BROOKTON MEMORIAL HALL

Brookton Memorial Hall
Roof Works

Revision	Date	Approved by
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0000 HERITAGE CONSERVATION

1 GENERAL

1.1 RESPONSIBILITIES

The Brookton Memorial Hall is a Management Category 2 place on the Shire of Brookton Local Heritage Survey (formerly known as the Municipal Heritage Inventory). The site is also on the Local Heritage List and is therefore subject to the requirements of the Heritage Act 2018. Conservation works are guided by the principles and practices of the Australia ICOMOS Burra Charter. Contractors need to recognise that the following principles form the basis for the proposed works:

- Conservation is based on a respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible.
- As a general principle works should be carried out on the basis of replacement of 'like for like'.
- Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.

The Contractor is advised that all fabric on the site is of heritage significance and should not be moved or removed damaged or destroyed, but must be retained and where instructed by the Consultants, reinstated or relocated on the site where directed. Particular care is to be taken with removal and storage and protection of internal fittings, doors and windows and timber floors.

1.2 INSPECTION

Give 10 working days' notice for the inspection of works by the Heritage Architect.

1.3 APPROVALS

The Contractor shall have 10 working day's to seek a response and Heritage Approval. All issues to be reported to the Architect in writing. A marked up location plan and supporting photographs (where appropriate) shall be required to accompany the written query.

2 SITE

2.1 GENERAL

The site is of cultural heritage value to the Shire. The Contractor shall allow to use as much original material as possible, carry out work using traditional practices and materials as directed by the Heritage Architect. Ensure that all workers on the site are made aware of the heritage value of the site and no damage, defacement, unauthorised removal of remaining original material occurs.

No building fabric is to be removed from the site without the prior approval of the Heritage Architect.

Any work involving trenching or subsurface disturbance needs to be mindful of the archaeological resource. All trenching or sub surface works need to be approved prior to the commencement of works.

The aim of conservation work is to retain as much building fabric as possible. The existing building construction and materials may have some imperfections. The retention of these qualities is highly desirable and any improvements not specified in this schedule need to be approved prior to the commencement of any additional work.

Due to the high cultural heritage significance of the place and specifically the building materials, no materials are to be replaced without agreement with the Heritage Architect. Patching or piecing in are preferred methods to replacement.

It is not just the main structure on the site that is important from a heritage point of view. Other elements of the site, such as landscaping, fences and gates, paving, garden furniture and outbuildings, may all make their own contributions to the heritage significance of the place, and should be considered in your evaluation prior to carrying out any work.

Where there is the likelihood of disturbing archaeological relics, such as the foundations of an earlier building, be careful with the use of heavy equipment. If you propose to excavate, you need approval from the Heritage Architect to proceed.

3 TIMBER

3.1 GENERAL

Repair, rather than replace, unsound timber.

If epoxy resin is being considered for repairs seek approval from Heritage Architect.

Unless otherwise required, all timbers exposed to view shall be machine dressed and hand wrought to a smooth surface free from ripples, tears and other machining defects.
Sizes stated as finished sizes shall be the actual dimensions required. All other dimensions shall be considered as nominal and normal trade practice as to dressing allowances will apply.
Ensure in the early stages of the trade contract that the required timber is available, and if not available, immediately advise the Heritage Architect in writing.
All fixings, nails, bolts, washers and fastenings exposed to weather and/or in contact with mortar, water based paints used externally and in all other corrosive situations shall be hot dip galvanised steel unless otherwise required.
Use matching fastenings for hardware and fittings where exposed to view.

4 PAINT AND OTHER FINISHES

4.1 GENERAL

Apply coating to clean, dry surfaces in dry atmospheric conditions and after any previous coats have hardened.
Lightly sand priming and undercoats to a smooth surface with abrasive paper and remove dust before applying the next coat.
Do not use spray application unless approved by the Heritage Architect. Approval for spraying, if given, shall be conditional on the use of suitable methods and equipment for the conditions. Before spraying, mask adjacent surfaces liable to damage.
Water based acrylic paint is acceptable to use.
Traditional oil, wax, varnish and shellac finishes are generally more appropriate for timber than polyurethane, which is an impervious inflexible finish. Where polyurethane is necessary, use a satin finish in a 1:1 mix with thinner.
Colours to be approved by Heritage Architect.

0131 PRELIMINARIES

1 GENERAL

1.1 GENERAL

Interpretation

General: The words owner and architect have the same meaning, respectively, as principal and contract administrator, unless the context requires otherwise.

Cross reference: **INTERPRETATION** in *0171 General requirements* also applies.

1.2 THE SITE

General

Access laneways to be maintained for White Street and Whittington Street. Work areas to be fenced and access restricted to building during works.

Existing services

Service to be continued: Repair, divert or relocate service, as documented.

Trenches: If the existing service crosses the line of a required trench or will lose support when the trench is excavated, provide permanent support for the existing service.

Redundant services: Remove redundant parts and make safe.

Interruptions to services: Minimise the number and duration of interruptions.

Changes to existing services: Submit proposals.

- Purpose of submission: For review.
- Timing of submission: Before starting work to existing services.

Adjoining properties

Notice: At least 10 working days before commencing work, give written notice to owners and occupants of adjoining properties of intention to commence work and an outline description of the type and extent of work.

Revealed encroachments: If the works reveal unknown encroachments of adjoining properties onto the site or of existing site structures onto adjoining properties, immediately notify the architect and seek instruction.

1.3 CONSTRUCTION PLANT

General

Temporary works: Provide and maintain required hoardings, barricades, guards, fencing, shoring, temporary roadways, footpaths, signs, lighting and traffic management.

Access roads

Owner's existing roads: Use only designated roads.

Parking

Owner's existing parking areas: Use only designated parking areas.

Owner's site office

General: Provide a weathertight site office for the use of the owner or the owner's agents before major site operations are started and as follows:

- Pay charges for services.
- Maintain in good order and in clean condition, with secure access, for duration of the work.
- Obtain permission for removal.
- Remove on completion.

Protective clothing

Requirement: Make available protective clothing for the use of visitors, as follows:

- Safety helmets: Type 1 to AS/NZS 1801 (1997).
- High visibility safety vests: To AS 4602.1 (2011).

Certification: Required.

- Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Project signboards

General: Provide project specific signboards and as follows:

- Locate where directed.
- Maintain in good condition for duration of the work.
- Obtain permission for removal.
- Remove on completion.

Other signboards: Obtain approval before display of advertisements or provision of other signboards.

1.4 BUILDING THE WORKS

Survey marks

Definition: A survey peg, benchmark, reference mark, signal, alignment, level mark or any other mark used or intended to be used for the purpose of setting out, checking or measuring the work.

Care of survey marks: Preserve and maintain the owner's survey marks in their true positions.

Rectification: If survey marks are disturbed or obliterated, immediately rectify.

Safety

Accidents: Promptly notify the architect of the occurrence of the following:

- Accidents involving death or personal injury.
- Accidents involving loss of time.
- Incidents with accident potential such as equipment failure, slides and cave-ins.

Accident reports: Submit reports of accidents.

- Purpose of submission: For information.

Contractor's representative

General: Must be accessible, and fluent in English and technical terminology.

Contacts: Submit names and telephone numbers of responsible persons who may be contacted after hours during the course of the contract.

- Purpose of submission: For information.
- Timing of submission: At the first site meeting.

Subcontracting

General: Submit a complete list of proposed subcontractors and suppliers.

- Purpose of submission: For information.

Program of work

Construction program: Submit a construction program showing the following:

- Sequence of work.
- Critical paths of activities related to the work.
- Allowance for holidays.
- Activity inter-relationships.
- External dependencies including provision of access, document approvals and work by others.
- Periods within which various stages or parts of the work are to be executed.

Time scale: Working days.

Updated program: Identify changes since the previous issue, and show the estimated percentage of completion for each item of work.

Purpose of submission: For information.

Timing of submission: To be provided within 7 working days of the identified change.

Program chart: Display in the contractor's site office an up-to-date bar chart and network diagram based on the construction program.

Site meetings

General: Hold and attend site meetings throughout the contract and arrange for the attendance of appropriate subcontractors, architect and appropriate consultants.

Frequency: Site meetings to occur fortnightly unless specified otherwise prior to signing contract.

Minutes: Make a record of site meetings. Distribute a copy of the minutes to each party.

- Purpose of submission: For review.
- Timing of submission: Within 5 working days after each meeting.

Progress photographs

General: Take colour progress photographs within 5 working days, before each site meeting. Submit 2 sets of prints and the digital files. Identify the project, date, time, location and orientation.

- Purpose of submission: For information.
- Timing of submission: At each site meeting.

1.5 COMPLETION OF THE WORKS

Final cleaning

General: Before the date for practical completion, clean throughout, including interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces. Clean debris from the site, roofs, gutters, downpipes and drainage systems. Remove waste and surplus materials.

Samples: Remove non-incorporated samples, prototypes and sample panels.

Reinstatement

General: Before the date for practical completion, clean and repair damage caused by installation or use of temporary work and restore existing facilities used during construction to original condition.

Adjoining properties

Evaluation: At practical completion, for each property documented in the **Adjoining properties to be recorded schedule**, inspect the property with the architect and owner and occupant of the property, recording any damage that has occurred since the pre-commencement inspection.

Removal of plant

General: Within 10 working days after practical completion, remove temporary works and construction plant no longer required. Remove the balance before the end of the defects liability period.

1.6 PAYMENT FOR THE WORKS

Progress claims

Anticipated progress claims: Submit a schedule of anticipated progress claims for the contract period.

- Purpose of submission: For information.
- Timing of submission: At commencement of the works.

Progress claim breakdown: Submit a statement of amounts claimed in respect of each worksection or trade heading designated in the specification.

- Purpose of submission: For review.
- Timing of submission: With each progress claim.

Import costs

Definition: Import costs include costs attributable to exchange rates, customs and import duty of imported content of items purchased for incorporation in the works.

Adjustment: If there are changes in rates applying to import costs of items documented in the **Import costs adjustment schedule**, add or deduct the amount of the difference to or from the contract sum, as applicable.

Method of measurement

General: In conformance with the principles of the
Australian and New Zealand standard method of measurement of building works (ANZSMM) (2018).

1.7 MISCELLANEOUS

Contractor and owner to observe confidentiality

Publicity: Do not issue information concerning the project for publication in the media without prior written approval of the owner. Refer enquiries from the media concerning the project to the owner.

Compliance with the law

Requirements of authorities: The owner, before entering into the contract, has given the notices, paid the fees, and obtained the permits, approvals and other authorisations, as documented in the **Prior applications and approvals schedule**.

0181 ADHESIVES, SEALANTS AND FASTENERS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide adhesives, sealants and fasteners, as documented.

Performance

Requirements: Conform to the following:

- Fitness for purpose: Suitable for particular use, capable of transmitting imposed loads, sufficient to maintain the rigidity of the assembly, or integrity of the joint.
- Finished surface: That will not cause discolouration.
- Compatibility: Compatible with the products to which they are applied.
- Sealant replacement: Capable of safe removal without compromising the application of the replacement sealant for future refurbishment.
- Movement: If an adhered or sealed joint is subject to movement, select a system certified to accommodate the projected movement under the conditions of service.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.

1.3 SUBMISSIONS

Products and materials

Adhesives and sealants: Submit product data sheets.

Samples

Visible joint sealants: Submit colour samples.

Compatibility testing: Submit adhesion and compatibility testing data demonstrating that adhesive, sealant or fastener is compatible with materials to be fixed and is suitable for the project conditions.

Warranties

Manufacturer’s warranty: Submit the manufacturer’s published product warranties.

2 PRODUCTS

2.1 SEALANTS

Standards

General: To ISO 11600 (2002).

External masonry joints

General: Provide sealant and bond breaking materials which are non-staining to masonry. Do not use bituminous materials with absorbent masonry units.

Bond breaking backing:

- Bond breaking materials: Non-adhesive to sealant, or faced with a non-adhering material.
- Foamed materials: Closed cell or impregnated, not water-absorbing.

Lightweight building element joints

Joints subject to rapid changes of movement: Provide sealants that accommodate the movement of the contact materials.

Total VOC limits

Requirement: Conform to the following maximum limits:

- General purpose sealants: 50 g/L.

- Acoustic sealants, architectural sealants, waterproofing sealants: 250 g/L.
- Wood flooring and laminate sealant: 100 g/L.

2.2 FASTENERS

General

Masonry anchors: Proprietary expansion or bonded type anchors, as documented.

Plain washers: To AS 1237.1 (2002).

- Provide washers to the heads and nuts of bolts, and the nuts of coach bolts.

Plugs: Proprietary purpose-made plastic.

Stainless steel fasteners: To ASTM A240/A240M (2022).

Steel nails: To AS 2334 (1980).

- Length: At least 2.5 times the thickness of the member being secured, and at least 4 times the thickness if the member is plywood or building board less than 10 mm thick.

Unified hexagon bolts, screws and nuts: To AS/NZS 2465 (1999).

Fasteners in CCA treated timber: Epoxy coated or stainless steel.

Bolts

Coach bolts: To AS/NZS 1390 (1997).

Hexagon bolts Grades A and B: To AS 1110.1 (2015).

Hexagon bolts Grade C: To AS 1111.1 (2015).

Corrosion resistance

Atmospheric corrosivity category: To *0171 General requirements*.

Steel products: Conform to the **Corrosion resistance table** or provide proprietary products with metallic and/or organic coatings of equivalent corrosion-resistance.

Corrosion resistance table

Atmospheric corrosivity category to AS 4312 (2019)	**Threaded fasteners and anchors**		**Powder actuated fasteners**
	Material	**Minimum local metallic coating thickness (µm)**	**Material**
C1 and C2	Electroplated zinc or Hot-dip galvanized	30	Stainless steel Type 316
C3	Hot-dip galvanized	45	Stainless steel Type 316
C4	Stainless steel Type 316	-	Stainless steel Type 316
Note: For categories C5, CX and T to the AS/NZS 2312 series, seek specialist advice.			

Finishes

Electroplating:

- Metric thread: To AS 1897 (2016).
- Imperial thread: To AS 4397 (2007).

Galvanizing:

- Threaded fasteners: To AS/NZS 1214 (2016).
- Other fasteners: To AS/NZS 4680 (2006).

Mild steel fasteners: Galvanize if:

- Embedded in masonry.
- In external timbers.
- Exposed to or in air spaces behind the external leaf of masonry walls.
- In contact with chemically treated timber other than CCA treated timber.

Epoxy coated: CCA treated timber.

Nuts

Hexagon chamfered thin nuts Grades A and B: To AS 1112.4 (2015).

Hexagon nuts Grade C: To AS 1112.3 (2015).

Hexagon nuts Style 1 Grades A and B: To AS 1112.1 (2015).

Hexagon nuts Style 2 Grades A and B: To AS 1112.2 (2015).

Screws

Coach screws: To AS/NZS 1393 (1996).

Hexagon screws Grades A and B: To AS 1110.2 (2015).

Hexagon screws Grade C: To AS 1111.2 (2015).

Hexagon socket screws: To AS 1420 (2008).

Self-drilling screws: To AS 3566.1 (2002).

Self-tapping screws:

- Cross-recessed countersunk (flat – common head style): To AS/NZS 4407 (2015).
- Cross-recessed pan: To AS/NZS 4406 (2015).
- Cross-recessed raised countersunk (oval): To AS/NZS 4408 (2015).
- Hexagon: To AS/NZS 4402 (2015).
- Hexagon flange: To AS/NZS 4410 (2015).
- Hexagon washer: To AS/NZS 4409 (2015).
- Slotted countersunk (flat – common head style): To AS/NZS 4404 (2015).
- Slotted pan: To AS/NZS 4403 (2015).
- Slotted raised countersunk (oval – common head style): To AS/NZS 4405 (2015).

Blind rivets

Description: Expanding end type with snap mandrel.

Type: Closed end for external application, open end for internal application.

End material:

- Aluminium base alloy for metallic-coated or prepainted steel.
- Stainless steel for stainless steel sheet.
- Copper for copper sheet.

Size:

- For sheet metal to sheet metal: 3 mm.
- For sheet metal to supports, brackets and rolled steel angles: 4.8 mm.

3 EXECUTION

3.1 ADHESIVES

General

Requirement: Install to the manufacturer’s recommendations.

Preparation

Substrates: Conform to the following:

- Remove any deposit or finish which may impair adhesion.
- If framed or discontinuous, provide support members in full lengths without splicing.
- If solid or continuous, remove excessive projections.
- If previously painted, remove cracked or flaking paint and lightly sand the surface.

3.2 JOINT SEALING

General

Requirement: Install to the manufacturer’s recommendations.

Joint preparation

Cleaning: Cut flush joint surface protrusions and rectify if required. Mechanically clean joint surfaces free of any deposit or finish which may impair adhesion of the sealant. Immediately before sealant application, remove loose particles from the joint, using oil-free compressed air.

Bond breaking: Install bond breaking backing material.

Taping: Protect the surface on each side of the joint using 50 mm wide masking tape or equivalent means. On completion of sealant application, remove the tape and remove any stains or marks from adjacent surfaces.

Primer: Apply the recommended primer to the surfaces in contact with sealant materials.

Sealant joint proportions

General weatherproofing joints (width:depth):

- 1:1 for joint widths less than 12 mm.
- 2:1 for joint widths greater than 12 mm.

Sealant application

General: Apply the sealant to dry joint surfaces using a pneumatic applicator gun. Make sure the sealant completely fills the joint to the required depth, provides good contact with the full depth of the sides of the joint and traps no air in the joint. Do not apply the sealant outside the recommended working time for the material or the primer.

Weather conditions

Two pack polyurethanes: Do not apply the sealant if ambient conditions are outside the following:

- Temperature: Less than 5°C or greater than 40°C.
- Humidity: To the manufacturer’s recommendations.

Joint finish

General: Force the sealant into the joint and finish with a smooth, slightly concave surface using a tool designed for the purpose.

