

HOW TO RECONSTRUCT, WATERPROOF & TILE A SHOWER RECESS

27 APRIL 2009

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 encountered, simply contact the Ardex office in your state for expert advice about your particular requirements. In all situations discussed in this bulletin, the waterproofing membrane is applied over a mortar screed that has been laid to falls.

Note: during the reconstruction process, you may find small variations in the construction with ‘out of square’ corners or ‘out of plumb’ walls common. The following procedures apply to all situations with only the tile fixing operation requiring care as the tiles may need to be cut by varying amounts to ensure the corner joint of consistent width from floor to full height of the tiles on the wall. 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

Within this brochure various terms may be used that are not common usage so a Glossary of Terms has been included to clarify the processes. If doubt still exists simply contact your nearest Ardex office.

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GLOSSARY OF TERMS

GAUGING SOLUTION

The gauging solution is the liquid that is mixed with cement, sand, and 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.

KNEAD

To knead or massage the reinforcement mat into the waterproofing 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

STRIPE COAT

A stripe coat is a coat of material that is only applied across a centreline, such as a corner joint, that extends equidistantly across that centreline.

SUBSTRATE

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

PREPARING THE SHOWER RECESS

PRELIMINARY PREPARATION

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

CONCRETE FLOORS

Materials Required:

- ❖ ARDEX Abacrete
- ❖ ARDEX CA20P
- ❖ 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 reinstated to a smooth surface with the correct falls. If the bed is badly damaged in removing the tiles, the bed should be removed.

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 ARDEX CA20P or similar to the substrate. The top of the hob should have a slight slope towards the internal of the shower recess to allow for drainage.



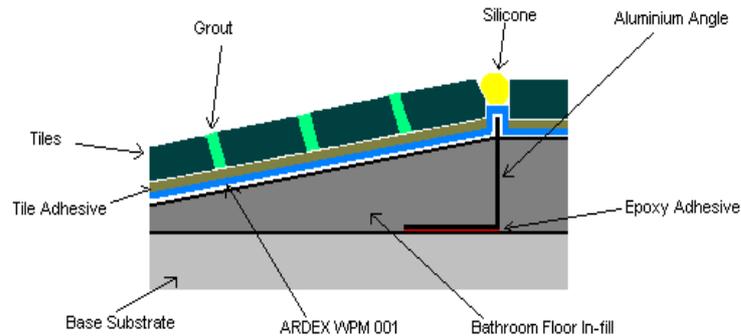
For hobless recesses, fix an aluminium angle along the open perimeter(s), including doorways, (see diagram) using a two part epoxy adhesive such as "Araldite".

For recesses with screens the aluminium angle should extend approximately 5mm above the finished tile level to allow the screen to be attached, while for unenclosed recesses the angle should extend to be flush with the finished level of the tiles.

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 ARDEX Abacrete. Mix the gauging water with the premixed sand/cement blend to make a stiff mobile cement mortar mix.



To reinstate the cement bed thin a small amount of the cement mortar to a liquid consistency and brush this slurry 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 slurry 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 (SHEET TIMBER FLOORS ONLY)

Materials required:

- ❖ ARDEX Multiprime
- ❖ 75 mm bristle brush
- ❖ ARDEX WPM 001 (Superflex Premixed)
- ❖ 12 - 15 mm nap mohair roller
- ❖ ARDEX CA20P
- ❖ Compressed fibre cement sheet
- ❖ ARDEX Abacrete
- ❖ 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 with high compressed fibre cement sheeting. The sheeting should be 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 substrate is achieved install a new hob, if applicable, of lightweight concrete bonding the hob with ARDEX CA20P 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 approximately 5mm above the finished tile surface to allow fixing of the screen. Where no shower screen is to be installed the aluminium angle should be finished flush with the finished height of the tiles.

Brush one coat of ARDEX 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.

Allow the ARDEX Multiprime to dry (at least 30 minutes) and apply one coat of ARDEX WPM 001 (Superflex Premixed) at a coverage rate of 1 litre for every square metre. This coverage rate produces a wet film thickness of 1.0mm. Apply a heavy coating and lay-off the film by lightly rolling over the surface – do not spread the product.

Allow the ARDEX WPM 001 (Superflex Premixed) to dry overnight. Normally overnight is sufficient except in cold or wet conditions.

