



NSW Land and Housing Corporation

COMPONENT

REQUIREMENTS

March 2023

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NSW DEPARTMENT OF PLANNING AND ENVIRONMENT

NSW LAND AND HOUSING CORPORATION

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Component Requirements

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Preamble

There are over 10 million components in approximately 130,000 dwellings and buildings owned by NSW Land and Housing Corporation (LAHC). They include doors, basins, taps, windows, etc. as well as floors, walls and roofs. Components are the discreet items that together comprise a building, and which can normally be replaced as a unit.

A sub-component is a further breakdown of the component into its discreet parts, a handle is part of a door, a window sash is part of a window, a bench top is part of a kitchen cabinet, etc.

The ordering of components and their sub-components in this reference document mirrors the arrangement in the LAHC Maintenance Specifications and the Reference Specifications for new construction.

The Basic Provision Standards that form part of the commitment by NSW LAHC tenants for provision levels in existing dwellings can be found in the **Asset Performance Standards** reference document.

A Different Emphasis

NSW LAHC is not just a purchaser of new dwellings, it is a long term manager of residential property. Life cycle costs are as important as the purchase price and this places a different emphasis when judging the suitability of products to that of the general residential market.

From NSW LAHC long term ownership and management of approximately 130,000 state wide properties a surfeit of information on the performance and suitability of various materials, construction systems and fixtures for rental property has been compiled.

Deemed to Comply

Particular products that are deemed to comply with these requirements are listed in a schedule available from NSW LAHC. Because products are varied or withdrawn, and new products become available, the schedule is only relevant at the time of issue. A product not in the schedule can be used as long as the product complies with the "Components Requirements" and/or the relevant specifications.

Warranties

NSW LAHC is seeking greater value for money for dwelling components. Many are replaced or repaired regularly and this provides an excellent basis for determining the appropriateness of particular components for rental properties.

This document places greater emphasis on warranties as part of the value for money objective. There is also an attempt to limit the number of components listed to those specifically of interest to a social housing provider or owner.

Components

The components listed are those pertinent to NSW LAHC and not scheduled as a provision standard. The schedule is not a comprehensive list of components needed to construct a dwelling.

Components not listed in this document should comply with the relevant specifications (Maintenance and Reference Specifications).

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Elaboration

This document outlines the performance requirements of selected components with which NSW LAHC has both a direct interest in and experience with. For workmanship and installation requirements, refer to the appropriate contract documents.

Not all materials used in buildings are identified in this document. It is expected that all materials used in work undertaken on behalf of NSW LAHC will be fully compliant with current Australian Standards and service authority requirements as well as any legislation and regulatory requirements.

Components identified by performance criteria only, may require written certification from the manufacturer or supplier. Certification must be provided to NSW LAHC for each project before installation by the Contractor.

Where compliance with relevant standards, codes (including the National Construction Code of Australia and NSW variations), and Australian Standards are listed as performance criteria, use the current editions, including amendments. Applicable Australian Standards and other international and nationally recognised standards are accepted provided the manufacturer/supplier produce proof of equivalence assessed/certified by an accredited independent third party.

Criteria for product selection for use in NSW LAHC properties include, but are not limited to, the following:-

- proven performance
- proven quality and/or endorsement from reputable organisation(s) in the industry
- “Standards Mark” accreditation (where possible)
- “Code Mark” certification (where possible)
- best value for money
- low maintenance
- assurance of supply
- warranty
- origin of product

NSW LAHC will exercise its right to select particular products that best meet the business needs. This judgment may be based on independent third party assessment or on experience with the products’ performance. In all cases NSW LAHC is seeking both value for money and the promotion of better performing products at affordable prices. NSW LAHC also reserves the right to seek supply agreements for the bulk supply of particular products.

NSW LAHC has the right to amend/add performance criteria to this document at its sole discretion.

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Document Format

The Component Requirements (2023) consists of two parts:

- Part 1 includes the Component Requirements to supplement the Asset Maintenance Services Contract (AMS) – Section 2 – Part G2 Technical Specification for Maintenance – G2.1 Maintenance Specification clause 22; and to contribute to the preparation of Reference Specification for new construction.
- Part 2 includes the additional items used in the preparation for Reference Specifications for new construction, Fire Safety upgrade works and special projects.
 - These items in the Component Requirements are intended to assist Delivery Division Project Managers and Contractual drafters of new construction works, Fire Safety Program works and other special projects to prepare technical reference specification.
 - These items will also assist AMS Contractors to understand the performance requirements of specialist equipment often found and installed in new construction.

The components are arranged on the following pages 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

Some of the component descriptions include detailed requirements, but even then, the business need should be understood first as it represents the Principal's primary interest.

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	<p>General (all types)</p> <ul style="list-style-type: none"> • 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) <p>Freestanding</p> <ul style="list-style-type: none"> • A4 envelope size minimum 230mm x 330mm and minimum 160mm high • Minimum 30mm high letterbox slot • Elevated between 900mm to 1200mm above ground on a coated steel post • Padlock or key operated camlock <p>Built-in (brickwork or Aluminium Letter box Banks)</p> <ul style="list-style-type: none"> • Aluminium/G2 zinc coated steel/zinc-aluminium coated steel sleeve • Minimum A4 envelope size, minimum 230mm x 330mm and minimum 160mm 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

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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	<p>General (all types)</p> <p>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</p> <ul style="list-style-type: none"> • 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 <p>Retractable</p> <ul style="list-style-type: none"> • 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 <p>Awning</p> <ul style="list-style-type: none"> • 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 <p>Fixed Rotary Type Adjustable (wind-up fixed head hoists)</p> <ul style="list-style-type: none"> • 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	<p>Minimum 10 year written warranty - frame</p> <p>Minimum 1 year written warranty - line and components</p>

1.2 Carpentry

1.2.1 Built in Wardrobes

Component	BUILT IN WARDROBES
Sub-component	
Need	To provide adequate storage for tenants' clothing
Requirement	<p>General</p> <p>To current Australian Standards for HMR, MDF, Laminate, Melamine and Painted finishes</p> <p>Doors</p> <ul style="list-style-type: none"> • 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 <p>OR</p> <ul style="list-style-type: none"> • Painted 35mm flush, hollow or cell cored door <p>Carcass</p> <ul style="list-style-type: none"> • 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 <p>Drawers</p> <ul style="list-style-type: none"> • 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	<p>General</p> <p>To current Australian Standards for kitchen assemblies, HMR, MDF, Laminate and Melamine finishes</p> <p>Benchtops</p> <ul style="list-style-type: none"> • 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 <p>Doors and Drawer fronts</p> <ul style="list-style-type: none"> • 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 <p>Drawer</p> <ul style="list-style-type: none"> • 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 <p>Carcass</p> <ul style="list-style-type: none"> • 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 <p>Kickboard</p> <ul style="list-style-type: none"> • 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

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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	<p>General (All types)</p> <ul style="list-style-type: none"> • 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 <p>Single Door Cabinet</p> <ul style="list-style-type: none"> • 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 <p>Double Door Cabinet</p> <ul style="list-style-type: none"> • 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

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1.2.4 Bathroom Vanity

Component	BATHROOM ACCESSORIES
Sub-component	Bathroom Vanity
Need	For storage of personal items used only in the bathroom
Requirement	<p>To current Australian Standards</p> <p>Vanity tops</p> <ul style="list-style-type: none"> • 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) <p>OR</p> <ul style="list-style-type: none"> • Sanitary grade Acrylic (Waterborne) moulded <p>Door and Drawer fronts</p> <ul style="list-style-type: none"> • 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 <p>OR</p> <ul style="list-style-type: none"> • Polyurethane finish <p>Carcass</p> <ul style="list-style-type: none"> • 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 <p>Installation to manufacturers specification</p>
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	<p>Aluminium Door Framing</p> <ul style="list-style-type: none"> 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 <p>Aluminium Heavy Duty Grille</p> <ul style="list-style-type: none"> 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) <p>Aluminium Door Framing & Heavy Duty Grille Finish</p> <ul style="list-style-type: none"> Clear anodised to current Australian Standards (20 microns thick for all regions) <p>OR</p> <ul style="list-style-type: none"> Thermoset powder coatings to current Australian Standards (50 microns thick for standard conditions/ 80 microns thick for severe coastal or industrial regions) <p>Screen Mesh</p> <ul style="list-style-type: none"> 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 <p>Hardware</p> <ul style="list-style-type: none"> 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	<p>General</p> <ul style="list-style-type: none"> 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 <p>Fire Resistant door sets and door frames</p> <ul style="list-style-type: none"> To current Australian Standards – AS1905.1 -/60/30 FRL rated flush type door (Type D bonded plywood/ hardwood face) Closer with appropriate FRL <p>Entry doors (non fire rated)</p> <ul style="list-style-type: none"> 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 <p>Timber door frame and jamb lining (for Maintenance only)</p> <ul style="list-style-type: none"> To current Australian Standards <p>Steel door frames (non fire rated)</p> <ul style="list-style-type: none"> Minimum 18 gauge hot dipped zinc coated steel doorframe with internal architrave <p>Security Viewer</p> <ul style="list-style-type: none"> Fire rated security viewer Viewing greater than 160° <p>Stormproof Door Seal or Smoke Seal</p> <ul style="list-style-type: none"> Storm seal screw fixed to base of door leaf Smoke seals fixed to door frame or base of door leaf as appropriate Seals to be independently tested with proprietary fire doors and solid core doors Tested in accordance with AS1530.7 and capable of limiting smoke to 200° Celsius for 30 minutes Independently tested to demonstrate that the product does not suffer from significant wear and tear for up to and exceeding 10,000 open and close cycles
Warranty	<p>Minimum 5 year written warranty - door</p> <p>Minimum 2 year written warranty - stormproof door seal</p>