Excess sealant: Remove from adjoining surfaces using cleaning material nominated by the sealant manufacturer.

Protection

General: Protect the joint from inclement weather during the setting or curing period of the material.

Rectification

General: Cut out and remove damaged portion of joint sealant and reinstall so repaired area is indistinguishable from undamaged portion.

3.3 FASTENERS

General

Requirement: Install to the manufacturer’s recommendations.

Fastening to wood and steel

Timber substrates: To AS 1720.1 (2010) Section 4.

Self-drilling screws: To AS 3566.1 (2002) for timber and steel substrates.

Masonry anchors

Installation: To the manufacturer’s recommendations.

0185 TIMBER PRODUCTS, FINISHES AND TREATMENT

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide timber products with finishes and treatments, as documented.

Performance

Requirements:

- Appropriate for durability and fire-resistance.
- Appropriate certification for the finishing applications.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.
- *0671 Painting*.

1.3 STANDARDS

General

Sawn and milled products:

- Hardwood: To AS 2796.1 (1999).
- Softwood: To AS 4785.1 (2002).

Plywood:

- Structural: To AS/NZS 2269.0 (2012).
- Interior: To AS/NZS 2270 (2006).
- Exterior: To AS/NZS 2271 (2004).
- Marine: To AS/NZS 2272 (2006).

Glued laminated timber: To AS/NZS 1328.1 (1998).

Laminated veneer lumber: To AS/NZS 4357.0 (2022).

1.4 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- EWPAA: Engineered Wood Products Association of Australasia.
- LVL: Laminated Veneer Lumber.
- MDF: Medium Density Fibreboard.

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4491 (1997) and the following apply:

- Dry process fibreboard: Panel material with a nominal thickness of 1.5 mm or greater, manufactured from lignocellulosic fibres (derived from wood or other materials) with application of heat and pressure, the bond of which is derived from a synthetic adhesive added to the fibres and the panels are manufactured with a forming moisture content less than 20%.
- Particleboard: Panel material manufactured under pressure and heat from particles of wood (wood flakes, strands, chips, shavings, sawdust and similar) and/or lignocellulosic material in particle form (flax shives, hemp hurds, bagasse fragments, rice hulls, wheat straw and similar) with the addition of an adhesive.
- Wet process fibreboard: Panel material with a nominated thickness of 1.5 mm or greater, manufactured from lignocellulosic fibres (derived from wood or other materials) with application of heat and/or pressure, the bond of which is derived from the felting of the fibres and the panels are manufactured with a forming moisture content greater than 20%.

1.5 SUBMISSIONS

Products and materials

Chain of custody of forest products: Submit the following as evidence of conformity to **CERTIFICATION**, **Timber source certification**:

- Third party certification of supplier's chain of custody management system.
- Formal claim of chain of custody by supplier.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Deliver timber products to site in unbroken wrapping or containers and store so that the moisture content is not adversely affected.

Product identification

Preservative treated timber: Marking to AS/NZS 1604.1 (2021) clause 1.5.3.2 and including the following:

- A unique identifier for the treatment plant.
- A unique identifier for the preservative.
- Hazard class.

2.2 CERTIFICATION

Timber source certification

Requirement: Use timber products originating from sustainably managed forests.

Engineered timber product certification and identification

Branding: Brand timber products under the authority of a certification scheme applicable to the product. Locate the brand on faces or edges which will be concealed in the works.

Inspection: If neither branding nor certification is adopted, have an independent inspecting authority inspect the timber.

2.3 FIRE-RESISTANCE

General

Timber structures: To AS/NZS 1720.4 (2019).

Bushfire-prone areas

Standard: To AS 3959 (2018).

2.4 DURABILITY

General

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

Natural durability class: To AS 5604 (2005).

Naturally termite-resistant timbers: To AS 3660.1 (2014) Appendix C.

Timber quality: Free of core wood (material within 50 mm of the tree's centre) and free of splits, checks, loose knots and cavities. Free of sapwood (lighter coloured wood found on the outer layer of the tree).

Lyctid susceptible timbers: Do not provide untreated timbers containing lyctid susceptible sapwood.

Untreated sapwood: If used, place to the outside of joints or in locations exposed to higher levels of ventilation.

Preservative treatment

Wood-based products: To AS/NZS 1604.1 (2021).

Verification requirements: To AS/NZS 1604.2 (2021).

Test methods: To AS/NZS 1604.3 (2021).

Test: Methods as follows:

- Timber: To AS/NZS 1080.1 (2012).

- Plywood: To AS/NZS 2098.1 (2006).
- Reconstituted wood-based products: To AS/NZS 4266.1 (2017).

Protection: Protect timber and timber products stored on site from moisture and weather. For milled, prefinished, prefabricated and similar elements that are to be protected in the final structure, provide temporary weather protection until the permanent covering is in place.

2.5 FINISHING

Production finish

Hardwood: To AS 2796.1 (1999) Table B1.

Softwood: To AS 4785.1 (2002) Table B1.

Surface coating

Painting and staining: To *0671 Painting*.

Application: To the manufacturer's specification.

2.6 RECYCLED TIMBER

General

Grit blasted or re-machined: Remove all nails and screws.

Classification: Visually graded.

3 EXECUTION

3.1 JOINTS

General

Joints and connections: Use hot-dipped galvanized or stainless steel fasteners, composite bolts, nails or nailed metal connectors.

Timber-to-timber interfaces: Provide a seal coating of preservative treatment. Make sure the inside of bolt holes and the end grains of the timber are coated.

Water retention: Avoid details that may trap water including housing or birdsmouth joints.

Fasteners: To prevent chemical treatments reacting with fasteners, install to manufacturer's recommendations.

3.2 SHRINKAGE RESTRAINT

General

Requirement: Use seasoned timber, if possible, to avoid shrinkage restraint, particularly where timber elements are integrated with steel and/or concrete.

Moisture content: Use finishes and end-grain sealants to minimise moisture content changes.

Fasteners: Align fasteners along member axis and use single fasteners at joints.

Connections: Use connections that allow for movement without adversely affecting the performance of the connection.

Unseasoned timber: Provide as follows:

- Drill holes 10% oversize.
- Use species with similar shrinkage values to reduce movement and shrinkage.
- For framing provide adequate clearance at the top of masonry veneer and face fixed members to reduce vertical movement.

3.3 FINISHING

Ploughing

General: Back plough boards liable to warp (e.g. if exposed externally on one face). Make the width, depth and distribution of ploughs appropriate to the dimensions of the board and degree of exposure.

Painting

Edges: Chamfer edges of work to receive paint or similar coatings.

Priming: For woodwork to be painted, prime hidden surfaces before assembly.

0191 SUNDRY ITEMS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide sundry items, as documented.

Performance

Requirements: Installation as follows:

- Undamaged and free of surface defects or distortions.
- Correctly located and aligned, plumb, level and straight.
- Fixed firmly in position.
- Connected to the nominated service(s).

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.

1.3 SUBMISSIONS

Certification

Sealant compatibility: Submit statements from all parties to the installation certifying the compatibility of sealants with items and substrates.

Operation and maintenance manuals

Requirement: Submit a maintenance manual and, if required, an operation manual with the technical specification and manufacturer’s recommendations for the item to be installed.

Samples

Labelling: Label each sample, giving the brand and product name, manufacturer’s code reference, date of manufacture and intended building location.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, showing the following:

- Details of fabrication and components.
- Details of fabrication involving other trades or components.
- Information necessary for site assembly.
- Proposals for the break-up of large items as required for delivery to the site.
- Proposed method of joining the modules of large items.
- Fixing locations and types.

Warranties

Requirement: Submit a manufacturer’s and/or installer’s warranty.

1.4 INSPECTION

Notice

Inspection: Give notice so inspection can be made of the following:

- Set-out of item locations before fixing.
- Completion of installation.

2 PRODUCTS

2.1 GENERAL

Storage and handling
General: Deliver, unload and store components and accessories in unbroken manufacturer's packaging.

3 EXECUTION

3.1 PREPARATION

Substrates
General: Prepare the substrate to receive the item.

Protection
General: Protect existing work from damage during the installation and rectify any damage. Provide temporary coverings if required.

3.2 INSTALLATION

Accessories and trim
Requirement: Provide accessories and trim necessary to complete the installation.

3.3 COMPLETION

Cleaning
Requirement: Remove packaging. Clean the completed assembly and surrounds. Wipe down appliances and fittings with a damp, soft, clean cloth.

Warranties
Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the installer.

Form: Against failure of materials and execution under normal environment and use conditions.

0342 LIGHT STEEL FRAMING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide light steel floor, wall, roof and truss framing, as documented.

Performance

Requirements:

- Suitable for having flooring, linings, cladding and roofing fixed to it.
- Conforming to the documented performance criteria.
- Conforming to the requirements of NASH-1 (2005) or NASH-2 (2014).

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.

1.3 STANDARDS

General

Design, materials and protection: To AS/NZS 4600 (2018).

Residential and Low-rise steel framing: To NASH-1 (2005) (National Association of Steel Housing) and NASH-2 (2014).

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in the NASH-1 (2005) and NASH-2 (2014) Standards apply.

1.5 TOLERANCES

General

Manufacturing, assembly and installation tolerances: To NASH-1 (2005) Appendix D and NASH-2 (2014) Appendix A.

1.6 SUBMISSIONS

Certification

Erected frame: Submit certification that the erected frame conforms to the documented project requirements.

Design documentation

General: Where the structural documentation defines performance criteria, submit, as follows:

- Design to AS/NZS 4600 (2018) or NASH-1 (2005): Independent design, documentation and certification from a professional engineer.
- To NASH-2 (2014): Certification of conformance to the requirements of NASH-2 (2014).

Reactions: Submit the location and magnitude of reactions that are to be accommodated by the support structure.

Floor and wall frame member sizes: Submit a schedule of proposed member sizes, certified as meeting stated project, and AS/NZS 4600 (2018) or NASH-2 (2014) requirements for span, spacings and loadings.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, requirements for the documented configurations and loadings.

Prefabricated roof trusses: Include the following:

- Plan: Truss layout.

- Elevations: Arrangement of members, allowing for the accommodation of in-roof services, and the size and section type of each member.
- Method of assembly and connection details.
- Holding down and bracing: Details demonstrating capability to resist lateral and uplift forces.

Prefabricated wall frames: Include the following:

- Plan: Wall layout.
- Elevation: Arrangement of members, and size and section type of each member.
- Method of assembly, connection, holding down and bracing.

Prefabricated floor frames/cassettes: Include the following:

- Plan: Level of installation, arrangement of members, and size and section type of each member, including prefabricated floor joists.
- Method of assembly, connection, holding down and bracing.

Warranties

Requirement: Submit warranties to **COMPLETION**, **Warranties**.

1.7 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Damp-proof course installed before installation of steel framing.
- Steel framing erected on site before lining or cladding.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Transport all components to site and store, if required, so that components or their coating are not damaged or distorted.

Frames and trusses: If required, store on a flat even surface and do not load with other items.

Exposure: Minimise exposure of components to the weather, both during storage, handling and after erection.

2.2 COMPONENTS

Damp-proof course

Membrane: To the membrane requirements of AS 2870 (2011) or AS/NZS 2904 (1995).

Cold-formed steel framing

General: Cold-formed sections from steel, metallic-coated to AS 1397 (2021).

Corrosion protection: To NASH-2 (2014) Section 8.

Framing members

Cold-formed steel framing for proprietary systems: To NASH-1 (2005) or NASH-2 (2014).

Fascias and barge boards

Like for like replacement. Allow to prepare and paint. H3 treated pine or above grade considered acceptable.

3 EXECUTION

3.1 GENERAL

Frame fabrication

Length: Cut members accurately to length so that they fit firmly against abutting members.

Service holes: If not pre-punched, form holes by drilling or punching, without compromising the structural integrity of the frame, located centrally within the centre third span of the element, conforming to the requirements of NASH-2 (2014).

Swarf: Immediately remove swarf and other debris from cold-formed steel framing.

Fastening
Prefabricated framing: Fasten framing elements using fasteners, as documented, to the fabricator's requirements.

Framing built in-situ: Use fasteners, as documented, from the following types:

- Bolting.
- Self-drilling, self-tapping screws.
- Blind rivets.
- Proprietary clinching system.
- Structural adhesives.
- Welding. On-site welded connections are not permitted.

Compatibility: Compatible with steel frame to prevent galvanic corrosion of dissimilar metals.

Welding
Burning: Avoid procedures that result in greater than localised burning of the sheets or framing members.

Prefabricated frames
General: Protect frames from damage or distortion during erection.

Unseasoned or CCA treated timber
General: Do not fix in contact with framing without fully painting the timber and/or the steel.

Earthing
Requirement: To AS/NZS 3000 (2018). Provide temporary earthing during erection until the permanent earthing is installed.

Protection
General: Restore coatings which have been damaged by welding or other causes. Thoroughly clean affected areas back to base metal and coat with a zinc rich organic primer.

Metal separation: Install lagging to separate non-ferrous service pipes and accessories from the framing.

Grommets: Provide grommets to isolate piping and wiring from cold-formed steel framing.

Site cut holes: Provide plastic bushes or grommets to site cut holes.

3.2 ROOF AND CEILING FRAMING

Beam framing
General: Construct framing for flat or pitched roofs where the ceiling follows the roof line, consisting of prefabricated roof beams, rafters or purlins supporting both ceiling and roof covering.

Additional support
Requirement: Provide additional frame members at the following locations:

- Hanging light fittings.
- Ceiling fans.
- Access panels.
- Any other hanging services or fixtures and fittings.

Water tank or heater in roof space: Provide a support platform to AS/NZS 3500.4 (2021) clause 5.5.1.

Battens
Requirement: Supply and fix battens suitable for span, spacing and proposed roofing material.

Anti-ponding boards
Standard: To AS 4200.2 (2017).

3.3 TRUSSES

Fabrication
Assembly: Factory assemble trusses.

Supports for in roof services
General: If walkways, mechanical plant or other services are to be supported within the roof space, provide support and make sure trusses have been designed to carry the loads.

Water tank and heater: If a water tank or heater is located in the roof space, provide a support platform to AS/NZS 3500.4 (2021) clause 5.5.1 and make sure trusses have been designed to carry the loads.

Marking

General: Permanently mark each truss to show:

- Project identification.
- Manufacturer.
- Tag or number.
- Location.
- Support points.

Installation

Support: Support and fix trusses to the truss fabricator's recommendations.

Vertical movement: Over internal walls not providing support to trusses, provide at least 10 mm vertical clearance and use wall bracing methods which allow for vertical movements, to the truss fabricator's recommendations.

3.4 ROOF TRIM

Fascia, valley and barge boards

Requirement: Fix fascia, valley gutter boards and barge boards in conformance with the manufacturer's recommendations.

3.5 COMPLETION

Cleaning

General: On completion of framing remove debris from any gaps between members and make sure void between bottom chord of roof trusses and top of any non-supporting internal wall is clear.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the installer.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

0411B WATERPROOFING – EXTERNAL AND TANKING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide external waterproofing and tanking systems to substrates, as documented.

Performance

Requirements:

- Graded to falls to dispose of stormwater without ponding above the depth of lapped seams.
- Able to accommodate anticipated building movements.
- Able to accommodate its own shrinkage over the warranty life of the roofing system.
- Able to resist water under hydrostatic pressure.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.

1.3 STANDARDS

Below ground waterproofing

Membrane design and installation: To BS 8102 (2022).

External waterproofing

Membrane materials: To AS 4654.1 (2012).

Membrane design and installation: To AS 4654.2 (2012).

Stormwater drainage

Standard: To AS/NZS 3500.3 (2021).

Slip resistance

Classification: To AS 4586 (2013).

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 4654.1 (2012) and AS 4654.2 (2012) and the following apply:

- Bitumen: A viscous material from the distillation of crude oil comprising complex hydrocarbons, which is soluble in carbon disulphide, softens when it is heated, is waterproof and has good powers of adhesion. It is produced as a refined by-product of oil.
  - . APP bitumen: Bitumen modified with atactic (meaning non-crystalline or amorphous) polypropylene wax to form a plastomeric sheet. The membrane is reinforced with fibreglass or non-woven polyester (NWP).
  - . SBS bitumen: Bitumen modified with styrene-butadiene-styrene, a thermoplastic rubber that undergoes a phase inversion at elevated temperature and converts to an elastomeric material. The membrane is reinforced with fibreglass or non-woven polyester (NWP).
- Bond breaker: A system preventing a membrane bonding to the substrate, bedding or lining.
- Double detail joint: A joint formed by turning up and bonding the horizontal membrane to a vertical substrate and adding an overflashing of membrane material bonded to the vertical substrate and folded over and bonded to the horizontal membrane. In certain situations the double detail can be achieved by bonding an angle profile of membrane material to the junction prior to laying the membrane.
- Liquid applied: A water-based formulation which cures to form an elastomeric membrane.
- Polyurethane: Water or solvent-based formulations which moisture cure to form an elastic rubber membrane.

- PVC membrane: Flexible plastic sheet membrane (vinyl).
- Slip sheet: A sheet used to isolate the membrane system from the supporting substrate or from the topping or mortar bedding. The most common material is polyethylene.
- Substrate: The surface to which a material or product is applied.
- Waterproofing system: Combinations of membranes, flashings, drainage and accessories which form waterproof barriers and which may be:
  . Loose-laid.
  . Bonded to substrates.

1.5 SUBMISSIONS

Operation and maintenance manuals
Requirement: On completion, submit the manufacturer's maintenance recommendations, including the following:

- Preventative maintenance procedures.
- Instructions and procedures for the repair of the membrane.

Records
General: Submit photographic records of application and protection of membranes. Label photographs with date, location and weather during application or curing.

Timing: Record at the following stages:

- After substrate preparation.
- After primer application.
- After membrane installation.
- After protection from traffic provided.

