

**0411P DUROTECH WATERPROOFING – EXTERNAL AND TANKING****Branded worksection**

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**Worksection abstract**

This worksection *Template* is applicable to DUROTECH waterproofing membrane systems for new construction and remedial waterproofing including roofing, podiums, decks, balconies, concrete slabs over below ground spaces, retaining walls, tunnels, landscape and planter boxes, and tanking. It relies on AS 4654.1 and AS 4654.2. It includes concrete mixtures and penetrant sealers but excludes decorative coatings.

**Guidance text**

All text within these boxes is provided as guidance for developing this worksection and should not form part of the final specification. This *Guidance* text may be hidden or deleted from the document using the NATSPEC Toolbar or the hidden text *Hide* and *Delete* functions of your word processing system. For additional information visit FAQs at [www.natspec.com.au](http://www.natspec.com.au).

**Optional style text**

Text in this font (blue with a grey background) covers items specified less frequently. It is provided for incorporation into *Normal* style text where it is applicable to a project.

**Related material located elsewhere in NATSPEC**

If a listed worksection is not part of your subscription package and you wish to purchase it, contact NATSPEC.

Related material may be found in other worksections. See for example:

- 0193 *Building access safety systems.*
- 0314 *Concrete in situ.*
- 0315 *Concrete finishes.*
- 0471 *Thermal insulation and pliable membranes* for membrane protection boards and insulation boards.
- 0612 *Cementitious toppings.*
- 0613 *Terrazzo in situ.*
- 0621p *DUROTECH waterproofing - wet areas.*
- 0802 *Hydraulic design and install.*

**Documenting this and related work**

You may document this and related work as follows:

- Location, extent and type of membrane including details of junctions with flashings and damp-proof courses on the drawings.
- Plan structural control and expansion joints to avoid critical areas such as low points in slabs, planter boxes and above habitable rooms, and show on the drawings.

The *Normal* style text of this worksection may refer to items as being documented elsewhere in the contract documentation. Make sure they are documented.

Search [acumen.architecture.com.au](http://acumen.architecture.com.au), the Australian Institute of Architects' practice advisory subscription service, for notes on the following:

- Guarantees and warranties.
- Waterproofing.

**Specifying ESD**

The following may be specified by including additional text:

- Low VOC emitting liquid membrane systems.
- Recycling of construction scrap materials.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

## 1 GENERAL

DUROTECH Industries is a leading manufacturer and supplier of waterproofing products. DUROETCH waterproofing products have been widely used in the construction industry for over 40 years for the sealing of wet areas, decks, roofs and other substrates providing protection against moisture and weather damage. State-of-the-art technology combined with dedicated commitment to research and development has made DUROTECH Industries an authoritative and dominant leader in the waterproofing and coatings arena.

### 1.1 RESPONSIBILITIES

#### General

Requirement: Provide DUROTECH waterproofing membrane systems for roofing, podiums, decks, balconies, concrete slabs over below ground spaces, retaining walls, tunnels, landscape and planter boxes, and tanking, as documented.

*Documented* is defined in 0171 *General requirements* as meaning contained in the contract documents.

#### Performance

Requirements: Conform to the following:

- 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.

Consider adding the required service-life of the membrane system (material and installation), 10 to 15 years appears normal.

When making selections, consider products with the following characteristics:

- Able to accommodate anticipated environmental conditions including UV light.
- Able to remain serviceable after material shrinkage and loss of elastic properties.
- Resistant to traffic and falling objects including hail.
- Chemically compatible with the surrounding building materials.
- Capable of permanent immersion (e.g. tanking, tiled areas).

### 1.2 COMPANY CONTACTS

#### DUROTECH technical contact

Website: [www.durotechindustries.com.au/contact/](http://www.durotechindustries.com.au/contact/)

### 1.3 CROSS REFERENCES

#### General

Requirement: Conform to the following:

- 0171 *General requirements*.

0171 *General requirements* contains umbrella requirements for all building and services worksections.

List the worksections cross referenced by this worksection. 0171 *General requirements* references the 018 *Common requirements* subgroup of worksections. It is not necessary to repeat them here. However, you may also wish to direct the contractor to other worksections where there may be work that is closely associated with this work.

NATSPEC uses generic worksection titles, whether or not there are branded equivalents. If you use a branded worksection, change the cross reference here.

### 1.4 STANDARDS

#### External waterproofing

Membrane materials: To AS 4654.1.

Membrane design and installation: To AS 4654.2.

AS 4654.1 and AS 4654.2 are applicable for external and above ground use only. Materials selected for tanking and waterproofing of below ground structures should be designed and selected with the assistance of a specialist waterproofing consultant and with the manufacturer or supplier. The Master Builders Association of NSW *Guide to external waterproofing - Balcony and decks* is a useful source of detail and advice on good installation practice.

#### Stormwater drainage

Standard: To AS/NZS 3500.3.

The NCC cites AS/NZS 3500.3:2015.

## 1.5 MANUFACTURER'S DOCUMENTS

### Technical manuals

Website: [www.durotechindustries.com.au/technical-literature/](http://www.durotechindustries.com.au/technical-literature/)

## 1.6 INTERPRETATION

### Definitions

General: For the purposes of this worksection the definitions given in AS 4654.1 and AS 4654.2 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.

Urethane modified acrylics have better resistance to ponding. Products include acrylics, modified polyurethanes (water-based), polyuria and modified cementitious systems.

- Polyurethane: Water or solvent based formulations which moisture cure to form an elastic rubber membrane.

They can be made more cheaply with bitumen at the expense of long term properties.

- 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 systems: Combinations of membranes, flashings, drainage and accessories which form waterproof barriers and which may be:
  - . Loose-laid.
  - . Bonded to substrates.

Edit the **Definitions** subclause to suit the project or delete if not required. List alphabetically.

## 1.7 SUBMISSIONS

### Products and materials

Manufacturer's documentation: Submit copies of the following data:

- Product technical data sheets.
- Safety data sheets (SDS).
- Preventative maintenance procedures.
- Instructions and procedures for the repair of the membrane.
- Type test certificates verifying compliance with AS 4654.1 Section 2, Tables 2.1 to 2.3.

