

# TECHNICAL BULLETIN – TB215

## TILING AND WATERPROOFING OVER JAMES HARDIE SCYON™ SECURA™ FLOORING SHEETS

Date, Wednesday, 22 February 2012

### INTRODUCTION & SCOPE

The following document details the recommended systems for waterproofing and tiling in an internal wet area and external balcony floor applications (where a habitable space is below), and also non-waterproofed tiled applications using the correct James Hardie Scyon™ Secura™ flooring product. **It replaces Ardex Technical Bulletin TB193, all versions.**

The systems proposed include a fully compatible waterproofing and tiling system, or tiling system and primer. Movement joints for the waterproofed systems shall be provided in accordance with Australian Standard 3958.1-2007. [Reference is made to James Hardie Scyon™ Secura™ datasheet dated January 2012.](#)

### QUALIFICATIONS

The construction of floors with James Hardie Scyon™ Secura™ interior/exterior sheeting will be fixed strictly as per manufacturer's requirements. This bulletin was prepared with input by James Hardie, and after a laboratory testing program.

James Hardie Scyon™ Secura™ interior/exterior sheets are to be installed with falls to outlets where a waterproofing membrane is to be applied directly over the sheet.

The waterproofing membrane is to be taken a minimum of 150mm up walls to complete the tanking of floor areas in internal situations and shall comply with AS3740-2010/BCA. In external applications, the waterproofing membrane shall be taken a minimum of 100mm up walls to complete the tanking of floor areas as per Australian Standard 4654.2 - 2009. Movement joints shall be placed over sheet control joints and tile surfaces shall be installed in accordance with Australian Standard 3958.1 – 2007 and the Scyon™ Secura™ datasheet [January 2012](#) revision.

### SURFACE PREPARATION

James Hardie Scyon™ Secura™ interior/exterior sheets must be fixed strictly in accordance with the manufacturer's instructions. Mechanical fixings such as screws shall be finished flush with the surface and filled over with James Hardie Joint Sealant. All surfaces should be dry, clean, and free of dust, grease and all loose contaminating materials. Joints between sheets and perimeter joints should be sealed with James Hardie Joint Sealant or a compatible sealant such as polyurethane or a neutral cure silicone. The sealant shall be installed equidistantly across each joint.

### SYSTEM INSTALLATIONS

There four main design systems with a number of variations described:

- a) External (and dry internal) water resistant non-waterproofed, with applied tile finishes (Method 1).
- b) External waterproofed decks (liquid applied or sheet membrane) with applied tile finishes onto membrane (Methods 2 & 3). These are directly applied systems and not free floating.
- c) External waterproofed decks (liquid applied membrane) with a floating sand-cement screed and then applied tile finishes onto screed (Method 5).
- d) Internal wet area floors that are waterproofed with applied tile finishes (Method 4).

*Choice between designs b and c is dependent on sheet layout as specified by James Hardie and not on the methods themselves.*



The primary product criteria are shown in the following table, with specific instructions supplied as text descriptions.

**Table 1. System design**

<b>Application</b>	<b>Creation of falls to waste</b>	<b>Priming direct to surface</b>	<b>Waterproof Membrane</b>		<b>Tile adhesive</b>
Method 1) Water resistant external deck which does not require waterproofing	<i>Created by deck design</i> and construction at 1:100 minimum	Ardex WPM300	N.A.		Ardex Abaflex Ardex X77 Ardex STS8+Ardex E90 Ardex Optima
Method 2) Water proofed external deck – tiles directly bonded to liquid membrane	<i>Created by deck design</i> and construction at 1:100 minimum	Ardex WPM300  (Ardex WPM265)	Ardex WPM001, Ardex WPM002, Ardex WPM155		Ardex Abaflex Ardex X77 Ardex STS8+Ardex E90 Ardex Optima
Method 3) Waterproofed external deck – tiles directly bonded to sheet membrane	<i>Created by deck design</i> and construction at 1:100 minimum	Ardex WPM300	Ardex WA98 adhesive Ardex Butynol sheet membrane		Ardex Optima
Method 4) Internal wet areas with screeds creating falls to waste	Sand-cement screed with Ardex Abacrete  Falls at 1:60 to 1:80 for showers and 1:100 for floors	Less than 7 days screed drying – WPM300  More than 7 days screed drying – WPM265	Ardex WPM001, Ardex WPM002, Ardex WPM155		Ardex Abaflex Ardex X77 Ardex STS8+Ardex E90
<b>Application</b>	<b>Creation of falls to waste</b>	<b>Waterproofing</b>	<b>Screed</b>		<b>Tile adhesive</b>
Method 5) Waterproofed external deck – tiles bonded to a floating screed	<i>Created by deck design</i> and construction at 1:100 minimum	Priming Ardex WPM265 Waterproofing Ardex WPM001, Ardex WPM002, Ardex WPM155	Heavy duty plastic sheeting	Sand-cement screed with Ardex Abacrete*	Priming Ardex Multiprime Adhesives Ardex Abaflex Ardex X77 Ardex STS8+Ardex E90