Liquid applied membranes:

- Record wet film thickness once every 10 m^2 and compare to the manufacturer's requirements.
- On completion of every 100 m^2 of each coat, compare the amount of membrane used with the manufacturer's application rate and record the result.

Flood tests: Submit photographic records of flooded areas and adjacent areas noted in **TESTING**, **Flood test**. Label photographs with date and location.

Subcontractors
General: Submit names and contact details of proposed suppliers and installers as recommended by the manufacturer.

Evidence of experience: [complete/delete]

Tests
Site tests: Submit results, as follows:

- Substrate moisture content test.
- Flood tests, including records of retesting after rectification.

Warranties
Requirement: Submit warranties to **COMPLETION**, **Warranties**.

1.6 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:

- Substrates prepared and ready for installation of the waterproofing and tanking systems.
- Secondary layers prepared and ready for subsequent layers.
- Membranes after installation and before concealment.
- Underflashings after installation and before installation of overflashings.
- After flood testing, if applicable.

2 PRODUCTS

2.1 GENERAL

Storage and handling
General: Store and handle to the manufacturer's recommendations and as follows:
- Protect materials from damage.

2.2 MEMBRANES

Membrane system
Requirement: Proprietary membrane system suitable for the intended external waterproofing.

Tanking system
Requirement: Proprietary membrane system suitable for the intended below ground tanking.

2.3 ACCESSORIES

Internal roof outlets
General: Proprietary funnel shaped sump cast into the roof slab, set flush with membrane, with a removable grating and provision for sealing the membrane into the base of the outlet.

Bond breakers
Requirement: Compatible with the extensibility class of the membrane to be used.

Material: Purpose-made bond breaker tapes and closed cell foam backing rods or fillets of sealant.

Flashings
Requirement: Flexible waterproof flashings compatible with the waterproof membrane system.

Liquid membrane reinforcement
Requirement: Flexible fabric compatible with the waterproof membrane system.

Sealants
Requirement: Waterproof, flexible, mould-resistant and compatible with the waterproofing system.

Adhesives
Requirement: Waterproof and compatible with the waterproofing system.

Control joint covers
Corners, crossovers, tees and bends: Factory mitred, welded and provided with 50 mm legs.

End closures: Factory folded and sealed to match joint cover profile.

Fixing hobs: Concrete or timber.

3 EXECUTION

3.1 PREPARATION

Substrates
General: Prepare substrates as follows:
- Clean and remove any deposit or finish which may impair adhesion of membranes.
- Remove excessive projections.
- Fill voids and hollows in concrete substrates with a concrete mix not stronger than the substrate.
- Fill cracks in substrates wider than 1.5 mm with a filler compatible with the membrane system.
- Remove all traces of a concrete curing compound if used.

Concrete substrates: Cure for more than 28 days.

Moisture content
Requirement: Verify that the moisture content of the substrate is compatible with the water vapour transmission rate of the membrane system by testing to **TESTING, Substrate moisture tests**.

Falls
Requirement: Verify that falls in substrates are greater than 1:100.

Joints and fillets
Internal corners:

- Liquid applied membranes: Provide 15 x 15 mm 45° fillets.
- Sheet membranes: Provide 40 x 40 mm 45° fillets.

Fillet material: Cement or plastic.

External corners: Round or arris edges.

Control joints: Prepare all substrate joints to suit the membrane system.

Priming

Compatibility: If required, prime the substrates with compatible primers for adhesion of the membrane system.

3.2 INSTALLATION

Ambient conditions

Requirement: Do not install in conditions outside the manufacturer's recommendations.

Protection

Damage: Protect membrane from damage during installation and for the period after installation until the membrane achieves its service characteristics that resist damage.

Drains

General: Prevent moisture from tracking under the membranes at drainage locations.

Drains and cages: Provide removable grates or cages to prevent blockage from debris. If the finished surface is above the level of the membrane, provide a slotted extension piece to bring the grate up to the level of the finished surface.

Overflows: Apply a bond breaker to the perimeter of the overflow outlet at its junction with the surface to which the membrane will be fixed. Turn the membranes into the overflow to prevent moisture from tracking behind the membrane.

Sheet membrane joints

Orientation of laps: Lap sheets on the upslope side of the roof fall over sheets on the downslope side.

End laps generally: Stagger end lap joints.

Bituminous sheet membranes:

- Side laps: ≥ 75 mm.
- End laps: ≥ 150 mm.
- Method: Heat welded.

Synthetic rubber membranes:

- Factory-vulcanized laps: ≥ 40 mm.
- Field side laps: ≥ 50 mm.
- Field end laps: ≥ 100 mm.

PVC membranes:

- Factory-welded laps: ≥ 40 mm.
- Field-welded laps:
  - If used over insulation boards: ≥ 100 mm.
  - Other instances: ≥ 75 mm.

Movement and control joints

General: Install membranes to accommodate control joints in the substructure.

Bond breakers: Size to allow the membrane to accommodate movement.

Joint backing gutter: Fix a formed metal gutter to one side of the soffit directly below the joint and fall to a suitable disposal or drainage point.

Control joint covers: Install after fixing hobs and membranes.

Membrane terminations

Membrane upturns: Provide upturns above the maximum water level expected from the exposure conditions of rainfall intensity and wind.

- Height: To AS 4654.2 (2012) Table A1.
- Anchoring: Secure sheet membranes along the top edge.
- Edge protection: Protect edges of the membrane.

Waterproofing above vertical upward terminations: Waterproof the structure above the termination to prevent moisture entry behind the membrane using cavity flashings, capping, waterproof membranes or waterproof coatings.

Vertical upward terminations:

- Liquid applied membranes: Terminate under an overflashing, or provide an overflashing of liquid applied membrane.
- Sheet membranes: Terminate under an overflashing, or provide a pressure seal overflashing or an overflashing fixed into a cast-in reglet.

Membrane downturns: Provide downturns for sheet membrane systems as follows:

- Roofs or similar structures: Extend minimum 100 mm from the junction of the structure.
- Balconies with a fully bonded membrane: Terminate at the drip groove.

Vertical downward terminations:

- Liquid applied membranes: Extend membrane to the underside of a horizontal return.
- Sheet membranes: Provide a pressure seal overflashing.

Horizontal terminations: Do not provide. Use vertical terminations.

Membrane penetrations

Vertical penetrations: Provide overflashing fixed to the substrate for vertical penetrations including pipes, ducts and vents.

Horizontal penetrations: Provide SBS bitumen flange to seal to membrane to rigid PVC-U conduits and pipes without burning the PVC-U. Do not use high density polyethylene (HDPE), polypropylene (PP) pipes or flexible PVC conduit.

Membrane at balcony doors and windows

Requirement: Install membrane before fixing door or window frames.

Upturn height above external finished floor level: To AS 4654.2 (2012) Table A1.

Hobless and flush thresholds: Install membrane before fixing door or window frames. Provide a continuous grated drain abutting the external face of the door or window sill.

Membrane around skylights and hatches

Requirement: Install membranes to upstands before the installation of the skylight or hatch.

Upturn height above roof surface: To AS 4654.2 (2012) Table A1.

Membrane at parapets

Requirement: Terminate membrane upturns under parapet flashing or capping with at least 75 mm overlap. Do not top fix parapet cappings. Seal heads of fasteners against capping.

Membrane at gutters

Requirement: Terminate membrane over a corrosion-resistant metal angle fixed to the gutter support substrate with the vertical leg of the angle turned down into the gutter at least 35 mm.

Membrane at post supports

Post supports fixed before membrane:

- Fix post support to substrate with countersunk fasteners and seal the perimeter of the base plate to the substrate.
- Lay out membrane sheets to minimise cuts around the post support vertical member.
- Dress the membrane closely around the post support and seal the edge of the penetration to the vertical member.
- Fix an overflashing so that any joint is staggered as much as possible relative to joints in the base membrane, and overlap at least 150 mm beyond the perimeter of the base plate.

Post supports fixed after membrane:

- Fix post support to substrate with countersunk fasteners over a waterproof resilient gasket cut to match the shape of the base plate, and seal the perimeter of the base plate to the membrane.
- Dress the overflashing closely around the post support and seal the edge of the penetration to the vertical member.
- Fix an overflashing and overlap at least 150 mm beyond the perimeter of the base plate.

Membrane to planter boxes

Membrane: Extend root-resistant membrane at least 100 mm vertically above the soil or fill level and secure.

Drainage: Grade the base of the planter to adequately sized drainage outlets and terminate the membrane in the outlets.

Drainage riser: Install a riser with drainage slots that extend from the membrane level to the top of the drainage cell. Extend the riser above the soil fill level and finish with a screw cap to provide access for drain clearing.

Protection board: Provide protection board to the full extent of the membrane including areas between soil level and the underside of flashings and cappings.

Drainage cell: Provide geo-filter fabric wrapped drainage cell to the base of the planter and turn geo-filter fabric up drainage riser at least 100 mm above drainage slots.

Cappings and flashings: Provide capping to the tops of planter walls to protect the membrane. Extend the capping to overlap the top of the protection board on the inside face of the planter wall. Where planter walls abut other walls, provide a flashing over the top of the membrane.

Membrane to below ground structures

Membrane: Externally apply membrane to all walls and return to horizontal surfaces to prevent water tracking around structure at joints and corners.

Reinforcement: Provide reinforcement to the membrane at junctions, corners and over joints to the manufacturer's recommendations.

Protection board: Provide protection board to the full extent of the membrane.

Drainage cell: Provide geo-filter fabric wrapped drainage cell to vertical surfaces of the structure.

Curing of liquid membrane systems

General: To the manufacturer's instructions.

Overlaying finishes on membranes

Compatibility: If a membrane is to be overlaid with another system such as tiles, pavers, ballast, insulation or soil, provide an overlaying system that is compatible with and will not cause damage to the membrane.

Bonded or partially bonded membranes: If the topping or bedding mortar is to be bonded to the membrane, provide sufficient control joints in the topping or bedding mortar to reduce the movement over the membrane.

Slip sheet: If the topping or bedding mortar is structurally sufficient to not require bonding to the substrate, lay a double slip sheet over the membrane to separate it from the topping or bedding mortar.

Paint coatings: If maintenance pathways are indicated by a paving paint, use a paving paint that is compatible with the membrane.

3.3 TESTING

Substrate moisture tests

Moisture content of concrete substrate: Test substrate in-slab relative humidity to ASTM F2170 (2018). Perform three tests for the first 100 m^2 of subfloor area and an additional test for each additional 100 m^2.

Moisture content of timber, plywood and particleboard substrate: Test substrate to AS/NZS 2098.1 (2006) for plywood substrates or to AS/NZS 1080.1 (2012) for timber and particleboard substrates.

Flood test

Application: Perform a flood test before the installation of surface finishes.

Moisture content measurement method: To **Substrate moisture tests**.

Set-up:

- Measure the wall/floor junction of adjacent spaces and of the slab soffit below for dryness.
- Record the result for each area.
- Dam the access openings and seal drainage outlets.
- Provide temporary overflows of the same capacity as the outlets.
- Fill space with clean water as follows:

. Minimum water level: 25 mm.
. Maximum water level: 100 mm.
. Minimum dimension below perimeter flashings: 25 mm.

- Test duration: Minimum 24 hours and maximum 72 hours.

Evaluation:

- Visual test: Drain the water. After 2 hours, visually inspect the wall/floor junction of adjacent spaces and of the slab soffit below for water or moisture.
- Moisture meter test: If there is no visual evidence of water, test the same areas for dryness using a moisture meter, and compare the results to the measurements taken before flooding.

Conformance:

- Evidence of water from the visual test: Failure.
- Test results indicating an increase in moisture after flooding: Failure.
- Failure: If required, remedy defects and retest.

Records: Submit records of all flood tests.

3.4 COMPLETION

Reinstatement

Extent: Repair or replace faulty or damaged work. If the work cannot be repaired satisfactorily, replace the whole area affected.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

0421 ROOFING – COMBINED

1 GENERAL

1.1 RESPONSIBILITIES

General
Requirement: Provide a roofing system and associated work, as documented.

Performance
Thermal qualities: Provide glazing with U-Value and Solar heat gain coefficient (SHGC), as documented.

Corrosion resistance
Material: To the manufacturer's recommendations for distance from marine influence.

1.2 CROSS REFERENCES

General
Requirement: Conform to the following:

- *0171 General requirements*.
- *0461 Glazing*.

1.3 INTERPRETATION

Abbreviations
General: For the purposes of this worksection, the following abbreviations apply:

- EPS: Expanded polystyrene.
- EPS-FR: Expanded polystyrene with fire retardant.
- MRF: Mineral fibre.
- PF: Phenolic foam.
- PIR: Rigid polyisocyanurate.
- PUR: Rigid polyurethane.
- XPS: Extruded polystyrene.

Definitions
General: For the purposes of this worksection, the definitions given in AS 1562.1 (2018), AS 2049 (2002), AS 2050 (2018) and AS 4597 (1999), and the following apply.

- Roof shake: A non-interlocking product made from split or sawn timber used to form the field of the roof.

1.4 TOLERANCES

Sheet metal roofing
Supporting members: To AS 1562.1 (2018) clause 4.2.3.

1.5 SUBMISSIONS

Certification
Design of glazed roofing: Submit an engineer’s certificate confirming conformance to AS 1288 (2021).

Execution details
Site glazing: If site glazing is intended, submit proposals.

Fire performance
Combustibility: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Combustibility**.

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Operation and maintenance manuals
On completion: Submit a manual of recommendations from the roofing manufacturer or supplier for the maintenance of the roofing system including, frequency of inspection and recommended methods of access, inspection, cleaning, repair and replacement.

Products and materials
Safety glazing materials: Submit evidence of conformity to AS/NZS 2208 (1996) Appendix A.

Thermal insulation performance: Submit evidence of performance to AS/NZS 4859.1 (2018) and AS/NZS 4859.2 (2018).

Type tests: As appropriate for the project, submit evidence of conformity to the following:

- Metal roofing generally: Roof sheeting and fastenings to AS 1562.1 (2018) clause 5.4 for resistance to concentrated loads and AS 1562.1 (2018) clause 5.5 for resistance to wind pressures.
- Metal roofing in AS/NZS 1170.2 (2021) cyclonic regions. Roof sheeting and fastenings to AS 1562.1 (2018) clause 5.6.

Samples
Requirement: Submit samples of the following, showing the range of variation available:

- Trim and accessories with a colour finish.
- Custom profiled flashings and cappings.
- Sheet metal roofing:
  . Sheet metal finishes.
  . Sealants.
  . Pre-weathered finish to sheet metal.

Subcontractors
Installer experience: Submit evidence of experience with non-ferrous, shingle and shake, slate, insulated panel or glazed roofing installation.

Site glazing: Submit evidence of glazier's acceptance of the supporting structure and framing before starting the installation.

Tests
Site tests: Submit results as follows:

- Internal downpipe testing to AS/NZS 3500.3 (2021) clause 9.3.1.

Warranties
Requirement: Submit warranties to **COMPLETION**, **Warranties**.

Roofing materials: Submit the manufacturer’s published product warranties.

1.6 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:

- Roof supports before covering up or concealing.
- Glazing products before they are installed.
- The parts of the roofing, sarking, vapour barrier, insulation and roof plumbing installation before covering up or concealing.
- Completion of a prototype.

2 PRODUCTS

2.1 GENERAL

Storage and handling
Storage: To the manufacturer's recommendations and as follows:

- Keep clean, dry and unexposed to weather.
- Metal roofing materials: Store away from uncured concrete and masonry, on a level base and not in contact with other materials that cause staining, denting or other surface damage.
- Sheeting: Stack flat and off the ground on at least 3 evenly placed bearers.

Handling metal roofing materials: As follows:

- Use gloves when handling precoated metal roofing material.
- Use soft soled shoes when fixing or working on roofs.
- Protect edges and surfaces from damage. Do not drag sheets across each other or over other materials.

Handling glazed roofing material: To the manufacturer's recommendations.

Storage area conditions: Allocate a safe and trade free area.

Welded safety mesh

Standard: To AS/NZS 4389 (2015).

2.2 FIRE PERFORMANCE

Combustibility

Insulated panel system and glazed roofing: Tested to AS 1530.1 (1994).

Fire hazard properties

Insulated panels: Group number to AS 5637.1 (2015).

Insulation materials: Conform to the following, tested to AS/NZS 1530.3 (1999).

- Spread-of-Flame Index: ≤ 9.
- Smoke-Developed Index: ≤ 8 if Spread-of-Flame Index > 5.

Glazing plastics: Conform to the following, tested to AS/NZS 1530.3 (1999).

- Spread-of-Flame Index: ≤ 9.
- Smoke-Developed Index: ≤ 8 if Spread-of-Flame Index > 5.

2.3 PROFILED SHEET METAL ROOFING

Standards

Design and materials: To AS 1562.1 (2018).

Fasteners

Requirement: Starter clips, fixing clips and fastenings to the roofing system supplier’s recommendations.

Prefinished exposed fasteners: Finish with an oven baked polymer coating to match the roofing material.

Fastenings to timber battens: Fastenings long enough to penetrate the thickness of the batten without piercing the underside.

Profiled fillers

Type: Purpose-made closed cell polyethylene foam profiled to match the roofing profile.

Location: Provide profiled fillers under flashings to the following:

- Ridges.
- Eaves.
- Lapped joints in roof sheeting.

Insulation spacers

Description: Proprietary spacer system to prevent excessive compression of insulation between roof sheeting and framing.

Components

Sealant: 100% neutral cure non-acid based silicone rubber to match roofing.

2.4 SEAMED SHEET METAL ROOFING

General

Description: Sheet metal roll formed into pan profiles, laid with seamed joints on flush finished, continuous plywood sheeting over an underlayer and separation layer.

Plywood sheeting

Standard: To AS/NZS 2269.0 (2012):

- Surface grade: DD.

Plywood formaldehyde emission class to AS/NZS 2269.0 (2012): E_1.

Bond: Type A to AS/NZS 2754.1 (2016).

