

How to Reconstruct, Waterproof & Tile a Shower Recess

INTRODUCTION & SCOPE

This 'How To' brochure details the ideal procedure to reconstruct a domestic shower recess. Included are various surfaces likely to exist in a normal building structure and various types of recess available on the Australian market. If other substrates or shower recess types are your problem simply contact DUNLOP's technical assistance hotline expert advice for your particular requirements.

The reconstruction of a shower recess consists of four distinct stages as follows and each stage is detailed separately in this brochure:-

Preparing the Shower Recess Waterproof Membrane Installation Tiling Installation Grouting the Tiles

PREPARING THE SHOWER RECESS

Preliminary Preparation

Remove shower screen, tap and shower head dressings and any other superficial hardware.

Concrete Floors

Materials Required:

- **DUNLOP PRIMER AND ADDITIVE**
- Pre-mixed sand cement blend
- Stiff bristle brush

Note that 'concrete floors' refers to the base construction material. Cement screed tile beds over timber or fibre cement floors do not constitute a concrete floor.

Remove all existing tiles using a cold chisel and hammer or other mechanical means.

Under the tiles there will likely be a cement screed tile bed into which are shaped the fall to the waste outlet. If this bed is still in

reasonable sound condition it may be Mix the gauging water with the premixed reinstated to a smooth surface with the sand/cement blend to make a stiff mobile correct falls. If the bed is badly damaged in removing the tiles, the bed should be re-

If the shower recess has a hob constructed of lightweight concrete or timber it should be removed and the floor surface ground clean. Brick hobs may be able to be retained and reinstated using a cement slurry and repair mortar described for the reinstatement or replacement of the cement tile bed.

All existing tile adhesive, waterproof membrane and other surface contaminants must be cleaned from the surface. This can be done by grinding or needle gunning or other similar method. It is necessary to remove at least 90% of any coating material, and preferably all material, before going any further.

Once a sound substrate is achieved install a new hob, if applicable, of lightweight concrete bonding the hob with 'No More Nails' or similar to the substrate. The top of the hob should have a slight slope toward in the internal of the shower recess to allow for drainage.

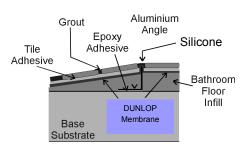
For hobless recesses, fix an aluminium angle along the open perimeter(s) (see diagram) using a two part epoxy adhesive such as 'Araldite' or DUNLOP BUILDIERS ROND

The aluminium angle should protrude to the height of the finished tile surface where no shower screen is to be installed or above the finished height of the tiles, sufficient to fix the screen, in the case where a shower screen is to be installed.

Hobless Shower Detail

Whether the bed is reinstated or replaced the process is the same.

Prepare a gauging solution by mixing three (3) volumes of water with one (1) volume of DUNLOP PRIMER & ADDITIVE.



cement mortar mix.

To reinstate the cement bed thin a small amount of the cement mortar to a liquid consistency and brush this mix into the remaining bed with a stiff bristle brush similar to a nylon nail or scrubbing brush.

Immediately lay the prepared cement mortar to fill all surface deformations and form the falls to the waste outlet such that there is a fall of at least 1 in 60 or 15mm fall over every metre distance from the waste outlet.

To install a new cement bed thin a small amount of the cement mortar to a liquid consistency and brush this mix into the substrate with a stiff bristle brush similar to a nylon scrubbing or nail brush.

Immediately lay the prepared cement mortar to form falls to the waste outlet such that there is a fall of at least 1 in 60 or 15mm fall over every metre distance from the waste outlet.

To finish the cement bed, allow to partially set and firmly rake the surface using the stiff bristle brush to achieve a slightly roughened surface.

Timber Floors

Materials Required

- **DUNLOP Multiprime**
- 75 mm bristle brush

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- DUNLOP UNDERTILE WATER-PROOFING OF DUNLOP EXPRESS WET AREA WATERPROOFING
- 12-15 mm nap mohair roller
- Pre-mixed sand cement blend

Remove all existing tiles using a cold chisel and hammer or other mechanical means.

Under the tiles there will likely be a cement screed tile bed. This bed should also be removed and the timber inspected.

If the shower recess has a hob, it should be removed and the floor surface ground clean.