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1.3.3 Doorways Internal

Component	DOORWAYS	
Sub-component	Internal	
Need	To provide a reliable mechanism for closing off rooms	
Requirement	<p>General</p> <ul style="list-style-type: none"> • To current Australian Standards • Do not use imported rainforest timber veneers • A non standard door size is a door size over 2400mm x 900mm <p>Internal doors</p> <ul style="list-style-type: none"> • 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 <p>Timber door frame and jamb lining</p> <ul style="list-style-type: none"> • To current Australian Standards <p>Steel door frames</p> <ul style="list-style-type: none"> • 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	<p>General</p> <ul style="list-style-type: none"> • To current Australian Standards • 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 <p>Front and rear entry doors Cottages, villas & townhouses, units:</p> <ul style="list-style-type: none"> • 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 <p>Units/apartments (additional)</p> <ul style="list-style-type: none"> • Door closer (rack and pinion type) • Door closer low moment type cam operated where appropriate • Door closer to achieve a -/60/30 FRL when installed on a FRL door set <p>Heavy duty screen doors</p> <ul style="list-style-type: none"> • Short backset mortice deadlock and lever with snib. Single point locking only <p>Common area entrance doors & community rooms</p> <ul style="list-style-type: none"> • 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 <p>Balcony/porch swing and sliding doors</p> <ul style="list-style-type: none"> • Keyed double deadlocks <p>Internal doors</p> <ul style="list-style-type: none"> • Lever passage latch set • Privacy latch set to bathroom/WC Lever set <p style="text-align: right;"><i>Continues</i></p>

Component	DOORWAYS
	<p><i>Continues</i></p> <p>Common Storeroom & toilets</p> <ul style="list-style-type: none"> Nightlatch and 'D' handle (Key to master key system) <p>Electric meter cupboard</p> <ul style="list-style-type: none"> Nightlatch (fire rated) and 'D' handle (Key to master key system) <p>Electric meter cabinet</p> <ul style="list-style-type: none"> Padlock (Key to master key system)
Warranty	<p>Minimum 5 year written warranty - paint & tarnish</p> <p>Minimum 10 year written warranty - mechanical parts</p>

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	<ul style="list-style-type: none"> 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 <p><i>Continues</i></p>

Component	WINDOWS
	<p><i>Continues</i></p> <p>Acid etch anodising</p> <ul style="list-style-type: none"> AS1231-2000 for suitability to atmospheric conditions Minimum 20 micron anodised film, 25 micron for coastal areas <p>Flyscreen Mesh</p> <ul style="list-style-type: none"> 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) <p>Heavy Duty Grilles (only when directed)</p> <ul style="list-style-type: none"> 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	<p>Note - All openable windows must be capable of being locked in a partial open (safe ventilation) and closed position</p> <p>General</p> <ul style="list-style-type: none"> 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 and 100mm 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 <p style="text-align: right;"><i>Continues</i></p>

Component	WINDOWS
	<p><i>Continues</i></p> <p>Window Restrictors (Only where specified)</p> <ul style="list-style-type: none"> • 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	<p>General</p> <ul style="list-style-type: none"> • Able to be fixed securely to wall • Provides effective shading • Sheds water away from window/door • Made of non combustible material <p>Radiant Heat Attenuating Screens</p> <ul style="list-style-type: none"> • 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

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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	<p>Roller Doors (Domestic) Single and Double Doors</p> <ul style="list-style-type: none"> • 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 <p>Panel Lift Door (Domestic) Single Doors only up to 2400mm Wide</p> <ul style="list-style-type: none"> • 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	

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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	<ul style="list-style-type: none"> • 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	<p>Note – Installation of roof and eave vents must not compromise the fire safety of the building</p> <p>Under Eave Vents</p> <ul style="list-style-type: none"> • Curved air inlet holes to restrict insect entry • White Polypropylene or equivalent durable plastic • Minimum size 400 x 200 mm <p>Roof Ventilators</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 – Zinalume 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 	
Warranty	Minimum 20 year written warranty - Gutters, Downpipes and Fascias	

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1.4.3 Roof Lights and Skylights

Component	ROOF
Sub-component	Tubular Roof Lights/Skylights
Need	To provide natural light to internal areas
Requirement	<p>Skylights Tubular</p> <ul style="list-style-type: none"> • 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	<p>Glass Fibre (batts)</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ Ignitability Index 0 ○ Spread of Flame 0 ○ Heat Evolved 0 ○ 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 <p style="text-align: right;"><i>Continues</i></p>

Component	ROOF
	<p><i>Continues</i></p> <p>Glass Fibre (blankets)</p> <ul style="list-style-type: none"> • 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 <p>Rockwool (batts)</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ Ignitability Index 0 ○ Spread of Flame 0 ○ Heat Evolved 0 ○ 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 <p>Rockwool (blankets)</p> <ul style="list-style-type: none"> • Properties same as for Rockwool Batts above • Rockwool blankets cannot be installed on top of the flat ceiling to cover ceiling joists or services <p>Notes</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> 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	<p>General</p> <ul style="list-style-type: none"> 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 <p>OR</p> <ul style="list-style-type: none"> 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) <p>Retrofit Existing - Acrylic (Waterborne) bath linings</p> <ul style="list-style-type: none"> 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	<p>General</p> <ul style="list-style-type: none"> 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	<p>General</p> <ul style="list-style-type: none"> 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 <p>Disability Modification</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<p>Toilet Paper Holder</p> <ul style="list-style-type: none"> Chrome plated brass/polished stainless steel frame, minimum 150mm x 150mm with aluminium roller <p>Bath Towel Rail</p> <ul style="list-style-type: none"> Minimum 760mm overall length x 16mm-diameter chrome plated brass or stainless steel tube with stainless steel end brackets, for wall screw fixing <p>Robe Hooks</p> <ul style="list-style-type: none"> 52mm x 53mm chrome plated brass 	
Warranty	Minimum 1 year written warranty	

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1.5.7 Grab Rails

Component	BATHROOM ACCESSORIES	
Sub-component	Grab Rails	
Need	Reduce risk of falls for our tenants	
Requirement	<ul style="list-style-type: none"> • 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	<p>General</p> <ul style="list-style-type: none"> • 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 <p>Existing Housing (Maintenance only)</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> 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	<p>Bib tap / Pillar tap / Hob mounted set / Flick mixer</p> <p>General</p> <ul style="list-style-type: none"> 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 <p>Standard tap set (separate taps and spout /shower rose)</p> <ul style="list-style-type: none"> 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 <p style="text-align: right;"><i>Continues</i></p>

Component	TAPS
	<p><i>Continues</i></p> <p>OR</p> <p>Flick mixer (Wash Basin or Laundry Tub only)</p> <ul style="list-style-type: none"> • 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) <p>Disability Modification</p> <ul style="list-style-type: none"> • 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	<p>Minimum 2 year written warranty – standard taps</p> <p>Minimum 10 year written warranty – flick mixer ceramic disc cartridge</p>

Component	TAPS	
Sub-component	Kitchen	
Need	To easily control water flow reliably for efficient water usage	
Requirement	<p>Bib tap / Pillar tap / Hob mounted sink set / Wall sink set / Flick mixer</p> <p>General</p> <ul style="list-style-type: none"> • 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 <p>Standard tap set (separate taps and spout)</p> <ul style="list-style-type: none"> • 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 <p>OR</p> <p>Flick mixer</p> <ul style="list-style-type: none"> • 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) <p>Disability Modification</p> <ul style="list-style-type: none"> • Tap handles as directed • Quarter turn taps with ceramic disc fitted to kitchen sinks or flick mixer tap as directed 	
Warranty	<p>Minimum 2 year written warranty – standard taps</p> <p>Minimum 10 year written warranty – flick mixer ceramic disc cartridge</p>	

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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	<p>General</p> <ul style="list-style-type: none"> • 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 <p>Disability Modification</p> <p>Bowl depth and dimensions as directed</p> <p>Studio</p> <ul style="list-style-type: none"> • Single Bowl sink with single drainer. Minimum 880mm length and minimum 13.5L bowl • Sink to suit bench top width – minimum of 450mm <p>1 to 2 Bedroom Properties</p> <ul style="list-style-type: none"> • 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 <p>3 or more bedroom</p> <ul style="list-style-type: none"> • 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

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1.5.12 Laundry Tub

Component	LAUNDRY TUB
Sub-component	Tempering Valves/Thermostatic Mixing Valve
Need	To wash and soak clothes and bedding
Requirement	<p>General</p> <ul style="list-style-type: none"> To current Australian Standards Standards Mark/Watermark/Water Authority certificate of approval Detachable PVC or polyolefin bypass connected at top to current Australian Standard <p>Tub</p> <ul style="list-style-type: none"> 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 <p>Cabinet</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

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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	<p>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</p> <p>Alternate piping shall meet the following requirements</p> <ul style="list-style-type: none"> • To current Australian Standards • Water Mark certificate of approval • Recyclable at end of life • Satisfies tests for contaminants to comply with AS/NZS4020 including: <ul style="list-style-type: none"> • 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	<p>All Rainwater Tanks above and below Ground</p> <ul style="list-style-type: none"> • 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 <p>Above Ground Rainwater tanks</p> <ul style="list-style-type: none"> • 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 <p>Below Ground Rainwater tanks</p> <ul style="list-style-type: none"> • 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	<p>Minimum 20 year written warranty Above Ground Minimum 15 year written warranty Below Ground</p>

1.5.16 Water Heater

Component	WATER HEATERS
Sub-component	Solar Water Heaters
Need	To reliably provide hot water
Requirement	<p>General</p> <ul style="list-style-type: none"> • 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 <p>Gas Boost</p> <ul style="list-style-type: none"> • Minimum 170L with 5 star Gas Boost (all bedroom categories) <p>Electric Boost</p> <ul style="list-style-type: none"> • 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	<p>General</p> <ul style="list-style-type: none"> • 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 <p>Storage</p> <ul style="list-style-type: none"> • Mains pressure: Floor Model (outdoor only) • 1 bedroom minimum 90L • 2 bedroom minimum 110L • 3 bedroom and over, minimum 135L <p>Instantaneous (External installation only)</p> <ul style="list-style-type: none"> • 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 <p>1 bathroom Properties</p> <ul style="list-style-type: none"> • NCC Climate zone 6 to 8 – 16L to 26L • NCC Climate zone 2 to 5 – 16L to 20L <p>2 bathroom Properties</p> <ul style="list-style-type: none"> • NCC Climate zone 6 to 8 – 26L to 32L • NCC Climate zone 2 to 5 – 20L to 26L
Warranty	<p>Storage</p> <p>Minimum 1 year written warranty - parts/labour Minimum 10 year written warranty – cylinder</p> <p>Instantaneous</p> <p>Minimum 3 year written warranty - parts and labour Minimum 10 year written warranty - heat exchanger</p>

