pins: Minimum- 3 rows in width, 98 per unit
- Plywood: Minimum 3 ply (must be evenly sized veneers)

Domestic carpet gripper will not be acceptable on any commercial carpet installations in common areas under any circumstances. Domestic Carpet Gripper (smooth edge) may only be used on the installation of domestic products in domestic applications.

The gripper is to be fixed as necessary by a combination of: -

- nailing with suitable nails;
- sticking with anchor weld or equivalent adhesive; and
- A drill, plug and screw method.

Timber floors – Replace smooth edge that has rusted gripper nails in the same location.

Concrete floors – Replace smooth edge that has rusted gripper nails in a location adjoining existing. Do not remove existing.

Stairs – internal to Property: Provide and fit suitable aluminium stair nosing fixed in accordance with manufacturers' recommendations as directed.

Stairs – common areas: Provide and fit Heavy duty (commercial quality) extruded aluminium stair nosings in Common Areas and to stairs in BCA Class 3 and Class 9 Properties.

Domestic quality naploc or stair nosings will not be accepted in Common Area or in BCA Class 3 and Class 9 Properties under any circumstances.

Trims: Fix binder bars, carpet to carpet bars, and trims to manufacturers' recommendations and to best trade practice.

Double bonding: All double bonding must be carried out using a solvent free, low odour adhesive. All seams on dual bond carpets must be sealed using a carpet seaming adhesive.

Pattern or texture: Match over whole surface of continuous spaces.

Stretching: Install carpet flat and taut so that people/furniture movement over it does not cause rucking. Use a power stretcher to ensure maximum tension between walls with knee kickers only used to assist. Apply force by correct pin adjustment to carpet base only to avoid damage to pile and underlay.

The Contractor must ensure that all products and services supplied comply with the specifications.

Cut away: Cut away all loose nap ends, remove scrap and vacuum clean.

Adhesives: All adhesives used (for both carpet and resilient flooring) should be non solvent and low odour. If a solvent based contact adhesive is the only option; no more than 1 x 4 litre container is permitted to be taken onto a Site (additional contact adhesive must be secured in installer’s vehicle until required).

RESILIENT FLOOR COVERINGS

Resilient flooring: Use of resilient flooring in kitchens, dining areas, hallways and other high traffic areas of a Property. Do not lay resilient flooring or wall sheeting in

wet areas instead of Ceramic tiles or Common Areas without the prior written approval of the Principal.

Planning and general layout: Determine the proposed layout of material, direction of pattern, and set out of Resilient Flooring to provide a uniform appearance.

All adhesives must be low or non solvent and low odour. The only exception is when there is no alternative to using a contact adhesive (which must be avoided where ever possible). When contact adhesive must be used no more than 1 x 4 litre container is permitted to be taken to the Site. Additional contact adhesive must be secured in the installer's vehicle until required. Safety Data Sheets must be supplied for the adhesives used in the installation in line with the manufacturer recommendation for use with their products.

Primer: Prime porous plaster, concrete and timber substrate with primer recommended by the adhesive manufacturer.

Installation: Install resilient flooring in accordance with the manufacturer's recommendations. Accurately cut, scribe and fit against all walls, pipes and other permanent projections and fixtures.

All installation must be carried out in compliance with AS1884.

Hardboard Underlay: must comply with the following:

- Thickness 5.5mm ± 0.15mm
- Sheet Size 1200mm x 900mm ± 1.0mm

Fibre Cement Underlay

- Thickness 5.5mm ± 0.15mm
- Sheet Size 1200mm x 900mm ±1.0mm

Fixing of Hardboard and Fibre Cement Underlay: Lay hardboard and fibre cement underlay to ashlar or brick pattern and fixed using 25 mm ring grooved nails or 22 mm staples, spaced at 75 mm intervals at perimeters and 150 mm throughout the body of the sheet.

Dye Batch: Ensure that the Resilient Flooring laid in a single area is of a single specified type, quality, colour and design and comes from one manufacturing batch and dye lot.

LAYING RESILIENT FLOORING IN WET AREAS, AND COMMON AREAS

When laying in wet areas or common areas use homogeneous sheet resilient flooring product with a minimum slip rating of R10. Products containing abrasive material in order to comply will not be considered. Refer to Schedule 6 (Component Requirements).

Wherever possible replace existing waste outlets with a three part vinyl clamping outlet or similar.

Against all walls a minimum of 150mm integral cove edging is required. Use an appropriate adhesive for fixing cove formers to both walls and floors. A capping strip to prevent water penetration must be adhered to the wall above the cove edging.

Hot weld all forming joints when laying resilient flooring sheets.

END OF SECTION 7

Section 8 - Painting Preparation

General

Scope: The specified information within this section is provided to clarify the contract expectations and requirements of the Principal in relation to the subject trade works.

This section sets out the requirements for the preparation of unpainted surfaces and the surface preparation of previously painted surfaces ready for the application of coating systems specified in Section 9 Painting.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS/NZS 2311: Guide to painting of buildings
- AS 4361.2: Guide to lead paint management Part 2: Residential and commercial buildings.

And all other relevant Acts, codes of practice, Standards and guidelines.

MANAGEMENT OF LEAD CONTAMINATED PAINTED SURFACES

“Lead-Safe” practice: must be in accordance with AS 4361.2, Guide to lead paint management.

Testing by the Contractor: must be carried out in accordance with Section 1 Testing.

Materials

Filling, stopping and cleaning materials: Ensure all paint strippers, abrasive papers and blocks, cleaning agents, etching solution, mould inhibitors, rust inhibitors, size, stopping, knotting, fillers and other commodities are the types recommended by the coating manufacturer of the coating for the surfaces being prepared.

Workmanship

Surface preparation: Prepare all surfaces to coating manufacturer’s written specification.

The Contractor is responsible for ensuring that the substrate is suitable and satisfactory to deliver first quality painting work and deliver a suitable top coat that meets the manufacturer’s performance specification.

Protection: Protect all Equipment and Tenants' belongings from damage, including furniture, floor coverings, curtains, gardens, plants, lawns and the like and make good any damage. When working on or about any open windows and doors ensure that any necessary temporary barriers are in position to stop dust and/or debris from entering the premises. Attach dust bags to power tools, in particular electric sanders and planes and ensure the encapsulation of all disturbed debris and dust.

Mould Removal: Mould removal is a multi-stage procedure to treat the entire surface, the Contractor must carry out the following sequential steps:

- Thoroughly clean contaminated hard surfaces and materials using water and detergent (soapy water) or a vinegar solution and drying completely. Cleaning all tools and equipment after use.

- Discarding porous materials (plasterboard, insulation and carpets) that can't be readily cleaned, have been wet for more than 48 hours or have visible mould growth.
- Wrap and seal contaminated items and discarding into plastic bags or sheets to reduce the spread of mould spores.
- For severe mould conditions apply a mould steriliser; and
- Apply a fungicidal paint.

Heritage Specific Works

Heritage Buildings - Retention of Original Fabric and Features: The principles of repair or replacement work involved in heritage maintenance must be guided by the property's classification as per the Principal's Heritage Asset Management Strategy.

PAINTED SURFACES – Heritage Conservation Trade practices: The Contractor must adhere to best painting Conservation practices which include:

- The Contractor must obtain expert advice to determine the historic paint colours and finishes of the Building fabric and repaint with matching colours to illustrate the distinctive character of the Building;.
- where possible the Contractor must keep samples of early paint and paint colours at the Building;
- do not remove paint and finishes down to the bare surface unless recommended by expert advice. Strong paint strippers, whether chemical or mechanical can permanently damage the surface. Paint stripping obliterates evidence of the historical paint finishes;
- do not paint fabric which is presently unpainted, unless recommended otherwise by expert advice;.
- obtain all necessary local council approvals prior to commencement of works when changing the external colour scheme of a heritage item;
- only repaint deteriorated heritage significant paint where necessary. New paint shall match the original in colour, texture and pattern unless recommended otherwise by the Principal and/or expert advice;
- provide paints and other materials that are scheduled in the Australian Paint Approvals Scheme "List of Approved Products". (**www.apas.gov.au**);
- when old paintwork is sound it is best left undisturbed and used as the base for new paintwork;
- there could be paint types of technical interest or valuable colour schemes which have remained undisturbed for many years and which contribute to the archaeological interest of the Building;
- when stripping back to the original substrate is necessary, retain some areas of previous paint layers in an obscure location, as historical evidence;
- provide adequate protection to adjacent fabric areas beside and below areas being painted including drop cloths and protection to stone windowsills, plinths and copings below window joinery and below metal palisade fencing being painted, etc.;
- do not paint over original hardware fixtures;
- do not remove paint from wooden architectural features that were never intended to be exposed; and

- do not remove original hardware for the purpose of painting the surrounding Fabric if the removal is likely to damage the hardware.

END OF SECTION 8

Section 9 - Painting Interior

General

Scope: This section sets out the requirements for normal thin film coating and sealing work on surfaces prepared as specified in Section 8, Painting Preparation, in the interiors of Buildings.

Paint all previously painted surfaces, including but not limited to walls, doors, skirting/mouldings, sills, architraves, inside fixed cupboards, internal walls/ceilings of attached garages.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS/NZS 2311: Guide to painting of buildings

And all other relevant standards, Acts, codes of practice and guidelines.

In some circumstances, the specified paint system may be unsuitable for a particular portion of the work. In these situations, the Contractor must propose an alternative system for the Principals approval, complete with supporting data, technical details and a full quality plan when submitting a report in accordance with Schedule 10 (Reporting Templates).

Materials

Coating materials: Must have a minimum 10 years written manufacturer's warranty and meet the following requirements:

- 100% premium Acrylic (Waterborne) paint or alkyd base solvent-borne or polyurethane paint must be used;
- Workmanship must meet current Australian Standards;
- colours must match approved samples;
- paints must conform to the appropriate APAS (Australian Paint Approval Scheme) paint specification number as per the APAS paint specification;
- paint must be provided in sealed containers branded with the manufacturers name, type of content and APAS approval number;
- paints must comply with APAS specification 0215 for low VOC interior paints;
- tinted and untinted undercoats, enamels and topcoats must be low surface emitting product complying with APAS for VOC emissions; and
- pigments, tints and stainers must be as recommended by the paint manufacturer.

Delivery and application: All paint materials to be used must be brought on to the Site in the original sealed containers with the manufacturers label, seal intact, applied in accordance with the manufacturers written specification and conforming with the appropriate Australian Paint Approval Scheme (APAS) specification and certification. Where required, make samples available for testing purposes.

Primers and undercoats: These must be of the same brand as the finishing coat for all surfaces.

Mould resistant paints: Must be used in all areas prone to mould such as laundries, bathrooms and kitchens.

Workmanship

Surface preparation: Must comply with Section 8, Painting Preparation. Rectify any surfaces which may not provide the required finish or contain defects that may adversely affect the painting work. Commencement of painting will be taken to mean that the substrate is warranted by the Contractor as satisfactory for first quality work.

Colour range: Carry out painting in the approved colours. For touch-up works use a paint colour to match the existing. Generally, paint ceilings and windows white.

Dry film thickness testing: If directed by the Principal the Contractor must carry out a dry film thickness Test in accordance with AS1580 to establish film thickness.

Paint demarcation: Paint windows and doors as follows:

- butt windows and doors interior paintwork to exterior paintwork; and
- extend windows and doors interior paintwork to the outside corner of the head / stile of doorjambs and paint the outside corner of heads / sills / stiles / reveals / sashes and the like (including areas hidden by sash in closed position).

Preparation of Materials

General: Prepare coating materials as recommended by the manufacturer. Strain through fine gauze any coating material showing small particles in application. Do not intermix different coating materials. Stir coating materials to obtain an even consistency before use, unless otherwise recommended by manufacturer. Only add thinners, driers and extenders in accordance with manufacturer's written specification.

Protection

Damage: Protect freshly applied coating surfaces from damage.

Signs: Where necessary to prevent damage to the coating, exhibit 'Wet Paint" signs and provide protective barriers.

Adjacent surfaces: Protect surfaces adjacent to those being coated particular attention should be given to protection of electrical fittings.

Glazing: Protect etched, sand blasted and ground glass glazing from attack by oily constituents of coating materials by treating and protecting edges before applying the coating and cleaning surfaces immediately after coating.

Fittings, fixtures and hardware: Remove these from surfaces to be coated. Clean and replace them square, plumb and true on Completion of the painting work. Do not paint hinges unless previously painted.

Application

General: Apply coatings as specified and in accordance with the manufacturer's written specification. Do not re-coat until any previous coats have achieved the necessary drying.

Unsuitable conditions: Do not apply coatings:

- to surfaces affected by damp or frost;
- When the surface or ambient temperature inhibits the proper application of the paint; and
- when heat is likely to cause blistering or wrinkling.

Priming (generally): Apply priming coats by brush unless other methods are specifically permitted. Work primer into surfaces, joints, angles and end grain. Ensure that priming coats are of adequate thickness and suit surface porosity.

Ensure that any primed surfaces which have deteriorated on Site or in transit are touched-up or re-primed. If more than one Month has elapsed since priming, re-prime before applying top coat.

Priming Joinery: Where timber has been treated with a preservative, check to ensure that the coating materials are compatible with the preservative.

Priming metal: Prime metal surfaces on the same Day as they are prepared and cleaned.

Undercoats: Apply an even film over all surfaces, to a continuous wet edge, avoiding uneven thickness at edges and angles. Tint undercoats differently relative to the surface colour scheme.

Finishing coats: Apply an even film over all surfaces, to a continuous wet edge, avoiding brush marks, sags, runs and other defects. Where two gloss finishing coats are specified, apply the second coat within 48 hours after applying the first coat.

Timber fittings: Apply the finish required to top, bottom, edges and all internal surfaces, including shelves.

Timber doors: Prime and paint top and bottom edges of new doors before hanging doors with the same number of coats as specified for the exposed surfaces. Paint the inside and outside of doors and frames. Prepare and paint existing internal in situ doors front, back and stile sides only.

Rub down: Rub down all priming and undercoats to a smooth surface with fine glass paper and remove all dust before applying the next coat.

Glazing rebates and beads: Apply coatings to rebates and beads before glazing.

Glazing putty: Remove all loose putty. Prime rebates, sprig and reputty as required and prime and paint glazing putty and compounds, as recommended by their manufacturer. Clean glass before priming putty faces. Extend paint adjacent to glazing across putty and 2mm on to glass, but not beyond sight lines. Wipe off any over-painting beyond sight line while wet. Do not allow it to dry and later cut back.

Schedule of Interior Paint Finishes

The following table should be used as a **guide only**. The Contractor must make an assessment of the condition of the surface and prepare surfaces as required. The number of coats must be applied to achieve the desired result to ensure first quality work.

Location – and condition	**Preparation (See Note 1)**	**Top Coats**
KITCHENS / BATHROOMS /LAUNDRIES		Finish the walls of all kitchens, cooking recesses, bathrooms, combined laundry/bathrooms, laundries and W.C. recesses.
• Previously painted – good condition	Prepare surface	Apply one (1) coat of 100% Acrylic (Waterborne) full gloss (Bathrooms). Apply (1) coat of 100% Acrylic (Waterborne) semi-gloss (Kitchens and Laundries.
• Previously painted – poor condition	Prepare surface then apply one (1) coat of a suitable	Apply one or two coats of 100% Acrylic (Waterborne) full gloss (Bathrooms) as required. Apply (2) coats of 100% Acrylic (Waterborne)

Location – and condition	Preparation (See Note 1)	Top Coats
	oil based undercoating	semi-gloss (Kitchens and Laundries.
• Unpainted	Prepare surface as specified, then apply one (1) coat of sealer prior to painting with a suitable oil based undercoating or two (2) coats of undercoating	Apply two (2) coats of 100% Acrylic (Waterborne) full gloss (Bathrooms). Apply (2) coats of 100% Acrylic (Waterborne) semi-gloss (Kitchens and Laundries.
KITCHEN AND LINEN PRESS CUPBOARDS (Timber)		
• Previously painted – good condition	Prepare surface	Apply one (1) coat of 100% Acrylic (Waterborne) full gloss.
• Previously painted – poor condition	Prepare surfaces then apply one (1) coat of a suitable oil based undercoating	Apply one (1) coat of 100% Acrylic (Waterborne) full gloss.
• Unpainted	Prepare surface as specified, then apply one (1) coat of sealer prior to painting with a suitable oil based undercoating or two (2) coats of undercoating	Apply two (2) coats of 100% Acrylic (Waterborne) full gloss to cupboards.
ALL OTHER INTERNAL ROOMS		
• Previously painted – good condition	Prepare surface	Finish friezes and walls of other rooms in 100% Acrylic (Waterborne) semi-gloss and finish woodwork with varnish or paint as specified.
• Previously painted – poor condition	Prepare surface then apply one (1) coat of acrylic based undercoating.	Finish with one (1) coat of 100% Acrylic (Waterborne) semi-gloss, and finish woodwork with varnish or paint as specified.
• Unpainted	Prepare surface then apply one (1) coat of acrylic based undercoating.	Finish with two (2) coats of 100% Acrylic (Waterborne) semi-gloss, and finish woodwork with varnish or paint as specified.

Location – and condition	Preparation (See Note 1)	Top Coats
CEILINGS, FRIEZES, AND CORNICES		
• Previously painted – good condition	Prepare surface	Apply an appropriate ceiling paint (100% Acrylic Waterborne) matt finish.
• Previously painted – poor condition	Prepare surface then apply one (1) coat of acrylic based undercoating.	Apply an appropriate ceiling paint (100% Acrylic Waterborne) matt finish.
• Unpainted	Prepare surface then apply one (1) coat of acrylic based undercoating.	Apply two (2) coats of 100% Acrylic (Waterborne) ceiling paint.
WOODWORK OR HARDBOARD		
• Previously Varnished – good condition	Prepare surface and touch up with stain where necessary to match existing	Apply one (1) or two (2) coats of Satin type polyurethane
• Crazed or perished varnish – poor condition	Remove all varnish with paint and varnish remover, then thoroughly neutralise as specified. Putty and fill with suitable wood filler, and apply one (1) coat of Shellac.	Stain to the approved colour. Finish with two (2) coats of Polyurethane Satin clear.
• Previously Varnished – good condition, but to be changed to a painted finish	Remove all varnish with varnish and paint remover, then thoroughly neutralise as specified and apply one (1) coat of primer, stop up and apply one (1) coat of a suitable undercoating and	Apply one (1) finishing coat of suitable alkyd full gloss Solvent-borne paint.
• Previously Painted – good condition	Prepare surface	Apply one (1) coat of a suitable alkyd full gloss Solvent-borne paint.
• Unpainted	Clean down to the original surface and apply one (1) coat of primer, stop up	One (1) coat of a suitable alkyd full gloss Solvent-bourne paint.

Location – and condition	Preparation (See Note 1)	Top Coats
	and then apply one (1) coat of a suitable undercoat.	

Note 1: In this Schedule, 'Prepare surface' means to prepare in accordance with section 8 (Painting Preparation).

Where the dining Room and kitchen or living Room and kitchen have common wall surfaces, all such wall surfaces are to be painted as for the kitchen.

Cover interior sash channels (runners) and parting beads, where stained and varnished, with two (2) coats of Shellac or equal and where painted, with one (1) coat of a suitable undercoating and one coat of Acrylic (Waterborne) gloss. Allow to dry and harden overnight, then move sashes so that they run freely in the channels (runners).

Painting of new and old concrete floors: Previously Painted: Floors in external porches and stairs should not be painted. If previously painted, assess the existing worn painted surface, and if safe leave it in place. However, if it is peeling and lifting, thus posing a safety risk, the appropriate treatment, such as, scrape, grind to remove paint.

Intumescent Paint: (Refer to Fire Safety upgrade works)

- ensure intumescent paint is applied only by applicators trained by an approved supplier;
- clean all surfaces so that they are free of dust, dirt, oil, wax, grease, mildew, mould, loose flaking paint or other foreign matter that could impair bonding of intumescent paint;
- apply paint in accordance with the manufacturers specification;
- apply paint within manufacturers guidelines for temperature and humidity;
- record all wet film thicknesses for each coat;
- drop all light fittings so that paint is applied continuously, ensure that they are properly refixed on Completion of painting;
- when painting ceiling cornice apply a bead of intumescent mastic to the top and bottom of the cornice where it meets the walls;
- provide a semi-gloss over coating in all wet areas;
- ensure that each coat is completely dry before applying the next; and
- apply paint at a minimum dry film thickness of 1000 microns for internal applications.

END OF SECTION 9

Section 10 - Painting Exterior

General

Scope: This section sets out the requirements for normal thin film coating and sealing work on external surfaces prepared as specified in Section 8, Painting Preparation for the exteriors of Buildings.

Paint all previously painted surfaces, including eave, balcony and verandah soffits, feature panels, mail boxes, railings, valley iron, vent pipes, all surfaces of carports / garages etc. and yard storage lockers as standard items.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS/NZS 2311: Guide to painting of buildings

In some circumstances, the specified paint system may be unsuitable for a particular portion of the work. In these situations, the Contractor must propose an alternative for the Principals approval complete with supporting data, technical details and a full quality plan when submitting the request.

Property identification, date of completion of painting and brand of paint used: When the external painting of a Building is completed, record the date of Completion and the types/brands of paint used thereon.

Materials

Coating materials: Must have a minimum 10 years written manufacturer's warranty and meet the following requirements:

- Paints, Primers and Undercoats:
- 100% premium Acrylic (Waterborne or Solvent borne) paint must be used;
- Workmanship must meet current Australian Standards;
- colours must match approved samples;
- paints and primers must conform to appropriate Australian Paint Approval Scheme (APAS) paint specification numbers as per the APAS Paint Specification;
- paints and primers must be provided in sealed containers branded with the manufacturers name, type of content and APAS approval number;
- low surface emitting product complying with APAS for low Volatile Organic Compound (VOC);
- Tinting:
- pigments, tints and stains must be as recommended by the paint manufacturer;
- Anti-Graffiti Treatments must be:
- registered with APAS—cope with Xylene based and solvent based graffiti;
- fire rated to AS1530.3; and
- satisfactorily tested to ASTM D968-51

Delivery and application: all paint materials to be used must be brought on to the Site in the original sealed containers with the manufacturers label, seal intact. Paint must be applied in accordance with the manufacturer's written specification and must

conform to the appropriate APAS specification. Where required, make samples available for testing purposes.

Primers and undercoats: These must be of the same brand as the finishing coat for all surfaces.

Workmanship

Surface preparation: must comply with Section 8, Painting Preparation. Rectify any surfaces which may not provide the required finish or contain defects that may adversely affect the painting work. Commencement of painting will be taken to mean that the Contractor warrants that the substrate is satisfactory for first quality work.

Colour range: Carry out painting in the approved colours. For touch-up works use a paint colour to match the existing. Generally, paint ceilings and windows white.

Dry film thickness testing: If directed by the Principal the Contractor must carry out a dry film thickness Test in accordance with AS1580 to establish film thickness.

Paint demarcation: Paint windows and doors so exterior paintwork butts to interior paintwork, extending to the inside edge of all accessible edges of sashes and doors.

Interior of gutter: Thoroughly clean guttering of leaves and other debris prior to painting the exterior of the gutter.

Preparation of Materials

Prepare coating materials as recommended by the manufacturer. Strain through fine gauze any coating material showing small particles in application. Do not intermix different coating materials. Stir coating materials to obtain an even consistency before use, unless otherwise recommended by manufacturer. Only add thinners, dryers and extenders in accordance with the manufacturer's written specification.

Protection

Damage: Protect freshly applied coatings surfaces from damage.

Signs: Where necessary to prevent damage to the coating, exhibit "Wet Paint" signs and provide protective barriers.

Adjacent surfaces: Protect surfaces adjacent to those being coated.

Glazing: Protect etched, sand blasted and ground glass glazing from attack by oily constituents of coating materials by treating and protecting edges before applying the coating and cleaning surfaces immediately after coating.

Fittings, fixtures and hardware: Remove these from surfaces to be coated. Clean and replace them square, plumb and true on Completion of the painting work. Do not paint hinges unless previously painted.

Application

General: Apply coatings as specified in accordance with the manufacturer's written specification. Do not re-coat until after any previous coats have achieved the necessary drying.

Unsuitable conditions: Do not apply coatings:

- To surfaces affected by damp of frost.
- When the surface or ambient temperature is below 10 degrees C.
- When heat is likely to cause blistering or wrinkling.

Priming (generally): Apply priming coats by brush unless other methods are specifically permitted. Work primer into surfaces, joints, angles and end grain. Ensure that priming coats are of adequate thickness and suit surface porosity.

Ensure that any primed surfaces which have deteriorated on Site or in transit are touched-up or re-primed. Re-prime if more than one Month has elapsed since priming before top coating.

Priming Joinery: Where timber has been treated with preservative, check and ensure that the coating materials are compatible with the preservative.

Priming metal: Prime metal surfaces on same Day as they have been prepared and cleaned.

Undercoats: Apply an even film over all surfaces, to a continuous wet edge, avoiding uneven thickness at edges and angles. Tint undercoats differently relative to the surface colour scheme.

Finishing coats: Apply an even film over all surfaces, to a continuous wet edge, avoiding brush marks, sags, runs and other defects. Where two gloss finishing coats are specified, apply the second coat as per the manufacturer's specification.

Timber fittings: Apply the finish required to top, bottom, edges and all internal surfaces including shelves.

Exterior timber doors: Prime and paint top and bottom edges before hanging doors with the same number of coats as specified for the exposed surfaces. Paint the inside and outside of doors and frames.

Rub down: Rub down all priming and undercoats to a smooth surface with fine glass paper and remove all dust before applying the next coat.

Glazing rebates and beads: Apply coatings to rebates and beads before glazing to previously treated surfaces.

Glazing putty: Remove all loose putty. Prime rebates, sprig and re-putty as required and prime and paint glazing putty and compounds, as recommended by their manufacturer. Clean glass before priming putty faces. Extend paint adjacent to glazing across putty and 2mm on to glass, but not beyond sight lines. Wipe off any over-paint beyond sight lines while wet. Do not allow it to dry and later cut back.

Schedule of Exterior Paint Finishes

The following table should be used as a guide only. The Contractor must make an assessment of the condition of the surface and prepare surfaces as required. The number of coats must be applied to achieve the desired result to ensure first quality work.

