

Waterproofing Handbook



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"Your Waterproofing Specialists"

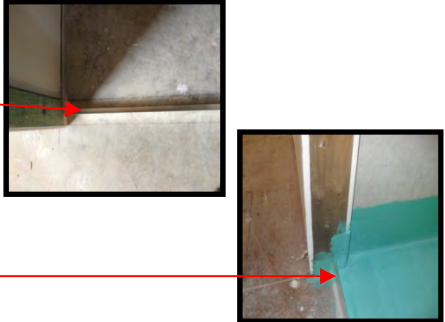

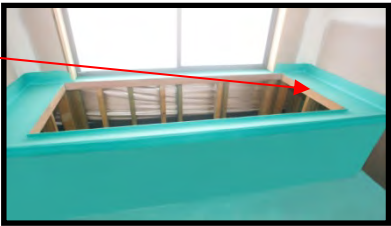


"Your Waterproofing Specialists"

Basic Hand Book for Waterproofing

Builder's/Client Responsibilities		
Item	Instruction	Why?
Safe Working Site		To comply with Government regulations. Providing a safe and clean work site, saves lives, time and money.
Duty Of Care	"The Builder/Client" has a responsibility of Duty of Care on the work carried out on their project/s.	Trades people install the waterproofing system to protect the section from water damage, and upon completion transfer the completed work to the Client to protect the completed work from ongoing Trades.
Instructions	Always give clear instructions.	e.g. Height of hobs or water stop angle
Australian Requirements	"© Standards Australia" AS 3740-2010/Amdt 1-2012.	Now called up in the current National Construction Codes series/Building Code of Australia (BCA).
Booking In Work	<p>5-7 days is required to schedule in work. Clear instructions must be given.</p> <p>Allow for curing of the membrane.</p> <p>For Internal work:</p> <ul style="list-style-type: none"> The waterproofing is to be installed following the Plasterer's AND prior to fix-out and painting. 	<p>To ensure your work requirements can be fulfilled.</p> <p>To help you schedule your ongoing Trades.</p> <p>This enables the waterproofing to be carried out before architraves and cabinets are fitted, thus ensuring all detail work is completed in a timely manner and in the most cost effective way for the Client.</p> <p>Painting over spray contaminates the substrates therefore affecting the adhesion of the membrane to the substrate. The type of paint can chemically affect the membrane reducing its effectiveness, as it will not cure in accordance with the Manufacturer's specifications.</p>
Acceptable Surface	Clean, dry with no contaminates.	<p>Laitance on surface will cause failure of adhesion.</p> <p>Contaminates may interfere with the product performance and cause delamination of membrane</p> <p>Resulting in drummy tiles</p> <p>Divots pond water (non-compliant)</p> <p>A damp surface will diminish the performance of most membranes and may affect adhesion of membranes to the substrate, creating issues with tiles (drummy tiles, etc).</p>
	Smooth surface, lightly sloping to waste with no pitting or holes.	Enables correct thickness of membrane and ensures no ponding water so as to comply with the current National Construction Codes series/Building Code of Australia (BCA).



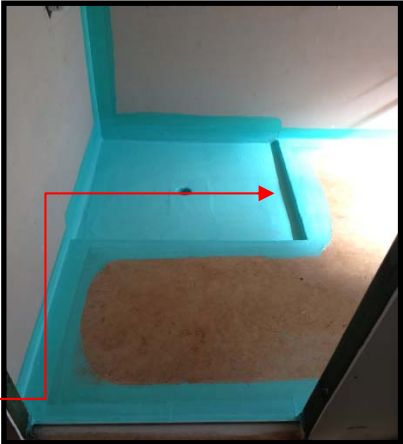
Builder's/Client Responsibilities		
Item	Instruction	Why?
Curing Of Membrane 	Builder/Client to allow adequate time for membrane to cure, prior to tiling. Abide by the Manufacturer's specifications and protect membrane from damage and Trades working over membrane during curing (e.g. dropped tools, base of ladders puncture membrane, etc). NOTE: Wet-seal's membranes require a minimum 48 hours @ 25 degrees, 75% relative humidity prior to tiling. More time is required at lower temperatures.	Uncured membrane will interfere with tile adhesion. Curing time allows planning for ongoing Trades. Under the Building Code, Manufacturer's specifications form part of the legal warranty. Therefore, by not complying with the Manufacturer's specifications, forms a breach of the warranty and most likely will void the warranty. Drying will be adversely affected below 10 °C or when relative humidity is >85%.
Protection Of Membrane	Most membranes need to be protected from damage, traffic or backfill.	Ensures the integrity of the membrane is maintained and remains waterproof. Protects your warranty and forms part of your Duty of Care responsibility. Damage may cause waterproofing to leak. Saves on time and cost.
Specifying Membrane	Use only membranes fit for the purpose and that comply with "© Standards Australia".	Examples: Internal: AS 3740. Called up in current National Construction Codes series/Building Code of Australia (BCA). Is required to be tested to AS 4858. External: AS 4858 and AS 4654 Part 1 & 2 for External Membrane systems.
Waterproofer's Responsibility		
Item	Instruction	
Safety	Comply with all Work, Health and Safety requirements, including site induction.	
Instructions	Follow clear instructions given by the Builder/Client providing they comply with legislative regulations, Installation Procedures Manuals and the current National Construction Codes series/Building Code of Australia (BCA) requirements and "© Standards Australia".	
Waterproofer	Ensure the area to be waterproofed meets the necessary requirements, Manufacturer specifications and the current National Construction Codes series/Building Code of Australia (BCA).	

