



- Damp Control
- Timber Preservation
- Structural Waterproofing
- Structural Repair
- Invasive Weed Control
- Flood Protection/Resilience
- Flood Restoration

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Tracey Wilkins
389 Chiswick High Road
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20th February 2019

Dear Tracey

Re: BS 8102

Further to our recent discussion, please find below a more detailed rationale for proposed changes to BS8102. We believe most of the points should be self-explanatory, but should you require any further information then please do not hesitate to contact us for further information.

The current version of this document was released ten years ago and work on the revision will have started well before this date. In this time the sector has grown considerably with ever increasing numbers and complexity of underground structures. The well-publicized housing shortage and inflating land values have increased the viability of underground structures and as the industry continues to grow and evolve, the British Standard needs bringing up-to-date to reflect improved technologies and new standards in best practice.

There is also a strong feeling amongst our members that failure to bring the document up to date will leave the document well behind industry best practice by the time of the next planned review.

We understand the requirement for a revision to be economically justifiable. This is a growing sector, and not only will improved standards reduce the risk of costly waterproofing failures, this document is the cornerstone of our industry. It will have been a consistently popular selling document and is unquestionable that the revision will, again, have significant demand.

Scope

The glaring omission from the scope of the document is perhaps buried roofs and to a degree podium decks. These structure types are becoming increasingly popular but are particularly problematic to waterproofing. Whilst at this point we cannot provide figures on the cost of failed buried roofs and podium decks, there can be little argument that insuring a minimum standard on these would save millions in failed waterproofing.

A further area where the scope falls short is defining when this document becomes applicable. This has resulted in waterproofing applications not following the guidance outlined in this document and result in costly failure.

Currently the scope of the document includes all below ground structures, however the content of the remainder of the document does not reflect this and exclusively looks at relatively shallow domestic or commercial structures. It certainly does not cover tunnels and other elements of underground infrastructure.

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Proposed Change

Include a new section in Section 7 to include the unique changes of podium decks and buried roofs.

Whilst the document does clarify it is applicable to below ground level and sloping sites, it should provide more specific details to clarify when this guidance comes into force for example “all useable spaces below the level of the Damp Proof Course”. This would help to ensure that structures such as lift pits are included within the scope of the document. Lift pits are often an afterthought and very difficult and problematic to waterproof retrospectively.

The title and the scope of the document have to be altered to better reflect the content of the document to either exclude infrastructure such as tunnels etc, or to ensure that these are better covered within the content of the document.

Grades – Table 2

Both Grade 2 and 3, as detailed in Table 2, state that no water penetration is acceptable and a requirement for ventilation but no detail is provided on what level of ventilation is required. For example Grade 3 is stated as “*no water penetration acceptable, ventilation, dehumidication or air conditioning, appropriate for use*”. This significantly plays down the significance of ensuring a supply of fresh air into the building, nor does it provide guidance on where and how this requirement can be met. Failure to provide this correctly may be potentially harmful to the health of the occupant.

Condensation should be given appropriate thought for whatever grade of performance/ intended use. This should include thermal insulation, vapour control and ventilation/air conditioning etc. The “Code of practice for protection of below ground structures against water from the ground” should focus on water from the ground, as opposed to water from the indoor air.

Proposed Change

Ventilation should be appropriate for use regardless of the grade of waterproofing and for clarity the grades should be simplified to two grades;

1. Some water penetration appropriate for use
2. No water penetration acceptable.

In addition, more prescriptive guidance is required here or reference to another document such as Approved Document F or BS 5250.

BS 8485

Earlier this year an amendment was made to BS 8485. The changes to BS 8485 particularly those to table 5 may have implications on the waterproofing design and therefore BS 8102 needs to make reference to these documents.

Whilst the amendments have attempted to try and clarify what waterproofing grades are acceptable for different grades of gas protection, what is still rather confusing is that a grade 2 (as defined by 8102) will allow damp patches or a small amount of water penetration. If water can penetrate the structure how can it be considered safe as a gas protection measure? We believe that this partly stems from the confusing grades detailed in the previous section.

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Unquestionably there are huge similarities between gas and waterproofing and there is ever increasing demand to integrate the two to prevent unnecessary additional cost in construction. 8485 dictated which types of waterproofing can be used in certain scenarios if they are to meet the requirements as a measure against ground gas. It therefore goes without saying that these two documents can not stand in isolation and that great synergy is required between the two documents.

Proposed Change

The changes to BS 8485 will have major implications on waterproof design. Unfortunately, it would seem that practitioners of structural waterproofing had little, if any, input into this document. At present the reference to 8485 is minimal and does little to state the significance this document may have on the waterproofing design. Therefore 8102 must be altered to increase harmony between the two documents with increased detail within the content of 8102 on how they can design a structural waterproofing to meet the requires laid out in 8485.

At present the

9.2.1.1

NOTE 2 cites CIRIA C660.

Proposed Change

This should be updated to CIRIA C766.

9.2.1.3

Reference to BS EN 934 should be removed altogether as this serves no purpose. It certainly doesn't specify waterproofing admixtures as 8102:2009 states. BS EN 934-2:2009+A1:2012 is only relevant to manufacturers of admixtures specifying test methods etc.

Proposed Change

Remove BS EN 934 reference.

Competent installation

The current version of this document has made great strides in improving waterproofing design and reducing rates of failure by detailing the requirement for a waterproofing designer. The next step in reducing failure rates in waterproofing systems is to ensure that the design is replicated on tricky site conditions. Therefore, it would seem logical that the technicians on site are equally qualified and experienced. These measures have already been enforced with other BSI standards such as BS 8485 to help reduce failure rates and the economic impact that would have.

Proposed Change

Inclusion of a new clause in Section 7 General Construction Issues, to include the need for experienced competent contractors for waterproofing installation.



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Fire Regulations

The industry is rightly very concerned with fire regulations following the tragic events of Grenfell. At present there is no reference to fire regulations or guidance within BS 8102. Although this is not a significant issue with shallow single storey basements there does need to be consideration with deep multi-storey basements which are becoming increasingly popular. Waterproofing systems need to be continuous however compartmentation requirements for fire control can restrict this, particularly with a Type C system. An amended version of BS 8102 has to point the designer in the direction of what is required to ensure the safety of the occupants.

Proposed Change

Inclusion within Section 4 Design Philosophy for fire regulations.

9. Type B (structural integral) protection

Our members are reporting that they see a high percentage of waterproofing failures in integrated Type B systems into either ICF or block and infill construction types due to poor pour quality which is not visible for inspection. Remediation in these instances is extremely costly and difficult.

Proposed change

Amendment to Table 1 to indicate the high risk nature of this method of construction.

Table 3

Allows for the use of certain type A waterproofing materials to be used in a sandwiched application. The feasibility of remediation in this application has to be questioned as it seems to contradict the idea of the design philosophy highlighted in this document. In addition if this sandwich application is to be applied guidance needs to be provided on suitable loading coats to prevent floatation and failure.

Proposed change

Removal or details on when and how to use a sandwiched type A.

Thank you once again for allowing us the opportunity to clarify on the points made earlier. Hopefully these have made it clear that now is the time for a revision of the document to bring it in line with current standards within the industry before the document becomes redundant.

Yours sincerely

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Technical Manager

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