### Prototypes

General: Apply waterproofing to 10 m<sup>2</sup> of substrate to demonstrate surface preparation, crack and joint treatment, corner treatment, and execution quality. Install final surface finish to demonstrate aesthetic affects, physical properties, and quality of materials and execution as applicable.

Nominate an approval process and indicate if the prototype is to be retained, Indicate location, size, and other details of prototypes on drawings. Delete if not required.

**Records**

Placing records: Submit a photographic record of the application of membranes and labelled with the following information:

- Date.
- Portion of work.
- Substrate preparation.
- Weather during application and curing.
- Protection provided from traffic and weather.

Liquid membrane applications:

- Wet film thickness: Submit details of wet film thickness recorded once every 10 m<sup>2</sup> and compared to the manufacturers requirements.
- Application rate: On completion of every 100 m<sup>2</sup> of each coat compare the amount of membrane used with the manufacturers application rate and submit details of the result.

For large or complex projects, adding the following requirements:

- The location and element where each membrane was placed.
- The method of placing and climatic conditions.

Personnel: Employ a suitably qualified person to monitor the placing and protection of the membrane and prepare a daily report.

Flood tests: Photographically record flooded area and adjacent areas noted in **Flood test**. Label photographs with date and location.

**Samples**

Requirement: Submit 300 x 300 mm samples of each type of membrane including the finish of the visible surface.

**Shop drawings**

Requirement: Submit shop drawings showing the following:

- Junctions with vertical surfaces.
- Drainage details.
- Control joints.
- Flashings.
- Penetrations.
- Corners.
- Terminations and connections.
- Membrane layers.
- Insulation and protection.

An alternative is to prepare these details in consultation with the membrane supplier. Delete as appropriate.

**Subcontractors**

Requirement: Submit names and contact details of proposed installers.

Evidence of experience: [complete/delete]

Delete if supplier/installer details are not required.

**Warranties**

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

**1.8 INSPECTION****Notice**

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

- Substrate preparation completed.
- Secondary layers preparation completed.
- Before membranes are covered up or concealed.
- Underflashings complete before installation of overflashings.
- After flood testing.

Amend to suit the project adding critical stage or mandatory inspections required by legislation or regulation.

**Hold points**, if required, should be inserted here. e.g. to make sure that the membrane is fully cured before it is covered.

## 2 PRODUCTS

### 2.1 GENERAL

#### Product substitution

Other products: Conform to PRODUCTS, **GENERAL, Substitutions** in *0171 General requirements*.

The *0171 General requirements* clause sets out the submissions required if the contractor proposes alternative products. Refer also to NATSPEC TECHnote GEN 006 for more information on proprietary specification.

#### Storage and handling

Store and handle to Durotech's recommendations and as follows:

- Protect materials from damage.

#### Marking

Identification: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

Edit the list to suit the project or delete if not required.

### 2.2 DUROTECH LIQUID MEMBRANES

#### Duro Mastic AC Clear

Description: High performance, water-based, rubberised bitumen, liquid waterproofing membrane.

Typical application: Used for the long-term decorative coating and sealing of building surfaces.

#### Duro Mastic BLW

Description: Liquid applied, latex modified bituminous elastomeric waterproofing membrane.

Typical application: A waterproof lining suitable for most building surfaces including reinforced concrete, block work, brick work, cement render, and retaining walls and planter boxes.

#### Duroguard Crystalline WPM

Description: Surface applied capillary waterproofing system consisting of cement, silica aggregates and moisture activated chemicals.

Typical application: A waterproofing system to provide a permanent waterproofing solutions to water leakage, ingress or seepage in concrete structures and cementitious substrates. Applied to water retaining structures, water tanks, swimming pools, basements, retaining walls bridge decks and foundations.

#### Durotech ARW

Description: Single component water-based primer.

Typical application: For priming concrete, masonry and fibre cement sheeting surfaces, for the application of water-based membranes.

#### Duro Silane

Description: Siloxane modified acrylic topcoat.

Typical application: A breathable matt coating suited to new/undercoated concrete, masonry, or cement based substrates.

#### Duroarmour

Description: High-build siloxane modified acrylic waterproofing membrane.

Typical application: A tintable exterior membrane coating for facades, walls, fascias and balconies.

#### Duromix Hibuild WBE

Description: High-build siloxane modified acrylic waterproofing membrane.

Typical application: A tintable exterior membrane coating for facades, walls, fascias and balconies.

**Duroproof PU Antiroot**

Description: Single component liquid, polyurethane elastomeric membrane.

Typical application: A liquid membrane with high tensile and tear strength to deter the penetration of plant roots in roof gardens and planter boxes.

**Duro Mastic DurorooF**

Description: Single component liquid, double crosslinked copolymer membrane.

Typical application: A liquid crack-bridging membrane for roof waterproofing.

**Duroproof PPM (SL), (STD)**

Description: Single component liquid, polyurea/polyurethane hybrid membrane.

Typical application: A self-levelling, fast curing membrane for waterproofing exposed concrete roofs and decks, external balconies, and light traffic installations.

**Durocoat 90A**

Description: Two component fast curing aliphatic coating.

Typical application: An abrasive resistant topcoat for polyurea and polyurethane systems to decks, industrial and commercial flooring and plantroom walls.

**2.3 DUROTECH SELF-ADHESIVE MEMBRANES****DuroTorch Superstick**

Description: Single layer self-adhesive polymeric membrane.

Typical application: A distilled bitumen modified compound with polymers and tackifiers and reinforced with a non-woven spun bond polyester reinforcement fabric, or a HDPE carrier for basement and sub-structures waterproofing.

**Duro Stick SP**

Description: Single layer self-adhesive bituminous elastomeric sheet membrane.

Typical application: A distilled bitumen modified compound with elastomers and tackifiers and reinforced with a high strength non-woven spunbound polyester fabric for basement and sub-structures waterproofing.

**2.4 DUROTECH BONDED MEMBRANES****DuroTorch Green Roof**

Description: Bituminous plastomeric torch-on waterproofing sheet membrane.