Waterproofing Information		
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Area To Be Waterproofed	Clean and prepare so waterproofing can be carried out neatly.	A neat area helps with safety and highlights any areas of concern during application.
	Check moisture levels on substrate to be waterproofed.	High levels of moisture may interfere with the integrity of a membrane and most likely cause failure of the waterproof membrane.
	Prime the substrate when required.	Ensures correct adhesion to the substrate and protects the membrane from high moisture levels within the screed or concrete.
	Install bond breakers or caulking, when required. Correct positioning of hobs, angles, etc.	Allows for normal building movement. Acts as a water stop and helps contain the water within the specific area.
Un-enclosed Showers/Disabled Access Showers	For these types of showers, the full wet area floor must be waterproofed. (The entire wet area is treated as a shower). Builder to advise height of water stop.	To stop water migration and comply with the NCC/BCA and ensures the area remains waterproof. To work in with the final finish level.
	<p>The height of the water stop angle at the doorway is required to be equal to the height of the tile (the vertical leg finishes flush with the finished floor level).</p> <p>Placement of angle in the centre of the doorway.</p> <p>The angle must be installed with a compatible caulking compound, and must be installed to ensure it is water tight (completely sealed between water stop and door frame).</p> <p>NOTE: For unenclosed and disabled access showers the Franchisee must install the angle with the membrane terminating at the top of the angle.</p> <p>Normally the angle is installed under the centre of the door by the Wet-seal Applicator*.</p>	<p>Full information is located on Pages 16 and 17 of the "© Standards Australia" AS 3740-2010/Amdt 1-2012 Waterproofing Standard.</p>  <p>Enables a final finish point for carpet/tiles etc, acts as a visual stopping point that can be concealed when the door is closed.</p> <p>Builder to advise of position.</p>
Above Living Areas Showers And Full Floors To Be Waterproofed	<p>First floors and above (above ground level) with living areas underneath must have the full wet area waterproofed (e.g. the shower and remainder of floor area).</p> <p>Concrete floors with living areas below must also be waterproofed.</p>	<p>1st floor area if living area below fully waterproofed to comply with the "NCC/BCA".</p> 
Water Stop Angles Around Podium Baths	<p>AS 3740-2010/Amdt 1-2012 stipulates the support to membrane under the bath lip must protrude 5mm minimum above the finished tile level.</p> <p>NOTE: "© Standards Australia" page 15 of AS 3740-2010/Amdt 1-2012, diagram 3.2 (C) Typical Bath Junctions allows for a support to membrane be used.</p>	<p>To create a water stop.</p> 




Waterproofing Information – continued...

Item	Instruction	Why?
Bath/Wall Junction - Recessed Bath/Wall Junction - Battened	 <p style="margin-top: 10px;">Waterproof sealant to junction between bottom of wall sheet and bath lip.</p> <p>Wall above to be water resistant.</p> <p>Where there is a horizontal sill within this area it must be sealed.</p>	<p>To comply with the current NCC/BCA Table C1 Section, Bath/ Wall Junction/Recessed Bath/ Wall Junction/Battened.</p> <p>To prevent water migrating down on the internal side of the walls to stud and bottom plate. Thus causing damage to the frame.</p> 
Rimless Baths	<p>Unenclosed Showers and Showers which are installed over Rimless Baths (now require 1500mm minimum fully tanked and drained floors). Refer to AS 3740-2010/Amdt 1-2012</p> 	<p>This style of rimless bath can be installed this way with a water stop under the bath lip.</p>
Baths Where An Up Stand Is Unable To Be Installed	<p>“© Standards Australia” AS 3740-2010/Amdt 1-2012, page 13, paragraph 3.7.3.</p> <p>Baths without an integral edge to allow for a vertical up stand for termination of waterproofing require full waterproofing of the walls and floor area including under the bath.</p> <p>Ventilation is required under the bath.</p>	<p>There has been major damage within wet areas where rimless baths have been installed and not fully waterproofed on the walls and under the bath.</p> <p>Assists with evaporation of moisture.</p>




Waterproofing Information – continued...

