TECHNICAL BULLETIN – TB215

TILING WITH AND WITHOUT WATERPROOFING OVER JAMES HARDIE SCYON™SECURA™ FLOORING SHEETS

Date, Thursday, 22 December 2016

INTRODUCTION & SCOPE

The document TB215 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.

This version replaces all parts of ARDEX Technical Bulletin TB215.001.

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, AS3740—2010/12 and AS4654.2–2012.

Reference is made to James Hardie Scyon™ Secura™ datasheets and literature issued **between 2013-2016**.

Note that this bulletin is currently specific to Australian conditions since the New Zealand has its own different requirements for external deck and waterproofing, and James Hardie has their own Scyon™ Secura™ literature for New Zealand as well.

This bulletin differs from previous versions because it has been divided into multiple parts based on the systems according to the intended usages.

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. *We recognise that at times the sheets are NOT laid correctly with fall incorporated in the floor itself, and will provide alternate 'work around' systems, however these are not the preferred method of James Hardie*.

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 design criteria for external Scyon™ Secura™ sheets requires strip drains and not drains inserted into the sheet field.

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 and the NCC (National Construction code). 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 4654.2-2012.

Movement joints shall be placed over sheet control joints and tile surfaces shall be installed in accordance with Australian Standard 3958.1–2007, the James Hardie Scyon™ Secura™ datasheet and Installation manuals carrying the dates November 2013 and September 2015.

SURFACE PREPARATION

James Hardie Scyon™ Secura™ interior/exterior sheets must be fixed strictly in accordance with the manufacturer's instructions.

Again, we stress that the James Hardie design intent is to create falls in the subfloor.

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. The sealant shall be installed equidistantly across each joint. *Where this is to act as a bond breaker it must be cured for approximately 48hrs because applied membranes do adhere to partially cured urethane sealants*.

SYSTEM INSTALLATIONS

A large selection of possible design variants based on the sheet layout (squared vs staggered), external vs internal, wet area vs dry area, and type of membrane being considered (liquid applied vs sheets):

a. External (and dry internal) water resistant non-waterproofed, with applied tile finishes
b. External waterproofed decks (liquid applied or sheet membrane) with applied tile finishes onto membrane. These are directly applied systems and not free floating.
c. External waterproofed decks (liquid applied membrane or sheet membrane) with a floating sand-cement screed and then applied tile finishes onto screed.
d. Internal dry areas floors that are tiled (with and without sound deadening or decoupling)
e. Internal wet area floors that are waterproofed with applied tile finishes.
f. Internal dry area floors that are not waterproofed and have smoothing cements applied (for resilient or carpet flooring).
g. Internal wet area floors that are waterproofed and have smoothing cement applied with resilient flooring.

Choice between designs is dependent on sheet layout as specified by James Hardie and whether or not falls have been correctly made. They are not dependent on the methods themselves. The different sections of TB215.002 will given details for each type of system.

NOTES

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.

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 sheets be allowed to dry. However where this is not feasible, the primer ARDEX WPM265 is replaced by ARDEX WPM300 since WPM300 can be applied over damp surfaces.

For external decks, the James Hardie recommendations are the use of perimeter strip drains and not sheet field centred drains.

FIVE BASIC STEPS FOR TILING

In the general sense the application can be broken down into five steps:

1) Clean and prepare the sheet surface, then apply the primer
2) Place the bond breaker system and initial re-inforcement for the membrane
3) Apply the membrane as required
4) Apply a screed system as required
5) Apply the tile adhesive and tiles, then the grout.

The following bulletin contains tables and schematics, and text which describe and show the generalised systems in various situations. The groupings are;

- Section 2 external applications for direct and indirect tiling,
- Section 3 internal wet and dry area applications for direct tiling,
- Section 4 internal wet area applications for indirect tiling,
- Section 5 internal applications for resilient and textile flooring.

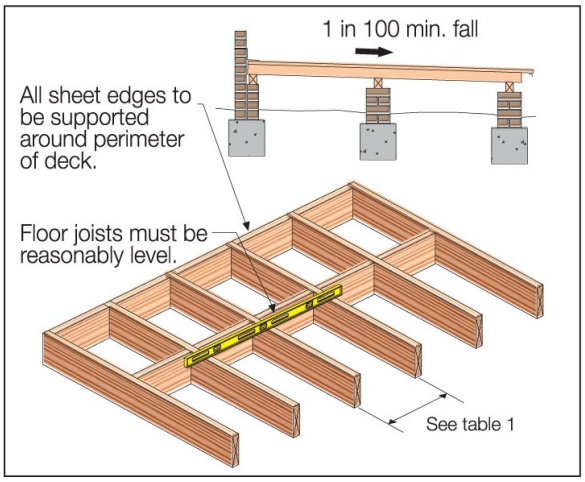


FIGURE 1 FRAME PREPARATION

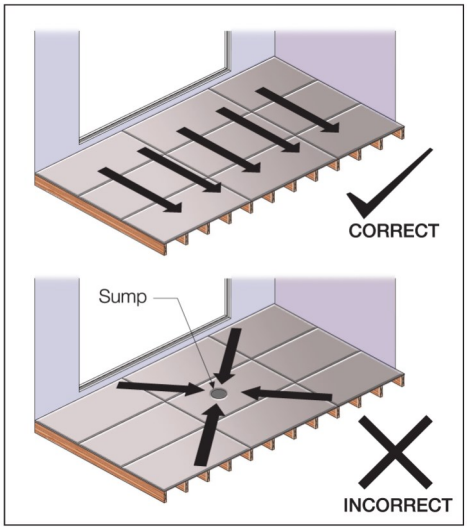


FIGURE 2 DRAINAGE

These two figures (1 & 2) comes from the James Hardie Scyon™ Secura™ installation external flooring manual February 2016 version (© James Hardie Australia) and depict the required creation of falls in the deck and also the requirement that drainage is NOT placed in the sheet field for external decks..

Squared Sheet Layout: Tiled Direct

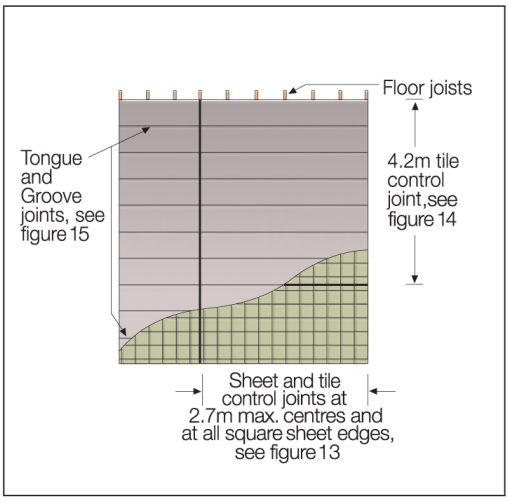


FIGURE 12 SQUARED SHEET LAYOUT

Staggered Sheet Layout: Mortar Bed

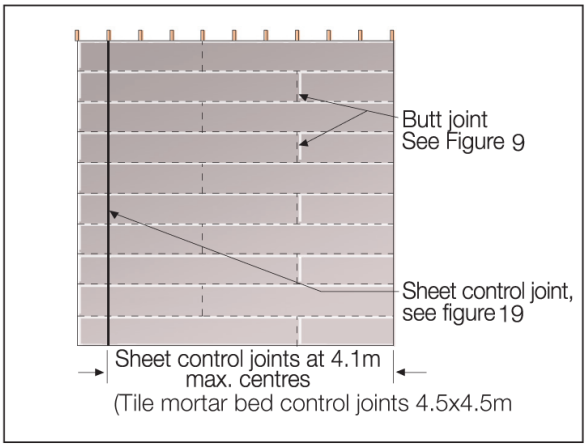


FIGURE 18 STAGGERED SHEET LAYOUT

These two figures (12 & 18) comes from the James Hardie Scyon™ Secura™ installation external flooring manual February 2016 version (© James Hardie Australia) and depict the required sheet lay out patterns for nominal direct tile bonding (squared layout) and where a mortar bed is required to be placed over the sheets before tiling (staggered layout).

Diagram 1. Schematic explaining the rationale behind have correct falls on a deck, and the advantage in creating falls with the sheet construction as opposed to simply with a screed.

In this case the membrane is placed on the sheet surface and then covered with a slip sheet.

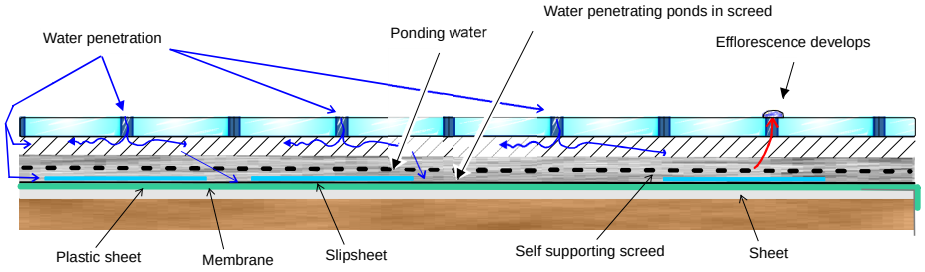
The first case 1.1 shows a common enough situation where falls are not correct. Apart from problems with water flooding of the deck, ponding water can lead to problems with efflo-rescence and dampness.

The second case 1.2 shows falls created in the screed. This is a typical approach used for many years. The main here is that moisture can lie on the basal sheet/membrane, and whilst not a problem for leakage, again can lead to efflorescence.

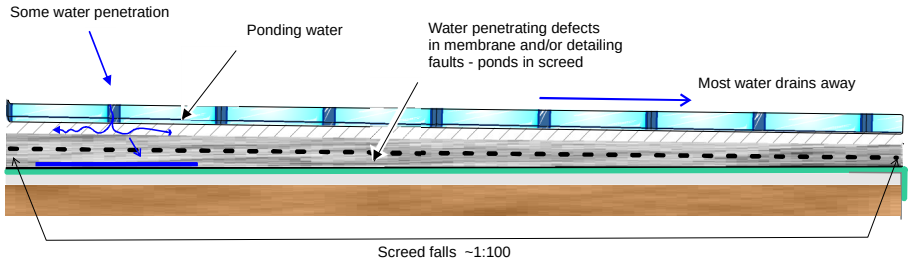
In the third case 1.3, where decks are sloped to falls, moisture then drains away at all levels and reduces dampness and the risk of efflorescence.

A final scenario 1.4 adopted by some is to place another membrane above the screed which eliminates all potential for moisture problems.

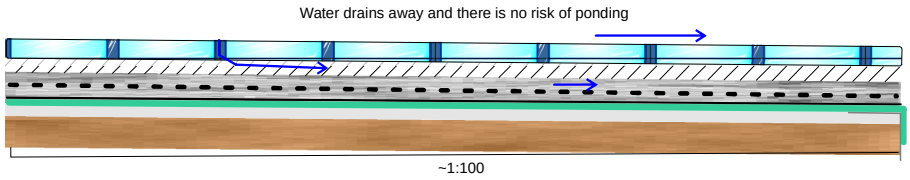
1.1 Falls not correctly formed by sheet placement and/or screed



1.2 Falls created in screed but not in the sheeting surface



1.3 Falls are correctly formed by sheet placement



1.4 Dual membranes in place

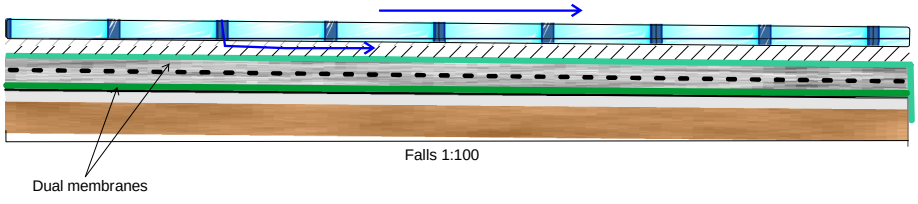


Diagram 2. Direct tiling onto external deck with squared sheet pattern no liquid applied sheet membrane. Falls are created in the deck construction. Individual applications need to confirm requirements re NCC and AS4654 for this situation.