Thickness: 19 mm.

Identification: Sheets labelled under the authority of a recognised certification scheme to *0185 Timber products, finishes and treatment.*

Underlayer

Description: Self-adhesive, rubberised asphalt/polyethylene waterproofing membrane.

Separation layer

Description: Fire-resisting mat of a nylon core of fused entangled filaments.

Fasteners

Requirement: Starter clips, fixing clips and fastenings to the roofing system supplier's recommendations.

Components

Solder (tin/lead): 40/60 soft solder.

Flux: Z-04-S.

Sealant: 100% neutral cure non-acid based silicone rubber to match roofing.

2.5 ROOF PLUMBING

General

Description: Flashings, cappings, gutters, rainheads, outlets, downpipes and accessories necessary to complete the roofing system.

Flashing and capping: Notched to match profile of roofing.

Matching fascia/barge capping: If the selected eaves gutter is a proprietary high front pattern forming part of a combined system of gutter, fascia and barge, provide matching proprietary fascias and barge cappings to roof verges and edges.

Standards

Roof drainage: To AS/NZS 3500.3 (2021).

Metal rainwater goods: To AS/NZS 2179.1 (2014).

Flashings and cappings: To AS/NZS 2904 (1995).

2.6 SKYLIGHTS

General

Standard: To AS 4285 (2019).

Description: A proprietary skylight system for installation in roofs pitched less than 15°, including framing, fixing, trim, seals, accessories and flashings.

2.7 ROOF HATCHES

General

Description: A proprietary roof hatch system, including framing, fixing, trim, seals, accessories and flashings.

2.8 ROOF WINDOWS

General

Standard: To AS 4285 (2019).

Description: A proprietary window system designed for non-vertical installation in roofs pitched between 15° and less than 90°, consisting of the following:

- Timber frame and sash, shop clear primed or prefinished.
- External anodised aluminium protective profiles.
- Sealed double glazing.
- Horizontally pivoted sash, 180° reversible, on patent friction hinges.
- Opening and locking by patent control bar.
- Ventilation flap.

2.9 ROOF VENTILATORS

General
Description: A proprietary roof ventilator system including framing, fixing, trim, seals, accessories and flashings.

3 EXECUTION

3.1 GENERAL

Preparation
Substrates or framing: Before fixing roofing, check the alignment of substrates or framing and adjust if required.

Flexible underlay: Check that the underlay or insulation is restrained.

Roofing: Make sure the roofing is clean and free of dust and loose particles.

3.2 INSTALLATION

Protection
General: Keep the roofing and rainwater system free of debris and loose material during construction.

Protection: Protect surfaces and finishes, including the retention of protective coatings during installation.

Thermal movement
Requirement: Allow for thermal movement in the roof installation and the structure, including movement in joints and fastenings.

Metal separation
Requirement: Prevent direct contact between incompatible metals, and between green hardwood or chemically treated timber and aluminium or coated steel, by one of the following methods:

- Applying an anti-corrosion, low moisture transmission coating to contact surfaces.
- Inserting a separation layer.

3.3 PROFILED SHEET METAL ROOFING

Installation
Standard: To AS 1562.1 (2018).

Fastener type, size, corrosion resistance class and spacing: To the sheet metal roofing manufacturer's recommendations.

Swarf: Remove swarf and other debris as soon as it is deposited.

Accessories: Provide accessories with the same finish as roofing sheets to complete the roofing installation.

Pan type sheets
Removal: Install sheets so that individual sheets can be removed without damage.

Curved corrugated sheet
General: Form by rolling from material recommended for curving or bullnosing. Minimise crimping or creasing across the face of the sheet. Trim off crimped or creased edges and ends.

Ridges and eaves
Sheet ends: Treat as follows:

- Project sheets 50 mm into gutters.
- Close off ribs at bottom of sheets using mechanical means or with purpose-made fillers or end caps.
- Turn pans of sheets up at tops and down into gutters by mechanical means.
- Provide pre-cut notched eaves flashing and birdproofing if required.
- Close off ridges with purpose-made ridge fillers of closed cell polyethylene foam.

Ridge and barge
Capping: Finish off along ridge and verge lines with purpose-made ridge capping or barge rolls.

Sprung curved ridge
General: Lay the roofing sheets in single lengths from eaves to eaves by naturally curving the sheets over the ridge.

Ridge: Seal side laps at the ridge and extend the sealant to the point where the roof pitch equals the recommended pitch of the roofing profile.

End laps

General: If end laps are unavoidable, and the sheet profile is not suitable for interlocking or contact end laps, construct a stepped type lap.

3.4 SEAMED SHEET METAL ROOFING

Plywood sheeting

Installation: Lay the length of the sheets at right angles to the supports.

End joints: Stagger the end joints and locate centrally over framing members.

Edge support: If panels are not tongue and grooved, provide noggings or trimmer joists to support the edges.

Fixing: 300 mm centres to each support:

- Timber: Screw or adhesive and nail.
- Steel: Metallic-coated, self-drilling/tapping screws with the heads finishing below the surface.

Control joints: 12 mm gap at abutting building elements.

Fabrication

Requirement: Factory fabricate roofing trays.

Minimum bending radius: 1.75 mm.

Fixing

Method: Fix pans to the plywood sheeting with concealed clips screw fixed at 250 mm maximum centres.

Seams

Roof pitch 3° to 25°: Double standing seam.

Roof pitch > 25°: Roll cap seam.

Method: Mechanically form and welt seal in situ using a self-propelled seaming machine, to stand 25 mm high on completion. Dress seams flat at gutters, ridges and hips, and fold both pan and seam down into gutters and up to form stop ends at ridges and hips.

Ridge and hip capping

Installation: Lock welt to the upturn of the roofing.

End laps

General: To the roofing manufacturer's recommendations.

Gutters

Gutter and sump support: Provide framing and lining to support valley gutters, box gutters and sumps. Line the whole area under the gutters and sumps.

Box gutter: Prefabricate box gutters to the required section and shape as follows:

- Form stop ends, downpipe nozzles, bends and returns.
- Dress downpipe nozzles into outlets.
- Hail guards: Install grating over the whole of the box gutter, over all box gutter sumps and over the edges of roofing sheeting entering box gutters.
- Overflows: Provide overflows to prevent back-flooding. Size to pass 100% of the design rainfall. Discharge overflows in visible locations and so water does not enter the building or cause damage to the building.
- Sumps: Minimum 150 mm deep and the full width of the box gutter.

Valley gutters: Profile to suit the valley boarding. Turn back both edges 180 x 6 mm radius. Nail or screw to the valley boarding at the top end to prevent the gutter creeping downwards.

Gratings: Install removable gratings over rainheads and sumps.

Leaf guard location: All gutter outlets.

External downpipes
General: Prefabricate downpipes to the required section and shape where possible. Connect heads to gutter outlets and, if applicable, connect feet to rainwater drains.

Access cover: Provide a removable watertight access cover at the foot of each downpipe stack.

- Size: Not less than the diameter of the downpipe.

Downpipe support: Provide supports and fixings for downpipes.

3.5 TESTING

Site tests
Standard: To AS/NZS 3500.3 (2021) Section 9.

Internal downpipes: Test each stack hydrostatically in stages, each test to run over two storeys high for two hours. Remedy defects and retest if necessary.

3.6 COMPLETION

Reinstatement
Extent: Repair or replace damage to the roofing and rainwater system. If the work cannot be repaired satisfactorily, replace the whole area affected.

Damage to prepainted finish: Replace panels with scratches in the prepainted finish greater than 2 mm in width visible from the ground.

Fasteners: Make sure weathertight and external panel facings are not distorted.

Cleaning
Roofing and rainwater drainage system: Remove debris, metal swarf, solder, sealants and unused materials.

Exposed metal surfaces: Clean surfaces of substances that interfere with uniform weathering or oxidisation.

Roof plumbing: Clean out spoutings, gutters and rainwater pipes after completion of roof installation.

Glazed roofing: Clean all glazing and framing with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive or alkaline materials.

Protection: After completion, remove protective coatings using methods to the manufacturer's recommendations.

Insulated panels: Clean surfaces to the manufacturer's recommendations.

Spares
Number:

- Tiles: Provide one spare matching tile for every hundred on the roof. Provide spare accessories in the same ratio.
- Slates, shingles or shakes: Provide one spare matching slate, shingle or shake for every hundred on the roof. Provide spare accessories in the same ratio.

Location: Stack spares within the roof space.

Designated locations: On or next to lines of supporting walls.

Warranties
Requirement: Provide warranties for materials and workmanship in the form of interlocking warranties as follows:

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier/manufacturer.

0423P FIELDERS ROOFING – PROFILED SHEET METAL

1 GENERAL

1.1 RESPONSIBILITIES

General
Requirement: Provide a FIELDERS profiled sheet metal roofing system and associated work, as documented.

Corrosion resistance
Material: To the manufacturer's recommendations for distance from marine influence.

1.2 COMPANY CONTACTS

FIELDERS technical contacts
Website: www.fielders.com.au/aspx/contact

1.3 CROSS REFERENCES

General
Requirement: Conform to the following:

- *0171 General requirements*.

1.4 STANDARDS

General
Standard: To AS 1562.1 (2018).

1.5 INTERPRETATION

Definitions
General: For the purposes of this worksection, the definitions given in AS 1562.1 (2018) apply.

1.6 MANUFACTURER'S DOCUMENTS

Technical manuals
Website: Visit www.specifying.fielders.com.au/roofing-walling to access comprehensive technical details.

1.7 TOLERANCES

Sheet metal roofing
Supporting members: To AS 1562.1 (2018) clause 4.2.3.

1.8 SUBMISSIONS

Operation and maintenance manuals
On completion: Submit a manual of recommendations from the roofing manufacturer or supplier for the maintenance of the roofing system including, frequency of inspection and recommended methods of access, inspection, cleaning, repair and replacement.

Products and materials
Type tests: As appropriate for the project, submit evidence of conformity to the following:

- Metal roofing generally: Roof sheeting and fastenings to AS 1562.1 (2018) clause 5.4 for resistance to concentrated loads and to AS 1562.1 (2018) clause 5.5 for resistance to wind pressures.
- Metal roofing in AS/NZS 1170.2 (2021) cyclonic regions: Roof sheeting and fastenings to AS 1562.1 (2018) clause 5.6.

Samples
Requirement: Submit samples of the following, showing the range of variation available:

- Trim and accessories with a colour finish.
- Custom profiled flashings and cappings.
- Sheet metal finishes.
- Sealants.

Tests
Site tests: Submit results as follows:
- Internal downpipe testing to AS/NZS 3500.3 (2021) clause 9.3.1.

Warranties
Requirement: Submit warranties to **COMPLETION**, **Warranties**.

1.9 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:
- Roof supports before covering up or concealing.
- Glazing products before they are installed.
- The parts of the roofing, sarking, vapour barrier, insulation and roof plumbing installation before covering up or concealing.

2 PRODUCTS

2.1 GENERAL

Product substitution
Other products: Conform to **SUBSTITUTIONS** in *0171 General requirements*.

Storage and handling
Storage: To the manufacturer's recommendations and as follows:
- Keep clean, dry and unexposed to weather.
- Store away from uncured concrete and masonry, on a level base and not in contact with other materials that cause staining, denting or other surface damage.
- Stack flat and off the ground on at least 3 evenly placed bearers.

Handling: Handle metal roofing materials as follows:
- Use gloves when handling precoated metal roofing material.
- Use soft soled shoes when fixing or working on roofs.
- Protect edges and surfaces from damage. Do not drag sheets across each other or over other materials.

Storage area conditions: Allocate a safe and trade free area.

Product identification
General: Marked to show the following:
- Manufacturer’s identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

Welded safety mesh
Standard: To AS/NZS 4389 (2015).

2.2 PROFILED SHEET METAL ROOFING

Standards
Design and materials: To AS 1562.1 (2018).

FIELDERS roofing
Requirement: FIELDERS interlocking specialised sheet metal roofing panels.

Selection: To the **FIELDERS profiled sheet metal roofing schedule**.

Fasteners
Requirement: Starter clips, fixing clips and fastenings, as recommended by FIELDERS.

Prefinished exposed fasteners: Finish with an oven baked polymer coating to match the roofing material.

Fastenings to timber battens: Fastenings long enough to embed a minimum of 35 mm into the thickness of the batten without piercing the underside.

Profiled fillers

Type: Purpose-made closed cell polyethylene foam profiled to match the roofing profile.

Location: Provide profiled fillers under flashings to the following:

- Ridges.
- Eaves.
- Lapped joints in roof sheeting.

Insulation spacers

Description: Proprietary spacer system to prevent excessive compression of insulation between roof sheeting and framing.

Accessories

Material: Provide accessories with the same finish as roofing sheets, or as documented.

Sealant: 100% neutral cure non-acid based silicone rubber to match roofing.

2.3 ROOF PLUMBING

General

Description: Flashings, cappings, gutters, rainheads, outlets, downpipes and accessories necessary to complete the roofing system.

Products: FIELDERS Steel Roofing.

Flashing and capping: Notched to match profile of roofing.

Matching fascia/barge capping: If the selected eaves gutter is a proprietary high front pattern forming part of a combined system of gutter, fascia and barge, provide matching proprietary fascias and barge cappings to roof verges and edges.

Standards

Roof drainage: To AS/NZS 3500.3 (2021).

Metal rainwater goods: To AS/NZS 2179.1 (2014).

Flashings and cappings: To AS/NZS 2904 (1995).

3 EXECUTION

3.1 GENERAL

Preparation

Substrates or framing: Before fixing roofing, check the alignment of substrates or framing and adjust if required.

Flexible underlay: Check that the underlay or insulation is restrained.

Roofing: Make sure the roofing is clean and free of dust and loose particles.

3.2 INSTALLATION

Protection

General: Keep the roofing and rainwater system free of debris and loose material during construction.

Protection: Protect surfaces and finishes, including the retention of protective coatings during installation.

Thermal movement

Requirement: Allow for thermal movement in the roof installation and the structure, including movement in joints and fastenings.

Pan type sheets

Removal: Install sheets so that individual sheets can be removed without damage.

Curved corrugated sheet

General: Form by rolling from material recommended for curving or bullnosing. Minimise crimping or creasing across the face of the sheet. Trim off crimped or creased edges and ends.

Metal separation
Requirement: Prevent direct contact between incompatible metals, and between green hardwood or chemically treated timber and aluminium or coated steel, by one of the following methods:
- Applying an anti-corrosion, low moisture transmission coating to contact surfaces.
- Inserting a separation layer.

3.3 PROFILED SHEET METAL ROOFING

Roof sheet installation
Standard: To AS 1562.1 (2018).

FIELDERS steel roofing: To the manufacturer's recommendations.

Fastener type, size, corrosion resistance class, and spacing: To FIELDERS recommendations.

Swarf: Remove swarf and other debris as soon as it is deposited.

Accessories: Provide accessories with the same finish as roofing sheets to complete the roofing installation.

Ridges and eaves
Sheet ends: Treat as follows:
- Project sheets 50 mm into gutters.
- Close off ribs at bottom of sheets using mechanical means or with purpose-made fillers or end caps.
- Turn pans of sheets up at tops and down into gutters by mechanical means.
- Pre-cut notched eaves flashing and birdproofing if required.
- Close off ridges with purpose-made ridge fillers of closed cell polyethylene foam.

Ridge and barge
Capping: Finish off along ridge and verge lines with purpose-made ridge capping or barge rolls.

Sprung curved ridge
General: Lay the roofing sheets in single lengths from eaves to eaves by naturally curving the sheets over the ridge.

Ridge: Seal side laps at the ridge and extend the sealant to the point where the roof pitch equals the recommended pitch of the roofing profile.

End laps
Movement joints: If the sheet length for screw fixed profiles exceeds 24 m provide a step joint.

Construction: To the manufacturer's recommendations.

3.4 ROOF PLUMBING

Jointing sheet metal rainwater goods
Butt joints: Make joints over a backing strip of the same material.

Soldered joints: Do not solder aluminium or aluminium/zinc-coated steel.

Sealing: Seal fasteners and mechanically fastened joints. Fill the holes of blind rivets with silicone sealant.

Flashings
Installation: Flash roof junctions, upstands, abutments and projections through the roof. Preform to required shapes if possible. Notch, scribe, flute or dress down as necessary to follow the profile of adjacent surfaces. Mitre angles and lap joints 150 mm in running lengths. Provide matching expansion joints or every two lengths of flashing, at a maximum of 12 m centres.

Upstands: Flash projections above or through the roof with two part flashings, consisting of a base flashing and a cover flashing, with at least 100 mm vertical overlap. Provide for independent movement between the roof and the projection.

Large penetrations in low pitch roofs: Extend the base flashing over the roofing ribs to the ridge to prevent ponding behind the penetrating element.

Wall abutments: Where a roof abuts a wall, provide overflashing as follows:
- In masonry walls, planked cladding or concrete: Step in courses to the roof slope. Interleave with damp proof course, if any.
- Raking in masonry: Build into the full width of the outer leaf. Turn up and across the cavity and fix to or build into the inner leaf at least 75 mm above the roofing line.

- Raking in concrete: Turn 25 mm into joints or grooves, wedge at 200 mm centres with compatible material and point up.

Fixing to pipes: Solder or seal with neutral cure silicone rubber and either of the following:

- Secure with a clamping ring.
- Provide a proprietary flexible clamping shoe with attached metal surround flashing.

Gutters

Gutter and sump support: Provide framing and lining to support valley gutters, box gutters and sumps. Line the whole area under the gutters and sumps.

Box gutter: Prefabricate box gutters to the required section and shape as follows:

- Form stop ends, downpipe nozzles, bends and returns.
- Dress downpipe nozzles into outlets.
- Hail guards: Install grating over the whole of the box gutter, over all box gutter sumps and over the edges of roofing sheeting entering box gutters.
- Overflows: Provide overflows to prevent back-flooding. Size to pass 100% of the design rainfall. Discharge overflows in visible locations and so water does not enter the building or cause damage to the building.
- Sumps: Minimum 150 mm deep and the full width of the box gutter.