Typical application: A distilled bitumen modified compound with atactic polypropylene (APP), anti-root additives and reinforced with a high strength non-woven polyester fabric for roofing and planter box waterproofing.

**DuroTorch Vent Base**

Description: Base sheet in a bonded built-up roofing system.

Typical application: A vented base sheet composed of a oxidised bitumen reinforced with a glass fibre matt for use as the first layer of a bonded built-up waterproofing system on roofs and decks.

**DuroTorch 3MM**

Description: Bituminous plastomeric torch-on waterproofing sheet membrane with upper face of coloured slate chips.

Typical application: A distilled bitumen modified compound with atactic polypropylene (APP) and reinforced with a high strength non-woven spun bound polyester fabric for roofs and decks waterproofing. Used as the top layer of a 2 or 3 layer membrane system.

**DuroTorch 4 mm Mineral**

Description: Bituminous plastomeric torch-on waterproofing sheet membrane.

Typical application: A distilled bitumen modified compound with atactic polypropylene (APP) and reinforced with a high strength non-woven spun bound polyester fabric for roof waterproofing. Used as the top layer of a 2 or 3 layer membrane system.

**DuroTorch Car Park**

Description: Bituminous plastomeric torch-on waterproofing sheet membrane.

Typical application: A distilled bitumen modified compound with atactic polypropylene (APP) and reinforced with a high strength non-woven spun bound polyester fabric. Hot asphalt can be poured directly over the unprotected membrane.

**DuroTorch Fleece Back**

Description: Bituminous reinforced plastomeric sheet membrane, with non-woven polyester fleece on the underside.

Typical application: An adhered membrane composed of a distilled bitumen modified compound for use as the base layer for multiple layer membrane systems.

## 2.5 DUROTECH CEMENTITIOUS MEMBRANES

### Durobuild HB

Description: Single component polymer cementitious mortar.

Typical application: A concrete mortar for repairing damaged, weak or de-bonded concrete and honeycombed concrete; and replacement of spalled or chipped concrete; and concrete affected by chlorides or sulphates.

### Duroflex Plug

Description: Rapid setting cement compound.

Typical application: A compound to stop active leaks or seepage of water under pressure in solid concrete or masonry surfaces in basements, substructures, and lift shafts.

### Duroflex Basement

Description: Single component polymer cementitious slurry coat.

Typical application: For underground structures including retaining walls, basement walls, lift shafts, lift pits, car parks, building foundations and footings to prevent water migration through both positive and negative faces of structures.

### Duroflex Tank

Description: Two component polymer modified cementitious coating.

Typical application: A roller applied coating for waterproofing concrete and masonry surfaces.

### Duromastic ACS-2

Description: Flexible two-part high solids liquid/cement copolymer fibre reinforced waterproofing membrane.

Typical application: Foot trafficable tiled external areas, including decks, balconies, walkways and podiums (when over coated with Durarmour) for UV protection.

### Duromastic ACS-3

Description: Two-part high solids liquid/cement copolymer fibre reinforced waterproofing membrane.

Typical application: Foot trafficable tiled external areas, including decks, balconies, walkways and podiums (when over coated with Durarmour) for UV protection.

### Durobentonite 100

Description: A multi-layer sheet membrane system of a self-sealing, expandable bentonite layer laminated on high density polyethylene (HPDE).

Typical application: For blindside applications to lagging, under floor and lift pits.

## 2.6 DUROTECH PRIMERS AND SEALERS

### Duro Sil-Prime

Description: Siloxane modified acrylic primer.

Typical application: A breathable and highly water repellent primer for binding weak, powdery surfaces for application of Duro Silane topcoat.

### Durotech Bitumen Primer

Description: Solvent based bitumen primer.

Typical application: For priming dry concrete decks (before application of bitumen sheet membrane), protection of galvanised iron gutters, downpipes, and metal for corrosion protection.

### Durotech ARW

Description: Single component water-based primer.

Typical application: For priming concrete, masonry and fibre cement sheeting surfaces, for the application of water based membranes.

### Duroprime SSP

Description: Solvent free non-porous surface primer.

Typical application: For use on both vertical and horizontal surfaces, and achieving high adhesion without etching or using solvents. Suited for the application of compatible membrane coatings, adhesives and mortars.

### Duroseal 25LM

Description: Single component polyurethane-based sealant.

Typical application: A polyurethane based one component sealant that resists surface movements.

### Duroseal FC

Description: Single component moisture curing polyurethane sealant.

Typical application: A single component moisture curing polyurethane construction sealant.

### Duroprime PU Primer

Description: A moisture curing, single component, liquid polyurethane penetrating waterproofing primer.

Typical application: A liquid primer for use on concrete, cement and cement render to be waterproofed by Duroproof PU membrane systems.

### Durotile Flex

Description: Rubber modified off-white cement-based tile adhesive.

Typical application: For bonding tiles to concrete structures subject to shrinkage and cracking.

## 2.7 ACCESSORIES

### Internal roof outlets

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

e.g. A clamp ring.

Material: [complete/delete]

e.g. Cast iron or Bronze.

Grating: [complete/delete]

e.g. Flat or Domed.

### Flashing

Pressure seal flashing: [complete/delete]

Proprietary item or as detailed with an aluminium angle.

Fixing: [complete/delete]

Surface fixed and sealed or fixed to cast-in reglets.

Sealant: [complete/delete]

Refer to NATSPEC TECHnote DES 017 on the selection of sealants.

### Control joint covers

Proprietary item: [complete/delete]

Select product appropriate for traffic, e.g. pedestrian or vehicular.

Corners, crossovers, tees and bends: Factory mitred, welded and provided with 500 mm legs.

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

Fixing hobs: [complete/delete]

Select concrete or timber.

## 2.8 THERMAL INSULATION

### Insulation boards

Description: [complete/delete]

For example, 100 mm thick 175 kg/m<sup>3</sup> density mineral wool sheets or 25 mm thick 32 kg/m<sup>3</sup> density extruded polystyrene sheets. Use polyisocyanurate insulated foil faced board for fully adhered systems.

## 2.9 PROTECTION

### Protection board

Description: Lightweight polypropylene, impact protection sheet for membranes.