Component	WATER HEATERS
Sub-component	Electric Water Heaters
Need	To reliably provide hot water
Requirement	<p>General</p> <ul style="list-style-type: none"> • To current Australian Standards • Standards Mark/Water Mark/ Water Authority Certificate of Approval • All Units, Valves and piping must be frost protected <p>Storage</p> <ul style="list-style-type: none"> • 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 <p>Instantaneous</p> <ul style="list-style-type: none"> • Electrical cut-off Manufactured with inbuilt Pressure/Temperature relief valve • Minimum. 4.5 L/ minute
Warranty	<p>Storage</p> <p>Minimum 1 year written warranty - parts/labour Minimum 10 year written warranty – cylinder</p> <p>Instantaneous</p> <p>Minimum 3 year written warranty - parts/labour</p>



Component		WATER HEATERS COMMERCIAL	
Sub-component		Commercial Electric Water Heaters	
Need	To reliably provide hot water		
Requirement	<ul style="list-style-type: none"> • Installed to match performance of existing • To current Australian Standards • Standards Mark / Water Mark / Water Authority Certificate of Approval • Extra Long Life tank (tank life more than 10 years – High grade Stainless Steel or similar durable material) • Pressurised tank • Dual handed connections • Adjustable thermostat • Automatic Over Temperature Safety Cut off • Provide rust free water • Durable pre-painted steel casing • Commercial mains pressure storage <p>Storage</p> <ul style="list-style-type: none"> • Mains Pressure, Floor Model (Indoor / Outdoor) (250L to 600L) 		
Warranty	Minimum 10 year written warranty (Cylinder)		

Component		WATER HEATERS COMMERCIAL	
Sub-component		Commercial Gas Water Heaters	
Need	To reliably provide hot water		
Requirement	<ul style="list-style-type: none"> • Installed to match performance of existing • To current Australian Standards • Standards Mark / Water Mark / Water Authority Certificate of Approval • AGA Approval • Minimum 5 star energy rating • If internal in a plant room – all gas heaters must be flued to outside with minimum 0.5mm gauge galvanised steel flue • Extra Long life tank (Tank life more than 10 years – High grade Stainless steel or similar durable material) • Pressurized tank (either On Ground or Close Coupled) • Dual handed connections • Adjustable Thermostat • Automatic Over Temperature Safety Cut Off • Provide rust free water • Durable pre-painted steel casing • Commercial mains pressure storage <p>Storage</p> <ul style="list-style-type: none"> • Mains Pressure, Floor or Close Coupled Model (Indoor / Outdoor) (150L to 300L) 		
Warranty	Minimum 10 year written warranty (Cylinder)		

1.6 Electrical and Gas

1.6.1 Intercom and Access Control

Component	ACCESS CONTROL
Sub-component	Intercom and Door Control
Need	To provide a reliable, useable and secure device for controlling access to buildings
Requirement	<ul style="list-style-type: none"> • Vandal Resistant Intercoms • Displays self explanatory user information • Minimum 2mm Stainless Steel front with toughened minimum 4mm Polycarbonate Surround • Impact resistant and fixed with anti-vandal fixings • Front plate to allow a minimum of six buttons with audio, expandable modular units for additional features • Optional space for shatterproof camera shielded by minimum 4mm clear polycarbonate • Stainless steel buttons, tamperproof and shaped to prevent foreign bodies being inserted underneath • Linked to door release switch in units and internal intercom Door Release System • Steel reinforced recessed entry panel with buttons flush to outer surface and anti-removal device. Must operate independently and not be reliant on other communication services • Installation to manufacturers specification
Warranty	Minimum 1 year written warranty

1.6.2 Light Points

Component	LIGHT POINTS
Sub-component	Interior Common Area Lights
Need	<p>To illuminate common areas adequately for undertaking normal domestic activities and security, including internal fire stairs, stairwells, lift lobbies, corridors, car parks etc. Includes external areas with roofs/ceilings <3m, such as undercover walkways, car parks, stair wells etc</p>
Requirement	<ul style="list-style-type: none"> • To provide Common Area lighting to all common areas egresses and access ways within residential complexes (entranceways, stairways, corridors, common rooms, plant rooms etc) • To current Australian Standards and relevant access standards • Installed to manufacturers written specification • Luminaires must be U.V. stabilised and IP65 rated with die cast Aluminium (minimum 20 to 25 Micron Powder coating) or ≥ 3mm polycarbonate housing • Product must have a recognised Australian Certificate of Approval under the Gas and Electricity Consumer Safety Act 2017 • All fixtures and components to be vandal proof, hose proof and impact resistant. Security/specialty screws required for all fixings • Energy efficient lamps to be used • Colour temperature: 4000 - 5000K • Colour rendering index: 80+ • Power Factor ≥0.9+ • Light sources / lamp preference based on luminous efficacy i.e. highest lumens per watt to be given preference. Luminous efficiency of light source / lamp must be ≥ 70 Lumens / Watt • Rated lamp life ≥ 20,000 hours • Luminaire light Output Ratio (LOR) ≥ 0.7, evidenced by NATA accredited lab reports • Lumen output of light source / lamps ≥ 70% of original output at end of the rated lifetime, evidenced by NATA accredited lab reports • Luminaires with no hanging points as directed by the Principal to meet building criteria • Luminaires must be securely fixed to the surface - no hanging fittings <p style="text-align: right;"><i>Continues</i></p>

	<p><i>Continues</i></p> <p>LED Lamps/Luminaires</p> <ul style="list-style-type: none"> • All luminaires must be vandal-resistant LED luminaires with occupancy sensors that maintain a low level of lighting when areas are unoccupied • All luminaire models must have previously been used by an Accredited Certificate Provider to successfully create Energy Savings Certificates under the NSW Energy Savings Scheme • All components of the light fitting including lamps, batteries, covers etc. must be able to be purchased and replaced individually • LED rated lamp life $\geq 50,000$ hours • LED luminous efficacy ≥ 70 Lumens/Watt at full light output • LED colour temperature 4000-5000K • LED colour rendering index $\geq 80+$ • Luminaire power factor $\geq 0.9+$ • Lumen output of LED lamps $\geq 70\%$ of original output at end of the rated lamp life • Luminaire Light Output Ratio (LOR) ≥ 0.7 • All exposed equipment (luminaires, motion sensors, photocells, diffusers etc.) must be vandal resistant, IP65 rated, with $\geq 3\text{mm}$ thick impact-resistant polycarbonate covers or equivalent • All motion sensors or other parts are to be securely contained within the luminaire, or fixed to the ceiling or luminaire using vandal resistant security/specialty screws and contained within IP65 rated $\geq 3\text{mm}$ thick impact-resistant polycarbonate covers or equivalent • No equipment is to have leverage or hanging points • Security/specialty/tamper proof screws are required for all fixings • Luminaires must be fixed to ceilings using a drilling method – no adhesive methods will be accepted • Emergency luminaires must be self-contained with a self static inverter. System including battery and battery charger to be non-corrosive • Emergency luminaire battery to be heavy duty long life type and duration of emergency power ≥ 90 minutes • Any battery compartments must be either inaccessible or accessible only via vandal resistant security/specialty screws
Warranty	<p>Minimum 2 year written warranty</p> <p>Minimum 3 year written warranty - all LED components</p>

Component	LIGHT POINTS
Sub-component	Exterior Light Fittings
Need	To illuminate an area for safe pedestrian movement. For external areas with roofs/ceilings <3.5m, such as undercover walkways, car parks, stair wells etc, component requirements for Interior Common Area Lights apply for LED lamps/luminaires
Requirement	<ul style="list-style-type: none"> • Modular carriage tray with electronic starter • Weather proof IP65 rated • Lights to reduce light spill and sited to illuminate pedestrian and mixed traffic areas in common areas, forecourts of cluster housing to improve safety and reduce shadow and potential hiding locations • Meet current AS/NZS1158 Table 2.1 with selection criteria critically evaluating 'risk of crime' • Performance to type 3 or 4 Luminaire classification to AS/NZS1158.3 • Lights mounted high on posts or buildings and sited not to spill into windows or neighbouring buildings. Bollard lighting is not approved • Meet current AS/NZS1158 and achieve a 'P1' for High levels of vandalism or 'P2' for Medium levels of vandalism in accordance with AS/NZS1158.3 <p>All External lighting</p> <ul style="list-style-type: none"> • Vandal proof moulded base • Impact resistant moulded housing • Vandal proof opalescent cover - U.V. stabilised diffuser • Replaceable carriage tray with electronic starter • No hanging point as directed by the Principal Light to be securely fixed with all cables secure and vandal resistant to prevent access • Energy efficient Tri-phosphor globes and tubes or LED globes • Installed to manufacturers written specification • Performance to Type 3 or 4 Luminaire classification in accordance with AS/NZS1158.3 <p>Building and Car-Park Lighting</p> <ul style="list-style-type: none"> • Housing casing glass reinforced polyester or Nylon moulded plastic • Vandal resistant moulded Polycarbonate diffuser • Vandal resistant stainless steel clips • Where possible all lights are to be fixed to buildings or other structures at a preferred height of 2m to 3.4m Pole Top Lighting • All Pole top lighting to be 2m to 3.4m around pedestrian paths • All Pole top lighting to be 3.4 to 4.5m around roadways • Poles to suite 76 diameter or 100 diameter spigots • Poles minimum 3.6mm thick x 75mm diameter minimum. 60 micron hot dipped galvanised M.S. post <p>Notes</p> <ul style="list-style-type: none"> • Bollard and up-lighting types are NOT approved for new installations • Design of lighting to comply with AS/NZS4282 Control of the Obtrusive Effects of Outdoor Lighting
Warranty	Minimum 2 year written warranty