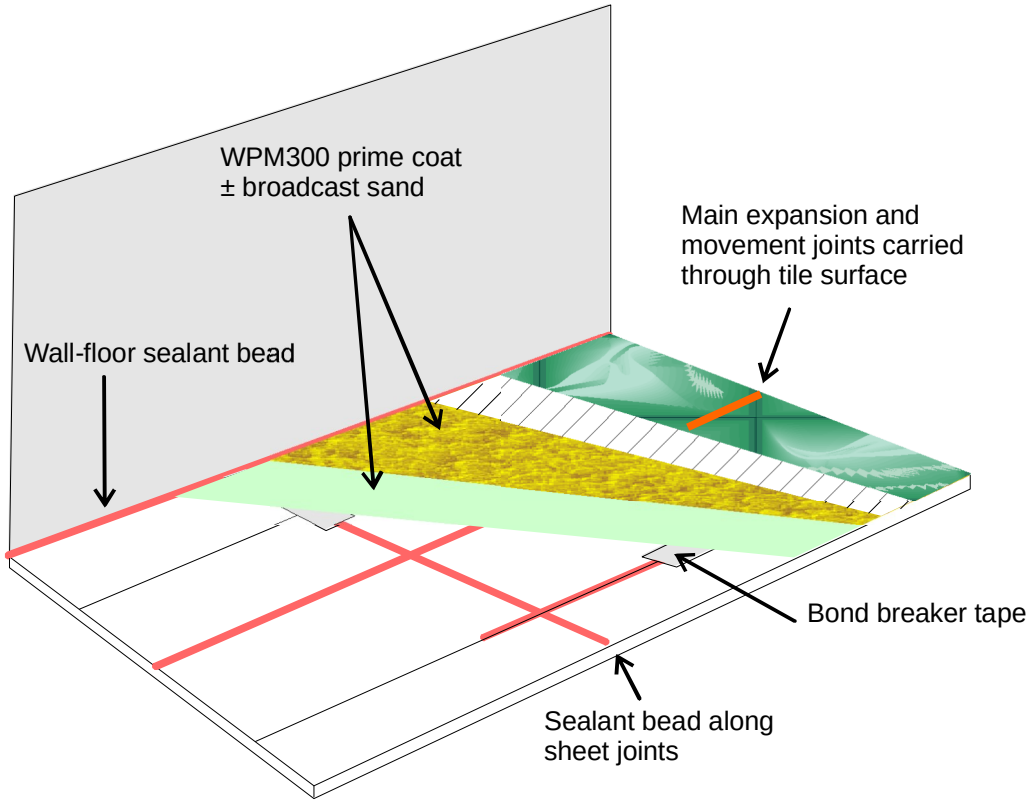


Diagram 3. This is the most common application ARDEX encounters. Direct tiling onto external deck with squared sheet pattern and a liquid applied membrane. Falls are created in the deck construction.
Note—Figure 13 and 14 in the 2016 Scyon™ Secura™ manual show bond breakers above and below the membrane over sheet joints and movement joints. ARDEX has no objection to this difference in the system.

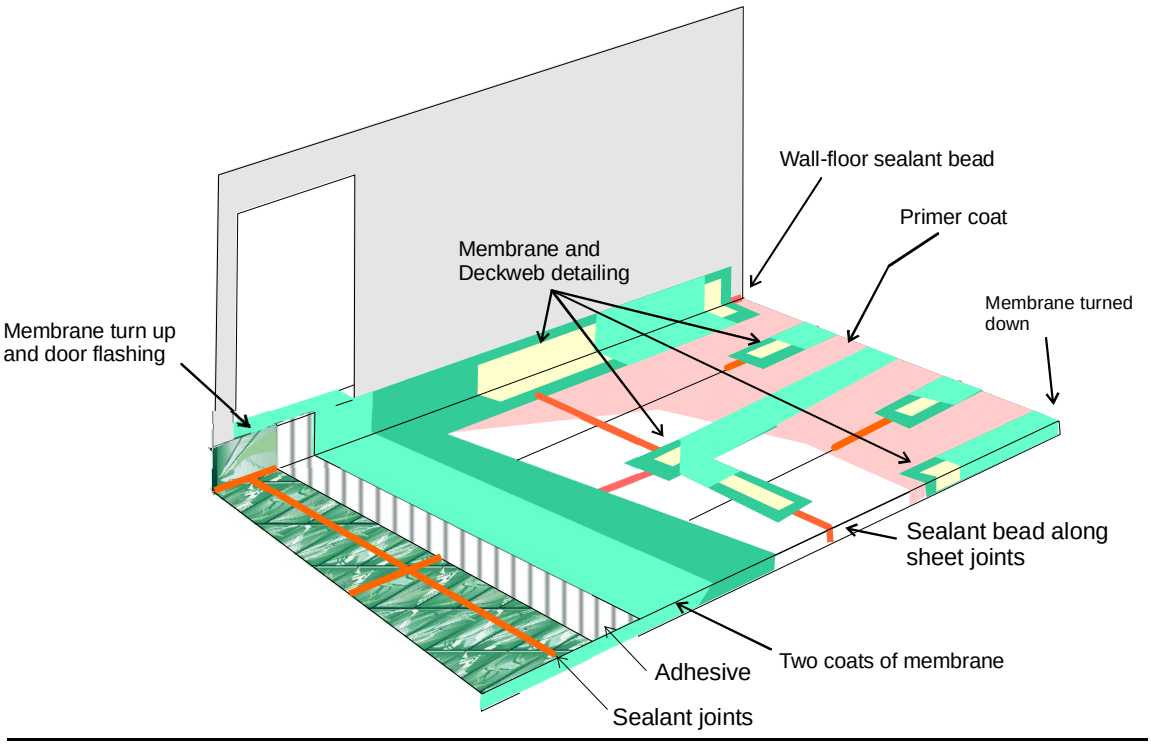


Diagram 4. An example of an external deck with falls created in the structure and water-proofed with a sheet membrane and direct tiling. Sheet lay up pattern is squared format.

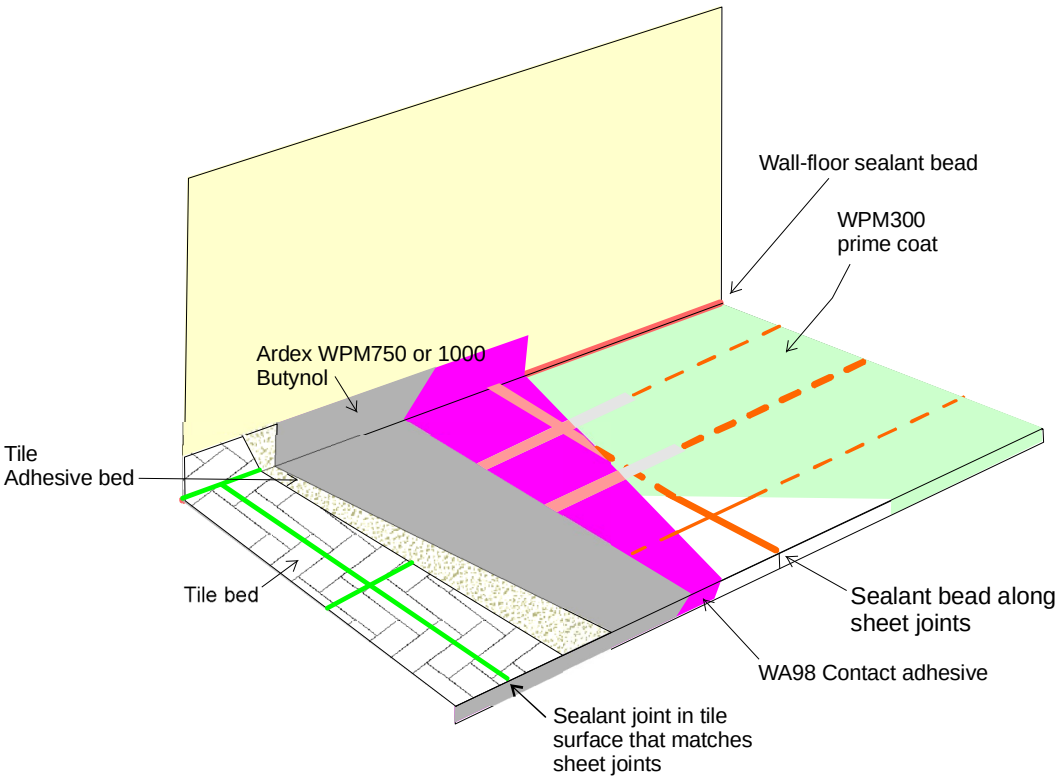
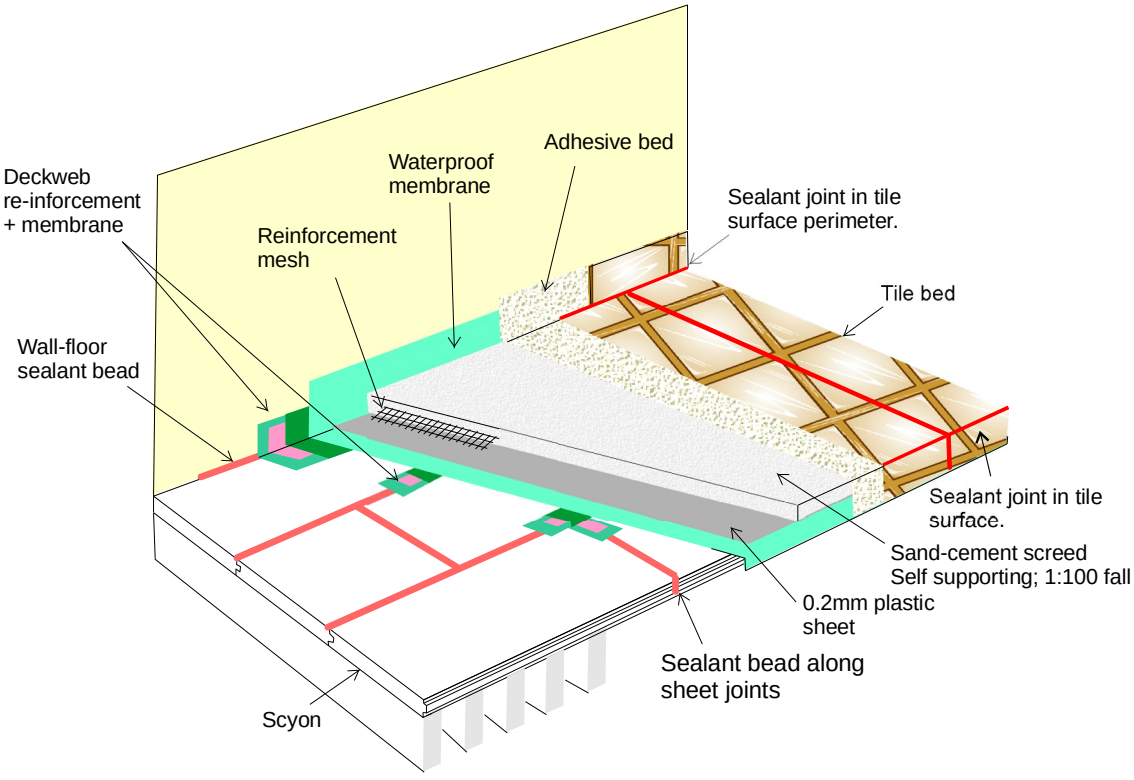


Diagram 5. This is the second most common application ARDEX encounters. Indirect tiling onto external deck with staggered sheet pattern and a liquid applied membrane on a screed. Falls are normally created in the deck construction, however they can also be made in the screed (which is shown in the schematic below). Some installers may decide to re-waterproof the screed as well to assist in suppression of efflorescence and prevention of ponding water issues at the screed base where falls have not been created in the deck structure.

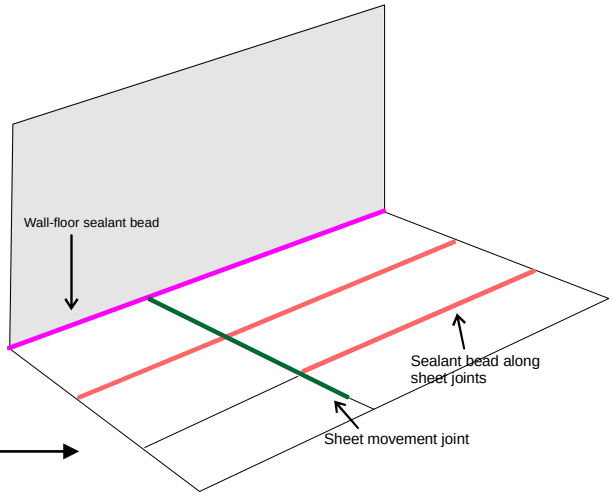


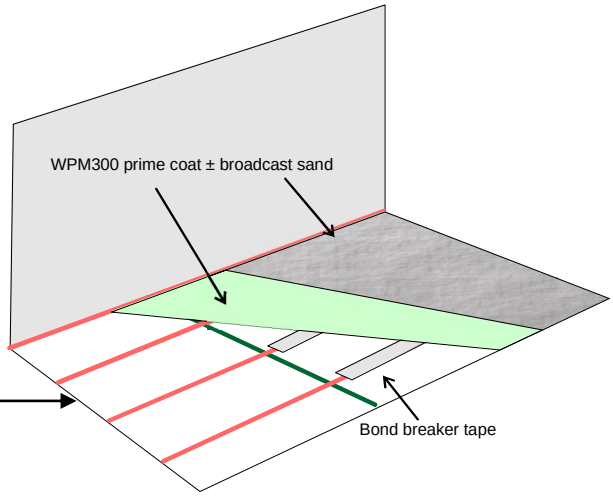
The primary criteria are shown in the following table, with specific instructions supplied as text descriptions.

