

Bring a qualified specialist on board

Paul Green of Delta Membranes discusses the importance of using a professional qualified as a Certificated Surveyor in Structural Waterproofing on structural/basement waterproofing projects.



It is not only the required criteria for many specialist buildings insurance companies – such as Premier Guarantee, LABC, BLP, CRL and the NHBC – nowadays that a Certificated Surveyor in Structural Waterproofing (CSSW) qualified person is involved in the design process for BS 8102⁽¹⁾-compliant structural waterproofing projects (which in turn reduces risk of catastrophic failure) but also it is now more generally accepted to be just common sense by any astute construction companies and building professionals.

As well as architects and structural engineers, this also naturally includes the design-and-build type of companies who value good sound advice for what is often the most critical aspect of a construction project. Most notably, this is with their professional indemnity for design, reputation and responsibility firmly in mind, and perhaps more importantly for below-ground-level applications, such as tunnels, as well as any podiums and decks over basements, including green or buried roof elements (which is part of the basement structure), or anywhere within a structure where water ingress would have a negative impact on the structure's performance specifications. It is widely recognised that poor waterproofing design will almost always result in failure – and expensive ones at that – especially in the higher ends of the construction markets too.

It is also a strong recommendation within BS 8102 guidelines that suitably qualified persons are involved from inception stages to the likes of the above-mentioned projects and ideally the candidate will have relevant experience of all three of the main types of waterproofing systems, namely:

- Type A (barrier protection)
- Type B (structurally integral watertight construction)
- Type C (cavity drained protection).

They should also be able to offer guidance to the design teams they work with in relation to differing ground conditions, water table levels, soil hydrology, ground types, ground drainage characteristics and potential contaminants, such as potential ground gases and soil contaminants, hydrocarbons, methane, CO₂ and radon gas, etc.

In addition to identifying differing types and forms of construction – from steel sheet piles, contiguous and secant piles, reinforced concrete structures, insulated concrete formwork and masonry etc – they should also be aware of the relevant grades of waterproofing for a given project, or particular areas therein also recognised under BS 8102, those grades being as follows (taken from Table 2 in BS 8102):

- Grade 1 – can be underground car parks/ plant rooms (excluding plant rooms with moisture-sensitive equipment within)

Waterproofing design specialist offering on-site assistance.

(All photos: Delta Membrane Systems Ltd.)



Installation of Type C cavity drainage system.



Detailing on Type C cavity drainage system.



Water, damp and gasproofing protection systems.

- Grade 2 – workshops/storage and plant rooms requiring drier environments than a Grade 1
- Grade 3 – commercial, domestic, archives/museums/libraries etc, which will often also require mechanical aids and controls, such as ventilation/extraction/air-conditioning, usually due to a lack of natural ventilation, so as to be better able to achieve their relevant ambient temperatures and humidification levels.

Although the environmental control elements will mostly be outside the CSSW-qualified person's remit, without actually being informed of what the underground area is to be used for, they could not realistically provide the performance or BS 8102 specification guidelines and relevant guidance without proper training and having the aforementioned information and other

important points mentioned here.

The CSSW-qualified person could be an independent consultant, an employee of a relevant materials supplier or manufacturer, or work for a specialist waterproofing contractor, but the important factor is to ensure that they are involved with the design team from inception stages, which will dramatically reduce risk for all parties.

It's not good when a qualified individual has to break the bad news that a waterproofing failure was down to poor design, especially when the systems were also installed by non-specialised or inadequately trained contractors. A CSSW professional can usually recommend appropriate specialist installers for you too. ■

Reference:

1. BRITISH STANDARDS INSTITUTION, BS 8102. *Code of practice for protection of below ground structures against water from the ground.* BSI, London, 2009.

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