ASSIGNMENT ON BASEMENT TANKING

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Basement

A basement means a storey which is below the ground floor; or, if there is no ground floor, means a floor of which is situated at such a level or levels that some point on its perimeter is more than 4 feet (1.2 metres) below the level of the finished surface of the ground adjoining the building.

Tanking

Tanking is a specific type of waterproofing which functions by attempting to block water out of a structure, by including a barrier product on or within that structure. If water is totally blocked out, then the internal basement/cellar environment is protected and remains dry.

Tanking of Basement

Basement tanking is a term referred to in the construction industry that refers to different systems that help keep a basement, or even an underground structure, free from water. There are two basic systems that are referred to as tanking systems that are used today. External systems are the most common option used when the basement or structure is being built, and internal systems are used after the building has already been formed. Basement tanking is an industry term that basically means a waterproofing system designed to prevent water from g External basement tanking systems are most commonly installed when the basement or structure is made. The main concept of them is to keep water away from the junctions where the walls and the floor meet, since this is a weak spot formed by a joint. There are various designs when it comes to making an external tank, but most of them use a waterproof membrane that is basically wrapped around the concrete. It is installed before the cement is poured, and after the forms have been removed it is basically wrapped around the entire concrete section, effectively enclosing it inside of a tank. The outer edges are protected from constant water by installing drainage pipes andmsurrounding the area with gravel, which helps carry the water away from the cement and the membrane, rather than allowing the water to constantly beat against them. Internal basement tanking systems are very similar to external ones, except for the obvious fact that they are inside the basement or structure.

Figure 1: External Tanking System.

Principle of Basement Tanking

The basic principle of tanking involves the application of a waterproof cement or slurry to the basement walls. The tanking will ultimately provide a smooth concrete wall surface, which is aesthetically pleasing and provides protection from moisture ingress and subsequent damp problems.

Cementitious tanking systems are often referred to as "Type A" waterproofing systems. Type A is an industry term that comes from BS8102 (the British Standards Institute's recommendations for structural waterproofing). It basically means that this form of waterproofing creates a barrier to moisture ingress but does not actively remove any water.

For tanking to work it must be applied to stable, undamaged walls. There also has to be exceptional attention paid to weak points in the space, such as the wall to floor joint. When a qualified team has applied a professional tanking installation, it should be watertight and leave you with a dry space ready for practical use.

Methods of Tanking

It can be divided into two main types;

1. Application of a damp roof membrane (DPM) to the interior wall.
2. Cementitious tanking.

Damp Roof Membrane (DPM)

This consists of fixing sheets of polypropylene membrane to the wall with special membrane clips. The separate sheets are bonded with tape to create a complete seal and the membrane is the plastered over. A DPM for tanking walls may also come in liquid form as a two part epoxy based membrane. This is applied directly to the underlying brickwork or masonry in two coats. The resulting waterproofed surface may then be rendered, plastered or painted directly.

The membrane itself is impermeable and stable for decades of use but the risks are sealing the joints and the failure of the cavity drain.

Cementitious Tanking

Structure is stripped back to the base material and the re-rendered with several coats of a sand/cement render mixed with special damp proofing products.it is used where the likely ingress of water is considered to be less tan something that would require the fitting of a DPM. The advantage is that it is vapour permeable and this allows the room to breathe. Requires a period of curing for around a month before decorating. Any decorative coverings must also be vapour permeable to prevent a build up of humidity within the plaster (known as interstitial condensation). The risks are in the integrity of the existing masonry, preparation of the surface and correct application of the material and inadequate evaluation of external substrate factors.