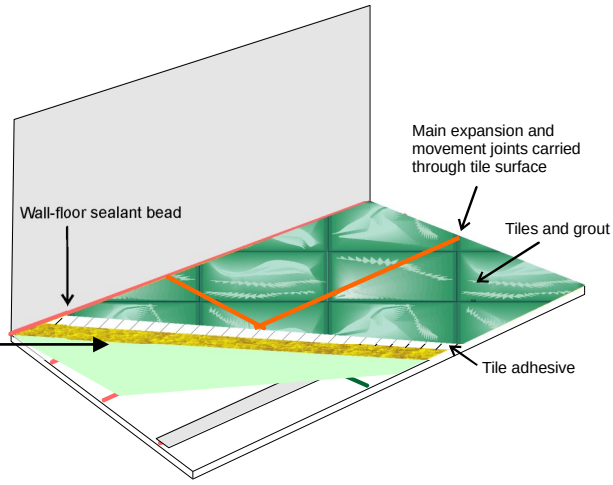
ID	Application	Creation of falls to waste	Priming direct to surface	Waterproof Membrane	ARDEX Tile adhesive
EXTERNAL DECKS: TILES BONDED WITHOUT THE USE OF A SAND-CEMENT SCREED					
1	Water resistant external deck which does not require waterproofing (see Diagram 2)	*Created by deck design and construction* *Square sheet layout* Falls at 1:100 minimum	ARDEX WPM300	N.A.	ARDEX Abaflex ARDEX X77 ± ARDEX E90 ARDEX X18 ± ARDEX E90 ARDEX Optima ARDEX X56I
2	Water proofed external deck. Tiles directly bonded to liquid membrane (see Diagram 3)	*Created by deck design and construction* *Square sheet layout* Falls at 1:100 minimum	ARDEX WPM300 (ARDEX WPM265)	ARDEX WPM001, ARDEX WPM002, ARDEX WPM155	ARDEX Abaflex ARDEX X77 ± ARDEX E90 ARDEX X18 ± ARDEX E90 ARDEX Optima ARDEX X56I
3	Waterproofed external deck. Tiles directly bonded to sheet membrane (See Diagram 4)	*Created by deck design and construction* *Square sheet layout* Falls at 1:100 minimum	ARDEX WPM300	ARDEX WA98 adhesive ARDEX WPM750 or 1000 Butynol undertile sheet membrane ARDEX Butynol 1.0mm rubber sheet	ARDEX Abaflex ARDEX X77 ± ARDEX E90 ARDEX X18 ± ARDEX E90 ARDEX Optima
EXTERNAL DECKS: TILES BONDED WITH THE USE OF A SAND-CEMENT SCREED					
4	Waterproofed external deck. Tiles bonded to a floating screed (See Diagram 5)	*Created by deck design and construction* *Staggered sheet layout** Falls at 1:100 minimum	**Priming** ARDEX WPM265 ARDEX WPM300 **Waterproofing** ARDEX WPM001, ARDEX WPM002, ARDEX WPM155	Heavy duty plastic sheeting Sand-cement screed with ARDEX Abacrete**	**Priming** ARDEX Multiprime or ARDEX WPM300*** **Adhesives** ARDEX Abaflex ARDEX X77 ± ARDEX E90 ARDEX X18 ± ARDEX E90 ARDEX Optima
	* May also be feasible where square sheet layout performed without correct falls and requires a screed. **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. *** WPM300 can be used as an efflorescence suppressor to stop soluble materials escaping from the screed. ✋ Where X56 is used, the preference is that the deck has a roof covering to minimise weather exposure.				

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 Figures 13-14 on of the Scyon™ Secura™ external manual (**2016** edition). Note figs., shown with waterproofing.
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 use of a bond breaker tape over sheet joints is recommended to allow a degree of movement under the tiles.
6) The sheet surface shall be primed with ARDEX WPM 300 HydrEpoxy at a coverage rate of 3m^2/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.
7) Install nominated tiles using ARDEX Abaflex, X56, X77 ± E90, X18 ± E90, 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.
8) The tiles are then grouted with ARDEX FG8 or ARDEX FS-DD Grouts mixed with ARDEX Grout Booster
9) All control joints MUST be carried through the tile surface and filled with ARDEX SE or ARDEX ST silicones or ARDEX RA030 or RA040 urethane sealants.



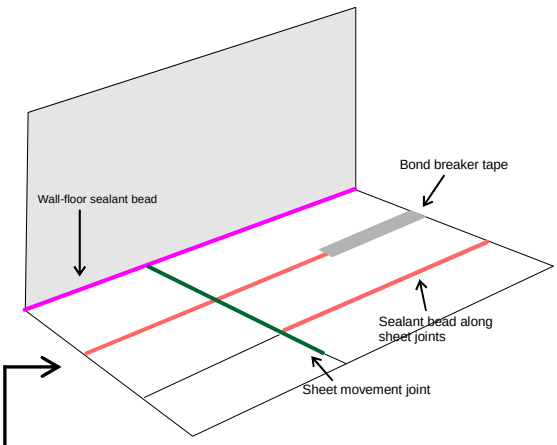


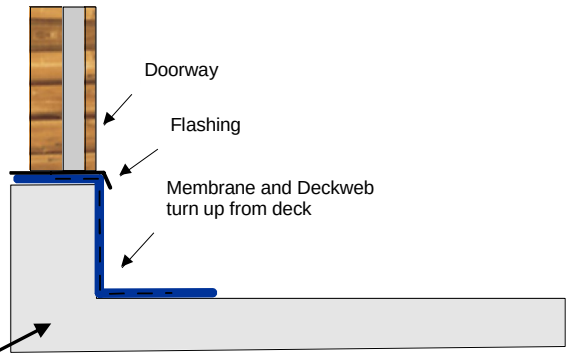


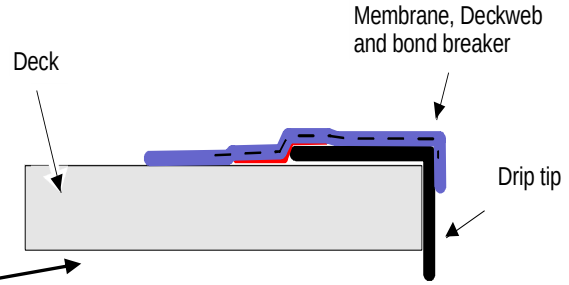
WARNING. LARGE FORMAT TILES >450MM REQUIRE SPECIAL CARE WITH ADHESIVE APPLICATION (NOTCHING AND BACK BUTTERING) AND ALSO PLACEMENT (TAP AND DROP IS NOT ACCEPTABLE. CONTACT ARDEX FOR FURTHER INFORMATION ON STONE TILES

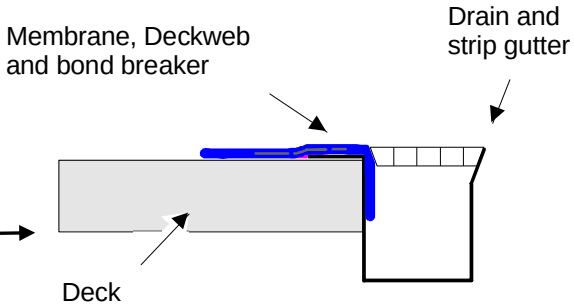
Method 2) Tiles directly fixed to installed liquid applied waterproofing overlying sheets

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 Figures 13-15 on of the Scyon™ Secura™ external manual (**2016** 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) 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.
6) 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).
7) 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.
8) Membrane shall be applied to the top of parapets and divisional walls, or else a suitable metal capping is installed. Where possible, apply the membrane prior to building divisional walls.
9) The membrane shall be applied down over the front edge of the balcony onto the drip rail.
10) Membrane shall be applied down into gutter drains and ensuring excess material is removed.
11) All weep holes shall be above the membrane application area.





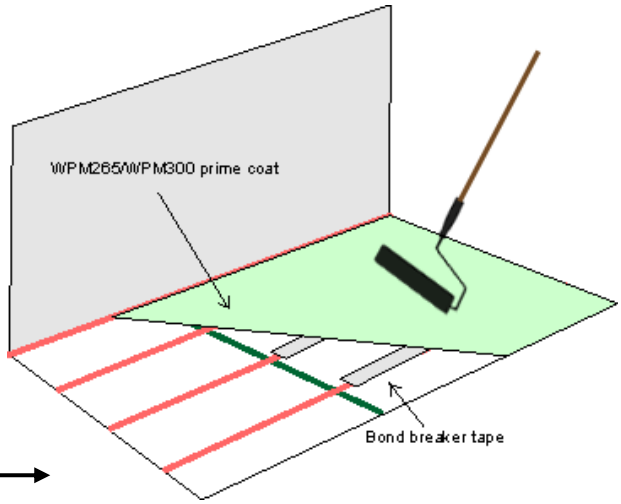




PROCESS

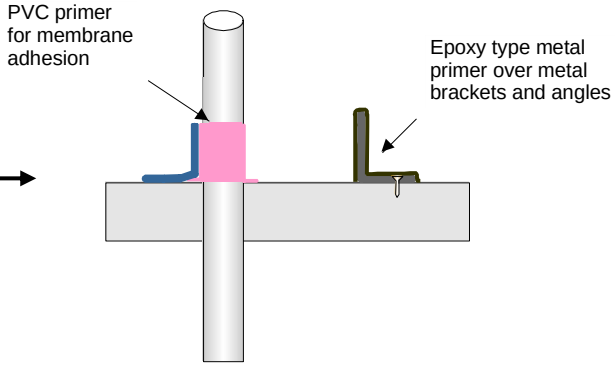
12) The use of a bond breaker tape over sheet joints is recommended to allow a degree of movement under the tiles.

13) To the prepared James Hardie Scyon™ Secura™ exterior 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.



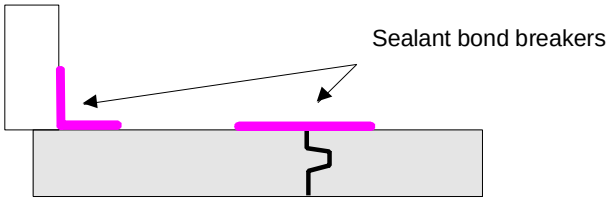
14) Prime all exposed PVC pipes, fittings and outlets with a pink plumber's PVC primer.

15) Prime metal surfaces with a suitable metal primer such as an epoxy based non-metallised type.

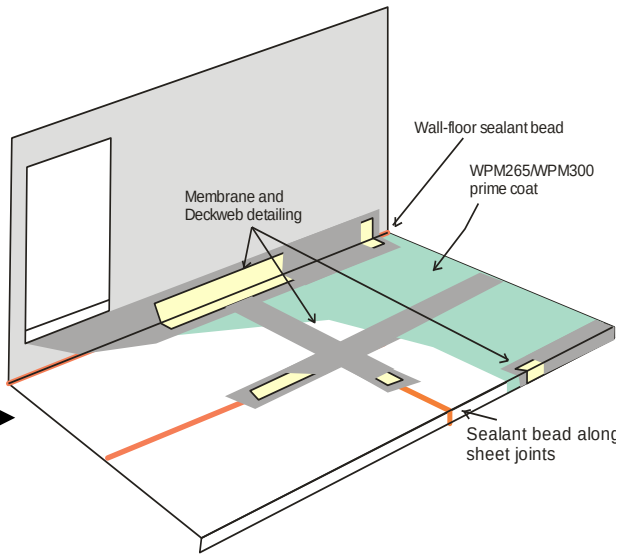


16) Apply a bead of James Hardie Joint Sealant or other suitable bond breaker along all internal corners (e.g. wall/floor junctions) and sheet joints. This bond breaker should be extended approximately 6mm on either side of the corner or joint.

Note: Urethanes used as bond breakers may require 48hrs cure to prevent sticking of the membrane.

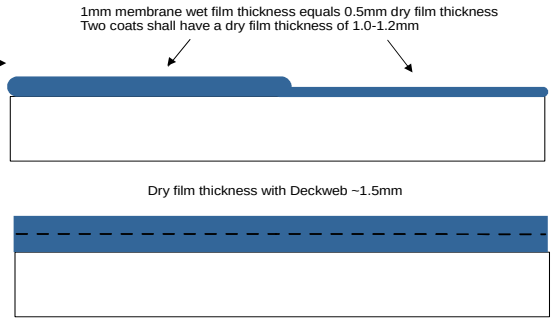


16) Apply a liberal stripe coat of ARDEX WPM 001, WPM 002 or WPM 155 waterproofing membrane across all joints and corners extending not less than 120mm on either side of the joint or corner and, while the coating remains wet and fluid, lay ARDEX Deckweb matting equidistantly across the corner or joint. Knead the matting into the underlying coating, ensuring there are no creases, fold or air pockets, to thoroughly wet out the Deckweb.



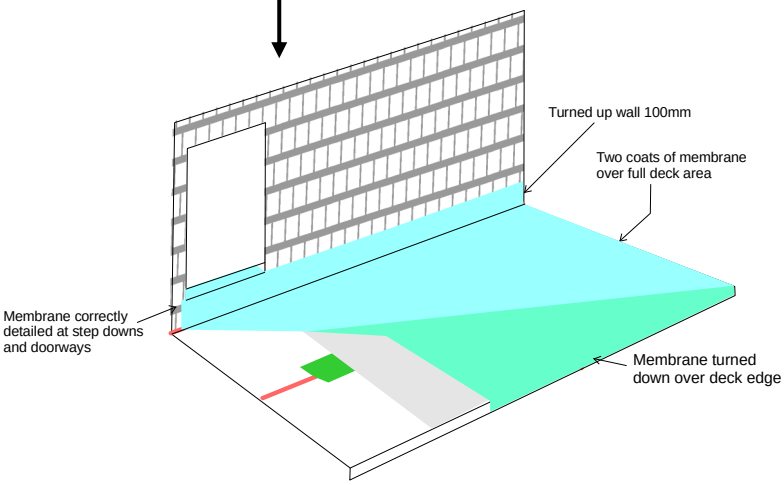
17) As soon as all corners and joints have been reinforced, a full coat of the waterproofing membrane shall be applied to all surfaces to be treated, by brush or roller ap-

plication techniques, to achieve a wet film thickness of not less than 1.0mm.