If the timber has been affected by water or has been weakened in any way it must be replaced. Wet area plywood may be used however high compressed fibre cement is superior for this application. The sheeting should fixed in accordance with the manufacturers recommendations.

When the floor sheeting is removed thoroughly check the underlying support beams for any signs of damage that should be repaired by a licensed builder.

Once a sound solid timber substrate is achieved install a new hob, if applicable, of lightweight concrete bonding the hob with 'No More Nails' or similar to the substrate. The top of the hob should have a slight slope toward in the internal of the shower recess to allow for drainage.

For hobless recesses, fix an aluminium angle along the open perimeter(s) using a two part epoxy adhesive such as 'Araldite'. The aluminium angle should protrude to the height of the finished tile surface where no shower screen is to be installed or above the finished height of the tiles, sufficient to fix the screen, in the case where a shower screen is to be installed.

Brush one coat of DUNLOP $\ensuremath{\mathsf{MUL}}\xspace$ TIPRIME, working well into the surface, to

all floor, hob surfaces and up the walls to a height above the proposed height of the cement tile bed to totally cover the substrate without leaving excessive product over the top of the surface.

Allow the DUNLOP MULTIPRIME to dry (at least 30 minutes) and apply one coat of DUNLOP waterproofing at a coverage rate of 1 litre for every square metre. This coverage rate produces a wet film thickness of 1.0 mm which is about 15 times the thickness of a standard building paint. Apply a heavy coating and layoff the film by lightly rolling over the surface – do not spread the product.

Allow the DUNLOP waterproofing to dry overnight, normally overnight is sufficient except in cold or wet conditions.

Install a new cement bed by laying a cement mortar screed prepared by mixing 3 volumes of water and 1 volume of DUNLOP PRIMER & ADDITIVE and using this blend as the gauging solution with the premixed sand/cement blend to make a stiff mobile cement mortar mix.. Lay the mortar to form the falls to the waste outlet such that there is a fall of at least 1 in 60 or 15mm fall over every metre distance from the waste outlet.

Compressed Fibre Cement Floors

Qualifications

This procedure does not ScyonTM SecuraTM floors or Magnesia type floor sheets.

Materials Required

- DUNLOP MULTIPRIME
- Pre-mixed sand cement blend
- 12-15 mm nap mohair roller
- 75 mm bristle brush

Remove all existing tiles using a cold chisel and hammer or other mechanical means.

Under the tiles there will likely be a cement screed tile bed. This bed should

also be removed and the fibre cement inspected for structural integrity.

If the shower recess has a hob, it should be removed and the floor surface ground clean.

If the fibre cement has been affected by water or has been weakened in any way it must be replaced. Compressed fibre cement shall be used for this application. The sheeting should fixed in accordance with the manufacturers recommendations

When the floor sheeting is removed thoroughly check the underlying support beams for any signs of damage that should be repaired by a licensed builder.

Once a sound solid fibre cement substrate is achieved install a new hob, if applicable, of lightweight concrete bonding the hob with 'No More Nails' or similar to the substrate. The top of the hob should have a slight slope toward in the internal of the shower recess to allow for drainage.

For hobless recesses, fix an aluminium angle along the open perimeter(s) using a two part epoxy adhesive such as 'Araldite'. The aluminium angle should protrude to the height of the finished tile surface where no shower screen is to be installed or above the finished height of the tiles, sufficient to fix the screen, in the case where a shower screen is to be installed.

Brush one coat of DUNLOP MULTIPRIME, working well into the surface, to all floor, hob surfaces and up the walls to a height above the proposed height of the cement tile bed to totally cover the substrate without leaving excessive product over the top of the surface.

Install a new cement bed by laying a cement mortar screed prepared by mixing 3 volumes of water and 1 volume of DUNLOP PRIMER & ADDITIVE and using this blend as the gauging solution with the premixed sand/cement blend to

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make a stiff mobile cement mortar mix.. Lay the mortar to form the falls to the waste outlet such that there is a fall of at least 1 in 60 or 15mm fall over every metre distance from the waste outlet.

Concrete, Brick or Rendered Walls

Materials Required

- Pre-mixed sand cement blend
- DUNLOP PRIMER & ADDITIVE

Remove all existing tiles using a cold chisel and hammer or other mechanical means.

All existing tile adhesive, waterproof membrane and other surface contaminants must be cleaned from the surface. This can be done by grinding or needle gunning or other similar method. It is necessary to remove at least 90% of any coating material, and preferably all material, before going any further.