Location – and condition	Preparation (See Note 1)	Top Coats
EXTERNAL SURFACES/ WALLS		
• Previously painted – good condition	Prepare surface OR Where a change in paint system is approved, apply one (1) coat of a suitable compatible undercoat.	After preparation, apply one (1) coat of Acrylic (Waterborne or Solvent borne) Gloss paint.

• Previously painted – poor condition	Prepare surface Where existing paintwork is perished, seal all worn or perished areas with one (1) coat of pigmented sealer and then apply one (1) coat of a suitable compatible undercoat.	After preparation, apply two (2) coats of Acrylic (Waterborne or Solvent borne) Gloss paint.
• Unpainted	Prepare surface Seal all surfaces with one (1) coat of pigmented sealer then apply one (1) coat of a suitable compatible undercoat.	After preparation, apply two (2) coats of Acrylic (Waterborne or Solvent borne) Gloss paint.
EXTERNAL WOODWORK		
• Previously painted	Prepare surface	Apply one (1) coat of 100% Acrylic (Waterborne) Gloss or one (1) coat of Solvent-borne Full Gloss
• Unpainted or Perished Painted woodwork	Where paint has completely perished and the original surface is exposed, first remove all perished paint by a suitable method. Thoroughly strip the surface, then treat and apply to all bare surfaces one (1) coat primer. Stop up and fill cracks etc., sand back and then apply one (1) coat of a suitable undercoat	Apply either two (2) coats of 100% Acrylic (Waterborne) Gloss or two (2) coats of Solvent-borne Full Gloss finish. Lightly sand between coats.

TREATED PINE DECKING		
• Previously painted	Prepare surface	Apply one (1) coat of treated pine finishing oil.
• Unpainted	Prepare surface	Apply two (2) coats of treated pine finishing oil.
FENCES (Woodwork to be painted)		
• Previously painted	Prepare surfaces	Apply one (1) coat of a suitable finishing coat of paint.
• Unpainted	After preparation apply one (1) coat of a suitable wood primer. Stop and putty up and then apply one (1) coat of a suitable undercoating. Allow at least twenty-four (24) hours for each coating	Apply two (2) coats of a suitable finishing coat of paint.

	to dry and harden before applying the next coat.	
FENCES (Woodwork to be stained)		
• Previously stained	Prepare surface	Apply one (1) coat of 100% Acrylic (Waterborne) wood stain.
• Unpainted	Prepare surface	Apply two (2) coats of 100% Acrylic (Waterborne) wood stain.

METAL GUTTER, DOWNPIPES FLASHINGS, VENT PIPES, ETC		
• Previously painted	Prepare surface	After preparation apply one (1) coat of a suitable undercoating, and either one (1) coat of 100% Acrylic (Waterborne) Gloss or one (1) coat of Solvent-borne Full Gloss paint and ensure adequate coverage.
• Unpainted	Prepare surface	After preparation, one (1) coat of a suitable undercoating, and either two (2) coats of 100% Acrylic (Waterborne) Gloss or two (2) coats of Solvent-borne Full Gloss paint and ensure adequate coverage.
PORCHES, VERANDAHS		
• Previously painted	Where fully enclosed and permanently locked up for use as a front or back entrance, finish when directed, with a non-slip finish.	Floors in external porches and stairs should not be painted. If previously painted, assess the existing worn painted surface, and if safe leave it in place. However, if it is peeling and lifting, thus posing a safety risk, the appropriate treatment, such as, scrape, grind to remove paint
CORRUGATED IRON ROOF		
• Previously painted	Prepare surface	Apply two (2) coats of approved roof paint
• Unpainted	Spot prime with one (1) coat of a suitable rust inhibiting metal primer, (water based is acceptable) then apply one to the whole surface (1) coat of a suitable metal primer undercoating coloured to match the finishing coat	Apply two (2) coats of approved roof paint.

Note 1: In this Schedule, 'Prepare surface' means to prepare in accordance with section 8 (Painting Preparation).

Street numbers: Where previously painted and where directed, paint all street numbers in black or the colour directed by the Principal.

Flyscreen doors and windows (except aluminium): Paint both sides, including W.I. in-fills as specified according to the condition / material. If removed for painting,

allow paint on flyscreen frames 24 hours to dry and harden after the application of each coat. Re-fix them after the final coat in accordance with good trade practice.

External balcony verandah or toilet doors: Where doors open out, paint BOTH SIDES.

Lattice screens, or unpainted batten infills: Paint all lattice work which has been previously painted or oil stained as specified. Where the lattice work and batten infills were unpainted, 2 coats of 100% of Acrylic (Waterborne) Wood stain or paint as directed.

Thoroughly clean down and completely de-grease by washing with mineral turpentine, thinner or suitable solvents all new or unpainted G.I. gutter, downpipes and combined gutter/fascia. Dried to a clean surface and then paint with one coat of suitable galvanised iron primer (water based type is acceptable) and then painted as specified above.

Wrought iron: Spot prime with 1 coat of a suitable rust inhibiting metal primer (water based is acceptable), then apply to the whole surface 1 coat of a suitable metal primer undercoating coloured to match the finishing coat, followed by either 1 coat of 100% Acrylic (Waterborne) Gloss or Solvent-borne Full Gloss paint as directed.

Intumescent Paint: (refer to the Fire Safety Works section) The Contractor must:

- ensure intumescent paint is applied only by applicators trained by an approved supplier;
- clean all surfaces so that they are free of dust, dirt, oil, wax, grease, mildew, mould, loose flaking paint or other foreign matter that could impair bonding of intumescent paint;
- apply paint in accordance with the manufacturers specification;
- apply paint within manufacturers guidelines for temperature and humidity;
- record all wet film thicknesses for each coat, and record on a log sheet;
- ensure that each coat is completely dry before applying the next;
- apply paint at a minimum dry film thickness of 1500 microns for external applications; and
- overcoat with weatherproof paint.

END OF SECTION 10

Section 11 - Metal Work

General

Scope: This section sets out the requirements for the supply / repair and installation of grab rails, handrails, steel support posts, wrought iron railings, meter / foundation doors, garage doors, heavy duty grilles, bollards, meter / downpipe guards, mobile bins, steps and landings.

Handrails must comply with all relevant Standards and codes. Before commencing construction submit the drawings required. On completion, provide to the Principal as built drawings certified for structural adequacy and compliance.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 1074: Steel tubes and tubulars for ordinary service
- AS/NZS 1554 .1: Structural steel welding
- AS 1428.1 & AS 1428.2: Design for access and mobility
- AS 1657-1992: Fixed platforms, walkways, stairways and ladders - Design, construction and installation
- AS 2312: Guide to the protection of structural steel against corrosion by the use of protective coatings
- AS/NZS 4586 - Slip resistance classification of new pedestrian surface materials

If compliance cannot be achieved due to structural or other constraints in existing Properties, advise the Principal when undertaking the Scope of Work.

Materials and Workmanship

General: Unless otherwise specified all materials used must be the best of their respective kinds. Carry out all work with this Part G2.1 (Maintenance Specification) and best trade practice. Keep all members true, free from twist and other distortion. Drill all holes. Form any bends in tubes without deforming the true cross-section.

Corrosion Protection: Apply a corrosion protection system in accordance with AS2312 (Guide to the protection of Structural Steel against atmospheric corrosion by the use of protective coatings) to deliver a 25 plus years protection for the appropriate atmospheric category.

Garage doors: Refer to Schedule 6 (Component Requirements). Provide single panel lift or rolling shutter types.

Mobile bins: Repair and replace mobile bins in accordance with the requirements of the local authority relevant to the Property.

Hand and **grabrails:** must comply with AS 1428.1 and AS 1428.2.as directed

New landing with steps and handrails: Construct these of precast concrete and galvanised steel, all of suitable manufacture. Where Site welding is necessary, prime all welded joints with a suitable corrosion protection system compatible with the original coating and to achieve a 25 plus years protection for the appropriate atmospheric category.

Stair stringers and landing bearers: Provide 100mm deep x 50mm wide M.S. tube OR 71mm deep x 51mm wide x 6.5mm M.S. angle.

Step brackets: Provide 51mm x 5mm M.S. flat bar OR 51mm x 51mm x 6.5mm M.S. angle welded to 51mm face of angle.

Fixing brackets: Provide 63mm x 6.5mm bent down where practicable, drilled for fixing. Where down fixing is not practicable, fixing brackets may be turned up.

Riser and Going: must comply with BCA Table D2.13 Riser and Going Dimensions.

Step tread (Going): reinforce with F8TH trench mesh, fix each end with one 63mm x 5mm cadmium plated cup head bolt, nut and washer.

Landing treads: As for step treads, but minimum 535mm wide fixed each end with two (2) bolts, OR full size of landing, supported on inverted angles and unbolted.

Tie bars to landings: Provide two (2) 25mm x 5mm galvanised bolts to bearers.

Landing standards: Provide 50mm NOM dia. galvanised pipe or equivalent.

Newel and handrails: Provide 35mm NOM dia. galvanised pipe newels and 50mm NOM handrail/top rail, and weld all joints. Provide galvanised fixing lugs and angles - where fixing to timber walls provide fillet welded angle frame between rails and coach screw fixing. Provide intermediate standards at less than 1200mm centres, and top handrail 1000mm above the landing or step tread.

Fixing bolts: Provide galvanised, brass and stainless steel bolts complete with nuts and washers to suit location and application.

Free standing starter post: Design and construct in accordance with AS 1428.1: & AS 1428.2: Design for access and mobility.

Erection: Keep standards plumb and other sections level where applicable. Secure turned down landing fixing brackets to brickwork; with two (2) 10mm diameter masonry bolts. Where fixing to brickwork is not practicable, secure turned up landing fixing brackets to the edge of concrete slabs with bolts as above. Provide additional centre standard to stringers when more than eight (8) treads are required.

Provide additional bracing where the landing height exceeds 1830mm.

Welding: Comply with AS/NZS 1554.1.

Concreting of posts: Refer to Section 3 Concreting for mixing on Site concrete. Set posts in a concrete footing of minimum 250mm dia x 600mm deep.

Foundation door and frame: Mechanically fix 75mm x 50mm x 5mm welded steel Angle frame to structure. Steel door 40mm x 40mm x 5mm welded Angle. Door mesh is to be equal to Expamet WK 25-17 Grade, welded to the frame. Fit doors with 2 x 100 x 85mm fixed pin steel hinges and make door latches from 40mm x 6mm flat bar x 100mm long with a slot 12mm wide x 60mm long to slip over lug on frame to allow locking of door with padlock. Weld all components to the frame and hot dip galvanise after fabrication.

Gas meter door and frame: Construct the door and frame to be constructed from 75mm x 50mm x 3mm welded unequal angle. Door mesh must be expanded metal mesh (large mesh with a smooth flat finish suitable for machinery guards) welded to door angle. Mechanically fix frame to prepared opening/structure at maximum 450mm centres. Fit door to frame with welded 2 x 100 x 60mm steel fixed pin hinges. Make door latch from 40mm x 6mm flat bar, 100mm long, welded vertically to frame,

with a vertical slot 12mm wide x 60mm long on door frame to allow locking of door with padlock.

Recessed external gas instantaneous HWS guards: Install a manufacturer's standard sized recessed instantaneous HWS anti-theft box or a manufacturers standard sized anti-theft bracket for surface mounted instantaneous HWS, as per Section 14. If no manufacturer's standard anti-theft system exists fabricate and install as for GAS METER DOOR.

External HWS tank cage: As for gas meter door, fabricate and install where directed by the Principal.

Down pipe guard: Fabricate guards from 3mm galvanised plate folded to wrap around existing downpipes with a minimum 20mm clearance. Fix to brickwork with minimum 6 fixings. Finish the top a minimum height of 1300mm from ground level and the bottom a nominal 200mm clear from ground level.

Steel tube bollards: Fabricate from heavy steel tube, to a minimum nominal size DN100 to AS 1074. Seal top with fabricated end caps, spot-welded and ground smooth OR fill with concrete to a domed finish. Apply a corrosion protection system in accordance with AS2312 (Guide to the protection of Structural Steel against atmospheric corrosion by the use of protective coatings) to deliver a 25 plus year protection for the appropriate atmospheric category

Footings: Encase in a concrete footing at least 600mm deep x 250mm diameter.

On slabs: Weld on 10mm thick base plate drilled for 4 bolts, and fix with M12 min. masonry anchors.

The base plate must have a minimum clearance of 50mm all around the bollard, with fixings in corners.

Ramps: All steel and metal accessories are to be hot dipped galvanised.

Ramp panels: CFC panels are to be thoroughly cleaned and prepared for treatment as per manufacturer's specification. Apply an anti-slip surface coating compliant to AS/NZS 4586 - Slip resistance classification of new pedestrian surface materials.

Metalwork – Conservation Trade Practices

The Contractor must adhere to best metalwork conservation practice which includes but is not limited to the following:

- retain and preserve heritage significant metal architectural features whenever possible;
- clean metals by methods that do not abrade the surface;
- reinstate missing cast iron elements;
- repair cast iron and wrought iron elements insitu wherever possible, as cast elements are fragile and wrought elements are often forged together;
- provide new metalwork items for structural stabilisation where recommended by a Heritage Structural Engineer and approved by the Principal;
- provide new metalwork handrails where recommended by Heritage Structural Engineer or Principal;
- avoid placing dissimilar metals in contact by the use of appropriate insulating materials;

- where required by the Heritage Structural Engineer and approved by the Principal, use reproduction replacement cast metal elements of cast iron to match adjacent cast iron original elements. Where possible use existing panels to make new moulds for these elements. Allow for shrinkage during casting process;
- welding and brazing of cracked cast iron elements must only be carried out by experienced welders. Welding must be undertaken without causing damage to the adjoining fabric;
- retain and preserve cast iron elements, repair wherever possible and reproduce missing elements to match existing;
- do not expose metals that were intended to be protected from the environment; and
- do not use cleaning methods which alter the colour or texture of the metal.

END OF SECTION 11

Section 12 - Electrical

General

Scope: This section sets out the requirements for all electrical work including electrical cabling, fittings and Equipment to Properties.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS/NZS 3000:2018, Electrical installations: Buildings, structures and premises (SAA Wiring Rules);
- the relevant local supply authority; and
- the 'Service and Installation Rules of New South Wales' published by NSW Trade and Investment, Resources and Energy Division.

If the requirements in this Section are incompatible with the relevant electricity distributor's distribution system design standards, the latter will apply.

SPECIAL NOTE

(1) Give Tenants at least 48 hours' notice of any proposed interruption to the electricity supply, which must not to be interrupted during non-daylight hours or for a period of more than 6 hours during any one Day.

(2) Install all wiring in such a manner as to give the rating of circuits specified and increase the size of wiring where necessary for long runs to comply with Australian Standard AS/NZL 3000 Section 3.6 Voltage Drop.

Standards: The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 3000 and AS/NZS 3018 (Electrical Installations).
- AS 3786, AS 1670.6 (Smoke Alarms).
- AS 2053.1-8, AS/NZS 3008.1, AS 3013, AS 4296, AS 5000.1 (Electrical cabling).
- AS 3439, AS 3947.3 (Switchboard).
- AS 2293.1, AS 2293.2 (Inspection and Maintenance), AS 2293.3, AS 60598.1 (Luminaries).
- AS 14443.1-4 (Proximity Cards).
- AS/NZS 60335.2 (various sub sections) (Domestic Electrical Appliance Safety).
- AS1158 Lighting for Roads and Public Spaces

Regulatory authorities: Applicable regulatory authorities include (but are not limited to) the following:

- Resources and Energy (NSW Trade and Investment)
- Jemena Gas Network
- Local Government authorities
- Local electricity providers.

All electrical work involving power supply and electrical fittings must be carried out by suitably qualified tradespeople or competent person under the direct supervision of an appropriately qualified and licensed person.

Work standards and materials: All materials used must be of first quality, free from defects or blemishes. Match the existing in all details, where applicable. Provide all necessary materials, finishes, equipment etc., even where not specially mentioned, but necessary for the satisfactory Completion of the work.

Completion of work: Remove all debris and surplus materials associated with the work from the Site and disposed of appropriately. Make good any damage caused while undertaking the work.

Materials

Materials: Comply with Schedule 6 (Component Requirements).

Colour / Finish of all internal power outlets, light fittings and switches: Must be white polycarbonate unless a different colour is required to match the existing fittings.

Socket outlets: A reference to "socket outlets" is a reference to general purpose outlets (GPO's).

Wiring: Ensure replacement wiring is PVC/TPS insulated.

Equipotential Bonding and Earthing Arrangements

Prior to carrying out any work ensure that all sink benches, metal water pipes, metal shower trays etc. are properly secured and bonded.

Testing and Commissioning

Testing: Test all systems and equipment after installation for correct and reliable operation. Where requested by the Principal demonstrate the operation of the system or equipment repaired.

Commissioning: Clear away rubbish, clean and make good any soiled or damaged surfaces, replace faulty lamps and other components, and hand over the completed installation in good working order.

Description of Work

GENERAL

Electrical work: On Completion, self-test all work and complete to the Supply Authority's requirements.

Electrical rewiring: refer to Electrical Re-wire sub-section.

Earthing: Prior to carrying out any work, test the circuits on which work is to be undertaken in accordance with the latest edition of the SAA Wiring Rules to ensure that the earth system is satisfactory.

Earthing electrode: Ensure earthing electrodes and leads comply fully with the requirements of the SAA Wiring Rules.

Replacements: Install all electrical appliances in accordance with manufactures' specifications and the requirements of the relevant supply authority. Test all systems and appliances after installation for correct and reliable operation.

Where new installations are required, the following minimum number of outlets in each Property must be provided:

Room/area	**Lighting**	**Power Points**
Living area/Room	**1**	2 x double
Dining area/Room	**1**	1 x double
Kitchen/cook area	**1**	1 x single (refrigerator) 1 x single (range hood, if installed)

		1 x single (microwave shelf, if installed 2 x double (above bench)
Stairway	**1**	
Each bedroom	**1**	1 x double
Bathroom	**1**	1 x double
Enclosed hallway	**1**	1 x double
Laundry	**1**	1 x double
Attached carport	**1**	
Each exterior doorway	**1**	
Separate toilet	**1**	
Garage (attached or under)	**1**	1 x double

Repairs: Carry out all repair work in accordance with manufactures' recommendations.

Tenants' light fittings: Re-install any Tenants' light fittings removed to allow rewiring or other work.

Lighting

Lamps: Replace any existing lamps broken or damaged as a result of the work being carried out in accordance with the following:

- Do not install incandescent or low voltage dichroic halogen lamps.
- Do not install mercury vapour lamps. Provide compact or linear fluorescent, LED or metal halide lamps.
- Do not install any new fluorescent light fittings in kitchens, bathroom, laundries or utility areas. Replace broken or damaged existing fluorescent light fittings with bayonet fittings and an LED light globe.
- Do not install any new fluorescent light fittings in common areas. Replace broken or damaged existing fluorescent light fittings with new LED fittings with adjustable light output.

Replacing / repairing light fittings: When replacing or repairing light fittings check and make good wiring to the fitting, supply and install light fitting accessories, including ceiling rose, mounting base, flex pendant and lamp holder (heat resistant), batten holder (white heat resistant or colour to match), mounting flange and adjustable batten holder as required to match existing.

New light fittings: Where new light fittings are required, supply and install new LED fittings to suit location and environment, complete with the lamps with adjustable light output. Provide heat resistant batten holders fixed to eaves or walls, with concealed wiring to the existing circuit, and separately switched. Refer to Schedule 6 (Component Requirements) for new light fittings in common areas.

External wall mounted, garden or pathway fittings must be AS4282 Type C floodlight or cut-off floodlight and AS1158.3.1 Type 4 or 6 luminaires with the LED lamps. Do not install bollard lights.

Emergency light fittings: Emergency light fittings must be emergency LED luminaires with inbuilt photocells and motion sensors that switch off during daylight hours and switch to low level lighting at night when areas are unoccupied.

Exit lighting: Must be energy efficient LED.

Light fitting components: Replace faulty T5 fluorescent tubes and starters if required with new LED fitting with adjustable light output (excluding lights mounted on posts) Refer to Part G2.2 (Servicing Specification) for repairs to lights mounted on posts.

Fluorescent fitting: install new LED fitting with adjustable light output, including and remove the existing fitting and make good. Use masonry anchors or screws to fix materials. Supply and install earthing to the new fitting where no earth wire exists.

Ballast fitting: Provide ballast [all sizes] up to 40W to suit a fluorescent fitting, or 80W to suit a mercury vapour fitting.

Light outlets: light outlets to entries must be separately switched internally.

Light switches: Lighting outlets must be controlled by 10 amp flush switches mounted under moulded flush plates cut flush into architraves or walls in existing positions. Mount any new switches, 1000mm above floors or in another suitable location if this is not possible due to existing conditions.

When replacing switches check and make good wiring to the switch. Provide single, double triple or 4 gang light switches (architrave or wall mounted), ceiling switches, combination light/fan, dimmer switches, weatherproof light switches and cover plate to light switches as required.

Wet areas: Position accessories in locations containing baths showers or other fixed water containers to comply with the requirements of AS/NZS3000

Large rocker switches: Provide large rocker switch, including earth, and sleeve in disabled person and modified Properties ONLY or as directed by the Principal.

Batten holders: Unless otherwise specified provide "Electric white", heat resistant type batten holders with polyester skirts, with which the body cannot be extracted without first removing the base securing screws. Where mounted under junction boxes, provide an enlarged base but firmly secure all others on wooden battens fixed to ceiling joists or roof trusses or a similar frame component.

Sloping ceilings and soffits: Provide adjustable type white heat resistant batten holders where the height is 2400mm or less. Where the height exceeds 2400mm a flexible drop in lieu of batten holders.

Skirting shield: Shields to batten holders (skirt), must be heat resistant and match the existing.

New light circuit: New light circuits must include circuit breakers (up to 20amp) and wiring from meter board to fitting.

Photocell: Check and make good wiring to the photocell, and/or supply and fix a new photocell complete to suit the lighting load, including brackets, masonry fixing to wall as required and testing.

Ensure all outdoor light circuits that should be switched off during daylight hours have working photocells; supply and fix new photocell to switch outdoor lighting circuits where required.

Time delay switch: must include a mounting block as necessary (Button type), equal to “Clipsal 319”.

Common area time clock: Check and make good wiring to the fitting, and supply and fix a new common area time clock to the meter board. If common area time clock requires is broken or damaged, do not replace, and install new photocell.

Override switch: Supply and install an override switch to the meter board for common area lighting, as required.

Intercom Systems

Intercom systems must comply with Schedule 6 (Component Requirements)

Quick module reader: must be a new entry quick module weatherproof reader installed to manufacturers written specification. Remove and dispose of existing.

Proximity card: Supply one only proximity card programmed (all approved types) to suit the Building and each Unit within the Building. The Building proximity card must be provided to the Principal.

Door station: When replacing door station, install a 4, 6, or 8 button door station mounted or recessed type, weather proof, and install to the manufacturers written specification.

Buzzer button: Supply a new buzzer button for the intercom system, and install in accordance with the manufacturer's written specification.

Power supply: Supply a new 12 volt D.C. power supply for intercom system, and install in accordance with the manufacturer's written specification.

Reed switch: Supply a new reed switch for the intercom system, and install in accordance with the manufacturer's written specification.

Electric door striker: Supply a new electric door striker/lock including checking and making good wiring to the fitting, and install in accordance with the manufacturer's written specification.

Wiring from the door striker to the entry quick module, including all weatherproof components to secure entry to the Building must be in accordance with the manufacturer's written specification.

Hand set: Supply wall or desk mounted handset and base including touch screen systems (all approved types) for the intercom system, including checking and making good wiring to the Property, and install in accordance with the manufacturer's written specification.

Door alarm: Supply a new door alarm light and fitting for the intercom system, and check and make good wiring to the alarm light unit, install in accordance with the manufacturer's written specification.

Power Outlets

Power outlets: Where power outlets are replaced or altered, sleeve any bare earth wires with green PVC sleeving.

Power outlets must comprise of combination flush switch socket outlets of the rating specified with red dot to indicate "ON" position, with moulded flush plates and must be mounted flush in wall linings of timber framed walls or in metal wall boxes chased flush into brickwork 1000mm above the floor, 600mm from corner, except in kitchens, bathrooms, and laundries where all outlets and switches must be positioned in accordance with AS/NZS 3000.

All moulded flush plates on switches and power outlets must be electric white when on painted surfaces and walnut when on stained woodwork.

Location: Where existing power outlets are renewed, re-install in the existing position.

Replace outlet and switch: Check and make good wiring to the GPO, supply and fix a new switch, including an earth wire sleeve where required. Provide a suitable GPO outlet combination switch, one way key operated switch, double GPO outlet combination switch or combination light switch and power outlet single or double.

Wet areas: In wet areas power outlets must be double waterproof, including an earth wire, and sleeved in for disabled person modified Properties and if directed by the Principal.

Common areas: Provide a complete surface mounted protected switch plug combination [Lockable].

Wiring

General: Run all surface wiring in white low profile conduit installed in accordance with the manufacturer's written specification. Do not install wiring in eaves or the cavity of full brick or brick-veneer walls.

Inspection: When requested Inspect and supply a written report on the condition of the existing wiring at a Property in accordance with Schedule 10 (Reporting Templates).

Replacing mains connection box: Remove and dispose of existing and supply and fix a new mains connection box, including repairing the circuit as necessary. Work to comply with AS/NZS 3000:2018. Pay any fee to disconnect/reconnect supply, and liaise with supply authority as needed for the work.

Replacing mains: Remove and dispose of existing and supply and fix either: single phase consumer mains T.P.S. or multi-phase consumer mains, installed in the roof space with no mains connection box. Provide not less than 16 mm^2 wiring, maximum length 18m. Pay any fee to disconnect / reconnect and liaise with the supply authority as needed for the work.

Fix a main earth in conjunction with the mains, and liaise with the Supply Authority as needed.

Supply and install consumer neutral link to the switchboard, to suit Supply Authority requirements.

When undertaking work in residential properties the following applies:

In domestic/residential installations:

a. The number of circuits protected by one RCD shall not exceed three;
b. Where there is more than one final sub-circuit, a minimum of two RCDs shall be installed;
c. All final sub-circuits shall be RCD protected;
d. The RCD shall be installed at the switchboard from where the final sub-circuit originates; and
e. RCD protection is not required where only repairs are undertaken.

