

Basic Hand Book for

Waterproofing




“Your Waterproofing Specialists”

Basic Hand Book for Waterproofing


Builder's Responsibilities		
Item	Instruction	Why?
Safe Working Site		To comply with Government regulations. Providing a safe and clean work site, saves lives, time and money.
Instructions	Always give clear instructions.	
Acceptable Surface	Clean and dry with no contaminants.	Laitance on surface will cause failure of adhesion. Contaminates may interfere with the product performance. A damp substrate will diminish the performance of most membranes and may affect adhesion of membranes to the substrate, creating issues with tiles (drummy tiles, etc).
	Smooth surface with no holes.	Enables correct thickness of membrane and no ponding water.
Curing of Membrane	<p>Builder to allow adequate time for membrane to cure, prior to tiling, as the membrane is required to protect the area from water penetration over a long period of time.</p> <p>NOTE: Wet-seal's membranes require minimum 48 hours prior to tiling.</p>	<p>Abide by the Manufacturer's specifications to avoid damage to membrane.</p> <p>As other Trades are often working in bathrooms, etc it would be advisable to scheduled Plasterers/Painters to complete their work prior to waterproofing. If this is not possible areas where waterproofing has been completed must be protected until waterproofing is fully cured.</p>
Protection of Membrane	Most membranes need to be protected from damage, traffic or backfill.	Damage may cause waterproofing to leak. Saves on time and cost. Duty of care.
Specifying Membrane	Use only membranes fit for the purpose and that comply with Australian Standards.	<p>Examples: Internal: Called up in the BCA. AS 4858.</p> <p>External: AS 4654 Part 1 & 2 for External Membrane systems.</p>
Waterproofers Responsibility		
Item	Instruction	
Safety	Comply with all Occupation, Health and Safety requirements, including Site Induction.	
Instructions	Follow clear instructions given by the client providing they comply with legislative regulations, Installation Procedures Manuals and the current BCA requirements.	
Waterproofers	Ensure the area to be waterproofed meets the necessary requirements.	



Waterproofing Information

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Area to be Waterproofed	Clean and prepare so waterproofing can be carried out neatly.	A neat area helps highlight any areas of concern during application.
	Carry out detail work.	Primer, bond breakers and caulking. Correct positioning of hobs, angles, etc.
Waterstop Angles at the Doorway	It is acceptable and noted in the BCA for a Builder to request, they or the Tiler will install the waterstop angle at the door entrance. The angle must be installed with a compatible caulking compound and must be installed to ensure it is water tight! e.g. Top of tiles equal top of angle.	
Waterstop Angles around Baths	<p>Page 403 of the BCA Volume 2, 2011, Figure 3.8.1.8 Typical Bath Junctions.</p> <p>Stipulates, the angle under the bath lip must protrude 5mm minimum above the finished tile level.</p> <p>NOTE: If AS3740-2010 is called up backing rod may be used in place of angle.</p>	
Penetrations	<p>Page 405 of the BCA Volume 2, 2011:</p> <p>(a) Penetrations of showers 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>	
Water Stop Angle in Shower	<p>Page 413 of the BCA Volume 2, 2011, Figure 3.8.1.11 Typical Hobless Construction: Stipulates the angle must protrude 5mm minimum above the finished tile level.</p> <p>Page 407 of the BCA Volume 2, 2011, Figure 3.8.1.10 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>	





Waterproofing Information – continued...

Item	Instruction	Why?
Waterproofing a Shower Hob	<p>Page 415 of the BCA Volume 2, 2011, Figure 3.8.1.14 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 BCA 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>
Height of Waterproof Membrane	<p>Shower Area: Waterproof to 25mm above the maximum retained water level or 150mm above the final finish level within the shower area.</p>	
	<p>Shower Area Enclosure: Waterproof internal angle to 1800mm and 40mm either side of junction.</p>	
	<p>Outside Shower and within the Wet Area: Waterproof floor to wall junction 25mm above the final finish level.</p>	
Falls and Drainage Flanges	<p>Page 413 of the BCA Volume 2, 2011, Section 3.8.1.21 Membrane to Drainage Connections: Stipulates the drainage riser must be trimmed to the floor level.</p> <p>With all internal burrs removed and membrane to terminate not less than 20mm into the riser.</p> <p>A drainage flange must be installed with the waterproofing membrane terminated at or in the drainage flange to provide a waterproof connection.</p> <p>Wet-seal 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>	




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Bond Breakers	<p>Different types of bond breakers are required to comply to the BCA depending on the class of waterproof membrane.</p>	<p>Class one membranes require a backing rod (minimum 6mm) and a continuous tape to hold in place to allow the membrane to stretch.</p> <p>Class two membranes require flexible sealant or fillet to allow the membrane to stretch.</p> <p>Bond breakers for class three membranes allow the membrane to have an even thickness.</p> <p>Wet-seal have an alternate solution in accordance with the BCA for our class one membrane.</p>
Door Jambs and Architraves	<p>If the base of the architraves terminates under the finished tile height then they must be waterproofed to provide a continuous seal through to the waterstop 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 waterstop angle in the doorway.</p>	<p>To provide a continuous seal to the waterstop 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 style="color: red;">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>
Points to Consider	<p>If a screed is saturated or the tiles are in ponding water than the adhesive used may fail due to softening.</p>	<p>To avoid this, use adhesives that meet the required classification.</p>
Points to Consider	<p>Fitting waterstop 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>
Points to Consider	<p>Plywood</p>	<p style="color: red;">NOTE: Always use structural plywood not “marine grade”.</p> <p>Only use plywood from recognised quality controlled manufacturers 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?
<p>Deck Area Waterproofing</p> 	<p>AS4654.2 published 30th June 2009</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 2009</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>Water must not be retained on finished floor surface and ideally the fall should be 1:100.</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 30th June 2009.</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 a minimum of 100mm on first floor level, height requirements for other levels and wind zones are noted in Table 2.1.</p> <p>Differential height from internal to external minimum of 50mm at FFL is required.</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>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 AS 4654 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>  <p style="text-align: center;">Figure 1</p> <p>The grout restricts the deck expansion joint working correctly and can damage/tear the membrane.</p>  <p style="text-align: center;">Figure 2</p> <p>When movement occurs slowly over a period of time the hard compound from the grout may act similar to serrated knife blade and damages the membrane allowing water ingress.</p>

Waterproofing Information – continued...

Item	Instruction	Why?
<p>Drip Angle</p> 	<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>
 <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>
<p>Retaining Walls</p> 	<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.</p> <p>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>

Waterproofing Information – continued...

Item	Instruction	Why?
<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>NOTE: If ponds are greater than 15 square metres 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.</p> <p>Protection helps prevent damage to the membrane; repairing membranes can be expensive and hold up ongoing works.</p>