\* Screeds can also be used to adjust falls as required where deck design has been incorrectly done and falls are not present or are incorrect.

☞ Note: If the Scyon™ Secura™ sheets are damp at the time of installation, for example having been rained on in an external environment, it is recommended that the primer WPM265 is replaced by WPM300 in Methods 2 and 5. WPM300 can be applied over damp surfaces.



## SYSTEM INSTALLATIONS

The following section contains specific instructions for installations of each type.

In all cases the sheets shall be installed to comply with James Hardie Scyon™ Secura™ design and construction requirements. Sheets are to be installed with falls to prevent ponding water and drainage away from the building.

Falls shall be a minimum of 1:100 (i.e. approx 20mm in 2m) for balconies and decks and shall be created by design and construction. Falls are typically between 1:60 and 1:80 for internal wet areas (showers) and 1:100 for general wet area floors and would be created by an installed screed.

### **EXTERNAL BALCONIES AND DECKS (Methods 1-3 & 5)**

#### **Method 1) Tiles directly fixed to non-waterproofed sheets.**

1. Install suitable flashing, ideally prior to the installation of the balcony screen/sliding door.
2. Treat any sheet joints with James Hardie Joint Sealant or neutral cure silicone. All joints shall be carried through the tiled surface as per Figure 17 on page 5 of the Scyon™ Secura™ design instructions (2012 edition).
3. Prepare and seal all wall/floor junctions with a bead of James Hardie Joint Sealant or neutral cure silicone.
4. Nail and screw holes shall be finished flush with the surface and filled over with James Hardie Joint Sealant or equivalent.
5. The sheet surface shall be primed with ARDEX WPM 300 HydrEpoxy at a coverage rate of 3m<sup>2</sup>/L. Allow the WPM 300 to dry, but install tiles within 7 days. Where time is likely to be extended, it is recommended clean dry broadcast sand is spread on the wet WPM300 to act as a bonding bridge.
6. Install nominated tiles using ARDEX Abaflex, X56, X77, STS8 + E90 or Optima. Apply the adhesive to ensure a minimum dry bed of 3mm is achieved using a 10mm x 10mm or 12mm x 12mm notched trowel for floors.

#### **Method 2) Tiles directly fixed to installed liquid applied waterproofing overlying sheets**

7. Follow steps 1 to 4 from Method 1 above.
8. Joints shall be carried through the tiled surface as per Figure 4 and 4B on page 3 of the 2012 Scyon™ Secura™ installation manual.
9. Membrane shall be applied up the step down, and as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
10. Where possible, apply the membrane prior to building divisional walls.
11. Membrane application shall be applied to the entire balcony/deck floor and at least 100mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
12. Membrane shall be applied to the top of parapets and divisional walls, or else a suitable metal capping is installed.
13. The membrane shall be applied down over the front edge of the balcony onto the drip rail.
14. Any gaps around balcony or deck penetrations shall be sealed with James Hardie Joint Sealant or equivalent (compatible with Ardex membranes) prior to membrane application.
15. Membrane shall be applied down into outlets and drains and ensuring excess material is removed.
16. All weep holes shall be above the membrane application area.
17. To the prepared James Hardie Scyon™ Secura™ interior sheet substrate, apply a coat of ARDEX WPM265 water based primer by brush or roller to all areas to be waterproofed including the floor waste. Allow to dry (30 minutes normally). It is recommended that for external sheets the Ardex WPM265 primer is substituted with Ardex WPM300.
18. Prime all exposed PVC pipes, fittings and outlets with a pink plumber's PVC primer.
19. Prime metal surfaces with a suitable metal primer such as an epoxy based non-metallised type.
20. Apply a bead of James Hardie Joint Sealant or other suitable bond breaker along all internal corners (e.g. wall/floor junctions) and sheet joints. This bond breaker should be extended approximately 6mm on either side of the corner or joint.