Alterations and switchboard replacements (all installations):

a. If an alteration to an existing circuit or a switchboard replacement is undertaken, RCD protection is required;
b. Where socket outlets are added to an existing circuit, the RCD need only be installed at the commencement of the new additional wiring;
c. Additions to existing lighting circuits without RCD protection do not require RCDs to be fitted;

d. Where all of the circuit protection on a switchboard is replaced, RCD protection is required; and
e. Repairs only to a circuit do not require RCD protection to be installed. This includes the changing of a GPO from a single to a multi-point.

Fuse units: Replace switch fuse units that are beyond repair with circuit breakers.

Circuit breaker: Circuit breakers must be single phase or multi-phase miniature De-ion 8-55 amp – 3KA, equal to Email Scanlec, with a Traffolyte type label. Where the circuit breaker replaces a fuse wedge or an existing circuit breaker, remove and dispose of the existing unit.

Residual current device: Provide either a combined residual current device circuit breaker or a residual current device to protect all lighting/power circuits. Label circuits "Protected" with a Traffolyte type label – Remove and dispose of existing.

Local isolation switches: Supply isolation switch for new cooking appliances and hot water heaters where there is none existing. Install in accordance with Supply Authority requirements and SAA Wiring Rules. For Class 9 Properties (Group Homes) isolation switches are to be key locked to prevent unsupervised operation of cooking appliances.

Dedicated power circuit: Power circuits must be permanently connected and dedicated, with a separate circuit breaker/ residual current devise for cooking appliances and hot water heaters, to suit the specification and rating of the appliances connected. They must comply with Supply Authority requirements and SAA Wiring Rules and AS/NZS 3000:2018. If a new appliance is installed, relocate the power connection if necessary to suit the new position of the appliance.

Meter box replacements: Replace in the existing position, including reconnection of the existing wiring and supply and installation of a new meter board, circuit breakers and earth leakage device, in accordance with the Supply Authority requirements.

Remove and dispose of existing box and equipment and supply and fix/install a galvanised metal raiser bracket to the point of attachment.

Electrical cabling: Supply and install heavy-duty underground conduit complete with electrical cabling connected to supply, including all excavation and backfilling.

Supply and install electrical cabling within wall and roof spaces, were possible, connected to common area supply.

Supply and install heavy duty ducting with cabling securely fixed to walls, eaves etc.

Electric Space Heaters

Replace heater subcomponents: Remove existing and supply and fit equivalent new subcomponents, install in accordance with the manufacturer's written specification. If existing fixed electric space heater in living area cannot be repaired, replace with energy efficient reverse cycle air conditioner, and conduct make good works.

Combination fan / heater: Only when directed by the Principal, supply and install a combination light fan and heater.

Air Conditioners

The Principal has specified the installation of air conditioner to replace wood fire heaters, gas flued space heaters and electric space heaters that are beyond economic repair.

Split systems must be installed, and maintained to the relevant provisions of AS 1677 including pipework, fittings, wiring, and accessories necessary for the proper functioning of the installation.

A standard installation is based on:

- 3 metres of pipework and 2 metres of capping
- 15 metres of electrical cable between main switchboard and outdoor unit

The actual length of pipework, capping and electrical cable required for each dwelling will vary considerably. The standard installation allowances above are considered to be generous.

Air conditioner shall be appropriately sized to heat and cool the living area. Install hard wired wall mounted control panel at height that can be easily reached by the tenant. Remotes are only to be provided to tenants when directed by the Principal.

The following standard installation types have been identified. In all cases, make sure the manufacturers' installation guidelines and required clearances around the units are applied appropriately. The tenant must be consulted in respect of the position and location of the internal AC unit. If the tenant prefers an alternative location for the internal AC unit, the contractor shall explain to the tenant why the internal AC unit has been placed in the location nominated by the Contractor.

Indoor unit: Back to back installation: Where possible, the indoor unit and outdoor unit shall be mounted back to back.

Internal wall: The indoor unit is mounted on an internal wall, where necessary internal pipework and capping may be required to reach the outdoor unit.

Clear from sockets: The indoor unit should not be positioned above an electrical socket, to ensure that in the event of a fault, drips do not create an electrical hazard. The tenant should be consulted about the position of the indoor AC unit and any concerns they may have should be considered, such as the AC blowing across blinds or curtain window coverings.

Outdoor unit: Wall mount installation: The outdoor unit is mounted on a bracket on the wall to minimise accidental/intentional damage and reduce dust/insect intrusion. Outdoor units are to be at least 1,800mm above ground level.

Ground mount installation: The outdoor unit is mounted on the ground either on an existing slab or pad, or on a pre-cast pad to be supplied by the Contractor. The outdoor unit shall not be located on existing concrete paths, imped access or create a trip hazard.

Roof mount installation: The outdoor unit is mounted on the roof, due to inaccessibility of external walls.

General and other requirements: The Contractor is to undertake the following works as specified and scheduled and in accordance with the manufacturer's recommendations:

- Installation of indoor and outdoor units according to type of installation specified in manufacturer's installation manual.
- Supply of all required equipment excluding the split system and wall mounted control panel (supplied by the air conditioning supplier). Equipment to be supplied by the Contractor includes but is not limited to:
  - Capping, pipework and fixings
  - Drainage connections

- Appropriate flexible connections
- Trim and sealing around openings
- Anti-vibration mountings

- Seal all penetrations to prevent insect infestations.
- The provision of all hoisting and scaffolding required for the installation of the above systems.

All outdoor units are to be fastened securely with anti-vibration mounts.

The Principal as owner of the air conditioner is the only party entitled to Energy Saving Certificates (ESC's) under the New South Wales Government's Energy Savings Scheme (ESS) and the Peak Demand Reduction Scheme (PDRS). Prior to the installation of an air conditioner, the Principal shall be requested to provide an Instrument of Authorisation to assign the right to create ESCs, so the Principal can receive a point of sale discount on the air conditioner.

Solar PV Panels

Photo-Voltaic systems: The Principal has installed Solar PV panels on its properties. As part of its servicing requirement Contractors are to undertake a detailed inspection of single dwelling solar systems every 5 years and common area solar every year. The Principal requires Contractors to undertake an annual visual inspections of single dwelling solar systems (as part of the annual component servicing) to confirm that the solar inverter is functional. When a faulty system is identified the Contractor is to prepare a report in accordance with Schedule 10 (Reporting Templates) identifying if applicable the fault and the required repairs.

Exhaust Fans / Range Hoods

Electric exhaust (ventilator, range hoods) fans: Fit fans in accordance with the manufacturer's recommendations. Supply and install with ducting where appropriate, of fire and heat resistant material.

Exhaust fan installation: Supply and fix new 250mm exhaust fan equal to Mistral or Airflow wired into a convenient circuit and terminate in a 3 pin plug base with a switch marked "FAN". Fan must not exhaust to ceiling space.

Provide all wiring, parts and materials, with wiring concealed in a cavity. Ensure internal wall face is trimmed and external wall face is trimmed and made good, weather sealed and insect proofed. Remove and dispose of any materials that have been replaced.

New Exhaust fan / range hood with ducting: Supply and install new ducted exhaust fan/range hood. Ducting must be 0.5mm minimum galvanised steel and concealed behind bulkhead matching kitchen laminates. Penetrate the roof covering, flash with material compatible with the existing roof cladding, and supply and fix a cowl. Make good, waterproof and bird proof ducting. Remove and dispose of the existing exhaust fan/range hood, and reuse existing wiring where possible or provide all new wiring and switches required for operation.

Room ventilator exhaust fan: must be wall mounted, continuous flow, installed in accordance with the manufacturer's specification. Remove and dispose of any existing redundant materials. Reuse existing switches and wiring where possible. Fit to masonry / timber walls, and provide internal and external trims and cover plates, ducting, all wiring and switches as required.

Ceiling fan: When replacing an existing ceiling fan/light combination or as directed by the Principal, provide a 3 or 4 blade ceiling fan and install in accordance with the manufacturer's specification.

Washing Machine / Dryer

Subcomponent repairs: Remove sub-components that are beyond economic repair and supply replacement sub-components with the parts recommended by the manufacturer. Install in accordance with the manufacturers specifications.

Remove and refit the appliance to the wall as necessary to undertake any repairs.

REPLACEMENT OF WASHING MACHINE/CLOTHES DRYER

Washing machine: Provide and install a new top loading washing machine including fitting hoses and waste, in accordance with Schedule 6 (Component Requirements). Dispose of the replaced items.

Clothes dryer: Must comply with Schedule 6 (Component Requirements). Dispose of the replaced items.

Washing machine and clothes dryer security clips: In Common Areas provide security clips for each washing machine and dryer, fixed to Building and able to accept hasp and staple type padlock fixing or similar.

Electric Range / Cooktop / Oven

Stoves: Prior to carrying out any work on a stove, i.e. replacement of elements or controls, test the insulation resistance with a 500v Megger tester.

Fixed cooking appliances functional (isolating) switches: Install functional switches (emergency cut-off) to fixed and stationary electric cooking appliances, including stoves, ovens, hot plates etc. for new installations. Switches must comply with Australian Wiring Rules and be appropriately rated. Mount switches in an accessible position, within 2 metres of the appliance. Switches must have a neon indicator and be labelled except if this is not available on the appropriately rated switch. Isolation switches in BCA Class 9 Properties (Group Homes) must have an emergency cut off and be able to be key locked to prevent cooking appliances from being turned on without supervision.

Replacing elements: Remove replace element and supply and fix a new element, to suit the appliance and install in accordance with the manufacturer's written specification.

Stove clips: Provide safety clips to new and replacement stoves to prevent tipping. Install in accordance with manufacturers guidelines.

New equipment – cook tops and ovens: Disconnect and remove existing, and supply and install either a new range where existing is BER or an electric cook top and electrical oven as directed for full kitchen replacements. New equipment must comply with Schedule 6 (Component Requirements)

Where Modifications are undertaken and identified as part of the extent of work, supply and install either a new range or elevated oven and cook top with as specified. Provide equipment complying with Schedule 6 (Component Requirements).

Cook tops: Supply and install new hot plate cook top including all wiring, circuit breakers and modifying the bench top where required to accommodate the hot plate cook top where the existing is BER. NOTE: New stovetops must have solid type elements or glass ceramic cooktop.

Oven: Supply and install new wall or under bench oven in existing position, including all wiring and circuit breakers where the existing is BER. Supply and install 240V single phase electric supply to cupboard where new oven to be housed. Refer to Drawing KD11 for cupboard layout.

Smoke Alarms

General: This clause deals with the installation, replacement and servicing of smoke alarms. Comply with Schedule 6 (Component Requirements) and AS 3786, and for installation with AS 1670.6 and AS 3000.

Remove and dispose of existing smoke alarms. Cabling to be removed and replaced as per Australian Standards AS/NZS 3000.

Alarms provided under the Contract that are still under warranty must be managed in accordance with warranty provisions.

Where smoke alarms are owned by the Tenant are replaced, return the existing alarm to the Tenant after removal.

Make good any areas damaged by the installation and removal work and any holes resulting from the work. Paint areas that have been made good or marked during the work to match the existing ensuring compliance with Section 20 (Fire Safety Works).

General maintenance and testing: For each individual smoke alarm and associated piece of equipment:

- check and ensure that the 240 Volt mains power indicator is ON;
- switch off the 240 Volt mains circuit to the smoke alarm(s);
- where possible, remove the smoke alarm from its mounting base. For those models with fixed wire connections that cannot be unplugged, carry out the remainder of this procedure with the smoke alarm in-situ;
- where possible, inspect the smoke alarm mounting hardware and ensure it is secure and it will reliably mount the smoke alarm. If the mounting or ceiling is damaged to the point where the smoke alarm cannot be securely and reliably fixed, reinstall the mounting hardware;
- inspect attached strobe lights/isolation switch;
- visually inspect the smoke alarm for any obvious damage, signs of wear or reason to indications of potential failure. If any such signs are present replace the smoke alarm;
- clean smoke alarm to manufactures instructions. Do not open the smoke alarm when cleaning, as exposing its components may result in damage to the smoke alarm;
- with a soft brush attachment, vacuum the smoke alarm to remove dust and other contaminants. Take particular care to remove such things as spiders' webs and lint;
- where the smoke alarm is removed, and where in-situ and with the 240 Volt circuit OFF, press the test button to ensure the back-up battery is capable of operating the smoke alarm;
- with the smoke alarm removed, and where in-situ, with the smoke alarm temporarily covered, spray the surface surrounding the smoke alarm with a (6) six months surface insect spray. Prevent surface spray from entering the sensing chamber;

- re-install the smoke alarm (if it has been removed) and restore the 240 Volt circuit;
- check and ensure the mains supply indicator is ON; and
- press the test button to ensure the smoke alarm operates correctly.

Record all details of work performed including date and time and location of the serviced smoke alarm/s when updating maintenance milestone 7 (MMU7) . Note where a new unit has been installed, include it as a "new installation" for future maintenance and testing.

General maintenance and testing for properties leased by the Principal: Where the smoke alarm contains a battery only and is not owned by the Principal, the Contractor must undertake the following at each annual visit:

- install a new battery;
- clean the detector;
- vacuum free of dust; and
- spray insect repellent around the unit.

New smoke alarm: Replace ionisation/photoelectric/Visalert strobe light smoke alarms where found to be vandalised/unserviceable, including disposal of the replaced item. Where it is suspected Visual Damage take a dated photo of the damaged alarm in situ or photo showing just wiring/damaged ceiling and report damage to the principal.

Supply and install either a new ionisation smoke alarm, photoelectric smoke alarm or strobe light smoke alarm to suit the installation or replacement of equivalent, including all wiring ducting etc. required to ensure the functionality of the alarm.

Hush button: Supply and install a hush button (fixed to wall) for smoke alarms as directed by the Principal or when replacing an existing installation, including all wiring, ducting, etc.

Electrical Re-wire

Complete rewire: Supply and install all necessary materials and labour for the renewal of all electrical wiring to completely rewire a Property including all electric and gas/electric services. Remove and dispose of existing equipment and materials. Carry out work in accordance with the current AS/NZS 3000.

Supply and fix all new electrical wiring from the point of attachment (including consumer/service mains, meter-box, switchboard and metering equipment). Supply and fix all new sub-circuits, residual current protection devices to both light circuits and power circuits (including fridges), toggle type circuit breakers, isolation switches to cooking appliances, all existing light fittings (excluding Tenant's fittings), switches and power outlets. Supply and install additional power circuits and outlets and associated work for to meet the APS. Pay all fees, charges, levies and deposits to allow to disconnect/reconnect supply, and liaison with the Supply Authority. Renew the meter box unless the box is metal and in good condition and contains no asbestos.

Renewal of meter box: Remove existing and relocate and fix a new meter box in conjunction with re-wire above if required.

Supply and install energy authority padlock for meter boxes and switch room door as the master lock key schedule in Schedule 6 (Component Requirements).

Materials

Materials and samples: Unless otherwise specified, all cables must be copper conductors insulated with V. 75 Grade PVC to suit AS/NZS 5000 and AS/NZS 3008.1.

Cables must meet Australian Standards and local Supply Authority regulations.

Conduits: Use rigid PVC conduits Cat. A U/G to AS 2053 (set) where plastic conduits are required, except where flexible types are specified.

Consumer / service mains: Except where otherwise directed by the relevant Supply Authority use the existing points of attachment. Install consumer/service mains to local Supply Authority requirements from the point of attachment to the main switchboard using tough plastic insulated and sheathed conductors installed in the roof spaces in the manner specified in the Section Wiring below.

Provide a minimum number of phases and increase the size of conductors where required by the relevant Supply Authority.

Mains connection boxes are not required. Where installed in other than roof spaces protect mains by means of plastic conduits.

Consumer meter and switchboard: Where metal meter boxes do not exist or insufficient space is available at existing positions, supply and install in the position approved by the Supply Authority an approved meter box, capable of housing a combined meter and switchboard, complying with Supply Authority's requirements.

Meter box: Must be a recess type meter box, of galvanised steel construction, with a top hinged cover complete with stay and catch, and a weather-strip (25 x 25 x 1.2mm galvanised steel) rivet fixed and welded to the sides and top, and rivet fixed to the bottom. Keep the weather-strip 70mm from the back of the meter box in timber framed walls, and 115mm in full brick or brick-veneer walls. Over flash at the top. Paint all exposed flashings to match adjoining surfaces.

Where meter boxes are renewed, ensure all affected surfaces are made good to match the existing on Completion.

Switchboard: Supply and install in the meter box an approved type self-contained switchboard with switches and circuit breakers for the circuit controls.

Service Fuse: Generally a 100 Amp fuse, located on the un-metered side of the installation for the isolation and protection of the whole current metering and customer installation.

Main switch: Provide an approved type switch to local Supply Authority requirements with a current rating 50% greater than the maximum demand of the whole installation connected.

Labelling: Label each item of equipment on switchboards using of engraved laminated plastic labels with three layers, white/black/white, equal to Traffolyte, with lettering not less than 4mm high and fixed by self-tapped stainless steel screws.

In a local metering situation the circuit breakers are to be used as main switches but separate from the other circuit breakers and labelled accordingly.

Provide main switch ratings that comply with AS3000 and the NSW Service and Installation Rules to enable the effective isolation of the electrical supply from the electrical installation. In the event of an emergency arising that requires prompt isolation.

Each domestic electrical installation must have a main switch for each separately metered supply.

Circuit breakers: Protect sub-circuits by thermal or magnetic type circuit breakers to current Wiring Rules and to capacity requirements of the Property with fault current capacity not less than 3kA. Label all SP-CB/RCD Power circuits "Protected".

The current circuit breaker ratings must comply with AS3000 and any circuit breaker, switch or contactor controlling a capacitor must be suitable for the purpose of switching capacitors and rated to ensure reactive operation in an emergency situation.

For a single phase domestic situation current ratings as a guide are as follows:

	Gas/Electric Projects	All Electric Projects
Lighting sub circuit	1 x 16A (SP-CB/RCD)	1 x 16A (SP-CB/RCD)
Power No. 1 and 2 (Protected)	2 x 20A (SP-CB/RCD)	2 x 20A (SP-CB/RCD)
Electric Range (Domestic Range)		1 x 32A (SP-CB)
Water Heater Sub Circuit (Off Peak Rate)		1 x 25A (SP-CB)
Space Heater Sub Circuit (Domestic Rates)		1 X 32A (SP-CB)

Residual current device (RCD) (safety switches): Provide RCD protection to all final sub-circuits containing socket outlets and lighting, including refrigerators/freezers. Provide a combination of RCD/circuit breaker where it is not possible to provide individual RCD for all Lighting Circuits and power circuits. Install RCDs in the meter box for detached Properties, and in a sub-board within a Unit whenever possible.

Fix directions on how to use and test RCDs in a visible location within the meter box or sub-board. Explain to the Tenants on how to use the RCDs where possible.

Where there are 2 or 3 phases provide appropriate switches and circuit breakers, and where required by the local Supply Authority, increase the rating of switches and wiring on the above to comply with requirements.

Confirm with the Supply Authority before finalising details of the requirements for consumer mains and switchboards.

Electrical installation: Re-install lighting outlets, power outlets and appliances in the existing positions. Provide and install additional light and power outlets and power circuits to meet the requirements of this specification.

Re-install the Tenant's light fittings in existing positions.

Wiring

Install single insulated cables where sub-circuit or sub-main wiring is enclosed in conduit. Elsewhere install concealed thermoplastic sheathed (TPS) cables.

Run all cabling in roof spaces where possible with loose drops to outlets and switches.

Do not install cabling below the ground floor unless written consent is first obtained. Where wiring is permitted below the ground floor level protect the conductors in Cat. 'A' PVC conduit.

Do not install cabling in eaves or the cavity of full brick or brick-veneer walls.

Except where otherwise specified, hereinafter, carry out all wiring using TPS conductors. Neatly clip wiring to the sides of ceiling members at maximum 600mm spacing's or to the side of 38mm x 23mm battens provided across the top of ceiling joists.

Carry out wiring using the "loop-in" system. Do not join conductors between terminal connections.

Do not fix conductors to the side of wall plates or other ceiling members where they are vulnerable to damage by the fixing of cornices, wall boards, etc. Use loose drops to power outlets and light switches, and loose conductors capable of easy replacement without removal of wall linings or any structural work.

Conceal conduits throughout and, where run on brickwork, chase in to permit a minimum 10mm covering of rendering. Where a conduit is embedded in concrete, use C.A.T. "B" U/G 20mm minimum conduit.

Carry out final connections of permanently connected equipment by installing a standard wall box where a rigid conduit terminates, or a wall bracket in timber-framed structures, with terminators and a blank plate. Enclose cable in a flexible PVC conduit. Take care when locating wall boxes to avoid excessive lengths of flexible conduit.

Ensure conduit enters and is securely attached to all wall boxes and the terminal enclosures of all appliances. Terminate PVC conduit to ranges and water heaters in flush mounted boxes complete with take-off angle adaptors and approximately 900mm of flexible plastic conduit.

Ensure earthing complies with the system of the local Supply Authority, where earthing is installed in roof spaces and wall framing ensure it emerges adjacent to the connection to water pipes or copper clad electrodes securely fixed to Building structures.

In areas where earthing to copper water pipe is required, make the connection with suitable copper or brass clips in the position required by the Supply Authority.

Disconnect / Reconnect Gas and Electrical Supply: Switch off power supply and lock meter box and immobilise gas supply at commencement of Vacant Work. Switch on power and unlock meter box and reinstate gas supply immediately prior to key handover.

The Contractor must ensure compliance with clause 31.5 of the General Terms when disconnecting and reconnecting gas and electrical supply.

END OF SECTION 12

Section 13 - Master Antenna Television Systems, Data Cabling and Telephony

General

Scope: This section sets out the requirements for the installation, testing and reporting on master antenna systems, data cabling and telephony. It applies to multi Low-rise and Medium-rise Buildings. It does not cover High-rise Buildings because the system designs for such Buildings is specific to the Building layout.

Refer to Component Servicing Specification for the testing and reporting on MATV Systems installed in Buildings above 7 storeys.

All equipment, materials and standards of Workmanship used must fully comply with the relevant Standards currently in use in Australia. Where no such standards exist, conformance with relevant international standards or up to date recognised standards of good practice apply.

All work must also comply with the latest applicable edition of the Building Code of Australia, the requirements of the supply authority and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 1417: TV Antenna Installation
- AS 1367: Cabled TV Signal Distribution System
- ASS009: Installation requirements for customer cabling
- AS1345: Identification of the Contents of Piping, Conduits, Ducts
- AS1768: Lightning Protection
- AS2053: Conduits and fittings for electrical installations
- AS3000; Electrical Installations
- AS5000: Electric cables – Polymeric insulated
- AS1530.4: Fire Tests
- ACMA: 'Communications Cabling Manual Electromagnetic Compatibility (EMC) Standards'

Telephone / Data Cabling: The Contractor is responsible for repairs and maintenance required to wiring, repairs and cabling for telephone services and data to the main distribution frame / Premises Connection Device (PCD) or first telephone / data socket, including pits, conduits and draw wires.

Where Broadband cabling has been installed, the Contractor is responsible for repairs and maintenance in accordance with NBN Co specifications to wiring and cabling as required for data and broadband internet services to the Network Termination Unit (NTU) or first RJ45 wall plate including conduits and draw wires.

Workmanship and Materials

Materials and spare parts: All materials utilised for the works must be the best of their respective kinds and comply with the relevant Standard. Where existing equipment is replaced, the materials used must be new and of equal dimensions, sizes, weights and quality as the materials used in the original assembly unless otherwise recommended by the manufacturer of the equipment.

The materials/spare parts used in the performance of the work must be purchased direct from the manufacturer of the equipment or the official distributor or from a supplier of replacement parts. When installed, they must meet the requirements of the Contract and perform within the limits of their capacity.

Masts Stays and Fixings: All mast stays and fixings must have a minimum 2 year written manufacturer's warranty and meet the following requirements:

- All materials and parts must comply with current Australian Standards;
- All fixings for galvanised steel must be of a similar material or separated to prevent galvanic reaction or corrosion;
- galvanised steel items must be Galvabond Z275 to at least 19 microns of galvanising (zinc) on these items;
- booms must be powder-coated with polyester through an automated electrostatic multistage pre-treatment process;
- samples must be tested and verified by an 800 hour neutral salt spray test; and
- able to withstand wind of 100km/hr.

All exposed screws used on all items of equipment must be tamper resistant security fasteners.

The screws must be flush mounted where practical and made from stainless steel for coastal areas and galvanised steel or stainless steel for all other areas

Antenna: Antennas must have a minimum 2 year written manufacturer's warranty and must:

- comply with current Australian Standards;
- standards Mark / certified digital ready;
- achieve the following minimum readings at the antenna when installed as part of a MATV system of:
  - Signal level of between 50db to 80db
  - Modulated Error Ratio (MER) of 25db or higher
  - Post Viterbi Bit Error Rate (post Viterbi BER) of less than or equal to 2X10-4
  - Noise Margin (NM) of greater than 0dB
- be designed for a 2 kg loading on boom end (furthest from mount (tested over 100 cycles);
- be fitted with clam shell insulators and flat sided boom to provide element alignment;
- have minimum 12mm extruded aluminium elements to withstand weather and wildlife;
- be tested to wind speed of 100 km/hr;
- be designed for a 1 kg loading at unsupported end of any element (tested over 100 cycles);
- be UV and corrosion resistant tested in coastal area and western NSW;
- be installed with 'F' Type connectors; and
- be able to easily connect quad shielded cable and/or mast head amplifier.

The Contractor must select the most suitable antenna for a particular installation subject to the requirements set out below.

Antennas must be Hi-gain digital TV antennas, unless signal strengths are adequate to enable the use of Low-gain digital TV antennas.

Separate Hi-Gain UHF and VHF antennas must be installed on a single mast except in good signal areas in the range of 65 to 85 dBµV, when combined UHF/VHF antennas may be used..

Antennas must be positioned to receive the best available signal, and pointed towards the most appropriate transmitter delivering the best signal.

Penetrations: All penetrations necessary for the works must be drilled and comply with the following:

- penetrations through concrete structures and masonry walls must be diamond drilled core holes. Removal of bricks or similar breeches to bounding and fire walls is not permitted;
- cutting of reinforcing steel must be avoided or minimised. Epoxy coat exposed steel;
- under and over flashing must be provided for penetrations through external elements. Restore watertight membrane where penetrated;
- all penetrations must be sealed with a fire tested method; and
- surface finishes must be restored.

