



## **SRO929 Waterproofing and/or Tiling on Scyon™ Secura™ External Decks & Balconies**

### **SCOPE**

External Decks & Balconies constructed with the James Hardies Scyon™ Secura™ floor sheeting can be waterproofed and/or tiled with the application defined as either a **water resistant** system over open spaces; or as a **waterproof** deck over habitable spaces. This sheeting must be installed in accordance with the sheet manufacturers' instructions and comply with relevant standards listed in the current National Construction Code (NCC).

### **PREPARATION**

The Scyon™ Secura™ sheeting is 19mm thick fibre cement with a sealed surface for external residential flooring applications. The sheets have a T&G joint along the long edge and can be laid in brick (staggered) bond or in stack (squared) bond. The sheet layout will determine the installation method of the tile finishes. These sheets are fixed to framing set with fall to the outer edges to facilitate drainage and prevent the ponding of water as floor wastes are not to be cut into the middle of the sheets or deck area. (Note: James Hardie recommends fall of 1 in 40 (i.e. 100mm drop in 4m) although a minimum 40mm drop over 4m (i.e. 1:100) is more usual).

The sheeted floor must not deflect in excess of the allowable deflection calculated by the formula "Span divided by xxx" where the span is the distance between the supporting frames in applications where tiles are adhesive-fixed directly to the deck.

- For tiles up to 300 x 300mm, allowable deflection is 'Span divided by 360'
- For tiles up to 500 x 500, allowable deflection is 'Span divided by 500'
- For tiles >500 x 500mm, allowable deflection may be 'Span divided by 750+'

The sheet surface must be dry and free of contaminants. Mechanical fixings (e.g. screws) must be finished flush with the sheet surface and filled over with James Hardie Joint Sealant. Joints between sheets and perimeter joints shall be sealed with James Hardie Joint Sealant or [ARDEX ST](#) Neutral Cure Silicone sealant. The sealant shall be installed equidistantly across each joint.

### **WATERPROOFING AND/OR TILING**

**System 1** – Water resistant deck with tile adhesive fixed directly to the sheeting. The sheets should be fixed in the stack (squared) bond layout with all end joints in line. This joint is filled with a flexible sealant and forms the movement joint in the tile finish as well. Expansion joints are required where tiled floor dimensions exceed 2.7m x 4.5m. There is no applied waterproofing membrane and the tiles are adhesive fixed to the sheeting.

**System 2** – Waterproof deck with tile adhesive fixed to the waterproofing membrane. The sheets should be fixed in the stack (squared) bond layout with all end joints in line. The membrane may be either a) liquid applied system or b) flexible sheet membrane that is compatible with tile adhesives.

**System 3** – Waterproof deck with tiles adhesive fixed to an unbonded topping screed.



The sheets can be installed in either stack (squared) bond or in brick (staggered) bond as an unbonded topping screed will be applied over a double layer plastic (250 -300 micron each layer) slip sheet where the top layer is placed at right angles to the base layer. The topping screed can be one of the following;

### Standard Screed System

The screed shall be composed of 3 to 4 parts (by weight) washed sand 1 part cement and mixed with [ARDEX Abacrete](#) (or [ARDEX WPM 405](#)) liquid additive diluted in water as per the product data sheet.

For unbonded toppings, the mixed mortar can be placed directly onto the slip sheet to approx. 25mm thickness or over an applied membrane. The reinforcing mesh is embedded into the wet mortar with mesh overlaps (approx.150mm) wired together. The remaining mortar is then placed and screeded over the mesh to achieve the required minimum thickness of 40mm.

### Optional Screed System

The [ARDEX A 38](#) and [ARDEX A 48 Rapid Set](#) screeds are engineered screeds that may be used un-bonded over a slip sheet system at a minimum 45mm thickness. The [ARDEX A 38](#) and [ARDEX A48](#) Screeds have a much higher strength than standard sand/cement screeds and they do not require the additional steel reinforcing wire mesh when used as an unbonded screed. In addition, they have rapid drying properties which allow the application of waterproofing membranes after 2-3 days drying. [ARDEX A38](#) and [ARDEX A48](#) must be installed in accordance with the instructions on the product data sheet. *Note: Both the [ARDEX A38](#) and the [ARDEX A48](#) screeds must only be applied as an unbonded screed over ARDEX Undertile waterproofing membranes.*

Application	Falls to Waste	Priming Direct Surface to	Waterproof Membrane	Tile adhesive
<b>System 1</b> Water resistant deck with adhesive fixed tiles	<i>Created by deck construction @1:100 minimum</i>	<a href="#">WPM 300</a> with "sand seeding" or <a href="#">WPM368</a> or <a href="#">P 9</a>	NIL	<a href="#">Abaflex X 77</a> <a href="#">X 18</a> <a href="#">STS8W</a> + <a href="#">E 90</a> <a href="#">Optima X 56</a>
<b>System 2a</b> Waterproofing Liquid membrane with adhesive fixed tiles	<i>Created by deck construction @1:100 minimum</i>	<a href="#">WPM 300</a> or <a href="#">P 9</a> or <a href="#">WPM 265</a>	<a href="#">WPM 001</a> or <a href="#">WPM 002</a> or <a href="#">WPM155 Rapid</a>	<a href="#">Abaflex X 77</a> <a href="#">X 18</a> <a href="#">STS 8W</a> + <a href="#">E 90</a> <a href="#">Optima</a>