Ensure the first coat has dried, particularly in the corners where the material is thickest. This coat is not the waterproofing membrane and is designed as an intermediate layer to ensure the mortar screed is bonded to the compressed fibre cement substrate.

Install a new cement bed by laying a cement mortar screed prepared by mixing 3 volumes of water and 1 volume of ARDEX Abacrete 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. This screed is to be a minimum of 15mm in thickness.

Note: Strip timber flooring (e.g. tongue and groove), wet grade plywood or particle board flooring are best covered with fibre cement sheeting after any repairs necessary to ensure that a structurally sound substrate has been completed. This should be followed with a layer of Forticon plastic sheeting, which then has a 40mm thick self-supporting screed reinforced with Y5 welded steel mesh or a rapid cure screed applied, such as ARDEX A38, followed by the membrane and tiles.

FIBRE CEMENT FLOORS

Materials required:

- ❖ ARDEX Multiprime
- ❖ ARDEX CA20P
- ❖ 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 sheet has been affected by water or has been weakened in any way it must be replaced. High compressed fibre cement should be used for this application. The sheeting should be 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 sheet substrate is achieved install a new hob, if applicable, of lightweight concrete bonding the hob with ARDEX CA20P 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". For hobless enclosed recesses, fix an aluminium angle along the screen perimeter(s) using a two part epoxy adhesive such as "Araldite". The aluminium angle should protrude 5mm above the finished tile surface to allow fixing of the screen. Where no shower screen is to be installed the aluminium angle should be finished flush with the finished height of the tiles.

Brush one coat of ARDEX 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 ARDEX Abacrete 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 (minimum 15mm thick) 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 mortar blend*
- ❖ *ARDEX Abacrete*

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 ARDEX Abacrete. 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 slurry 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 spiral profile mails*

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



profile 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 - 3mm gap at wall to wall and 6mm at wall to floor intersections to allow for possible movement.

WATERPROOF MEMBRANE INSTALLATION

Materials required:

- ❖ 100 mm bristle brush
- ❖ 12 – 15 mm nap mohair roller
- ❖ ARDEX Multiprime
- ❖ ARDEX ST neutral cure silicone sealant
- ❖ ARDEX WPM 001 (Superflex Premixed)
- ❖ ARDEX Deckweb reinforcement mat

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 3740 and Australian Building Codes currently stipulate that a waterproof membrane in a shower recess must be applied to all floor surfaces to a distance of 1.5 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.

Timber bathroom floors and bathroom floors having a floor waste shall have the entire floor waterproofed.

Note that an effective waterproof membrane is only achieved with ARDEX WPM 001 (Superflex Premixed) 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 ARDEX WPM 300 HydrEpoxy to the screed or damp surfaces. The ARDEX WPM 300 HydrEpoxy should be applied at a rate of 3 square metres per litre to achieve a wet film thickness of approximately 0.3mm (8 - 10 times the wet film thickness of a normal building paint). Allow the ARDEX WPM 300 HydrEpoxy to dry overnight before proceeding. There is no need to prime the surfaces coated with ARDEX WPM 300 HydrEpoxy.

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

Allow the ARDEX Multiprime to dry (at least 30 minutes) before proceeding.

BONDBREAKER INSTALLATION

A bondbreaker must be installed across all surface joints, including corner joints and sheet joints, and all cracks in the surface less than 2mm in width. For cracks greater than 2mm refer to the ARDEX WPM 001 (Superflex Premixed) Product Data Sheet or seek advice from your nearest Ardex stockist.

Using a cartridge gun, extrude a bead of ARDEX ST 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 6mm 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 silicone to seal the interface of the shower recess floor to the waste outlet pipe.

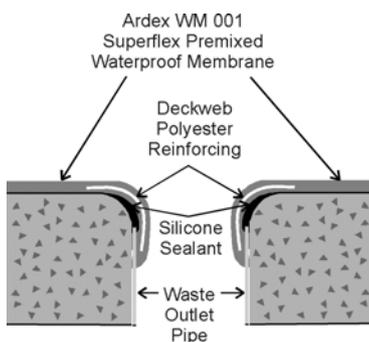
MEMBRANE APPLICATION

Prepare the ARDEX Deckweb reinforcing cloth by cutting into lengths to suit each joint or crack. The lengths should be cut approximately 100mm 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 ARDEX WPM 001 (Superflex Premixed), by brush application techniques, equidistantly across all areas where the bondbreaker has been installed to extend at least 120mm on either side. Only do a section of joint or crack at a time, installing the ARDEX Deckweb reinforcing cloth before proceeding to the next section.

