

INSTALLATION OF NATURAL STONE TILES & SLABWORK IN WET AREAS

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INSTALLATION OF NATURAL STONE TILES & SLABWORK IN WET AREAS

SUBSTRATE

We require an adequate substrate to be in place:

- Cross-banded plywood (properly screwed to the joists) or concrete subfloor must be clean, even, and load bearing
- Where the existing walls/floors do not meet this requirement (e.g., a partition, stud walls, etc.), Dukkaboard or Schluter-Kerdi-Board should be installed which also serve as a waterproofed substrate. Cases where Dukkaboard or Kerdi-Board is required or recommended include:
 - Stud walls
 - Partitions
 - Half tiled or damaged walls
 - Timber floor
 - Under-floor heating
 - Mixed substrates

WATERPROOFING

- Where Dukkaboard or Schluter-Kerdi-Board system is installed, it serves as a waterproof substrate.
- If not Dukkaboard or Kerdi-Board system is required, an impervious membrane should be used:
 - Ditramat membrane is recommended for the floors and Kerdi membrane for the walls.
 - Membrane is fixed using Ardex AF200 adhesive. If the floor is concrete, we use cement-based adhesive Ardex X7R.

While there are types of brush-applied liquid waterproofing systems (like Mira Waterproofing, see e.g. pages 4-5 http://www.trimlineinnovation.co.uk/pdfs/Trimline_11_Water_Proofing_Systems.pdf) which offer a degree of waterproofing, the British Standards Institution suggests using impervious membranes. BS 5385 states: "Tiles and bedded finishes, even when the joints are filled with impervious grout, cannot be guaranteed to eliminate entirely the passage of liquids downwards...in the case of suspended floors water passing downwards may cause dampness on walls and ceilings below, and in the worst cases leads to flooding."

It says the most satisfactory method of preventing this is by: "Providing a membrane between the base and the tiling...the membrane should be impervious...and be sufficiently flexible and strong enough to resist movement in

the structure, and loads, without rupturing." It concludes by saying that further advice should be sought from specialists in the waterproofing field.

A correctly installed waterproofing membrane would prevent water ingress damage. There's also a need for waterproofing where floors have to be washed regularly - even more so where chemicals are used, in places such as breweries, dairies and food processing plants.

DITRAMAT AND KERDI MEMBRANES

Manufacturer and/or Supplier:

Schluter-Systems Ltd
<http://www.schluter.co.uk/>

Schlüter-KERDI is recommended for waterproofing walls, whilst Schlüter-DITRA is recommended for floors, due to its uncoupling capabilities.

When using Schlüter-DITRA: after ensuring that the substrate is even and load-bearing, the bonding adhesive is applied with a 3mm x 3mm, or 4mm x 4mm notched trowel. While the type of bonding adhesive depends on the type of substrate, for most substrates a dry-set tile adhesive is suitable. Ditra is run up to 50mm to the wall, and then Kerdi-Keba tape is applied with Kerdi-Coll adhesive, which seals the area around the perimeter and under the skirting.

The fleece on the underside of the membrane needs to be solidly embedded into the adhesive so that its entire surface is bonded. Work the membrane into the adhesive, in just one direction, using a float or screed trowel. The perimeters and any membrane joints are then sealed using the waterproof sealing band Schlüter-KERDI-KEBA, which must be adhered with Schlüter-KERDI-COLL, to provide a guaranteed waterproof installation, and once the area has been fully sealed, tiles can be laid on top immediately afterwards.

Schlüter-KERDI is a crack bridging waterproof membrane made of soft polyethylene, which has been covered on both sides with a special fleece webbing to anchor the membrane in suitable tile adhesive.

Schlüter-KERDI has been developed for bonded waterproofing assemblies with coverings of tiles and natural stone. The waterproofing membrane should be bonded to an even, load bearing substrate with an appropriate tile adhesive. The tiles are laid directly on Schlüter-KERDI using the thinbed method. Other trowel applied covering materials or plaster may also be used.

