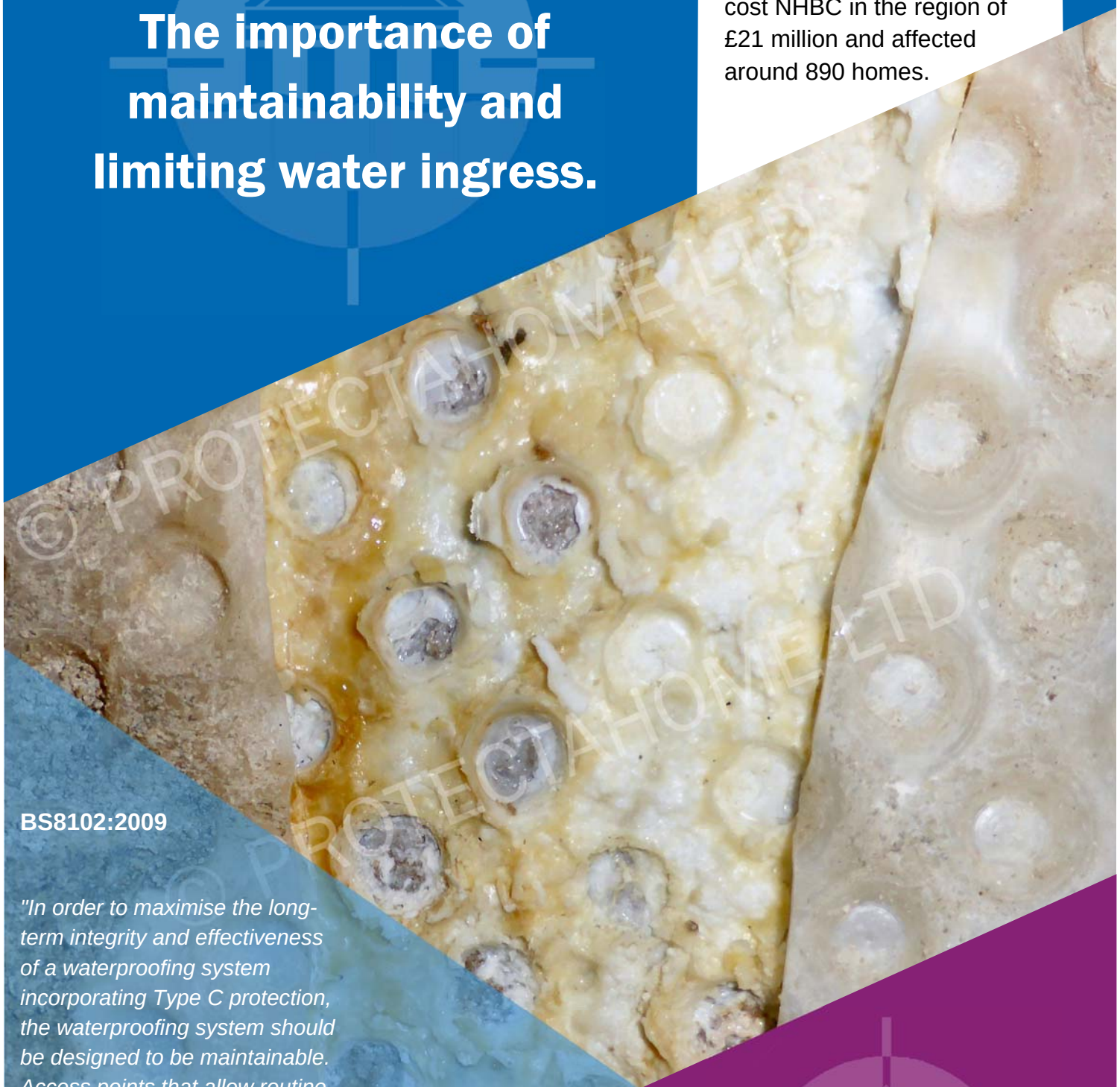
# Cavity Drain Membrane Waterproofing Systems

## The importance of maintainability and limiting water ingress.

**FACT:**

Between 2005 and 2013, claims related to waterproofing below ground cost NHBC in the region of £21 million and affected around 890 homes.