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1.6.3 Smoke Alarms

Component	SMOKE ALARMS
Sub-component	
Need	To provide early warning of fire to occupants
Requirement	<p>All Properties</p> <ul style="list-style-type: none"> • To current Australian Standards • Product listed in CSIRO’s Activfire Register of Fire Protection Equipment • Ionisation or photo-electric model or Heat Technology • Test button • Surface mounted (not recessed) • Alarm pause (‘hush’) button to silence alarm (ionisation model) • Mains operated (hard-wired) 240 volt unit with fixed rechargeable (Lithium) battery backup (10 years battery life expectancy) – with minimum 2 months battery standby • Inter-linkable features • Low power warning • Installed to manufacturers written specification • Branded with manufacturers trademark to AS3786 • Energy Efficient smoke alarm • Interlink with Isolators / hush button • Interlink with Strobe lights for hearing impaired
Warranty	Minimum 10 year written warranty including rechargeable battery

1.6.4 Stove

Component	STOVE
Sub-component	
Need	To cook food safely and effectively, allowing frying, grilling and baking
Requirement	<p>Note: In all new construction, separate wall or under bench oven and cooktop only.</p> <p>Upright - (for maintenance only)</p> <ul style="list-style-type: none"> • To current Australian Standards • Main Oven gross capacity minimum 75 litre • 540 mm wide • Combined or separate griller and oven compartments • Fan Forced or conventional oven – Removable oven door with cool to touch window • 4 hot plates or 4 burners : For Electric solid elements or ceramic glass cooktop (non induction) tested to IEC60335 For Gas - Electric or battery ignition, push to turn safety control, flame failure cut off for emergency • Front control or side control buttons only • Splashback to upright • AGA approval where appropriate <p style="text-align: right;"><i>Continues</i></p>

Component	STOVE
	<p><i>Continues</i></p> <p>Cook Top - Electric or Gas</p> <ul style="list-style-type: none"> • To current Australian Standards • Square white enamel painted finish or stainless steel or ceramic glass hob with front or side controls • 4 hot plates or 4 burners; For Electric solid elements or ceramic glass cooktop (non induction) tested to IEC60335 For Gas - Electric or battery ignition, push to turn safety control, Flame failure cut off for emergency • Heat residual warning indicator for ceramic glass cooktops • AGA approval where appropriate <p>Wall Oven - Electric Only</p> <ul style="list-style-type: none"> • To current Australian Standards • Oven gross capacity minimum 80 litre • Combined or separate griller and oven compartments • Fan Forced or conventional oven – Removable oven door with cool to touch window <p>Disability Modification</p> <ul style="list-style-type: none"> • Cooktop and oven as directed <p>Boarding House/Studio</p> <ul style="list-style-type: none"> • Replace like for like which may include 2 burner
Warranty	Minimum 2 year written warranty

1.6.5 Rangehood

Component	RANGEHOOD
Sub-component	
Need	To remove grease from cooking gases
Requirement	<p>General</p> <ul style="list-style-type: none"> • To current Australian Standards/Australian Gas Association/NSW Office of Energy and Climate Change • Fixed undermount or pull out undermount • Minimum 50 micron powder coating to galvanised steel casing • AS marking, brand name, serial no. date code, rated air delivery, sound power level in dB(A) at rated air delivery and wattage branded on unit • Minimum air flow rate 40L/s (144m³/hr) at maximum sound power level 55dB(A) to current Australian Standards • Minimum 2 speed convertible fan & automatic thermostat cut-off electricity or impedance protected motor (withstand “locked rotor” conditions for 72 hours without burning out) • Minimum 55 watt motor • Minimum 3 blade plastic/metal propeller • Multi layer aluminium / stainless steel filtration mesh grease filters • Wiring encased in plastic conduits, within unit • Width to match and align with cooktop or stove • Installation to manufacturers specification <p>Ducting</p> <ul style="list-style-type: none"> • Exhaust to outside • To be minimum of 0.5mm galvanised steel ducting or ‘Flexi-duct’ similar fire or heat resistant material)
Warranty	Minimum 2 year written warranty - parts/labour Minimum 2 year written warranty - filters

1.6.6 Heating

Component	HEATING
Sub-component	Electric Space/Electric Panel Heaters
Need	To provide efficient and effective heating of a room
Requirement	<p>(Replacement only as approved by principal- consider replacing with reverse cycle air conditioning as per LAHC Heating and Cooling Policy)</p> <ul style="list-style-type: none"> • To current Australian Standards • Only space/panel heaters approved under the Certificate of Approval Scheme authorised by the appropriate government agency with authority to test and certify • Installation in accordance with Australia/New Zealand Wiring Rules (Australian Standards AS/NZS3000) and to local supply authority regulations • Fixed (including wall mounted or recessed or floor mounted) panel or fan assisted heaters • Minimum 2 heat settings, (LO/HI) Thermostat control on high setting • Minimum 2kW (heat up to 55 m³) to Maximum 7kW (heat up to 160 m³) consumption capacity • Minimum efficiency of greater than 95% • Automatic reset thermal cut-out safety feature and fusible link. Branded with manufacturers name to AS/NZS60355, supplier licensed under Standards Assoc. Certification Trademark • Child safe to touch cabinet
Warranty	Minimum 2 year written warranty

Component	HEATING
Sub-component	Gas Space Heaters
Need	To provide efficient and effective heating of a room
Requirement	<p>(Replacement only as approved by principal- consider replacing with reverse cycle air conditioning as per LAHC Heating and Cooling Policy)</p> <ul style="list-style-type: none"> • To current Australian Standards • Natural Gas/Town only • Room sealed heater • Wall mounted convection heater, Thermostat heat control automatic electronic ignition, timer, regulated gas flow and flued combustion gases • Child safe to touch cabinet • Minimum 4.3 efficiency stars and 6.0 emissions star rating • Double lined flue within ceiling space • Heaters with flues • Gas input - minimum size : 5 MJ/hr • Gas input - maximum size : 23 MJ/hr • Labelling of appliances, specifying minimum allowable room volume and capacity of heater in MJ/hr • Installation to AGA requirements • AGA certificate of approval
Warranty	<p>Minimum 10 years written warranty - burner Minimum 2 year written warranty - fan Minimum 1 year written warranty - other parts</p>

1.6.7 Dryer

Component	DRYERS
Sub-component	
Need	Dry washing efficiently and effectively
Requirement	<p>Common Area Laundries and NCC Class 3 and 9 Properties (replacement only)</p> <ul style="list-style-type: none"> • To current Australian Standards • Minimum 3.5kg or 5kg capacity • Auto cool down • 2.5 hour timer – 3 heat settings • Easy clean filter • Safety door switch, Safety thermostat reset switch • 2 directional air outlet and optional venting kit • Wall mountable • Minimum 2 star Energy Rating
Warranty	Minimum 2 year written warranty

1.6.8 Washing Machine

Component	WASHING MACHINE
Sub-component	
Need	A means of automatically washing a variety of clothes and bedding types
Requirement	<p>Common Area Laundries and NCC Class 3 and 9 Properties (replacement only)</p> <ul style="list-style-type: none"> • To current Australian Standards • Standards Mark/ Type Test Mark to NPADPS/ Water Authority certificate of approval • Automatic washing machine, with rotary or push button control • Stainless steel drum <p>NCC Class 3 and Class 9 (minimum 7 kg load capacity)</p> <ul style="list-style-type: none"> • Front loading • 4 Star WELS rating • 4 Star Energy rating <p>Common Area Laundries (minimum 5.5 kg or 6 kg load capacity)</p> <ul style="list-style-type: none"> • Top loading • 4 Star WELS rating • 3 Star Energy rating
Warranty	Minimum 2 year written warranty

1.6.9 Reverse Cycle Air Conditioning

Component		AIR CONDITIONER
Sub-component		Reverse Cycle Split System
Need	To provide efficient and effective heating and cooling of a room	
Requirement	<p>NOTE: Installed only in NCC climate zones 7 and 8 and as per LAHC Heating and Cooling Policy or as directed. (do not remove LAHC installed air conditions in other climate zones without seeking direction)</p> <p>General</p> <ul style="list-style-type: none"> • To current Australian Standards • Wall or Floor mounted • Cooling capacity minimum 2.5 kw to maximum ≤ 7 kw • Energy star rating <ul style="list-style-type: none"> ○ 2.5 kw cooling model- minimum 5 star cooling, minimum 3 star heating ○ 3.5 kw cooling model - minimum 4.5 star cooling, minimum 3.0 star heating ○ 5.0 kw cooling model - minimum 4.5 star cooling, minimum 2.5 star heating ○ 6.0 kw cooling model - minimum 4 star cooling, minimum 2.5 star heating • Minimum number of fan speeds 4 • Indoor noise ≤ 50 dBs • Outdoor noise ≤ 60 dBs • Single Phase 240 V • Controller to be hard wired. Remote controls only supplied where directed 	
Warranty	Minimum 2 year written warranty	

1.6.10 Solar Photo-Voltaic Panels

Component		SOLAR PHOTO -VOLTAIC PANELS
Sub-component		Panels and Inverter
Need	To generate electricity coupled with a fixed voltage converter	
Requirement	<p>Photo Voltaic Panels (all models)</p> <ul style="list-style-type: none"> Listed on Clean Energy Council (CEC) Approved Modules Database – and to current Australian and International Standards Efficiency > 15% Mean measured power per panel > 250w, with Performance Ratio of ≥ 90% and/or Temperature Coefficient of ≤ 0.5% (Life cycle testing to show that performance is not significantly diminished over the power generation life of the panel) Generate Small Scale Technology Certificates (STC's) and be listed on the Clean Energy Council list of approved components Compliant with IEC 61215, IEC 61730 and UL 70 Anti-reflective coating Frame post cut anodized Aluminium screw or weld fixed (tested to withstand cyclonic wind) Operating temperature from minimum – 25°C to maximum 85°C IP67 rated junction box on each panel Roof mounted isolators to be side mounted <p>Solar Inverter (Fixed Voltage Inverter models)</p> <ul style="list-style-type: none"> Listed on Clean Energy Council (CEC) Approved Modules Database – and to current Australian and International Standards Optimal Efficiency > 95% DC/AC Conversion Suit outdoor or indoor installation Ambient operating temperature range from minimum – 25°C to > 50°C Minimum IP65 rating 	
Warranty	Minimum 25 year written warranty – power generation Minimum 10 year written warranty – materials	

