



TECHNICAL BULLETIN – TB215

TILING AND WATERPROOFING WITH JAMES HARDIES SCYON SECURA

1st August 2024

INTRODUCTION & SCOPE

This Bulletin describes ARDEX systems for waterproofing and tiling onto James Hardies Scyon Secura flooring sheets. Systems are provided for internal dry and wet areas and external balconies. Movement joints must be provided in accordance with Australian Standard 3958.1—2007, AS3740-2012, and AS4654.2 – 2012.

Reference is made to current James Hardies Installation guides and requirements.

Note: This bulletin is specific to Australian conditions, as New Zealand has its own requirements for waterproofing external decks. It is divided into multiple sections based on the different systems and usages covered.

Qualifications

The construction of floors with James Hardie Scyon Secura flooring sheets must comply with the manufacturer's requirements.

James Hardie agreed upon the systems described in this bulletin after a rigorous testing program. ARDEX, however, removed the reference to a polyurethane building sealant, as plasticizer migration has been found to damage overcoating waterproofing membranes. It has been replaced with a neutral-cure **silicone** such as ARDEX ST.

Note: There are occasions when the sheets are NOT laid correctly. This can be an incorrect layout or falls not incorporated in the subfloor as required by James Hardie's installation instructions.

ARDEX can provide alternate 'workaround' systems when these situations occur. These systems are not the James Hardie preferred option and usually occur when the flooring sheets are installed with falls to outlets centrally located in the deck or wet area.

The design criteria for external Scyon Secura sheets require external strip drains, not drains inserted into the sheet field.

Waterproofing membranes are to be taken a minimum of 150mm up walls in internal applications to comply with AS3740-2021 and the NCC (National Construction Code). In external applications, the waterproofing membrane must be taken a minimum of 100mm up walls to comply with Australian Standard 4654.2-2012.

Movement joints must be placed over sheet control joints, and tile surfaces must be installed in accordance with Australian Standard 3958.1–2023 and the current James Hardies installation manuals.



SURFACE PREPARATION

James Hardies Scyon Secura Flooring sheets must be fixed strictly in accordance with manufacturer's instructions.

The James Hardie design intent is to create required falls in the subfloor, not over the surface of the Scyon Secura floor panels.

All screw heads must be finished flush with the surface and covered with ARDEX ST Silicone or ARDEX RA 050.

All surfaces should be clean, dry, and free of dust and contaminants. The sheet joints and perimeter joints should also be sealed with ARDEX ST Silicone or ARDEX RA 050. The sealant should be installed equidistantly 10mm across each joint. The sealant should be allowed to cure for at least 48 hours prior to installing waterproofing.

SYSTEM INSTALLATIONS

System design variants can be based on:

- Sheet layout (squared vs staggered)
- External vs internal
- Wet area vs dry area
- Type of membrane being considered (liquid applied vs sheets)
- Moisture resistant non-waterproofed external decks with tile finish
- Internal non-waterproofed floors with tiled finish
- Application of self-supporting screeds to compensate for an incorrect sheet layout.

These first two figures (1 & 2) on the following page come from the James Hardie Scyon Secura external installation manual. They depict the required creation of falls in the deck and the requirement that drainage is NOT placed in the sheet field for external decks.

The following two figures (3 & 4) also come from the James Hardie Scyon Secura external installation manual. They depict the required sheet layout patterns for nominal direct tile bonding (squared layout) and where a mortar bed must be placed over the sheets before tiling (staggered layout). This is also the recommended layout for internal installation.

There is logic behind having correct falls on a deck and an advantage to creating falls with sheet construction as opposed to using a screed. In that case, the primer/membrane is placed on the sheet surface and then covered with a slip sheet. The screed would be unbonded.

In situations where falls are not correct, water can flood the deck, and ponding water can lead to efflorescence and dampness.