KERDI-BOARD

Manufacturer and/or Supplier:

Schluter-Systems Ltd
<http://www.schluter.co.uk/>

A universal substrate for tiles developed by Schlüter-Systems. It serves as a substrate and bonded waterproofing solution.

Schlüter-KERDI-BOARD gives a level substrate with straight and precisely angled inside and outside corners, providing an instant base for a perfect tile covering.

Many substrates, both in new buildings and renovation projects, are unsuitable for tile installation, especially in areas of high moisture. These often need comprehensive additional work and waterproofing measures.

Schlüter-KERDI-BOARD creates a perfect substrate for tile installation in both new build and renovation projects. It is used for:

- Masonry of all kinds, including green masonry
- Concrete
- Existing substrates such as plaster, tiles and painted surfaces
- Mixed substrates
- Wood or metal stud frames
- Partition walls
- Panelling bathtub surrounds
- Vanities and shelving
- Kitchen work surfaces
- Concealing pipes

A special version, Schlüter-KERDI-BOARD-V, comes with vertical grooves, designed for creating rounded and curved designs in applications such as self supporting partition walls, tub surrounds, panelling of support structures and columns and panelling of pipes and installation ducts.

Schlüter-KERDI-BOARD is quick and easy to install using mortar or screws, anchors and profiles from the Schlüter-KERDI-BOARD attachment hardware package, depending on the application. The panel comes in seven thicknesses: 5 mm, 9 mm, 12.5 mm, 19 mm, 28 mm, 38 mm and 50 mm, meaning that there should be a panel suitable for any particular application.

Because of its extremely lightweight construction - it contains no cement or fibreglass - it is easy to transport, handle and cut. Its top and bottom surfaces comprise a fleece webbing with a reinforcement layer immediately underneath and a thickness of extruded hard foam in the centre.

Accessories include the angle component Schlüter-KERDI-BOARD-E and the U shaped Schlüter-KERDI-BOARD-U which are particularly useful for creating boxes to conceal pipes and ducts.

Amongst Schlüter-KERDI-BOARD's benefits:

- Even, impact resistant and rigid
- Waterproof and temperature resistant
- Officially approved for use in bonded waterproofing assemblies
- Thermally insulating
- Fleece webbing for easy anchoring in thin-bed mortar
- Quick and easy to install
- Lightweight, easy to handle and transport
- Contains no cement or fibreglass

- Dust free and easy to cut (with a utility knife)
- Printed gridlines for precise cutting.

To be suitable for the installation of tiles in the thin-bed method, the substrate must be completely level and made of an appropriate moisture resistant material. However, walls are frequently covered with a gypsum plaster coating as part of the construction process. Plaster is not suitable for tiling onto, especially in areas of high moisture. Additionally, these surfaces are typically not even enough. Other materials such as drywall panels or wood composite are equally unsatisfactory in these areas. Schlüter-KERDI-BOARD provides the ideal substrate for these installations.

Sanitary installations frequently require partition walls for separate shower or toilet facilities or public changing rooms. Making such walls of bricks or covered stud frames is time consuming and surfaces often need further preparation before they are ready for tiling. Appropriate panel thicknesses of Schlüter-KERDI-BOARD can be used to quickly and simply create stable and self supporting partition walls that are immediately ready for tiling.

In bathroom construction, contractors are frequently expected to prepare the surroundings of bathtubs and shower trays with a suitable substrate for tiling. Schlüter-KERDI-BOARD can be used for bathtub coverings that are ready for tiling straight away. The grooved version, Schlüter-KERDI-BOARD-V, makes it easy to provide effective curved panelling, especially useful for mosaic tiles.

Because it is waterproof and easy to cut with a utility knife, Schlüter-KERDI-BOARD is the ideal substrate for constructing individually designed vanity units, shelving and kitchen worktops for a ceramic tile and natural stone surface. The visible edges can be finished in a number of ways using Schlüter-RONDEC, Schlüter-QUADEC or Schlüter-RONDEC-STEP profiles.