Make good and seal all penetrations. Ensure all penetrations are Fire Rated in accordance with Section 20 after cabling has been installed.

Cabling: All cables must have a minimum 2 year written manufacturer's warranty and meet the following requirements:

- Flexible cables RG6 and RG11 must have a continuous dielectric such that the centre conductor is in full contact with the dielectric along the entire length of the coaxial cable

RG 11 Low Loss Quad Shield Cable must comply with the following:

- 1.63mm/14 AWG solid copper covered steel conductor;
- enclosed in polyethylene insulation;
- 2 layers of foil tape;
- 60% aluminium braid and 40% aluminium braid;
- black PVC outer casing; and
- DC requirements – current carrying capacity 5A for RG11

RG 6 Quad Shield Cable must comply with the following:

- 1.02mm/18 AWG solid copper covered steel conductor;
- enclosed in polyethylene insulation;
- 2 layers of foil tape;
- 60% aluminium braid;
- black PVC outer casing;
- DC requirements – current carrying capacity 3A for RG6;
- all cable connections to be crimped or compression with appropriate F type connectors;

Use RG6 quad core for runs of less than 50m and RG11 quad core for runs more than 50m and for backbone cabling.

All cabling and conduits/ducting must be fully concealed unless it is not physically possible. In the latter case, install an appropriate conduit type is to be installed in an alternative protected location. Install cabling in under floor spaces, ceiling spaces or wall cavities to conceal and protect the cable.

The Contractor must ensure that after any repair work is carried out that the complete installation including any reused cabling and conduits, performs at the acceptable level.

All cabling must be adequately shielded to prevent the introduction of spurious signals being generated onto adjacent cables/services.

Open wiring is permissible in enclosed under floor spaces, ceiling spaces and wall cavities or existing cable tray provided it is adequately fixed at intervals which will prevent sag. There must be minimal excess cable in these areas and the Contractor must ensure that no adverse effect will be encountered from adjacent voltage induction. 'Enclosed under floor space' means any area under a Building that can only be accessed via a lockable door. If access to the under floor space cannot be controlled, then all cabling must be installed within a conduit.

Any cabling running inside or passing through mains duct must be in conduit. No joins in are permitted in such cabling.

Where a cable is to be run underground, it must be enclosed in a minimum 25mm UPVC conduit.

Conduits and Ducting: Conduits must be 25mm to allow possible expansion for a National Broadband and installed together with a tagged polypropylene draw-cord for future use.

All conduits must be in accordance this specification and installed not to damage any fire safety measures installed within a Building.

Amplifiers: Amplifiers must have a minimum 2 year written manufacturer's warranty and meet the following requirements:

- comply with current Australian Standards;
- have a standards mark / certified digital ready;
- achieve the following minimum readings after the amplifier when installed as part of a digital ready MATV system of:
  - Signal level of between 50db to 80db
  - Modulated Error Ratio (MER) of 25db or higher
  - Post Viterbi Bit Error Rate (post Viterbi BER) of less than of equal to 2X10-4
  - Noise Margin (NM) of greater than 0dB
- have a UV stable, weatherproof housing capable of mast attachment or surface mount;
- have adjustable gain for VHF and UHF bands;
- have built in lightning / static protection; and
- be broadband or channelised headend or distribution amplifiers.

Standard of Finish

Any repair or replacement work must be finished to the same specification, standard, surface preparation and paint finish as the original construction.

Make good any areas damaged by installation or removal work. Fill any holes resulting from such work, re-paint to match existing paintwork and make good any roof damage.

Where the work affects the Buildings passive or active fire systems, the Contractor must reinstate these systems to be fully effective and protect the Building in accordance with BCA, Australian Standards and the Principal's Fire Safety Manual.

Delivery and Extent of the Work

The Contractor must achieve a performance based outcome at completion of work in any Building ensuring that each Building has a system capable of receiving and distributing:

- free to Air Television digital transmission for the MATVS to each installed wall plate in the Building;
- telephone services; and
- high speed data to each installed wall plate in the Building, up to 1000mb/s;

Connectors and wall plate: Use crimp and compression F-type connectors and wall plates to be installed when replacement is required. F-type connectors must be installed wherever possible to ensure consistency of signal.

A minimum of one wall plate must be installed per Property.

MATV Cable: Existing MATV cable may be reused so long as the acceptable benchmark level is achieved without replacement. Existing 300Ω cable must be replaced even if the acceptable benchmark level is achieved without replacement.

Data Cabling: Must be Cat6 (capable of supporting data speeds of up to 1,000 Mbps). Cat6 cable lengths must be limited to a maximum run of 500m per cable run. Cables are to be terminated at an RJ45 type wall plate.

Topology: The MATVS must be installed using a split and tap cable topology for all Buildings with more than 10 wall plates. For Buildings with 10 or less wall plates a star cable topology is acceptable.

Existing loop through cable topologies may be retained if adequate performance measures are achieved without loss from interference. Existing loop through topologies must be converted to loop and tap systems if adequate performance measures are achieved without loss from interference, up to a maximum of 8 taps per loop.

Performance Measures and Monitoring

Benchmark for measuring and monitoring: The Contractor must ensure that at Completion of any work on a MATVS, the system complies as a minimum with the 'acceptable' benchmarks for all the performance measures in the table below:

	Inadequate	Marginal	Acceptable
Signal level	< 40 dB or > 85 dB	≥ 40 db and < 50 db Or > 80 dB and ≤ 85 dB	≥ 50 dB to ≤ 80dB
Modulated Error Ratio (MER)	< 25 dB (If all MER < 25 dB in Building)	≥ 25 dB (A minimum of only 1 MER in Building < 25 dB, all others ≥ 25 dB	≥ 25 dB (All MER in Building)
Post-Viterbi Bit Error Rate (Post Viterbi BER)	> 2×10^{-4}	≤ 2×10^{-4}	≤ 2×10^{-4}
Noise Margin (NM)	< 0 dB	= 0 dB	> 0 dB

The Performance Measures are defined as:

- Signal level – the strength of the signal, measured in dB at a signal strength measurement of between 50 dB to 80dB.
- Modulated Error Ratio (MER) – the measure of the total of all signal disturbances.
- Post-Viterbi Bit Error Rate (Post Viterbi BER) – the measure of the number of errors in the signal after demodulation.
- Noise Margin (NM) – a measure of how the signal compares to the reception cliff edge.

At the completion of any work within a Building the Contractor must Test the system and ensure 'Acceptable' benchmarks are achieved.

If 'Inadequate' or 'Marginal' readings are achieved for any of the nominated performance measures upon Completion the works will be considered a Defect and it must be rectified to achieve 'Acceptable' readings.

The Principal may request the Contractor to conduct testing of the MATV system to ensure adequate readings are achieved.

Stand-alone Antenna Television Systems, Data Cabling and Telephony

Properties with stand-alone antennas (for example Cottages, Townhouse or Villas) because the separate stand-alone antennas, cabling and connections are to be maintained to ensure reception complies with the following:

Stand-alone TV antennas need to be:

- the correct type of antenna for the TV channel frequencies in the area;
- in the right position on the roof and pointing in the right direction;
- in good condition; and
- set up correctly.

Workmanship and Materials

Materials and spare parts: All materials utilised for the works must be the best of their respective kinds and comply with the relevant Standard. Where existing equipment is replaced, the materials used must be new and of equal dimensions, sizes, weights and quality as the materials used in the original assembly unless otherwise recommended by the manufacturer of the equipment.

The materials/spare parts used in the performance of the work must be purchased direct from the manufacturer of the equipment or the official distributor or from a supplier of replacement parts. When installed, they must meet the requirements of the Contract and perform within the limits of their capacity.

Masts Stays and Fixings: All mast stays and fixings must have a minimum 2 year written manufacturer's warranty and meet the following requirements:

- All materials and parts must comply with current Australian Standards;
- All fixings for galvanised steel must be of a similar material or separated to prevent galvanic reaction or corrosion;
- galvanised steel items must be Galvabond Z275 to at least 19 microns of galvanising (zinc) on these items; and
- able to withstand wind of 100km/hr.

The screws must be flush mounted where practical and made from stainless steel for coastal areas and galvanised steel or stainless steel for all other areas

Antenna: Antennas must have a minimum 2 year written manufacturer's warranty and must:

- comply with current Australian Standards;
- standards Mark / certified digital ready;
- be UV and corrosion resistant tested in coastal area and western NSW;
- be installed with 'F' Type connectors; and
- have a 4G filter installed to protect from mobile phone tower signals.

Standard of Finish

- Any repair or replacement work must be finished to the same specification, standard, surface preparation and paint finish as the original construction.
- Make good any areas damaged by installation or removal work. Fill any holes resulting from such work, re-paint to match existing paintwork and make good any roof damage.

Only one single antenna installed on the roof. Legacy or broken antennas should be removed. Get an experienced local antenna specialist to inspect, repair or replace your antenna if you think it may be the problem.

To meet Australian standards, the cable that connects your antenna to your TV should be a quad-shield coaxial cable (type RG6).

END OF SECTION 13

Section 14 - Plumbing (General Use)

General

Scope: This section sets out the work involving roof plumbing, storm water, general plumbing, sanitary fixtures, plumbing fixtures, sewer, hot water (electric), hot water (gas), hot water (solar), hot water (heat pump), gas and gas appliances.

Standards: Carry out all work in accordance with the requirements of the regulatory authorities applicable to the type of work involved, and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS/NZS 3500 (all parts as nominated by the regulatory authority)
- NSW Code of Practice for Plumbing and Drainage (current edition)
- AS 1056, AS 3350, AS 1361 & AS 3498 (hot water)
- AS 4389, AS 1562, AS/NZS 2179, AS 4040,AS 3500
- Regulatory Impact Statement, Protection of the Environment Operations (Waste) Regulation 2005
- All other relevant standards, Acts, codes of practice and guidelines.
- ASNZS4020 Testing of products for use in contact with drinking water.

Regulatory Authorities: Applicable regulatory authorities include (but are not limited to) the following:

- Sydney Water Corporation
- Jemena Gas Network
- Local Government authorities
- Local electricity providers
- Local water Supply Authority
- Local gas Supply Authority

All work involving waste disposal, water supply and plumbing must be carried out by suitably qualified and licensed trades people or competent persons under the direct supervision of an appropriately qualified and licensed person.

Work Standards and Materials

All materials used must be of first quality, free from defects or blemishes. Carry out the whole of the work in accordance with good general trade practice and to match the existing in all details, where applicable. Provision of all necessary materials, finishes, equipment etc. necessary for the satisfactory completion of the work is included in the Contract, even where not specifically mentioned.

Pipe work: Pipe work within Properties is to be Copper piping, alternative materials can be used as per Schedule 6 (Component Requirements) subject to approval by the Principal.

Pipe work in BCA Class 2, 3 & 9 Properties must be metal in accordance with the Principal's Fire Safety Program. Do not replace metal pipe with flexible pipework in Class 2 and above Properties without the prior written approval of the Principal.

Lead: Where lead waste pipes are found during maintenance work, remove and replace with an approved piping material suitable for the purpose and the Building.

Earthing and bonding: Comply with Section 12 Electrical.

Certificates and test reports: Where a license is required to carry out any work under the Contract (water, sewerage, gas, LPG etc.) or accreditation (thermostatic mixing valves, backflow prevention device etc.), provide evidence of compliance before the work commences and a Certificate of Compliance, Inspection and Maintenance Report, Commissioning and Test Report and the like after Completion of the work.

Penetrations: All penetrations are to comply with relevant Standards and the Principal's Fire Risk Management Plan Implementation Manual.

Colour: To match the existing or, if no match exists, provide a near match as close as possible to the existing.

Roof Plumbing

NEW GUTTERING

Removal of Existing Guttering: Remove the whole of the existing eave gutters on all elevations that are required to be replaced. Take care during the removal of guttering to ensure that a minimum of disturbance is caused to existing fascias and roof coverings. Dispose of waste materials off the Site in accordance with Section 1.

Generally: Provide factory pre-painted type guttering materials

Components: must comply with the following:

- Size and Profile: Generally 115mm Quad type unless an alternative is required to match existing
- Thickness: 0.48mm gauge (Base Metal Thickness - BMT)
- Brackets: Concealed type at 900mm maximum spacings fixed using galvanised helical nails or proprietary clips

Joins: No joins are permitted in guttering under 10.0 metres in a single straight line. Silicone seal and pop-rivet fitted joints.

Angles: Must be factory pressed sheet metal or die-cast.

Expansion Joints: Provide in single straight lines of guttering over 30.0 metres long.

Nozzles: Must be factory pressed sheet metal, die-cast or PVC.

Installation: Grade guttering to outlets so that all roof water will completely drain off to each discharge point and keep it high enough to hide the ends of roof tiles. Water flood Test all gutters at the Completion of installation.

Relay roof tiles (or metal sheeting) removed for the renewing of gutters neatly and truly when gutter work is completed. Replace any missing or broken tiles to match the existing and re-bed capping, including over-flashing of fascias under hip starter tiles using compatible flashing (Refer to Section 5). Point up where disturbed.

Take care to ensure that gutter beads on all elevations are straight and true when completed.

VALLEYS

Material: must be 0.48 mm (Base Metal Thickness - BMT) equivalent to Zincalume steel or colourbond valley materials/finish to match existing roof colours tile or sheet

Profile: must be 450 mm wide with edges turned over

Joins: must be lapped 150 mm at joints close riveted and set in sealant.

Fixing: at top, use galvanised nail or screw to prevent valley gutter creeping downwards. At sides, use galvanised nails bent over edges.

REPAIRS TO EXISTING GUTTERING

Note: Do not use lead flashing in conjunction with pre-painted guttering. Use minimum 0.7mm thick zinc or another material if directed by the Principal.

Generally: Provide the same profile and finish as the existing guttering for repairs. For replacement guttering, use material painted externally the same colour as the existing. Use silicone sealed pop-riveted joins.

Clean out existing guttering: When cleaning downpipes, the downpipe must be removed from the shoe to prevent the obstruction being flushed down into the stormwater system. After removal of the obstruction re-attach the downpipe to the stormwater system.

GUTTER GUARD

Refer to Roofing Section 5.

NEW DOWNPIPES

Removal of Existing Downpipes and brackets: Strip the existing downpipes on all elevations of the specified Properties. Take care during the removal of downpipes to ensure that a minimum of disturbance is caused to existing guttering and stormwater connections. Dispose of removed materials off the Site in accordance with Section 1.

Generally: Provide factory pre-painted type downpipe materials, including brackets, except that downpipe bases must be as specified below.

Size and Profile: Provide 100mm x 50mm unless a different profile is required to or alternatively other profiles to suit the same as the existing.

Thickness: must be 0.48 mm (Base Metal Thickness - BMT)

Brackets: Must be purpose made factory pressed astragals spaced at maximum 1800mm intervals. Install a minimum of 2 brackets per downpipe.

Joins: Where joins are fitted, lap them in the direction of flow and pop-rivet them.

Angles: For rectangular downpipes provide rectangular angles with offsets formed with lip outside the joint, double pop riveted into position and sealed with silicone. For round downpipes, provide factory pressed sheet metal or die-cast.

Connections: Connect downpipes into gutter nozzle at top, and into earthenware or PVC stormwater at the base.

Downpipe Bases (where required): Provide hot dipped galvanised steel 1800mm high, 100mm x 75mm or 100mm round bases, fixed to the wall at the top with suitable fixings and secured at the base into the stormwater drainage pipework or, if no pipework exists, securely fixed to adjoining structure.

Installation: Supply and install new downpipes where those they are replacing were originally fitted or where they are required. Connect them at the heads with eave gutters and terminate the base into the stormwater drainage system. Seal downpipe bases into stormwater with either cement mortar (for earthenware S/W) or PVC adaptors (for PVC S/W). Secure them to wall or other vertical surfaces with astragals fixing using galvanised screws and washers. Pack out 25 mm from the surface if necessary to clear stringer courses and plinth moulds.

REPAIRS TO EXISTING DOWNPIPES

Generally: For repairs provide the same profile and finish as the existing downpipes. For replacement downpipe use material equivalent to Zincalume painted or prepainted the same colour as the existing. Where joins are fitted, they must be lapped in direction of the flow and pop-riveted.

Bases of downpipes: When repairing or replacing downpipes, ensure that the base of the downpipe is properly connected to stormwater drainage lines.

Sewerage and Stormwater Drains

General: Unless otherwise directed, specified, or required by the relevant local authority, backfill all trenches immediately after pipe laying is completed.

Reactive soil: In reactive soils, all sewer, stormwater and other subsoil piping must be PVC unless the Principal has given prior written approval to the use of alternate materials.

Make appropriate provision for reactive soils and mines subsidence where Sites are located in affected areas.

Drainage investigation – Heritage Properties: When undertaking drainage repairs on Heritage Properties the Contractor must check for leaks in drainage pipes. Where leaks have caused excessive water in the ground beneath or adjacent to the Building, or caused scouring of the foundations, the Contractor must carry out an investigation of drainage lines and pits on the Site and submit a report to the Principal. The report must describe the damage, its cause, and recommended remedial treatment, to carry out the work.

MATERIALS

Sewerage drains: Use 100/150mm UPVC to AS 1260 (DWV) and solvent cement fittings to AS 1260, all stamped and branded as conforming to Australian Standards.

Sullage/Stormwater drains: Use UPVC to AS 1260 (DWV sewer grade) and solvent cement fittings to AS/NZS 1254 except for sullage drains between gullies and waste connections, where UPVC sewer grade pipes and fittings must be used.

Stormwater drains (across driveways and footpaths): Use cast iron, malleable iron or galvanised steel in accordance with AS 3500.3.

Sullage pits: Use 1500mm x 1500mm x 450mm deep pits with two absorption trenches 2400mm x 450mm x 450 deep with the trench drain manufactured from recycled plastic in U shaped sections 1500mm long x 350mm high.

ALTERNATIVE MATERIALS

Where permitted by the relevant local authorities UPVC pipes and fittings, Type SWV for sanitary plumbing, Class "SH" to AS 1260 may be used for sewerage and sullage drainage lines other than across footpath and in driveways, subject to the following additional requirements:

- pipes must be indelibly marked approved UPVC. pipes every 450mm with the name of the material and with the manufacturers trade name; and
- fittings must be suitably marked approved UPVC fittings with the name of the material and with the manufacturers trade name.

WORKMANSHIP

Sewer drains: Comply with AS 3500.2.

Stormwater drains: Comply with AS 3500.3.

Sullage pits/drains: Use construction methods adopted from and in compliance with AS 1547.

Material for filter trenches must be clean 20mm blue metal (or a suitable approved equivalent in areas where blue metal is not available).

Photograph in detail trenches prior to backfilling. Photographs are to be made available to the Principal as required. Backfill all excavations immediately following taking photographs. Compact backfill, allowing for settlement to ensure that the filled excavations remain level with the adjacent ground level.

Pipe Lines: Excavate for and provide materials to construct pipelines.

Lay all pipelines in straight runs from each change of direction with uniform falls, solidly bedded on barrels to suit required lines and levels, with joints closely butted with inverts flush and each length swabbed. Provide cleaning eyes at each change of direction and at not more than 9 metre intervals in straight runs.

Make joints with rubber compression rings or cement mortar composed of two (2) parts clean sharp sand and one (1) part of cement, with each joint neatly splayed off.

Take care to observe all specified or required dimensions, grades, and the like. Fill any excess excavations in trenches with suitable material.

Ensure the minimum grades of sewer and stormwater lines and agricultural pipes are in accordance with the Plumbing Codes and local authority requirements.

UPVC Pipe lines: Install UPVC in accordance with AS 2032, with joints solvent welded in accordance with the manufacturers' written specification.

For the whole length of the drain line provide suitable compressive supports at 1500mm maximum centres. Where the excavation is in sand or loam free of hard objects, lay the pipes directly onto the suitably graded trench base.

Locate pipe at the centre of trench, to correct grade and alignment with true invert, with spigot ends pointing in the direction of flow. Provide suitable access or inspection openings at maximum centres and positions required by the relevant authority.

Backfill over the full width of trench and to a depth of 300mm over the pipes with selected soil, sand, loam or fine aggregate free of rock or other hard particles over 10mm. Excavated material these requirements above may be used as fill material for the first 300mm. Use the excavated material for the remainder of the backfill.

UPVC Connection to Vitrified Clay:

- UPVC to Vitrified Clay Socket: Use suitable adaptor to suit the compression required of a Vitrified Clay rubber ring. Do not use mortar joints.
- Vitrified Clay Spigot to UPVC: Use a suitable adaptor as above and connect to vitrified clay spigot through a Vitrified Clay double socket with rubber rings.

FITTINGS

Taps: Must comply with Schedule 6 (Component Requirements).

Where directed to replace existing tapware, fit equivalent new fittings. Provide chrome plated, satin chrome or powder coated brass Bib taps, Pillar taps, Washing Machine taps, Stop taps, mini Stop tap at wall outlet whenever a flexible water hose is fitted, Cistern taps, Shower Sets, Basin Sets, Bath Sets, Kitchen Hob and Wall Sets as required to suit the location. Fit matching tap handles complete with "H" and "C" or colour coded (red - hot, green or blue - cold) buttons as applicable.

If tap flow restrictor valves require maintenance, replace like with like or equivalent approved Four star WELS rated in tap flow restrictor.

Kitchen sinks, laundry tubs, basins, bath, shower bases, seats and roses, toilet pan, cistern, seat and cover: Must comply with Schedule 6 (Component Requirements).

Shower Bases: Showers must have a minimum 10 year written manufacturer's warranty for Latex (Waterborne) and a minimum 30 year written warranty for pressed metal and meet the following requirements:

Liveable Housing

- hob less step free shower with stainless steel shower grate and trough designed to ensure efficient draining;
- drainer Min 75mm wide;
- install with minimum 2 degree fall; and
- slip rating of minimum R10 and pendulum test score of X.(moderate).

Maintenance of Gas

Materials and spare parts: Must comply with Schedule 6 (Component Requirements).

Ensure all materials for the works are the best of their respective kinds and comply with the relevant standard. Where replacing existing, they must be of equal dimensions, sizes, weights and quality to the materials used in the original construction, or if this is not possible be as recommended by the relevant manufacturers unless otherwise directed.

SERVICE

Ensure service Personnel engaged for the work are fully conversant with all relevant present day repair techniques, and that the service organisation is capable of a first class work standard and is able to provide all necessary testing of equipment. Repairs required under the Contract may include repairs to services associated with equipment and appliances (water pipes, gas pipes, taps, valves, fittings, flues and flashings etc).

If required carry out equipment and appliance services in accordance with the manufacturer's written specifications and the relevant regulations.

Installation of Gas and Electrical Hot Water Heater, Gas Stoves and Room Heaters

General: Must comply with Schedule 6 (Component Requirements) with hot water heaters, gas stoves and room heaters.

Advise the Tenants prior to the power being turned off and reconnect power without delay on Completion.

Hot water service (HWS): Install water heaters and hot water services in accordance with the manufacturer's written specification and as specified hereunder. The use of flexible connectors to connect HWS is not permitted either internally or externally.

Instantaneous gas HWS must not be installed in bathrooms, toilets, bedrooms, combined living sleeping rooms or any other unventilated Room. Existing Internal gas instantaneous HWS must be replaced with an electric Instantaneous or an external gas HWS.

Make minor adjustments to factory set appliances such as gas stoves and room heaters to ensure their satisfactory operation.

Temperature limiting valves (TLV): Use tempering valves (temperature limiting valves) in all BCA Class 1, 2 and 3 Buildings. Use thermostatic mixing valves (TMV's) in BCA Class 9 Properties only.

A combination of a TLV with a TMV is not acceptable.

Gas stoves and room heaters: Install gas stoves and room heaters in accordance with manufacturer's written specification and the gas supply requirements. New gas room heaters are only permitted to be installed with approval from the Principal, when reverse cycle air conditioners are not able to be installed.

Water heater installation (generally): Use new copper pipe and suitable fittings suitable for the various outlets.

Thoroughly remove all internal rough edges from pipes after cutting, ensuring the bore is left not less than the nominal size of pipe. Keep all exposed pipework level and plumb, fitted tight to walls and set neatly around obstructions where applicable. Neatly secure pipes to walling at not more than 1350mm centres with suitable type brass or copper saddles (with brass screws) and with suitable plugs. Lay pipe runs outside Buildings or Properties in the ground to a depth that achieves at least 230mm cover. Under Buildings or Properties secure pipes to floor timbers and concrete floors in a suitable manner using brass or copper clips or brass straps (with brass screws) at 900mm centres. Ensure that runs of exposed hot water piping are minimised. Insulate with appropriate lagging and secure pipes to prevent heat loss and water hammer.

Neatly finish off all solder/welds etc., free from lumps and with all surplus flux and cleansing agents thoroughly washed off and exposed pipes left free from marks, stains and lumps. On Completion of work on any installation thoroughly flush out the whole of the new service and leave the pipes, fittings and taps in good working order, free from leaks.

Check all electrical earth clips are connected in accordance with power Supply Authority requirements.

Ensure that the electricity is turned off at the meter and test that circuits are de-energised before temporarily disconnecting the electrical earth clips.

Neatly fit tubing where passing through timber, concrete or brickwork, secure and insulate with suitable purpose made sleeves to prevent water hammer, heat loss and damage to pipes.

Entry through ventilators is not permitted.

Provide anti-theft systems (e.g. cages) to externally mounted HWS and associated pipework. Anti-theft system should be manufacturer proprietary items manufactured to suit the HWS model installed, where available. If no proprietary anti-theft system exists, construct an anti-theft cage in compliance with the requirements specified in Section 11 (Metal Work).

Where bricks have been removed for the installation of pipes, neatly re-set in cement mortar and neatly point up holes cut through walls to match existing work. Clean down walls on Completion. For Heritage properties refer Section 4 (Carpentry and Joinery – Minor Repairs – Heritage Work – Masonry).

Remove all disused pipe, fittings, hooks, plugs and the like, (except pipe fittings laid in ground) and cap off all exposed pipe ends. Make good damaged walls, etc. to match the existing.

If roof coverings, wall surfaces, roof timbers, mouldings, framings or the like are damaged, disturbed or removed to enable a service to be installed, restore to the original condition. Rectify any materials or Equipment damaged as a result of the work.