Falls created in the screed is a typical approach used for many years. The main issue is that moisture can lie on the base sheet/membrane, and whilst not a problem for leakage, it can lead to efflorescence. When decks are sloped to falls, moisture can drain away at all levels, reducing dampness and the risk of efflorescence.



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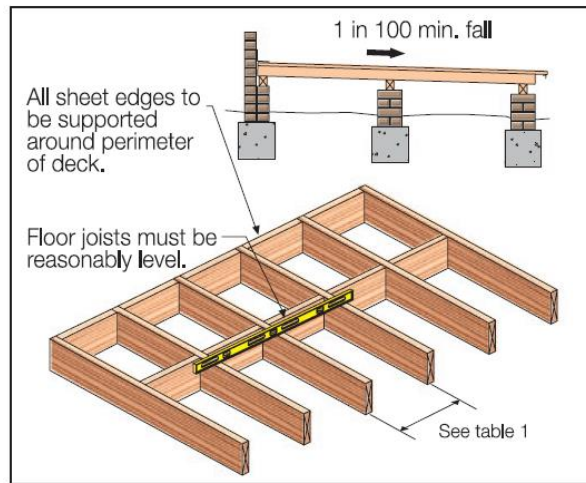


FIGURE 1 FRAME PREPARATION

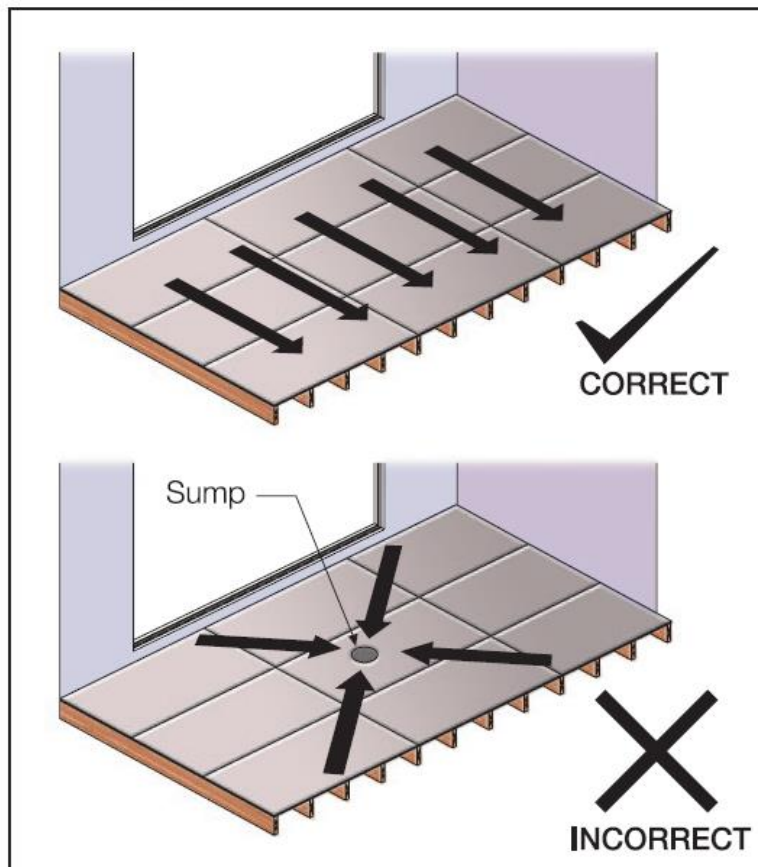


