

# VANDEX BASEMENT TANKING



**With selected products from the Vandex product range, it is possible to;**

- Stop lateral moisture penetration into basements
- Provide a dry space
- Utilise dormant or useless space
- Add value to the property
- Upgrade space for more sophisticated use
- Avoid external excavation as the application can take place from inside the building.

As well as waterproofing existing basements, Vandex products can also be used in new construction and detailed specifications can be obtained by contacting Vandex (UK).

### **Upgrading a basement**

Properties undergoing refurbishment frequently have basements that will need upgrading to create a drier environment.

These basements may be used for storage, offices, bedrooms, plant rooms etc., which all require different levels of dryness.

## What is dryness?

Buildings/structures are not always dry, water and water vapour will always exist bound up in the building materials and in the air. The building can be perceived as being dry if the water present does not

pose a problem for the inhabitants or contents of that building.

For example; a car park at 14° C, which has a few minor damp patches in corners and a relative humidity of 75%, may be perceived as being dry, whereas an office at

20° C with no damp patches but a relative humidity of 75% would be considered damp because paper would curl and the inhabitants would find the atmosphere uncomfortable.

The following table gives a rough guide to environmental requirements:

Usage	Some moisture tolerable ?	Temperature (°C)	Relative Humidity
Car Park	Yes	As External	As External
Office	No	20	60%
Archives	No	15	40%

## A comfortable environment

There are three criteria which need to be addressed in order to make a basement fit for a specific purpose:

- Control water/moisture in the building structure
- Control the relative air humidity
- Control the temperature

## The upgrading process

The above mentioned criteria can be met through the following courses of action:

- To begin with, any moisture penetration must be stopped. This can be achieved by applying VANDEX BB 75 as a waterproof coating to the inside walls and floors. This can then be followed by insulation and decoration as appropriate.
- Following the waterproofing/damp-proofing work, the air needs to be conditioned and circulated to ensure the relative humidity falls within acceptable levels. This can often be achieved by providing adequate

ventilation. If this is not done the moisture introduced into the basement by people, boiling kettles etc., will allow the humidity to build up to levels exceeding those considered advisable for the chosen environment. Very often, relative humidity is controlled via an air conditioning system.

- The area will then need to be heated. Again, this can often be achieved by expanding the existing heating system into the basement.

## Using VANDEX BB 75 to achieve a grade 4 environment

VANDEX BB 75 is vapour permeable, i.e., it allows the passage of water vapour.

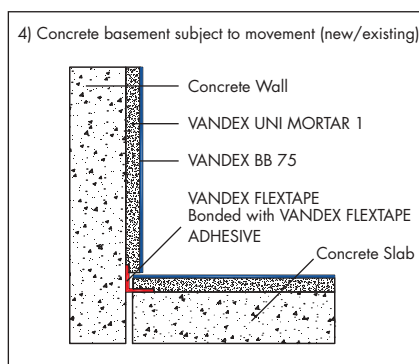
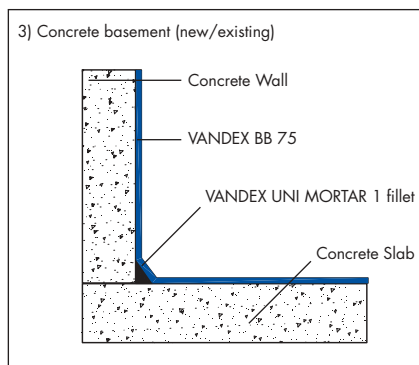
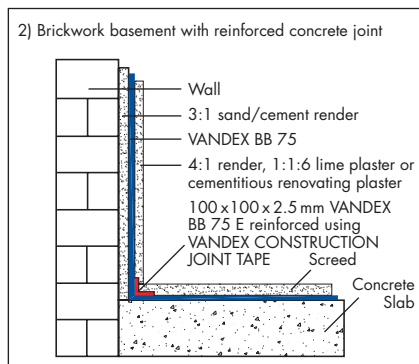
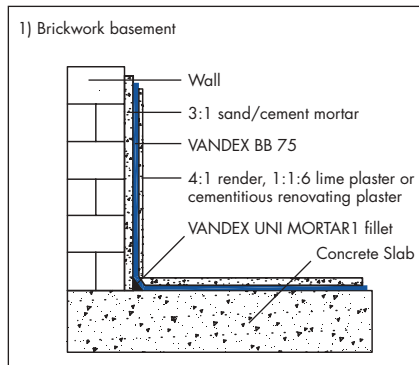
Vapour pressure charts show that water vapour does (in most circumstances) actually move out of the basement towards the ground, although this is not always the case. In any event, the amount of vapour which migrates through basement walls is so little as to be of no consequence. (Ref. Waterproofing Basements Design Guide, produced

by the British Cement Association in conjunction with the British Structural Waterproofing Association).

In order to achieve a Grade 4 environment, air conditioning or dehumidification is essential. (Ref. Table 2.2 of the Ciria report C319, Water Resisting Basements). On the rare occasions when water vapour is moving into the basement, this air conditioning or dehumidification will remove it with ease.