Valley gutters: Profile to suit the valley boarding. Turn back both edges 180 x 6 mm radius. Nail or screw to the valley boarding at the top end to prevent the gutter creeping downwards.

Gratings: Install removable gratings over rainheads and sumps.

Leaf guard location: All gutter outlets.

External downpipes

General: Prefabricate downpipes to the required section and shape where possible. Connect heads to gutter outlets and, if applicable, connect feet to rainwater drains.

Access cover: Provide a removable watertight access cover at the foot of each downpipe stack.

- Size: Not less than the diameter of the downpipe.

Downpipe support: Provide supports and fixings for downpipes.

Internal downpipes

Access: Provide access openings as follows:

- At each junction and bend.
- At the foot of each stack.
- At every second floor level.

Type of access opening: [complete/delete]

Sound insulation: Mineral fibre pipe insulation 50 mm thick, spirally bound on with 1.5 mm wire at 150 mm pitch.

Building in: Where pipes are built into masonry or concrete, spiral wrap the pipe (and insulation, if any) with building paper.

3.5 TESTING

Site tests

Standard: To AS/NZS 3500.3 (2021) Section 9.

Internal downpipes: Test each stack hydrostatically in stages, each test to run over two storeys high for two hours. Remedy defects and retest if necessary.

3.6 COMPLETION

Reinstatement

Extent: Repair or replace damage to the roofing and rainwater system. If the work cannot be repaired satisfactorily, replace the whole area affected.

Damage to prepainted finish: Replace panels with scratches in the prepainted finish greater than 2 mm in width visible from the ground.

Fasteners: Make sure weathertight and external panel facings are not distorted.

Cleaning
Roofing and rainwater drainage system: Remove debris, metal swarf, solder, sealants and unused materials.

Exposed metal surfaces: Clean surfaces of substances that interfere with uniform weathering or oxidisation.

Roof plumbing: Clean out spoutings, gutters and rainwater pipes after completion of roof installation.

Protection: After completion, remove protective coatings using methods to the manufacturer's recommendations.

Warranties
Conditions:

- Watertight Installation Guarantee conditions: Satisfactory inspection of the installation by FIELDERS.

0671P DULUX PAINTING

1 GENERAL

1.1 RESPONSIBILITIES

General
Requirement: Provide DuluxGroup/Dulux coating systems to substrates, as documented.

Performance
Requirement:

- Consistent in colour, gloss level, texture and dry film thickness.
- Free of runs, sags, blisters, or other discontinuities.
- Paint systems which are fully opaque or at the documented level of opacity.
- Clear finishes at the level of transparency consistent with the product.
- Fully adhered.
- Resistant to environmental degradation within the manufacturer's stated life span.

1.2 COMPANY CONTACTS

DuluxGroup/Dulux technical contacts
Architects and Specifiers' Hotline (Paint, Acratex, Protective Coatings): 13 23 77.

Powder Coatings Technical Advice Hotline: 13 24 99.

Website: www.dulux.com.au/contact-us

1.3 CROSS REFERENCES

General
Requirement: Conform to the following:

- *0171 General requirements*.

1.4 STANDARDS

Painting
General: To the recommendations of those parts of AS/NZS 2311 (2017) referenced in this worksection.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals
Product Guide: www.dulux.com.au/specifier/products

Duspec Product Data Sheets, SDS, paint system selection: www.duluxconstructionsolutions.com.au

1.6 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- ASU: Acrylic sealer undercoat multipurpose combo product.
- DFT: Dry film thickness.
- OFC: Off form concrete.
- PDS: Product data sheet.
- PRN: Paint reference number.
- PSU: Primer sealer undercoat multipurpose combo product.
- WFT: Wet film thickness.

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 2310 (2002) and the following apply:

- Gloss: The optical property of a surface, characterised by its ability to reflect light specularly.
- Gloss unit: Numerical value for the amount of specular reflection relative to that of a standard surface under the same geometric conditions.
- Levels of gloss finish: When the specular direction is 60 degrees, surfaces with the following specular gloss reading is defined as follows:
  - . Full gloss: Over 85 gloss units.
  - . Gloss: Over 50 and up to 85 gloss units.
  - . Semi-gloss (satin): Over 20 and up to 50 gloss units.
  - . Low gloss (low sheen): Over 5 and up to 20 gloss units.
  - . Matt: Over 3 and up to 7 gloss units.
  - . Flat: Up to 5 gloss units.
- Opacity: The ability of a paint or textured and membrane coating to obliterate the colour difference of a substrate.
- Paint or coating system: A product in liquid form, which when applied to a surface, forms a dry film having protective, decorative or other specific technical properties.
- Primer, prime coat: The first coat of a painting system that helps bind subsequent coats to the substrate and which may inhibit its deterioration.
- Sealer: A product used to seal substrates to prevent the following:
  - . Materials from bleeding through to the surface.
  - . Reaction of the substrate with incompatible top coats.
  - . Undue absorption of the following coat into the substrate.
- Substrate: The surface to which a material or product is applied.
- Undercoat: An intermediate coat formulated to prepare a primed surface or other prepared surface for the finishing coat.

1.7 SUBMISSIONS

Products and materials

General: Dulux coatings systems have been selected for this project. Submit the following details at least 3 weeks before the paint is required:

- Paint brand name and product range quality statement.
- Safety data sheets (SDS) showing the health and safety precautions to be taken during application.
- The published recommendations for maintenance.

Samples

Clear finish coatings: Submit labelled samples of timber or timber veneer matching those to be used in the works as follows:

- Label for identification and prepare, putty, stain, seal and coat, as documented.
- Size: Minimum 500 x 500 mm.

Opaque coatings: Submit labelled samples of each coating system, on representative substrates, showing surface preparation, colour, gloss level, texture, and physical properties.

Subcontractors
Specialist applicators: Submit name and contact details of proposed specialist applicators.
Evidence of experience: Submit evidence of experience and methodology.

Wet samples
General: Submit two clearly labelled, 500 mL samples of each type of coating required to be tested.

Warranties
Material warranty: Submit the manufacturer's material warranty as follows:
- Extent: Paintwork generally.
- Terms: Paint systems are suitable for their intended use.
- Warranty period: As defined by the manufacturer.
- Terms: Submit the performance criteria as defined by the manufacturer.
- Measure: As defined by the manufacturer.
- Warranty period: As defined by the manufacturer.

Timing: Before the application of the paint system.

1.8 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:
- Opaque finishing stages:
  . Completion of surface preparation.
  . After application of final coat.
- Clear finishing stages:
  . Before surface preparation of timber.
  . Completion of surface preparation.
  . After application of final coat.

2 PRODUCTS

2.1 GENERAL

Product substitution
Other products: Conform to **SUBSTITUTIONS** in *0171 General requirements*.

Storage and handling
General: Store materials not in use in tightly covered containers in well-ventilated areas with temperatures maintained at the manufacturer's recommendations.
Delivery: Deliver paints to the site in the manufacturer's labelled and unopened containers.

Product identification
General: Marked to show the following:
- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

2.2 PAINTING MATERIALS

Combinations

General: Do not combine paints from different manufacturers in a paint system. Dulux paint products and coating systems have been selected and specified for this project. Any unauthorised product substitution will void the warranties.

Clear timber finish systems: Provide only the combinations of putty, stain and sealer recommended by the manufacturer of the top coats.

Tinting

General: Provide only products which are colour tinted by the manufacturer or supplier.

Toxic ingredients

General: To the *Poisons Standard (SUSMP) (2022)* Part 2 Section 7.

Standards

Paint types: Conform to the Australian Standard referenced in the **DuluxGroup/Dulux paint type reference table**.

DuluxGroup/Dulux paint type reference table legend

Key:

ASU = Acrylic Sealer/Undercoat.

NE = No Equivalent.

PSU = Primer/Sealer/Undercoat.

Low VOC products are noted in the Table and the **Low VOC compliance reference table**.

^ Use is discouraged in favour of water based paints because of environmental concerns.

These paints have either limited availability or low requirement in the Building Industry.

DuluxGroup/Dulux paint type reference table

Paint type	**DuluxGroup/Dulux material description**	**Dulux PDS No.**	**PRN AS/NZS 2311 (2017) (Table 4.2)**	**Standard**
Semi-gloss solvent-borne: interior	Dulux Super Enamel Semi-Gloss	DD0028	B3	AS 3730.5 (2006)
Semi-gloss water-borne, interior /exterior trim (alt B8b)	Dulux Aquanamel Semi Gloss (low VOC)	DD1281	B41	AS 3730.2 (2006)
Gloss solvent-borne: aerosols	Dulux Spray Pak	DD0009	B4#	NE
Full gloss solvent-borne: exterior	Dulux Super Enamel Full Gloss Dulux Metalshield Premium UV Resistant High Gloss	DD0026 LI 011	B5a	AS 3730.6 (2006)
Full gloss solvent-borne: interior	Dulux Super Enamel Full Gloss	DD0026	B5b	AS 3730.6 (2006)
Full gloss waterborne interior/exte	Dulux Aquanamel Gloss (low VOC)	DD1282	B42	AS 3730.2 (2006)

Paint type	DuluxGroup/Dulux material description	Dulux PDS No.	PRN AS/NZS 2311 (2017) (Table 4.2)	Standard
rior trim (alt B9b)				
Flat latex: interior ceilings	Dulux White Ceiling Paint (low VOC)	DD02251	B6a	AS 3730.1 (2006)
Flat latex: interior ceilings (tinted colours)	Dulux EnvirO_2 Tintable Ceiling Flat (low VOC)	DD1466	B6a	AS 3730.1 (2006)
Low gloss latex: exterior	Dulux Weathershield Low Sheen Acrylic	DD0053	B7b	AS 3730.8 (2006)
Low gloss latex: interior	Dulux Wash&Wear Low Sheen Acrylic (low VOC) Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen (low VOC)	DD02070 DD02074	B7a	AS 3730.3 (2006)
Low gloss latex: interior	Dulux Professional Steriguard Acrylic Low Sheen	DD01990	B7a	AS 3730.3 (2006)
Semi-gloss latex: exterior	Dulux Weathershield Semi Gloss Acrylic	DD0037	B8b	AS 3730.9 (2006)
Semi-gloss latex: interior	Dulux Wash&Wear Semi Gloss Acrylic (low VOC) Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss (low VOC)	DD02071 DD02075	B8a	AS 3730.2 (2006)
Semi-gloss waterborne latex: interior	Dulux Professional Steriguard Water Based Enamel Semi Gloss	DD01993	B42	AS 3730.2 (2006)
Gloss latex: exterior	Dulux Weathershield Gloss	DD0054	B9b	AS 3730.10 (2006)
Gloss latex: interior	Dulux Wash&Wear Gloss	DD02072	B9a	AS 3730.12 (2006)
Gloss waterborne interior/exterior trim (alt B9a/B9b)	Dulux Aquanamel Gloss (low VOC)	DD1282	B42	AS 3730.1 (2006)

Paint type	DuluxGroup/Dulux material description	Dulux PDS No.	PRN AS/NZS 2311 (2017) (Table 4.2)	Standard
Gloss waterborne latex: interior	Dulux Professional Steriguard Water Based Enamel Gloss	DD01992	B42	AS 3730.1 (2006)
Wood primer, solvent-borne	Dulux 1 Step Oil Based Primer Sealer Undercoat	DD1698	B10	AS 3730.13 (2006)
Wood primer, latex	Dulux 1 Step Acrylic Primer Sealer Undercoat	DD02479	B10a	AS 3730.17 (2006)
Metal primer for steel – solvent-borne	Dulux Metalshield All Surface Primer	DI1640	B11	AS 3730.21 (2006)
Metal primer, latex (domestic)	Dulux Precision All Metal Primer (water based, low VOC)	DD02166	B11a#	AS 3730.15 (2006)
Metal primer for zinc-coated surfaces, latex	Dulux Professional Galvanised Iron Primer (water based, low VOC)	DD0156	B12a	AS 3730.15 (2006)
Metal primer for non ferrous metals (domestic)	Dulux Precision All Metal Primer (water based, low VOC)	DD02166	B13	AS 3730.17 (2006)
Zinc-rich organic binder/primer for steel	Dulux Zinc Rich 1P Primer	DI0541	B14	AS 3730.9 (2006)
Concrete and masonry sealer	Dulux Sealer Binder Dulux Acratex Acraprime 501/2 Berger Gold Label Acrylic Block Filler	DD02165 DA0442 DD0217	B15	AS 3730.22 (2006)
Clear low viscosity paint for concrete	Dulux AquaTread Concrete Sealer (low VOC) Dulux Luxafloor WB Acrylic Dust Sealer Gloss	DD1187 DC02643	B15a	NE
Moisture resistant plasterboard sealer binder	Dulux 1 Step Acrylic Primer Sealer Undercoat (low VOC)	DD02479	B15a	AS 3730.18 (2006)
Concrete and masonry,	Dulux Acrylic Sealer Undercoat (low VOC)	DD1402 DD02479	B16	AS 3730.18 (2006)

Paint type	DuluxGroup/Dulux material description	Dulux PDS No.	PRN AS/NZS 2311 (2017) (Table 4.2)	Standard
latex wallboard sealer, sealer/undercoat,	Dulux 1 Step Acrylic Primer Sealer Undercoat (low VOC)			
Undercoat, solvent-borne	Dulux 1 Step Oil Based Primer Sealer Undercoat	DD1698	B17	AS 3730.14 (2006)
Undercoat, latex: exterior	Dulux 1 Step Acrylic Primer Sealer Undercoat (low VOC) Dulux Acratex Water Based 501/1	DD02479 DD0441	B17a	AS 3730.18 (2006)
Undercoat, latex: interior	Dulux 1 Step Acrylic Primer Sealer Undercoat (low VOC) Dulux Acrylic Sealer Undercoat (low VOC)	DD02479 DD1402	B17a	AS 3730.18 (2006)
Wood Stain - spirit	Feast Watson Prooftint	DW0729	B18	NE
Wood Stain - oil	Feast Watson Liming White Cabot's Interior Stain Oil Based	DW0749 DW0661	B18	
Wood Stain - latex	Intergrain UltraDeck® Timber Stain (interior/exterior) (low VOC) Cabot's Interior Stain Water Based	DW02613 DW1636	B18a	NE
Interior clear varnish, solvent-based, one-pack	Feast Watson Floorclear – Gloss, Satin Feast Watson Clear Varnish – Gloss, Satin, Matt – not suitable for floors Feast Watson Stain & Varnish – not suitable for floors Feast Watson Stain & Varnish Liming White – Gloss, Satin – not suitable for floors	DW0736 DW0737 DW1611 DW1612 DW1617 DW1295 DW01804 DW01805	B19	AS 3730.25 (2006) or AS 3730 .27 (2006) (for floors)
Interior clear latex varnish, water-based, one-pack	Cabot's Cabothane Clear Water Based Gloss, Satin or Matt (low VOC) – not suitable for floors Feast Watson Liming White Floor Finish Cabot's Stain & Varnish Water Based Gloss,	DW1644 DW1645 DW01867 DW01800	B19a	NE or AS 3730.27 (2006) (for floors)

Paint type	DuluxGroup/Dulux material description	Dulux PDS No.	PRN AS/NZS 2311 (2017) (Table 4.2)	Standard
	Satin – not suitable for floors	DW1634 DW1635		
Floor varnish, solvent based, clear (moisture cure)	Feast Watson Commercial Maxithane – Gloss, Satin	DW0701 DW0703	B20	AS 3730.27 (2006)
Floor Varnish, water-based, one-pack	Intergrain Enviropro Endure 1 Pack - Matt, Satin, Gloss (low VOC)	DW1418 DW1419 DW1420	B20	AS 3730.27 (2006)
Floor varnish, clear or tinted, two-pack	Intergrain Enviropro Endure 2 Pack - Gloss, Satin, Matt	DW1421 DW1422 DW1423	B20	AS 3730.27 (2006)
Exterior latex stain, semi-transparent	Intergrain UltraDeck® Timber Stain (low VOC)	DW02613	B22	AS 3730.16 (2006)
Fence stain, latex paints, opaque	Dulux Weathershield Garden Shades – Low Sheen Cabot's Timbercolour Deck & Exterior Paint	DD0055 DW02256	B22b	AS 3730.16 (2006)
Exterior stain, solvent-borne, opaque	Feast Watson Timber & Deck Stain	DW01894	B23#	AS 3730.28 (2006)
Exterior stain, solvent-borne, semi-transparent	Feast Watson Exterior Stain & Varnish Gloss	DW02468	B23a	NE
Paving paint for concrete, solvent	Berger Jet Dry Paving Paint range	DD0081	B24	AS 3730.29 (2006)
Paving paint for concrete, latex	Berger Jet Dry Aqua Tread Satin	DD1163	B24a	NE
Roofing paint, latex (Solar reflectance)	Dulux AcraTex 962 COOLROOF with InfraCOOL Technology™	DA1471	B25	

Paint type	**DuluxGroup/Dulux material description**	**Dulux PDS No.**	**PRN AS/NZS 2311 (2017) (Table 4.2)**	**Standard**
Intumescent paints	Dulux Protective Coatings	Protective Coatings link	B28#	NE
Epoxy paint, two-pack, solvent-borne topcoats, interior only	Dulux Durebild STE 2 Pack Epoxy (high build & surface tolerant) Dulux Duremax GPE	DI1109 DI1115	B29	AS/NZS 3750.1 (2008)
Epoxy paint, two-pack, solvent-borne topcoats, exterior & pools		N/A	B29	AS/NZS 3750.1 (2008)
Epoxy paint, two-pack, water based, interior only	Dulux Luxafloor ECO2 (low VOC) Dulux Enviropoxy WBE	I1315 DI1120	B29a	NE
High Build Recoatable two-pack, solvent-borne gloss polyurethane	Dulux Weathermax HBR Luxathane HPX	DI1156 DC02059	B29c B29c	NE
Stain sealer, solvent-borne for water soluble stains	Dulux Precision High Opacity Stain Blocker	DD02065	B30	NE
Stain sealer, water based for oil stains	Dulux Precision Maximum Strength Adhesion Primer	DD02066	B30	
Chalk sealer, surface conditioner	Dulux Sealer Binder Dulux Acraprime Solvent Based Primer	DD02165 DA0442	B31	NE
Anti-mould (treatment or wash for timber)	Intergrain Mould Preventer	DW01967	B32	NE
Water-repellent for masonry	Dulux AquaBan	DD0002	B33	NE