FIGURE 2 DRAINAGE

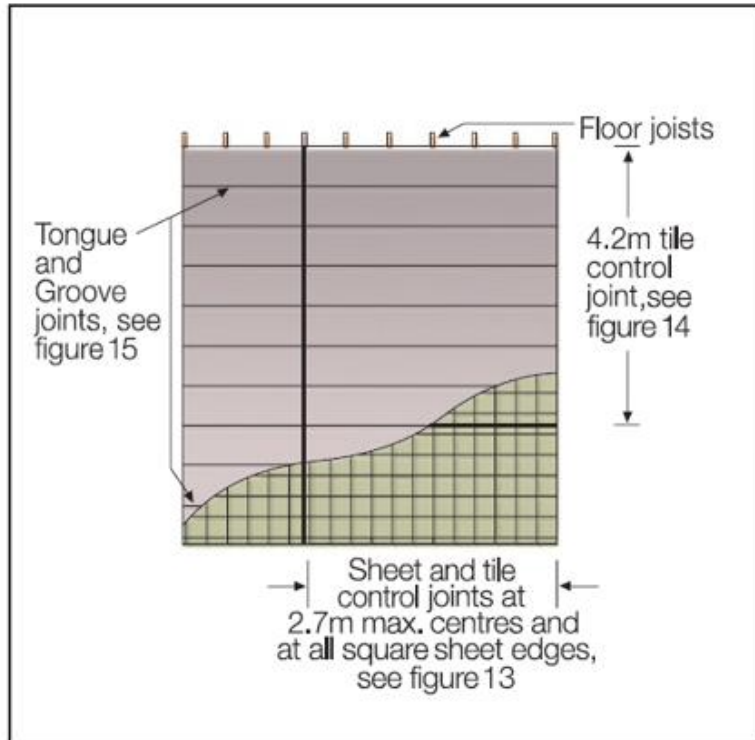


Figure 3: Squared Sheet Layout

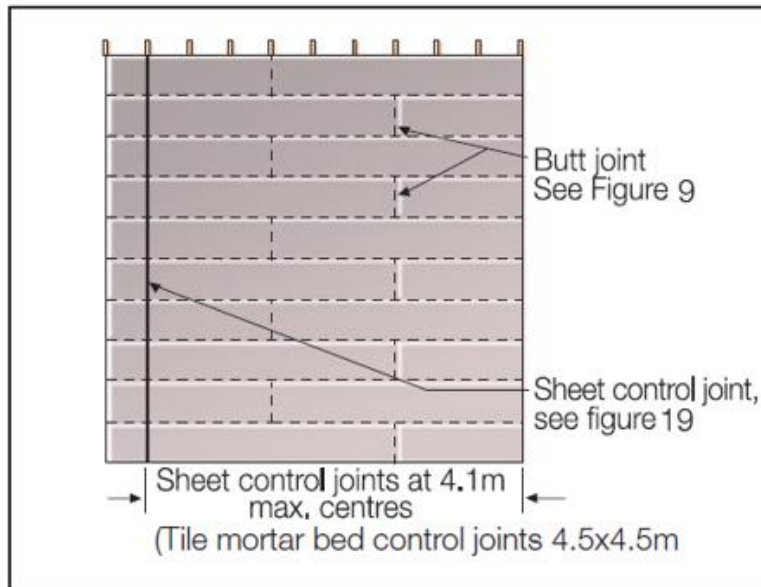


Figure 4: Staggered Sheet Layout



ARDEX Systems for Waterproofing and Tiling

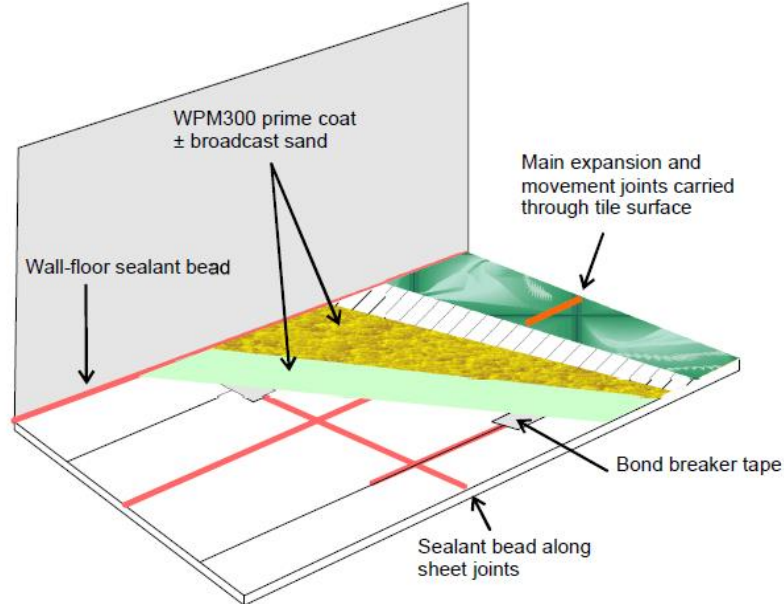


Figure 5: Direct tiling onto the external deck with a squared sheet pattern, no liquid-applied sheet membrane. Falls are created in the deck construction. For this situation, individual applications need to conform to requirements in the NCC and AS4654.