1.6.11 Ceiling Fan

Component		Ceiling Fan -
Sub-component		
Need	To effectively circulate air in a room	
Requirement	<p>Ceiling Fans (all models)</p> <ul style="list-style-type: none"> • To current Australian Standards • Fan with integral light • Minimum 1200mm diameter • Minimum 3 speed fan • Controller to be hard wired. Remote controls only supplied where directed • Provide control switching integrated with light switches • Fan to have reverse function • Unit suitable to fit LED globes • Installed to manufacturers specification and details 	
Warranty	Minimum 2 year warranty	

1.7 Wood Space Heater

Component	WOOD SPACE HEATER
Sub-component	Wood Space Heaters
Need	To provide efficient and effective heating of a room
Requirement	<p>Not installed in new construction (for maintenance only) Not to be installed unless approved by Principal. LAHC Heating and Cooling Policy directs wood space heaters not to be replaced</p> <p>General</p> <ul style="list-style-type: none"> • To current Australian Standards • Test report prepared by registered NATA registered laboratory in compliance to AS/NZS4013. "Domestic Solid Fuel Burning appliances - Method for Determination of Flue gas emission" • Maximum allowable appliance particulate emission factor to AS/NZS4013 (i.e. maximum 5.5g/kg for appliances without catalytic combustors) • Double skin firebox convection heater • Double lined flue within ceiling space • Minimum appliance efficiency rating of 60% • Minimum size: 10kW (30MJ), Maximum size: 22kW (65MJ) • Installed by licensed installer to manufacturers written specification • Branded with manufacturers trademark, type, model and serial number, and emission report number of appliance and Standards Mark
Warranty	Minimum 5 year written warranty

1.8 Flooring

1.8.1 Underlay

Component	FLOORING
Sub-component	Underlay
Need	To provide safe, hygienic, hard wearing, underlay to maximize economic life from carpet
Requirement	<p>General</p> <ul style="list-style-type: none"> To current Australian Standards Meets current NCC and AS ISO9239-1 Recyclable and or made from recycled materials Minimum grading "Residential" as per AS4288 <p>Class 2 Properties</p> <p>Synthetic foam</p> <ul style="list-style-type: none"> Rebonded polyurethane foam with stabilising laminate on top surface 7 mm minimum thickness 120 kg/m³ minimum foam density or rebounded polyurethane foam <p>Vulcanised rubber</p> <ul style="list-style-type: none"> Heavy duty vulcanised rubber, waffle pattern Reinforcing fabric: either Hessian, spun Nylon, or Polyester Minimum sheet thickness: 7.5mm (+0.5) 210kg/m² minimum product mass <p>Common Areas (class 2 Properties), class 3 Properties</p> <p>Synthetic foam</p> <ul style="list-style-type: none"> Rebonded polyurethane foam with stabilising laminate on top surface 7 mm minimum thickness 120kg/m³ minimum foam density or rebounded polyurethane foam <p>Vulcanised rubber</p> <ul style="list-style-type: none"> Heavy duty vulcanised rubber, waffle pattern Reinforcing fabric: either Hessian, spun Nylon, or Polyester Minimum sheet thickness: 8mm (+0.5) 300kg/m² minimum product mass
Warranty	Minimum 10 year written warranty

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1.8.2 Carpet

Component	FLOORING
Sub-component	Carpet
Need	To provide a safe, hygienic and comfortable surface for habitable areas of a Property or common area
Requirement	<p>General</p> <ul style="list-style-type: none"> • Installation to current Australian Standards • Fire rating to NCC (for all Building Class Types) • Treated with Anti-Bacterial and Anti-Microbial <p>Nylon/Wool Blend</p> <ul style="list-style-type: none"> • 100% Bulked Continuous Filament (BCF), solution dyed Nylon or Nylon/Wool blend (minimum 50% nylon) • Loop pile tufted carpet • Level pile surface or with slight modulation • Minimum 31.5 tufts/10cm (1/8) gauge • Minimum 678 g/m² (20oz/yd²) total pile mass • 5mm maximum pile height • “Actionbac” or Jute backing or minimum 80% recycled stitch bond non woven polyester • A.C.C.S. rating for Residential Extra Heavy Duty (Stairs) • A.C.C.S. Registration number to appear on back at regular intervals • Colour as approved by Principal • Carpet range and quality as approved by Principal <p>Wool Types</p> <ul style="list-style-type: none"> • 100% wool carpet or wool blend (minimum 80% wool) • Loop pile tufted carpet • Level pile surface or with slight modulation • 31.5 tufts/10cm (1/8) gauge • 1356 g/m² (40oz/yd²) total pile mass • 6mm maximum pile height • “Actionbac” or Jute backing or minimum 80% recycled stitch bond non woven polyester • ACCS (Australian Carpet Classification Scheme) rating for Residential Extra Heavy Duty including stairs • Colour as approved by NSW Land and Housing Corporation • Carpet range and quality as approved by Principal • A.C.C.S. Registration number to appear on back at regular intervals
Warranty	Minimum 10 year written warranty

1.8.3 Resilient Sheet and Tiles

Component	FLOORING
Sub-component	Resilient Sheet and Tiles
Need	To provide safe, hygienic, hard wearing, waterproof and cleanable surface
Requirement	<p>Note: These provisions apply to complete new installations. Existing spot replacement or repair use Resilient Flooring to match the existing installed product</p> <ul style="list-style-type: none"> • Manufacture, Installation and Maintenance to current Australian Standards • Use water based adhesives • All sheet, flooring seams shall be welded (either chemical or thermal) to manufacturers specification • Initial care of all installed materials shall be carried out to manufacturers specification • Floor-coverings shall conform to the physical characteristics of approved samples and shall be within the limits of any sample range or variation in colour and pattern • Products containing recycled materials are preferred <p>Class 1 and 2 Properties – Vinyl Composition tiles (ISO10595 Kitchens, Dining Rooms and Hallways etc) For properties where sound transmission from unit above may be a concern, consider using cushioned back heterogeneous</p> <ul style="list-style-type: none"> • Concrete floors laid on suitable levelling compound; Timber floors laid on Hardboard (not MDF), FC sheet underlay or other approved underlay • Vinyl thickness: 3mm (ISO24346) • Type II – through pattern tile • Minimum R9 slip resistance • Fire rating ISO9239.1 >11kW/m² <p>Class 1 and 2 Properties – Luxury Vinyl (LV) Tiles / Planks (ISO10582 Kitchens, Dining Rooms and Hallways etc) For properties where sound transmission from unit above may be a concern, consider using cushioned back heterogeneous</p> <ul style="list-style-type: none"> • Concrete floors laid on suitable levelling compound; Timber floors laid on Hardboard (not MDF), FC sheet underlay or other approved underlay • Thickness: Minimum 2mm – Maximum 3mm • Direct glue fixed (not floating floor) • Minimum 0.5mm wear layer. • Wear classification: Type 1 Wear Layer Binder content • Slip resistance minimum R9 • Fire rating ISO9239.1 ≥ 8kW/m² <p style="text-align: right;"><i>Continues</i></p>

Component	FLOORING
	<p><i>Continues</i></p> <p>Class 1 and 2 Properties – Homogenous Sheet (ISO10581 Kitchens, Dining Areas and Hallways etc) For properties where sound transmission from unit above may be a concern, consider using cushioned back heterogeneous</p> <ul style="list-style-type: none"> • Concrete floors laid on suitable levelling compound, Timber floors laid on Hardboard (not MDF), FC sheet underlay or other approved underlay • Thickness: Minimum 2mm – Maximum 3mm sheet vinyl • Polyurethane Reinforced • Wear classification: Type I Binder content • Minimum R9 Slip Resistance • Fire rating ISO9239.1 $\geq 8 \text{ kW/m}^2$ <p>Class 1 and 2 Properties – Heterogeneous Sheet (ISO10582 Kitchens, Dining Areas and Hallways etc) For properties where sound transmission from unit above may be a concern, consider using cushioned back heterogeneous</p> <ul style="list-style-type: none"> • Concrete floors laid on suitable levelling compound, Timber floors laid on Hardboard (not MDF), FC sheet underlay or other approved underlay • Thickness: Minimum 2mm – Maximum 3mm sheet vinyl • Polyurethane Reinforced • Wear classification: Type I Wear Layer Binder content • Minimum R9 Slip Resistance • Fire rating ISO9239.1 $\geq 8 \text{ kW/m}^2$ <p>Class 2 and 3 Properties – Cushioned Backed Heterogeneous sheet (EN651)</p> <ul style="list-style-type: none"> • Concrete floors laid on suitable levelling compound, Timber floors laid on Hardboard (not MDF), FC sheet underlay or other approved underlay • Thickness: Minimum 3mm sheet vinyl • Polyurethane Reinforced • Minimum R10 slip resistance • Wear classification: Type I Wear Layer Binder content • Minimum 14dB sound reduction • Easy Clean top layer • Fire rating ISO9239.1 $\geq 8 \text{ kW/m}^2$ <p style="text-align: right;"><i>Continues</i></p>

Component	FLOORING
	<p><i>Continues</i></p> <p>Wet Area (Floors) – Written approval of Principal is required prior to use</p> <ul style="list-style-type: none"> • Homogenous Slip Retardant Vinyl sheet (ISO10581) • Thickness: Minimum 2mm sheet vinyl • Wear classification: Type I Binder content • Fire Rating: (ISO9239.1 $\geq 8\text{kW/m}^2$) • Slip resistance: AS4586 (B Wet/Barefoot and R10 Oil/wet ramp) • Integral 150mm high coved skirting in all wet areas, Cove skirting to be installed with capping strip to prevent water penetration • 32mm diameter cove fillet to be used where vinyl is coved • Products containing abrasive material in order to comply will not be considered <p>Wet Area (Walls) – Written approval of Principal is required prior to use</p> <ul style="list-style-type: none"> • Homogenous Vinyl sheet (ISO10581) • Thickness: Minimum 1.25mm • Polyurethane Reinforced • Fire Rating (AS5637.1) Group 2 or Group 1
Warranty	<p>Minimum 7 year written warranty</p> <p>Minimum 10 year written warranty – Luxury Vinyl Flooring</p>