## 2.10 SLIP SHEETS

### Sheet material

Description: [complete/delete]



For example, 1 layer of 300 µm thick polyethylene sheet or 1 layer of 130 g/m<sup>2</sup> geotextile sheet.

Function: Isolates the movement of overlying finishes such as screeds from the membrane.

## 2.11 DRAINAGE CELL

### Durodrain

Description: Heavy duty polypropylene dimpled cell with non-woven geotextile fabric.

Typical application: Subsoil drainage behind retaining walls, abutments, culverts, basement walls, and horizontal drainage to roof gardens, and planter boxes.

Cell panel protection: [complete/delete]

If required, the product recommended by the cell panel supplier.

## 3 EXECUTION

### 3.1 PREPARATION

#### Substrates

General: Prepare substrates as follows:

- Fill all cracks in substrates wider than 1.5 mm with a filler compatible with the membrane system.
- Fill voids and hollows in concrete substrates with a concrete mix not stronger than the substrate.
- Remove projections.
- Remove deleterious and loose material.
- Remove all traces of a concrete curing compound if used.

Delete the reference to the curing compound if it is demonstrated to be compatible with the membrane.

- Leave the surface free of contaminants, clean and dust free.

Concrete substrates: Cure for more than 28 days.

Refer to the manufacturers substrate curing time requirements for the membrane system being used.

#### 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 AS 1884 Appendix A.

Refer to NATSPEC TECHnote DES 008 on the preparation of concrete substrates. Refer also to CCAA Data Sheet Moisture in concrete and moisture-sensitive finishes and coatings.

#### Falls

Requirement: Verify that falls in substrates are greater than 1:80.

Consult the membrane supplier to determine a fall that minimises ponding at lapped seams.

#### Joints and fillets

Internal corners: [complete/delete]

Select: Provide 45° fillets 50 x 50 mm or a Double detail joint.

Fillet material: [complete/delete]

Select hardwood or plastic for 45° fillets, or nominate the membrane for double detail joints.

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.

Refer product technical data sheet.

### 3.2 APPLICATION

#### Protection during installation

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

For example, until liquid applied membranes have fully cured.

## Drains

See AS 4654.2 clause 2.10.

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.

Alternatively, fit a pre-formed overflow outlet fitting with a face mounted flange and bond membrane to flange.

See AS 4654.2 clause 2.11 on overflows.

## Sheet membrane joints

Self-adhesive membranes:

- Longitudinal laps: 50 to 60 mm.
- Transverse laps: 70 to 80 mm.

Pre-applied sheet membranes:

- Selvege: 75 mm.
- Over-seal: 75 mm.

Bituminous sheet membranes:

- Side laps: 100 mm.
- End laps: 150 mm.

Refer to Durotech technical data sheets.

## Curing of liquid applied systems

General: To the manufacturers' instructions.

## Control of movement

See AS 4654.2 clause 2.9 on major control joints. Consult the membrane supplier for the preparation of details and selection of products to withstand the expected long term movements of joints and the substrate.

General: Provide control joints located over control joints in the substructure.

Fillets and bond breakers: Size to allow the membrane to accommodate movement.

Backing rod: [complete/delete]

e.g. Closed cell polyethylene foam with 25% to 50% compression.

Joint Sealant: [complete/delete]

Select a sealant that is compatible with the membrane type and to the manufacturer's recommendations.

Joint backing gutter: [complete/delete]

Consider for joints in critical locations. 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.

Bonded membranes: Carry control joints in the substrate through to and into the surface finish.

## 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 Appendix A, Table A1.

See AS 4654.2 clause 2.8.1 and Appendix A for termination heights ranging from 40 to 180 mm.

- Anchoring: Secure sheet membranes along the top edge.
- Edge protection: Protect edges of the membrane.

Vertical upward terminations: [complete/delete]

For sheet membranes: Terminate under an overflashing, or specify a pressure seal overflashing or an overflashing fixed into a cast-in reglet as detailed on the drawings.

For liquid membranes: Terminate under an overflashing, or specify an overflashing of liquid applied membrane as detailed on the drawings.

If vertical terminations are not shown on the drawings, describe them in detail here.

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

**Vertical downward terminations: [complete/delete]**

See AS 4654.2 clause 2.8.2.

For sheet membranes, select pressure seal overflashing as detailed on the drawings.

For liquid membranes, extend membrane to the underside of a horizontal return as detailed on the drawings.

If vertical terminations are not shown on the drawings, describe them in detail here.

Horizontal terminations: Do not provide. Use vertical terminations.

### Membrane vertical penetrations

See AS 4654.2 clause 2.8.4 for drawn details.

Pipes, balustrades, ducts, and vents: Provide separate sleeves for all pipes, balustrades, ducts and vents and fix to the substrate.

### Membrane horizontal penetrations

See AS 4654.2 clause 2.8.4 for drawn details.

PVC-U conduits and pipes: To seal the membrane without burning the PVC-U, protect PVC-U conduits and pipes with Index Autotene 3 mm. Do not use high density polyethylene (HDPE), polypropylene (PP) pipes or flexible PVC conduit.

Penetrations: Install bandages, flanges and sealants for all vertical penetrations to Durotech's recommendation.

Adhesion to HDPE and PP is very poor, and flexible PVC conduit has low temperature resistance. Specify copper if seeking Green Star credits for PVC minimisation.

### Membrane at balcony doors and windows

See AS 4654.2 clause 2.8.3 for drawn details.

Requirement: Install membrane before the fixing of door or window frames.

#### Membrane upturn:

- Vertical height above external finished floor level: [complete/delete]

See AS 4654.2 Appendix A Table A1 for termination heights ranging from 40 to 180 mm.

Hobless and flush thresholds: Install membrane before the fixing of door or window frames with 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.

**Upstand height above roof surface: [complete/delete]**

e.g. 150 mm.

### Membrane at parapets

See AS 4654.2 clause 2.8.2.2 for drawn details.

Requirement: Terminate membrane upstands under parapet flashing or capping giving 75 mm overlap. Do not top fix parapet cappings. Seal heads of fasteners against capping.

### Membrane at gutters

See AS 4654.2 clause 2.8.2.3 for drawn details.