External ground models: Install weatherproof heaters externally on concrete bases to meet the requirements of AS3500.4. Level, stable and impervious Polymer bases may be used on top of an existing concrete base or path.

Connect 13mm OD copper drainpipes to combined temperature/pressure relief valves, to discharge externally clear of wall faces. Where possible discharge over a yard gully.

Internal models: Fit internal models on a proprietary polymer base that allows draining within a safe tray and safe waste drained in accordance with the relevant regulations.

Fittings: Carry out joining of copper tube in accordance with current Australian Standards.

Lay pipe work in straight runs and minimise the use of elbow fittings. Ensure tees formed in runs do not have any tube protruding into the water flow.

Only bend copper pipe or un-plated tube using a suitable mechanical pipe bender. Form all bends by a suitable method of pipe softening. Do not provide cold, sharp flattened or crimped bends, or the like, in lieu of gradual sweeps.

Cold water connections: Connect heaters to the main cold water supply using 19mm OD Type B copper tubing to a wall surface termination, and 13mm OD Type B Chrome Plate tubing (up to 2 metres in length) for connection of the heater.

Extend the 19mm OD main run from the heater with a 19mm OD branch to showers, a 13mm OD branch to basins and a 16mm OD branches to other single outlets.

Install a 13mm stop tap for the heater water supply. Provide a suitable non-return valve where required by the relevant Supply Authority.

Use approved combined stop tap/non-return valve in lieu of separate items where required as per Schedule 6 (Component Requirements).

Pressure limiting valve (Mains Pressure Only): Provide and fit to cold water inlet lines, in accessible positions, between heaters and non-return valve/stop tap, a suitable pressure limiting valve set to comply with the manufacturer's written specification, lower than the setting of the top relief valve.

Concealing of pipes: Unless otherwise specified, conceal all pipe work in walls, cupboards, and ceiling areas or under floors, except that short sections exposed to heaters and hand-wash basins within a Property may be exposed to view. Provide close fitting CP domed wall flanges where new tubing enters or emerges from wall face.

Terminate hot and cold connections to heaters at the wall face with a male thread protruding for the separate connection of heaters with CP tubing.

Securely fix all pipe work to prevent movement when taps are used.

If any materials or Equipment are damaged during removal of existing pipes, replace with matching new materials including any existing wall tiling.

Carefully remove and restore wall sheeting as necessary to conceal pipe work.

Bore neatly through top and bottom plates, noggins and timber and concrete flooring and neatly cut away small section of noggins, etc., as necessary to conceal pipe work.

When replacing electric storage HWS 100L and larger, ensure they can operate effectively on an off peak boost.

Where an existing Solar HWS or Heat Pump HWS is within the warranty period replace like with like. Where an existing Solar HWS is beyond economic repair, replace with a Heat Pump HWS.

Connection to Electricity Tariff: Do not install a separate boost switch. When installing Heat Pump HWS, connect to a continuous supply tariff.

Replacing Solar Hot Water Systems (HWS):

Where an existing Solar HWS is outside the warranty period and beyond economic repair, replace with a Heat Pump HWS. Approval from the Principal is required if an existing Solar HWS is to be replaced with a new Solar HWS.

Note: The Principal as owner of the hot water service installed is the only party entitled to Small-scale Technology Certificates (STC's) under the Australian Government's Small-scale Renewable Energy Target Scheme. Prior to the installation of a Heat Pump or Solar HWS, the Principal shall be requested to provide an Instrument of Authorisation to assign the right to create STCs, so the Principal can receive a post of sale discount on the Heat Pump or Solar HWS.

The Principal as owner of the Heat Pump or Solar HWS is the only party entitled to Energy Saving Certificates (ESC's) under the New South Wales Government's Energy Savings Scheme (ESS) and the Peak Demand Reduction Scheme (PDRS). Prior to the installation of an Heat Pump or Solar HWS, the Principal shall be requested to provide an Instrument of Authorisation to assign the right to create ESCs, so the Principal can receive a point of sale discount on the Heat Pump or Solar HWS.

This Information must be provided as part of the Contractors Payment Claim and third party warranties in accordance with clause 20 of the General Terms.

Tests: Ensure that completed hot water services are capable of withstanding hydrostatic pressure equal to that required by the Supply Authority for cold water services.

ELECTRICAL WORK

Notice and fees: Make all arrangements with the Supply Authority for the connection of supply, including the service of all notices and paying all fees and charges required by the authority. Supply all necessary electrical fittings, materials and accessories to complete the work in accordance with this specification.

GAS SERVICE

Test the gas service in accordance with the relevant authority requirements.

Extend existing services with pipes and fittings made and assembled in accordance with gas Supply Authority and manufacturer's written specification.

Install all Component parts of the extension, such as pipework and fittings, so that they are removable without damage to either piping or the Building or Property.

In Properties with timber ground floors, secure pipe work under floor framing at 1800mm max. centres with screw fixed clips of similar material to the pipe work.

For underground installations, during backfilling of service trenches, lay a warning tape above and for the full length of buried pipes. The tape must be of durable plastic

material, minimum 100mm wide, marked continuously with "GAS PIPE UNDER" and of a colour to AS 1345.

Install brass gas control taps for water heaters.

Certificate of compliance: Retain a Certificate of Compliance for all alterations and new gas work.

Inspections: Inspect and report on the condition of appliances and flues where any such work is required.

Repair / replace: Install and repair all gas appliances in accordance with manufacturer's written specification and relevant authority requirements. Test all systems and appliances after installation for correct and reliable operation.

Leave all appliances in first class condition and full working order and clean all appliances.

Instruct Tenants in the use of appliances and ensure the manufacturers operating instructions are left with the Tenants.

Flexible connections: Provide 'PLUMQUIK' or equal.

Blocked drains: Drains must be cleared to the full diameter of the pipe and for the entire length of the sewer. Clear blocked gully traps for the full diameter of the trap. Ensure that all drains operate properly after unblocking.

MATERIALS

Waste pipes: Use PVC pipe or copper.

Water service, single Property: Use 20mm copper pipe.

Gas / water pipe, copper: Use copper tube.

Hot water heaters: Comply with Schedule 6 (Component Requirements).

Cooking appliances and heaters (gas): Must comply with Schedule 6 (Component Requirements).

Valves for HWS: Provide as recommended by the hot water cylinder manufacturer.

Sealants: Provide mould inhibiting silicone sealants.

END OF SECTION 14

Section 15 - Timber and Metal Fencing

General

Scope: This section sets out the requirements for repairing and the supply and erection of new fences and gates including hardware.

Generally: Install new fencing on existing boundary lines, unless otherwise directed by the Principal.

Adjoining Transport for NSW or Roads Maritime Services (RMS) property: Where replacement of fencing is required for a Facility adjoining land owned by Transport for NSW (rail infrastructure) or RMS (Arterial Roads) the following action is be required:

- Where directed and there is existing fence to be replaced between the Rail line / Arterial Road, the Contractor is to erect a temporary 2100mm chain wire security fence, Type 1-A Railess Security Fence Plain Top with 2.5mm light duty mesh to prevent public or animal access to property owned by the other authority during replacement works and the removal of the security fence at Completion of the work.
- Where there is NO existing fencing, advise the Principal prior to any work commencing, as this work must be done under the Dividing Fences Act.

Fences and gates must comply with the requirements of Drawing Numbers MF1 to MF 6 inclusive, found in Schedule 6 (Component Requirements) (Timber Schedule and Drawing Details).

Fence heights must meet the following unless local government regulations override:

Table 1 – Fencing Heights

Front Fencing	From 900mm to 1200mm
Cut off fencing	From 1200mm to 1500mm
Side and Rear Fencing	1800mm
Gates	To match fence cladding and height where specified. Nominal widths – openings for gates of 900mm for single gates and 2750mm to 3000mm for double gates

Position of 'cut-off' fencing: Unless otherwise directed, position gates and "cut-off" fencing from front of Property to the existing dividing fence on either side of a Property. Locate of cut-off fences so that gas, electricity and water meters are on the street side of the fences.

Where gas bottles are located on "off-drive" side of the Property, provide a single gate for access to the gas bottles and keep the fence forward of the gas bottles.

Position cut-off fencing and gates on full curtain walls, wherever possible and not on piers.

Generally take fencing square off the Property to the boundary fence line, and where applicable return it along return fence lines to paling or metal clad fence.

Keep fencing and gates (closed) in a straight line square off existing fences and the Property when these are parallel. Where they are not parallel, position gates at 90^{o} to paving to give maximum effective width to the gate opening and centrally positioned gates over drive tracks. Provide nominal width openings for gates of 900mm for single gates and 2750mm to 3000mm for double gates.

Construct double gates in two equal leaves. Set them into the double gate opening, and concrete in position, using a 20mm diameter galvanised pipe 150mm long as a keeper for a drop bolt in both closed and open positions. Should the drop bolts not be able to reach the hold open in ground keepers, provide galvanised parrot-beak type holding device fixed either to a wall or a new galvanised post.

Provide new posts at either end of the "cut-off" fencing. Do not fix panels to existing timber fences or brickwork.

Where it is necessary to use a small panel of 150mm width or less, to complete a section of fencing, securely fix the panel with dynabolts or similar to brickwork, or screw fixed the panel to timber fence posts. Otherwise terminate fences adjoining Properties 25mm clear of wall cladding.

Private owner fencing: Do not carry out any work on fencing jointly owned by the Principal and a Private Owner, without prior approval in writing from the Principal.

Timber Fences

General: All timber must comply with the Timber Marketing Act. Refer to Schedule 6 (Component Requirements), Drawing No. TS1, Timber Schedule for timber species, grade of timber and standard details. Timber fences must meet the following requirements:

- End Post/Gate post/Corner Post either Hardwood/Treated pine 125x125mm or Galvanised steel 65x65x2.5mm
- Intermediate posts either Hardwood 125x50mm or treated pine 125x75mm
- Rails Hardwood/treated pine 75x50mm.
- Palings Hardwood/treated pine 100x15 either lap palings by 15mm or close butted.
- Note: All specified timber measurements ± 2mm

HARDWOOD: Provide Eastern Australian hardwood to AS 2082, with posts and ‘waling’ being minimum durability Class 1 or 2.

PINE: Provide first quality radiata pine, pressure preservative treated (PT) and/or cypress pine. Where softwoods meet minimum durability Class 1 or 2, preservative treatment is not required.

Timber Fence Posts: Only use appropriately preservative treated timber fence posts.

Where rock is encountered, sink posts to a depth of 375mm and surround with a concrete footing that extends at least 100mm beyond the post in all directions, including below.

Paling fences: Comply with the standard details in Drawing Nos. MF1 to MF4 in Schedule 6 (Component Requirements).

Sawn hardwood posts and hardwood rails: Provide angle, junction, gate and terminating posts against front, return and cut-off fencing, and the like with chamfered edges. Sink posts in the ground to a minimum depth of 600mm and surround with a concrete footing that extends at least 100mm beyond the post in all directions, including below.

Intermediate posts must be chamfered and spaced at a maximum of 2400mm centres, sunk into ground. Sink posts in the ground to a minimum depth of 600mm and surround with a concrete footing that extends at least 100mm beyond the post in all directions, including below.

Provide rails morticed through posts, splay cut to fit under and over, breaking the joint on alternate posts and well nailed.

Galvanised posts with hardwood or preservative treated pine rails: Provide angle, junction, gate, terminating and intermediate posts in galvanised square section posts, all capped. Set posts in concrete mix, as set out on Drawing No. MF2 and MF4.

Provide Hardwood or preservative treated (PT) pine rails. Neatly fix three rows of rails for lapped and/or lapped and capped fences and all 1800mm high PT pine close paling fences, and two rows of rails for hardwood closed paling fences, with breaking joints on alternate posts, well spiked and secured to each post with 10mm diameter galvanised bolt through 50mm x 50mm x 3mm galvanised washer fitted under the nut and against the rail.

Fix top rails below the top line of the fence for lapped or closed paling fences, and below the top line for lapped and capped fences as shown on the drawings. Fix bottom rails above ground level as shown on the drawings. Where fitted, centre the middle rail between the top and bottom rails.

Palings: Cut-off (dock) the corners of the tops of all palings. Keep the tops of palings to an even plane and finish bottoms maximum 50mm above ground level

Where required to meet the top of an adjacent panel or fence, rake the panel adjoining return, cut-off or front fencing.

Close palings (hardwood or preservative treated pine): Cover the rails with hardwood or preservative treated pine palings, square cut to a line at top with corners cut off and double nailed with 50 x 2.8mm galvanised flat head nails, slightly skew driven into each rail. Palings must be 13mm thick (plus or minus 2mm), and a minimum 100mm wide and not more than 125mm wide.

Preservative treated (PT) pine posts and rails: Provide angle, junction, gate and terminating posts in PT pine. Sink posts in the ground to the depth set out in Drawing No. MF4.

Provide intermediate posts in PT pine, spaced at a maximum of 2400mm centres, sunk into the ground, with waling pieces closely and vertically to faces of posts and nail them to post not less than 75mm from the top of waling pieces.

Fix three rows of rails for lapped and/or lapped and capped fences and 1800mm high PT pine for close paling fences. Fix two rows of rails for lapped hardwood (closed) fences housed or morticed through posts. Join rails with scarf joints, breaking joint on alternate posts, with rails well spiked and secured to each post with 10mm diameter galvanised bolt through 50mm x 50mm x 3mm galvanised washer fitted under the nut and against the rail. Fix top rails below the top line of the fence for lapped fences, and below the top line for lapped and capped fences as shown on the drawings. Fit bottom rails above ground level as shown on the drawings. Where fitted, centre the middle rail between the top and bottom rails.

Lapped palings (hardwood or preservative treated pine): Cover the rails with minimum 100mm wide (not more than 125mm wide) by 15mm thick (plus or minus 2mm) hardwood or preservative treated pine palings. Space the first layer of palings 70mm apart to allow for a minimum lap of 15mm on each side, and double nail then with 50mm x 2.8mm galvanised flat head nails, slightly skew driven into each rail. Double nail lapped palings (second layer) with 65mm x 2.8mm galvanised flathead nails, driven into each rail, lapping first layer palings by 15mm each side.

Square cut palings to a line at the top and cut-off the corners.

Lapped and capped palings (hardwood or preservative treated pine): As for lapped palings, except the tops of palings must protrude a maximum of 12mm above the top rail. Palings are not to be less than 100mm wide and not more than 125mm wide.

Fix a PT pine angled top capping board, 112mm x 38mm with 51mm x 12mm bottom rebate, to the top rail with 65mm x 2.8mm galvanised bullet head nails at 300mm spacings.

Gates: Comply with standard details on Drawing Nos. MF 5 and MF 6 in Schedule 6 (Component Requirements), match the fencing, and provide complete with hinges and latching devices and drop bolt with double gates.

Construct double gates in two equal leaves and provide galvanised pipe drop bolt keeper, concreted in position.

Footing mix: Refer to Section 3 (Concreting).

Metal Fences

Roll top galvanised / powder coated fencing: Construct steel mesh panelled fencing in the positions shown on layout plans and to the specified heights. Metal fences must have a 10 year written manufacturer's warranty and meet the following requirements:

- steel pre-rolled sheet – must be equivalent to Colorbond double sided steel;
- pre-painted steel complying with AS/NZS 2728: Type 3, with testing compliance to meeting performance requirements for an exposed environment for humidity, scratch resistance, impact, adhesion, cracking and corrosion. It must be zinc aluminium alloy coated steel complying with AS1397-2011, G550 (550MPa minimum yield stress), AZ150 (150g/m2 minimum coating mass) (fence panels), or zinc alloy coated steel complying with AS1397-2011, G500 (500MPa minimum yield stress), Z275 (275g/m2 minimum coating mass) (posts and rails);
- the fence panel base metal thickness must be 0.35mm;
- posts - standard channel posts must be 84 x 43mm, square corner, junction and single gate posts must be 60x60x1.6. Double gate posts must be 65x65x2.5. post must be installed with caps; and
- rails must be 60x53 with base metal thickness of 0.8mm.

Apply hot dip galvanising after fabrication is complete, and ensure no drilling, tapping or welding is undertaken after galvanising.

Powder coat all parts, panels, posts, caps, clips and bolts, gates, hinges and catches after hot dip galvanising and fabrication is complete, and ensure no drilling, tapping, raking or welding is undertaken after powder coating.

Provide 50mm O.D. x 2.9mm wall thickness galvanised pipe or 50mm x 50mm x 2.5mm galvanised steel square section for intermediate posts. Provide single gateposts in 50mm O.D. x 2.9mm wall thickness galvanised pipe. Provide double gateposts in 60.3mm O.D. x 2.9mm wall thickness galvanised pipe. All posts must be in accordance with AS1450. Crimp posts approximately 200mm from bottom of the post. Provide 1350mm long posts for 750mm high fences, 1500mm long posts for 900mm high fences and 1800mm long posts for 1200mm high fences.

Space posts generally to suit 2400mm panels, but where necessary to avoid unsightly short panels, space posts to provide even panel lengths.

Sink posts into the ground as shown on Drawing MF04

Cap the top of each post with a "Knock on" type galvanised friction cap or plastic cap. Extend posts above the infill by the height of the cap.

Infill between posts with roll top galvanised fencing panel 2.4m long x the specified heights in Table 1 – Fencing heights with ground clearance of approximately 80mm, with mesh panels made from 5mm diameter bright wire in accordance with AS1303. Wires must be electrically welded to form 50mm x 150mm mesh, with vertical wires at 50mm centres and horizontal wires at 150mm centres.

Fix panels to posts with 25mm x 25mm x 1.6mm galvanised "U" type clips, either drilled to receive and fixed with 8mm diameter hex head galvanised bolts passing through clip, post and clip of adjoining panels, or affixed with a 12 G self-drilling screw. Provide 750mm and 900mm high panels with three fixing points at each end, and 1200mm high panels with four fixing points at each end.

Where mesh infill panels are required in under floor areas, provide 100mm mesh overlap to face of brick piers and curtain walls, and fix with 25mm x 25mm x 1.6mm galvanised "H" clips drilled to receive and with 8mm "dynabolt" type fixing.

Generally, ensure fence panels and gates have a ground clearance of approximately 80mm. Where Site levels create unacceptable clearance under panels, use stepped or raked panels.

Provide tubular or square section frames for single gates as shown in the DRAWING MF05. Bend tubular pipe to provide suitable radius at corners. Clean off and match welds to 150mm x 50mm mesh properly welded to the frame.

Provide single gates to fit a nominal 900mm opening, with a "D" latch and striker catch.

Provide double gates as shown in the drawing MF06, with two equal leaves or one 1800mm and one 900mm leaf as directed, with a bow type and drop bolt catch fitted on the side of each gate, and provide 2 x 20mm diameter galvanised pipe keepers 150mm long for drop bolts, projecting as required and concreted in position to secure the gates closed. Also provide 2 x 20mm diameter galvanised pipe keepers 150mm long for drop bolts, projecting as required and concreted in position to secure the gates in the open position, if due to sloping ground level, hold open keeps are not appropriate, install a galvanised cabin hook or parrot beak type hold open device, attached to a new galvanised or hardwood post installed in a suitable position.

Screen steel panel fencing: Assemble and erect all fencing in accordance with the manufacturer's written specification.

Sheeting: Provide double sided zinc/aluminium coated steel equivalent to Colorbond prefinished, with base metal thickness 0.35mm, width 760mm, and length 890 for 900mm high fence; 1490mm for 1500mm high fence; and 1790mm for 1800mm high fence. Maximum panel length must be 2360mm.

Post: Provide posts length 1500mm long for 900mm high fence; 2100mm long for 1500mm high fence; and 2400mm long for 1800mm high fence. Post must be prefinished to match the sheeting.

Rails: Provide top and bottom rails of identical length and dimensions, but the bottom rail must be slotted to allow for the drainage of water.

Fixing: All fixing must be galvanised self-drilling, self-tapping hex head screws or equivalent, painted to match the colour of the Colorbond sheet.

Colour: Colour must be as per the approved colour scheme. When replacing a run of fence, colour is to match the existing fencing.

Gates: Provide all gates of a suitable manufacture to match existing fencing, with suitable hinge and latching devices, and drop bolts for double gates. Ensure the minimum distance between closing stiles of double gates is 25mm.

Provide gateposts fitted with suitable galvanised hinge plates and latching devices. Sink posts into the ground to a depth as per manufacturer's directions.

Erect fence panels plumb and level and in straight lines from the starting point to the end of each run. On sloping Sites provide stepped panels unless the fall of the ground exceeds 150mm per section. In the latter case, install raked panels. Maintain a maximum ground clearance to bottom rail not exceeding 50mm, and ensure the bottom rail is not in contact with the ground surface.

Provide tapered panels with tops raking from 1500mm high to 900mm where required, with rails and sheeting to suit the length of panel required.

Where a fence changes direction provide a matching metal fence post 65mm x 65mm x 2.5mm thick.

Looped Pool Type Fencing

Looped pool type fencing: tubular looped top fencing must have a minimum 3 years written manufacturer's warranty and must meet the following requirements:

- steel or aluminium tubular non climbable panels - flat or looped;
- top finish only, no spears or protruding rods;
- min 16mm x 0.9mm tubes - spacings approx. 100mm centres, looped to height of 115mm above top rail;
- rails: 39 x 25 x 1.2mm rectangular tubing or min 25mm round, or 33mm x 33mm x 1.6mm, or 36mm x 25mm x 1.6mm rectangular section (galvanised);
- intermediate posts min 50 x 50mm - 450mm round min 1.2mm thick;
- gateposts minimum 65mm x 65mm x 2.5mm square hollow section (galvanised);
- base material must have been heated to 200°c for 10 minutes;
- powder coating to AS4506; and
- safety compliance to AS1926.1 for gates, hinges and locks.

Dimensions: Panel height/width-

a) 900mm/ 2400m maximum
b) 1200mm/ 2400m maximum

Spacings: Distance between rails-

a) 735mm
b) 1035mm

Tube spacings: For both a) & b) 100mm centres (approximately)

Gate width: Single 980mm, double 2750mm and 3000mm

Materials for Steel looped fencing:

Vertical tubes: 16mm DIA x 1.2mm (galvanised) looped to height of 115mm above top rail

Welding: Silicone bronze

Powder coating: Use Four stage pre-treatment as per manufacturer's data:

a) Alkaline degreasing
b) Rinse
c) Zinc Phosphate
d) Rinse

Thickness is to be 70 - 110 microns.

Catches: "D" Latch and Striker

Hinges: Butt hinges: Black plastic (knock on type)

Fixing brackets: "L" brackets

Screws: 12 x 20 Tek Screws or equivalent

Ensure all panels are a maximum of 100mm above ground level.

Concrete all posts into the ground to a depth of 500mm in holes 250mm x 250mm x 600mm deep.

Paint/coat all fixings the same colour as the fence.

Materials for aluminium looped or flat topped fencing:

Loops: (if used) Looped to height of 115mm above top rail

Powder coating: Must comply with AS4506.

Catches: Must comply with AS1926.1.

Hinges: Must comply with AS1926.1.

Locks: Must comply with AS1926.1.

END OF SECTION 15

Section 16 - Tree Pruning

General

Scope: This section sets out the requirements for pruning and removal of tress and stump grinding.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 4373 : Pruning of amenity trees
- AS 4419 : Soils for landscaping and garden use
- Amenity Tree Industry Code of Practice (publication by Safe Work NSW currently under review).

Local authority tree preservation orders: The Principal will arrange for and provide a copy of the required local authority approval to the Contractor prior to commencement of any Planned Work. The Contractor must ensure that the conditions of any approvals are met.

Where the Principal does not provide a copy of a local authority approval and, on visiting the Site for Planned Work, the Contractor considers the pruning or tree removal work requires an approval from the local authority, the Contractor is to seek advice from the Principal prior to undertaking any works.

Qualifications: A suitably qualified Arborist, who is a member of Arboculture Australia or equivalent must be on Site at all times whilst the tree pruning or removal work is being carried out.

Access and safety: Safe pedestrian and vehicular access must be maintained for Tenants and visitors at all times, with particular attention given to the needs of children. Provision must be made for continuous use of the Facility, including parking areas and driveways. The Contractor must organise and perform the work so as to minimise inconvenience and nuisance to Tenants and residents near the Site by controlling noise, vibration, dust, mud, sawdust and any other nuisance. Precautions must be taken to protect the health and safety of persons on or in the vicinity of the Site from conditions that are or may be dangerous to their health. Erect safety barriers as necessary and provide warning to Tenants and visitors of hazards such as overhead work and machinery such as mulchers.

The Contractor must comply with all Safe Work NSW safety requirements and supply to workers all necessary safety equipment.

Workmanship

Tree pruning: All tree pruning must be carried out in strict accordance with the local tree preservation order, any required approval form the relevant local authority and in accordance with AS4373 - 1996 Pruning of amenity trees.

Stump grinding: All stumps must be ground to a level a minimum of 400mm to a maximum of 600mm below ground level. Remove all debris from grinding and backfill with soil equal to top dressing grade as specified in AS4419: Soils for landscaping and garden use.

Wood Chips / Grindings: As an alternative to disposal, where suitable, wood chips and grindings (where free from noxious weeds) may be spread on garden beds in accordance with the Principal's direction. Generally this will be in common areas of

larger Properties. Otherwise, remove all wood chips and grindings from the Site.**END OF SECTION 16**

Section 17 - Cleaning

General

Scope: This section sets out the requirements for the cleaning of the interior and exterior of Properties required for Vacant Restoration, and steam and/or dry cleaning of carpets. This section does not deal with the requirements for the regular cleaning and servicing of Properties, refer to Lawns Grounds and Cleaning Servicing Specification for specific requirements.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS/NZS 3733 Textile floor coverings – Cleaning maintenance of residential and commercial carpeting.

Materials

General: All material solutions and preparation must be appropriate for their intended use. Material Safety Data Sheets (MSDS) must be made available on request. Cleaning agents must be appropriate for the level of cleaning required to return a Property to the standard required in Section 21 (Vacant Restoration).

All cleaning materials must be accepted industry standard products and any dilution must be in accordance with the manufacturer's instructions.

On Completion of cleaning work, no residual chemicals must remain that present a risk the health of Tenants and Visitors.