<b>System 2b</b> Waterproofing Sheet membrane with adhesive fixed tiles	<i>Created by deck construction @1:100 minimum</i>	<a href="#"><u>WPM 300</u></a>	<a href="#"><u>WA 98</u></a> Adhesive for <a href="#"><u>WPM 750</u></a> and <a href="#"><u>WPM 1000</u></a> membrane	<a href="#"><u>Abaflex X 77</u></a> <a href="#"><u>+E 90 X 18</u></a> <a href="#"><u>+E 90 STS8W</u></a> + <a href="#"><u>E 90 Optima</u></a>
<b>System 3</b> Waterproof deck with unbonded topping screed, tiles adhesive fixed to screed.	<i>Created by deck construction @1:100 minimum</i>	Membrane applications either System 2a or System 2b	Double layer plastic slip sheet under <b>Standard</b> or <b>Optional</b> screeds	<a href="#"><u>Abaflex X 77</u></a> <a href="#"><u>X 18 STS8W</u></a> + <a href="#"><u>E 90 Optima</u></a>

Bonded screeds are not included in this application due to the requirement to maintain sheet joints as movement joints through the screed.

The unbonded topping screed may also be applied directly on the plastic slip sheet with the tiles adhesive fixed as per System 1: or the waterproofing membrane as per Systems 2a or 2b may be applied over the screed prior to adhesive fixing the tiles.

The adhesive fixing of new tiles requires the adhesive layer to be applied in sufficient thickness and coverage to achieve maximum contact between the tile and the substrate. For external floors, AS3958 recommends at least 90% contact. This can be achieved by spreading the mixed adhesive using a suitable notched trowel so the adhesive lines are parallel. Additional adhesive is to be buttered over the back of tiles larger than 400 x 400mm. Each tile is then pressed firmly into the adhesive with a back & forth sliding action to collapse and merge the adhesive lines to achieve maximum contact between the tile and adhesive.

ARDEX generally recommends a (minimum size) 10 x 10mm notched trowel for the adhesive when fixing up to 300 x 300mm sized tiles. For larger tiles, a minimum 12 x 12mm notched trowel is recommended with additional adhesive buttered over the back of each tile. These trowel sizes ensure sufficient adhesive thickness to accommodate limited movement between the tile and the substrate. Ensure the thickness of the adhesive layer under the tiles is a minimum 3mm thick.

### GROUTING

Once the new tile adhesive has dried for 24 hours the tiles may be grouted with a suitable grout. ARDEX grout ranges are as follows;

- [ARDEX FG 8](#) sanded grout for joints from 1 to 8mm and is a general purpose grout available in a range of colours.



- [ARDEX FS-DD](#) un-sanded grout for joints 1 to 4mm. This is recommended for polished tiles with rectified edges as the grout has a smooth finish and is available in a limited colour range.
- [ARDEX WJ 50](#) sanded grout for joints 5 to 50mm.  
*Note; ARDEX cement based grouts may be mixed with [ARDEX Grout Booster](#) for increased performance such as resistance to water penetration, reduced potential for efflorescence, greater strength and flexibility.*
- [ARDEX EG-15](#) epoxy grout for joints from 1.5mm to 15mm is recommended for applications where hygiene is important.

### MOVEMENT JOINTS

Movement joints are to be included in the new tile finish in accordance with the recommendations of AS3958. These joints are installed (but not limited to) in the following locations:

- Over all existing movement joints in the substrate.
- At all internal corners/changes in direction in the plane of the substrate.
- Along all perimeters where the tiles butt against walls and/or built in furniture.
- Around all penetrations through the tile finish.
- At not more than 5m intervals in both directions of a grid pattern.

Movement joints should be at least 6mm wide and are filled with a flexible sealant such as the [ARDEX SE](#) or [ARDEX ST](#) Silicone. Compressible backer rods may be required in deeper joints to maintain the recommended sealant thickness at half the joint width.

### QUALIFICATIONS

Ensure all sheeted decks & balconies, particularly those with an applied waterproofing membrane, have adequate ventilation under the floor to prevent any issues with condensation.

The waterproofing membrane is to turn up at all perimeter walls and turn down any exposed free edge. Where unbonded toppings have been installed, all free edges should have a metal angle to secure the free edge of the topping. This angle would normally be almost as high as the top of the tile.

#### *Disclaimer:*

*The recommendation selected is based upon questions answered on the ARDEX Australia website. This recommendation is designed as a general application for your described situation and should not be considered site specific documentation for general distribution. Always consult the latest relevant ARDEX Technical Bulletins and information on the product packaging and/or product data sheets (available on the ARDEX Website). Australian and other relevant standards should be followed during installation. If you have any further questions or would like further clarification please contact the ARDEX Technical Services Hotline on 1800 224 070 (9am to 5pm Monday to Friday).*