Item	Instruction	Why?
Penetrations	<p>Pages 18 and 19 of the current AS 3740-2010/Amdt 1-2012</p> <p>(a) Penetrations in shower areas must comply with the following:</p> <ul style="list-style-type: none"> (i) Penetrations for taps, shower nozzles must be waterproofed by sealing with proprietary flange systems or sealants. (ii) When sealing the tap body to the wall, the spindle housing must be able to be removed to enable replacement of washer without damaging the seal. (iii) Any penetration of the mechanical fixings or fastenings through the surface materials must be waterproofed. <p>(b) Tap penetrations on horizontal surfaces surrounding baths and spas must be waterproofed by sealing with proprietary flange systems or by sealing the tap body to the substrate.</p>	<div style="text-align: center;">  </div> <p>To stop water egress into wall cavity, which most likely would cause damage to the studs and bottom plate, etc.</p> <div style="text-align: center;">  </div> <p>To stop water migration to the underside and causing damage and dampness. Water sitting on a surface causes mould, fungi, etc to grow.</p>
Water Stop Angle In Shower	<p>Page 23 of the current AS 3740-2010/Amdt 1-2012, figure 3.6 Typical Hobless Construction, stipulates the angle must protrude 5mm minimum above the finished tile level.</p> <p>Pages 21 and 22 of the current AS 3740-2010/Amdt 1-2012, figure 3.5 (in part) Typical Stepped Down Shower Construction.</p> <p>Requires step down showers to have an angle on the edge of the shower step down. The waterproofing is carried to the top of the angle.</p>	<p>Helps prevent water migration to external side of the shower cubicle.</p> <div style="text-align: center;">  </div>


Waterproofing Information – continued...

Item	Instruction	Why?
Waterproofing A Shower Hob	<p>Page 30 of the current AS 3740-2010/Amdt 1-2012, Figure 3.11 Typical Hob Internal Construction.</p> <p>Timber MUST NOT be used for hob construction!</p> <p>Waterproof membrane must be carried up and over the hob terminating a minimum of 50mm from the external side of the hob.</p> <p>It is IMPORTANT that the shower screen is ONLY fitted on the internal side of the hob to comply with the Building Code.</p>	<p>a) Meets the NCC/BCA and AS 3740-2010/Amdt 1-2012 requirements.</p> <p>b) Hairline cracks in the grouted joints on top of the hob can develop over a period of time and water may migrate through the hairline crack, between the membrane and the underside of the tile and make its way to the lowest point on the surrounding area.</p> <div style="text-align: center;">  </div>
Laundries And Toilets	<p>Waterproof all wall/floor junctions a minimum of 25mm above the finished floor level.</p> <p>Flashing horizontal leg to be not less than 40mm.</p> <p>Water stops are not required in laundries and toilet doorways.</p>	<p>Protects the walls and allows water to migrate out of the vessel creating a visual awareness so the resident can rectify the area of concern, if required.</p> <div style="text-align: center;">  </div>
Height Of Waterproof Membrane	<p><u>Shower area:</u> Waterproof to 25mm above the maximum retained water level or 150mm above the final finish level within the shower area (whichever is the greater).</p> <p><u>Shower area enclosure:</u> Waterproof internal corner to 1800mm and 40mm either side of junction.</p> <p><u>Outside shower and within the wet area:</u> Waterproof floor to wall junction 25mm above the final finish level.</p>	<p>Flashing prevents water migration behind walls and allows water to migrate out of the vessel creating a visual awareness so the resident can rectify the area of concern.</p> <p>Protects the internal corners from water egress as building movement is more prevalent within this section.</p> <div style="text-align: center;">  </div> <p>Helps prevent water migration to behind the wall sheets and damaging the studs and bottom plate.</p>





Waterproofing Information – continued...

Item	Instruction	Why?
<p>Falls And Drainage Flanges</p>	<p>A drainage flange must be installed with the waterproofing membrane terminated into the drainage flange to provide a waterproof connection as per current AS 3740-2010/Amdt 1-2012.</p> <p>The Wet-seal system requires the membrane to terminate into the flange only.</p>	
	<p>The recommended ratio of fall within the shower area is between 1:60 and 1:80 and other areas between 1:80 to 1:100.</p> <p>No ponding on surface.</p>	
<p>Bond Breakers</p>	<p>Different types of bond breakers are required to comply with the current NCC/BCA and AS 3740-2010/Amdt 1-2012 depending on the class of waterproof membrane.</p>	<p>Bond breakers allow for normal building movement without incurring any damage to the membrane.</p> 





Waterproofing Information – continued...