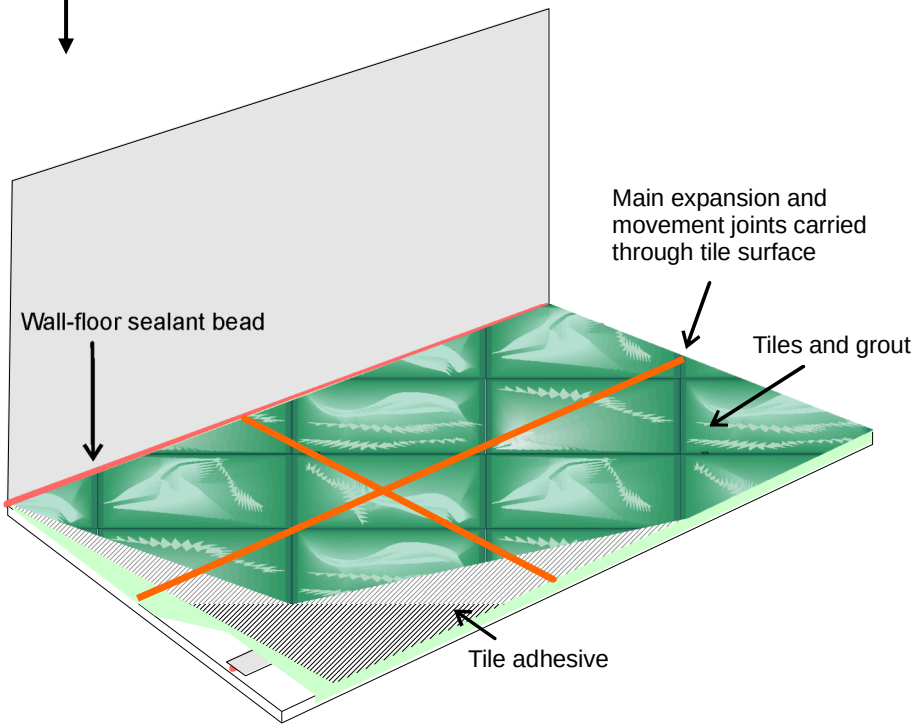


18) Allow the preceding coat to cure hard and apply a further coat of the membrane to all surfaces to be treated, by brush or roller application techniques, to achieve a wet film thickness of not less than 1.0mm.

19) Install nominated tiles using ARDEX Abaflex, X56, X77 ± E90, X18 ± 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.



20) All joints shall be carried through the tiled surface as per Figures 13-15 on of the Scyon™ Secura™ external manual (**2016** edition).

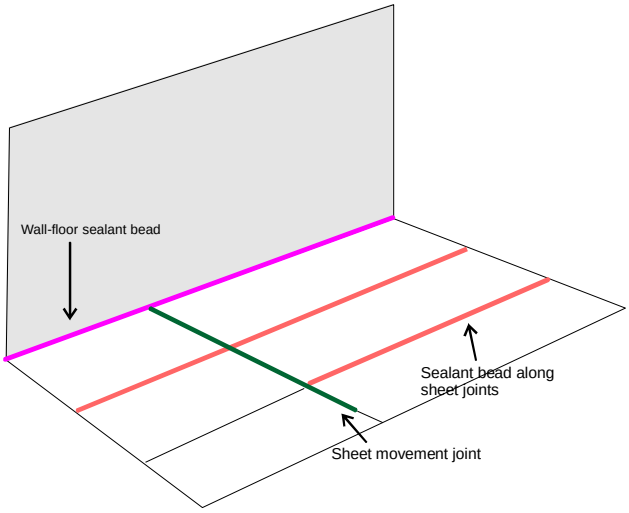


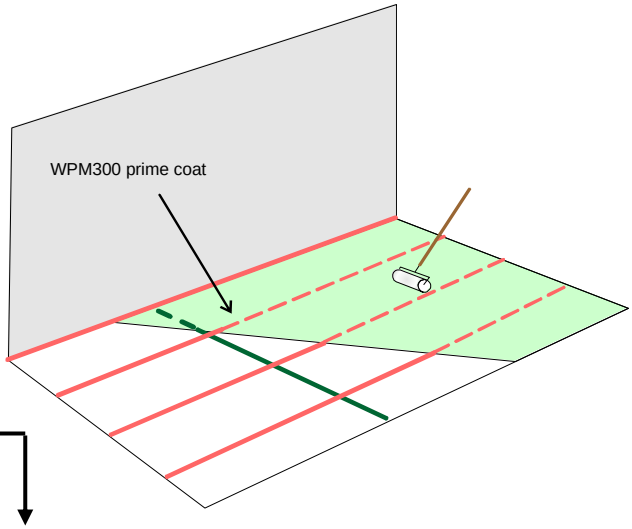
Method 3) Tiles fixed to a screed installed over an applied sheet Membrane waterproofing overlying sheets

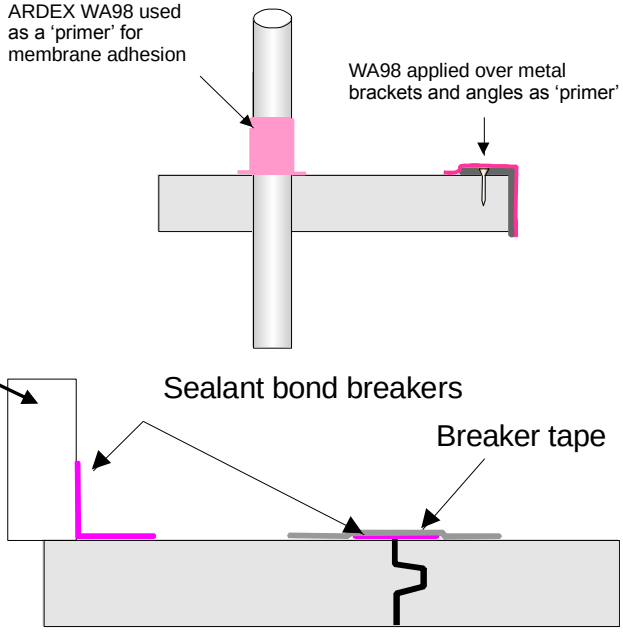
1) Install suitable flashing, ideally prior to the installation of the balcony screen/sliding door.
2) Treat any sheet joints with James Hardie Joint Sealant or neutral cure silicone. All joints shall be carried through the tiled surface as per Figures 13-14 on of the Scyon™ Secura™ external manual (**2016** edition). Note figs., shown with waterproofing.
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) To the prepared James Hardie Scyon™ Secura™ exterior sheet substrate, apply one coat of ARDEX WPM 300 HydrEpoxy at a coverage rate of 3m^2/L by brush or roller to all areas to be waterproofed including the floor waste. Allow to cure for 3 days before proceeding.
6) Prime all exposed PVC pipes, fittings, outlets and metal surfaces with ARDEX WA98 Adhesive.
7) 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. Joints are taped in accordance with the Butynol manual.
8) Install ARDEX WPM750 or 1000 Butynol in accordance with the recommended installation procedure. Lapping of sheet joints, edge and corner details are a critical part of the system.

Notes:

ARDEX Butynol membranes are only supplied to accredited waterproofing applicators and so details of the application won't be



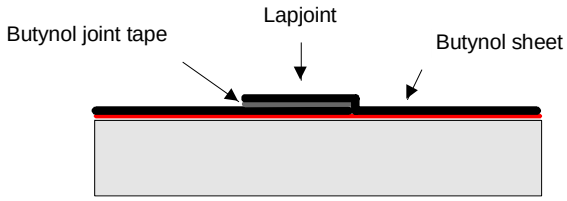




described further.

The original version of TB215 described the use of ARDEX Butynol rubber sheet (plain black rubber 1.0mm thick and not fleece lined). This membrane can still be used in this application using the same method, but fixing tiles with ARDEX Optima adhesive ARDEX Technical Bulletin TB077 – "Application of Butynol and Direct Bonding of Tiles" has more specific guidance for the tile application using ARDEX Optima adhesive.

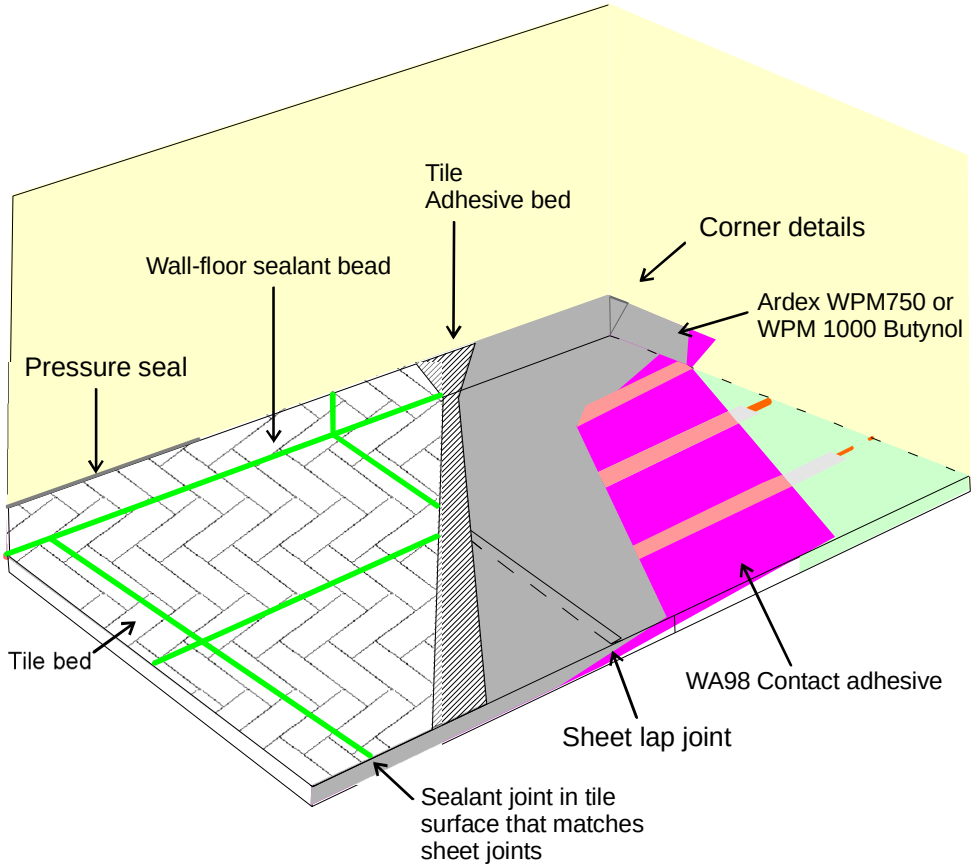
9) Tile installation must conform to the requirements of the Australian Standard AS3958 - 2007. All exposed surfaces of the Butynol should be thoroughly solvent cleaned using ARDEX WA98S (WPM 290) solvent or equivalent to remove all traces of surface contaminants including residual rolling oils from the manufacturing process. Allow to dry before proceeding.



Butynol sheet lap joint

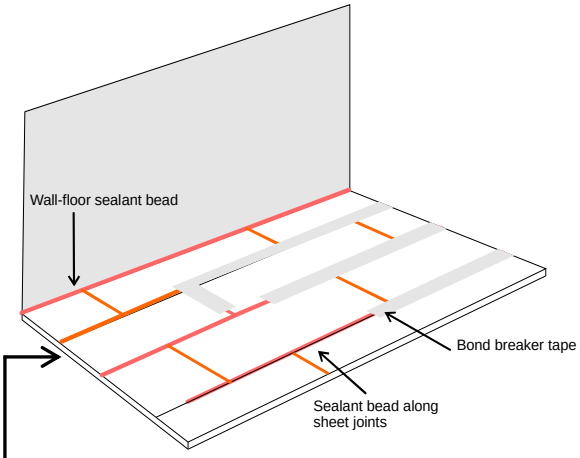
10) Lay the tiles using nominated ARDEX tile adhesive applied to the membrane surface using a 12 mm notched trowel to achieve a dry bed thickness of not less than 2.5 - 3mm.

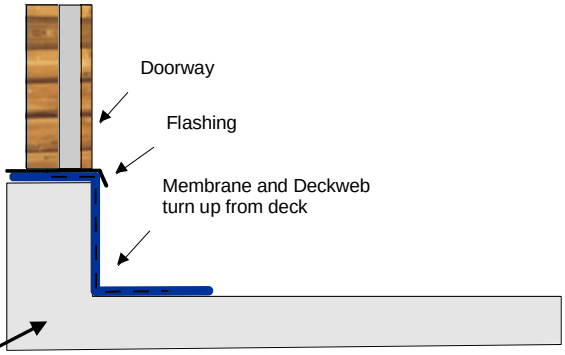
11) Grout shall have grout additive used to improve resilience. ARDEX FG8 or ARDEX FS-DD grout with ARDEX Grout Booster.