The innovative prefabricated angle and U shaped components of Schlüter-KERDI-BOARD make it especially easy to conceal pipes and ducts.

The grooved Schlüter-KERDI-BOARD-V is designed for creating rounded and curved structures and surfaces. The panel forms quick and easy to assemble substrates for the creative design of support structures and columns, tub surrounds, panelling for pipes and ducts, wall coverings and self supporting partition walls such as multiple shower cubicles.

DUKKABOARD, AN ALTERNATIVE TO Schlüter-KERDI-BOARD

Manufacturer and/or Supplier:

Dukkaboard
<http://www.dukkaboard.com/>

An extensive range of flat panels for walls and floors in thicknesses from 4mm to 50mm. Dukkaboard® building panels create the ultimate substrate. They can be fixed directly to timber or metal studwork instead of plasterboard. They can also be used to replace ply for strengthening floors or to cover old tiles and plaster instead of removing the 'old surface' and replastering.

Fixing Dukkaboard to stud walls:

Traditionally, stud walls have been lined with plasterboard, taped and jointed, then skimmed with finish plaster. This creates a substrate unsuitable for areas prone to dampness and is a time-consuming job involving a number of tradesmen. Using *Dukkaboard*® panels the same can be achieved quickly and easily by one person creating an impervious substrate ready to be tiled. Fix the studwork with centres appropriate for the thickness of the board and weight of tiles to be used. Screw the boards, using the correct number of fixing washers and drywall screws through to the studwork behind. The thicker the boards the better the thermal insulation. When fixing the boards, all joints should be supported by a stud. Always make any cuts for pipes before fixing. When all the boards are securely fixed to the studwork apply joint reinforcement tape before commencing the tiling work.

KERDI-COLL

Manufacturer and/or Supplier:

Schluter-Systems Ltd
<http://www.schluter.co.uk/>

It is a two component sealant adhesive based on a solvent free acrylate dispersion and a reactive cementitious powder. It is suitable for adhering and sealing overlaps of Schlüter -KERDI membranes. In addition, KERDI-COLL can be used to tightly adhere the sealing band Schlüter KERDI-KEBA on KERDI and DITRA as well as on Schlüter-BARA edging profiles. The material is suitable for application in wall and floor areas. This construction, in conjunction with Kerdi or Ditra and the corresponding sealing band Schlüter KERDI-KEBA, results in a waterproofing assembly that meets the requirements of the British Standards.

COSHH ASSESSMENTS

1) ARDEX AF200

Not regarded as a health or environmental hazard under current legislation.

2) Ardex X7R; ARDEX ADHESIVE CONTAINING MORE THAN 20% PORTLAND CEMENT. KERDI-COLL.

Identification of the Substance		Ardex adhesives, e.g., Arduflex 5000, that contain more than 20% Portland cement, classified as irritant. Schluter Kerdi-call contains cement, classified as irritant.
Code letter and hazard designation of products		Xi Irritant R38: Irritating to skin. R41: Risk of serious damage to eyes. Contains Chromium VI. May produce an allergic reaction.
Hazards Identification		
Skin contact		