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

See AS 4654.2 clause 2.8.4 for drawn details.

**Post supports fixed before/after membrane: [complete/delete]**

Select from the following options, edit prompt and cross reference to a detail drawing:

- Post supports fixed before membrane: Fix post support to substrate with countersunk fasteners and seal the perimeter of the baseplate 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 of membrane so that any join is staggered as much as possible relative to joins in the base membrane, and which overlaps it at least 150 mm beyond the perimeter of the baseplate.

- 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 baseplate, and seal the perimeter of the baseplate to the membrane. Fix an overflashing of membrane which overlaps the base membrane at least 150 mm beyond the perimeter of the baseplate. Dress the overflashing closely around the post support and seal the edge of the penetration to the vertical member.

### Membrane to planter boxes

See AS 4654.2 clause 2.13 for drawn details.

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

For aggressive root systems and trees, the selected membrane system should be tested and certified for root resistance by the manufacturer. Root resistance may be built into waterproofing membranes either by the addition of root-inhibiting chemical treatments, or because the composition of the membrane provides an impenetrable barrier to root growth.

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.

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

Protection boards can be self-adhesive so that they remain in situ before back filling. Make sure that there are no materials used requiring mechanical fixing to the membrane. When backfilling and using hard edged drainage cell, protect the membrane with a 6 mm thick layer of reconstituted rubber mat protection sheet.

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

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

### 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 systems: 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 not to 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 which is compatible with the membrane.

Membrane protection boards: [complete/delete]

Installation: [complete/delete]

If flood testing is specified: Immediately after the successful conclusion of flood testing. Otherwise: Immediately after the installation of the membrane.

Location: [complete/delete]

Fixing: [complete/delete]

Multi-layer APP modified bitumen systems: Adhere to the membrane with a solvent-free or low melt bitumen adhesive. Provide a gap no greater than 6 mm at joints between extruded polystyrene foam (XPS) boards.

Single layer SBS modified bitumen systems: Adhere to membrane by spot torching the membrane to the XPS board (i.e. by applying the torch to the membrane, not the board). Polypropylene board provides very poor adhesion, so it may be necessary to use mechanical fixings, taking care not to affect waterproofing.

Liquid applied membrane: Tape joints and fix with an adhesive compatible with the membrane.

### 3.3 TESTING

#### Flood test

A flood test may be required where the waterproofed area is over a habitable space particularly that of another occupant. However it should be noted that most membrane system failures are due to damage caused on site after the flood test is conducted. Delete if not required.

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

Moisture content measurement method: Conform to AS 1884 Appendix A

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 to allow 50 mm water level but no higher than 25 mm below the weir level of the perimeter flashings.
- Provide temporary overflows of the same capacity as the roof outlets to maintain the flood level.

The aim is to prevent damage if it rains overnight. If the building is occupied consider calling for the flood test to be conducted during supervised working hours.

- Fill space with clean water and leave overnight.

Evaluation:

- Make a visual inspection after a minimum period of 2 hours, of the wall/floor junction of adjacent spaces and of the slab soffit below for obvious water or moisture.
- 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.
- No visual evidence of water: Proceed with the moisture meter test.
- Test results indicating an increase in moisture before and after flooding: Failure.

Records: Submit records of all flood tests.

Specify here the approval criteria set up for the project. If necessary nominate a **Hold point**.

### 3.4 COMPLETION

#### Protection

General: Keep traffic off membrane surfaces after laying until bonding has set, 24 hours or to Durotech's recommendation, whichever period is the longer.

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

#### Warranties

Waterproofing: 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: [complete/delete]

DUROTECH offers 10-20 years warranty depending on product and system selection.

## 4 SELECTIONS

**Schedules** are a way of documenting a selection of proprietary or generic products or systems by their properties. Indicate their locations here and/or on the drawings. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

#### 4.1 EXTERNAL WATERPROOFING

##### Requirements schedule

Property	A	B	C
Traffic			
Nature of traffic			
Slip resistance classification			
Overlaying finish			
Root and bioresistance			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

Traffic: Nominate Trafficable or Non-trafficable.

Nature of traffic: For trafficable surfaces nominate maintenance, pedestrian or vehicular as defined in AS 4654.1 clause 1.3.7 and AS 4654.2 clause 1.3.14.

Slip resistance classification: For trafficable surfaces only. Delete for non-trafficable surfaces. Select the slip resistance classification to AS 4586. See NATSPEC TECHnote DES 001, SA HB 197 and SA HB 198.

Overlaying finish: Nominate the finish by reference to the appropriate worksection or put none. Note: Roofing membranes are generally not trafficable.

Root and bioresistance: Nominate for planters, roof gardens and tanking where resistance to roots, fungus, mould and rot is required. To AS 4654.1 clauses 2.8 and 2.9. Required to all systems.

#### 4.2 ROOF/PODIUM/DECK WATERPROOFING

##### Maintenance traffic areas schedule

Property	1A	1B	1C	1D	1E
Proprietary system	Durotech	Durotech	Durotech	Durotech	Durotech
Material type	Two-layer, torch on mineral finish sheet membrane system	Two-layer, torch on mineral finish sheet membrane system	Solvent free Polyurethane liquid applied membrane	Water-based, Polymer/Cementitious, liquid applied membrane	Low VOC solvent liquid applied membrane
Primer: Porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Durotech ARW	Durotech ARW	Duroprime PU
Primer: Non-porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime SSP	Duroprime SSP	Duroprime PU
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Durolasto Tape	Durolasto Tape	Duroseal 25LM
Base membrane	DuroTorch 3MM	DuroTorch 3MM	-	-	Duroproof PPM
Top membrane	DuroTorch 4 mm Mineral	DuroTorch 4 mm Mineral	DuroMastic P15	Duromastic ACS-3	Duroproof ATC
UV wear coat	-	-	DuroMastic AC	Duromastic DurorooF	Durocoat 90A
Surface protection finish			Duromastic AC non slip*	Duromastic AC non slip*	

A, B, C, D, E: These designate each instance or type of the item scheduled. Edit to align with the project's codes or tags.