Internal Cleaning

Rubbish: Remove all rubbish inside and/or under the Property, on all balconies, and in the roof area and on the roof of the Property and dispose them away from the Property.

Walls, ceiling fittings, fixtures and woodwork: Thoroughly dust and wipe clean surfaces with a damp cloth. Thoroughly wash down wall tiles with a suitable cleansing agent and leave to dry. Thoroughly clean and dust wall and ceiling vents. Remove cobwebs and marks from walls, ceilings, fittings, fixtures and woodwork using cleaning products suitable for the surface materials.

Porches: Thoroughly sweep and wash clean front and rear porches, and wipe dry. Remove all extraneous tacks, nails, staples, etc., from surfaces.

Floors – timber, concrete etc.: Sweep or vacuum clean and wash down using a suitable cleaning agent to provide a grease and dust free surface. Leave to air dry. Remove all stains and surface scuff marks.

Resilient floor covering - vinyl: for sheet vinyl and linoleum mop with a suitable cleansing agent and leave to air-dry. Remove all stains and surface scuff marks.

Sealing and polishing: for vinyl tiles seal and polish vinyl floor tiles in accordance with the manufacturer's specifications.

Ceramic floor tiles: Thoroughly wash with a suitable cleansing agent and leave to air-dry.

Carpets: Spot clean of minor stains and thoroughly vacuum using commercial quality equipment.

Carpet cleaning: When required, clean soiled carpets using either the hot water injection and extraction method, or the surface (dry) cleaning method in accordance with AS/NZS 3733 and the following methods:

Hot water injection and extraction method: Before commencing any hot water injection and extraction cleaning, the carpet is to be made ready as follows:

- remove all litter and loose surface soils by vacuuming;
- where necessary pile lift the carpet thoroughly;
- remove all marks by applying the appropriate spot or stain remover. Rinse and remove excess chemicals;
- apply a pre-spray to the whole of the area to be cleaned ensuring sufficient levels are applied to heavily soiled traffic areas. Brush the pre-spray into the pile by means of a stiff broom or carpet rake and leave for the period of time recommended by the manufacturer; and
- use a hot water injection and extraction unit filled with water, heated (50^0C to 95^0C) and add detergent, sanitising solution or deodorant as required for the type and degree of soiling.

OR,

Surface (dry) cleaning method: Before commencing dry cleaning the carpet is to be made ready as follows:

- remove all litter and loose surface soils by vacuuming;
- remove all marks by applying the appropriate spot or stain remover. Rinse and remove excess chemicals;
- apply a pre-spray to small areas at a time, approximately 2m x 2m. Clean the area and move to the next area and repeat the process. Apply the pre-spray in accordance with the manufacturer's written specification; and
- deodorise the carpets once cleaned.

Rectify any damage and/or markings to walls or any other surfaces caused by the cleaning process.

Lift and remove floor coverings: Where floor coverings are to be replaced, lift and remove existing coverings including underlays and fixings (such as battens, tacks, nails, and staples) and remove from the Site. Sweep floors on Completion of removal.

Windows and doors: Clean doors and glass inside and outside. Wash and wipe dry internal woodwork including sills. Wash clean window and door frames and/or surrounds with warm soapy water and wipe dry. Spot clean with a non-abrasive liquid cleanser where necessary to remove marks.

Mould: Clean and wash all mould covered surfaces using a solution of mould inhibiting product.

APPLIANCES AND FITTINGS:

Stove, cooktop, wall oven: Thoroughly clean both inside and out, including removing, cleaning and re-installing removable parts - burners, hotplates, oven slides and other fittings. Use a suitable cleansing agent.

Bath, shower, basin, sink, tap, tubs and pedestal pan, cistern etc.: Thoroughly clean with a suitable cleansing agent, removing all stains and grime. Where sanitary

or other fittings have heavily soiled surfaces, after cleaning, disinfect and wash clean of all residues.

Wardrobes, closets, linen cupboards, kitchen cupboards and bathroom cabinets etc.: Wash, wipe clean and remove all marks, stains and grime inside and out. Remove drawers and clean off all marks and grime from inside and out, including tracks. Clean mirrors and leave surfaces free of smears and streaks.

Kitchen bench tops and splash tiles: Wash with a suitable cleansing agent and leave to dry.

Fly screens: Wash clean.

Blinds: Thoroughly clean and dust.

Grease trap: Empty and scrub out.

NOTE: The requirement for cleaning of grease traps is confined to un-sewered areas.

Rangehoods: Remove, clean and re-install filters. Thoroughly wash unit and remove all grease. Replace filters if in poor or damaged condition.

Exhaust fan: Remove and clean grille, clean blades and re-install grill.

Light switches and GPO's and ceiling fans: Dust and thoroughly clean.

NOTE: The use of hoses for internal cleaning including washing down is not permitted.

External Cleaning:

Rubbish: Remove from Site all rubbish in the Grounds, under and on the Property (including tree and shrub loppings and garden refuse) and in meter boxes. Clean Grease traps to houses.

NOTE: The requirement for cleaning of grease traps is confined to un-sewered areas.

Carports, garages, tool sheds and store sheds (including garages to properties that are part of a Grounds, Building or Block): Remove all rubbish, sweep and thoroughly wash floors. Use a degreasing agent to remove any deposits of grease or oil.

External wash down: Use detergent and water. Completely wash down, with a soft brush, entire exterior of walls, soffits, fascias and gutters, including glazing. After washing, thoroughly rinse off with clean water and allow to dry naturally.

External weed control – walls of heritage properties: Remove weeds growing in masonry joints of walls and chimneys. Poison the weeds first and then remove by appropriately licensed operative.

Treat any organic growth present on chimneys or walls of Buildings (e.g. annuals, weeds, figs etc.) with a proven long lasting biocide. Apply the biocide with a pneumatic garden-type sprayer to saturate the affected areas without causing splashing or spray drift onto any other area. Operatives must be appropriately licensed and provided with suitable protective clothing. Do not spray in the immediate vicinity of unprotected people. After spraying, allow sufficient time for the plants to die and dry out before carefully removing, taking care to minimise any damage to the masonry. Comply with the *NSW Pesticides Act* including providing adequate notification e.g. setting up warning signs before spraying.

Eaves, soffits, porches, verandah, stairs etc.: Remove all cobwebs. Sweep clean all external hard surfaces.

Mowing: Mow front and rear lawns, including nature strips, to a neat even finish at a height of 60mm above the ground surface. Neatly trim lawn edges where they abut Buildings, footpaths, drive tracks, meters, downpipes, letterboxes, fences, slabs, street gutters, etc. Remove all grass clippings from the Site.

Cutting long grass: Where grass has reached an overall average height of 300mm or more, slash/cut grass to front and rear lawns, including nature strips, and finish to a height of 60mm above ground surface. Remove all grass clippings from the Site.

Additional Internal Cleaning

Advanced Internal Cleaning: Occasionally Properties will contain excess rubbish or other materials which will require a pre-clean to be carried out. In such cases, an advanced internal clean may be directed. For an advanced internal clean remove all general rubbish, debris, food products and other contaminated material including but not limited to animals, biological waste, syringes, faeces, blood, body fluids and chemicals etc. to allow other trades to work and before carrying out an internal clean. An advanced clean may involve lifting and removing of floor-coverings.

Clandestine Drug Laboratory Clean: Where a clandestine drug laboratory has been identified, prepare a remediation report in accordance with the Australian Government "Clandestine Drug Laboratory Remediation Guidelines". The Principal will review the remediation report and direct the required extent of cleaning.

Upon Completion of the cleaning directed provide a clearance certificate to the Principal for the Site in satisfaction of the Remediation Guidelines.

NOTE: Do not clean any clandestine drug laboratory without preparing a remediation report in accordance with the Australian Government "Clandestine Drug Laboratory Remediation Guidelines and receiving a Direction from the Principal.

Additional External Cleaning:

Advanced External Cleaning: Occasionally Properties will contain excess rubbish or other materials which will require a pre-clean to be carried out. In such cases an advanced external clean may be directed. For an advanced external clean, remove all general rubbish, debris, construction material, car parts, tyres, and any other material including but not limited to syringes, animals, plant and manufactured materials and chemicals, etc. to allow other trades to work and before carrying out an external clean.

END OF SECTION 17

Section 18 - Pest Control

General

Scope: This section sets out the requirements for the control and/or extermination of pests described in the Schedule of Pests, in and around common areas of Complexes, Building or Grounds and on vacant Properties only. This section also applies to Tenanted Properties for a period of up to 90 Days after the works. Treatment after Vacant Restoration must only be undertaken to protect the Property from damage (e.g. termites and borers etc.) and to protect public health of other residents (e.g. rats and bed bugs).

Pest control is required as identified on the Criticality Repairs Matrix and where termites have been identified as part of a Scope of Works.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended including:

- AS 3660.2: Termite management Part 2 In and around existing Buildings and structures - Guidelines
- AS 4349.1: Inspection of buildings
- AS 4349.3 Timber pest inspections
- *Pesticides Act 1999 (NSW)*
- The Safe Work NSW Code of Practice for the safe use of pesticides including herbicides in non-agricultural workplaces

Licensing of operators: Ensure that all persons using pesticides for the destruction or control of pests under the Contract hold a TAFE NSW or equivalent Certificate III in Pest Management and a Safe Work NSW Pest Management and Fumigation Certificate of Competency. All work must be carried out in accordance with the Workplace Health & Safety Regulations 2011.

Professional Indemnity Insurance: Prior to undertaking Pest Control or Property Pest Inspections, the Contractor must hold current Professional Indemnity Insurance.

Notice of pest control activities: The Contractor must give appropriate notice to interested parties in writing prior to the start of any pest control activities in accordance with legislative and NSW Environment Protection Authority requirements.

Materials

Chemical pesticides must be industry Standards appropriate for the control of the relevant pests (e.g. rodents or insects) in domestic environments and must be registered with the Australian Pesticides & Veterinary Medicine Authority (APVM).

Bait stations: Must be tamper resistant type, polypropylene with key. Bait stations must not be placed where they are accessible to children, pets or wildlife.

Bird proofing: Use continuous 12mm mesh bird wire with appropriate fixings. Lap and lace together at minimum 150mm spacing where required.

Schedule of Pests

Category	**Type**
General Pests:	Cockroaches Ants

	Spiders Wasps (including European Wasps) Bees Silverfish Carpet beetles Stored product insects
Fleas	Fleas
Rodents:	Mice Rats
Bed Bugs	All
Birds:	All
Subterranean termites and/or Borers:	All

Treatment

General pests: Treatment must eliminate all general pests from the following areas of the Property: the complete interior, including linen cupboards, built in wardrobes, bath tub recess voids, kitchen cupboards including the void to the rear of kickboards; all cracks and crevices which may harbour insect pests or through which access is gained to the interior of the Property; carpets and the edge of the carpets specifically for fleas or carpet beetles; roof voids, wall cavities, accessible sub floors, out Buildings and the exterior surrounds of a Facility where appropriate.

The Contractor must at all times use techniques for the control of the nominated pests that are consistent with good pest control practice.

Bees: Bee swarms which have established (remain in one place longer than 24 hours) in a garden or against a Building or Property should be removed by a registered bee keeper in the area if one is available otherwise by a licensed pest control operator. Bee swarms that have established themselves within a Building, or are impacting on the entry to the Property must be destroyed by a licensed pest control operator.

NOTE (Bees): Advice from NSW Primary Industries is that a bee swarm will in most cases often move on within a few hours of arriving or the next Day. Only remove a bee swarm within 24 hours after it has arrived if it is impacting the Tenants' entry point into a Property.

Fleas: Use appropriate techniques, including blanket spraying of all grassed areas around the Property and the carpet inside the Property, to eliminate all fleas and their eggs from the Property and immediate surrounds. Implement all appropriate safety procedures, in accordance with manufacturer's written specification when undertaking blanket spraying.

Rodents: All rats and mice must be eliminated from the Property and the immediate surrounds using appropriate baiting techniques. Only use rodent baits in suitably identified containers marked "POISON" and do not place baits where they are accessible by children, pets or wildlife.

Bed bugs: Bed bugs must be treated and eliminated from the Property and immediate surrounds using procedures set out in the Code of Practice for the Control of Bed Bug Infestations in Australia https://www.health.nsw.gov.au/environment/pests/parasites/Pages/bed-bugs.aspx. Implement all appropriate procedures, in accordance with the Code of Practice. Co-ordinate all work for the control of bed bugs with the Principal.

Birds: All species of bird nesting in the roof void and/or wall voids of the Property must be removed and all points of entry sealed. All nesting material must be removed and all areas treated to eliminate bird mites in the roof area and interior of a Facility.

Do not use any bird distress poisons (e.g. 4-aminopyridine) without the prior approval of the Principal.

Inspection and Treatment Subterranean Termites and Borers

Inspections: All inspections and works in relation to subterranean termites must be carried out in accordance with AS 3660.2: Termite Management Part 2 In and around building and structures – Guidelines and AS 4349.3: Inspection of buildings Part 3: Timber pest inspections.

The Contractor may be directed to carry out inspections for the presence of subterranean termites and woodborers in all Properties. Such inspections must include the sub-structure and sub-floor space, flooring, skirting boards and architraves at all levels, all accessible roofing timbers, the boundary fence lines and any out Buildings.

When carrying out inspections, ensure that the following important items are considered when inspecting and assessing Properties for potential or actual ingress by termites or borers:

Is there any evidence of mudding / tubing on the external surfaces of walls. Particular attention must be paid to the region extending upwards 100mm from the ground surface, and any areas where moisture may be present e.g. around and behind downpipes and outside taps.

Is the perimeter free of mounded soil, shrubbery, timber debris etc. This could encourage/facilitate hidden ingress of termites into the Property by allowing them to bypass the primary termite management system.

Is there any evidence of termite attack in outbuildings/sheds/fences/woodpiles? Key signs of termite attack are hollow timbers and mudding.

Is there any evidence of termite attack inside the property? Key signs of termite attack are hollow architraves, skirting and floorboards, as well as mudding.

On completion of the inspection, a written report must be submitted to the Principal as detailed in AS 3660.2.

The inspection repost must be accompanied by a recommendation and be in the format of detailed in Schedule 10 (Reporting Templates).

Treatment: In determining the treatment method on which the report is based, the Contractor must take into account the Principal's preferred options, which are as follows:

(1) Subterranean Termites:

- Wherever possible initial treatments must first be directed towards eradication of the termite colony from which the infestation is originating. This can be achieved by either direct treatment of the workings with any chemical application system approved by the Australian Pesticides and Veterinary Medicines Authority (APVM) (Also refer Australian Government, Department of Health & Aging – Office of Chemical Safety – Termite Protection:

If this is not possible direct treatment of the nest either by dusting or emulsions, all in accordance with AS3660.2, Section 5 and Appendix F. Bait boxes installed to nominated locations may also be used as a third preferred option.

- Buildings and their contents must be protected by establishing a chemical barrier, in accordance with AS 3660.2 Appendix E, around all substructure walls, and all piers, stumps, waste pipes and conduits connecting the superstructure with the soil. Horizontal and Vertical barriers must be at least 300mm and 150mm wide respectively.
- Buildings with concrete slab foundations may require the formation of chemical barriers through sub-slab injection.

(2) Borers:

- Affected architraves, skirting boards and other moulded timbers must be removed and destroyed. Replacement timber should be painted with a primer or varnish on all surfaces after cutting to fit.
- Other timber (e.g. studs, bearers) must be injected with an approved non staining chemical application system.

Should the Principal consider that the remedial treatment proposed in the Contractor's report is such that it warrants seeking advice from other contractors for that specific work, the Principal shall be free to seek such alternative advice for that work, and may enter into a contract with another contractor for the purpose of executing that specific remedial work.

On Completion of a termite treatment, the Contractor must provide to the Principal a Certification of Termite Treatment containing the information specified in Appendix D1 of AS3660.2 and affix a durable notice to the premises as detailed in Appendix D2 of AS3660.2.

General Responsibilities

Staining: The Contractor is fully responsible for protecting ceilings and walls from permanent stains arising out of liquids or powders used during pest control activities, and must at all times protect the property of both the Principal and the Tenants. The Principal reserves the right to reject the use of any liquid or powder that it considers may damage its property or that of its Tenant.

Re-infestation: If re-infestation occurs during the warranty period, the Property must be re-treated at the Contractor's own expense.

Pesticides: It is the responsibility of the Contractor to ensure that any pesticide which has been used in performing the Services is registered for the purpose under the Pesticides Act.

Completion

Remove all unused baits, containers, signs etc. from Site at the Completion of the treatment. Wash down surfaces to remove any residual chemicals. **END OF SECTION 18**

Section 19 - Reinstatement of Fire Damaged Property

General

Scope of works: This section sets out specific requirements related to the reinstatement of a fire damaged property.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended and where appropriate in accordance with the other Sections of this document.

Mains power supply: The Contractor must arrange the disconnection and re-connection of the mains power which must be undertaken by the local energy authority or a suitable licensed and qualified electrician. Prior to disconnection and re-connection of the mains power, the Contractor must obtain approval by the local energy authority.

Fixed appliances: The Contractor must disconnected and re-connected fixed appliances. Disconnection and re-connection must be undertaken by a suitable licensed and qualified tradesperson i.e.: electrician, plumber or gasfitter.

Weather protections and security: The Contractor must take all necessary precautions to protect any Building or Property from the effects of weather or lack of security cause by the fire damage. Any further damage arising from a lack of protection from weather or lack of security must be made good at no cost to the Principal.

Protection of undamaged items: Protect and screen all areas and objects undamaged by the fire from possible damage resulting from the reinstatement process.

Materials and Details

Replacement materials: New materials and details must match existing except:

- where asbestos or lead based paints are encountered, or
- where otherwise required to conform to any relevant Australian Standard or Government Regulations, or
- where the material is no longer available.

In the latter case, a recycled material is acceptable if approved by the Principal. All replacement materials must, however, comply with the performance requirements of the required material.

Material / roofing containing asbestos: Patching of existing asbestos cement sheets is not permitted. Replace with alternative roofing material in whole sheets. The extent of roofing removal and replacement due to the effects of fire will be nominated clearly within the Scope of Works and included in the Work Order.

Charred timber: All charred timber must be removed and replaced with new timber. Where timber is smoke stained it may be retained, but it must be deodorised and later covered by either sheet materials or paint.

Existing defective materials: Existing defective materials or fittings must be included in the Scope of Works for repair or replacement.

END OF SECTION 19

Section 20 - Fire Safety Works

General

Scope: This section sets out the requirements for the fire safety works identified in the Principal's Fire Safety Manual (FSM) and all repairs to fire resisting elements.

Refer to the Fire Safety Manual for the extent of work required to repair fire resisting elements.

The work must be carried out in accordance with the requirements of the Contract and all relevant Acts, Codes of Practice, Standards and/or Guidelines as amended.

Fire Rated Plasterboard and Ceiling Systems: Fire rated plasterboard must have a minimum 25 year life of product warranty and must be formulated so that when used in a ceiling system it has resistance to the incipient spread of fire for a minimum of 60 min when tested in accordance with Australian Standard AS 1530.4 – Fire Resistance Tests of Elements of Building Construction.

Any hanger, its attachments to the supporting structure and grid system shall withstand without failure a load of 1.4KN.

Fire Rated Plasterboard Shaft Systems: Fire rated plasterboard shaft systems must be formulated and installed so that they meet the requirements for a fire resistance level (FRL) for the relevant Building type as specified in the FSM when tested in accordance with Australian Standard AS 1530.4 – Fire Resistance Tests of Elements of Building Construction.

Shaft systems must meet the structural requirements for light weight construction which requires tests to the following standards:

- resistance to static pressure – ASTM E72-80;
- resistance to impact – ASTM E695-79; and
- when tested in accordance with AS 1530.3 contain a Spread of Flame index of zero (0).

Fire Rated Plasterboard Bulkhead & Separating wall construction Systems: Fire rated plasterboard bulkhead and separating wall construction systems must be formulated and installed so that they meet the requirements for a FRL for the relevant Building type as specified in the FSM when tested in accordance with Australian Standard AS 1530.4 – Fire Resistance Tests of Elements of Building Construction.

Any hanger, its attachments to the supporting structure and grid system shall withstand without failure a load of 1.4KN.

Fire Dampers: Fire dampers must have a 2 years written manufacturer's warranty and must:

- comply with relevant Australian Standards AS/NZS;
- comply with current BCA;
- be installed to manufacturers written specification;
- incorporate materials including, flanges, casing, blades, springs and linkages of stainless steel or equivalent materials that comply with the relevant Standards;
- have a FRL to comply with the relevant Standards;
- be of the required sizes and shapes;

- be tested and certified by CSIRO or NATA registered equivalent;
- achieve a FRL of 60/60/60 when tested in accordance with AS1530.4;
- meet the requirements for air leakage test specified in Clause 5.3 of AS1682.1; and
- if activated by a thermally released link, be tested to comply with AS1890.

Where intended to be used in a horizontal direction within a roof-ceiling system the fire damper must have been tested for the purpose for which it is intended.

If activated by a thermally released link, it must be tested to comply with AS 1890. For horizontally mounted fire dampers, the thermally released link must be located within the casing, in the plane normal to air flow.

Rockwool or equivalent Insulation: Any rockwool or other mineral wool used in the work must be fire resistant and achieve a FRL when installed of a minimum of -/60/60.

Fire Stopping Materials (sealants, mastics, fire pillows etc.): Fire stopping material or materials must have a minimum 2 years written manufacturer's warranty and must:

- comply with the nominated properties in accordance with AS4072.1 and AS 1530.4;
- achieve a FRL of not less than that specified in the FSM for the penetrated floor/wall or ceiling assembly; and
- be suitable for their application.

Fire Rated Doorsets: Must comply with the requirements of AS 1905.1 Fire – Resistant Doorsets.

Fire and Smoke Seals: Must have undergone tests with proprietary fire doors and/or solid core doors for their intended application.

Seals must have been tested in accordance with AS 1530.7 to be capable of limiting smoke at 200ºC for 30 minutes.

Independent tests are to be provided that demonstrate that the product does not suffer from any significant wear and tear for up to and exceeding 95,000 open and close cycles.

Repairs to products and Equipment installed as part of an alternative solution must be repaired so as to maintain the intended fire rating of the Component.

Intumescent Paint: Intumescent paint must have a minimum 10 year guarantee for internal applications and must:

- be fire rated to achieve a FRL of 60/60/60 when applied to plasterboards and/or pressed metal ceilings in accordance with AS1530.4;
- be fire rated to achieve a FRL of 60/60/60 when applied to sheetrock and lath and plaster in both wall and ceiling assemblies in accordance with AS1530.4;
- be fire rated to achieve a 1 hour fire endurance test in wall and or ceiling assemblies constructed of gypsum, fibreglass, aluminium, particle board, fibrous cement, pressed metal, plywood panels and timber in accordance with AS1530.4;
- intumescent paint to begin to expand at a temperature not exceeding 190ºC;
- not contain a flashpoint.

Independent test results must be provided for intumescent paint confirming that:

- the drying time of a single coat of intumescent paint not less than 450 microns (without mechanical aids) does not exceed 4 hours in any season assuming weather conditions are appropriate to apply to the product;
- the product is non-toxic;
- the product can be applied over existing non fire retardant paint.

Fire Collars: Fire collars must have a minimum 2 years written manufacturer's warranty and must:

- be independently tested in accordance with AS1530.4 or BS476 part 20 to seal both PVC, PP, Poly-butylenes, PE-X all sizes up to 200mm in penetrations through fire rated floor and wall components for up to 90 minutes;
- have been tested as a retrofit fire stop collar; and
- have a maximum temperature resistance (fire stop collar shall begin to activate) must not exceeding 120^{o}C.

END OF SECTION 20

Section 21 - Vacant Restoration

General

Scope: This section sets out the requirements for the work required prior to re-letting a Property. Vacant Restoration work ensures that a Property is clean and safe and that all Equipment is functioning. It involves the repair or replacement of Equipment necessary bring the property to relettable standard.

Weather protection: The Contractor must take all necessary precautions to ensure that a Property undergoing Vacant Restoration work is protected from the effects of weather.

Property security: The Principal at its discretion may request the Contractor to provide security of a vacant property either by Boarding Up the Property or requesting the Contractor to provide portable CCTV system or both. Once installed the Contractor is responsible for the security of a vacant Property and must ensure the security measures (e.g. “boarding up”) are in place and that no opening (e.g. door or window) is left unsecured when leaving the property to prevent damage or unlawful occupancy to the Property.

Any material used for security is required to allow sufficient light into the Property to enable ease of movement within, while still preventing ingress by any persons or penetration through the material by any projectiles. Such materials must be screw fixed and made good on removal.

The security measures implemented must remain in place until the Property is re-Tenanted. Removal of any security measures must be co-ordinated with the Principal.

Extent of Vacant Restoration Work

Property Utilities and Components: The Contractor must ensure the Equipment listed in the Work Order are repaired and returned to full functionality and that they contain all Component parts:

Appliances: Installation of stoves and hot water systems must take place one Day prior to the new Tenant occupying the Property and will be undertaken as part of Responsive Works. Installation must be co-ordinated with the Principal. The Principal will raise a Work Order for the Contractors for such works to be undertaken.

Visible Damage and Tenant alterations: All Visible Damage and Tenant alterations such as painting (where the Principals standards for painting have not been met), air-conditioners, shelving, floor coverings etc. as identified in the Work Order must be removed by the Contractor.

Tenant alterations that may require removal if directed as part of Vacant Restoration generally where they do not comply with Schedule 6 (Component Requirements) include but are not limited to:

- air conditioners (all types) (if directed);
- heated towel rails;
- spas;
- gas heaters;
- fireplace;
- dishwashers;
- freezers;
- garbage disposal units;
- water filters;
- fixed barbeques;
- garden lights;

- swimming pools;
- watering systems;
- satellite dishes;
- security and alarm systems;
- fixed security grills;
- surround sound systems;
- vacuum cleaner ducted;
- fabric window awnings – external; and
- window blinds and curtains. (if directed)

Illegal structures: If the Principal identifies illegal structures such as carports, sheds, verandas, decking, pergolas concrete slabs and Room additions the Principal will issue a Work Order for the removal of these items if they are assessed by the Principal to be structurally unsound.

Heating / Cooling: Any existing wood fire heater, and gas or electric space heaters that are beyond economic repair, are to replace with Split System Air Conditioners. Air conditioner sizing must meet property requirements, controller to be hard wired and fixed to wall in room. Air conditioner to meet the Principal's specifications.