If the surface of the exposed substrate has been damaged it should be reinstated to a smooth uniform surface.

Prepare a gauging solution by mixing three (3) volumes of water with one (1) volume of DUNLOP PRIMER & ADDITVE. Mix the gauging water with the premixed sand/cement blend to make a stiff mobile cement mortar mix.

To reinstate the wall surface thin a small amount of the cement mortar to a liquid consistency and brush this mix into the remaining bed with a stiff bristle brush similar to a nylon nail or scrubbing brush.

Immediately lay the prepared cement mortar to fill all surface deformations to reinstate a smooth surface.

Fibre Cement Walls

Material Required

- Fibre cement sheets
- Screws or fibre-cement nails or clouts

Remove all tiles and fibre cement surfaces leaving the exposed timber studs and noggins.

WARNING

The instructions described in this bulletin DO NOT apply to Asbestos Cement Sheeting on the walls (or floors). When in doubt about the sheet's age or composition, do not sand, and look for the asbestos warning sticker which may still be on the back of sheets manufactured after the mid 70's. This is an example-



Take care when removing the shower recess walls to avoid damaging the outer wall cladding fixed to the opposite sides of the timber studs.

Ensure all timber framework is sound and if any water damage exists the timbers should be replaced.

Fix new fibre cement sheets to the timber frame walls. Sheets should be preferably screw fixed with the screw heads countersunk to be level with the fibre cement sheet levels. Fibre-cement nails may be used with the top of the heads flush with the surface of the fibre cement cladding.

Sheets should be positioned with a 2-3 mm gap at wall to wall and wall to floor intersections to allow for possible movement.

WATERPROOF MEMBRANE INSTALLATION

QUALIFICATION

This process uses the Reinforcing Matting, not the DUNLOP EXPRESS WET AREA TAPE..

Materials Required

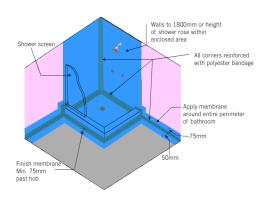
- 100 mm bristle brush
- 12-15 mm nap mohair roller
- (DUNLOP MULTIPRIME
- Neutral Cure Silicone Sealant
- DUNLOP MULTIPRIME
- DUNLOP REINFORCING MATTING

Once all the surface preparation has been completed the method and process of application of the waterproof membrane is the same regardless of the form of construction.

The Australian Standard AS3740-2010/12 and Australian Building Codes (CCA) currently stipulate that a water-proof membrane in a shower recess must be applied to all floor surfaces to a distance of 1.8 metres from the shower head and all wall surfaces to a height of 1.8 metres, or above the shower head.

The waterproof membrane should extend over the hob or aluminium protrusion in the event of a hobless shower recess.

MINIMUM AREA TO BE WATERPROOFED



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Note that an effective waterproof membrane is only achieved with DUNLOP UNDERTILE WATERPROOFING if the total dry film thickness of 1.0 mm is achieved. It is advisable to calculate the total area to be waterproofed prior to commencing the application, and calculate the volume of material to be used by multiplying the square metres by 2 to give the number of litres required. If all material has not been used after two coats, apply further coats until the calculated volume has been applied.

Priming

Allow all cement screeds to cure for seven (7) days before applying the primer.

Alternatively, if the length of the curing time is inconvenient or the substrate surfaces are damp or wet apply one coat of DUNLOP DAMPPROOF to the screeds and damp or wet surfaces. The DUNLOP DAMPPROOF should be applied at a rate of 3 square metres per litre to achieve a wet film thickness of approximately 0.3 milimeters (8-10 times the wet film thickness of a normal building paint). There is no need to prime the surfaces coated with DUNLOP DAMPPROOF.

Ensure all remaining surfaces are clean and dry and apply by brush one coat of DUNLOP MULTIPRIME, working well into the surface, to totally cover the substrate without leaving excessive product over the top of the surface.

Allow the DUNLOP MULTIPRIME to dry (at least 30 minutes) before proceeding.

Bondbreaker Installation

A bond breaker must be installed across all surface joints, including corner joints and sheet joints, and all cracks in the surface less than 2 mm in width. For cracks greater than 2 mm refer to the DUNLOP UNDERTILE WATERPROOFING OR DUNLOP EXPRESS WET AREA WATERPROOFING Product Data Sheet or seek advice from your nearest DUNLOP stockist.