21. Apply a liberal stripe coat of ARDEX WPM 001, WPM 002 or WPM 155 waterproofing membrane across all joints and corners extending not less than 120mm on either side of the joint or corner and, while the coating remains wet and fluid, lay ARDEX Deckweb matting equidistantly across the corner or joint. Knead the matting into the underlying coating, ensuring there are no creases, fold or air pockets, to thoroughly wet out the Deckweb.
22. As soon as all corners and joints have been reinforced, a full coat of the waterproofing membrane shall be applied to all surfaces to be treated, by brush or roller application techniques, to achieve a wet film thickness of not less than 1.0mm.
23. Allow the preceding coat to cure hard and apply a further coat of the membrane to all surfaces to be treated, by brush or roller application techniques, to achieve a wet film thickness of not less than 1.0mm.
24. Install nominated tiles using ARDEX Abaflex, X56, X77, STS8 + E90 or Optima. Apply the adhesive to ensure a minimum dry bed of 3mm is achieved using a 10mm x 10mm or 12mm x 12mm notched trowel for floors.
25. All control joints in the sheeting must be carried through the surface of the tile bed and filled with sealant as per Figures 4 and 4B on page 3 of the Scyon™ Secura™ design instructions (2012 edition).

**Method 3) Tiles directly fixed to installed Ardex Butynol rubber sheet waterproofing overlying sheets.**

26. Follow steps 1 to 4 from Method 1 on page 3.
27. To the prepared James Hardie Scyon™ Secura™ exterior sheet substrate, apply one coat of ARDEX WPM 300 HydrEpoxy at a coverage rate of 3m<sup>2</sup>/L by brush or roller to all areas to be waterproofed including the floor waste. Allow to cure for 3 days before proceeding.
28. Prime all exposed PVC pipes, fittings, outlets and metal surfaces with ARDEX WA98 Adhesive.
29. Apply a bead of James Hardie Joint Sealant or other suitable bond breaker along all internal corners (e.g. wall/floor junctions) and sheet joints. This bond breaker should be extended approximately 6mm on either side of the corner or joint.
30. Install ARDEX Butynol in accordance with the recommended installation procedure. Ardex Technical Bulletin TB077 – “Application of Butynol and Direct Bonding of Tiles” has more specific guidance.

**Note:** ARDEX Butynol is only supplied to accredited waterproofing applicators.

31. Tile installation must conform to the requirements of the Australian Standard AS3958 - 2007. All exposed surfaces of the Butynol should be thoroughly solvent cleaned using ARDEX WPM 290 (WA98S) solvent or equivalent to remove all traces of surface contaminants including residual rolling oils from the manufacturing process. Allow to dry before proceeding.
32. Lay the tiles using ARDEX Optima adhesive applied to the membrane surface using a 12 mm notched trowel to achieve a dry bed thickness of not less than 2.5 - 3mm.

**Method 5) Tiles directly fixed to installed self supporting sand-cement screed overlying liquid applied waterproofing applied onto the sheets.**

This application follows the installation processes as described in Method 2 for the installation of the membrane system directly onto the sheet surface. The membrane is then overlain with a floating screed, and the tile bed. As noted in the Scyon™ installation manual, this design is required for the *staggered sheet laying pattern*, but also has the side effect of reducing the number of joints in the tiled surface as they no longer have to coincide with the sheet joints.

33. A sheet of heavy duty plastic sheet, 0.2-0.3mm thick of the type used as an under concrete slab membrane is laid over the membrane.
34. Install a screed bed over the plastic sheeting by laying a sand-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 a minimum of 40mm thick with 75mm x 75mm x 2mm welded re-inforcement mesh, making sure that pre-existing falls are maintained, or where necessary to adjust falls, form the falls to the drainage such that



there is a fall of at least 1:100 to drainage. Ensure that any outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.