Existing old heating source is to be removed (gas/electric/wood fire) and areas remediated/made good (e.g., floor coverings - replace room floor coverings if match cannot be achieved), walls - patch and paint, roofing - if tiled replace tiles / if tin replace full sheet associated to old flue position.

If wood heater is built insitu type (fire place) then decommissioning at room and chimney is required. Chimney to received colour bond capping to ensure water tight and fire place to be closed at within room.

Entry doors: The Contractor must re-key and replace cylinders to all entrance doors (including screen doors, garage doors, letter boxes, external laundry doors etc.) in accordance with Section 4 (Changing/re-keying combinations), and install door stops to all doors in Property, where they are not already present.

Window locks: The Contractor must ensure that all window locks are operational. Where window locks are not present the Contractor must install keyed window locks in accordance with Section 4 and 22 (Component Requirements).

Light Globes: The Contractor must provide where missing or remove and dispose of existing light globes that are inoperable and install energy efficient LED light globes as replacements. Where existing fluorescent light fittings are beyond economic repair, remove existing light fitting, make good, and install bayonet light fitting with energy efficient LED globe.

Cleaning: The Contractor must undertake cleaning internally and externally as specified in Section 17.

The Contractor must remove and dispose of all items from the Property, and from within the boundary and on the verge that do not form part of Equipment including all rubbish, furniture, etc.

Pests and vermin: The Contractor must leave the Property free from pests (excluding termites) and vermin and if necessary provide treatment in accordance with Section 18. If termite activity is found, the Contractor must advise the Principal.

Landscaping: The Contractor must ensure that:

- tree growth, climbers and shrubs do not have an impact on the external fabric of the Property, access or egress and are well trimmed,

- trees, shrubs, climbers, groundcover, perennial and flowering plants are pruned to reflect the natural growth, flowering and re-growth habit of the individual species.;
- where removal of trees or council approval is required and work cannot be completed within the Vacant Restoration timeframe, the Contractor must complete all other work and advise the Principal of the reason for the delay. The principal at its sole discretion may either extend the timeframe for completion or remove the item from the work order and issue an alternate order once approval has been achieved;
- garden beds and lawns are free from litter or foreign matter such as tree and lawn cuttings, stones, brick, glass, animal faeces etc.;
- edging and hedges are trimmed and left clean and tidy;
- where applicable, lawns including the verge are cut to the height specified in Section 17 immediately prior to returning the Property keys to the lock box or to the Principal.

Handover on Completion: The Contractor may use video evidence or photographic evidence as part of its Quality Management processes to record conditions of the Property (internally and externally).

Upon Completion the Contractor must return all keys to the lock box or to the Principal where no lock box is available, and notify the Principal of Completion in accordance with MMU7.

Additional Requirements for Aboriginal Housing Office (AHO) Properties

The Contractor must undertake the following additional works when undertaking Vacant Restoration on AHO Properties. AHO Properties will be indicated on the Work Order.

Heating / Cooling: Air conditioning must be installed at time of Vacant Restoration if there is no existing heating/cooling source in the Property within Isotherm 31. Split System Air conditioning sizing must meet property requirements, controller to be hard wired and fixed to wall in room. Air conditioner to meet AHO specifications.

Existing old heating source is to be removed (gas/electric/wood fire) and areas remediated/made good (e.g., floor coverings - replace room floor coverings if match cannot be achieved), walls - patch and paint, roofing - if tiled replace tiles / if tin replace full sheet associated to old flue position.

If wood heater is built insitu type (fire place) then decommissioning at room and chimney is required. Chimney to received colour bond capping to ensure water tight and fire place to be closed at within room.

Flyscreens: Regauze or replace existing flyscreens where damaged. Do not install new where missing.

Antenna and wall plate: Digital Antenna to be installed during vacant restoration if not present and an ‘F’ type wall plate must be provided in the lounge room in most appropriate position.

Ceiling Fans: Where not in place or damaged ceiling fans to be installed to Lounge room and bedrooms. Fan to meet AHO specifications (Equal to or superior to Clipsal 4HS1200AL. and fitted with 3 speed wall controller and light switch. 4 x 1200 aluminium blades. Oyster light with LED lamps - OYWHT, Luminaire Oyster Light White. Reverse switch.)

Security Flyscreen Doors: To be installed / replaced to all property entry doors (front, rear, side) where damaged and or missing.

Kitchen cupboard replacement: When kitchen cupboards are identified for replacement then Cook Top and Wall Oven are to be part of the new design eliminating free standing upright stove units. Design and size of kitchen cupboard upgrade to be in line with AHO/the Principal’s design criteria and sizing guidelines.

Stove only replacement (older kitchens): Replacement stoves must be electric single upright units with an enamel finish, four solid top heating elements, timer with separate oven and grill.

The stove must be securely fixed to the floor or wall with an approved proprietary stove clip to prevent it tipping over. An isolation switch is required to the stove at the splashback and a range hood must be installed above the stove (non flued).

Stove/Oven/cook top replacement in conjunction with kitchen cupboard replacement: New cook top and wall oven installation to be installed in conjunction with kitchen cupboard upgrade. Cook top and wall oven to meet specification and model type in accordance with AHO/the Principal's technical guidelines and product criteria.

Vacant Properties for Sale

Where a Contractor is required to perform a Vacant Restoration on a Property which the Principal identifies as being for sale, the Contractor must perform only the work identified on the Work Order: The work may include but not limited to the following:

- internal clean;
- external clean;
- lawn mowing and cleaning/trimming of garden areas;
- removal of all rubbish and abandoned furniture inside the Property and within the boundary and verge; and
- re-keying and changing cylinders to all external doors including screen doors.

No work additional to those listed above must be undertaken unless directed by the Principal via a Work Order.

END OF SECTION 21

Schedule 6 (Component Requirements)

Component Requirements

Contents

Introduction

This document outlines the performance requirements of selected components

Not all components required for the Maintenance Works are covered in this document. any components utilised by the Contractor as part of the Maintenance Works that are not covered by this document must comply with the requirements of the Contract, including the Maintenance Work Specification.

Components identified by performance criteria only, may require written certification from the manufacturer or original supplier. Certification must be provided to the Principal.

The Principal may from time to time, and in its absolute discretion, amend or add to this document, by notice in writing to the Contractor.

The components in this document are arranged in a table using the following format:

Component	The category of building component, e.g. roof
Sub-component	If required, the component can be broken down into smaller parts e.g. roof covering
Functional Statement	Describes the business interest the item needs to fulfil
Performance Requirement	Sets out the specific criteria for judging acceptability of any particular product – will usually include compliance with current Australian/NZ Standards
Warranty	Any specific warranty requirement

Definitions

"Certification" in this Schedule means one or more of the following:

A copy of a certificate of approval by a government authority e.g. Sydney Water, NSW Department of Planning and Environment, Transport for NSW, Australian Communications and Media Authority, Australia Post, Fire & Rescue NSW, NSW Rural Fire Service, NSW Health, Ausgrid, Jemena, etc., and/or

A letter certifying compliance to requirements and testing procedures outlined in specified Australian Standards, and/or A letter with certification by a practising qualified Engineer, and/or

Test reports/opinions prepared by Commonwealth Scientific and Industrial Research Organisation (CSIRO), National Association of Testing Authorities (NATA), Australian Wool Testing Authority (AWTA), Building Research Association New Zealand (BRANZ), etc.; based on Australian Standard Testing Procedures, and/or a print of a drawing with the testing authority's endorsement mark.

PART 1 – ASSET MAINTENANCE AND NEW CONSTRUCTION

1.1 Grounds

1.1.1 Letter Box

Component	**LETTERBOX**
Sub-component	
Need	To provide tenants with an Australia Post compliant receptacle for mail
Requirement	**General (all types)** • Painted zinc/aluminium alloy coated steel **or** • G2 zinc coated steel (Z450) with minimum 50 micron polyester powder coat finish • Aluminium (minimum 20 micron anodised **or** 50 micron powder coat) • Weather hood (for weather exposed areas) **Freestanding** • A4 envelope size minimum 230mm x 330mm and minimum160mm high • Minimum 30mm high letterbox slot • Elevated between 900mm to 1200mm above ground on a coated steel post • Padlock **or** key operated camlock **Built-in (brickwork or Aluminium Letter box Banks)** • Aluminium/G2 zinc coated steel/zinc-aluminium coated steel sleeve • Minimum A4 envelope size, minimum 230mm x 330mm and minimum160mm high • Minimum 30mm high letterbox slot • Access door pivot hinged on minimum 5mm diameter galvanised steel/SS rod • Key operated camlock/padlock style lock • Maximum letterbox bank of 75 boxes (15 wide x 5 high)
Warranty	Minimum 1 year written warranty

1.1.2 Clothes Lines

Component	**CLOTHES LINES**
Sub-component	
Need	To provide tenants with an easy way of drying clothes and bedding in the sunlight
Requirement	**General (all types)** Test report certifying hoist can withstand a load of 150 kg (minimum 2kg point loads evenly distributed per all lines/ at maximum 300mm centre spacing) without deformation or damage, issued by a registered Testing Laboratory based on current Australian Standards • Anodised aluminium **or** minimum 1.0mm thick galvanised steel framing to current Australian Standards • Minimum 20 micron anodised **or** 50 micron polyester powder coat finish to current Australian Standards • All bolts & fittings zinc plated • Locking mechanism on frame • Installed to manufacturers written specification **Retractable** • Minimum 4 line (2 BR or less) Maximum line extension 6.5 m • Minimum 5 line Maximum extension 6.5 m • Line material - Minimum 3.5mm UV stabilised plastic sheathed cord **or** 4mm galvanised wire **Awning** • Minimum 14 m line (for 1 BR or less) • Minimum 20 m line (for 2/3 BR Properties) • Minimum 35 m line (for 4/5 BR Properties) • Ground **or** wall mounted • With tensioning mechanism • Line material - Minimum 3.5mm UV stabilised plastic sheathed cord **or** 4mm galvanised wire **Fixed Rotary Type Adjustable (wind-up fixed head hoists)** • Minimum 39m line/4m diameter (for 2/3 BR Property with ground level Private open space • Minimum 48m line /5m diameter(for 4/5 BR Property with ground level Private open space • Line material - Minimum 4mm diameter galvanised wire
Warranty	Minimum 10 year written warranty - frame Minimum 1 year written warranty - line and components

1.2 Carpentry

1.2.1 Built in Wardrobes

Component	**BUILT IN WARDROBES**
Sub-component	
Need	To provide adequate storage for tenants' clothing
Requirement	**General** To current Australian Standards for HMR, MDF, Laminate, Melamine and Painted finishes **Doors** • Minimum 16mm thick high moisture resistant (HMR) particleboard **or** moisture resistant (MR) medium density fibreboard (MDF); laminated with low pressure melamine (LPM) decorative finish to both sides **or** vinyl film applied • Aluminium stiles acting as pull grips for sliding doors **OR** • Painted 35mm flush, hollow **or** cell cored door **Carcass** • Minimum 16mm thick high moisture resistant (HMR) particleboard with white melamine finish to both sides • 1 mm ABS or PVC plastic edge strip to all exposed edges of carcass and shelves • Concealed side wall-mounted hinges with 170° swing or sliding doors • Hanging/shelf unit to be removable/lowerable • Install to manufacturers written specification • All assemblies to carry a compliance label to current Australian Standards **Drawers** • Minimum 16mm thick fronts, bottom and sides of either high moisture resistant (HMR) particleboard **or** moisture resistant (MR) medium density fibreboard (MDF), finished with melamine both sides • 2 mm ABS or PVC plastic edge strip to drawer fronts • Completely integrated drawer slide system comprising a high quality epoxy coated white steel self closing feature runner, 30kg load capacity
Warranty	Minimum 5 year written warranty

1.2.2 Cupboards Kitchen

Component	**CUPBOARDS**
Sub-component	**Kitchen**
Need	To provide durable, waterproof, hygienic and cleanable storage and food preparation areas
Requirement	**General** To current Australian Standards for kitchen assemblies, HMR, MDF, Laminate and Melamine finishes **Benchtops** • Minimum 32 mm thick high moisture resistant (HMR) particleboard, post form round edge, laminated with high pressure decorative laminate having characteristics of high resistance to surface wear • High resistance to impact and high resistance to scratching **Doors and Drawer fronts** • Minimum 16mm thick high moisture resistant (HMR) particleboard **or** moisture resistant (MR) medium density fibreboard (MDF), laminated with low pressure melamine (LPM) decorative finish to both sides • 2 mm ABS or PVC plastic edge strip to all doors and drawer fronts • Use concealed side wall-mounted hinges with 170° swing on all doors **Drawer** • Minimum 16mm thick bottom and sides of either high moisture resistant (HMR) particleboard **or** moisture resistant (MR) medium density fibreboard (MDF), finished with white melamine both sides • 1 mm ABS or PVC plastic edge strip to all exposed edges of carcass • Completely integrated drawer slide system comprising a high quality epoxy coated white steel self closing feature runner, 30kg load capacity **Carcass** • Minimum 16mm thick high moisture resistant (HMR) particleboard with white melamine finish to both sides • 1 mm ABS or PVC plastic edge strip to all exposed edges of carcass and shelves **Kickboard** • Minimum 16mm thick high moisture resistant (HMR) particleboard or moisture resistant (MR) medium density fibreboard (MDF), with 2 mm black vinyl **or** low pressure melamine (LPM) decorative finish • 1 mm ABS or PVC plastic edge strip to all edges • Install to manufacturers written specification • Kitchen assemblies to carry a compliance label to current Australian Standards
Warranty	Minimum 5 year written warranty

1.2.3 Bathroom Cabinet

Component	**BATHROOM ACCESSORIES**
Sub-component	**Bathroom Cabinets**
Need	For storage of personal items used only in the bathroom and to allow personal grooming
Requirement	**General (All types)** • To current Australian Standards • Surface mounted **or** recessed • Cabinet fabricated in 1 mm zinc coated steel (white Acrylic baked Solvent-borne finish) **or** minimum 16 mm thick high moisture resistant (HMR) particleboard or moisture resistant (MR) medium density fibreboard (MDF); laminated with low pressure melamine (LPM) finish / polyurethane finish **or** heavy duty plastic (Plastic cabinet body minimal thickness of 5mm) • Adjustable shelving • Glass type to comply with AS1288 for location **Single Door Cabinet** • Minimum 375 mm high x 405 mm wide x 115 mm deep • 3 mm mirror fixed to self closing hinged door **or** sliding door • Minimum 1 shelf **Double Door Cabinet** • Minimum 415 mm high x 700 mm wide x 130 mm deep • 2 x 4 mm sliding mirror doors with finger slots set in recessed safety tracks (extruded PVC **or** aluminium tracks fitted to HMR laminated board) **or** 2 x 3 mm mirrors fixed to self closing hinged doors • Minimum 2 shelves
Warranty	Minimum 5 year written warranty

1.2.4 Bathroom Vanity

Component	**BATHROOM ACCESSORIES**
Sub-component	**Bathroom Vanity**
Need	For storage of personal items used only in the bathroom
Requirement	To current Australian Standards **Vanity tops** • Minimum 32 mm thick high moisture resistant (HMR) particleboard, post form round front edge, laminated with high pressure decorative laminate having characteristics of high resistance to surface wear, impact and scratching with Vitreous China Bowl (refer Basin) **OR** • Sanitary grade Acrylic (Waterborne) moulded **Door and Drawer fronts** • Minimum 16mm thick high moisture resistant (HMR) particleboard **or** moisture resistant (MR) medium density fibreboard (MDF), laminated with low pressure melamine (LPM) decorative finish to both sides • 2mm ABS or PVC plastic edge strip to all doors and drawers **OR** • Polyurethane finish **Carcass** • Minimum 750w x 450d with drawers, floor mounted on 150h tubular legs **or** with kickboard if floor not tiled underneath vanity • Minimum 16mm thick high moisture resistant (HMR) particleboard or moisture resistant (MR) medium density fibreboard (MDF); laminated with low pressure melamine (LPM) finish to both sides • 1 mm ABS or PVC plastic edge strip to all exposed edges of carcass and shelves Installation to manufacturers specification
Warranty	Minimum 5 year written warranty

1.3 Doors and Windows

1.3.1 Screen Doors

Component	**SCREEN DOORS**
Sub-component	**Heavy Duty Front and Rear**
Need	To provide a physical barrier that allows air and vision through the screen
Requirement	**Aluminium Door Framing** • Installation to current Australian Standards • Minimum 69mm x 18mm x 1.2mm wall thickness extruded aluminium frame with 10mm wide x 13.5mm deep insert frame for grille • Extruded PVC insert to bed heavy duty grille • Joints to be mitred, staked and riveted • Reinforcing corner stakes fixed to frames with SS 4mm diameter x 9.5mm rivets (minimum 4 per corner) • Door to be permanently branded on top rail with name of manufacturer • Tested to AS5039 for Dynamic Impact, Jemmy, Pull, Probe and shear **Aluminium Heavy Duty Grille** • To current Australian Standards for Type 1 doors • Minimum 7.0mm sectional thickness • Grille secured to door by pop rivets (Adequate Pop Rivets to satisfy AS5039 tests) **Aluminium Door Framing & Heavy Duty Grille Finish** • Clear anodised to current Australian Standards (20 microns thick for all regions) **OR** • Thermoset powder coatings to current Australian Standards (50 microns thick for standard conditions/ 80 microns thick for severe coastal or industrial regions) **Screen Mesh** • Powder coated Aluminium woven mesh (standard conditions) • Powder coated Stainless Steel (316 marine grade) woven mesh for bushfire areas • Mosquito proof mesh - with average aperture 1.5mm x 1.5mm • Wire diameter - minimum 0.23 woven Aluminium and minimum 0.18mm woven stainless steel • Secured to door to prevent easy removal **Hardware** • Three 75 x 30 mm hinges to current Australian Standards fixed with pop rivets • Locks, refer DOORWAYS “locks & latches” (Non fire-rated heavy duty screen door) • Fully adjustable dampened type door closer
Warranty	Minimum 10 year written warranty

1.3.2 Doorways External

Component	**DOORWAYS**
Sub-component	**External**
Need	To provide a secure mechanism for controlling access through a doorway that separates the private Property from public and common area
Requirement	**General** • To current Australian Standards & NCC • Do not use imported rainforest timber veneers • A non standard door size is a door size over 2400mm x 900mm **Entry doors (non fire rated)** • 40mm thick (or 35mm for maintenance only to suit existing door jamb. If replace jamb make to suit 40mm door) flush type solid core particleboard or blockboard cored door (type B bonded ply-wood/-hardboard face) • Door closer where nominated **Timber door frame and jamb lining (for Maintenance only)** • To current Australian Standards **Steel door frames (non fire rated)** • Minimum 18 gauge hot dipped zinc coated steel doorframe with internal architrave **Security Viewer** • Fire rated security viewer • Viewing greater than 160º **Stormproof Door Seal** • Storm seal screw fixed to base of door leaf
Warranty	Minimum 5 year written warranty - door Minimum 2 year written warranty - stormproof door seal

1.3.3 Doorways Internal

Component	DOORWAYS
Sub-component	**Internal**
Need	To provide a reliable mechanism for closing off rooms
Requirement	**General** • To current Australian Standards • Do not use imported rainforest timber veneers • A non standard door size is a door size over 2400mm x 900mm **Internal doors** • 35mm thick flush lightweight Solid block-board pine core door, solid particle-board, MDF core to current Australian Standards • 35mm thick flush hollow or cell cored door as like for like replacement (for maintenance only) • Type B bonded plywood/hardboard face **Timber door frame and jamb lining** • To current Australian Standards **Steel door frames** • Minimum 18 gauge hot dipped zinc coated steel doorframe with internal architrave
Warranty	Minimum 5 year written warranty

1.3.4 Door Locks and Latches

Component	DOORWAYS
Sub-component	**Door Locks and Latches**
Need	To provide a reliable, useable and secure device for locking doors
Requirement	**General** • To current Australian Standards • Security must be afforded to each individual property • Accredited Locksmith must be engaged to change / rekey any locks • Keying must be undertaken in such a manner as to ensure that properties across the portfolio are not keyed alike • Quality management to current Australian Standards • For fire resistant door sets doors, lock sets must form part of an approved tested door set assembly • Door locks to be a minimum 5 pin cylinder • Door lock finish: satin chrome/chrome plated/stainless steel • Keyed alike • Locks and Latches to suit semi-commercial applications (Residential care facilities etc) • To all aluminium sliding doors supply and insert aluminium blocks into the upper track of door in closed position leaving clearance for door to slide **Front and rear entry doors Cottages, villas & townhouses, units:** • Double cylinder automatic dead-latch with colour coded lock alert and a separate lever Latch set • Keyless opening from inside unless intentionally dead locked • Automatic release of dead latch when opened with a key from outside **Units/apartments (additional)** • Door closer (rack and pinion type) • Door closer low moment type cam operated where appropriate **Heavy duty screen doors** • Short backset mortice deadlock and lever with snib. Single point locking only **Common area entrance doors & community rooms** • Exterior escape dead latch (keyed lever latch from outside with quick release from the inside) • Door closer (cam operated) • Panic release fitted to all external exit fire doors only **Balcony/porch swing and sliding doors** • Keyed double deadlocks **Internal doors** • Lever passage latch set • Privacy latch set to bathroom/WC Lever set *Continues*

Component	DOORWAYS
	Continues **Common Storeroom & toilets** • Nightlatch and 'D' handle (Key to master key system) **Electric meter cupboard** • Nightlatch (fire rated) and 'D' handle (Key to master key system) **Electric meter cabinet** • Padlock (Key to master key system)
Warranty	Minimum 5 year written warranty - paint & tarnish Minimum 10 year written warranty - mechanical parts

1.3.5 Windows and Glazed Doors

Component	WINDOWS
Sub-component	**Windows and Glazed Doors**
Need	To provide natural light, ventilation and protection from the elements
Requirement	• Window and Door Locks - refer to Locks and Latches • Window & Door assemblies manufactured to comply with current Australian Standards and to carry testing authorities endorsement mark • All window types & glazed doors tested to AS2047 for deflection (positive/negative), air infiltration, water penetration, operating force and proof tests by NATA approved laboratory • Installation of new window assembly set in habitable rooms to be equal to or less than Maximum U value and within range for Solar Heat Gain Coefficient (SHGC) for appropriate climate zone • Window tests to qualify minimum 700 Pa • Minimum overall frame width 70mm for class 2 dwellings • Each window/door branded in an upper channel/stile with a permanent label indicating NATA Testing Certification, structural and water performance and manufacturers name eg. AWA labelling scheme • Installed to current Australian Standards and to manufacturers written specification • Doors toughened/laminated glass to current Australian Standards • Glass type and thickness to current Australian Standards except lower edge of all glass in windows within 500mm from floor to be only 'A' safety grade laminated or toughened glass in accordance with current Australian Standards • Issue window shop drawings with NATA testing authorities endorsement mark to the Principal if manufacturers do not qualify for AWA labelling scheme • All openable windows to include flyscreen which can be installed to external of window from inside dwelling • Sliding glazed door sets to include heavy duty sliding flyscreen door *Continues*

Component	WINDOWS
	Continues **Acid etch anodising** • AS1231-2000 for suitability to atmospheric conditions • Minimum 20 micron anodised film, 25 micron for coastal areas **Flyscreen Mesh** • All Flyscreen Mesh to include safety warning message stating that the "Screen will not stop children falling out window" • Powder Coated Stainless Steel (316 marine Grade woven mesh for bushfire areas minimum wire diameter 0.18 woven stainless steel) • Powder coated Aluminium woven mesh for all other areas (minimum wire diameter - minimum 0.23mm woven Aluminium) • Mosquito proof with average aperture of 1.5mm x 1.5mm Flyscreens with Aluminium Grille (only when Directed) **Heavy Duty Grilles (only when directed)** • Ground Floor and all accessible windows to include Aluminium Heavy Duty grille (minimum 7.0mm sectional thickness) pop riveted into screen frame with quick release (install to AS5039) • Complies AS5039 for Type 1 Class B Screens
Warranty	Minimum 7 year written warranty

1.3.6 Window Locks

Component	WINDOWS
Sub-component	**Window Locks**
Need	To provide a means of securing the Property from unauthorised entry through a window
Requirement	**Note - All openable windows must be capable of being locked in a partial open (safe ventilation) and closed position** **General** • To current Australian Standards • Fit keyed window locks to all openable windows • All windows must be capable of being locked in a closed position, and provide safe ventilating locking points 50mm and100mm from closed position • Do NOT install window locks on a consecutive code number basis but for security purposes are to be installed on a random basis, with minimum allowance for repetition of coding 1 per 100 Properties • Locks to be minimum 4 disc cylinder type - all window locks keyed alike for new construction • Fixings appropriate to window and door frame • Comply with AS5203 Fall Prevention Test *Continues*

Component	WINDOWS
	Continues **Window Restrictors (Only where specified)** • Window opening restrictor (capable of connection to all opening types) opening at 100mm and also completely opened when restrictor is released • Fixings appropriate to window and door frame • If restrictor involves steel rope or steel chain must have a minimum breaking strength of 3 KN • Approved Child proof locking device or 4 disc cylinder key lockable restrictor - all window locks keyed alike for new construction • Comply with AS5203 Fall Prevention Test
Warranty	Minimum 2 year written warranty

1.3.7 Window and Door Awnings

Component	**WINDOWS**
Sub-component	**Awnings**
Need	To protect windows and door openings from sun and rain
Requirement	**General** • Able to be fixed securely to wall • Provides effective shading • Sheds water away from window/door • Made of non combustible material **Radiant Heat Attenuating Screens** • Manufactured from stainless steel mesh • Wire diameter for screen not less than 0.8mm • Weave characteristic • Achieves and certified to AS1530.4 Fire Attenuation Test
Warranty	Minimum 5 year written warranty

