

Issues of “Free Lime” in Cavity Drain Membrane Systems

The use of cavity drain systems, as a method of waterproofing, has become the commonest form of waterproofing system used in retrofit basements and increasingly is being fitted in new build basements. In accordance with the Code of Practice BS 8102:2009, they need to be maintained. This has been helped significantly with the introduction of perimeter drainage channels and inspection ports, so as to make the drainage aspects maintainable and help to prevent blockages caused by the existence of free lime for example.

In most new construction and retrofit basements (and also in refurbishment projects where the floor has been replaced), there is a high risk of free lime and /or mineral salts leaching from the concrete walls and floors. In retrofit this is particularly prevalent where “dry pack” is used at the top of the underpinning.

As free lime leaches from the new construction by groundwater ingress it deposits itself within the drainage cavity, (behind and underneath membranes) and particularly within the sump chamber and around the sump pumps. Thus potentially causing pump failure and therefore failure of the system.

Maintenance of cavity drain systems and its discharge points is vitally important to the long term success of the system, with the recommended maintenance interval being 6 months.

The impact of free lime within the system will greatly increase the frequency of maintenance over the first 3 – 5 years, reducing the interval to weeks in some instances, thus increasing both the costs of maintaining the system and also putting the system under undue risk.

In order to minimise the risk of free lime impacting on the system, an “anti-lime” coating should be applied to the new concrete especially for retrofit basements or where underpinning is being used. This will not only reduce the amount of free lime leaching into the system but also will improve the water resistance of

the basement structure, which in turn reduces the risk to the system.

Long term benefits include significantly reducing the risks to the system and saving maintenance costs.

The British Standard BS 8102 says that the water management system should be “serviceable and maintainable”, however in reality the channel is very often forgotten and rarely serviced, for a variety of reasons:

1. No knowledge of where the service points are.
2. The internal dry lined walls are built out too far forward and obscure access to the service point(s).
3. No water available to flush out system.
4. Concerns about damaging finishing’s (water damage).

The client should be given a site plan on completion, indicating the exact location of the service points, and be made aware of the importance of the pump service and channel inspection and service. This should be a condition of guarantee.

Anti-Lime Solutions: preparatory Anti Lime Solutions are designed to remove carbonate deposits in groundwater bores, wells and pumps and are therefore particularly well suited for the removal of lime scale and other build up within cavity drain systems, sumps and pumps.

Benefits:

Clears lime scale build up from cavity drain systems
Fully biodegradable
Ready to use
Discharge into foul drains

Sources of Information:

BS 8102:2009 Code of Practice for protection of below ground structures against water from the ground.

This is a guidance note. Where recommendations are made for specific tasks, these are intended to represent 'best practice', i.e. recommendations that in the opinion of the PCA meet an acceptable level of competence.

Although members are not required to follow the recommendations contained in the note, they should take into account the content.

The information contained in this leaflet is given in good faith and believed to be correct. However, it must be stressed that of necessity it is of a general nature. The precise condition may alter in each individual case and the Association is therefore unable to accept responsibility for any loss howsoever arising from the use of the information contained herein.

SWG1/01.14

This guidance note is written and produced by the PCA Structural Waterproofing Group

For further information contact:

Property Care Association

11 Ramsay Court
Kingfisher Way
Hinchbrook Business Park
Huntingdon
Cambs
PE29 6FY
Tel: 0844 375 4301
Fax: 01480 417587
Email: pca@property-care.org
Web: www.property-care.org

The Property Care Association incorporating BWPDA is a company limited by Guarantee: Registered No. 5596488 England

Production of this document is Part-funded by



“This project has been delivered with support from the CITB Growth Fund, which aims to ensure that the construction industry has the right people, with the right skills, in the right place, at the right time and is equipped to meet the future skills demands of the industry”.