35. Allow the screed to dry for seven days prior to priming with ARDEX Multiprime.
36. Install nominated tiles using ARDEX Abaflex, X56, X77, STS8 + E90 or Optima. Apply the adhesive to ensure a minimum dry bed of 3mm is achieved using a 10mm x 10mm or 12mm x 12mm notched trowel for floors.
37. Expansion joints shall be installed in the tile surface in accordance with AS3958-2007.

#### ***INTERNAL WET AREAS***

##### **Installation of waterproofing and tiles for internal showers and bathrooms (Method 4)**

38. Avoid sheet joints in shower recess floors. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with James Hardie Joint Sealant or other suitable sealant.
39. Suitable brick/concrete hobs shall be used (do not use timber), and the top of the hob should not slope outwards.
40. Install a cement bed in the shower recess 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. Apply this mortar over a bonding slurry consisting of 3 volumes cement mixed with 2 volumes Abacrete broomed over substrate. This mortar must be applied to the wet bonding slurry. 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. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
41. Nail and screw holes shall be finished flush with the surface and filled over with James Hardie Joint Sealant or equivalent.
42. Perimeters of taps, shower outlets and waste outlets shall be sealed with a neutral cure silicone sealant.
43. A bead of neutral cure silicone sealant shall be applied to all horizontal and vertical corners, and spread to 6mm on either side of joint.
44. A bead of neutral cure silicone sealant shall be applied to the junction of the hob or angle and walls, and spread to 6mm on either side of the joint.
45. Waste outlets shall incorporate a puddle flange or similar in accordance with AS3740 - 2004 and the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the floor.
46. The waterproofing membrane shall be applied to the entire shower recess floor and down into the waste or drainage flange. The membrane shall be applied over the hob and at least 150mm beyond the outside edge of the hob (ideally to entire wet area floor).
47. The waterproofing membrane shall be applied 1800mm up the walls or the height of the shower rose within the shower recess.
48. The shower screen shall be installed to inside edge of the hob.
49. Install membrane and adhesive systems as per steps 16-24.

#### ***Grouting & Sealants***

50. All joints up to 8mm wide may be grouted with ARDEX FG8 cement based grout mixed with ARDEX Grout Booster or ARDEX Abapoxy or WA epoxy grout. Joints from 5mm to 50mm wide may be grouted with ARDEX WJ50 cement-based grout mixed with ARDEX Grout Booster.
51. All grouting is to commence only after the adhesive has fully cured. After mixing the grout in accordance with the instructions, work it well into the joints ensuring there are no voids under the grout. Apply the grout to a small area of approximately one (1) square metre at a time and clean all excess grout from that area prior to proceeding. Only mix small quantities of the grout at a time to enable workability within the pot life of the product.
52. When using ARDEX Abapoxy, cleaning the excess grout from the surface should be carried by the applicator as he works. The surface should be finally cleaned using a clean wet

- scourer to remove all remaining excess material from the joints and the tile surfaces followed by wiping with an absorbent material to remove any residual material.
53. Finishing the Ardex cement based grouts should be carried out in the normal fashion prior to allowing any residual grout film to dry before polishing to remove. When the cement based grouts have been mixed with ARDEX Grout Booster, adding a small amount of methylated spirits to the wash water may assist with cleaning.
  54. Provide movement joints in accordance with Australian Standard AS3958.1 - 2007. Joints are to be placed along all perimeters against walls, columns, penetrations, fittings such as sanitary items and joinery fittings.
  55. ARDEX SE or ARDEX ST silicone sealants should be used for movement joints, and corners (wall to floor). Where possible ARDEX SE or ARDEX ST silicone should be at a 2:1 ratio (width: depth). For internal joints the width and the depth of the joint should be a minimum 6mm, and for external joints 10mm. For joints greater than 10mm deep a backing rod should be used.
  56. Joints and surfaces must be dry, clean and free from contaminants. When using over unglazed porous tiles mask the joint edges with tape. Clean off any excess whilst the silicone is still wet.

NOTE: A simplified version of this bulletin is also available – TB215-001Abr.

**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 for specific applications/installations contact your nearest Ardex Australia Office.

**DISCLAIMER**

The information presented in this Technical Bulletin 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 a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

**REASON FOR REVISION - ISSUER**

Changes made to the James Hardie Scyon Secura installation manual. In particular changes to Figs. 4 and 4B. This document is a new bulletin to replace all versions of TB193.

**DOCUMENT REVIEW REQUIRED**

**24 MONTHS FROM ISSUE**

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