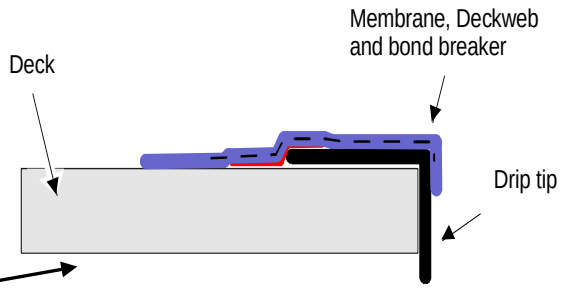


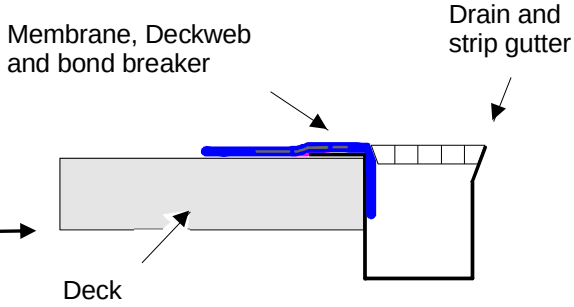
Method 4) Tiles directly fixed to installed self supporting sand-cement screed overlying liquid applied waterproofing applied onto the sheets

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 Figures 13-15 on of the Scyon™ Secura™ external manual (**2016** 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) 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.
6) 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).
7) 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.
8) Membrane shall be applied to the top of parapets and divisional walls, or else a suitable metal capping is installed. Where possible, apply the membrane prior to building divisional walls.
9) The membrane shall be applied down over the front edge of the balcony onto the drip rail.
10) Membrane shall be applied down into gutter drains and ensuring excess material is removed.
11) All weep holes shall be above the membrane application area.





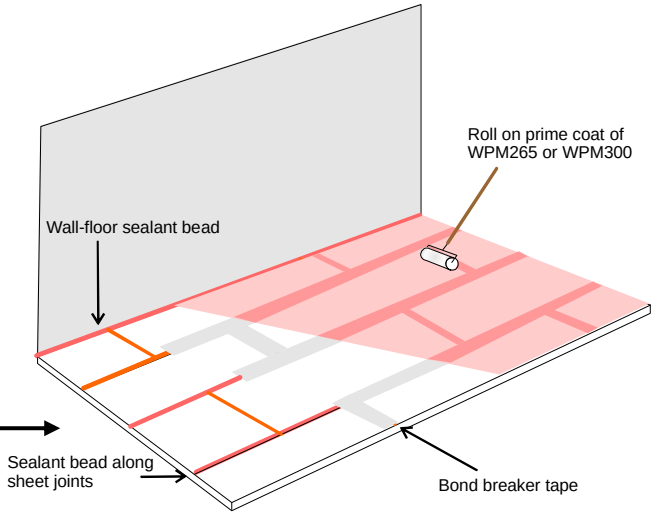




PROCESS

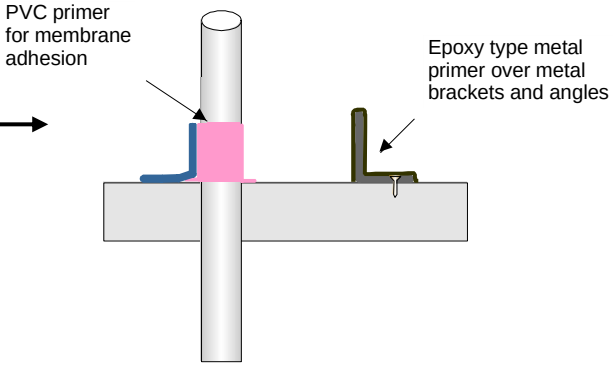
12) The use of a bond breaker tape over sheet joints is recommended to allow a degree of movement under the tiles.

13) To the prepared James Hardie Scyon™ Secura™ exterior 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.



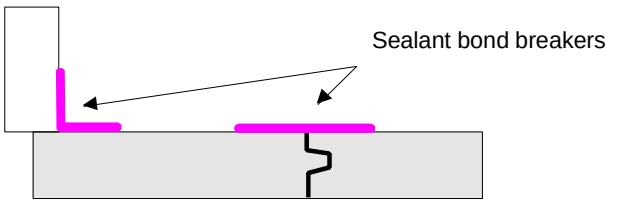
14) Prime all exposed PVC pipes, fittings and outlets with a pink plumber's PVC primer.

15) Prime metal surfaces with a suitable metal primer such as an epoxy based non-metallised type.

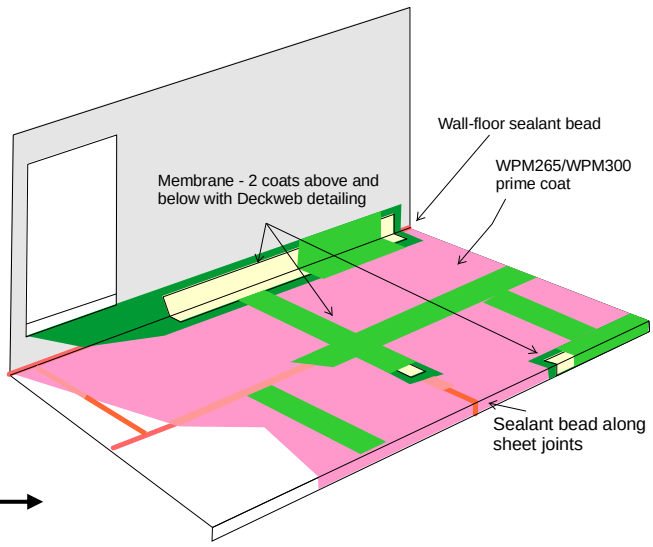


16) Apply a bead of James Hardie Joint Sealant or other suitable bond breaker along all internal corners (e.g. wall/floor junctions) and sheet joints. This bond breaker should be extended approximately 6mm on either side of the corner or joint.

Note: Urethanes used as bond breakers may require 48hrs cure to prevent sticking of the membrane.



16) 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.



17) 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.

18) 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. Final **dry** film thickness shall be 1.0mm or 1.2mm for WPM002.

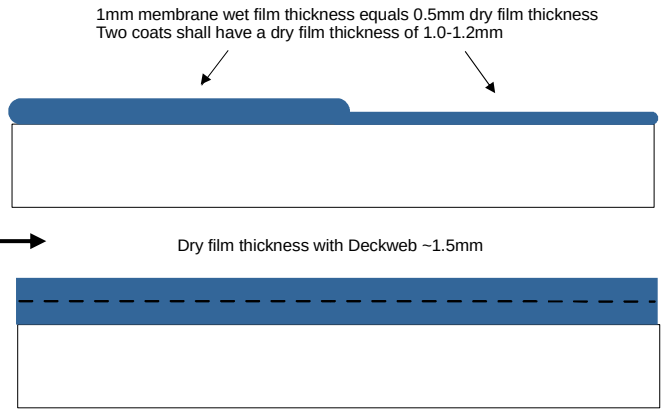
19) A sheet of heavy duty plastic sheet, 0.2-0.3mm thick of the type used as an under concrete slab membrane is laid over the membrane.

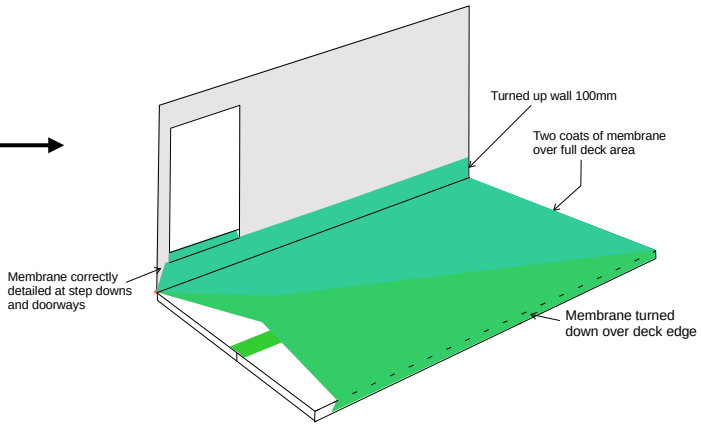
20) Install a screed bed over the plastic sheeting by laying a sand-cement mortar screed prepared by mixing 3 volumes of water and 1 volume of ARDEX Abacrete and using this blend as the gauging solution with the premixed sand/cement blend to make a stiff mobile cement mortar mix. Lay the mortar a minimum 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 drainange 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.

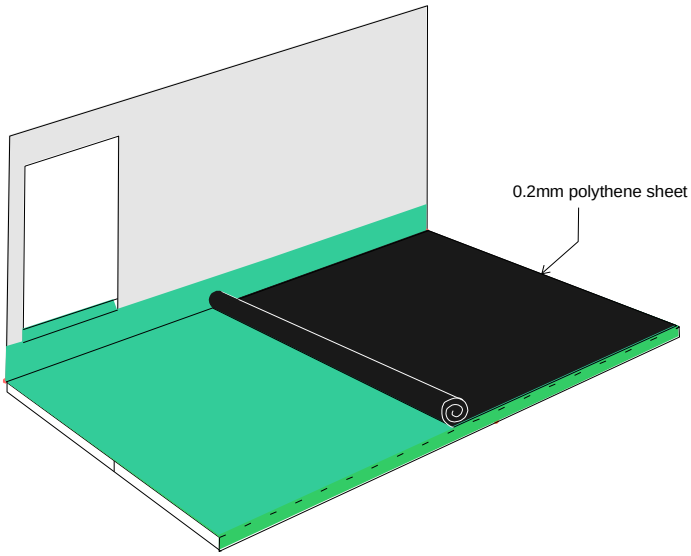
21) Allow the screed to dry for seven days prior to priming with ARDEX Multiprime.

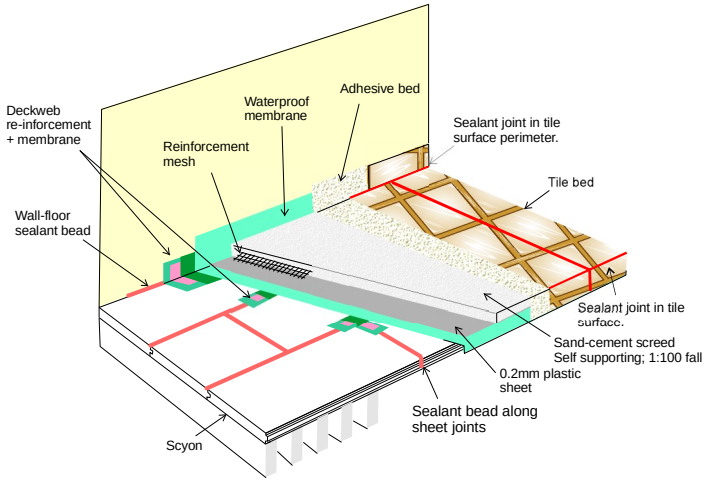
22) Install nominated tiles using ARDEX Abaflex, X56, X77 ± E90, X18 ± E90 or Optima. Apply the adhesive to ensure a minimum dry bed of 3mm is achieved using a 10mm x 10mm or 12mm x 12mm notched trowel for floors.

23) Expansion joints shall be installed in the tile surface in accordance with AS3958-2007.







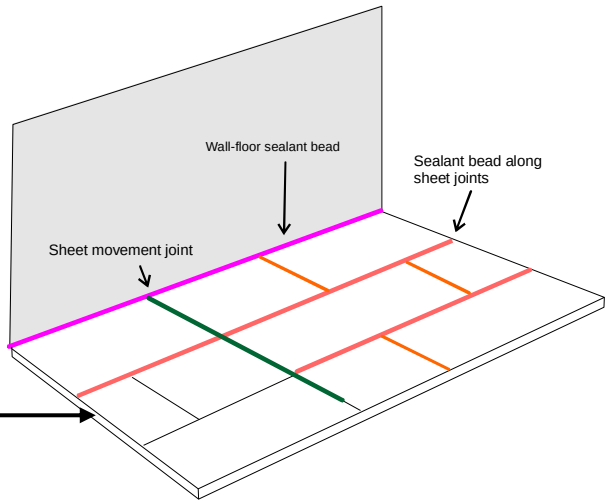


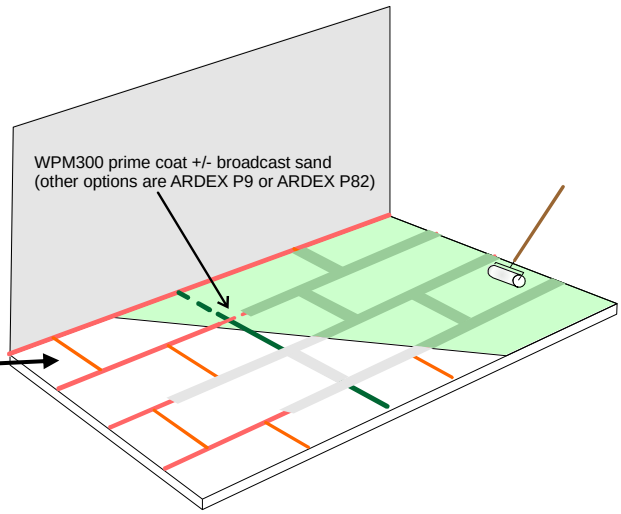
The primary criteria are shown in the following table, with specific instructions supplied as text descriptions.