System 1A: Torch applied, 2 layer, high tensile strengths, elongation, cold flexibility, standard warranty 10 to 20 years.

System 1B: Torch applied, 2 layer, economical, strong performance properties, standard warranty 10 to 20 years.  
 System 1C: Liquid applied, high tensile strength, fast curing, flood test after 48 hours, standard warranty 10 to 15\* years.  
 System 1D: Liquid applied, low VOC: low water vapour transmission, standard warranty 10 to 15\* years.  
 System 1E: Liquid applied, low VOC: low water vapour transmission, standard warranty 10 to 15\* years.  
 Edit codes in the **Schedule** to match those on drawings.  
 Delete redundant options.  
 \* Surface protection/finish is optional. Schedule if required.

#### Pedestrian traffic areas – tiled /paved schedule

Property	2A	2B	2C	2D	2E
Proprietary system	Durotech	Durotech	Durotech	Durotech	Durotech
Material type	Two-layer, torch-on sheet membrane with screed, tile/paver over	Two-layer, torch-on sheet membrane with screed, tile/paver over	Solvent free polyurethane, liquid applied membrane with screed, tile/paver over	Water-based, polymer/cementitious, liquid applied membrane with screed, tile/paver over	Low VOC solvent liquid applied membrane
Screed	Concrete screed over	Concrete screed over	Concrete screed over	Concrete screed over	Concrete screed over
Primer: Porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duromastic ARW	Duromastic ARW	Duroprime PU Primer
Primer: Non-porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime SSP	Duroprime SSP	Duroprime PU Primer
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Durolasto Tape	Durolasto Tape	Duroseal 25LM
Base membrane	Durotorch 3MM	Durotorch 3MM	-	-	
Top membrane	DuroTorch 4 mm Mineral	Durotorch 3MM	DuroMastic P15	Duromastic ACS-3	Duroproof PPM

A, B, C, D, E: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags. Edit codes in the Schedule to match those on drawings.

System 2A: Torch applied, 2 layer, 7 mm thickness, high tensile strengths, elongation, cold flexibility, standard warranty 10 to 20 years.

System 2B: Torch applied, 2 layer, 6 mm thickness, economical, strong performance properties, standard warranty 10 to 20 years.

System 2C: Liquid applied, high tensile strength, fast curing, flood test after 48 hours, standard warranty 10 to 15 years.

System 2D: Liquid applied, low VOC: low water vapour transmission, standard warranty 10 to 15 years.

System 2E: Liquid applied, low VOC: low water vapour transmission, standard warranty 10 to 15 years.

Delete redundant options.

#### Carpark/vehicle traffic areas schedule

Property	3A	3B	3C	3D	3E
Proprietary system	Durotech	Durotech	Durotech	Durotech	Durotech
Material type	Two-layer, torch-on sheet membrane	Single layer, torch-on sheet membrane	Single layer, self-adhesive, sheet membrane	Solvent free polyurethane, liquid applied membrane	Low VOC solvent based liquid applied membrane
Overlay	Concrete topping slab	Concrete topping slab or asphalt overlay	Concrete topping slab	Concrete topping slab	Concrete topping slab

Property	3A	3B	3C	3D	3E
Primer: Porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime PU Primer	Duromastic ARW	Duroprime PU Primer
Primer: Non-porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime PU Primer	DuroPrime SSP	Duroprime PU Primer
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Sand/cement fillet	Durolasto Tape	Durseal 25LM
Base membrane	Durotorch 3MM	-	-	-	
Top membrane	DuroTorch 4 mm Mineral	DuroTorch Car Park	DuroTorch Superstick	Duromastic P15	Duroproof PPM

A, B, C, D, E: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the Schedule to match those on drawings.

System 3A: Torch applied, 2 layer, 7 mm thickness, suitable for concrete topping over, standard warranty 10 to 20 years.

System 3B: Torch applied, single layer, 5 mm thickness, suitable for asphalt or concrete topping over, standard warranty 5 to 10 years.

System 3C(i): Self-adhesive, single layer, 1.6 mm thickness, suitable for concrete topping over, standard warranty 5 to 10 years.

System 3C(ii): Self-adhesive, single layer, 1.6 mm thickness, suitable for asphalt topping over, standard warranty 5 to 10 years.

System 3D: Liquid applied, high strength, fast curing, suitable for concrete topping over, standard warranty 5 to 10 years.

System 3E: Liquid applied, high strength, fast curing, suitable for concrete topping over, standard warranty 5 to 10 years.

Delete redundant options.

### 4.3 BALCONY AREAS

#### Balcony/terrace areas – tiled/paved schedule

Property	5A	5B	5C	5D	5E
Proprietary system	Durotech	Durotech	Durotech	Durotech	Durotech
Material type	Two layer torch-on, sheet membrane system with screed, tile/paver over	Two layer torch-on, sheet membrane system with screed, tile/paver over	Solvent free polyurethane liquid applied membrane with screed, tile/paver over	Water-based, polymer/cementitious, two part, liquid applied membrane with screed, tile/paver over	Low VOC solvent-based liquid applied membrane
Screed	Screed layer over	Screed layer over	Screed layer over	Screed layer over	Screed layer over
Primer: Porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duromastic ARW	Duromastic ARW	Duroprime PU primer
Primer: Non-porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	DuroPrime SSP Primer Non-Porous	DuroPrime SSP	Duroprime PU Primer
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Durolasto Tape	Durolasto Tape	Duroseal 25LM
Base membrane	Durotorch 3MM	Durotorch 3MM	-	-	
Top membrane	DuroTorch 4 mm Mineral	Durotorch 3MM	DuroMastic P15	Duromastic ACS-3	Duroproof PPM

A, B, C, D: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.



Edit codes in the **Schedule** to match those on drawings.

System 5A: Torch applied, 2 layer, 7 mm thickness, high tensile strengths, elongation, cold flexibility, standard warranty 10 to 20 years.

System 5B: Torch applied, 2 layer, 6 mm thickness, economical, strong performance properties, standard warranty 10 to 20 years.

System 5C: Liquid applied, high tensile strength, fast curing, flood test after 48 hours, standard warranty 10 to 15 years.