Paint type	DuluxGroup/Dulux material description	Dulux PDS No.	PRN AS/NZS 2311 (2017) (Table 4.2)	Standard
Creosote stain	No longer used	N/A	B35	NE
Paint remover, solvent-borne	Selleys Polystrippa Paint Stripper	Poly	B36a	NE
Paint remover, chemical	Selleys Polystrippa Renovators' Choice	Poly	B36b	NE
Bituminous paints	No longer used	N/A	B37	NE
High build membrane or texture coatings for masonry and concrete: exterior	Dulux Acratex Range	Acratex	B38b	AS/NZS 4548.1 (1999) AS/NZS 4548.2 (1999) AS/NZS 4548.3 (1999) AS/NZS 4548.4 (1999)
Texture finish latex coatings for masonry and plasterboard: interior only	Dulux Effects Range (interior)	Effects range link	B38a	NE
Clear or colourless coatings (waterborne) for timber, exterior	Intergrain UltraClear Exterior – Gloss, Satin Note: not suitable for decking.	DW1401 DW1400	B39	NE
Clear coatings (waterborne) for timber, interior	Cabot's Cabothane Clear Water Based Gloss, Satin & Matt (low VOC)	DW1644 DW1645 DW01867	B39	NE
Clear or colourless coatings (waterborne) for timber, interior floors	Intergrain Enviropro Endure 1 Pack - Matt, Satin, Gloss (low VOC) Intergrain Enviropro Endure 2 Pack - Matt, Satin, Gloss	DW1420 DW1419 DW1418 DW1423 DW1422 DW1421	B39	AS 3730.27 (2006)
Sanding sealer	Feast Watson Sanding Sealer	DW0744	B40	NE
Semi-gloss latex, interior trim (alt B8b)	Dulux Aquanamel Semi-Gloss (low VOC)	DD1281	B41	NE

Paint type	DuluxGroup/Dulux material description	Dulux PDS No.	PRN AS/NZS 2311 (2017) (Table 4.2)	Standard
Gloss or full gloss latex, interior trim	Dulux Aquanamel Gloss (low VOC)	DD1282	B42	NE
Penetrating tung oil type varnish or wax for timber floors: interior	Intergrain Enviropro Hard Wax Oil Feast Watson Tung Oil	DW02533 DW0733	B43	NE
Penetrating tung oil type varnish for timber floors: exterior	Intergrain Nature's Timber Oil Feast Watson Traditional Timber Oil	DW0769 DW01795	B43	NE
Gloss pigmented polyurethane	Dulux Luxathane R Dulux Luxathane HPX Dulux Weathermax HBR	DD1137 DC02059 DI1156	B44	AS/NZS 3750.6 (2009)
Powder coatings for non-ferrous metals	Dulux Powder Coat Range	duluxpowders.com.au	B45b	AS 3715 (2002)
Powder coatings for ferrous metals	Dulux Powder Coat Range	duluxpowders.com.au	B45b	AS 4506 (2005)

Low VOC compliance reference table

Green Star Interiors	VOC Limits MAX g/litre	DULUX Products compared to the GBCA specification	VOC g/litre Untinted
COMPLIANCE CRITERIA – GBCA specifications (obtain latest figures).			
Walls and ceilings - interior semi-gloss	16	Dulux EnvirO_2 Interior Semi-Gloss	1
Walls and ceilings - interior semi-gloss	16	Dulux Wash&Wear Semi Gloss Dulux Wash&Wear +Plus Kitchen&Bathroom Semi Gloss	16 16
Walls and ceilings - interior low sheen	16	Dulux EnvirO_2 Interior Low Sheen	1
Walls and ceilings - interior low sheen	16	Dulux Wash&Wear Low Sheen Dulux Wash&Wear +Plus Kitchen& Bathroom Low Sheen	16 16
Walls and ceilings - interior flat-washable	16	Dulux EnvirO_2 Interior Matt	1

Green Star Interiors	**VOC Limits MAX g/litre**	**DULUX Products compared to the GBCA specification**	**VOC g/litre Untinted**
Ceilings - interior flat	14	Dulux EnvirO_2 Interior Tintable ceiling Flat	1
Ceilings - interior flat	14	Dulux White Ceiling Paint	14
Trim - interior gloss	75	Dulux Aquanamel Gloss Dulux Professional Steriguard Water Based Enamel Gloss	60 74
Trim - interior semi-gloss	75	Dulux Aquanamel Semi Gloss Dulux Professional Steriguard Water Based Enamel Semi Gloss	53 74
Trim - interior semi-gloss	75	Dulux EnvirO_2 Water Based Enamel Semi Gloss	1
Timber primer	30	Dulux Acrylic Sealer Undercoat	5
Latex primer for galvanized iron and zincalume NOT FOR HDG	60	Dulux Professional Total Prep	45
Latex primer for galvanized iron and zincalume NOT for HDG	60	Dulux Professional Galvanised Iron Primer	< 60
Interior latex undercoat	65	Dulux EnvirO_2 Acrylic Sealer Undercoat (ASU)	1
Interior latex undercoat	65	Dulux Prepcoat Acrylic Sealer Undercoat	< 5
Exterior latex undercoat	65	Dulux 1 Step Acrylic Primer Sealer Undercoat (PSU) Dulux Professional Total Prep	<37 45
Interior sealer	65	Dulux EnvirO_2 Acrylic Sealer Undercoat (ASU)	1
Interior concrete sealer	65	Dulux Luxafloor Eco2 (clear) + colours Dulux Luxafloor WB (Clear) + colours	10 10
One and two pack performance coatings for floors	140	Dulux Luxafloor Eco2 concrete Dulux Luxafloor WB concrete Intergrain Enviropro Timber Endure One Pack Intergrain Enviropro Timber Endure Two Pack	10 10 <90 <135 (Part A & B)

3 EXECUTION

3.1 PREPARATION

Standard
General: To AS/NZS 2311 (2017) Section 3.

Order of work
Other trades: Before painting, complete the work of other trades as far as practicable within the area to be painted, except for the installation of fittings, floor sanding and laying flooring materials.

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

Protection
General: Before painting, clean the area and protect it from dust contamination. Use drop sheets and masking agents to protect surfaces, including finished surfaces and adjacent finishes, during painting.

Fixtures and furniture: Remove door furniture, switch plates, light fittings and other fixtures before painting, and conform to the following:

- Labelling and storage: Attach labels or mark fixtures using a non-permanent method, identifying location and refixing instructions, if required. Store and protect against damage.

Difficult to remove fixtures: Where removal is impractical or difficult, apply surface protection before substrate preparation and painting.

Substrate preparation – generally
General: Prepare substrates to receive the documented paint system.

Cleaning: Clean down the substrate surface. Do not cause damage to the substrate or the surroundings.

Filling: Fill cracks and holes with fillers, sealants, putties or grouting cements as appropriate for the finishing system and substrate, and sand smooth.

- Clear finish: Provide filler tinted to match the substrate.

Clear timber finish systems: Prepare the surface so that its attributes will show through the clear finish without blemishes, using methods including the following:

- Removal of bruises.
- Removal of discolourations, including staining by oil, grease and nailheads.
- Bleaching where necessary to match the timber colour sample.
- Puttying.
- Fine sanding, with the last abrasive no coarser than 220 grit, so that there are no scratches across the grain.

Treated surfaces: If surfaces have been treated with preservatives or fire retardants, make sure the paint system is compatible with the treatment and does not adversely affect its performance.

Iron and steel: Remove weld spatter, slag, burrs, or any other objectionable surface irregularities and radius all edges to a minimum of 2 mm. Degrease by solvent or alkaline cleaning.

Iron and steel blast cleaning: To AS 1627.9 (2002) and to the class specified in the specified protective treatment. Provide a surface roughness or profile appropriate for the specified treatment. Where steelwork to be abrasive cleaned includes irregular shapes allow for special equipment to achieve required abrasive cleaning.

Structural steel: All exposed fixings including bolts, screws and the like, are to be painted to match adjacent steelwork paint system.

Concrete and masonry: Before application to very smooth concrete, brick or masonry, either acid etch, mechanically grind or abrasive track blast the surface as appropriate to provide a suitable key for the subsequently applied coating and to remove laitance. Remove loose friable matter before filling surface discontinuities.

Set plaster surfaces: Do not apply solvent borne paint or other impervious coatings if the moisture content at the surface, tested with a moisture meter, exceeds 12%.

Unpainted surfaces
Standard: To AS/NZS 2311 (2017) Section 3.

Previously painted surfaces

Condition of substrate: Inspect condition of substrate. Repair and replace where necessary. Prepare to paint.

Preparation of a substrate in good condition: To AS/NZS 2311 (2017) clause 7.4.

Preparation of a substrate in poor condition: To AS/NZS 2311 (2017) clause 7.5.

Preparation of steel substrates with protective coatings: To AS 2312.1 (2014) Section 8 and AS 1627.1 (2003).

PVC-U: Clean with methylated spirit and a nylon scouring pad.

Wallcovering: Remove wallcovering and residual paste with clean water. Patch and repair substrate to a uniform surface before painting.

Lime wash paints: Remove by brushing with warm water.

Reconditioned damaged surfaces in galvanized steel: To AS/NZS 4680 (2006) clause 8.

Cleaning external surfaces

Sound external surfaces other than timber: Remove dirt, grease, loose and foreign matter, efflorescence and mould by water blasting or steam cleaning without damaging the surface. Remove remaining loose material with hand tools. Use sanding blocks to preserve the arrises of masonry and stone details.

Efflorescence: Eliminate the source of salt and water before cleaning. Allow surface to dry for 15 to 30 days before repainting.

New masonry: Allow 30 days for the masonry to cure and pH level to stabilise before painting.

Particular preparation requirements schedule

Substrate	Preparation method	Applicable standard

3.2 PAINTING SYSTEMS

Dulux paint systems

Requirement: Apply paint systems as documented in the **Interior painting schedules** and the **Exterior painting schedules**.

General: Apply the paint system nominated for each substrate to the referenced manufacturer's Product Data Sheets (PDS) and Spec Sheets and include:

- The number and order of coats.
- The paint type for each coat.

Additional coats: Apply if necessary to:

- prepare porous or reactive substrates with prime or seal coats consistent with the manufacturer's recommendations;
- achieve the total film thickness or texture specified; or
- achieve a satisfactory opacity, in the specified or required colour.

Painting systems

Standards: The scheduled DuluxGroup/Dulux paint systems override AS/NZS 2311 (2017) as follows:

- New unpainted interior surfaces: To AS/NZS 2311 (2017) Table 5.1.
- New unpainted exterior surfaces: To AS/NZS 2311 (2017) Table 5.2.
- Standard: To AS/NZS 2311 (2017) clause 5.2. Provide the following final coats:
  - . High build textured or membrane finishes for concrete and masonry: B38 using products conforming to the AS/NZS 4548 series.
  - . Two-pack gloss pigmented polyurethane: B44.
  - . Two-pack epoxy: B29.
  - . Two-pack water based epoxy: B29A.

Paint Reference Number (PRN): The number in brackets against the individual product refers to the Paint Ref. No. (PRN) listed in the **DuluxGroup/Dulux paint type reference table** (See PRODUCTS) and AS/NZS 2311 (2017) Table 4.2.

3.3 APPLICATION

Standard

General: To AS/NZS 2311 (2017) Section 6.

Light levels

General: During preparation of surfaces, painting and inspection, maintain light levels such that the luminance (photometric brightness) of the surface is equal to the specified permanent artificial illumination conditions or 400 lux, whichever is the greater.

Substrate moisture content

Requirement: Use a moisture meter to demonstrate that the moisture content of the substrate is at or below the recommended maximum level for the type of paint and the substrate material.

Paint application

General: Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Apply subsequent coats after the manufacturer's recommended drying period has elapsed.

Painting conditions

General: Unless the paint is recommended for such conditions, do not paint under the following conditions:

- Dusty conditions.
- Relative humidity: > 85%.
- Surface temperature: < 10°C or > 35°C.

Priming timber before fixing

General: Apply one coat of wood primer, and 2 coats to end grain, to the back of the following before fixing in position:

- External fascia boards.
- Timber door and window frames.
- Bottoms of external doors.
- Associated trim and glazing beads.
- Timber board cladding.

Spraying

General: If the paint application is by spraying, use conventional or airless equipment which conforms to the following:

- Satisfactorily atomises paint being applied.
- Does not require paint to be thinned beyond the maximum amount recommended by the manufacturer.
- Does not introduce oil, water or other contaminants into the applied paint.

Paint with known health hazards: Provide personal protection, masking, ventilating and screening facilities to AS/NZS 4114 (2020).

Sanding

Clear finishes: Sand the sealer using abrasives no coarser than 320 grit without cutting through the colour. Take special care with round surfaces and edges.

Repair

Requirement: Clean off marks, paint spots and stains progressively and restore damaged surfaces to their original condition.

Maintenance painting: To AS/NZS 2311 (2017) Section 8.

Repair of galvanizing

Cleaning: For galvanized surfaces which have been subsequently welded, power tool grind to remove all surface contaminants, including rust and weld splatter. Prime affected area immediately after cleaning.

Primer: Type 2 organic zinc-rich coating for the protection of steel to AS/NZS 3750.9 (2009).

Tinting

General: Tint each coat of an opaque coating system so that each has a noticeably different tint from the preceding coat where possible, except for top coats in systems with more than one top coat.

Windows

Operation: Make sure opening windows function correctly before and after painting.

Doors

Drying: Maintain door leaf in the open position during drying. Do not allow door hardware or accessories to damage the door finish during the drying process.

Wet paint warning

Notices: Place in a conspicuous location and do not remove until the paint is dry.

Exclusions

Exclude the following surfaces from paint systems (unless specifically requested):

- Flexible duct connections, rubber hoses and mountings and other non-metallic flexible fittings.
- Wire rope and machined surfaces.
- Metals plated or specially finished for appearance, bronze, brass, copper and stainless steel (except as specified in the *Pipe identification* clause of the *Services* worksections).
- Aluminium frames.
- Prefinished aluminium frames to windows and doors, and trim.
- Metal floor duct covers.
- Raised access floors.
- Floors.
- Fair faced brickwork, blockwork, stonework, artificial stone and exposed aggregates.
- Sprayed vermiculite.
- Floors, paving, roads unless otherwise specified.
- Timber roof structure.
- Concealed timber roof structure.
- Timber ceiling and eaves lining.
- Exterior timber sheeting.
- Exterior timber stairs and decking.
- Plastic finishes generally
- Inside of service ducts, heat exchangers, pipes and valves.
- Shower seats, store shelving, work benches.
- Those parts of timber fixtures, such as insides of cupboards, not visible when doors are closed, unless otherwise specified. Insides of bathroom cabinets are not excluded and shall be painted.
- Self-finished surface such as glass and plastic laminates.
- Door hardware, including hinges.

3.4 COMPLETION

General

Protection and masking: Remove masking and protection coverings before paint has dried.

Cleaning: On completion of painting, remove splatters from adjacent finished surfaces by washing, scraping or other methods which do not scratch or damage the surface.

Reinstatement: Repair, replace or refinish any damage, including works of other trades. Touch up new damaged paintwork or misses only with the paint batch used in the original application.

Fixtures: Refix removed and undamaged fixtures in the original locations. Make sure they are properly fitted and in proper working order.

Disposal of paint and waste materials

Requirement: Conform to requirements of the local government authority.

Spares

Spare material: Supply clearly labelled sealed containers of each type, coat and colour of paint/coating from the same batch, for future repair purposes.