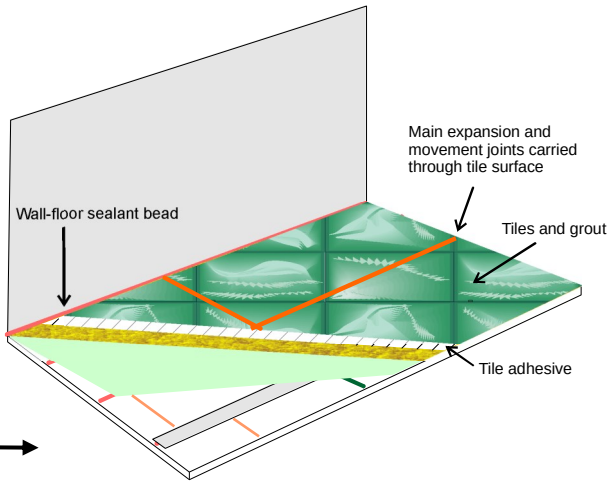
INTERNAL FLOORS: TILES BONDED ONTO THE SHEET SURFACE					
ID	**Application**	**Creation of falls to waste**	**Priming direct to surface**	**Waterproof Membrane**	**Tile adhesive**
5	Internal dry areas Tiles bonded directly to floor	*No falls required* *Sheets layed in staggered pattern*	ARDEX WPM300 ± broadcast sand ARDEX P9 ARDEX P82 ARDEX WPM265	Polythene bond breaker tape over all sheet joints 25-30mm wide bond breaker tape (PE or filament polypropylene)*	ARDEX Abaflex ARDEX X77, X78 or X18 ± ARDEX E90 ARDEX X10 **+** ARDEX Abalastic or ARDEX E90 ARDEX S28N ± ARDEX E90
6	Internal dry areas Tiles bonded directly to an isolating sheet on the subfloor	*No falls required* *Sheets layed in staggered pattern*	ARDEX AF360	ARDEX DS60 removable isolation matting	ARDEX Abaflex ARDEX X77, X78 or X18 ± ARDEX E90 ARDEX S28N ± ARDEX E90
7	Internal dry areas Tiles bonded directly to a sound deadening matt on the subfloor	*No falls required* *Sheets layed in staggered pattern*	ARDEX AF266	ARDEX DS40 sound isolation matting	ARDEX X77, X78 or X18 ± ARDEX E90 ARDEX S28N ± ARDEX E90 ARDEX X56
8	Internal wet area Tiles directly bonded to sheet membrane on subfloor	*Falls created by floor design and construction* *Sheets layed in staggered pattern* Falls at 1:60 to 1:80 for showers and 1:100 for floors	ARDEX CA750	ARDEX WPM750 or ARDEX WPM1000	ARDEX Abaflex ARDEX X77, X78 or X18 ± ARDEX E90 ARDEX S28N ± ARDEX E90 ARDEX X56
9	Internal wet area Tiles directly bonded to liquid applied membranes on screed over subfloor	*Falls created by floor design and construction* *Sheets layed in staggered pattern* Falls at 1:60 to 1:80 for showers and 1:100 for floors	ARDEX WPM300 ARDEX P9 (ARDEX WPM265)	Polythene bond breaker tape over all sheet joints 25-30mm wide bond breaker tape (PE or filament polypropylene)* ARDEX WPM001, ARDEX WPM002, ARDEX WPM155	ARDEX Abaflex ARDEX X77, X78 or X18 ± ARDEX E90 ARDEX S28N ± ARDEX E90 ARDEX X10 **+** ARDEX Abalastic or ARDEX E90 ARDEX Optima
	** Examples of tapes suitable include “Boomerang” filament tape *BTRC10* and “Tenacious Tapes”*All weather tape*.				

Method 5) Tiles directly fixed to the prepared surface of the sheets
Sheets laid in 'staggered' or brick pattern: no falls required

1) This system is intended for use on dry internal floors. Where external doors are present, flashing needs to be placed and waterproofing as per external decking procedures.
2) Treat any sheet joints with James Hardie Joint Sealant or neutral cure silicone. All movement joints shall be carried through the tiled surface.
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 use of a bond breaker tape over sheet joints is recommended to allow a degree of movement under the tiles.
6) The sheet surface shall be primed with ARDEX WPM 300 HydrEpoxy at a coverage rate of 3m^2/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. Alternative primers are ARDEX P9 and ARDEX P82
7) Install nominated tiles using ARDEX Abaflex, X56, X77, X78 or X18 ± E90, S28N ± E90, X10 + ARDEX Abalastic / ARDEX 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.
8) The tiles are then grouted with ARDEX FG8 or ARDEX FS-DD Grouts mixed with ARDEX Grout Booster
9) All control joints MUST be carried through the tile surface and filled with ARDEX SE or ARDEX ST silicones or ARDEX RA030 or RA040 urethane sealants.





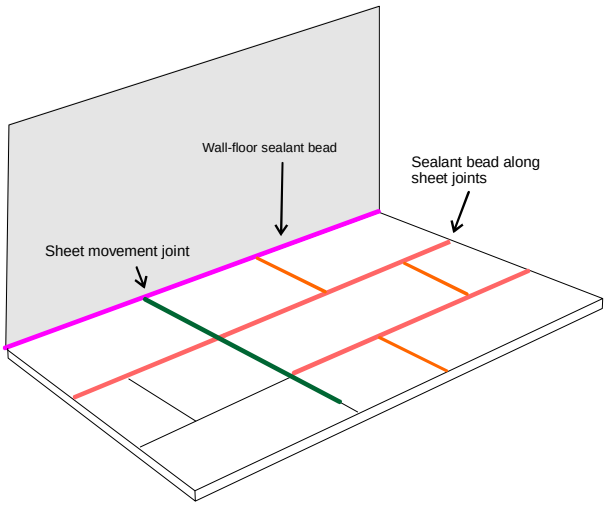


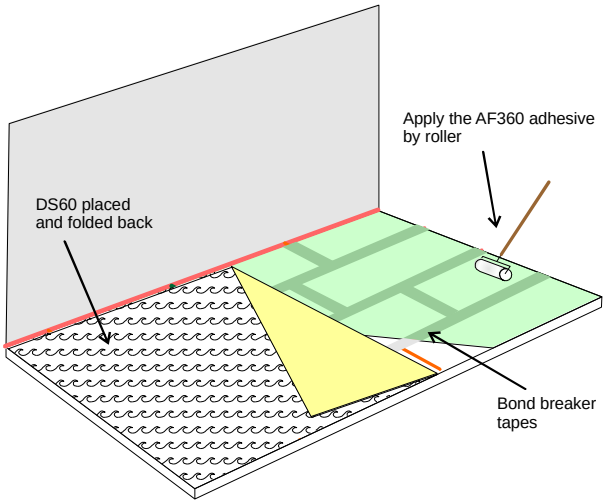
WARNING. LARGE FORMAT TILES >450MM REQUIRE SPECIAL CARE WITH ADHESIVE APPLICATION (NOTCHING AND BACK BUTTERING) AND ALSO PLACEMENT (TAP AND DROP IS NOT ACCEPTABLE. CONTACT ARDEX FOR FURTHER INFORMATION ON STONE TILES

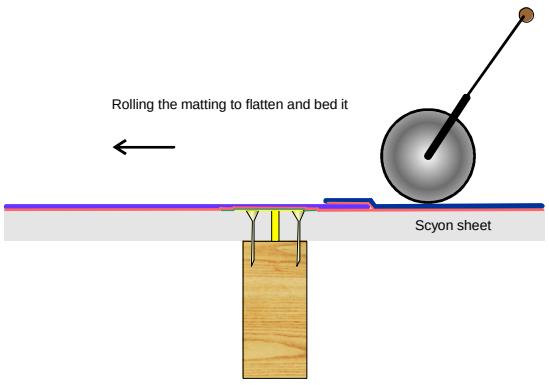
Method 6) Tiles directly fixed to the decoupling matting on top of the sheets Sheets laid in 'staggered' or brick pattern: no falls required

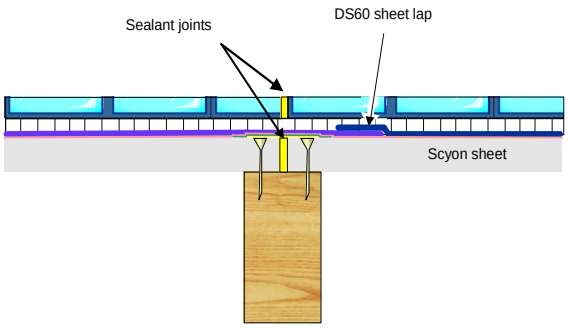
1) This system is intended for use on dry internal floors. Where external doors are present, flashing needs to be placed and waterproofing as per external decking procedures.
2) Treat any sheet joints with James Hardie Joint Sealant or neutral cure silicone. All movement joints shall be carried through the tiled surface.
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 use of a bond breaker tape over sheet joints is recommended to allow a degree of movement under the tiles.
6) The ARDEX DS60 is cut and laid out over the surface, and then half is folded back.
7) The un-covered sheet surface shall be primed with ARDEX AF360 water based contact adhesive. The primer is applied by roller and allow to tack off for 15-20 minutes before rolling the matting down. Once one side is the done the other is lifted, the priming and placement process is repeated.
8) The ARDEX DS60 matting placed over the tacked off adhesive and then rolled with a flooring roller to bed it correctly.
9) Sheet laps are bonded with AF360 on a 50mm overlap.

   Note—Matting sheet joints must not be placed over movement joints in the Scyon™ Secura™ sheeting. Movement joints in the Scyon™ Secura™ sheets have to be carried through in the tiled surface.
10) Install nominated tiles using ARDEX Abaflex, X56, X77 / X78 / X18 ± E90, S28N ± 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.



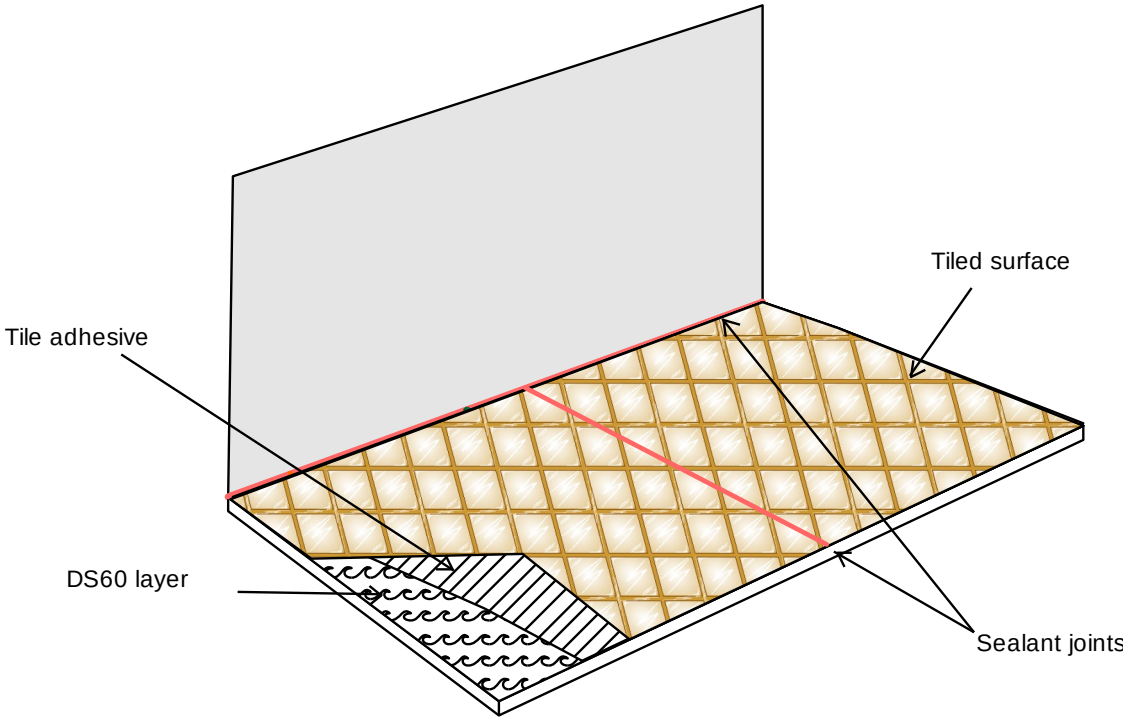






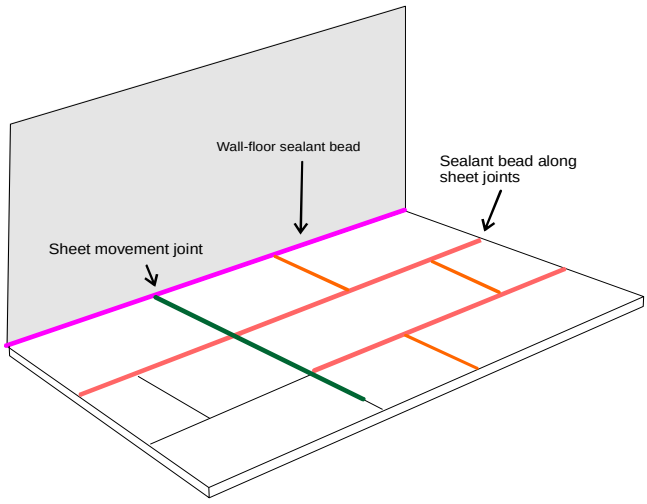
11) The tiles are then grouted with ARDEX FG8 or ARDEX FS-DD Grouts mixed with ARDEX Grout Booster

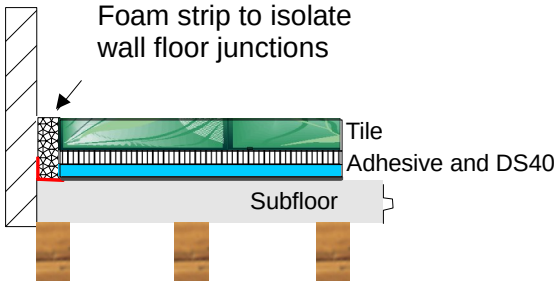
12) All control joints MUST be carried through the tile surface and filled with ARDEX SE or ARDEX ST silicones or ARDEX RA030 or RA040 urethane sealants.