Using a cartridge gun, gun a bead of neutral cure silicone along each corner of all wall to wall joints, wall to floor joints and floor to hob joints. As the silicone is placed smooth the bead to form a thin layer extending 5mm on either side of the joint. This is done using a finger and it can be made easier by wetting the finger prior to smoothing.

Install a bead of silicon to seal the interface of the shower recess floor to the waste outlet pipe.

Membrane Application

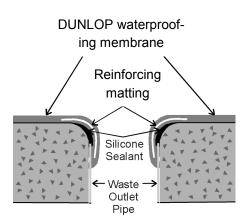
Prepare the DUNLOP REINFORCING MATTING by cutting into lengths to suit each joint or crack. The lengths should be cut approximately 100 mm longer than the joint or crack at each end where they will intersect with another reinforcement length to allow for overlapping. Do not try to reinforce corners with a continuous strip of reinforcing mat. Prepare smaller lengths to extend over the floor surface by 50 mm and down into the waste outlet to overlap the outlet plumbing, by 50mm if possible.

Apply a liberal stripe coat of DUNLOP UNDERTILE WATERPROOFING or DUNLOP EXPRESS WET AREA WATERPROOFING by brush application techniques, equidistantly across all areas where the bond breaker has been installed to extend at least 100mm on either side. Only do a section of joint or crack at a time, installing the DUNLOP REINFORCING MATTING before proceeding to the next section.

The reinforced membrane must also be applied to lap into the waste outlet plumbing. Apply the strip coat to the floor surface extending at least 75 mm around the outlet and down into the outlet to lap over the internal of the waste pipe.

Waste Outlet Detail

While the stripe coat remains wet and fluid lay the pre-prepared length of 190 mm wide strip of DUNLOP REINFORCING



MATTING reinforcing equidistantly across the joint and knead the mat into the stripe coat to fully wet-out the mat and ensuring all air pockets and creases are removed. It is critical that the mat be fully wetted out before any further membrane material is applied over the top of the mat.

Once all the corners, joints and cracks have been reinforced apply, by brush or roller application techniques, one coat of DUNLOP UNDERTILE WATERPROOFING or DUNLOP EXPRESS WET AREA WATERPROOFING to all surfaces to which the membrane is to be applied, at a coverage rate of 1 litre for every square metre. This coverage rate produces a wet film thickness of 1.0 mm which is about 15 times the thickness of a standard building paint. Apply a heavy coating and layoff the film by lightly rolling over the surface – do not spread the product.

Allow the membrane to dry, normally overnight is sufficient except in cold or wet conditions.

Ensure the first coat has dried, particularly in the corners where the membrane has been applied over the bondbreaker or ahs been reinforced with DUNLOP REINFORCING MATTING before applying a second coat of DUNLOP UNDERTILE WATERPROOFING or DUNLOP EXPRESS WET AREA WATERPROOFING in the same manner as the first.

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Ensure that the correct volume of DUN-LOP UNDERTILE WATERPROOFING OF DUNLOP EXPRESS WET AREA WATER-PROOFING as calculated before starting application has been applied to the surfaces. If all the calculated product has not been used apply further coats as required.

TILING INSTALLATION

Materials Required

- 19 x 48 mm battens
- 6 mm notched trowel (for walls)
- 10 mm notched trowel (for floors
- Ceramic Tile Adhesive (see selection guide)
- 3 mm Tile spacers (for walls)
- 5 mm tile spacers (for floors)
- Neutral Cure Silicone

Preparation for Tile Installation

The procedures for tiling are covered in AS3958.1-2007.

Ensure the waterproof membrane is hard dry, particularly in corners where the membrane is applied over bond-breaker or is reinforced.

Place protection boards such as a sheet of masonite or heady cardboard over the floor membrane to protect it from mechanical damage. One hole in the membrane makes the whole membrane system ineffective.

Measure the size of the wall tiles and add 3 mm to each dimension. Measure the height and width of the wall and lightly draw a vertical centerline on each wall.

Calculate the vertical positioning of the tiles by dividing the height of the wall by the height of the tile plus 3mm. Measure the vertical distance of full tiles from the top of the wall and lightly draw a horizontal line at the height of the lowermost tile or part tile.