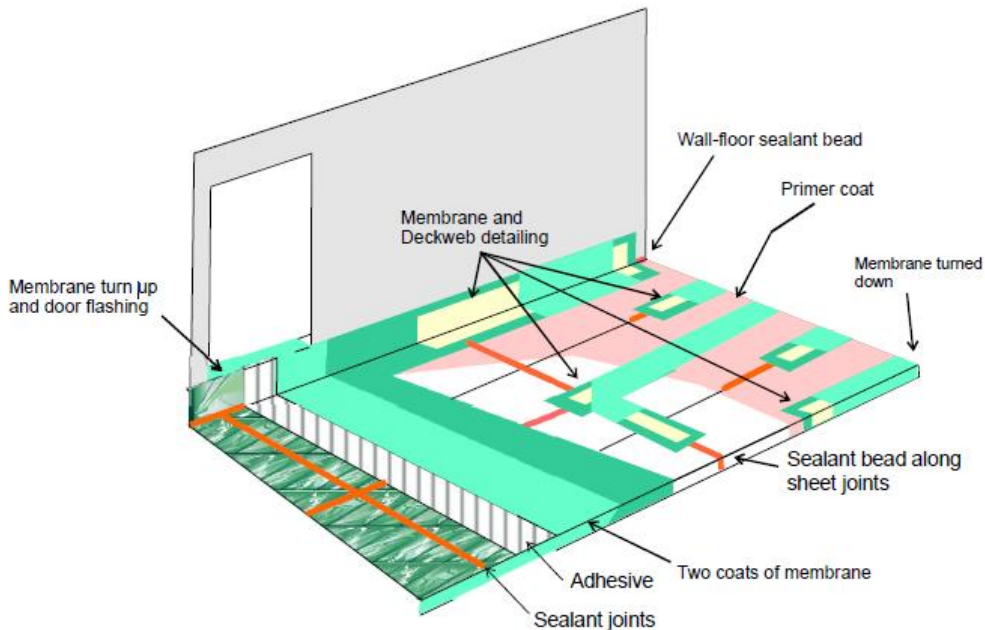


Figure 6. ARDEX's most common application is direct tiling onto an external deck with a squared sheet pattern and a liquid-applied membrane. The deck construction creates falls.
 Note—Figures 13 and 14 in the 2016 Scyon Secura manual show bond breakers above and below the membrane over sheet joints and movement joints. ARDEX has no objection to this difference in the system.