System 5D: Liquid applied, low VOC: low water vapour transmission, standard warranty 10 to 15 years.

System 5E: Liquid applied, low VOC: low water vapour transmission, standard warranty 10 to 15 years.

Delete redundant options.

#### 4.4 LANDSCAPED GARDEN

##### Landscaped garden areas schedule

Property	6A	6B	6C
Proprietary system	Durotech	Durotech	Durotech
Material type	Two layer torch-on, root resistant, sheet membrane system with drainage sheet	Two layer torch-on, root resistant, sheet membrane system with drainage sheet	Low VOC solvent based root resistant urethane liquid applied membrane
Primer	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime PU Primer
Base membrane	Durotorch 3 mm	Durotorch 3 mm	Duroproof PU ANTI ROOT
Top membrane	Durotorch Green roof	Durotorch Green roof	Duroproof PU ANTI ROOT
Drainage sheet layer	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags. Edit codes in the **Schedule** to match those on drawings.

System 6A: Torch-on, 2 layer, 8 mm thick, high tensile strengths, elongation, cold flexibility, root resistant sheet membrane, with drainage sheet, landscaping over, standard warranty 10 to 20 years.

System 6B: Torch-on, 2 layer, 7 mm thick, root resistant sheet membrane, with drainage sheet, landscaping over, standard warranty 10 to 20 years.

System 6D: Liquid applied, root resistant membrane, with drainage sheet, protection board, landscaping over, standard warranty 5 to 10 years.

Delete redundant options.

##### Planter box gardens schedule

Property	7A	7B	7C
Proprietary system	Durotech	Durotech	Durotech
Material type	Two layer torch-on, root resistant, sheet membrane system with drainage sheet	Two layer torch-on, root resistant, sheet membrane system with drainage sheet	Polyurethane modified , liquid applied membrane, containing root inhibitors, with drainage sheet
Primer: Porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime PU Primer
Primer: Non-porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Duromastic Hibuild epoxy primer
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Duroseal 25LM
Base membrane	Durotorch 3MM	Durotorch 3MM	-
Top membrane	Durotorch Green roof	Durotorch Green roof	DuroProof PU ANTI-ROOT with Duroseal 25LM joint sealant
Drainage sheet	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain

Property	7A	7B	7C
Protection board	Durotech Protection Board	Durotech Protection Board	Durotech Protection Board

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

System 7A: Torch-on, 2 layer, 8 mm thick, high tensile strengths, elongation, cold flexibility, root resistant sheet membrane, with drainage sheet, landscaping over, standard warranty 10 to 20 years.

System 7B: Torch-on, 2 layer, 7 mm thick, root resistant sheet membrane, with drainage sheet, protection board, landscaping over, standard warranty 10 to 20 years.

System 7C: Liquid applied, root resistant membrane, with drainage sheet, protection board, landscaping over, standard warranty 5 to 10 years.

Delete redundant options.

#### 4.5 BELOW GROUND BASEMENT WATERPROOFING/TANKING

##### Below ground basement waterproofing and drainage/tanking schedule

Property	8A	8B	8C	8D	8E
Proprietary system	Durotech	Durotech	Durotech	Durotech	Durotech
Material type	Single layer, pre-applied, sheet waterproofing and tanking membrane system	Two layer torch-on, sheet membrane system with drainage sheet	Single layer, self-adhesive, sheet membrane with drainage sheet	Water-based, rubberised bitumen, liquid applied membrane with drainage sheet	2 part cementitious co polymer liquid applied membrane with drainage sheet
Primer: Porous substrates	-	Durotech Bitumen Primer	Durotech Bitumen Primer	Diluted Duromastic BLW	Self-priming
Primer: Non-porous substrates	-	Durotech Bitumen primer	-	DuroPrime SSP	Self-priming
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Sand/cement fillet	Durolasto Tape	Durolasto Tape
Base membrane	-	DuroTorch 3MM	-	-	-
Top membrane	Durobentonite 100	DuroTorch 3MM	DuroTorch Super Stick	Duromastic BLW	Duroflex Tank
Waterproofing	Durobentonite 100	-	-	-	-
Drainage	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain

A, B, C, D: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

System 8A: Pre-applied to mechanically bond to poured concrete, water vapour and gas protection, single layer, standard warranty 5 to 20 years. System 8B: Torch applied, 2 layer, 7 mm thickness, high tensile strengths, elongation, cold flexibility, standard warranty 10 to 20 years.

System 8C: Self-adhesive, single layer, 1.6 mm thickness sheet membrane, standard warranty 5 to 10 years.

System 8D: Liquid applied membrane, with drainage sheet, protection board, standard warranty 5 to 10 years.

System 8E: Flexible, dynamic crack accommodating, cement based render waterproofing barrier, for new or old concrete/masonry structures, standard warranty 5 to 10 years.

Delete redundant options.

**Retaining wall waterproofing and drainage schedule**

Property	9A	9B	9C	9D
Proprietary system	Durotech	Durotech	Durotech	Durotech
Material type	Two layer torch-on, sheet membrane system with drainage sheet	Single layer torch-on, sheet membrane with drainage sheet	Single layer, self-adhesive, sheet membrane with drainage sheet	Polyurethane modified, liquid applied membrane, incorporating plant root inhibitors, with drainage sheet
Primer: Porous substrates	Durotech Bitumen Primer	Durotech Bitumen Primer	Durotech Bitumen Primer	Duroprime PU primer
Primer: Non-porous substrates	Index Bitumen Primer	Index Bitumen Primer	Durotech Bitumen Primer	Duroprime PU primer
Joint bond breaker	Sand/cement fillet	Sand/cement fillet	Sand/cement fillet	Duroseal 25LM
Base membrane	DuroTorch 3MM	-	-	-
Top membrane	DuroTorch 3MM	DuroTorch 3MM	DuroTorch Peel n Stick	Duroproof PU ANTI-ROOT
Drainage	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain

A, B, C, D: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

System 9A: Torch applied, 2 layer, bitumen sheet membrane, 6 mm thickness, high tensile strengths, elongation, cold flexibility, economical, standard warranty 10 to 20 years.

