AS3740 – Interpretation of Internal Wet areas
Waterproofing as it applies to Melbourne, Class 1 buildings

This document is only a guide to help with installation of Bathroom and Laundry waterproofing. We recommend a full study of the Australian Standard AS3740: 2010 be employed. The drawings and references have been supplied by AIW and MBA-NSW publications.

Structure Movement and Waterproofing

Generally movement in the wall and floor structure is caused by contraction, expansion or settlement. Anticipation that structural movement will occur from frame, masonry and panel movement, particularly at joints, which should be catered for in the design. The waterproofing should cover the structural movement, preventing water damage to substrate, adjoining walls, or flooring. Providing a secure ‘envelope’ to protect the wet area.

1. Materials

Materials used in the construction and waterproofing of bathrooms and laundries must be suitable for purpose.

Membranes

Liquid applied waterproofing membranes for this review refer to Class ii and Class iii membranes and approved to requirements of AS4858

Liquid applied membranes must be adequately cured for their intended use.

Water-resistant Substrates

Concrete AS3600, Fibre Cement Sheeting AS2908.2, Water-resistant Plasterboard sheeting AS2588, Masonry AS3700, Flooring grade particle board sheeting AS1860.1 and Structural Plywood AS2269 for use on walls and floors to comply with Australian Standards.

Water-resistant Surface materials

Product surfaces deemed to be water resistant for walls and floors include; Thermosetting laminated sheet AS2924.1, Pre-decorated fibre cement sheeting AS2908.2, Water-resistant flexible sheet (vinyl or linoleum) and tiles used in conjunction with water-resistant Substrates (above), plus Sanitary Grade acrylic wall linings.
Preformed Shower Bases and enclosures

Materials used in the manufacture of prefinished shower bases and enclosures must render the finished product waterproof.

Sealants, Adhesives and Sheet Fastenings

All products need to be compatible with adjacent materials, mould-resistant, waterproof and appropriately flexible.

2. Installation

These notes outline the details for installation of waterproof and water-resistant materials in bathrooms and laundries.

Falls in Floor Finishes

Where required, falls in floor finishes (tiles etc.), outside the shower area, should allow surface water to drain without ponding. Generally the minimum fall to the waste is 1:100

Figures 1 & 2

Shower Floor Falls

Showers with a vertical separation between shower area and wet area the minimum fall is 1:100

Shower floors without a vertical separation the minimum fall is 1:80

Figures 1 & 2

Preformed Shower Bases

Installation of preformed shower bases need to be adequately supported to prevent distortion or cracking and be sufficiently recessed into the wall to allow the water-resistant surface materials to pass down inside the perimeter rebate.

Figure 3
**Edge detail for baths with showers over them**

Baths with an integral vertical upstand lip along the side of the bath walls require to be recessed to enable the junction to be waterproofed. Baths without an integral edge require full waterproofing of the walls and floor area around and under the bath.

Figures 4, 5, 6

**Baths and Spas**

Installation of baths and spas need to be adequately supported to prevent distortion or cracking and be sufficiently recessed into the wall to allow the water-resistant surface materials to pass down inside the rim.

**Perimeter Flashing**

A junction where waterproofing to waterproofing surfaces meet, the waterproofing is to be continuous across the junction and incorporate an appropriate bond breaker.

Where the perimeter flashing to wall/floor surfaces they should be continuously sealed (usually with bond breaker), having the vertical leg a minimum of 25mm above the finished floor level (except doorways) and horizontal leg a minimum width of 50mm.

A water stop with a vertical leg finishing flush with the finished floor level is to be installed at floor level openings. Protecting water migrating to non-wet areas.

Figure 7

**Vertical flashing for shower wall junctions**

Vertical flashing can be external or internal, with a requirement to terminate a minimum of 1800mm above the finished floor level.

**Penetrations in Shower Areas**

Typical penetrations like taps, shower nozzles, recess soap holder etc. are to be waterproofed by sealing with proprietary flange system or sealant.

Figure 8

**Required Floor wastes for wet area Floors**

With a floor waste, the finished floor is to be constructed so that water flows to the waste without being retained on the surface. Refer “Falls in Floor Finishes”.

Figures 9 & 10
Shower Area Step – Down

The highest finished floor level in the shower area is to be stepped down lower than the finished floor level outside the shower.

Figure 11

Shower Area Hob Construction

Suitable materials for the hob construction. Installation starts with all gaps, joints and intersections of the hob substrate to be made flush before application of the membrane system.

Figure 12

Enclosed Shower Area without Hobs or set-down

At the extremity of the shower area:

- Where a shower screen is to be installed a water stop is to be installed with a vertical leg finishing a minimum of 5mm above the finished floor level
- Where the water stop meets the wall, the junction is to be waterproofed.