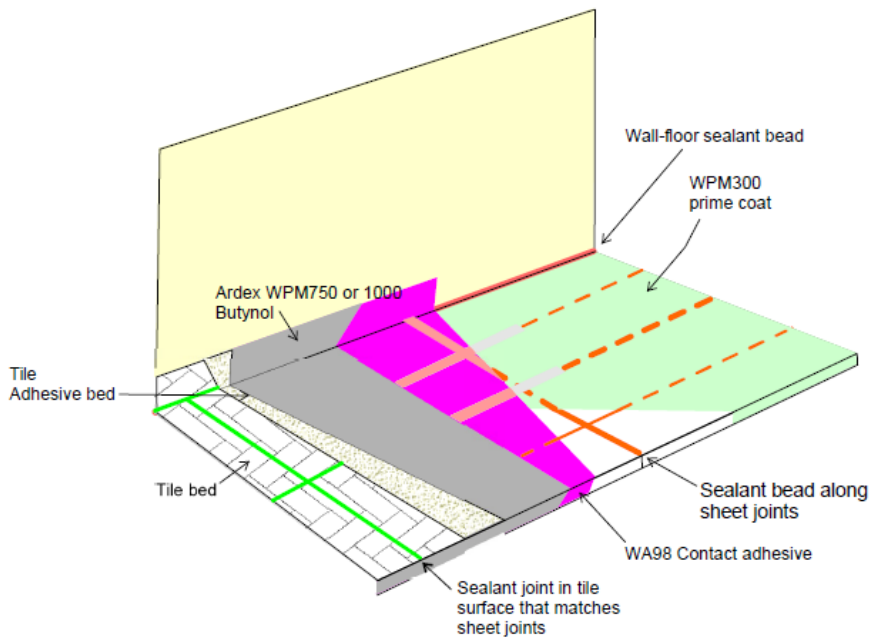


Figure 7: This is an example of an external deck with falls created in the structure, which is waterproofed with a sheet membrane and direct tiling. The sheet layup pattern is the squared format.

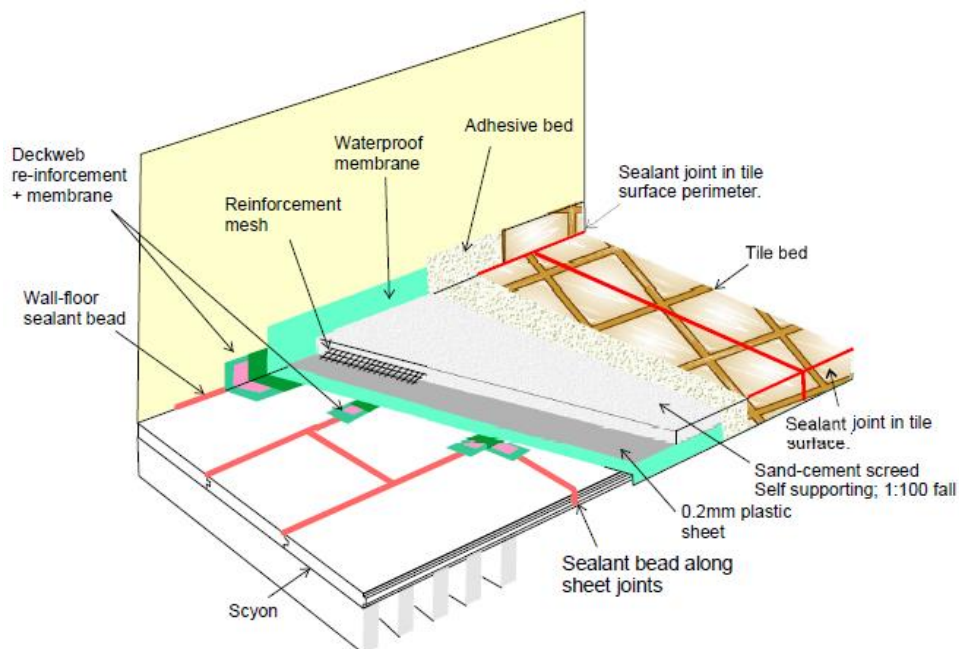


Figure 8: The second most common application ARDEX encounters is indirect tiling onto an external deck with a staggered sheet pattern and a liquid-applied membrane on a screed. Falls are normally created in the deck construction but can also be made in the screed (as shown in the schematic below). Some installers may decide to re-waterproof the screed as well to assist in suppressing efflorescence and preventing ponding water issues at the screed base where falls have not been created in the deck structure.



