TECHNICAL BULLETIN – TB100

ARDITEX & ARDEX K15 UNDERLAYMENTS OVER STEEL OR ALUMINIUM DECKING AND NAUTICAL VESSELS

Date, Thursday, 24 November 2016

INTRODUCTION & SCOPE

Warehouse renovations, ocean-going vessels, off shore oilrigs and other structures often require a high quality floor (wood parquet, vinyl tile) over metal decking. Such flooring requires a very smooth, hard and durable underlayment to assure structural and aesthetic success.

PROBLEM

Conventional underlayments (latex, gypsum, plywood) are either structurally unsound, water soluble, unable to absorb deck movement or flexing or provide a soft and weak surface.

SOLUTIONS

The ARDITEX NA*[1] or ARDEX K15 Cementitious Underlayment Systems over aluminium or steel decking are successful fast track methods, which allow the installation of high quality concrete underlayment in a thin layer, while maintaining strength and flexibility to withstand normal deck flexing and traffic stress.

Depending on the camber of the metal decking a self-smoothing underlayment with reduced self-levelling properties may be required. For such applications, use ARDITEX NA in preference to K15.

PREPARATION & INSTALLATION – STEEL DECKS

1. Remove oil and grease in accordance with S.S.P.C. – SP1 solvent cleaning.
2. Metal Surfaces to be prepared to minimum Standard of Sa 2.5 (ISO 8501-1 2007; see also ISO 8501:2-1994,3-2006,4-2006, ISO 8503-2-2012, ISO8504 1 & 2-2000) or S.S.P.C.-SP6 abrasive blast with non-metallic abrasive (Garnet) in accordance with the manufactures requirements for the application of a steel epoxy primer.
3. Vacuum to remove all trace of loose particles, dust, all foreign matter, and ensure the surface is dry before proceeding.
4. Install a two part epoxy primer eg INTERGARD 269*[2] as recommended by the steel/protective coatings manufacturers.
5. ARDEX recommends INTERGARD 269 (International Marine Coatings) installed at min 40 microns D.F.T @ 25Cº as per manufactures instructions.
6. Allow the two part epoxy primer to dry thoroughly, minimum 5 days until full cure, as per manufacturer's recommendations.
7. Ensure the epoxy primer surface is free from salts, foot traffic grime, dust, steel shavings, fillings, or particles, and any other foreign matter prior to application of ARDEX P82 and Ardex levelling cement.
8. We suggest that the installation proceed at ambient and substrate temperatures of 15 - 25°C
9. Paint the coated metal surface with ARDEX P82 ULTRAPRIME, at a rate of 8-10 m², using a rubber squeegee and let dry to a thin, slightly tacky film (minimum 3 hours, maximum 24 hours). Refer data sheet for further information.

10. The cement-based self-smoothing underlayment shall be one of the following; ARDITEX NA or K10 Self-Smoothing Underlayment Cement.
11. The additive to be mixed with ARDEX K15 when used over metal decking shall be ARDEX E25 RESILIENT EMULSION, mixing ratio as follows,

    1.6 litres ARDEX E25
    plus 4.0 litres water
    to 20 kg ARDEX K15

12. Pour the liquid underlayment and spread in place with the ARDEX T-4 Spreader. Use the ARDEX T-5 Smoother for featheredge and touch-up. Wear Football boots with nylon studs to avoid leaving marks in the liquid smoother.
13. For ARDITEX NA a spiked roller can be used to smooth out trowel marks to provide a smooth flat finish.
14. For an ultra fine finish, pore filling or touch up work on Ardex floor levelling cement shall be ARDEX FEATHER FINISH.
15. Underlayment can be walked on in 2 to 3 hours at 20°C
16. Underlayment can accept floor covering material after 24 hours at 20°C
17. NOTE: Cooler temperatures will result in slower curing of the ARDITEX NA or K15. Allow extra time at cooler temperatures before installing floor coverings; if in doubt consult Ardex Technical Services.
18. Observe the basic rules for concrete work when installing any Ardex cement based product i.e. DO NOT OVER WATER.

PREPARATION & INSTALLATION – ALUMINIUM DECKS

1. It is absolutely essential that the aluminium decking is solid, firm and well bonded. Aluminium deflects more easily than steel and therefore it is necessary that the aluminium be especially well attached.
2. We suggest that the installation proceed at ambient and substrate temperatures of 15 - 25°C
3. Although not subject to the same type of “rusting” that steel is, it is necessary to protect the aluminium from oxidising and forming salts. We therefore suggest that the aluminium decking be coated with the same two part epoxy protective coating primer as steel, INTERGARD 269.
4. Preparation of the aluminium surface to receive a two part primer shall be done in strict accordance with procedures as outlined by the coatings manufacturer.
5. Remove oil and grease in accordance with S.S.P.C.-SP1 solvent cleaning - brush blast to obtain a mechanical profile for coating adhesion, as per the coatings manufacturers written instructions.
6. Further preparation and installation is the same as for steel decking.