The reinforced membrane must also be applied to lap into the waste outlet plumbing. Apply the stripe 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 190mm wide strip of ARDEX Deckweb 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 ARDEX WPM 001 (Superflex Premixed) 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 1.0mm which is about 15 times the thickness of a standard building paint. Apply a heavy coating and lay-off the film by lightly rolling over the surface – do not spread the product.

Allow the ARDEX WPM 001 (Superflex Premixed) 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 has been reinforced with ARDEX Deckweb mat before applying a second coat of ARDEX WPM 001 (Superflex Premixed) in the same manner as the first.

Ensure that the correct volume of ARDEX WPM 001 (Superflex Premixed) as calculated before starting application has been applied to the surfaces. If all of the calculated product has not been used apply further coats as required.

TILING INSTALLATION

Materials Required

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



❖ *ARDEX ST neutral cure silicone*

PREPARATION FOR TILE INSTALLATION

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

Place protection boards such as a sheet of masonite or heavy 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 3mm to each dimension. Measure the height and width of the wall and lightly draw a vertical centreline 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 be 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 adhesives 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 your Ardex stockist to confirm the selection or alternative adhesives suitable for the specific application.

ADHESIVE SELECTION TABLE	
Substrate	Suitable Ardex Adhesives
Concrete, Brick or Masonry	Abaflex, X77, MPP
Timber	X56
Fibre Cement	Abaflex, X77, X56, MPP

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 centreline. 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 between tiles. 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 centreline across both directions of the floor intersecting over the waste outlet.

Install the waste outlet cover, with the perimeter corners aligned to the centrelines 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 centrelines.

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 horizontal 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 between tiles. 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 ARDEX ST neutral cure silicone.

Cut tiles to fit the lowermost section of the wall surfaces leaving a 3mm 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

- ❖ *ARDEX Abapoxy Grout, ARDEX WA Epoxy Grout, ARDEX FG-8, ARDEX FSDD or ARDEX MG (for natural stone)*
- ❖ *ARDEX Grout Booster*
- ❖ *Grouting trowel or small grouting rubber squeegee.*
- ❖ *Soft lint free cloth*
- ❖ *Rubber sanding block or block of wood*
- ❖ *ARDEX SE or ST silicone sealant*

ARDEX Abapoxy and ARDEX WA are epoxy grouts and resist mould, mildew and fungi growth and are ideally suited to areas such as shower recesses.

ARDEX FG-8 and FSDD grout are cement based and resistant to mould, fungi, and mildew growth. ARDEX FG-8 can be used where gaps between tiles are up to 8mm, whereas ARDEX FSDD can be used for gaps in tiles up to 4mm in width. ARDEX MG grout is a rapid setting grout designed for moisture sensitive tiles and where gaps between tiles are up to 8mm.

When using ARDEX FG-8, FSDD or MG grout over fibre cement floors it is recommended that the powder is mixed with a blend of 80% ARDEX Grout Booster and 20% 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.



When using ARDEX Abapoxy or ARDEX WA grout ensure all the joints are totally filled and only do one area (approximately 1 square metre) at a time before thoroughly cleaning the excess grout from the surface.

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.

When using ARDEX FG-8, FSDD or MG, after removing the majority of the excess grout, allow the remaining grout to dry and polish off with a soft clean cloth.

Once grouting has been completed, all joints around perimeters against walls, columns, penetrations, fittings such as sanitary items and joinery fittings (window and door frames), and at all changes in direction of the substrate (along the line of change wherever changes occur) shall be sealed with ARDEX SE or ST silicone sealant.



IMPORTANT

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application / installation of the products described. Since each project potentially differs in exposure / condition specific recommendations may vary from the information contained herein. For recommendations about specific applications / installations contact your nearest Ardex Australia Office.

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REASON FOR REVISION

Update and review. Next review to be in 24 months from date of issue.

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