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TILING WITH AND WITHOUT WATERPROOFING OVER JAMES HARDIE SCYON™ SECURA™ FLOORING SHEETS -
EXTERNAL DECK INSTALLATIONS**

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

EXTERNAL DECKS: TILES BONDED WITHOUT THE USE OF A SAND-CEMENT SCREED

ID	Application	Creation of falls to waste	Priming direct to surface	Waterproof Membrane	ARDEX Tile Adhesive
1	Water resistant external deck which does not require waterproofing. (see Diagram 1)	<i>Created by deck design and construction. Square sheet lay-out. Falls at 1:100 minimum</i>	ARDEX WPM300 2-coats sand seeded	N.A.	ARDEX Abaflex ARDEX X77 ± ARDEX E90 ARDEX X18 ± ARDEX E90 ARDEX Optima
2	Waterproofed external deck. Tiles directly bonded to liquid membrane. (see Diagram 2)	<i>Created by deck design and construction. Square sheet lay-out. Falls at 1:100 minimum</i>	ARDEX WPM300 (ARDEX WPM265)	ARDEX WPM002, ARDEX WPM155	ARDEX X56 ARDEX Abaflex ARDEX X77 ± ARDEX E90 ARDEX X18 ± ARDEX E90 ARDEX Optima ARDEX X56
3	Waterproofed external deck. Tiles directly bonded to sheet membrane. (See Diagram 3)	<i>Created by deck design and construction. Square sheet lay-out. Falls at 1:100 minimum</i>	ARDEX WPM300	ARDEX WA98 adhesive ARDEX WPM1000 under tile 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 self-supported screed. (See Diagram 4)	<i>Created by deck design and construction. Staggered sheet layout* Falls at 1:100 minimum</i>	Priming ARDEX WPM265 ARDEX WPM300 Waterproofing 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
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* 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.

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TILING WITH AND WITHOUT WATERPROOFING OVER JAMES HARDIE SCYON™ SECURA™ FLOORING SHEETS - INTERNAL FLOOR INSTALLATIONS

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

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	<i>No falls required. Sheets laid in staggered pattern</i>	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 X77 or X18 ± ARDEX E90 ARDEX X10 + ARDEX E90 ARDEX S28N ± ARDEX E90 ARDEX X56
6	Internal dry areas Tiles bonded directly to an isolating sheet on the subfloor	<i>No falls required. Sheets laid in staggered pattern</i>	ARDEX AF171	ARDEX DS60 re-movable isolation matting	ARDEX X77 or X18 ± ARDEX E90 ARDEX S28N ± ARDEX E90
7	Internal dry areas Tiles bonded directly to a sound deadening matt on the subfloor	<i>No falls required. Sheets laid in staggered pattern</i>	ARDEX X56	ARDEX DS40 sound isolation matting	ARDEX X77 or X18 ± ARDEX E90 ARDEX S28N ± ARDEX E90 ARDEX X56
8	Internal wet area Tiles directly bonded to sheet membrane on subfloor	<i>Falls created by floor design and construction. Sheets laid in staggered pattern. Falls at 1:60 to 1:80 for showers and 1:100 for floors.</i>	ARDEX CA750	ARDEX WPM750 or ARDEX WPM1000	ARDEX X77, or X18 ± ARDEX E90
9	Internal wet area Tiles directly bonded to liquid applied membranes on either the substrate (falls in place) or self-supported screed over sub-floor (falls not in place)	<i>Falls created by floor design and construction. Sheets laid in staggered pattern. Falls at 1:60 to 1:80 for showers and 1:100 for floors</i>	On Scyon surface ARDEX WPM300 (one coat). On supported screed ARDEX WPM300 ARDEX P9	Polythene bond breaker tape over all sheet joints Bond breaker tape (PE or filament polypropylene) ARDEX WPM002, ARDEX WPM155	ARDEX X77 or X18 ± 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*.

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.

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