ADHESIVES

The recommended adhesive to bond resilient flooring is ARDEX AF545 epoxy adhesive. For textile floor coverings the preferred adhesive is ARDEX AF266 carpet adhesive.

For ceramic tiles, adhesives such as ARDEX OPTIMA, ARDEX X77+/-E90 or ARDEX X18+ARDEX E90 are all suitable. Cement based grout requires the use of additives to increase flexible, or an epoxy grout.

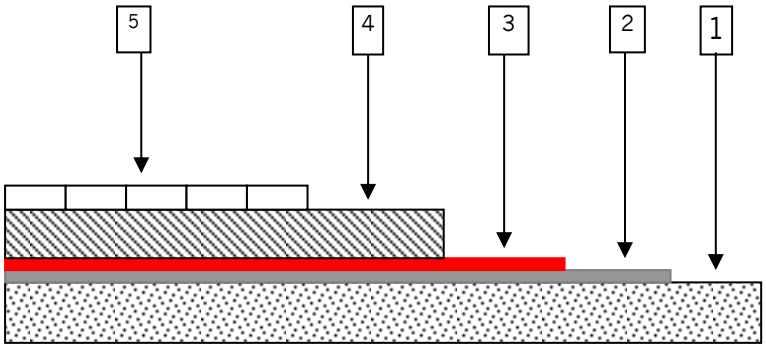
PRECAUTION

Always install test areas to determine the suitability of the product for the intended purpose.

Failure to follow all the preparation steps and correct epoxy priming can result in the topping de-bonding due to a chemical reaction with the metal decking.

ARDEX Floor Smoothers over Metal Decking

1. Steel or Aluminium Floor
2. Two Part Epoxy Primer
3. ARDEX P82 Primer
4. ARDITEX NA or K15 self smoothing cement.
5. Top covering, vinyl, tiles, carpet etc.



NOTES

a) *[1]Arditex NA has been Lloyds certified for:

EC Type Examination (Module B) Annex A1 – A.1/3.1 – Primary Deck Coverings and USCG 164.106 Primary Deck Coverings

Fire Approval to Solas 1974 – Primary deck material not capable of producing excessive quantities of smoke and toxic products of combustion.

b) *[2]Intergard 269 is a zinc phosphate – epoxy based coating and contains no metallic components. This product is at the time of writing still available although quite 'old' in the market place. Availability with International Paints – Akzo-Nobel should always be verified.

c) Ardex X77 carries current Lloyds certification for:

EC Type Examination (Module B) Annex A1 – A.1/3.1 – Primary Deck Coverings and USCG 164.106 Primary Deck Coverings

d) Ardex K15+E25 carries DET Norsk Veritas certification for Primary Deck Coverings.

e) Document copyright prior to 2001 held by Vibro Engineered Cements.

DEFINITIONS OF SURFACE PREPARATION

The following definitions are derived from the Steel Structures Painting Council guidelines.

SSPC-SP-1
Solvent Cleaning - Removal of all detrimental foreign matter such as oil, grease, dirt, soil, salts, drawing and cutting compounds, and other contaminants from steel surfaces by the use of solvents, emulsions, cleaning compounds, steam or other similar materials and methods which involve a solvent or cleaning action.

SSPC-SP6/Sa 2/NACE 3
Commercial Blast Cleaning - Removal of mill scale, rust, rust scale, paint or foreign matter by the use of abrasives propelled through nozzles or by centrifugal wheels, to the degree specified. A commercial blast cleaned surface finish is defined as one from which all oil, grease, dirt, rust scale and foreign matter have been completely removed from the surface and all rust, mill scale and old paint have been completely removed except for slight shadows, streaks, or discolorations caused by rust stain, mill scale oxides or slight, tight residues of paint or coating that may remain; if the surface is pitted, slight residues of rust or paint may by found in the bottom of pits; at least two thirds of each square inch of surface area shall be free of all visible residues and the remainder shall be limited to the light discoloration, slight staining or tight residues mentioned above.

SSPC-SP-10/Sa $2^{1/2}$/NACE 2
Near-White Blast Cleaning - Removal of nearly all mill scale, rust, rust scale, paint, or foreign matter by the use of abrasives propelled through nozzles or by centrifugal wheels, to the degree hereafter specified. A Near-White Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, mill scale, rust, corrosion products, oxides, paint or other foreign matter have been completely removed from the surface except for very light shadows, very slight streaks or slight discolorations caused by rust stain, mill scale oxides, or light, tight residues of paint or coating that may remain. At least 95 percent of each square inch of surface area shall be free of all visible residues, and the remainder shall be limited to the light discoloration mentioned above.

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