Temporarily fix a timber batten with the upper edge positioned flush with the line around the wall. Fixing should done by using two nails in each batten fixed into the background stud. The holes created in the membrane shall be repaired at a later stage.

Adhesive Selection

The adhesive selected must be a cement based adhesive and not a mastic or premixed adhesive. Mastic or Premixed adhesives rely on evaporation of the water in the adhesive and when applied between a tile and a waterproof membrane will not dry or be excessively slow to dry. Cement based adhesive consume the water of the adhesive by chemical reaction and do not rely on water evaporation.

The type of adhesive required depends on the construction substrate and the tile selected. The following Table lists the more common adhesives for conventional glazed ceramic tiles but is not comprehensive. Consult DUNLOP technical advice if required to confirm the selection or alternative adhesives suitable for the specific application.

ADHESIVE SELECTION TABLE	
Substrate	Suitable DUN- LOP Adhesives
Concrete, Brick or Masonry Timber (fibrecement over	DUNLOP UNIVER- SAL DUNLOP RAPID- FLEX DUNLOP MULTI- PURPOSE MASTIC DUNLOP WALL & FLOOR FLEXIBLE
sheeted is preferred)	
Fibre Cement sheeting (wall and CFC)	DUNLOP UNI- VERSAL DUNLOP RAPID- FLEX DUNLOP MULTI- PURPOSE MASTIC

Installing the Tiles

Walls

Starting from the centre line on the selected wall and the top of the timber batten, apply the tile adhesive to a section of the wall (approximately 1 square metre) using a 6mm notched trowel. Spread the adhesive uniformly with the trowel at 45° to the horizontal. Before the adhesive forms a skin, fix the tiles starting at the centerline. Press and move the tile thoroughly into the adhesive to achieve a 100% adhesive cover. Position the tiles using 3mm tile spacers and remove all excess adhesive. Only place full tiles and remove the adhesive from the remaining wall surface.

Repeat the process until all full tiles have been bonded to the surface.

Once all full tiles have been positioned the remaining areas can be tiled leaving a 3 mm gap at the corners. Do not flush butt tiles at corners.

The timber battens should be removed, without damaging the membrane further, after the adhesive has set and before the adhesive dries hard.

Floors

Draw a centerline across both directions of the floor intersecting over the waste outlet.

Install the waste outlet cover, with the perimeter corners aligned to the centerlines where applicable, and bond onto the floor surface using the floor tile adhesive.

Cut and lay tiles to fit around the outlet leaving a 5mm gap between the outlet and the tiles. Place the tiles such that the edges align with the centerlines.

Starting from the waste outlet apply the selected tile adhesive to one quadrant of the floor surface using a 10mm notched trowel. Hold the trowel at 45° to the hori-

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zontal to apply a uniform coverage of adhesive.

Press and move the tile thoroughly into the adhesive to achieve a 100% adhesive cover. Position the tiles using 5mm tile spacers and remove all excess adhesive. Leave a 3mm gap between the tiles and perimeter walls or hob in fixing the tiles.

In fixing the tiles ensure the falls are maintained and uniform across the radius from the waste.

Finishing

Allow the floor tile adhesive to dry thoroughly. Avoid, as far as possible, placing weight onto the tiles during subsequent work.

Seal the penetrations through the wall membrane, resulting from the batten nails, with neutral cure silicone.

Cut tiles to fit the lowermost section of the wall surfaces leaving a 3 mm gap between the wall and floor tiles. Fix the tiles around the lower levels of the wall using 3mm spacers top, bottom and sides of the tile.

GROUTING THE TILES

Materials Required

- DUNLOP FLEXIBLE COLOURED GROUT
- DUNLOP PRIMER AND ADDITIVE
- Grouting Trowel or small grouting rubber squeegee.
- Soft lint free cloth
- Rubber sanding block or block of wood

DUNLOP FLEXIBLE COLOURED GROUT is a cement based grout containing additives to resist mould, fungi, and mildew growth.

When using DUNLOP FLEXIBLE COL-OURED GROUT over timber floors and fibre-cement sheeting it is recommended that the powder is mixed with a blend of 50% DUNLOP PRIMER AND ADDITIVE and water to achieve greater flexibility.

Remove all tile spacers and clean out all excess adhesive from grout joints.