1.3.8 Garage Doors

Component	**GARAGE**
Sub-component	**Garage Doors**
Need	To provide a reliable and easily operated means of securing a garage
Requirement	**Roller Doors (Domestic) Single and Double Doors** • Design to current Australian Standards for wind loading • Tested to qualify to minimum 1500 cycles of operation per year (where one cycle = closed to open to closed position) • Withstand minimum dynamic pressure of 550N/m2 applied externally/ internally normal to door • Rolled-T/box section/single **or** double angled bottom rail, steel **or** aluminium channel guides, interlocking slatted curtain • Counterbalance roller deflection not to exceed 0.3% of span • Galvanised prime painted/polyurethane/pre paint bonded finish to all metal components • Branded with manufacturers name • Key lockable central door handle **Panel Lift Door (Domestic) Single Doors only up to 2400mm Wide** • Design to current Australian Standards for wind loading • Tested to qualify to minimum 1500 cycles of operation per year (where one cycle = closed to open to closed position) • Withstand minimum dynamic pressure of 550N/m2 applied externally/ internally normal to door • Galvanised/prime painted/polyurethane/pre paint bonded finish to all metal components • Branded with manufacturers name and Installation to manufacturers specification • Key lockable central door handle
Warranty	Minimum 7 year written warranty

1.3.9 Master Lock and Key Schedule

Component	**MASTER KEY SYSTEM**
Sub-component	**Specialist key systems to secure areas**
Need	Secure access to parts of selected buildings to authorised personnel only
Requirement	• Contractors keying system operates mostly in Newcastle, Greater Sydney and Wollongong Metropolitan areas • Properties within Buildings are not to be master keyed • The system is to simplify the number of keys a Contractor has to carry to access buildings and restricted areas within buildings • Master Lock and Key Schedule to be designed and installed to meet high level of security to protect assets, work-sites, and restrict access only to authorised personnel • Key system to cover the following areas (Front/Rear and garage access (override), Building service riser access, Laundry and garbage room access (plus Tenant access key for these areas), Under stair access, Manhole, Roof access, Plant room access, Lift maintenance room access, Electrical – meter boards and service risers, Service risers general, Access control, CCTV rooms, Void areas, MATV panels. Garage door controls, Intercom panels, Security Guard log boxes, Trade toilet – cleaners store and any other areas requiring security • Capacity to expand system into electronic keying • Copy protection – Anti-duplication restricted keying • Integrated minimum 6 pin cylinder • Modular or universal steel cylinder cores • Bump, Pick penetration and Drill protected cores (where required) • Cylinders and Housings – Satin Chrome plate • To current Australian and International Standards
Warranty	Minimum 2 years manufacturers written warranty Keying system protected for life of system

1.4 Roofing

1.4.1 Roof and Eave Ventilation

Component	**ROOF**
Sub-component	**Roof and Eave Ventilation**
Need	To provide air circulation so as to reduce condensation and moisture within the roof space
Requirement	**Note – Installation of roof and eave vents must not compromise the fire safety of the building** **Under Eave Vents** • Curved air inlet holes to restrict insect entry • White Polypropylene or equivalent durable plastic • Minimum size 400 x 200 mm **Roof Ventilators** • Made from Steel, Aluminium **or** heavy duty high strength Polymer • Lubricated steel bearings • Reinforced hail resistant dome • Withstand wind velocities in excess of 200 km/hr • Withstand rain penetration • Pre painted bonded finish to match roof colour or clear plastic dome • Fixed using corrosion resistant self drilling screws or fasteners (appropriate to environment) and finished to match roof materials • Flashed and fitted correctly above and through the roof with two part flashings compatible with roof material
Warranty	Minimum 1 year written warranty - Under Eave Vents Minimum 15 year written warranty - Roof ventilators including bearings

1.4.2 Gutters, Downpipes and Fascias

Component	ROOF
Sub-component	**Gutters, Downpipes and Fascias**
Need	To effectively collect and shed water from the Property
Requirement	• Designed and installed to meet Plumbing Code of Australia • Gutters are required to comply with requirement relating to overflow • Gutter – minimum 115mm quad **or** 135mm half round • Fascia system – 185mm compatible with gutter • Downpipes minimum 100mm x 50mm **or** 75mm round • Gutter / Fascia / Downpipe material – Zincalume or equivalent 0.5mm BMT (G300) **or** 0.42mm BMT (G550) gauge factory pre painted bonded finish. • Gutter Brackets – concealed type at 900mm maximum spacing fixed using galvanised helical nails or proprietary clips and fixings • Installation to current Australian Standard and manufacturers Specification • Gutter Guards must be factory pre-painted metal roofing steel and in a colour to match guttering. Prior to installing gutter guard the Contractor is to clean out, re-fall guttering and re-seal all joints prior to installing gutter guard. • When installed in designated bush fire prone areas gutter guards must be non-combustible metal and securely fixed underneath the roof and to the gutter in accordance with AS 3959.
Warranty	Minimum 20 year written warranty - Gutters, Downpipes and Fascias

1.4.3 Roof Lights and Skylights

Component	ROOF
Sub-component	**Tubular Roof Lights/Skylights**
Need	To provide natural light to internal areas
Requirement	**Skylights Tubular** • To current Australian Standards • Achieve a test report certifying assembly can withstand wind forces to AS4055 and resist impact to AS4256 • Roof Flashings an integral part of skylight to AS/NZS2904 • Certification of greater than 95% specular reflectance from shaft • Minimum 250mm internal diameter • Achieve a WERS rating better than 5 star for heat and cooling transfer • Diffuser to reduce glare and to throw light over a broad area • Internal Fire Damper with FRL60/60/60 when directed for buildings in Bushfire areas or where required to achieve a 60 minimum fire rating
Warranty	Minimum 7 year written warranty

1.4.4 Ceiling Insulation

Component	**ROOF**
Sub-component	**Ceiling Insulation**
Need	To effectively insulate the ceiling
Requirement	**Glass Fibre (batts)** • Made of melted glass spun onto a mat of fine fibres • Pre-cut to width of ceiling joists • New construction -Thermal insulation to a Property shall meet BASIX requirements • Existing properties - Installed insulation (combined ceiling and roof insulation) to achieve a combined R value of R4.0 for climate zones 1 to 5 and R5.0 for climate zones 6 to 8 • To current Australian Standards • Sound absorption properties - achieve Noise reduction co- efficient of 0.8 or better • Product to contain at least 70% recycled glass content • To achieve a fire hazard rating (AS/NZS1530.3) of: o Ignitability Index 0 o Spread of Flame 0 o Heat Evolved 0 o Smoke Developed 0 – 1 • Rated Non Combustible on AS1530.1 • Indoor Air Quality - formaldehyde release less than 0.01 mg/ m²/24 hours • Fibreglass batts thermal insulation shall comply with the Building Regulations and relevant Australian Standards, and shall consist of not less than 95% the weight glass wool (inorganic oxides or minerals rock slag or glass) and binders *Continues*

Component	ROOF
	Continues **Glass Fibre (blankets)** • Properties same as for Glass fibre batts above • Blanket insulation with Sarking to be installed under metal roofing in strict accordance with manufacturer's specification (installed between top of the trusses and metal roofing or between raked cathedral ceiling and roofing • Glass fibre blankets shall not be installed on top of the flat ceiling to cover ceiling joists or services **Rockwool (batts)** • Made from melted volcanic rock and recycled mineral slag spun into a mat of fine fibres • Pre-cut to width of ceiling joists • To current Australian Standards • Sound absorption properties achieve a Noise reduction co- efficient of 0.8 or better • Product to contain at least 20% recycled content (mineral slag) • To achieve a fire hazard rating (AS/NZS1530.3) of: o Ignitability Index 0 o Spread of Flame 0 o Heat Evolved 0 o Smoke Developed 0 – 1 • Rated Non Combustible on AS1530.1 • Low VOC emissions less than 0.01mg/m²/24 hours • Rockwool batts thermal insulation shall comply with the Building Regulations and relevant Australian Standards and shall consist of not less than 95% the weight mineral wool (inorganic oxides or minerals, rock slag or glass) and binders **Rockwool (blankets)** • Properties same as for Rockwool Batts above • Rockwool blankets cannot be installed on top of the flat ceiling to cover ceiling joists or services **Notes** • Insulation shall be installed appropriately to avoid interference with electrical and other services and appliance and do not compromise safety • Install Fire rated covers inside ceiling as required or ensure appropriate separation • Bulk insulation that does not achieve a Non Combustible rating as per AS1530.1 is not approved • Insulation cannot be installed to cover ceiling joists or other structural beams in the ceiling
Warranty	For the life of the Property

1.5 Plumbing

1.5.1 Hand Basin

Component	BASIN
Sub-component	
Need	To provide hygienic receptacle for washing hands and face
Requirement	• To current Australian Standards • Standard Mark/Water Mark/Sydney Water certificate of approval • White (minimum bowl capacity 4 litres) Vitreous China • Wall mounted on manufacturers metal brackets with ring connector to waste outlet • Installed to manufacturers written specification • All basins to be supplied with plug and waste
Warranty	Minimum 2 year written warranty

1.5.2 Bath

Component	BATH
Sub-component	
Need	To provide a hygienic tub for bathing
Requirement	**General** • To current Australian Standards • Standard Mark (optional) /Watermark/ Water Authority certificate of approval • Installed to manufacturers written specification • Indelibly marked with manufacturers name/Trademark (visible in the installed position) • Rectangular - minimum 1500x 715mm wide x 380mm deep • Minimum 10mm high tiling bead to all baths built into adjacent walls • Fitted with plug & waste • Sanitary grade Acrylic (Waterborne) moulded from minimum 3.5mm thick sheet, glass reinforced with 10mm diameter steel rod rim reinforcement **OR** • Pressed metal manufactured from minimum 1.6mm thick steel drawn seamless from one sheet of metal, grip coated all over and finished internally with white vitreous Solvent-borne finish(non skid base) **Retrofit Existing - Acrylic (Waterborne) bath linings** • Sanitary grade Acrylic (Waterborne) moulded from minimum 3.5mm thick sheet reinforced with a fibreglass backing • Dimensions to fit over existing bath size • Grate and adaptor to suit existing waste drain • Fitted with plug and waste
Warranty	Minimum 10 years written warranty

1.5.3 Shower Base

Component	SHOWER
Sub-component	**Shower Bases**
Need	To provide a sound, waterproof base for the shower that integrates seamlessly with other shower elements
Requirement	**General** • To current Australian Standards, including installation • Standard Mark/Water Authority certificate of approval and tested to current Australian Standard • 900mm x 900mm x 70mm high hob • Pressed metal (vitreous Solvent-borne finish) **or** moulded plastic (non slip finish) • Installed to manufacturers specification • Indelibly marked with manufacturers name/-trademark
Warranty	Minimum 10 year written warranty

1.5.4 Shower Roses

Component	SHOWER
Sub-component	**Shower Rose**
Need	To provide a spray of water sufficient for washing comfortably
Requirement	**General** • Water saving '3 STAR WELS' rated not more than 9L/minimum • Chrome plated satin chrome **or** powder coated brass arm and shower rose, with brass ball joint • Tamper proof shower head **Disability Modification** • Handheld Shower Rose mounted on vertical grab rail • Minimum 600 mm - 32mm stainless steel grade 304 grab rail • Adjustable handheld shower rose cradle • Hygienic seal Flange Covers • Fixings of Grab rail to support appropriate static load • Brass wall flange with dual check non return valve • Shower hose smooth PVC hose with elastic inner strengthened by woven polyester cords • Water saving '3 STAR WELS rating
Warranty	Minimum 5 year written warranty

1.5.5 Shower Seats

Component	**SHOWER**
Sub-component	**Shower Seat**
Need	To provide support for less mobile tenants whilst using the shower where recommended for a disability modification
Requirement	• To current Australian Standards • Rounded edged foldable seats (with anti drop tension hinges) • Self draining and non slip • Frame grade 304 stainless steel • Seat high density HDPE (high density polyethylene) • Ensuring stability up to 160 kg (unless specified higher) • Installer to ensure wall construction and fixings support Shower Seat
Warranty	Minimum 5 year written warranty

1.5.6 Bathroom

Component	**BATHROOM ACCESSORIES**
Sub-component	**Bathroom Fittings**
Need	For easy access and manipulation of towels, toilet paper
Requirement	**Toilet Paper Holder** • Chrome plated brass/polished stainless steel frame, minimum 150mm x 150mm with aluminium roller **Bath Towel Rail** • Minimum 760mm overall length x 16mm-diameter chrome plated brass or stainless steel tube with stainless steel end brackets, for wall screw fixing **Robe Hooks** • 52mm x 53mm chrome plated brass
Warranty	Minimum 1 year written warranty

1.5.7 Grab Rails

Component	BATHROOM ACCESSORIES
Sub-component	**Grab Rails**
Need	Reduce risk of falls for our tenants
Requirement	• Only where prescribed by OT or where installed as part of an approved tenant disability request • To current Australian Standards • 32mm diameter (or as directed) x 1.2mm thick 304 Stainless Steel **or** powder coated aluminium x 450mm minimum overall length, secured to wall with round head C.P. brass or stainless steel screws, minimum 50mm long • Hygienic seal Flange Covers • Fixings of Grab rail to support appropriate static load
Warranty	Minimum 1 year written warranty

1.5.8 Toilet

Component	TOILET
Sub-component	**Pan and Cistern**
Need	To provide a hygienic, comfortable ablution facility
Requirement	**General** • To current Australian Standards • Standard Mark/Watermark/Water Authority certificate of approval • Pedestal pan to be white vitreous china • Cisterns to be vitreous china **or** heavy duty grade plastic with internal overflow • 4.5/3L dual flush toilet suites (minimum 4 Star WELS rating) • Toilet and Cisterns to be vandal resistant or fitted with a 'Vandal Resistant Conversion kit' • Installation to manufacturers specification **Existing Housing (Maintenance only)** • Retrofit 6/3 L dual flush cisterns if retaining existing pans (minimum 3 Star WELS rating) • Retrofit 4.5/3 L dual flush toilet suites where replacing pans (minimum 4 Star WELS rating)
Warranty	Minimum 1 year written warranty

1.5.9 Toilet Seat

Component	TOILET
Sub-component	**Toilet Seat and Cover**
Need	Toilet Seat and Covers to supplement the toilet so a reasonable level of comfort is provided
Requirement	• To current Australian Standards • Constructed of solid plastic – Vandal Resistant with vandal resistant fittings • Installation to manufacturers specification • Note AS1428.1 compliance required in common area bathrooms only
Warranty	Minimum 1 year written warranty

1.5.10 Tap Ware

Component	TAPS
Sub-component	**Bathroom, Laundry and WC**
Need	To easily control water flow reliably for efficient water usage
Requirement	**Bib tap / Pillar tap / Hob mounted set / Flick mixer** **General** • Materials, dimensions, finishes and performance tests to current Australian Standards • Water supply metal bodied taps to current Australian Standards • Standards Mark/ Water Mark/ Certificate of Approval • Basin tap set / flick mixer 4 Star WELS rating • Laundry tub tap set / flick mixer 3 Star WELS rating • Shower tap set 3 star WELS rating • All components made of brass base material, chrome plated **or** satin chrome finishes • Dezincification resistant **Standard tap set (separate taps and spout /shower rose)** • Taps to be vandal resistant • Bath, basin, shower, laundry tub - Incorporate in tap flow regulator valves equivalent to "Aqualoc" **or** pressure compensating flow control (not required if flick mixer) • Vandal proof aerator • Set complete with outlet, shower rose, spout or arm, and handles Handles to be easily changed from minimum 65mm lever for separate hot and cold taps to longer levers • Capstan **or** Lever handles length 65mm to 80mm handles *Continues*

Component	TAPS
	Continues **OR** **Flick mixer (Wash Basin or Laundry Tub only)** • Top control single lever (no gooseneck type or pull out hose) • 40mm diameter ceramic disc cartridge size • Secured to basin or laundry tub with twin stud fixing or large hand tighten nut (approx. 50mm dia) or backing nut (approx. 40mm dia) with lock screws (no metallic C plate with single stud fixing) • Connector tails flexible braided PEX with WaterMark AS/NZS3499 • Can operate to water temperature of up to 70 degrees • Install to manufacturers written specification (note, generally manufacturers stipulate isolating stop taps must be fitted to hot and cold water connection at wall outlet) **Disability Modification** • Tap handles as directed • Quarter turn taps with ceramic discs fitted to baths, shower taps, basins and laundry tubs or flick mixer tap as directed
Warranty	Minimum 2 year written warranty – standard taps Minimum 10 year written warranty – flick mixer ceramic disc cartridge

Component	**TAPS**
Sub-component	**Kitchen**
Need	To easily control water flow reliably for efficient water usage
Requirement	**Bib tap / Pillar tap / Hob mounted sink set / Wall sink set / Flick mixer** **General** • Materials, dimensions, finishes and performance tests to current Australian Standards • Water supply metal bodied taps to current Australian Standards • Standards Mark/ Water Mark/ Certificate of Approval • Tap set / flick mixer 4 Star WELS rating • All components made of brass base material, chrome plated **or** satin chrome finishes • Dezincification resistant **Standard tap set (separate taps and spout)** • Taps to be vandal resistant • Incorporate in tap flow regulator valves equivalent to "Aqualoc" **or** pressure compensating flow control (not required if flick mixer) • Vandal proof aerator • Set complete with outlet, spout or arm, and handles. Handles to be easily changed from minimum 65mm lever for separate hot and cold taps to longer levers • Capstan **or** Lever handles length 65mm to 80mm handles **OR** **Flick mixer** • Top control single lever (no gooseneck type or pull out hose) • 40mm diameter ceramic disc cartridge size • Secured to sink with twin stud fixing or large hand tighten nut (approx. 50mm dia) or backing nut (approx. 40mm dia) with lock screws (no metallic C plate with single stud fixing) • Connector tails flexible braided PEX with WaterMark AS/NZS3499 • Can operate to water temperature of up to 70 degrees • Install to manufacturers written specification (note, generally manufacturers stipulate isolating stop taps must be fitted to hot and cold water connection at wall outlet) **Disability Modification** • Tap handles as directed • Quarter turn taps with ceramic disc fitted to kitchen sinks or flick mixer tap as directed
Warranty	Minimum 2 year written warranty – standard taps Minimum 10 year written warranty – flick mixer ceramic disc cartridge

1.5.11 Sink Unit

Component	SINK UNIT
Sub-component	**Kitchen Sink**
Need	To provide for washing rinsing and draining of food and utensils
Requirement	**General** • To current Australian Standards • Standards Mark/Water Mark/certificate of approval • All kitchen sinks to be supplied with plug and waste • Minimum 304 polish finished stainless steel only • Indelibly marked with manufacturers trade-mark • Sinks to suit 3 tap set configurations (hot tap, cold tap and spout) or single hole for flick mixer tap **Disability Modification** Bowl depth and dimensions as directed **Studio** • Single Bowl sink with single drainer. Minimum 880mm length and minimum 13.5L bowl • Sink to suit bench top width – minimum of 450mm **1 to 2 Bedroom Properties** • One and a half bowl sink with single drainer, minimum length 1050mm, width to suit bench top width - minimum of 450mm • Main bowl to be minimum 20L **3 or more bedroom** • One and a half bowl sink with double drainers. Minimum 1380mm long x 450mm wide • Main bowl to be minimum 20L
Warranty	Minimum 25 year written warranty

1.5.12 Laundry Tub

Component	LAUNDRY TUB
Sub-component	
Need	To wash and soak clothes and bedding
Requirement	**General** • To current Australian Standards • Standards Mark/Watermark/Water Authority certificate of approval • Detachable PVC or polyolefin bypass connected at top to current Australian Standard **Tub** • Minimum 30 litre capacity (Studio) • Minimum 45 litre capacity (1 to 2 bedroom) • Minimum 68 litre capacity (3 to 6 bedroom – (for maintenance only) • Minimum 304 stainless steel • Indelibly marked with manufacturers name - trademark **Cabinet** • White enamel/ pre-painted bonded finish to steel cabinet
Warranty	Minimum 25 year written warranty - stainless steel Minimum 10 year written warranty - the cabinet

1.5.13 Tap/Valve Tempering and Thermostatic Mixing

Component	TAP/VALVE
Sub-component	**Tempering Valves/Thermostatic Mixing Valve**
Need	To ensure hot water does not scald tenants
Requirement	• Tempering Valves set to Plumbing Code standards to all NCC Class 1, 2 and 3 properties • Thermostatic Mixing Valve only required in NCC Class 9 Properties • To current Australian Standards • Standard Mark/Water Mark/Sydney Water certificate of approval • Installation to manufacturers specification
Warranty	Minimum 5 year written warranty

1.5.14 Plumbing System – Potable Water

Component	**PLUMBING SYSTEM**
Sub-component	**Potable Water**
Need	To provide safe, clean and healthy drinking water to homes
Requirement	**Prior written approval of the Principal is required to use alternate piping material in new construction and in maintenance work unless replacing like with like** Alternate piping shall meet the following requirements • To current Australian Standards • Water Mark certificate of approval • Recyclable at end of life • Satisfies tests for contaminants to comply with AS/NZS4020 including: • VOC's (Volatile Organic Compounds) • Semi-Volatile Organic Compounds • Regulated heavy metals (Cadmium, lead, arsenic, barium, beryllium, chromium, mercury, selenium, thallium etc • Any other contaminant lifecycle tests • Able to be joined using standard (non-exclusive) connectors which can withstand required pressure levels • Heat Resistance able to withstand temperatures up to 85 degree Celsius without failure • Potable water delivered through the system contains no tainting affecting taste or odour after accelerated tests representing 20 years use – AS/NZS4020 and AS2492
Warranty	Minimum 25 year written warranty

1.5.15 Rainwater Tank

Component	**WATER SUPPLY**
Sub-component	**Rainwater Tank**
Need	
Requirement	**All Rainwater Tanks above and below Ground** • To current Australian Standards • All downpipes connected to the rainwater tank must have a screened downpipe rain head • First Flush devices installed to suit system (above or below ground) • Vermin and insect screens provided on all inlets and outlets Aluminium mesh mosquito screen • All rainwater and stormwater pipes installed to eliminate ponding and stagnation of water • In accordance with the Rainwater Tank Design and Installation Handbook HB 230-2008 published by Standards Australia • All pumps, electrical, and plumbing must be located either adjacent to a building or positioned as not to cause trip hazards. Located in a vandal resistant enclosure • Installation to manufacturers specification **Above Ground Rainwater tanks** • Slimline rain water tanks • Walls minimum G300S, Z450 0.6mm BMT steel • Interior surface factory pre-painted with a food grade approved polymer (200 um thick) to AS2070 • External walls galvanised **or** factory pre painted bonded finish • Steel base minimum G300S, Z450 0.6mm BMT, with a food grade approved polymer 200um thick film to inner and outer surfaces • Installed with first flush device, strainer, overflow and hose tap • Tank stands certified by structural engineer **Below Ground Rainwater tanks** • All below ground tanks installation must have engineering certification for design loadings and hydrostatic lift • Below ground tanks cannot be installed underneath or as part of a Properties foundation. Preferred location underneath driveway or lawn • Manufactured using concrete **or** food grade polymers, and independently certified not to leach chemicals into the water • Monolithically poured or single seam free tanks with no joins of leakage points, reinforced, self supporting and engineered • Inlet covers/lids to eliminate sunlight/algae/mosquitos and marked Rainwater
Warranty	Minimum 20 year written warranty Above Ground Minimum 15 year written warranty Below Ground

1.5.16 Water Heater

Component	**WATER HEATERS**
Sub-component	**Solar Water Heaters**
Need	To reliably provide hot water
Requirement	**General** • To current Australian Standards • Water Mark/Authority Certificate of Approval including all valves • Installation to current Australian Standards and to manufacturers written specification • High energy efficiency – Eligible for Small Scale Technology Certificates • Suitable for all NSW climate zones, except Alpine Region • All Units, Valves and Piping to be frost protected to climate zone • Hard water or mineralised water areas to be glycol based using a heat exchanger (primarily NCC Climate zone 4) • Natural gas **or** electricity boosted • Solar Panels (hail resistant) appropriate to zone area and size of tank • Solar Panels to be aligned between north east to north west • Tank on ground preferred, unless ground space is limited then close coupled thermosiphon systems are allowed **Gas Boost** • Minimum 170L with 5 star Gas Boost (all bedroom categories) **Electric Boost** • Minimum 160L for (1 Bed) – close coupled for new construction • Minimum 250L for (2 Bed) • Minimum 300L for (3 to 4 Bed) • Minimum 400L with 3 panels for households with 5 or more residents • Electric Boost solar capable of off peak electricity supply operation • Capable of recovery of more than 50% of the tank capacity through boost
Warranty	Minimum 10 year written warranty - cylinder panels and heat exchanger

Component	WATER HEATERS
Sub-component	**Gas Water Heaters**
Need	To reliably provide hot water
Requirement	**General** • To current Australian Standards • Standards Mark/Water Mark/Water Authority Certificate of Approval • AGA approval • Minimum 5 star energy rating • All Units, Valves and Piping to be frost protected **Storage** • Mains pressure: Floor Model (outdoor only) • 1 bedroom minimum 90L • 2 bedroom minimum 110L • 3 bedroom and over, minimum 135L **Instantaneous (External installation only)** • Factory Pre-Set not to exceed 50°C in accordance with AS3498. No further mechanical tempering device required • Electronic ignition • Frost protected • Single or dual heat exchanger **1 bathroom Properties** • NCC Climate zone 6 to 8 – 16L to 26L • NCC Climate zone 2 to 5 – 16L to 20L **2 bathroom Properties** • NCC Climate zone 6 to 8 – 26L to 32L • NCC Climate zone 2 to 5 – 20L to 26L
Warranty	**Storage** Minimum 1 year written warranty - parts/labour Minimum 10 year written warranty – cylinder **Instantaneous** Minimum 3 year written warranty - parts and labour Minimum 10 year written warranty - heat exchanger

Component	**WATER HEATERS**
Sub-component	**Electric Water Heaters**
Need	To reliably provide hot water
Requirement	**General** • To current Australian Standards • Standards Mark/Water Mark/ Water Authority Certificate of Approval • All Units, Valves and piping must be frost protected **Storage** • 50 and 80 ltr capacity (for maintenance only) • Mains pressure Floor Model (indoor/outdoor) • Studio and 1 bedroom - 125L • 2 bedrooms - 250L - off peak • 3 bedrooms and over - 315L - off peak **Instantaneous** • Electrical cut-off Manufactured with inbuilt Pressure/Temperature relief valve • Minimum. 4.5 L/ minute
Warranty	**Storage** Minimum 1 year written warranty - parts/labour Minimum 10 year written warranty – cylinder **Instantaneous** Minimum 3 year written warranty - parts/labour