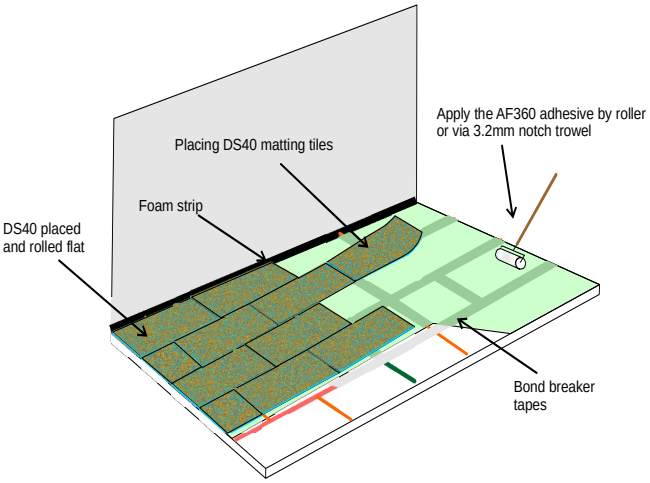


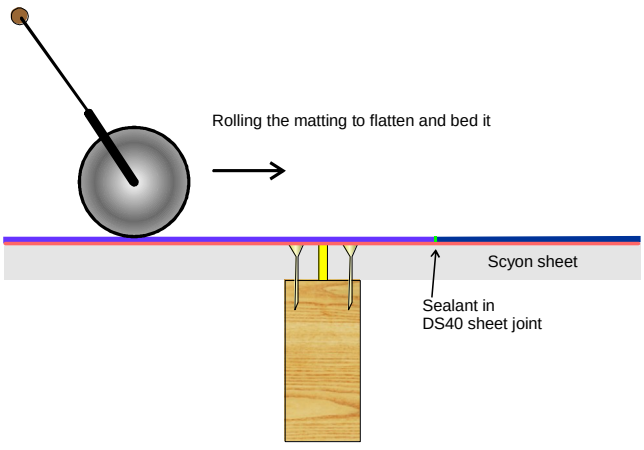
Method 7) Tiles directly fixed to the sound deadening matting on top of the sheets Sheets laid in 'staggered' or brick pattern: no falls required

1) This system is intended for use on dry internal floors. Where external doors are present, flashing needs to be placed and waterproofing as per external decking procedures.
2) Treat any sheet joints with James Hardie Joint Sealant or neutral cure silicone. All movement joints shall be carried through the tiled surface.
3) Prepare and seal all wall/floor junctions with a bead of James Hardie Joint Sealant or neutral cure silicone. This step simply prevents rubbish getting into the joint and creating a sound bridge and is not related to bond breaking per se.
4) A strip of foam tape 10mm wide and the height of the full tiling system is run around all perimeter walls, bonded to the wall. This includes up all penetrations in the floor. The purpose is isolate the flooring system from the walls to prevent lateral sound transmission.
5) Nail and screw holes shall be finished flush with the surface and filled over with James Hardie Joint Sealant or equivalent.
6) The use of a bond breaker tape over sheet joints is recommended to allow a degree of movement under the tiles.
7) The ARDEX DS40 is laid out over the surface to determine placement and then removed before gluing. Whilst complex to achieve , where possible floor sheet joints and DS40 edges should preferably not coincide.
8) The un-covered surface shall be coated with ARDEX AF266 water based carpet adhesive. The adhesive is applied by roller, or by a 3.2mm V-notch trowel. The material is a wet set adhesive so the DS40 sheets are placed directly with no tack off time.
9) The ARDEX DS40 matting is placed over the adhesive in brick pattern and then rolled with a flooring roller to bed it correctly.
10) Any gaps between sheets shall be









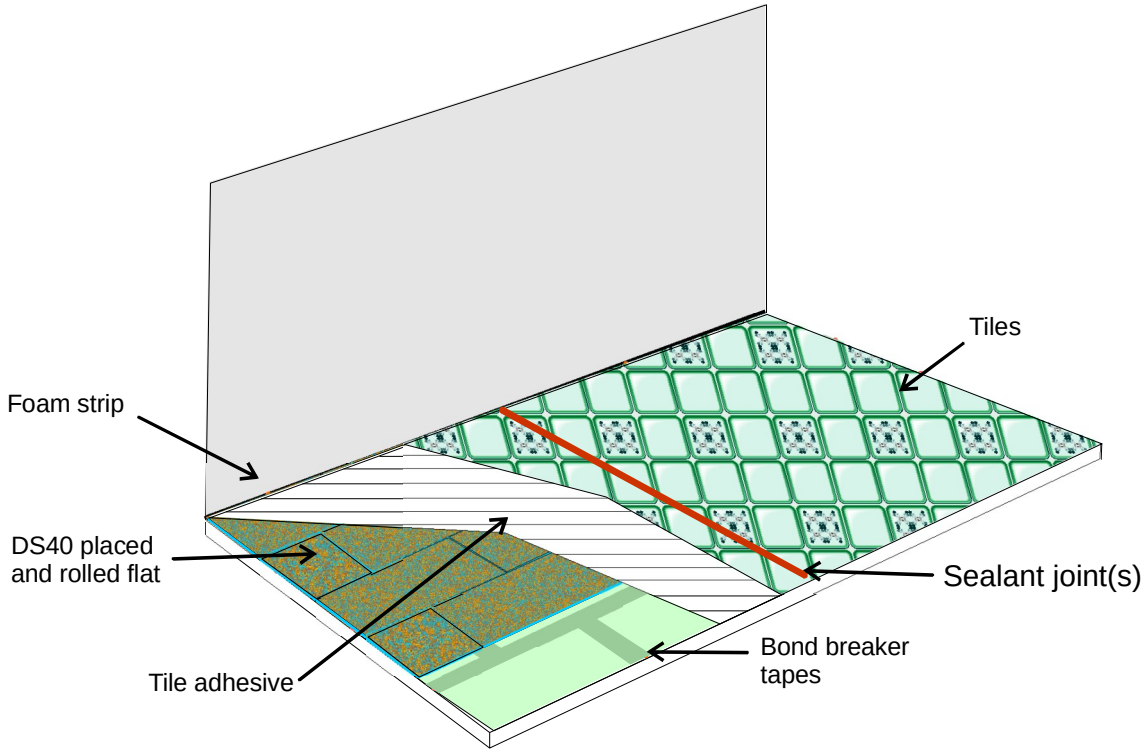
filled with a sealant such as ARDEX CA20P, ST silicone or RA040 / RA030 urethanes to prevent the tile adhesive contacting the subfloor.

Note—Movement joints in the Scyon™ Secura™ sheets have to be carried through in the tiled surface and sealant filled. All joints must be clear of any dried tile adhesive.

10) Install nominated tiles using ARDEX X56, X77 / X78 / X18 ± E90 or S28N ± E90. 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. Complete adhesive coverage will reduce the sound transmission by removing voids and 'hollow sounding tile' effects. The best deadening is achieved used X56.

11) The tiles are then grouted with ARDEX FG8 or ARDEX FS-DD Grouts mixed with ARDEX Grout Booster.

12) All control joints MUST be carried through the tile surface and filled with ARDEX SE or ARDEX ST silicones or ARDEX RA030 or RA040 urethane sealants.

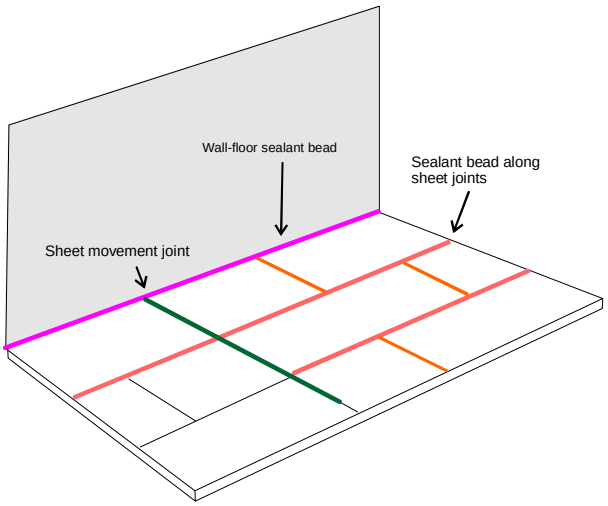


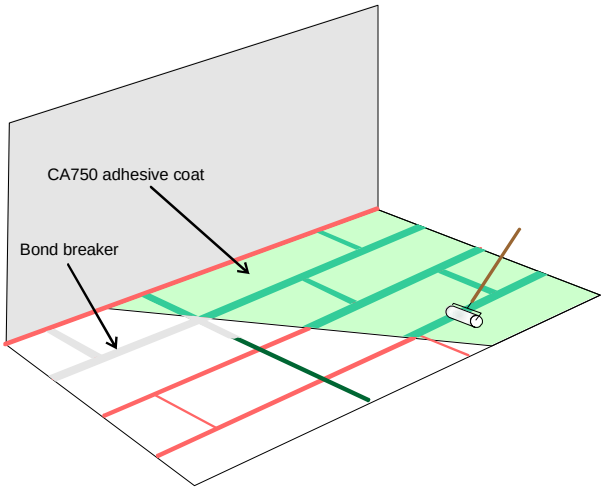
Method 8) Tiles directly fixed to the sheet waterproof membrane on top of the sheets Sheets laid in 'staggered' or brick pattern with falls

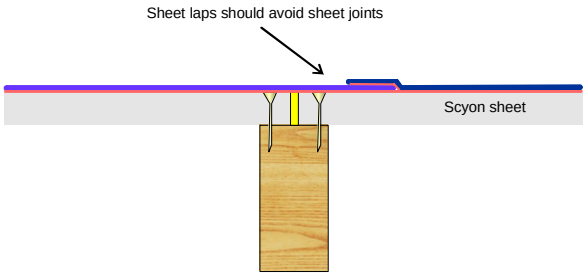
1) Where there are any external doors, Install suitable flashing, ideally prior to the installation of the balcony screen/sliding door.
2) Treat any sheet joints with James Hardie Joint Sealant or neutral cure silicone. All joints shall be carried through the tiled surface as per Figures 13-14 on of the Scyon™ Secura™ external manual (**2016** edition). Note figs., shown with waterproofing.
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) To the prepared James Hardie Scyon™ Secura™ interior sheet substrate, apply one coat of ARDEX CA750 Adhesive by brush or roller to all areas to be waterproofed including the floor waste.
6) Prime all exposed PVC pipes, fittings, outlets and metal surfaces with ARDEX CA750 Adhesive.
7) 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. Joints are taped in accordance with the Butynol manual.
8) Install ARDEX WPM750 or 1000 Butynol in accordance with the recommended installation procedure. Lapping of sheet joints, edge and corner details are a critical part of the system.

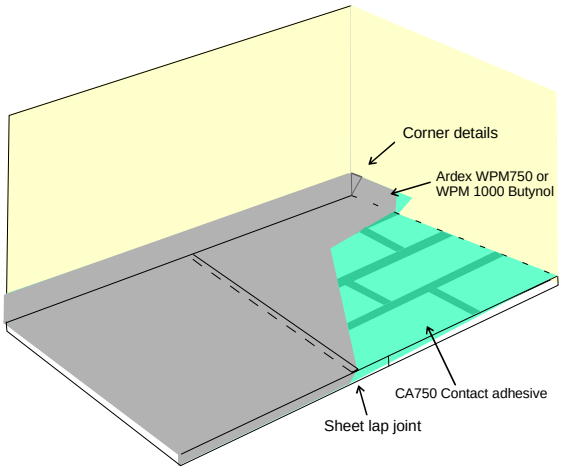
Notes:

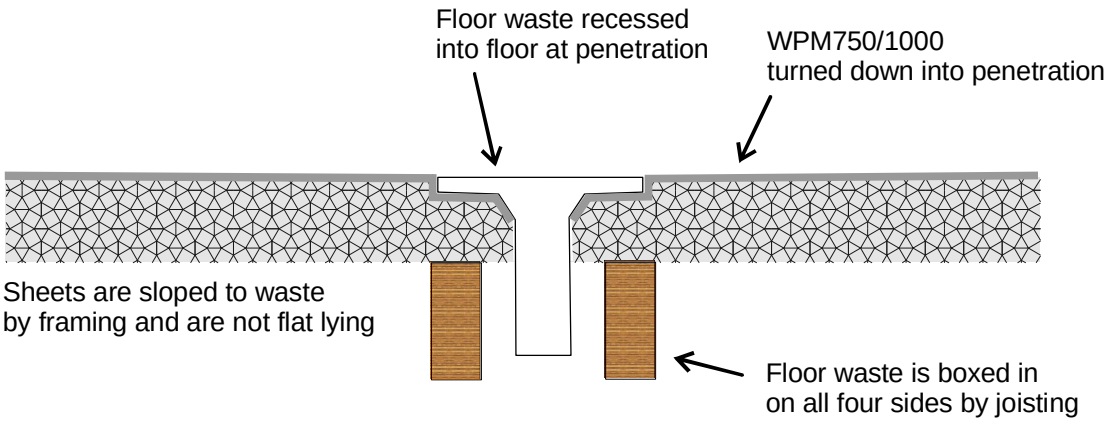
ARDEX Butynol membranes are only supplied to accredited waterproofing applicators and so details of the application won't be described further.