Apply the grout to the surface working it well into the joints. Ensure all the joints are totally filled to no less than 3mm depth.

To clean off the excess use a couple of layers of damp soft lint free cloth over a block of timber or rubber sanding block to avoid dragging the grout out of the joint.

After removing the majority of the excess grout allow the remaining to dry and polish off with a soft clean cloth.

NOTES

Araldite[®] is a registered trademark of Selleys Australia and New Zealand.

Hebel[®] is a registered trademark of CSR -Hebel.

Scyon™ Secura™ is a trademark of James Hardie Australia.

All DUNLOP products mentioned in this document are trade names of Ardex Australia Pty. Ltd.

Always refer to the product data sheets for specific usage details.

The information contained herein is to the best of our knowledge true and accurate.

No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of the product application.

Users are asked to check that the literature in their possession is the latest issue.

ARDEX AUSTRALIA PTY LTD.

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GLOSSARY

AS3740-2010/12-Waterproofing of domestic wet areas. This Standard sets out minimum requirements for the materials, design and installation of waterproofing for domestic wet areas. The Standard does not cover situations where flooding of the wet areas occurs through overflowing of vessels and showers or plumbing failures and excludes concrete admixtures or penetrant sealers or similar and decorative coatings. This Standard applies to wet areas in Class 1, Class 2 and Class 4 buildings as defined in the BCA. It also applies to wet areas within other buildings with a similar level of use including soleoccupancy units within a Class 3 build-

AS3958.1-2007-Ceramic tiles - Guide to the installation of ceramic tiles. Provides guidance on the preparation of the background and the fixing and grouting of floor and wall tiles and mosaic tiles. Information for application in swimming pools, gradients on floors, screeds and rendering, and cleaning and maintenance is also included. This Standard provides guidance on the preparation of the background and the fixing and grouting of floor and wall tiles and mosaic tiles. It also provides information on the application of tile in swimming pools, gradients on floors, screeds and rendering, and cleaning and maintenance.

Asbestos cement—The original type of fibre cement invented in 1903 and manufactured using up to 15% Chrysotile (white), Amosite (brown) or Crocidolite (blue) Asbestos. These materials were colloquially called 'Fibro' from the original French name, but later from name of the common Australian made 'Fibrolite' range of products.

Bond breaker-A bond breaker is the layer of separator substance applied in different forms between adjoining solid surfaces. It is used to ensure that there is

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no 'adhesive' bond between the surfaces.

Fibre-cement– The generic name used for all types, but now refers to the non-asbestos materials, which contain cellulose fibres as the re-inforcement. These products originally appeared in 1970s but became the major product in western countries from the 1980s.

Gauging Solution-The gauging solution is the liquid that is mixed with cement, sand, aggregate mix to wet it out. In the case of standard cement it may be water but in many instances the gauging solution is improved by blending water with specialized additives.

Hob vs Hobless shower-The hob is the upstand at the perimeter of a shower, whereas a hobless shower is built without one.

Knead-To massage the mat into the liquid to form an integrated component.

Lay-off-The process of very lightly smoothing a thick layer of a liquid coating without spreading the material over a larger area.

Lightweight Concrete- Aerated concrete such as 'Hebel' block.

Notch trowel-Margin trowels and notched trowels are used to apply adhesive and grout when applying ceramic or stone tile to a surface.



Stripe Coat- A stripe coat is a coat of material that is only applied across a

centerline, such as a corner joint, that extends equidistantly across that centerline

Substrate-The base building material used in the construction of the item to which the coatings or adhesives are applied.

Tile spacer-Small plastic T and + pieces placed betrween tiles to create correct spacing for grout. They shall be removed before grouting.



Waterproof membrane-Is a combination of two words defined in AS3740. A barrier that is impervious to water and the property of a material that does not allow moisture to penetrate through it when tested in accordance with AS/NZS 4858. For purpose of the standard three classes are defined based on ability to stretch under tension, and the DUNLOP membranes in this bulletin are Class III.

Waterproofing system-A combination of elements that are required to achieve a waterproof barrier as required by this standard (AS3740).

Wet area— As defined in AS3740. An area within a building supplied wit water from a supply system, which includes bathrooms, showers, laundries and sanitary compartments and excludes kitchens, bar areas, kitchenettes or domestic food and beverage preparation areas.