**BS8102:2009**

*"In order to maximise the long-term integrity and effectiveness of a waterproofing system incorporating Type C protection, the waterproofing system should be designed to be maintainable. Access points that allow routine maintenance of channels and outlets should be incorporated into the design of the waterproofing system."*

**PROTECTAHOME**

**WATERPROOFING SOLUTIONS**

www.protectahome.co.uk | 0845 601 1980

# What is a Maintainable Type C Waterproofing System?

A maintainable waterproofing system based on the use of Cavity Drain Membranes will include the following features:

- Suitable perimeter drainage channels designed to carry water ingress to either the sump chamber or other discharge points.
- Access Points, or Service Ports, that will allow routine maintenance of channels and outlets.
- If applicable, an accessible sump chamber for pump servicing.


PROTECTAHOME

WATERPROOFING SOLUTIONS

www.protectahome.co.uk | 0845 601 1980

# Why is it important to control water ingress in a Type C Cavity Drain Membrane System?

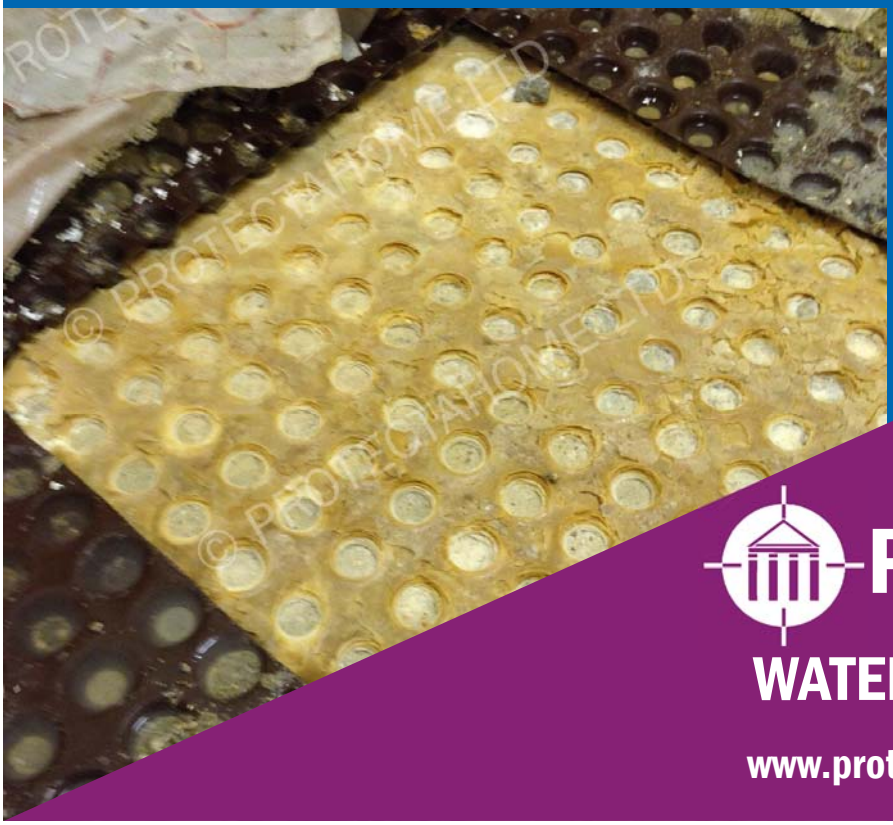
Cavity Drain Membrane Systems are an excellent form of waterproofing but they are vulnerable to blockages via the build up of Free Lime (Calcium Carbonate).