The use of VANDEX BB75 in the circumstances described, to provide a structural waterproofing system, will fulfil the requirements of BS8102 to achieve a Grade 4 environment, when used in conjunction with the appropriate air conditioning or dehumidification.

## Design specifications



For individual technical solutions or alternative design specifications, please contact Vandex UK Ltd.

## Application guidelines

(please refer to the relevant product application guidelines)

### A) Substrate preparation

Remove existing plaster, coatings or loose particles, which would inhibit bonding, down to bare concrete or masonry. The substrate must be sound, clean and well keyed. If necessary the substrate can be prepared by suitable mechanical means such as grit blasting, high pressure water jetting or bush hammering.

Any other foreign bodies within the structure that could cause disruption, such as timber or steel, must be removed. Rake out mortar joints to a depth of approximately 20 mm. Thoroughly clean the walls by wire brush or other suitable means and immediately sweep up resulting debris from the floor, before it can cause any further contamination.

Apply a layer of VANDEX UNI MORTAR 1 (minimum layer thickness of 5 mm) onto the pre-wetted substrate. Alternatively, a nominal 10 mm thick – 3:1 sand/cement render can be applied.

### B) Salt treatment

If the substrate is contaminated with salts:

- For nitrate contamination, apply VANDEX ANTI NITRATE in accordance with the VANDEX ANTI NITRATE standard specification.
- For sulfate contamination, mix 8 kg of VANDEX ANTI SULFATE with 1 bag (40 kg) of VANDEX ROUGH CAST.

### C) Waterproofing/Damp-proofing

Please refer to the application guidelines for VANDEX BB 75 for waterproofing/damp-proofing walls and floors.

### D) Joints and cracks

Depending upon the construction principles used and the nature of the building structure, the following solutions should be applied.

- **Static cracks and joints** – are chased back to form a uniform rebate slurry coated with VANDEX BB 75 and filled flush with VANDEX UNI MORTAR 1. For wall/floor joints, a fillet of VANDEX UNI MORTAR 1 may be applied as an alternative.
- **Joints and cracks with minor movements** – should be sealed using VANDEX CONSTRUCTION JOINT TAPE bonded with VANDEX BB 75 E.
- **Movement joints** – should be sealed using VANDEX FLEXTAPE bonded with VANDEX FLEXTAPE ADHESIVE.

### E) Curing

Applications with cementitious Vandex products should be protected from frost, wind, direct sun and rain during setting and hardening.

The application should be kept damp for a period of at least three days.

Cementitious Vandex products are fully cured after 28 days.

## Plastering and decoration

### Plastering

Areas below ground level are prone to condensation and obviously this will usually occur on the coolest surface, which would normally be the VANDEX BB 75 coating and that condensation would affect Gypsum based plasters.

No incompatibility exists between VANDEX BB 75 and Gypsum based plasters. However, it is recommended that VANDEX REFURBISHMENT PLASTER be used over the VANDEX BB 75 before applying any finishing plasters.

If it is important that a finishing plaster is applied directly onto the VANDEX BB 75 then steps must be taken to ensure that condensation does not cause problems.

### Decoration

After lateral penetration of moisture has been stopped in a basement, it may need to be decorated.

Cementitious tanking systems are vapour permeable. As vapour movement is usually from within the basement out towards the ground, this is an advantage. There may be occasions however, when the vapour movement is reversed and it moves from the ground into the basement.

It is important to ensure that any decorative covering over the tanking system is sufficiently vapour permeable to prevent a build up of humidity. If it is not, interstitial condensation could occur within the plaster layer supporting the decoration resulting in bubbling and peeling of the covering.

It is generally appreciated that gloss paints should not be used over a tanking system, but it is commonly thought that water based emulsion paints are acceptable.

Advanced paint technology, however, has resulted in much higher binder/pigment ratios, (Vinyl Matts). The higher

the binder/pigment ratio, the higher the vapour resistance of the paint. Problems may therefore be experienced when these paints are used and they should be avoided in basements.

Trade Matt Emulsions have a lower binder/pigment ratio and a high vapour permeability which means that residual moisture in new plaster can escape. Mineral paints, which combine with the surface of mineralic substances such as plaster or render, also have a high vapour permeability. Either of these paint types is recommended for use in basements.

As a guide, if the paint is suitable for use over new (damp) plaster it is also suitable for use over VANDEX BB 75. If in doubt, the paint manufacturer should be contacted.

**Vandex Product Range for Basement Construction**

Vandex Product	Scope/Treatment	Substrate preparation	Neutralising harmful salts	Waterproofing damp-proofing walls and floors	Sealing construction joints and cracks	Re-plastering walls	Movement joints and live cracks
VANDEX UNI MORTAR 1 or SAND AND CEMENT MORTAR		●					
VANDEX ANTI-NITRATE			●				
VANDEX ANTI-SULPHATE			●				
VANDEX BB75				●			
VANDEX CONSTRUCTION JOINT TAPE & VANDEX BB 75E					●		
VANDEX REFURBISHMENT PLASTER SYSTEM						●	
VANDEX FLEXTAPE and VANDEX FLEXTAPE ADHESIVE							●

For consumption values, technical data and application guidelines please refer to the product data sheets and product application guidelines.