Quantity of each type: [complete/delete]
Storage location: [complete/delete]

4 SELECTIONS

4.1 INTERIOR PAINTING SCHEDULES

Flat and matt latex - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD05662
Plasterboard (Ultra low VOC system)	Dulux EnvirO_2 Interior Acrylic Sealer Undercoat	Dulux EnvirO_2 Interior Matt	Dulux EnvirO_2 Interior Matt	SD17107
Plasterboard (ceilings) (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux White Ceiling Paint	Dulux White Ceiling Paint	SD 0010
Plasterboard (ceilings) (Ultra low VOC system)	Dulux EnvirO_2 Interior Acrylic Sealer Undercoat	Dulux EnvirO_2 Interior Tintable Ceiling Flat	Dulux EnvirO_2 Interior Tintable Ceiling Flat	SD17091
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD 05883
Fibrous/set plaster (with glancing light issues)	Dulux Sealer Binder (solvent based)	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD 05883
Fibre cement products (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD06059
Timber and veneers	Dulux Professional Total Prep	Dulux Aquanamel Low-Gloss	Dulux Aquanamel Low-Gloss	SD13399
Cement render (low VOC system)	Dulux Prepcoat Acrylic Sealer Undercoat	Dulux Wash&Wear Matt	Dulux Wash&Wear Matt	SD 06062
Acoustic ceiling tiles, vents & grids Vermiculite	Dulux Professional Acousticoat Flat			SD13203

Low-gloss latex - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 0002
Plasterboard (Ultra low VOC system)	Dulux EnvirO_2 Interior Acrylic Sealer Undercoat	Dulux EnvirO_2 Interior Low Sheen	Dulux EnvirO_2 Interior Low Sheen	SD 17086
Plasterboard (Dark colours)	Dulux EnvirO_2 Interior Acrylic Sealer Undercoat	Porter's Aqua Enamel Satin	Porter's Aqua Enamel Satin	SD 17198
Fibrous/set plaster	Dulux Precision Sealer Binder	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 0667
Fibre cement products	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 2971

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
(low VOC system)				
Timber and veneers	Dulux Professional Total Prep	Dulux Aquanamel Low Gloss	Dulux Aquanamel Low Gloss	SD 13399
Timber and veneers (walls)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 1528
Concrete (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 0901
Cement render (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 1128
MDF	Dulux Professional Total Prep	Dulux Aquanamel Low Gloss	Dulux Aquanamel Low Gloss	SD 13399
MDF (walls)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 1041
Brick and masonry (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 3284
Concrete blockwork (low VOC system)	Berger Gold Label Acrylic Block Filler	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 07827

Low-gloss latex (mould resistant) – Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 4511
Plasterboard (MR grade) (low VOC system)	Dulux Professional Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 13491
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 5008
Fibre cement products (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 4543
Concrete	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 5009
Cement render (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 5010
MDF	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 3430

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Brick and masonry (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 5018
Concrete blockwork (low VOC system)	Berger Gold Label Acrylic Block Filler	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	Dulux Wash&Wear +Plus Kitchen & Bathroom Low Sheen	SD 2741

Low-gloss latex (mould and bacteria resistant) - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 11373
Plasterboard (MR grade) (low VOC system)	Dulux Professional Total Prep	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 16299
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 09836
Timber and veneers	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 11374
Concrete	Dulux Acrylic Sealer Undercoat	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 11376
MDF	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 09757
Brick and masonry (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 11375
Concrete blockwork (low VOC system)	Berger Gold Label Acrylic Block Filler	Dulux Professional Steriguard Acrylic Low Sheen	Dulux Professional Steriguard Acrylic Low Sheen	SD 10165

Semi-gloss latex - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 0003
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 0815
Fibre cement products (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 0903

Timber and veneers	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 3410
Concrete (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 1065
Cement render (low VOC system)	Dulux Total Prep	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 1066
MDF (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 3615
Brick and masonry (low VOC system)	Dulux 1 Step Prep Acrylic Primer Sealer Undercoat	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD1087
Concrete blockwork (low VOC system)	Berger Gold Label Acrylic Block Filler	Dulux Wash&Wear Semi Gloss	Dulux Wash&Wear Semi Gloss	SD 2797

Semi-gloss latex (mould resistant) - Interior

Substrate	**1st coat**	**2nd coat**	**3rd coat**	**Manufacturer's Spec Sheet Ref**
Plasterboard (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 4523
Plasterboard (MR grade) (low VOC system)	Dulux EnvirO_2 Interior Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 0632
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 5014
Fibre cement products (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 4512
Concrete (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 4522
Cement render (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 5015
MDF	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 5016
Brick and masonry (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	Dulux Wash&Wear +Plus Kitchen & Bathroom Semi Gloss	SD 5017
Concrete blockwork (low VOC system)	Berger Gold Label Acrylic Block Filler	Dulux Wash&Wear +Plus Kitchen &	Dulux Wash&Wear +Plus Kitchen &	SD 3333

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
		Bathroom Semi Gloss	Bathroom Semi Gloss	

Semi-gloss water based enamel - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 2591
Plasterboard (MR grade)	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 2591
Plasterboard (MR grade) (Ultra low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux EnvirO_2 Interior Enamel Semi Gloss	Dulux EnvirO_2 Interior Enamel Semi Gloss	SD 18662
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 3058
Fibre cement products	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SW 5020
Timber and veneers (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 2199
Timber and veneers (ultra low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux EnvirO_2 Interior Enamel Semi Gloss	Dulux EnvirO_2 Interior Enamel Semi Gloss	SD 17090
Concrete	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 5021
Cement render	Dulux Professional Acrylic Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 07495
MDF (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 2294
Brick and masonry	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 5026
Concrete blockwork	Berger Gold Label Acrylic Block Filler	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 5045
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel) (low VOC system)	Dulux Galvanised Iron Primer (water based)	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 2523
Shop primed or red oxide primed (ROZP) ferrous metal (low VOC system)	Dulux Metalshield All Surface Primer (water based)	Dulux Aquanamel Semi Gloss Acrylic	Dulux Aquanamel Semi Gloss Acrylic	SD 2279
Non-ferrous metals (incl. aluminium,	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 09798

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
brass, copper, tin plate) (low VOC system)				
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 3960

Semi-gloss water based enamel (mould and bacteria resistant) - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SA 11377
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 10021
Fibre cement products	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11379
Timber and veneers (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11380
Concrete	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11381
MDF (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11382
Concrete blockwork	Berger Gold Label Acrylic Block Filler	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11384
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel) (low VOC system)	Dulux Galvanised Iron Primer (water based)	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11385
Shop primed or red oxide primed (ROZP) ferrous metal (low VOC system)	Dulux Metalshield All Surface Primer (water based)	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11386

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Non-ferrous metals (incl. aluminium, brass, copper, tin plate) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11387
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	Dulux Professional SteriGuard Water Based Enamel Semi Gloss	SD 11388

Semi-gloss, solvent-borne - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Timber and primed hardboard veneers	Dulux 1 Step Oil Based Primer Sealer Undercoat (solvent based)	Dulux Super Enamel Semi Gloss	Dulux Super Enamel Semi Gloss	SD 0041
MDF	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Super Enamel Semi Gloss	Dulux Super Enamel Semi Gloss	SD 1169
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel)	Dulux Galvanised Iron Primer	Dulux Super Enamel Semi Gloss	Dulux Super Enamel Semi Gloss	SD 09093
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Metalshield All Surface Primer (water based)	Dulux Super Enamel Semi Gloss	Dulux Super Enamel Semi Gloss	SD 08446
Non-ferrous metals (incl. aluminium, brass, copper, tin plate)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Super Enamel Semi Gloss	Dulux Super Enamel Semi Gloss	SD 3452
Plastics (solvent resistant types e.g. FRP, PVC-U)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Super Enamel Semi Gloss	Dulux Super Enamel Semi Gloss	SD 3340
Plastics (solvent sensitive types e.g. polystyrene)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 3340

Full gloss water based enamel - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Plasterboard	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 0990
Plasterboard (MR grade)	Dulux Precision Sealer Binder	Dulux Aquanamel Gloss Acrylic	Dulux Aquanamel Gloss	SD 3313
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 3849
Fibre cement products	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 5027

Timber and veneers (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 0458
Concrete	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 5028
Cement render	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 2263
MDF (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 3298
Brick and masonry	Dulux Acrylic Sealer Undercoat	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 5046
Concrete blockwork	Berger Gold Label Acrylic Block Filler	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 1522
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel) (low VOC system)	Dulux Galvanised Iron Primer (water based)	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 08559
Shop primed or red oxide primed (ROZP) ferrous metal	Dulux Metalshield All Surface Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 2279
Non-ferrous metals (incl. aluminium, brass, copper, tin plate) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 3455
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11228

Full gloss water based enamel (mould and bacteria resistant) - Interior

Substrate	**1st coat**	**2nd coat**	**3rd coat**	**Manufacturer's Spec Sheet Ref**
Plasterboard	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11389
Fibrous/set plaster	Dulux Sealer Binder (solvent based)	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 10018
Fibre cement products	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11391
Timber and veneers (low VOC system)	Dulux 1 Step Acrylic Primer Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11392

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Concrete	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11393
MDF (low VOC system)	Dulux Acrylic Sealer Undercoat	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11394
Concrete blockwork	Berger Gold Label Acrylic Block Filler	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11395
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel) (low VOC system)	Dulux Galvanised Iron Primer (water based)	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11396
Shop primed or red oxide primed (ROZP) ferrous metal (low VOC system)	Dulux Metalshield All Surface Primer (water based)	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11399
Non-ferrous metals (incl. aluminium, brass, copper, tin plate) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11397
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Professional SteriGuard Water Based Enamel Gloss	Dulux Professional SteriGuard Water Based Enamel Gloss	SD 11398

Full gloss solvent-borne – Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Timber and primed hardboard veneers	Dulux 1 Step Oil Based Primer Sealer Undercoat	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 0039
MDF (interior only)	Dulux 1 Step Acrylic Primer Undercoat	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 1168
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel)	Dulux Galvanised Iron Primer (water based)	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 09093
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Metalshield All Surface Primer	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 08446

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Non-ferrous metals (incl. aluminium, brass, copper, tin plate)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 3451
Plastics (solvent resistant types e.g. FRP, PVC-U)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 0385
Plastics (solvent sensitive types e.g. polystyrene)	Dulux Precision Maximum Strength Adhesion Primer	Use water based paints, not solvent based.	Use water based paints, not solvent based.	N/A

Full gloss, epoxy primed enamel - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel)	Dulux Durebild STE to 100 microns DFT	Dulux Metalshield Prem UV Resistant Enamel Topcoat Gloss	Dulux Metalshield Prem UV Resistant Enamel Topcoat Gloss	SD 11407

Full gloss, epoxy primed two-pack polyurethane - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Zinc-coated metals (incl. HD Galvanized steel, zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel)	Dulux Duremax GPE Zinc Phosphate to 125 microns DFT	Dulux Duremax GPE to 100 microns DFT	Dulux Weathermax HBR to 75 microns DFT	SI 3359

Clear over stain on timber or veneers - Interior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Timber and timber veneer (solvent based system)	Cabot's Cabothane (solvent based) Gloss or Satin	Cabot's Cabothane (solvent based) Gloss or Satin	Cabot's Cabothane (solvent based) Gloss or Satin	SW 07479 (gloss) or SW 1202 (satin)
Timber and timber veneer (low VOC water based system)	Cabot's Cabothane Clear Water Based Gloss or Satin Apply 10.8 m^2/litre	Cabot's Cabothane Clear Water Based Gloss or Satin Apply 10.8 m^2/litre		SW 3925 (gloss) or SW 3927 (satin)

Clear single pack polyurethane - Interior (timber floors)

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Timber (floors) (low VOC water based system)	Intergrain Enviropro Endure 1 Gloss, Satin or Matt	Intergrain Enviropro Endure 1 Gloss, Satin or Matt	Intergrain Enviropro Endure 1 Gloss, Satin or Matt	SW 4012 (gloss) or SW 4014 (satin) or SW 4016 (matt)

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Timber (floors)	Feast Watson Floorproof (solvent based) Gloss or Satin	Feast Watson Floorproof (solvent based) Gloss or Satin	Feast Watson Floorproof (solvent based) Gloss or Satin	SW 1332

Paving paint for concrete – Interior or exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Concrete (solvent based system)	Berger Jet Dry Non-Slip Paving Paint	Berger Jet Dry Non-Slip Paving Paint	Berger Jet Dry Non-Slip Paving Paint	SD 0643
Concrete (low VOC, water based system)	Berger Jet Dry Aqua Tread Satin	Berger Jet Dry Aqua Tread Satin		SD 1145

Clear sealer for concrete – Interior or exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Concrete (Domestic) (low VOC, water based system)	Berger Jet Dry Aqua Tread Satin	Berger Jet Dry Aqua Tread Satin	Berger Jet Dry Aqua Tread Satin	SD 1145
Concrete (commercial) (low VOC, water based system)	Dulux Luxafloor WB	Dulux Luxafloor WB		SC 11138
Concrete (commercial) (water based system)	Dulux Protective Coatings Luxafloor WB Sealer Gloss	Dulux Protective Coatings Luxafloor WB Sealer Gloss	Dulux Protective Coatings Luxafloor WB Sealer Gloss	SC 16300
Concrete (commercial) (solvent based system)	Dulux Luxafloor ACS	Dulux Luxafloor ACS		SI 1574

Previously painted surfaces - Interior

Primer: [complete/delete]

Sealer: [complete/delete]

Undercoat: [complete/delete]

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
e.g. Painted Plasterboard	Dulux ASU	Dulux Wash&Wear Low Sheen	Dulux Wash&Wear Low Sheen	SD 0007

4.2 EXTERIOR PAINTING SCHEDULES

Low-gloss latex – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Weatherboard - hardboard cladding (Weathertex)	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 9246

Weatherboard - fibre cement board cladding (Hardiboard)	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 2539
Fibre cement products (soffits)	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 1333
Timber and veneers	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 9246
Concrete (OFC, tilt slab or precast)	Dulux AcraPrime 501/1 Water Based Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 1620
Concrete (OFC, tilt slab or precast) (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss RollerRoller Finish	Dulux AcraTex AcraShield 955 Low Gloss RollerRoller Finish	SA 0770
Cement render (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 4029
Clay brick and masonry	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 7507
Concrete blockwork	Berger Gold Label Acrylic Blockfiller	Dulux Weathershield Low Sheen Acrylic	Dulux Weathershield Low Sheen Acrylic	SD 1555
Concrete blockwork (High-build performance coating system)	Dulux AcraTex Green Render Sealer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 12873
Zinc coated metals (incl. Zincalume, Galvabond, Zincanneal, zincseal, zinc-primed steel)	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 3275
HD Galvanized steel or zinc-primed steel (Domestic)	Dulux Durebuild STE Two Pack Epoxy	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 11541
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Luxaprime Zinc Phosphate Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 07815
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 3006

Semi-gloss latex – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Weatherboard - hardboard cladding Non rebated Jointed (Weathertex)	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 9246
Weatherboard -fibre cement board cladding Non rebated Jointed (Hardiboard)	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 2539
Fibre cement products Soffits	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 1333
Timber and veneers	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 9246
Concrete (OFC, tilt slab or precast)	Dulux AcraPrime 501/1 Water Based Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 1620
Concrete (OFC, tilt slab or precast) (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss RollerRoller Finish	Dulux AcraTex AcraShield 955 Low Gloss RollerRoller Finish	SA 0770
Cement render (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 4029
Clay brick and masonry	Dulux Professional Acrylic Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 7507
Concrete blockwork	Berger Gold Label Acrylic Blockfiller	Dulux Weathershield Low Sheen Acrylic	Dulux Weathershield Low Sheen Acrylic	SD 1555
Concrete blockwork (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 2957
Zinc coated metals (incl. Zincalume, Galvabond, Zincanneal, zincseal, zinc-primed steel)	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 3275
HD Galvanized steel or zinc-primed steel (Domestic)	Dulux Durebuild TE Two Pack Epoxy	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 11541
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Luxaprime Zinc Phosphate Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 07815
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 3006

Gloss latex – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Fibre cement products Restricted Application	Dulux Weathershield Gloss	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 2938
Timber and veneers	Dulux Professional Acrylic Primer	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 09362
Concrete (OFC, tilt slab or precast)	Dulux AcraPrime 501/1 Water Based Primer	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 1620
Concrete (OFC, tilt slab or precast) (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 0770
Cement render (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 4029
Clay brick and masonry	Dulux Professional Acrylic Primer	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 7512
Concrete blockwork	Berger Gold Label Acrylic Blockfiller	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 5050
Concrete blockwork (High-build performance coating system)	Dulux AcraPrime 501/1 Water Based Primer	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	Dulux AcraTex AcraShield 955 Low Gloss Roller Finish	SA 2957
Zinc coated metals (incl. Zincalume, Galvabond, Zincanneal, zincseal, zinc-primed steel)	Dulux Professional Galvanised Iron Primer	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 12545
HD galvanized steel or zinc-primed steel (Domestic)	Dulux Durebuild STE Two Pack Epoxy	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SI 3762
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Luxaprime Zinc Phosphate Primer (solvent based)	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 07817
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Weathershield Gloss	Dulux Weathershield Gloss	SD 11231

Acrylic paint system for bagged masonry – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Brickwork and concrete	Berger Gold Label Block Filler	Dulux Weathershield Low Sheen	Dulux Weathershield Low Sheen	SD 1555
Brickwork and concrete – flush finish (bagged or sponged) – slight texture	Dulux AcraPrime 501/1 Water Based Primer	Dulux Acratex AcraSand Acrylic (2nd coat Optional)	Dulux Acratex Acrashield	SA 0754
Brickwork and concrete – flush finish – medium texture	Dulux AcraTex Mediterranean Classique	Dulux AcraTex Mediterranean Classique	Dulux AcraTex AcraShield	SA 09533

Textured acrylic paint system – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Concrete, blockwork and cement render	Dulux Acraprime 501/1 Water Based Primer	Dulux Acratex Contempo 959 Advance Base Coat	Dulux Acratex Contempo 959 Advance Finish Coat	SA 1868
Concrete, blockwork and cement render	Dulux Acraprime 501/1 Water Based Primer (B15)	Dulux Acratex Roll On 950-00 Low Profile Texture	Dulux Acratex Acrashield 955 Finish	SA 0696
Concrete, masonry, blockwork and cement render	Dulux Acraprime 501/1 Water Based Primer	Dulux Acratex Acrashield 955 Low Gloss Rolana Finish	Dulux Acratex Acrashield 955 Low Gloss Rolana Finish	SA 0770

Semi-gloss water based enamel – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Fibre cement products Restricted Application	Dulux Professional Acrylic Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 7549
Timber and veneers	Dulux Professional Acrylic Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 07476
Concrete	Dulux Professional Acrylic Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 11234
Cement render Restricted Application	Dulux Professional Acrylic Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 07495
Brick and masonry	Berger Gold Label Acrylic Block Filler	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 5041
Concrete blockwork	Berger Gold Label Acrylic Block Filler	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 5041

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Zinc coated metals Zincalume, Galvabond, Zincanneal, zincseal, zinc-primed steel) (low VOC system)	Dulux Professional Galvanised Iron Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 11235
Shop primed or red oxide primed (ROZP) ferrous metal	Dulux Metalshield All Surface Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 07789
Non-ferrous metals (incl. aluminium, brass, copper, tin plate) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 09798
Plastics (solvent resistant types e.g. FRP, PVC-U) (low VOC system)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Semi Gloss	Dulux Aquanamel Semi Gloss	SD 7494

Full gloss water based enamel – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Fibre cement products Restricted Application	Dulux Professional Acrylic Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 7548
Timber and veneers	Dulux Professional Acrylic Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 08475
Concrete	Dulux Professional Acrylic Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11236
Cement render Restricted Application	Dulux Professional Acrylic Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 07496
Brick and masonry	Berger Gold Label Acrylic Blockfiller	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11237
Concrete blockwork	Berger Gold Label Acrylic Blockfiller	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11238
Zinc-coated metals (Zincalume, Galvabond, Zincanneal, zincseal, & zinc-primed steel)	Dulux Professional Galvanised Iron Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11239
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Luxaprime Zinc Phosphate Primer (solvent based)	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 07570
Non-ferrous metals (incl.	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11240

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
aluminium, brass, copper, tin plate)				
Plastics (solvent resistant types e.g. FRP, PVC-U)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Aquanamel Gloss	Dulux Aquanamel Gloss	SD 11241

Full gloss, solvent borne – Exterior

Substrate	1st coat	2nd coat	3rd coat	Manufacturer's Spec Sheet Ref
Timber and primed hardboard veneers	Dulux 1 Step Oil Based PSU (solvent based)	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 0039
Zinc-coated metals (zincalume, Galvabond, zincanneal, zincseal, zinc-primed steel)	Dulux Professional Galvanised Iron Primer	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 07814
Shop primed or red oxide primed (ROZP) ferrous metal.	Dulux Luxaprime Zinc Phosphate Primer (solvent based)	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 07818
Non-ferrous metals (incl. aluminium, brass, copper, tin plate)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 3451
Plastics (solvent resistant types e.g. FRP, PVC-U)	Dulux Precision Maximum Strength Adhesion Primer	Dulux Super Enamel High Gloss	Dulux Super Enamel High Gloss	SD 0385
Plastics (solvent sensitive types, e.g. polystyrene)	Dulux Precision Maximum Strength Adhesion Primer	Don't use Solvent Based, Use Water Based Paints	Don't use Solvent Based, Use Water Based Paints	N/A

0802 HYDRAULIC DESIGN AND INSTALL

1 HYDRAULIC SYSTEMS

1.1 RESPONSIBILITIES

General
Requirement: Design systems and provide hydraulic services, as documented.