Figure 13

Shower Area unenclosed

Unenclosed showers are to have a water stop installed with the vertical leg finishing flush with the finished surface of the floor, having junctions waterproofed, in two scenarios:

- When the shower device restricts splashing (shower screen), it is advisable to have a membrane installed below and above the screed to fall.
- When a shower has no restricting splashing (example disabled shower) the water stop is required to be a minimum of 1500mm from the wall connection of the shower rose.

Figures 14 & 15

Bond Breaker Application

Installation of bond breakers of liquid applied membranes should be included at all wall/floor, hob/wall, and movement joints where the membrane is bonded to the substrate.
Class II Membranes: (medium extensibility) Either the membrane will not bond to the tape or the tape will have elastic properties similar to the membrane. Minimum bond breaker tape to bridge joint opening up to 5mm is 35mm.

Class III Membranes (high extensibility) allow the membrane to have even thickness. Minimum bond breaker tape to bridge joint opening up to 5mm is 12mm.

Figure 16

**Vertical membrane termination**

The liquid applied membrane is to be applied over the floor substrate and up the vertical face of the wall:

- Showers with hobs and step downs a minimum height of 150mm above the finished floor level
- Hobless Showers, a minimum height of 150mm above the finished floor level

**Termination to Drainage flange**

The drainage flange is to be installed with the waterproofing membrane termination into the flange to provide a waterproof connection.

Figures 9 & 10

**Termination to Drainage Channel**

The waterproof drainage should be continuous, with the liquid applied membrane covering the drainage channel, with a minimum horizontal termination of 50mm on the horizontal surface.

Figures 9 & 10

**Inspection and Acceptance Test**

On completion of the installation of a membrane system, inspection and acceptance testing must be conducted. In addition to the visual inspection, either the dry film thickness test (DFT) by non-destructive means or a controlled water test for a minimum of 24 hours duration is required.

Figure 17
Figure 1

Working with falls 1:60
Topping floors in mobility impaired wet area
Topping floors in shower areas
Tiling shower floors

Zero or top of floor waste

Distance from floor waste

Working with falls 1:90
Floor tiling for shower bathroom areas

Zero or top of floor waste

Distance from floor waste

Working with falls 1:100
Minimum falls for wet areas outside the shower

Zero or top of floor waste

Distance from floor waste
Figure 2

Hob Shower

- Waterproofed to tap bodies
- Shower floor substrate falls to waste pipe
- Pipe riser flashing collar
- Drainage flange under membrane
- Waterstop angle at door threshold terminates at finished floor tile level
- Finished floor tile height shown dotted, 50mm below top of membrane

Hobless Shower

- Waterproofed walls
- Shower floor falls to waste
- Shower screen position over membrane and waterstop
- Waterproofing membrane and waterstop terminates a minimum of 10mm above the finished floor tiles
- Waterstop angle at door threshold terminates at floor tile height
- Finished floor tile height shown dotted, 50mm below top of membrane
Figure 3

SHOWER BASE INSTALLATION

- Vertical flashing installed at corner intersection overlapping over the shower base wall edges.
- Both wall sheet edges are sealed onto the vertical flashing.
- Flexible premixed water resistant tile grout.
- Waterproofed wall sheet.
- Flexible polyurethane sealant at the junction of the shower base and waterproofing membrane.
- The shower base is installed into the frame rebate.
- Flexible polyurethane sealant at the wall sheet shower base junction.

Waterproof to 1800 mm from finished floor level, 40 mm width either side of junction.
Shower panel sealed at all junctions.

1500 mm measured from the shower connection at the wall.
Seal tap, shower rose and bath spout penetrations.

Waterproof junction width of 40 mm either side of the junction.
Waterproof junction to 1500 mm from the shower connection at the wall and 25 mm above finished floor level.

Floor waste.

Waterproof to 1500 mm from shower connection at wall and grade to a floor waste.

Waterproof bath/wall junction, to make waterproof.
Waterproof junction.
Waterproof bath lip/tile joint.
Figure 4

- Bottom of wall sheet termination height for shower trays
- Vertical flashing shown dotted behind wall sheet lining terminates inside the shower tray
- Wall sheet terminates at the height of the tile bed
- The minimum tile bed thickness at the floor waste is 35mm
- PVC, copper or stainless steel prefabricated shower tray
- Wall sheet lining notched over shower tray edge

Shower and bath taps are installed away from the splash zone of the shower rose

- Waterproofing membrane
- 50 mm above the shower rose
- Membrane under bath area
Figure 5

- Water-resistant surface material of the wall
- Waterproof sealant after tiling
- Shower area supported
- Shower area
- Tiling
- Waterproof sealant
- Wall rebated to accommodate shower base
- Floor substrate
- Notch stud 20 max.
- Water resistant surface material of the wall i.e. Hardys Villaboard to 150 mm above bath
- Support trimmer
- Wall rebated to accommodate rim of bath
Figure 7

- Water resistant blue board
- Water proof junction
- Water resistant board behind tiles
- Concrete
- Door jamb
- Waterproof membrane a min. of 25 mm above the finished floor surface.
- Water stop with base sealed to floor and upstand flush with the finished surface.