Free Lime is *"caused by water leaking through the concrete and dissolving Calcium Hydroxide from the matrix. On contact with the atmosphere the Calcium Hydroxide reacts with the Carbon Dioxide to form Calcium Carbonate. This is then precipitated on the surface when the water evaporates."* ***The Concrete Society***

The build up of Free Lime deposits can block the passage of free water between the studded membrane and the designated drainage channels, resulting in the build up of hydrostatic pressure against the membrane, the exact situation that the membrane is designed to avoid.

Traditional points of weakness that may need additional protection in a basement structure include: the wall floor junction, areas of dry-pack, construction joints and kickers.

**Above:** 8mm Cavity Drain Membrane completely blocked with Free Lime.



**Left:** 20mm Cavity Drain Membrane also completely blocked with Free Lime.

PROTECTAHOME

WATERPROOFING SOLUTIONS

www.protectahome.co.uk | 0845 601 1980

# What are the Dangers of Installing an Unmaintainable System?

Unmaintainable systems lose their ability to counteract any build up of Free Lime and debris that may hinder the drainage of free water through to the designed point of collection/discharge.

A Type C Waterproofing System is entirely reliant on its ability to manage free water to a safe point of disposal, often a Sump and Pump Chamber. Both the drainage channels and the sump and pumps will need to be serviced regularly during the lifetime of the system to ensure its long term efficacy.

To use a medical analogy, the sump pumps are the heart of a Type C Waterproofing System whilst the Cavity Drain Membrane and drainage channels are the arteries and veins. Both components need to be in good working order for the system to remain healthy.

**Above:** Internal view of a Sump Chamber with connections and membrane entirely blocked by Free Lime.

**Bottom:** Unserviced Perimeter Drainage Channel blocked by Free Lime and debris.

PROTECTAHOME

WATERPROOFING SOLUTIONS

www.protectahome.co.uk | 0845 601 1980

# Are Maintainable Waterproofing Systems required by Warranty Providers?

Yes, almost exclusively, and certainly by the major providers in the UK such as NHBC, LABC Warranty and Premier Guarantee.

When installing a Type C Cavity Drain Membrane Waterproofing System, major warranty providers insist that such a system be serviceable and maintainable through *'appropriately located access points for servicing and maintenance'* ***NHBC Chapter 5.4 2016***

LABC and Premier Guarantee have recently written to leading organisations throughout the industry to clarify their position, advising that they:

*"...require perimeter drainage channels to all "Type C" cavity drainage installations, this is due to the potential increase in risk caused by the lack of ability to service and maintain the Type C membrane."* ***LABC letter to the PCA November 2015.***

**Below:** 8mm Cavity Drain Membrane with Perimeter Drainage and Service Point shown.

**PROTECTAHOME**

**WATERPROOFING SOLUTIONS**

**www.protectahome.co.uk** **0845 601 1980**

# Cavity Drain Membrane System: Is it protected from excessive water ingress? Is it Maintainable?

Due care and attention must be given to the design and installation of basement waterproofing systems. Site specific conditions must be taken into account and it is not enough to simply install Cavity Drain Membrane to the wall and floors with a sump and pump and expect the system to maintain its efficacy over a long term period.

The ability to service and maintain the system is a vital aspect to any Type C Waterproofing Design and it must be incorporated. It is also vital that ground conditions and the structure itself are correctly analysed by experienced specialists to ensure that water ingress is kept to a minimum. *"Although structures with Type C Protection are designed to manage seepage into a structure, where this is unacceptably high the water resistance of the structure should be improved."* ***BS8102:2009***

Cavity Drain Membranes are excellent products that have driven basement waterproofing forward over the last 25 years, however, they are not a miracle cure to water ingress in basements and must be used correctly, in bespoke designs, by experienced specialists who understand their limitations.

**Above:** 20mm Cavity Drain Membrane before and after exposure. Entirely blocked by Free Lime.

**Bottom:** Failed Type C Cavity Drain Membrane System.

PROTECTAHOME

WATERPROOFING SOLUTIONS

www.protectahome.co.uk 0845 601 1980