1.2 DESIGN

General
Requirement: To DESIGN in *0171 General requirements*.

Design criteria: Not less than the PCA (2022).

Designer qualifications
Designer qualification: Use only appropriately experienced and qualified persons to undertake design work. If requested, provide documents verifying the qualification and experience. Conform to **DESIGNER** in *0171 General requirements*.

Design for durability and maintainability
Design for durability: Develop the design so the systems achieve the documented performance, reliability, service life, energy efficiency and safety requirements, and are easily maintainable.

Access for maintenance: Develop the design so the systems conform to **ACCESS FOR MAINTENANCE** in *0171 General requirements*.

Operating environment
Requirement: Provide equipment suitable for the environment in which it operates.

Hydraulic system design
Requirement: Provide engineering design that:

- Maximises the functionality, performance, safety, flexibility and reliability of the hydraulic services.
- Is technically sound.
- Can be constructed using currently accepted methods.
- That provide the lowest combined owning and operating cost over the design life of the systems.

Water heaters: Size water heaters to adequately and efficiently serve the functions documented.

Authority submissions: Make submissions, including notices, to authorities relating to the works.

Design life
General: To *0171 General requirements*.

Design life:

- Hot water heaters: 10 years.
- Rainwater tanks: 20 years:
- All other components and systems: 25 years.

Energy efficiency
Requirement: To the PCA (2022).

Noise levels
Ambient noise emitted: Lower than the level that can be heard within a habitable room in any neighbouring premises, regardless of whether any door or window to that room is open.

Noise levels in occupied spaces: To **NOISE LEVELS** in *0171 General requirements*.

Acoustic treatment of services: Provide acoustic treatment to achieve the documented space and ambient noise levels and acoustic separation.

Seismic restraint
Requirement: To **SEISMIC RESTRAINT OF NON-STRUCTURAL COMPONENTS** in *0171 General requirements*.

Fire separation
Requirement: As documented.

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.
- *0223 Service trenching*.
- *042 Roofing* subgroup of worksections for roof plumbing.

1.4 STANDARDS

General

Plumbing and drainage: To AS/NZS 3500.0 (2021), AS/NZS 3500.1 (2021), AS/NZS 3500.2 (2021), AS/NZS 3500.3 (2021), AS/NZS 3500.4 (2021) and the PCA (2022).

Copper pipe and fittings-installation and commissioning: To AS 4809 (2017).

Gas: To AS/NZS 5601.1 (2013).

Microbial control: To AS/NZS 3666.1 (2011), AS/NZS 3666.2 (2011) and the recommendations of SA/SNZ HB 32 (1995).

1.5 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- LPG: Liquefied petroleum gas.

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Hot-dip galvanized: Zinc coated to AS/NZS 4680 (2006) after fabrication with coating thickness and mass to AS/NZS 4680 (2006) Table 1.

1.6 SUBMISSIONS

General

Requirement: Conform to *0171 General requirements*.

Authority approvals

Authority submissions: Submit evidence of approval from authorities relating to the works.

Certification

Completion: Submit certificate as verification that the design and installation conforms to all contractual and statutory requirements.

Operation and maintenance manuals

Requirement: Conform to **OPERATION AND MAINTENANCE MANUALS** in *0171 General requirements*.

Products and materials

Data: Submit technical data for all items of plant and equipment, including the following:

- Assumptions.
- Calculations.
- Model name, designation and number.
- Capacity of all system elements.
- Country of origin and manufacture.
- Materials used in the construction.
- Size, including required clearances for installation.
- Certification of conformance to the applicable code or standard.
- Technical data schedules corresponding to the equipment schedules in the contract documents. If there is a discrepancy between the two, substantiate the change.
- Manufacturers' technical literature.
- Type test reports.

Shop drawings
Standard: To AS 1100.101 (1992), AS 1100.201 (1992), AS 1100.301 (2008), AS 1100.401 (1984) and AS/NZS 1100.501 (2002) as applicable.

Requirement: Submit detail drawings at minimum 1:100 scale, showing the following:

- Pipework and equipment layout and sections showing the work to be installed on the level that the services are installed. Do not submit glass floor drawings.
- Long sections of below ground drainage.
- Riser layouts and sections.
- Piping and other schematic drawings including numbering of each valve to correspond to valve tags notation.
- Access openings, cover plates, valve boxes and access pits.
- Details of control panels including control and power diagrams.
- Insulation of piping, fittings and tanks.
- Penetrations and associated building work. If penetrations are through external walls, detail flashing and weatherproofing at 1:10 scale.
- Location, capacity, type and other relevant details of water heaters, including supports and safe trays.
- Location, type, grade and finish of piping, fittings, valves, meters and pipe supports.
- On-site detention pondage areas.
- Provision of blue metal backfill to seepage drain system.
- Provision of erosion control measures.
- Provision of road barriers and lighting.
- Provision of temporary sanitary accommodation for construction workers.
- Provision of trafficable cover plates in the public domain.
- Relevant survey levels.
- Site and floor set out points.
- Tank stands and supporting structures.

Subcontractors
General: Submit names, contact details, licence numbers and type of licence of proposed suppliers and installers.

1.7 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:

- Excavated surfaces.
- Concealed or underground services.

1.8 PRODUCTS

Authorised products
Requirement: Listed in the WaterMark Product Database, unless otherwise required by the Network Utility Operator.

Water efficiency
Requirement: Provide products with documented water efficiency but not less than that in the PCA (2022).

Labelling
Water efficiency labelling: Provide products conforming to and labelled to the Water Efficiency Labelling Scheme (WELS).

Bushfire-prone areas
Site with Bushfire Attack Level (BAL) 12.5, 19, 29, 40 or FZ to AS 3959 (2018): If external and above ground, provide metal pipes and fittings to AS 3959 (2018).

1.9 INSTALLATION

Connections to mains

General: Excavate to locate and expose the connection points and connect to the Network Utility Operator and gas Network Operator mains. On completion, backfill and compact the excavation and reinstate surfaces and elements which have been disturbed such as roads, pavements, kerbs, footpaths and nature strips to *0223 Service trenching*.

Connections: Connect to Network Utility Operator mains.

Metering: Provide metering, valves and fittings to Network Utility Operator requirements.

Service trenching

Requirement: To *0223 Service trenching*.

Accessories

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

Isolating valves: In addition to valves required to meet statutory requirements, provide valves to allow safe isolation of parts of the system, with minimum inconvenience to the building occupants, in event of leaks or maintenance.

Movement compensation

Compensation: Arrange piping crossing building expansion joints so that moment in the joint does not cause damage.

1.10 PIPING

Finishes

Exposed piping: Finish exposed piping, including fittings and supports, as follows:

- In internal locations such as toilet and kitchen areas: Chrome plate copper piping to AS 1192 (2004) service condition 2, bright.
- Externally and steel piping and iron fittings internally: Paint.
- In concealed but accessible spaces (including cupboards and non-habitable enclosed spaces): Leave copper and plastic unpainted except for identification marking. Prime steel piping and iron fittings.

Valves: Finish valves to match connected piping.

1.11 COMMISSIONING

General

Requirement: Provide commissioning as documented. Conform to *0171 General requirements* and SA TS 5342 (2021).

2 SANITARY FIXTURES

2.1 STANDARDS

General

Design for access and mobility: To AS 1428.1 (2021) and AS 1428.2 (1992).

Installation: Install to manufacturer’s recommendations.

3 TAPWARE

3.1 STANDARDS

General

Design for access and mobility: To AS 1428.1 (2021) and AS 1428.2 (1992).

3.2 TAPS

General

Material: Brass or bronze.

Taps other than hose taps: Provide anti-splash aerator nozzles.

Construction: Provide the following:

- Ceramic disk valve.
- O-ring seals.
- Vandal resistant handle.
- Vandal resistant aerator nozzles.

Hose taps

Construction: Provide hose taps as follows:

- Type: DN20 diameter brass finish hose tap.
- Riser: DN20 diameter copper riser with a back plated elbow.
- Heads: Provide anti-vandal heads where documented.

Backflow prevention: Provide vacuum breaker backflow prevention device and isolation valve.

Installation: Conform to the following:

- Fix hose tap 450 mm above the floor.
- Install against a masonry or concrete wall. Fix the back plated elbow to the wall with 3, 20 mm brass screws, screwed into 20 x 6 mm expanding plastic plugs.

Taps and valve heads

Metal heads and handles: Provide brass fittings or a suitable bush to prevent electrolysis and growth.

Plastic heads and handles: Provide compact fittings designed to prevent fracture and exposure of jagged or rough edges.

Vandal-proof heads: Provide vandal-proof or anti-tampering devices for the designated types.

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4 STORMWATER – BUILDINGS

4.1 DESIGN

General

Requirement: Design the roof drainage system, including sumps, rainwater outlets, overflow outlets and downpipes.

Roof drainage system design, application and calculations

Standards: Conform to the following:

- AS/NZS 3500.3 (2021).
- National Construction Code Series Volume 3: Plumbing Code of Australia (PCA (2022)).

Handbooks: Conform to the recommendations of SA HB 39 (2015).

Rainfall intensity for design:

- Eaves gutters: Annual exceedance probability of 5%.
- Box gutters: Annaul exceedance probability of 1%.

Box gutter overflow

Overflow: Design for 100% overflow.

Methods of calculation

Requirement: Manual or software that employs the data and methods in the applicable standard.

Design documentation

Drawings: Show the following on the drawings:

- General layout of the system.
- Calculated capacities.
- Details of components including internal and external metal gutters, downpipes, sumps and rainheads.
- Spatial relationship to other services and building structure.
- Means of accommodating thermal and building movement.
- Details of penetrations.
- Coordination and interfaces with other trades.

- Connection points to site stormwater system.

4.2 STORMWATER DRAINS

Location

General: Provide stormwater drains to connect downpipes, surface drains, subsoil drains and drainage pits to the outlet point or point of connection. Make sure location of piping will not interfere with other services and building elements not yet installed or built. Subject to the preceding and documented layouts, follow the most direct route with the least number of changes in direction.

Downpipe connections

Termination: Select from the following:

- Termination over pit: Stop downpipe 100 mm above the ground level and discharged into grated pit. Do not connect directly into stormwater pipes.
- Direct connection: Bring downpipes out from the building at a suitable angle and level so the downpipe enters the underground drain at the finished level of the surrounding area. Turn up branch pipelines with bends to meet the downpipe, finishing horizontally 50 mm (nominal) above finished ground or pavement level. Seal joints between downpipes and drains.

Laying

Installation: Lay in straight lines between changes in direction or grade with sockets pointing up hill. If other pipes are adjacent, set each pipe true to line and complete each joint before laying the next pipe. If work is not continuous, cap open ends to prevent entry of foreign matter.

Pipe underlay

General: Bed piping on a continuous underlay of bedding material, minimum 75 mm and maximum 150 mm thick after compaction. Grade the underlay evenly to the gradient of the pipeline.

Chases: If required, form chases to prevent projections such as sockets and flanges from bearing on the trench bottom or underlay.

Pipe surrounds

General: Place the material in the pipe surround in layers, maximum 200 mm loose thickness, and compact without damaging or displacing the piping.

Anchor blocks

Restraint: If required to restrain lateral and axial movement of the stormwater pipes, provide reinforced concrete anchor blocks at junctions and changes of grade or direction conforming to AS/NZS 3500.3 (2021) clause 7.9.

Thermal movement

General: Arrange piping to accommodate thermal expansion. Provide proprietary expansion joints in copper and plastic pipes where pipe flexibility does not allow movement. Make sure movement does not strain branch connections.

4.3 SUBSOIL DRAINS

General

Requirement: Provide subsoil drains to intercept groundwater seepage and prevent water build-up behind walls and under floors and pavements. Connect subsoil drains to surface drains or to the stormwater drainage system as applicable.

Trench width: Minimum 450 mm.

Trench floor: Grade the trench floor evenly to the gradient of the pipeline. If the trench floor is rock, correct any irregularities with compacted bedding material.

Pipe depth: Provide the following minimum clear depths, measured to the crown of the pipe, below the following elements:

- Formation level of the pavement, kerb or channel: 100 mm.
- Average gradient of the bottom of footings: 100 mm.
- Finished surface of unpaved ground: 450 mm.

Jointing

General: At junctions of subsoil pipes, provide tees, couplings or adaptors to AS 2439.1 (2007).

Pipe underlay

General: Bed piping on a continuous underlay of bedding material, minimum 75 mm and maximum 150 mm thick after compaction. Lay the pipe with one line of perforations at the bottom.

Chases: If required, form chases to prevent projections such as sockets and flanges from bearing on the trench bottom or underlay.

Pipe surrounds

General: Place the material in the pipe surround in layers, of a maximum 200 mm loose thickness, and compact without damaging or displacing the piping.

Depth of overlay:

- To the underside of the bases of overlying structures such as pavements, slabs and channels.
- To within 150 mm of the finished surface of unpaved or landscaped areas.

Geotextile

Requirement: Provide polymeric fabric formed from plastic yarn composed of at least 85% by weight propylene, ethylene amide or vinylidene chloride and containing stabilisers or inhibitors which provide resistance to deterioration due to ultraviolet light.

Marking: To AS 3705 (2012).

Protection: Provide heavy duty protective covering. Store clear of the ground and out of direct sunlight. During installation, do not expose the filter fabric to sunlight for more than 14 days.

Filter socks

General: Provide permeable polyester socks, capable of retaining particles 0.25 mm and greater. Securely fit or join the sock at each joint.

4.4 PITS

Finish to in situ exposed surfaces

General: Provide a smooth, seamless finish, using steel trowelled render or concrete cast in steel forms.

Location: At junctions, changes of gradient and changes of direction of stormwater drains.

Metal access covers and grates

Standard: To AS 3996 (2019).

Cover levels: Top of cover or grate, including frame:

- In paved areas: Flush with the paving surface.
- In landscaped areas: 25 mm above finished surface.
- Gratings taking surface water runoff: Locate to receive runoff without ponding.

4.5 TESTING

Pre-completion tests

General: Before backfilling or concealing, carry out the following tests to AS/NZS 3500.3 (2021) Section 9:

- Downpipes within buildings: Air or water pressure test.
- Site stormwater drains and main internal drains: Air or water pressure test.
- Rising mains from pumped discharge: Water pressure test.

Leaks: If leaks are found, rectify and re-test.

4.6 COMPLETION

Cleaning

General: Clean and flush the whole installation.

5 HYDRAULIC MAINTENANCE

5.1 GENERAL

Objective

Requirement: Maintain the hydraulic systems for the documented maintenance period so that the performance, reliability, service life, energy efficiency and safety of the system is equal to or better than that at the beginning of the maintenance period, in parallel with and including:

- Periodic and statutory maintenance, cleaning and replacement of consumables.
- Emergency repairs.

Maintenance period: To *0171 General requirements*.

5.2 MAINTENANCE

Cold and heated water

Maintenance of tanks and piping for drinking water: To AS/NZS 3500.1 (2021) and AS/NZS 3500.4 (2021).

Ball float valves: Check and adjust for no overflow.

Heated water systems:

- Conform to the recommendations of AS/NZS 3500.4 (2021) Appendix M.
- Inspection and maintenance: To AS/NZS 3666.2 (2011).
- Provide service tags recording inspections and tests.

Leaks: Inspect cold and heated water systems at least annually for the following:

- Leaks, including leaks from cisterns.
- Other defects.
- Safe condition.
- Conformance to the PCA (2022) and Network Utility Operator requirements.

Leaks and defects: Report if found and rectify.

Strainers: Inspect and clean at least annually.

Rainwater storage systems

Requirement: Provide annual maintenance to SA HB 230 (2008) Table 10.1 at the following times:

- Maintenance period shorter than 12 months: Within a month of the end of the defects liability period.
- Maintenance period 12 months or longer: Annually.

Service tags: Record inspections and tests.