ENGINEERED SOLUTIONS
FOR TILING, FLOORING & WATERPROOFING

SRO957 Tiling on External CFC Sheeted Decks

SCOPE

This recommendation relates to the installation of tile finishes over external decks constructed from standard compressed fibre cement sheeting such as James Hardie Hardipanel™, or CSR Cemintel™. This recommendation does not apply to fibre cement sheeting with an applied surface sealer such as the James Hardie Scyon™ Secura™ sheet.

PREPARATION

External deck construction must comply with the recommendations of AS1684 regarding deflection of the framed construction. The deflection should not exceed the allowable deflection estimated by the formula "Span divided by *xxx*" where the span is the distance between supporting frames.

- 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 600"
- For tiles >500 x 500mm, allowable deflection may be "Span divided by 750+"

Part of the vertical deflection movement may be between bearers and part between the joists that rest on the bearers thus it is important to know the joist spacing to be able to check deflection between these joists.

- Ensure there is adequate ventilation under the sheeted deck to prevent moisture condensation leading to dimensional instability of the floor. The deck shall also include fall (minimum 30mm over 3m) to assist water run-off and prevent water ponding on the deck.
- Ensure the CFC sheet is of suitable thickness as nominated by the sheet manufacturer for the purpose (i.e. more than 15mm thick).
- The sheet must be installed in accordance with the sheet manufacturers' instructions and including the flexible sealant between all sheet joints. These sealant filled joints are to be maintained as movement joints in the tile finish.
- Ensure the surface of the CFC is clean and dry. Remove all contaminants such as debris from other trades and/or paint over-spray by sanding with 80 grit sandpaper. Use sanders equipped with dust extraction systems. Vacuum to remove all dust prior to priming.

WATERPROOFING

Waterproofing of external decks is recommended where the deck is over habitable space and/or timber framing has been used. The recommended membrane systems are:

- **ARDEX WPM750 /WPM1000** Butynol rubber under-tile membrane system. This is the preferred membrane system over sheeted decks. All sheet joints are covered with filament tape prior to application of the membrane. The sheet membrane is glued to the CFC sheet using **ARDEX WPM750** adhesive with all sheet overlaps welded together by accredited applicators using approved hot air welding equipment. With large deck areas, the **ARDEX WPM750** is applied under the rebate/sill for the access door frames with the **ARDEX WPM1000** applied to the main floor areas. All sheet membrane terminations are to be mechanically secured with **ARDEX Pressure Seal** or approved metal flashing.

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- **Ardex WPM155R** or **Ardex WPM002** liquid applied membranes generally used on smaller decks. These membranes are used with the **ARDEX Construction Detail Bandage** over all sheet joints as per Technical Bulletin TB226. All prepared CFC surfaces are to be primed with **ARDEX WPM265** primer and left to dry prior to the application of neutral cure silicone bond breakers to all internal corners. The liquid membranes are applied in a minimum of two coats to achieve the recommended dry film thickness.
- All external deck membrane installations shall comply with the recommendations of AS4654 and include perimeter upturns to 150mm high.

TILING

Once the applied membrane systems have been completed and are fully cured, the tiles may be adhesive fixed using one of the following adhesives;

	ARDEX Preferred adhesives	ARDEX Alternate adhesives
Porous Bodied Tiles Terracotta and Glazed Ceramic	X18 ±E90; X77±E90,	Abaflex, X52, STS8W+E90, Optima,
Glazed Mosaics	X18±E90; X77+E90; Optima,	Abaflex, X52, STS8W+E90, Optima
Dense Bodied Tiles Vitrified/Porcelain	X18+E90, X77+E90 X78+E90	Abaflex, Optima, X52, STS8W+E90,
Natural Stone Tiles (excluding moisture Sensitive tiles)	X77+E90, X18+E90, (WA100 for ARDEX WPM002 only)	STS8W+E90, Optima, X52
Natural Stone Tiles (Moisture Sensitive Tiles)	(WA100 for ARDEX WPM002 only	Refer TB010

The installation of tiles onto substrates such as CFC sheet flooring requires deformable adhesives. In order to achieve the required performance, the mixed adhesives must be applied using 12 or 15mm notched trowels to achieve a continuous layer at least 2.5mm minimum thickness under the tile. AS3958 recommends at least 90% adhesive contact to the tile and the substrate for external decks. 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 across the adhesive lines to collapse and merge the adhesive lines to achieve maximum contact between the tile and adhesive.

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GROUTING

Once the adhesive has dried for 24 hours, the tiles may be grouted with one of the following ARDEX grouts.

- **ARDEX FG8** sanded grout for joints from 1 to 8mm and is a general purpose grout available in a range of colours. In this application it is mixed with 50% **ARDEX Grout Booster**
- **ARDEX FS-DD** unsanded 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. . In this application it is mixed with 50% **ARDEX Grout Booster**
- **ARDEX** WJ50 sanded grout for joints 5 to 50mm. In this application it is mixed with 50% **ARDEX Grout Booster.**

*Note; ARDEX cement based grouts must be mixed with **ARDEX Grout Booster** for increased performance such as resistance to water penetration, reduced potential for efflorescence, greater strength and flexibility. Where the grout booster is not used, there is increased likelihood of the grout cracking and breaking out of the joints.*

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. These include all sheet joints between the CFC Sheets.
- 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** silicone generally with **ARDEX ST Neutral Cure** silicone for natural stone. Compressible backer rods may be required in deeper joints to maintain the recommended sealant thickness at half the joint width.

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).

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