1.9 Signage

1.9.1 House and Unit Numbering

Component	SIGNAGE
Sub-component	Numbering (Street/Unit)
Need	To provide legible identification of address
Requirement	<ul style="list-style-type: none"> • External street numerals and building block numerals to be 150mm minimum high 1.6mm thick plain brass (secured with brass screws) or polished cast aluminium or self-reflective numerals on pre-painted steel base (secured with stainless steel screws) fixed to building/structure • Unit numerals to be 50mm minimum high x 1.6mm thick plain brass or polished cast aluminium or moulded plastic screw fixed to door • Letterbox numerals to be 50mm minimum high x 1.6mm thick brass/aluminium/plastic screw fixed to front of letterbox • Community room WC doors as for unit numerals • Project name and numerals (if required) as for external street numerals
Warranty	Minimum 1 year written warranty

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1.9.2 Information, Direction & Prohibition Signage

Component	SIGNAGE
Sub-component	Advisory / Information or Prohibition Signage
Need	To provide legible information and advice for people in or around the area
Requirement	<ul style="list-style-type: none"> • Prohibition signs and symbols (No Smoking, Electrical hazard etc) to comply with current Australian Standards • Either 225x300 mm (approx A4) or 300x450 mm (approx A3) – where viewing is required at a distance of greater than 10m away • Signs and numbers to be non reflective <p>Low Density Polyethylene and/or Polypropylene and/or co- mingled plastic/wood (Recycled product)</p> <ul style="list-style-type: none"> • UV stabilised – to reduce surface whitening • Fading and crack resistant for indoor and outdoor use • Minimum 90% recycled product • Non-toxic hazard • Minimum thickness 1.5 mm • Rounded corners with four corner mounting holes (screw fixed) <p>Pre Painted Bonded finish Sheet Steel (metal)</p> <ul style="list-style-type: none"> • Suitable for outdoor use • Minimum BMT 0.5 mm thick; • Rounded corners with four corner mounting holes (screw fixed with vandal resistant screws)
Warranty	Life expectancy 5-8 years

Life Safety Plan			
R	A	C	E
Remove people in immediate danger	Alert others – Raise the Alarm	Close the door	Evacuate to assembly area
			
Evacuation Procedure			
<ol style="list-style-type: none"> 1. Remain calm. Do not Panic. 2. Leave building. Do not use lifts. 3. Proceed to assembly areas. 4. At assembly areas call 000. 5. Remain there until otherwise directed by emergency services. 6. Always keep escape paths free of obstacles. 			
IN AN EMERGENCY DIAL 000			
<i>"Evacuation diagram to be inserted here"</i>			
<h1>SAMPLE ONLY</h1>			

END OF COMPONENT REQUIREMENTS - PART 1
ASSET MAINTENANCE AND NEW CONSTRUCTION

**PART 2 – ITEMS FOR REFERENCE SPECIFICATION FOR NEW CONSTRUCTION,
FIRE SAFETY WORKS AND SPECIAL PROJECTS**

2.1 External

2.1.1 Fencing and Gates

Component	FENCING AND GATES
Sub-component	Fences and Gates
Need	To demarcate and secure the properties boundaries. Fences and gate must be suitable to maintain privacy, be a safe area for children, and confine domestic animals
Requirement	<ul style="list-style-type: none"> • To current Australian Standards <p>Fence heights to meet local Government regulations</p> <ul style="list-style-type: none"> • Front fencing 900mm to 1200mm • Cut off fencing 1200 to 1800mm • Side and Rear fencing 1800mm • Gates to match fence cladding and height where specified <p>Decorative fencing</p> <ul style="list-style-type: none"> • Steel or Aluminium Tubular non climbable panels - flat or looped top finish only, NO Spears or protruding rods • Minimum 16mm x 0.9mm tubes - spacings approx 100mm centres • Rails minimum 39 x 25 x 1.2mm rectangular tubing or minimum 25mm round • Posts minimum 50 x 50mm - 450mm round minimum 1.2mm thick • Powder Coating to AS4506 • Safety compliance to AS1926.1 for gates, hinges and locks <p style="text-align: right;"><i>Continues</i></p>

	<p><i>Continues</i></p> <p>Metal fencing</p> <ul style="list-style-type: none"> • Steel pre-rolled sheet – double sided pre painted bonded finish complying with AS/NZS2728: Type 3, testing compliance to meet performance requirements within an exposed environment for humidity, scratch resistance, impact, adhesion, cracking and corrosion • Fence panel made from zinc aluminium alloy coated steel complying with AS1397, G550 (550MPa minimum yield stress), AZ150 (150g/m² minimum coating mass) • The fence panel base material thickness is 0.35mm • Posts and rails made from zinc alloy coated steel complying with AS1397, G500 (500MPa minimum yield stress), Z275 (275g/m² minimum coating mass) • Posts - Standard Channel posts 84 x 43mm, Square Corner, junction and single gate posts 60 x 60 x 1.6, Double gate posts 65 x 65 x 2.5 installed with caps • Rails 60 x 53 with base metal thickness of 0.8mm • Installation to manufacturers specification <p>Timber Fencing</p> <ul style="list-style-type: none"> • End Post/ Gate Post/ Corner Post either Hardwood/ Treated Pine 125x125mm or Galvanised steel 75 x 75 x 2.5mm • Intermediate posts either Hardwood 125 x 50 mm or Treated Pine 125 x 75mm • Rails Hardwood/ Treated Pine 75 x 50 mm • Palings Hardwood/ Treated Pine 100 x 15 either lap palings by 15 mm or close butted. • All timber measurements ± 2mm
Warranty	<p>Minimum 3 years written warranty - decorative fencing Minimum 10 years written warranty - metal fencing</p>

2.1.2 Street Furniture

Component	STREET FURNITURE	
Sub-component	Tables and Seats	
Need	Present an aesthetic image whilst meeting the needs of the tenants	
Requirement	<ul style="list-style-type: none"> • Vandal proof and durable street furniture and tables for common areas • 98% recycled wood/plastic composite seat and table top slats, 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 • Frame galvanised steel or other vandal proof material 	
Warranty	Minimum 1 year written warranty	

2.2 Roofing

2.2.1 Roof Covering

Component	ROOF	
Sub-component	Roof Covering	
Need	To effectively weatherproof the dwelling, shed water, be durable and robust	
Requirement	<p>Roof Tiles</p> <ul style="list-style-type: none"> • Concrete & Terracotta to current Australian Standards • Installation to current Australian Standard and manufacturers written specification <p>Metal Roof Sheeting</p> <ul style="list-style-type: none"> • Manufactured designed and installed to current Australian Standards and to manufacturer’s written specification • Zincolume or equivalent- minimum AZ150 coating or pre painted bonded finish • Minimum base metal thickness 0.48mm (for standard conditions and straight roof lines) • Product is to be legibly and durably marked on reverse surface with the manufacturer name and/or trademark, unique traceable identifier and date of manufacture • Product to meet tolerance specification of AS/NZS1365 	
Warranty	Minimum 25 year written warranty - Roof tiles Minimum 15 year written warranty - Metal roof sheet	

2.2.2 Sarking Vapour Barriers

Component	ROOF
Sub-component	Sarking/Vapour Barrier
Need	To provide vapour barrier to roofs and external walls, to assist in thermal insulation and to eliminate moisture and condensation in buildings
Requirement	<p>General</p> <ul style="list-style-type: none"> • Manufactured in accordance with AS4200.1 and installed to AS4200.2 • Provides required Thermal Performance in accordance with AS/NZS4859 and ICANZ • Vapour Barrier - rated Medium to High (<2 ng/Ns) • Water Barrier - rated high AS4200 or better than 0.5 MNs/g <p>Tiled Roofs</p> <ul style="list-style-type: none"> • Low flammability and Heat Factor of 5 or less AS1530.2 • High Tensile Strength greater than 18 kN/M in both directions • UL2218 (impact resistance) pass <p>Metal Sheet Roofs</p> <ul style="list-style-type: none"> • When bulk insulation is laminated directly to sarking membrane the composite product must achieve a fire hazard rating (AS/NZS1530.3) of <ul style="list-style-type: none"> ○ Ignitability Index 0 ○ Spread of Flame 0 ○ Heat Evolved 0 ○ Smoke Developed 0-1 ○ Tensile strength > 12kN/M in both directions <p>Notes</p> <ul style="list-style-type: none"> • Foil Laminates and Bubble Foil cannot be laid on top of the ceiling to cover ceiling joists, rafters and any services. Can only be installed as sarking on top of the roof trusses underneath the roofing • Sarking is installed in the roof with roofing wire underneath to ensure that sarking remains in place • Check appropriate separation is maintained between electrical services and installed Foil Laminates and Bubble Foil Sarking in roofs and external walls
Warranty	Minimum 7 year written warranty

2.3 Internal Linings

2.3.1 Plasterboard

Component	INTERNAL LININGS
Sub-component	Plasterboard
Need	Internal wall and ceiling lining board that is resistant to impact and moisture and where required achieve a fire rating
Requirement	<p>Internal Lining</p> <ul style="list-style-type: none"> • To Australian Standards and installed to manufacturers specification • Minimum 13mm thick sheeting for walls • Paper weight ≥ 220 gsm • Density $\geq 1000\text{kg/m}^3$ • Tested to NCC requirements 'Specification C1.8 Structural Tests for Lightweight Construction' and to achieve the following results: <ul style="list-style-type: none"> • Resistance to impact NCC test method 5(c) of $\leq 150\text{mm}$ • Resistance to indentation NCC test method 5(d) of $\leq 4.8\text{mm}$ • Achieve 2 hour fire rating where required • 100% recyclable <p>Internal Lining (Insulated Dry Lining Plasterboard)</p> <ul style="list-style-type: none"> • Internal Lining to AS/NZS2588 and specification above • Minimum 10mm Plaster board • Insulation backing to comply with AS/NZS4859.1 – rigid thermoset insulation – minimum product thickness 35mm (R1.3 Insulation) to 90mm (R4.1 Insulation) • Fibre free insulation core • Group 1 Fire Classification when tested in accordance with AS5637.1 • Code mark certified • Resistant to water vapour IS EN 12086 • Zero Ozone Depletion – CFC/HCFC free <p>Fire rated plasterboard – Ceilings</p> <p>To current Australian Standards</p> <p>Resistance to incipient spread of fire for a minimum FRL of 60 minutes and enables the ceiling to achieve an FRL of 60/60/60</p>
Warranty	Minimum 10 year written warranty