System 9B: Torch applied, single layer, bitumen sheet membrane, 3 mm thickness, high tensile strengths, elongation, cold flexibility, economical standard warranty 5 to 10 years.

System 9C: Self-adhesive HDPE sheet membrane, single layer, 1.6 mm thickness, standard warranty 5 to 10 years.

System 9D: Liquid applied, polymer modified bituminous membrane, root resistant, standard warranty 5 to 10 years.

Delete redundant options.

**4.6 OTHER WATERPROOFING APPLICATIONS****Water storage retaining tanks/vessels schedule**

Seamless wet area membranes	10A	10B
Proprietary system	Durotech	Durotech
Material type	Flexible, dynamic crack accommodating, cement based render waterproofing barrier for new or old concrete/masonry structures, potable water approved to AS/NZS 4020	In-depth concrete capillary penetrating, crystal growth sealing, cement based waterproofing barrier for high positive/negative water pressures, potable water approved to AS/NZS 4020
Primer: Porous substrates	-	-
Primer: Non-porous substrates	-	-
Joint bond breaker	-	-
Membrane (UV Protected or Exposed)	Duroflex Tank	DuroGuard Crystalline WPM

A, B: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

System 10A: Flexible, dynamic crack accommodating, cement based render waterproofing barrier, for new or old concrete/masonry structures, standard warranty 5 to 10 years.

System 10B: In-depth concrete capillary penetrating, crystal growth sealing, cement based waterproofing barrier for high positive/negative water pressures, standard warranty 5 to 10 years.

Delete redundant options.

#### Tunnel waterproofing and drainage/tanking schedule

Property	11A	11B	11C	11D
Proprietary system	Durotech	Durotech	Durotech	Durotech
Material type	Two layer torch-on, sheet membrane system with drainage sheet	Single layer torch-on, sheet membrane with drainage sheet	Single layer, pre-applied, sheet waterproofing and tanking membrane	Single layer, self-adhesive, sheet membrane with drainage sheet
Primer	Durotech Bitumen Primer	Durotech Bitumen Primer	-	Durotech Bitumen Primer
Base membrane	DuroTorch 3MM	-	-	-
Top membrane	DuroTorch 4 mm Mineral	DuroTorch 3MM	DuroBentonite 100	DuroTorch Super Stick
Drainage	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain	Durotech DuroDrain

A, B, C, D: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

System 11A: Torch applied, 2 layer, bitumen sheet membrane, 7 mm thickness, high tensile strengths, elongation, cold flexibility, dimpled polypropylene drainage sheet with geotextile fabric, standard warranty 10 to 20 years.

System 11B: Torch applied, single layer, bitumen sheet membrane, 3 mm thickness, dimpled polypropylene drainage sheet with geotextile fabric, standard warranty 5 to 10 years.

System 11C: Pre-applied polyethylene sheet membrane to mechanically bond to poured concrete, water vapour and gas protection, single layer, standard warranty 5 to 10 years.

System 11D: Self-adhesive HDPE sheet membrane, single layer, 1.6 mm thickness, standard warranty 5 to 10 years.

Delete redundant options.

#### Vented waterproofing systems for failed membranes, or heat sensitive substrates schedule

Property	12A	12B	12C
Proprietary system	Durotech	Durotech	Durotech
Material type	Multi-layer torch-on, vented, mineral finish membrane system	Two layer torch-on, vented, mineral finish, sheet membrane system	Multi-layer heat adhered/torch-on, mineral finish, sheet membrane system over failed membranes, or heat sensitive substrates
Primer	Durotech Bitumen Primer	Durotech Bitumen Primer	-
Adhesives	-	-	Contact adhesive or mechanically fixed
Preparation/Vent Sheet	Durosheets Vent Base	Durosheets Vent Base	Durosheets Fleece Back
Middle Membrane	DuroTorch 3MM	-	DuroTorch 3MM
Top Membrane	DuroTorch 4 mm Mineral	DuroTorch 4 mm Mineral	DuroTorch 4 mm Mineral

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the Schedule to match those on drawings.

System 12A: Torch applied, 3 layer, bitumen sheet membrane system, vent layer with base and top layer exhibiting high tensile strengths, elongation, cold flexibility, suitable for damp new and existing substrates, mineral finish, standard warranty 10 to 20 years.

System 12B: Torch applied, 2 layer, bitumen sheet membrane system, vent layer with top layer exhibiting high tensile strengths, elongation, cold flexibility, suitable for damp new and existing substrates, mineral finish, standard warranty 10 to 15 years.

System 12C: Heat adhered/torch applied, multi-layer, bitumen sheet membrane system, preparation layer mechanically fixed or adhered over failed membranes or heat sensitive substrates, base and top layer exhibiting high tensile strengths, elongation, cold flexibility, mineral finish, standard warranty 10 to 20 years.

Delete redundant options.

#### REFERENCED DOCUMENTS

**The following documents are incorporated into this worksection by reference:**

AS 1884	2012	Floor coverings - Resilient sheet and tiles - Installation practices
AS/NZS 3500		Plumbing and drainage
AS/NZS 3500.3	2018	Stormwater drainage
AS/NZS 4020	2018	Testing of products for use in contact with drinking water
AS 4654		Waterproofing membranes for external above-ground use
AS 4654.1	2012	Materials
AS 4654.2	2012	Design and installation

**The following documents are mentioned only in the *Guidance* text:**

AS/NZS 3500		Plumbing and drainage
AS/NZS 3500.3:2015	2015	Stormwater drainage
AS 4586	2013	Slip resistance classification of new pedestrian surface materials
SA HB 197	1999	An introductory guide to the slip resistance of pedestrian surface materials
SA HB 198	2014	Guide to the specification and testing of slip resistance of pedestrian surfaces
CCAA Data Sheet MC	2007	Moisture in concrete and moisture-sensitive finishes and coatings
MBA (NSW)	2017	Guide to external waterproofing - Balcony and decks (Book 2)
NATSPEC DES 001	2016	Slip resistance performance
NATSPEC DES 008	2015	Preparation of concrete substrates
NATSPEC DES 017	2006	Selection of sealants
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC TR 01	2018	Specifying ESD