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## **Delta Membrane Systems explains importance of waterproofing design**

***Robust waterproofing is crucial in both domestic and commercial structures. To meet British Standards, the use of a Waterproofing Design Specialist is recommended, as Delta Membrane Systems explains in this article:***

The British Standard regarding structural waterproofing is BS8102:2009, this standard encourages the use of a Waterproofing Design Specialist to a design team. NHBC Chapter 5.4 mirrors these guidelines. In cases of litigation or disputes, both BS8102:2009 and NHBC Chapter 5.4 will be used as a benchmark.

The advantages of a robustly waterproofed environment are clear in terms of protecting the integrity of a structure.



There are three categories of waterproofing systems available:

### **Type A (Barrier) Protection**

Type A waterproofing relies on applying a waterproofing material to the internal or external walls and floor slab of a below ground structure. The structure itself is not considered to be integrally waterproof. The Type A protection needs to be 100% defect-free to offer perfect protection.

### **Type B (Structurally Integral) Protection**

Type B waterproofing requires the structure to be built/constructed as 'integrally water-resistant'. That the protection from water ingress is the structure itself. Like Type A waterproofing systems, the watertightness of Type B construction is heavily reliant on perfect installation to be entirely effective.

### **Type C (Drained) Protection**

Type C waterproofing is known in the industry as a foolproof system. Unlike Types A and B, Type C systems do not inhibit water pressure/water ingress but controls water ingress in a strategic fashion.

### **Grades of Habitable environment**

Table 2 of BS8102:2009 defines waterproofing requirements to achieve desired internal environments. These three grades are defined as:

- Grade 1 – Where some seepage and damp areas are tolerable – such as car parks, non-electrical plant rooms or workshops.
- Grade 2 – Where no water penetration is acceptable but damp areas are tolerable – such as plant rooms or workshops which require a drier environment than Grade 1.



- Grade 3 – No water penetration is acceptable – such as living spaces, commercial areas, offices, restaurants and kitchens.

It is important the environmental grade is defined as early as possible, to ensure expectations are achieved from the outset.

In achieving a Grade 3 habitable space a combination of two types of waterproofing (A & C, B & C) is usually adequate. In most cases, the safest combination will always include a Type C system, whilst the choice of the other system is largely dictated by the type of structure/project requirements.

Another important consideration is whether the basement area will extend beyond the ground floor footprint, such as a buried deck or roof area. This will also require a waterproofing solution. In most cases, a combination of a waterproofing system along with a protective drainage layer will be required.

### **The steps to a good design solution**

A good CSSW (or equally qualified) waterproofing designer will consider a bespoke approach, based on the project criteria.

In choosing the right approach, the design solution should be a process which includes multiple factors such as: customer requirements, standards, robustness, cost, resources, time, skill required, safety, desktop studies, analysis of geotechnical reports/tests and expectations of ground water all translated into a design solution.

Delta's technical drawings are available in all formats and free of charge. Just visit <https://www.deltamembranes.com/technical-categories/technical-drawings/>

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