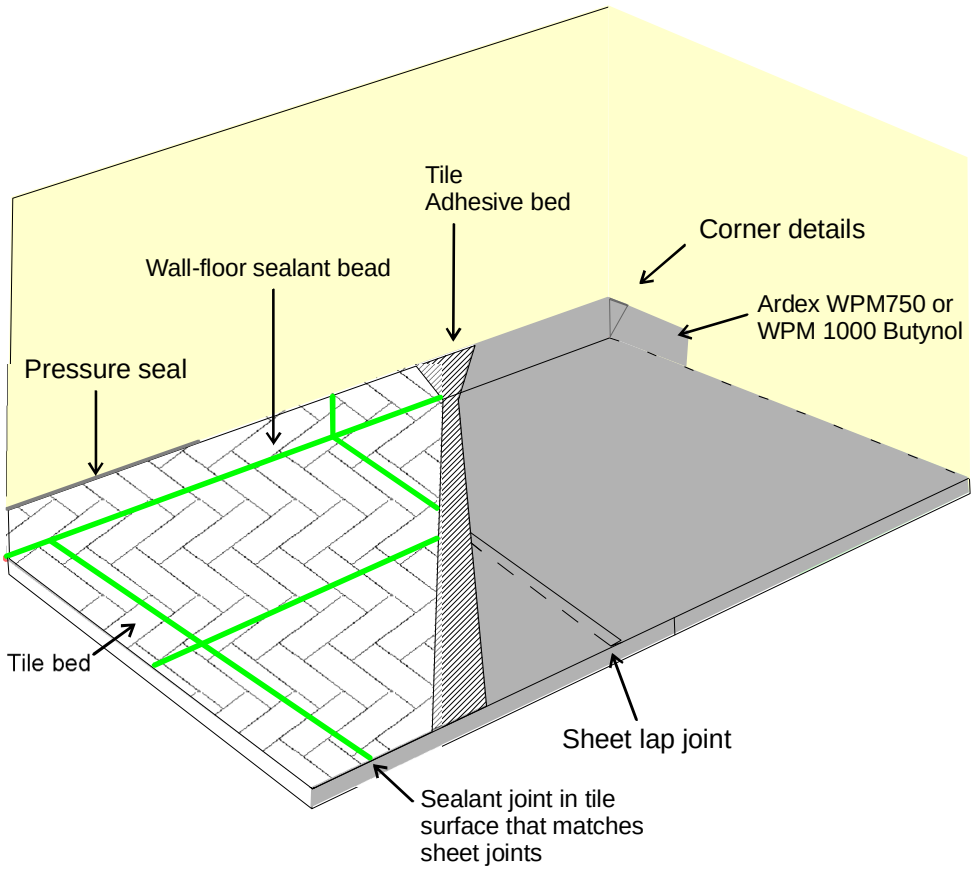


The use of ARDEX Butynol rubber sheet (plain black rubber 1.0mm thick and not fleece lined) is not recommended for this application.

9) Tile installation must conform to the requirements of the Australian Standard AS3958 - 2007.

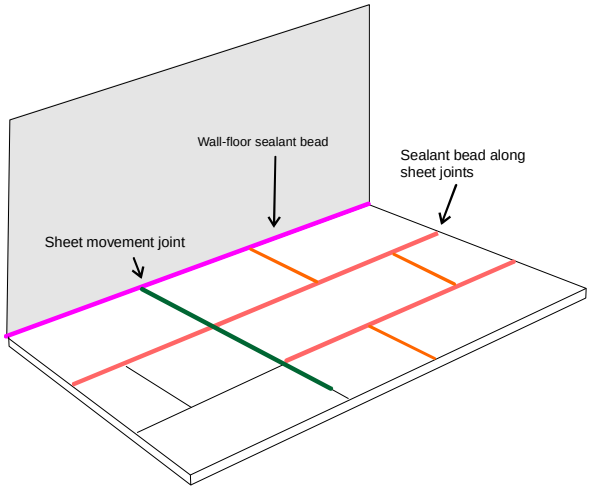
10) Lay the tiles using nominated ARDEX tile adhesive, ARDEX Abaflex, X77, X78 or X18 ± ARDEX E90, ARDEX S28N ± ARDEX E90 or ARDEX X56 applied to the membrane surface using a 12 mm notched trowel to achieve a dry bed thickness of not less than 2.5 - 3mm.

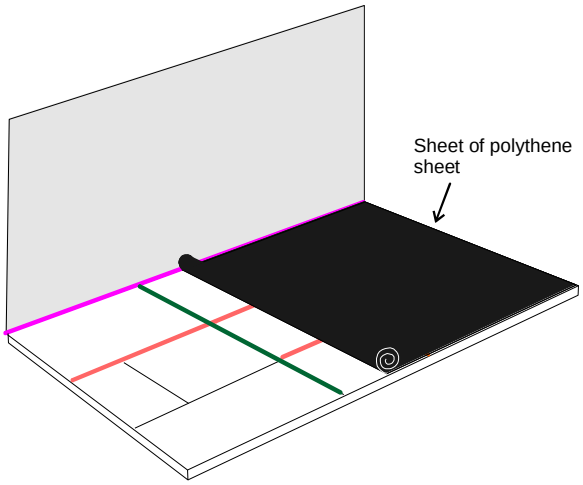
11) Grout shall have grout additive used to improve resilience. ARDEX FG8 or ARDEX FS-DD grout with ARDEX Grout Booster.

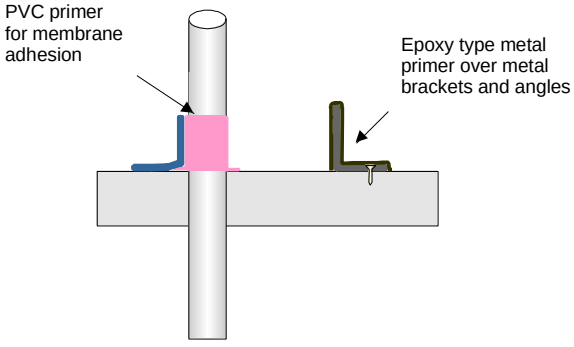


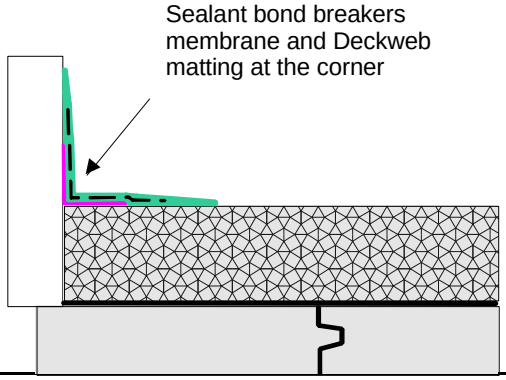
Method 9) Tiles directly fixed to the liquid applied membrane with a screed on top of the sheets. Sheets laid in 'staggered' or brick pattern with falls

1) Where there are any external doors, 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 Figures 13-14 on of the Scyon™ Secura™ external manual (**2016** edition). Note figs., shown with waterproofing.
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) Depending on whether the screed is directly applied or isolated, 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. Direct laying of the screed onto the sheets is also feasible, however the coatings on the sheets will preclude a direct bond, so screeds still need to be self supporting.
6) 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 drainange 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.
7) Allow the screed to dry for seven days prior to priming with ARDEX WPM300, ARDEX P9 or ARDEX WPM265.









7) Prime all exposed PVC pipes, fittings and outlets with a pink plumber's PVC primer.

8) Prime metal surfaces with a suitable metal primer such as an epoxy based non-metallised type.

9) 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.

Note: Urethanes used as bond breakers may require 48hrs cure to prevent sticking of the membrane.

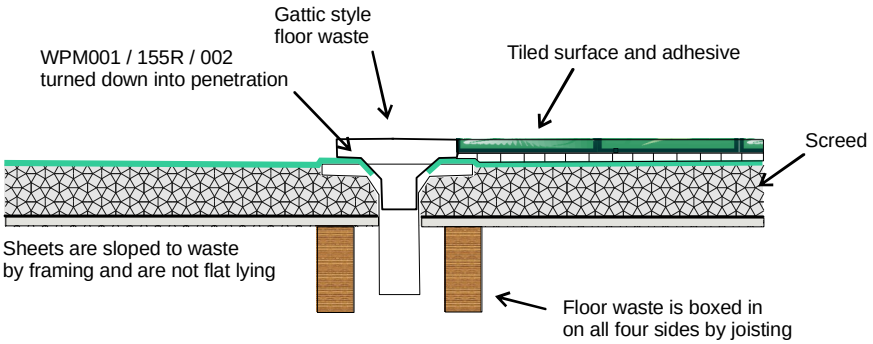
16) Apply a liberal stripe coat of ARDEX WPM 001, WPM 002 or WPM 155 waterproofing membrane across all joints and corners extending not less than 120mm on either side of the joint or corner and, while the coating remains wet and fluid, lay ARDEX Deckweb matting equidistantly across the corner or joint. Knead the matting into the underlying coating, ensuring there are no creases, fold or air pockets, to thoroughly wet out the Deckweb.

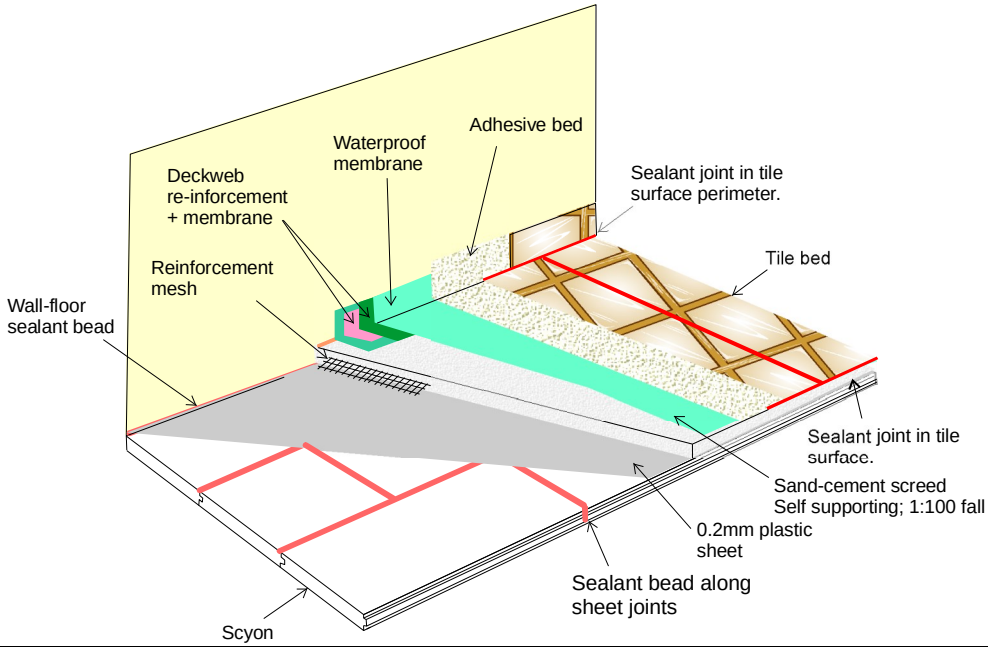
17) As soon as all corners and joints have been reinforced, a full coat of the waterproofing membrane shall be applied to all surfaces to be treated, by brush or roller application techniques, to achieve a **wet** film thickness of not less than 1.0mm.

18) 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. Final **dry** film thickness shall be 1.0mm or 1.2mm for WPM002.

19) Install nominated tiles using ARDEX Abaflex, X56, X77 ± E90, X18 ± 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.

20) Expansion joints shall be installed in the tile surface in accordance with AS3958-2007.





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 or Ardex New Zealand 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
Complete revision and reissue of document

DOCUMENT REVIEW REQUIRED
24 months from issue

Technical Services 1800 224 070. email: technicalservices@ardexaustralia.com
Australia http://www.ardexaustralia.com

NSW-HO 61 2 9851 9100, **QLD** 07 3817 6000, **VIC** 03 8339 3100, **SA/NT** 08 8406 2500, **WA** 08 9256 8600
Customer Service and Sales 1300 788 780

New Zealand Christ Church 64 3373 6900, Auckland 9636 0005, Wellington 4568 5949
Technical Inquiries NZ 0800 2 ARDEX New Zealand http://www.ardex.co.nz

Web: Corporate: http://www.ardex.com