Item	Instruction	Why?
Door Jambs And Architraves	<p>If the base of the architraves terminates under the finished tile height then this must be waterproofed to provide a continuous seal through to the water stop angle.</p> <p>Where possible the base of the architraves should terminate above the finished floor level and a caulking compound can be used to help reduce moisture ingress.</p> <p>If the architraves have not been installed then membrane must terminate not less than 25mm above the final finished floor level and reduced to the height of the water stop angle in the doorway.</p>	<p>To provide a continuous seal to the water stop angle in the doorway.</p> 
Points To Consider	<p>Harmful bacteria can be avoided by placing screed with falls to the outlets first then applying the membrane to the screed and tiling direct.</p> <p>If screed is used then two part water based epoxy should be used to avoid issues with moisture within the screed.</p> <p>Wet-seal use a two part water based epoxy when using the Wet-seal Enviro-coat system.</p>	<p>If the membrane is below the screed and the screed stays damp, harmful bacteria can easily develop.</p> <p>This may create health issues for the persons who live in the home and more serious if the persons living in the home have asthma.</p>
	<p>If a screed is saturated or the tiles are in ponding water, then the adhesive used may fail due to softening.</p>	<p>To avoid this, use adhesives that meet the required classification.</p>
	<p>Fitting water stop angles in bathroom doorways</p>	<p>Large bathroom with a set-down shower/hob shower a good distance from the doorway - the risk is very low.</p> <p>Angle shower set next to the doorway area – the risk is very high.</p> <p>Frameless screen shower areas – the risk is very high.</p> <p>Showers with one frameless screen – the risk is very high.</p>
	<p>Plywood</p>	<p>NOTE: Always use structural plywood not “marine grade”.</p> <p>Only use plywood from recognised quality controlled Manufacturer's as some plywoods may be inferior (e.g. some don't use the correct glue to bond the plywood) and this may have adverse effects on the membrane.</p>

Waterproofing Information – continued...

Item	Instruction	Why?
Australian Requirements	AS4654.2 published 14th September 2012	This Standard is the minimum requirement on decks and balconies in Australia.
<p>Deck Area Waterproofing</p> 	<p>Acceptable surface</p> <p>Ensure the area to be waterproofed is dry and the weather conditions are favourable.</p> <p>Moisture readings on decks are essential for determination of necessary treatment.</p> <p>Correct fall on substrate in accordance with AS 4654.2 2012</p> <p>Water must not be retained on finished floor surface and ideally the fall should be 1:100.</p>	<p>As noted in the Builder's responsibility.</p> <p>Avoids issues with adhesion and drummy tiles.</p> <p>If reading is high, Epoxy Primer may be required to ensure adhesion of membrane to substrate or prevent blistering of liquid within liquid membranes especially on concrete screeded surfaces.</p> <p>A fabric reinforced membrane provides a robust waterproof membrane.</p>
<p>Floor To Wall Flashing</p> 	<p>Height of flashing should comply with AS4654.2 published 14 September 2012.</p> <p>The finished height of the membrane above the finished floor level must be sufficient to prevent water (including wind driven) flowing over the top of the membrane.</p> <p>The height of flashing should be in accordance with AS4654.2 height requirements r levels and wind zones are noted in Table 2.1.</p>	<p>To prevent water entering the building from the finished surface of the deck see Table 2.1 in the informative section of AS 4654.2.</p> <p>AS4654.2 Page 32 Appendix A</p> <p>Vertical upward termination heights Table A1</p>
<p>Differential Height From Internal To External</p> 	<p>Differential height from internal to external minimum of 50mm at FFL is required. * Changes if Cyclonic Zone.</p> <p>NOTE: If level entry is required then a channel drain detail from Page 20 AS4654 2012 is required.</p>	<p>Incorrect differential height.</p> <p>The weep holes from the sill also discharge into tile bed, will not comply to Standards Australia requirements (Standards Australia meet the minimum building requirements).</p> 


Waterproofing Information – continued...