2.4 Fire Safety Maintenance and Upgrade

2.4.1 Fire Stopping Material - Dampers

Component	FIRE STOPPING MATERIAL
Sub-component	Fire Dampers
Need	To prevent transmission of smoke and fire across fire compartments
Requirement	<ul style="list-style-type: none"> To current Australian Standards Installed to manufacturers written specification Incorporate materials including, flanges, casing, blades, springs and linkages of stainless steel or equivalent materials that comply with relevant standards Achieve an FRL of not less than that specified in the LAHC Fire Safety Manual and or an FRL of -/60/60 Fit required sizes and shapes Tested and certified by a NATA registered laboratory (specialising in fire testing) to AS1530.4
Warranty	Minimum 2 year written warranty

2.4.2 Fire Stopping Material - Sealants

Component	FIRE STOPPING MATERIAL
Sub-component	Sealants, foam and mastics
Need	To prevent transmission of smoke and fire across fire compartments
Requirement	<ul style="list-style-type: none"> To current Australian Standards All material must comply with the nominated properties or replicate a system tested in accordance with AS4072.1 and AS1530.1 Achieve an FRL of not less than that specified in the LAHC Fire Safety Manual for the penetrated floor/wall or ceiling assembly Installation as per manufacturer's instructions
Warranty	Minimum 2 year written warranty

2.4.3 Fire Stopping Material – Fire Pillows

Component	FIRE STOPPING MATERIAL
Sub-component	Fire Pillows
Need	To prevent transmission of smoke and fire across fire compartments
Requirement	<ul style="list-style-type: none"> To current Australian Standards Suitable for sealing larger penetrations and expansion joints Required Fire Resistance Level to match wall or floor specification in accordance with AS1530.4 with reference to AS4072.1 Installation as per manufacturer's instructions
Warranty	Minimum 7 year written warranty

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2.4.4 Fire Collar

Component	FIRE SAFETY MEASURES	
Sub-component	Fire Collar	
Need	To prevent transmission of smoke and fire across fire compartments	
Requirement	<ul style="list-style-type: none"> To current Australian Standards To seal all pipe penetrations up to 200mm in diameter through fire rated floor and wall components Achieve an FRL of not less than that specified in the LAHC Fire Safety Manual Installation to manufacturer's specification 	
Warranty	Minimum 2 year written warranty	

2.4.5 Fire Hydrant

Component	FIRE SAFETY MEASURES	
Sub-component	Fire Hydrant	
Need	To provide Fire Hydrant System into required common areas	
Requirement	<ul style="list-style-type: none"> To current Australian Standards Installation to manufacturer's specification 	
Warranty	5 years written warranty on all materials 1 year written warranty on all valves and pumps	

2.4.6 Fire - Fire Blanket

Component	FIRE SAFETY MEASURES	
Sub-component	Fire Blanket	
Need	To provide Fire Blanket into common area rooms to contain the fire into a vessel	
Requirement	<ul style="list-style-type: none"> To current Australian Standards Fit only where directed by the Principal Size to be 1.2m x 1.8m for class F fires Fixed permanently into the common area room kitchen wall only 	
Warranty	5 years written warranty	

2.4.7 Fire Extinguisher

Component	FIRE EXTINGUISHER	
Sub-component	Portable fire extinguisher with rechargeable cylinder all types	
Need	To provide portable fire extinguisher for class A fires to control small fires within residential complexes	
Requirement	<ul style="list-style-type: none"> • To current Australian Standards • Fit only where directed by the Principal • The actual cylinder to be made of a corrosion resistant metal type component, quick pin release, pressure gauge and heavy duty metal brackets • The portable fire extinguishers shall be fitted with anti-discharge device <p>Capacity:</p> <ul style="list-style-type: none"> • Water Type – 9 litres • Wet Chemical – 2 to 3.5 Litres • Carbon Dioxide – 2 to 3.5 Litres • ABE – minimum 2.5kg 	
Warranty	10 years written warranty on the cylinder 1 year written warranty on the pressure holdings	

2.4.8 Fire Panel

Component	FIRE PANEL	
Sub-component	Fire Control and Indicating Equipment	
Need	Early warning control system to common area residential units	
Requirement	<ul style="list-style-type: none"> • To current Australian Standards • All installation to comply with the manufacturer's installation manual and specification details • To control minimum limit of 18 alarms and heat detectors per zone • PC Software to create, edit, download, upload and back up. Uses advanced algorithms to reduce nuisance alarms and detect smouldering fires • Capable of connecting to addressable smoke and heat detectors, call points, short circuit isolators, sirens, sounders, I/O units with monitored voltage outputs, power supplies and conventional detectors • Capable of linking with fire door closing system • Lockable door to fire panel • Vandal resistant • Independent zone operation system 	
Warranty	5 years written warranty	

2.4.9 Fire Hose Reel

Component	FIRE HOSE REEL	
Sub-component	Fire Hose and Reel	
Need	To provide Fire Hose Reel and Fire Hose to common areas to control any fire within residential complexes	
Requirement	<ul style="list-style-type: none"> To current Australian Standards Fire Hose Reel (FHR) type should be fixed permanently to a structure (with or without cabinet) FHR made of corrosion resistant material and vandal resistant fixings Centre drum spindle shall not exceed 360mm from the mounting surface <p>Fire Hose</p> <ul style="list-style-type: none"> Hose material should be non percolating hose class H (high) Hose to be minimum 19mm in diameter and maximum 36m length All fittings to be brass and to comply with the standards and water marked 	
Warranty	5 years written warranty on all materials 1 year warranty on all valves	

2.4.10 Fire Sprinkler System

Component	FIRE SPRINKLER SYSTEM	
Sub-component	Fire Sprinkler System	
Need	To provide fire protection to the residential unit occupants and to the building structure	
Requirement	<ul style="list-style-type: none"> To current Australian Standards and all other associated standards All installations to comply with the manufacturer's installation manual and specification details Fire Sprinkler System material and equipment to meet appropriate performance standards for operation and vandal resistance Pipe sizes shall be determined by full hydraulic calculation methods Hydraulic / wet system Fast and quick response system High velocity sprayers Fault monitoring system Corrosion resistant system 	
Warranty	10 years written warranty on all materials	

2.4.11 Exhaust Fans

Component	PLANT ROOM OR SHAFT VENTILATION	
Sub-component	Exhaust Fans > 1Kw	
Need	To be able to provide adequate ventilation and airflow to an enclosed plant room or shaft	
Requirement	<ul style="list-style-type: none"> • To current Australian Standards • Installed to manufacturers written specification • Vandal resistant materials and fixings • Ceiling or wall mounted • Non corrosive system • Heavy duty type product including long life ball bearing motor • Airflow > 500m³/hour • Quiet operation • Turbo fans • Duct outlet shall be made of non combustible materials • Removable grille (Vandal Resistant) • Installed with appropriate Dampers 	
Warranty	2 years written warranty on all materials	

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2.5 Master Antenna Television (MATV)

2.5.1 Master Antenna Television System

Component	MASTER ANTENNA TELEVISION SYSTEM	
Sub-component	Antenna	
Need	To provide good quality reception of digital signals	
Requirement	<ul style="list-style-type: none"> • To 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: <ul style="list-style-type: none"> • 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 2×10^{-4} • Noise Margin (NM) of greater than 0dB • 2 kg loading on boom end (furthest from mount (tested over 100 cycles) • Clam shell insulators and flat sided boom to provide element alignment • 12mm extruded aluminium elements to withstand weather and wildlife • Tested to wind speed of 100 km/hr • 1 kg loading at unsupported end of any element (tested over 100 cycles) • UV and corrosion resistant tested in coastal area and western NSW • 'F' Type connectors • Able to easily connect Quad Shielded cable and/or Mast head amplifier 	
Warranty	Minimum 2 year written warranty	

Component	MASTER ANTENNA TELEVISION SYSTEM	
Sub-component	Masts, Stays, Booms	
Need	To secure the antenna safely and securely to the Building	
Requirement	<p>Masts Stays and Booms</p> <ul style="list-style-type: none"> • To current Australian Standards • All fixings for galvanised steel must be of a similar material or separated to prevent galvanic reaction or corrosion • Galvanised steel - galvanising Z275 to at least 19 microns of galvanising (zinc) on these items • Booms should be powder-coated with polyester through an automated electrostatic multistage pre-treatment process • Samples tested and verified by an 800 hour neutral salt spray test • Able to withstand wind of 100km/hr 	
Warranty	Minimum 2 year written warranty	



Component	MASTER ANTENNA TELEVISION SYSTEM
Sub-component	Amplifier
Need	To enable tenants to receive television signals of adequate quality and strength inside their homes
Requirement	<p>Mast head Amplifiers, Channelised</p> <p>Amplifiers, Wide Band Amplifiers</p> <ul style="list-style-type: none"> • To current Australian Standards • 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 or equal to 2×10^{-4} • Noise Margin (NM) of greater than 0dB • UV stable, weatherproof housing capable of mast attachment or surface mount • Adjustable gain for VHF and UHF bands • Built in lightning / static protection
Warranty	Minimum 2 year written warranty

MASTER ANTENNA TELEVISION SYSTEM	
Component	
Sub-component	Cable
Need	To enable tenants to receive television signals of adequate quality and strength inside their homes
Requirement	<p>Flexible cables RG6 and RG11 shall have a continuous dielectric such that the centre conductor is in full contact with the dielectric along the entire length of the coaxial cable</p> <p>RG 11 Low Loss Quad Shield Cable</p> <ul style="list-style-type: none"> • 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 • DC requirements – current carrying capacity 5A for RG11 <p>RG 6 Quad Shield Cable</p> <ul style="list-style-type: none"> • 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
Warranty	Minimum 2 year written warranty

