



TECHNICAL BULLETIN – TB100

ARDEX LEVELLING COMPOUNDS OVER STEEL OR ALUMINIUM DECKS ON NAUTICAL VESSELS

12th December 2024

INTRODUCTION & SCOPE

Warehouse renovations, ocean-going vessels, offshore oil rigs, and other structures often require a high-quality floor (wood parquet or vinyl tile) over metal decking. Such flooring requires a smooth, hard, and durable underlayment to ensure 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

ARDITEX NA or ARDEX K15 cementitious underlayment systems over aluminium or steel decking are successful fast-track methods. They 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-leveling properties may be required. For such applications, use ARDEX ARDITEX NA in preference to ARDEX K15.

PREPARATION & INSTALLATION – STEEL DECKS

1. Remove oil and grease in accordance with S.S.P.C. – SP1 solvent cleaning.
2. Metal surfaces are to be prepared to a minimum standard of Sa 2.5 (ISO 8501-1 2007; see also ISO 8501:2-1994,3-2006,4-2006, ISO 8503-2-2012, ISO 8504 1 & 2-2000) or S.S.P.C.-SP6 abrasive blast with non-metallic abrasive (Garnet) in accordance with the manufacturer's requirements for the application of a steel epoxy primer.
3. Vacuum to remove all traces of loose particles, dust, and all foreign matter, and ensure the surface is dry before proceeding.
4. Install a two-part epoxy primer, such as INTERGARD 269, as recommended by the steel/protective coatings manufacturers.
5. ARDEX recommends installing INTERGARD 269 (International Marine Coatings) at a minimum of 40 microns D.F.T @ 25°C.
6. Allow the two-part epoxy primer to dry thoroughly, at least 5 days, until it reaches full cure, as per the manufacturer's recommendations.
7. Ensure the epoxy primer surface is free from salts, foot traffic grime, dust, steel shavings, filings, or particles, and any other foreign matter prior to the application of ARDEX P82 and ARDEX leveling cement.
8. ARDEX recommends the installation proceed at ambient and substrate temperatures of 15 - 25°C



9. Paint the coated metal surface with ARDEX P82 ULTRA PRIME at an 8-10 m² rate, using a rubber squeegee, and let dry to a thin, slightly tacky film (minimum 3 hours, maximum 24 hours). Refer to the datasheet for further information.
10. The cement-based self-smoothing underlayment should be ARDEX ARDITEX NA or ARDEX K15 self-smoothing underlayment cement.
11. ARDEX E25 additive is to be mixed with ARDEX K15 in the following ratio:

	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 leveling compound.
13. When using ARDITEX NA, a spiked roller can be used to smooth out trowel marks and provide a smooth, flat finish.
14. ARDEX FEATHER FINISH can be used for an ultra-fine finish, pore filling, or touch-up work on ARDEX leveling compounds.
15. The leveling compound can be walked on in 2 to 3 hours at 20°C
16. The leveling compound 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 ARDEX K15. Allow extra time at cooler temperatures before installing floor coverings. If in doubt, consult ARDEX Technical Services.
18. When installing any ARDEX cement-based product, observe the basic rules for concrete work, i.e., DO NOT OVERWATER.

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. The aluminium surface shall be prepared to receive a two-part primer in strict accordance with procedures 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 manufacturer's written instructions.
6. Further preparation and installation are the same as for steel decking.

ADHESIVES

The recommended adhesive to bond resilient flooring is ARDEX AF180 MS adhesive.
For textile floor coverings, the preferred adhesive is ARDEX AF271 carpet tile adhesive.



Adhesives such as ARDEX OPTIMA, ARDEX X77+/-E90, or ARDEX X18+ARDEX E90 are suitable for ceramic tiles. Cement-based grout requires additives to increase flexibility. Epoxy grout can also be used.

PRECAUTION

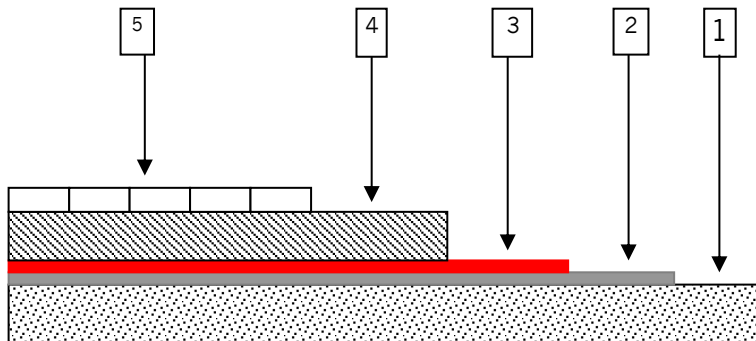
Always install test areas to determine the product's suitability for the intended purpose.

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 Leveling Compounds over Metal Decking

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



NOTES



- a) ARDEX Ardite 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 combustion products.
- b) Intergard 269 is a zinc phosphate – epoxy-based coating with no metallic components. At the time of writing, this product is still available, although quite 'old' in the marketplace. Availability with International Paints – Akzo-Nobel should always be verified.
- c) ARDEXX77 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.

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DEFINITIONS OF SURFACE PREPARATION

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

SSPC-SP-1

Solvent Cleaning is the removal of all detrimental foreign matter, such as oil, grease, dirt, soil, salts, drawing and cutting compounds, and other contaminants, from steel surfaces using solvents, emulsions, cleaning compounds, steam, or other similar materials and methods that 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 using abrasives propelled through nozzles or by centrifugal wheels to the specified degree. 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 be 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 using 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.

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

Change of slogan and address