Bathroom
Figure 8

- Fibre cement wall lining
- Flexible polyurethane sealant caulked around brass tap body and sheet penetration
- Wall tile
- Liquid applied waterproof membrane applied over the surface of the wall lining
- Tap dress fitting flange
- Spindle
- Brass tap spindle assembly
  NOTE
  The membrane should not be attached to the spindle assembly

- Compatible polyurethane sealant caulked around brass tap body and sheet penetration

- Cement render wall lining
- Polyurethane sealant around brass tap body
- Brass tap body chased into brick
- Cement render recessed around tap body to accept polyurethane sealant
- Wall tile
- Liquid applied waterproof membrane applied over the surface of cement render
- Tap dress fitting flange
- Liquid applied membrane shown dotted applied over the polyurethane sealant
- Brass tap spindle assembly
  NOTE
  The membrane should not be attached to the spindle assembly
The liquid applied or sheet waterproofing membrane terminates down into waste outlet and permanently bonds to the bore of the drainage pipe.

If the drainage riser extends through a concrete substrate grouting around the pipe with epoxy modified mortar mix is required to bridge the gap between the pipe and concrete floor substrate.

NOTE
The bore of the drainage pipe needs priming prior to the application of the membrane.
Frame-less glass shower screen overhangs the stainless steel trench grate.

Fabricated Stainless Steel continuous grate with loose fitted perforated grate. Drainage outlet is incorporated in the fabrication process.

Allow for weep holes in the side of the continuous grate within the tile bed.

The outer wet area tiled floor can be drained to a single floor grate outlet incorporated in the stainless steel continuous grate.

The water stop extends up on the outside of the trench grate.

Flexible sealant

1:60-1:80 fall

The waterproofing membrane is applied before the continuous grate is installed.

Bond breaker (fillet)
Height to be 25 mm above the maximum retained water level or 150 mm above the finished tile level of the floor in the shower area, whichever is the highest.
**Liquid applied membrane typical termination detail of water stop under shower screens with framed surrounds in a hobless shower**

Note: Some shower screen extrusions may not permit the water stop extending into the rebate. A channel section may have to be installed over the water stop with the shower screen extrusion installed on top of the channel.

**Figure 13**

- **1:60-1:80** Fall to floor waste
- **1:80-1:100** Fall to floor waste

- Liquid applied waterproof membrane
- Tile bed (Min 25mm)
- Plastic slip and protection sheet shown dotted
- Floor tile
- Bond breaker (fillet)
- Floor substrate can be concrete or sheet
- Reinforcing mesh in tile bed to AS 3598.1
- Bottom shower screen track
- **10mm Min.**
- Water stop angle glued and screwed to the floor substrate. This can be fitted by the builder, tiler or waterproofing contractor.

**Note:** Seal and glue horizontal and vertical frame/channel junctions with compatible sealant/adhesive to prevent moisture migration out of shower area by drainage or osmosis at the interface of frame/channel. Alternatively, interlocking or overlapping section sizes can provide an over flashing detail.
Figure 14

Shower area

Water stop

Flexible sealant

Membrane

Shower screen track
(If no recess provided to shower screen track provide channel)

1500 mm min. from shower water source

Bathroom area

Aluminium shower frame

Membrane

Floor substrate or bedding

Water stop
Figure 15

Natural stone shaped plinth with a rebate on the underside allowing for the shower water stop to terminate above the finished floor tile level.

Wall tile is notched over the water stop

Silicone sealant

Membrane receiver channel

Water stop above the finished floor tile

Bathroom side
Shower side

Floor tile

10mm Min.

Shower screen panel
Figure 16
<table>
<thead>
<tr>
<th>Wet Film Thickness (microns)</th>
<th>Dry Film Thickness after Full Cure (microns)</th>
<th>100 Microns = .1 mm</th>
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</thead>
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**Figure 17**

**PROPER FLOOD TESTING OF A SHOWER WITH A HOB**

Depth of water inside the shower area
30mm maximum above the finished floor tile

Seal floor waste with PVC tape

Look for signs of surface water between these points

Flood the shower area to 30mm in depth using water from another source, such as a bath. Do not use water from the shower rose.