

TECHNICAL BULLETIN – TB174

MESH REINFORCED UNDERLAYMENT SYSTEMS OVER WOOD BASED SUBFLOORS

Date, Tuesday, 15 July 2014

INTRODUCTION & SCOPE

One of the most common problems in renovation and remodelling of existing buildings is the levelling and smoothing of wooden subfloors to receive floor coverings.

Wooden floors move under stress and they expand or contract with temperature and humidity changes. These movements can be up to $\pm 0.3\%$ per metre for each 1% change in relative humidity. So timber floors could move $\pm 1.2\%$, or 12mm per metre in areas where there is notable temperature and humidity variations.

Joints between boards can be very pronounced and the surfaces are often rough and uneven, with deviations from zero to several centimetres in three metres.

Covering these wooden subfloors with more wood is labour intensive and will result in floor elevation problems at doorways and hallways. Gypsum underlayments are not capable of sustaining this degree of movement and will crack along joints, break bond with the lateral wood movement and often disintegrate when exposed to traffic stress.

SOLUTION

The mesh reinforced ARDEX K15 or ARDEX A55 system is a successful, fast-track method, which allows the installation of high quality cementitious underlayment in a thin layer (6-8mm) while maintaining the ability to handle traffic stress, and floor movements.

The resulting cementitious surface is smooth and hard and is suitable for any type of flooring material, including resilient flooring, parquetry and ceramic tiles. Most types of adhesive that are normally used over concrete surfaces can be used over ARDEX K15 or A55 surfaces.

PREPARATION

1. Particleboard subfloors are **NOT** recommended as a suitable substrate for the installation of **ARDEX A55** and only **ARDEX K15 is suitable**. Where a particleboard floor has been subjected to rain or moisture damage, the surface is weakened and is not likely to be suitable for flood coating of high strength underlayments such as A55 or K15.
2. The wood subfloors must be clean and free of oil, grease, wax etc. Sanding is necessary with 40 grit abrasive to remove contaminants and then vacuumed clean of dust. In the case of particleboard all waxes and coatings must be removed.
3. The subfloor should be solid and fixed securely to provide a rigid base, with deflections less than $1/360^{\text{th}}$ of the span distance of the floor joints.
 - a) Particleboard floors shall be screwed fastened to the floor joists. Nail fixing is not acceptable.
 - b) Any strips boards exhibiting movement shall be re-nailed.
 - c) Open joints shall be filled with a suitable fast setting mortar (such as ARDEX A45 or for small gaps ARDEX FEATHER FINISH mixed with ARDEX P82 primer in the ratio 1.5:1).
 - d) The examination of the subfloor is a professional evaluation by the contractor and is most important.



4. Prime the wood subfloor with ARDEX P82 Ultraprime in accordance with printed technical data.
5. Staple a thin galvanised, diamond metal lath mesh to the subfloor (15mm Tilers' lath).
Chicken wire or bird mesh are not suitable substitutes.
6. The cement-based self-smoothing underlayment applied to **strip timber** flooring shall be either ARDEX K15 or ARDEX A55 Self-Smoothing underlayment cement.
7. The cement based self smoothing underlayment applied to **particleboard** flooring shall be ARDEX K15 underlayment cement.
8. To improve the flexibility of the floor levelling cement, the additive to be mixed with ARDEX K15 shall be ARDEX E25 Resilient Emulsion.

Note: ARDEX K15 to be mixed with ARDEX E25 as follows: -

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

ARDEX A55 **does not** require the use of E25 Resilient Emulsion.

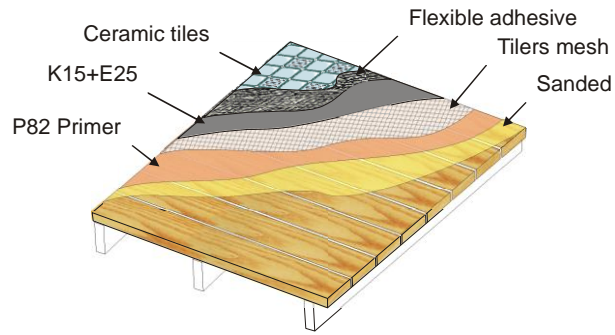
9. Minimum installation temperature is 15°C.
10. Where K15 has been used, the floor can be walked on 3 to 4 hours after installation, depending on temperature. Floor coverings can be installed the next day.
11. Where A55 has been used the floor should be cured in 60-90 minutes and ready for floor coverings after that.

Special Notes:

- a) Ensure that there is adequate cross-flow ventilation and that the minimum height clearance between earth and the timber flooring, in accordance with AS1884-1985 and any relevant New Zealand Standards are maintained. Failure to have adequate ventilation can result moisture build up under the subfloor which can result in excessive floor deformation, mould growth or moisture permeation through the underlayment which may produce blistering of sheet vinyl.
- b) Where directly bonded timber floor coverings are to be used, the recommended adhesives are the silane based materials such as ARDEX AF2420. Other options include epoxy and acrylic types. Solvent based polyurethane adhesives are not recommended for this type of installation.
- c) A sufficient thickness of the underlayment must be applied to completely hide and cover the mesh, and also to prevent ghosting of the mesh through the underlayment surface.
- d) The moisture content of timber floor subfloors and any bonded timber or parquet shall be in the range 12-16%.

Always make a test installation first to assure success, as floor conditions vary from site to site.





Typical installation over T&G floor.

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 New Zealand or 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

24 month review.

REVIEW PERIOD

24 months from issue

New Zealand Christchurch 64 3384 3029 Auckland 9636 0005 Wellington 4568 5949
Technical hotline 0800 2 Ardex

Ardex Australia 61 2 9851 9100

Web: <http://www.ardex.co.nz> email: technicalservices@ardexaustralia.com