2.6 Tiling and Waterproofing

2.6.1 Wall Tiles

Component	WALLS	
Sub-component	Wall Tiles	
Need	To provide a hard wearing, cleanable and hygienic surface impervious to water/condensation	
Requirement	<p>Ceramic Wall Tiles</p> <ul style="list-style-type: none"> • First Quality to ISO13006 • Products in compliance to AS4586 • Vitrified or Porcelain • Tile Thickness \geq minimum 5.5mm • Full glaze over face ceramic tile • Ceramic biscuit (Bisque) must be engobed • Surface Hardness min MOHS minimum 3 - Test Method EN101 • Extruded PVC or Aluminium tile trims on exposed edges • Silicon seal to cupboard boundaries • Wall tiles to extend to floor behind upright stoves 	
Warranty	Minimum 10 year written warranty	

2.6.2 Floor Tiles

Component	FLOOR FINISHES	
Sub-component	Floor Tiles	
Need	To provide safe, healthy, hard wearing, waterproof and cleanable surface	
Requirement	<p>Ceramic Floor Tiles</p> <ul style="list-style-type: none"> • First Quality to ISO13006 • Products in compliance to AS4586 • Vitrified or Porcelain • Colours as appropriate and directed • Warpage not exceeding 0.5mm for any tile batch • Surface Hardness to MOHS minimum 6 - Test Method I.S. EN15771 • Water absorption to ISO10545-3 • Chemical resistance to ISO10545-13 • Slip rating of R11 and Pendulum test score of 'W' or 'P4' for external areas • Slip rating of R10 and Pendulum test score of 'X' or 'P3' for internal wet areas and internal common areas • Slip rating of R9 and Pendulum test score of 'Z' or 'P2' for all other areas • Tile thickness \geq 7.0mm • Extruded PVC or Aluminium tile trims on exposed edges 	
<i>Continues</i>		

	<p><i>Continues</i></p> <p>Entrance / Exits outdoor terraces and verandas</p> <ul style="list-style-type: none"> • Unglazed quarry tiles and quarry nosing tiles to be first quality • Comply with the requirements of ISO10545 • Used only at external locations and external doorways above the damp proof course • Installed with an appropriate waterproof membrane
Warranty	Minimum 10 year written warranty

2.6.3 Waterproofing

Component	WATERPROOFING	
Sub-component	Internal Floors and Walls	
Need	Prevent water penetration into walls and through floors	
Requirement	<p>All Housing Complies with AS3740 Waterproofing of domestic wet areas</p> <p>Tile Junctions</p> <ul style="list-style-type: none"> • To current Australian Standards for caulked joint sealants <p>Wet Area Floors and Walls</p> <ul style="list-style-type: none"> • Comply to AS/NZS4858 Wet Area membrane Class III for high extensibility • Water based (no solvent release) • Leak Control Flanges to wastes where required 	
Warranty	Minimum 10 year written warranty	

Component	WATERPROOFING	
Sub-component	External Floors and Planter Boxes	
Need	To make external dwelling wet areas (balconies, terraces, decking and planter boxes) impervious to water	
Requirement	<p>Waterproofing membrane must be applied in accordance with current Australian Standards</p> <ul style="list-style-type: none"> • Satisfies tests to class III High Extensibility AS/NZS4858 • Installed to manufacturer's specification • Provide certificate of installation • Leak Control flanges to wastes where required 	
Warranty	Minimum 10 year written warranty	

2.7 Paint

2.7.1 Exterior Paint

Component	FINISHES
Sub-component	Exterior Paint
Need	To protect external cladding and structure from weather and abrasion
Requirement	<p>Paints and Primers</p> <ul style="list-style-type: none"> • 100% premium Acrylic (Waterborne or Solvent borne) paint • Workmanship to current Australian Standards • Colours to approved samples to current Australian Standards • Paints and Primers conforming to appropriate APAS (Australian Paint Approval Scheme) • Paint specification number as per APAS Paint Specification • Paint and Primers in sealed containers branded with the manufacturers name, type of content and APAS approval number • Low surface emitting product complying with APAS for low VOC <p>Tinting</p> <ul style="list-style-type: none"> • Pigments, tints and stains as recommended by the paint manufacturer <p>Anti-Graffiti Treatments</p> <ul style="list-style-type: none"> • Registered with APAS – Able to cope with Xylene based and solvent based graffiti • Fire rating to AS/NZS1530.3 • Tests to ASTM D968-51
Warranty	Minimum 10 year written warranty

2.7.2 Interior Paint

Component		FINISHES
Sub-component		Internal Paint
Need	To provide a surface finish that protects the substrate, is cleanable, durable and attractive	
Requirement	<ul style="list-style-type: none"> 100% premium Acrylic (Waterborne) paint or Alkyd base Solvent-borne or Polyurethane paint Workmanship to current Australian Standards Colours to approved samples to current Australian Standards Paints conforming to appropriate APAS (Australian Paint Approval Scheme) paint specification number as per APAS Paint Specification Paint in sealed containers branded with the manufacturers name, type of content and APAS approval number Comply to APAS specification 0215 for low VOC Interior paints Tinted and untinted undercoats, enamels and topcoats to achieve low surface emitting product complying with APAS for VOC emissions <p>Tinting Pigments, tints and stains as recommended by the paint manufacturer</p>	
Warranty	Minimum 10 year written warranty	

2.7.3 Intumescent Paint

Component		FINISHES
Sub-component		Intumescent Paint
Need	To increase the Fire Resistance of building components	
Requirement	<ul style="list-style-type: none"> Fire rated to achieve a FRL of --/60/60 when applied to surfaces in accordance with AS1530.4 Apply paint in accordance with manufacturers specification and guidelines for temperature and humidity Intumescent paint to begin to expand at a temperature not exceeding 190° Celsius Independent test results to be provided that indicates 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 Independent test detailing that the product is non toxic Independent test shall be provided that the product can be applied over existing non fire retardant paint The product shall not contain a flashpoint 	
		<i>Continues</i>

	<p><i>Continues</i></p> <p>Internal Intumescent Paint</p> <ul style="list-style-type: none"> • Use only applicators approved and trained by the manufacturer • Drop all light fittings so that paint is applied continuously, ensure that they are properly refixed • 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 wet areas • Ensure that each coat is completely dry before applying the next • Apply paint at a minimum dry film thickness of 1000 microns for internal applications <p>External Intumescent Paint</p> <ul style="list-style-type: none"> • Use only applicators approved and trained by the manufacturer • 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 • 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 • Overcoat with weatherproof paint
Warranty	Minimum 10 year written warranty

2.8 Services

2.8.1 Commercial Water Heaters

Component		WATER HEATERS COMMERCIAL
Sub-component		Commercial Electric Water Heaters
Need	To reliably provide hot water to multiple dwellings	
Requirement	<ul style="list-style-type: none"> • Installed to match performance of existing • To current Australian Standards • Standards Mark / Water Mark / Water Authority Certificate of Approval • Extra Long Life tank (tank life more than 10 years – High grade Stainless Steel or similar durable material) • Pressurised tank • Dual handed connections • Adjustable thermostat • Automatic Over Temperature Safety Cut off • Provide rust free water • Durable pre-painted steel casing • Commercial mains pressure storage <p>Storage</p> <ul style="list-style-type: none"> • Mains Pressure, Floor Model (Indoor / Outdoor) (250L to 600L) 	
Warranty	Minimum 10 year written warranty (Cylinder)	

Component		WATER HEATERS COMMERCIAL
Sub-component		Commercial Solar Water Heaters
Need	To reliably provide hot water to multiple dwellings	
Requirement	<ul style="list-style-type: none"> • Installed to match performance of existing • To current Australian Standards • Standards Mark / Water Mark / Water Authority Certificate of Approval • Installation to current Australian Standards and to manufacturers written specification. Including manufacturers recommended valves, solar control units, sensors and circulating pump • Natural gas or electricity boosted • Frost protected appropriate to climate zone • Solar Panels (hail resistant) appropriate to zone area and size of tank • Extra Long life tank (Tank life more than 10 years – High grade Stainless steel or similar durable material) • Pressurized tank (either On Ground or Close Coupled) • Dual handed connections • Adjustable Thermostat • Automatic Over Temperature Safety Cut Off • Provide rust free water • Durable pre-painted steel casing • Commercial mains pressure storage 	
		<i>Continues</i>

	<p><i>Continues</i></p> <p>Storage</p> <ul style="list-style-type: none"> Mains Pressure, Floor or Close Coupled Model (Indoor / Outdoor) (250L to 600L)
Warranty	Minimum 10 year written warranty (Cylinder) and Panels

Component	WATER HEATERS COMMERCIAL
Sub-component	Commercial Gas Water Heaters
Need	To reliably provide hot water to multiple dwellings
Requirement	<ul style="list-style-type: none"> Installed to match performance of existing To current Australian Standards Standards Mark / Water Mark / Water Authority Certificate of Approval AGA Approval Minimum 5 star energy rating If internal in a plant room – all gas heaters must be flued to outside with minimum 0.5mm gauge galvanised steel flue Extra Long life tank (Tank life more than 10 years – High grade Stainless steel or similar durable material) Pressurized tank (either On Ground or Close Coupled) Dual handed connections Adjustable Thermostat Automatic Over Temperature Safety Cut Off Provide rust free water Durable pre-painted steel casing Commercial mains pressure storage <p>Storage</p> <ul style="list-style-type: none"> Mains Pressure, Floor or Close Coupled Model (Indoor / Outdoor) (150L to 300L)
Warranty	Minimum 10 year written warranty (Cylinder)

END OF COMPONENT REQUIREMENTS - PART 2
ITEMS FOR REFERENCE SPECIFICATION FOR NEW CONSTRUCTION,
FIRE SAFETY WORK AND SPECIAL PROJECTS



**Land & Housing
Corporation**

Department of Planning and Environment

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