	Potential harm	Skin irritation. Allergic reaction.
	Who can be affected	Everyone involved in application
	What is being done already	Protective clothing and waterproof gloves. Protective goggles.
	What improvements we need	Each time when applying adhesive, consider using safer Ardex (or alternative) adhesives, such as S16 that contain less than 5% Portland Cement and are classified as non-hazardous. Make sure hands are washed at each break and at the end of shift.
Eye contact		
	Potential harm	Serious damage to eyes. Allergic reaction.
	Who can be affected	Everyone nearby
	What is being done already	Use protective goggles
	What improvements we need	Make sure protective goggles are inspected on a regular basis and if necessary replaced. Each time when applying adhesive, consider using safer Ardex (or alternative) adhesives, such as S16 that contain less than 5% Portland Cement and are classified as non-hazardous.
Inhalation	Potential harm	Allergic reaction.
	Who can be affected	Everyone involved in application.
	What is being done already	Use protective clothing, goggles and filter masks.
	What improvements we need	Each time when applying adhesive, consider using safer Ardex (or alternative) adhesives, such as S16 that contain less than 5% Portland Cement and are classified as non-hazardous.
Ingestion	Potential harm	Allergic reaction, damage to internal organs
	Who can be affected	Everyone working with it
	What is being done already	Protective filter masks are worn.
	What improvements we need	Each time when applying adhesive, consider using safer Ardex (or alternative) adhesives, such as S16 that contain less than 5% Portland Cement and are classified as non-hazardous.
First aid measures		After inhalation: If irritation occurs, move to fresh air. If nose or airways become inflamed seek medical advice. After skin contact: Wash the affected

		<p>area thoroughly with soap and water before continuing. If discomfort, irritation or other symptoms of irritation occur seek medical advice.</p> <p>After eye contact: Immediately rinse opened eye for several minutes under running water. If symptoms develop or persist, seek medical attention as soon as possible.</p> <p>After ingestion: Wash out mouth with water. Do not induce vomiting, drink plenty of water. If symptoms develop or persist, seek medical attention as soon as possible.</p>
Fire fighting measures		<p>Suitable extinguishing media: CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.</p>
Accidental release measures		<p>No dangerous materials released. Collect up spillage by mechanical means, minimising the generation of airborne dust (see section 8).</p>
Handling and storage		<p>Handling: Observe the normal precautions when handling packaged products (Manual Handling Operations Regulations 1992). Avoid the generation of airborne dust.</p> <p>Storage: Store in original packaging under dry conditions. Stack in a safe and stable manner.</p>
Exposure controls/personal protection		<p>Exposure: Take measures to reduce airborne dust generation during mixing. Occupational exposure must be kept below both 10mg/m³ 8 hour TWA total inhalable dust and 4mg/m³ 8 hour TWA respirable dust.</p> <p>Personal protection: Avoid contact with the eyes and skin by the use of safety goggles and waterproof gloves.</p> <p>Remove any contaminated clothing. Wash hands during breaks and at the end of the work.</p> <p>Respiratory protection: Suitable respiratory protection should be worn, e.g. filter mask, if the OEL is likely to be exceeded.</p>
Stability and reactivity		<p>Stable when stored correctly, no dangerous reactions or decomposition products known.</p>
Toxicological information		<p>Irritant effect on the skin and mucous</p>

		membranes. Sensitisation/allergic reaction to Chromium VI may occur. Strong irritant for eyes with danger of serious damage to eyes.
Disposal		Dispose of empty bags or surplus product at a place authorised to accept builders waste. Clean empty paper sacks can be recycled. Product must not be disposed of with household waste.
Ecological information		Stable in soil. Water hazard class 1 (self assessment) : slightly hazardous. Do not allow large quantities to reach the ground water, rivers, drainage and sewage systems. Soil and ground water in contact with freshly set and hardened mortar may become more alkaline. The rise in pH may be toxic to some forms of aquatic life in certain circumstances and to calcifuge plants.
Transport information		Not classified as hazardous for transport purposes.
Other		Use only for the purposes intended. This information is based on our present state of knowledge and is intended to describe our products from the point of view of the safety requirement. It should not be construed as guaranteeing specific properties. HSE Guidance Note EH 40 (Occupational Exposure Limits) The Control of Substances Hazardous to Health Regulations 2002 amended 2003 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 Approved Supply List (Seventh Edition) Compilation of safety data sheets (Third Edition) Approved Code of Practice HSE Guidance Note EH 26 Construction Health Hazard Information Sheet No. 1 and No. 7
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