Item	Instruction	Why?
<p>Movement Joints Tiling Standard</p>	<p>AS 3958.1 2007, page 69, 5.4.5 Movement Joints, movement joints are discontinuities in tiled surface, filled with permanently deformable material.</p> <p>Separation from fixed elements to compensate for induced strain.</p> <p>It is essential that movement joints be carried through the tile and bedding 5.4.5.4 Floor/Wall Joints.</p> <p>There are 5 diagram/detail drawings that show the alternative treatments for floor wall joints are shown in Fig 5.3.</p> <p>See AS4654.2 part 2, 2.14 Overlaying Surface Finishes.</p>	<p>The Movement joints help prevent damage to the membrane.</p> <p>Example: Grout cutting the membrane over a period of time, normally within 3-5 years. Pinching of membrane. Tenting of tiles which causes damage to the membrane and cracks tiles.</p> <div style="text-align: center;">  <p>Figure 1</p> </div> <p>The grout restricts the deck expansion joint working correctly and can damage/tear the membrane.</p> <div style="text-align: center;">  <p>Figure 2</p> </div> <p>When movement occurs slowly over a period of time the hard compound from the grout may act similar to serrated knife blade and damage the membrane allowing water ingress.</p>
<p>Drip Angle</p> <div style="text-align: center;">  </div>	<p>A drip angle should be offset greater than 6mm from edge of a deck.</p> <p>The vertical leg must be a minimum of 35mm.</p>	<p>To prevent capillary action to the underside of a deck.</p> <p>Helps prevent staining on walls below caused from effervescent and leaching.</p> <p>Gives tidy finish to edge.</p>
<div style="text-align: center;">  </div> <p>The damage by hand rail/post installer will void warranty.</p>	<p>To ensure warranty is not voided when the installation of posts/penetrations occurs after the waterproofing has been completed, the Builder/Client must have the Wet-seal Franchisee return to detail the post/penetrations.</p>	<p>The membrane must be repaired around the post, or the deck substrate will be damaged.</p>

Waterproofing Information – continued...

Item	Instruction	Why?
<p>Retaining Walls</p> <div style="display: flex; flex-direction: column; gap: 10px;">    </div>	<p>Always provide adequate access.</p> <p>Ensure the area to be waterproofed is dry and prepared to accept membrane and the weather conditions are favourable.</p> <p>Membrane is designed to shed water from the highest point to the lowest point where the subsoil drain directs the water into the storm water drainage system.</p> <p>The membrane needs to be protected.</p> <p>Mortar joints must be stuck flush with the wall.</p> <p>The use of adequate protection board is mandatory. This can be applied by either the Waterproofer or the Builder.</p> <p>Type of protection board is determined by the membrane manufacturer, Architect or type of backfill.</p> <p>Example: Corflute would be acceptable when using sand.</p>	<p>A well prepared surface helps eliminate pin holes.</p> <p>A dry surface enables good adhesion to the surface.</p>
	<p>The wall to footing detail is a vital part of this waterproofing system and quite often not presented to the Waterproofer with adequate working space.</p> <p>Always ensure the expansion joints have been detailed prior to the application of the membrane.</p>	<p>The most critical area where water head pressure tests most systems is the first meter from the base.</p>
<p>Ponds</p> 	<p>Ensure that the surface is clean, dry and that the weather conditions are suitable.</p> <p>Protection of the membrane is required.</p> <p>Determine if chemicals are to be used in the water.</p> <p>NOTE: If ponds are greater than 15m² with a depth greater than 400mm please contact Wet-seal's Technical Department for specifications.</p>	<p>Protection is required because wet weather will effect application of the membrane and may cause issues that can be avoided by good management.</p> <p>Protection of the membrane can be provided by the Waterproofer or the Builder. Protection helps prevent damage to the membrane; repairing membranes can be expensive and hold up ongoing works.</p> <p>Enables the Applicator to determine type of membrane to be used.</p>

Waterproofing Information – continued...

Item	Instruction	Why?
<p>Planter Box</p> 	<p>Check with Builder/Client that the planter box complies with AS 4654-2 and with the Building and safety regulations.</p> <p>Ensure that the planter box has drainage and establish what type of plants or trees are to be planted, type of root system.</p> <p>Check that the surface is clean, dry and that the weather conditions are suitable.</p> <p>Protection of the membrane is required.</p> <p>NOTE: If the planter box/boxes are greater than 15m² with a depth greater than 400mm please contact Wet-seal's Technical Department for specifications.</p>	<p>To ensure it is safe to work within.</p> <p>If there is no drainage then Wet-seal will not undertake the installation of the membrane.</p> <p>Type of root system enables the Applicator to determine what type of membrane or protection will be required.</p> <p>Protection is required because wet weather will effect application of the membrane and may cause issues that can be avoided by good management.</p> <p>To protect the membrane from being damaged and keep warranty valid.</p>