## How to Recover Unoccupied or "Unprotected" Cellars Following Flooding



Cellars that are typically designed for use as storage spaces rather than living accommodation are often constructed with no protection from ground water. This is particularly true where "keeping" cellars were constructed before the 1980s.

Rooms that are constructed below the ground floor accommodation will, in almost all situations have one or more walls that are earth retaining. Damp proof courses (if they exist at all) will have been installed to protect the ground floor timbers and will be high in the wall. Cellar floors in older buildings are often formed with rough cast slabs, stone or brick. These are seldom protected by waterproof membranes.

As a result walls and floors are susceptible to rising and penetrating dampness and have little if any real resistance to hydrostatic water. It follows therefore that unprotected basements constructed where the ground is perpetually damp remain damp to some degree. So long as the cellar space is well ventilated and any structural timbers are kept away from damp structures these spaces remain perfectly serviceable.

In situations where unprotected basements are

created in areas where the ground conditions are well drained and are normally dry, it follows that the cellar space remains relatively dry. It is reasonable to add however that what is described as dry in this discussion paper would be unacceptable for an occupied living space.

In the event of a flood event or uncontrolled release of water the cellar as the lowest point in the building gets very wet. Water often enters the space first and it's the last area to be free of standing water.

## Recovery

When the basement is cleared of water, debris and any other materials damaged beyond restoration, the drying process can begin in the usual ways.

The following may appear during the drying process or when drying is assumed to be complete:

- Masonry walls forming the basement retaining walls do not dry as would normally be expected in above ground structures.
- The masonry appears dry to a point but then become wet again.
- 'White' ground salts appear on the wall and

floor surfaces as the drying process continues

These aspects should be expected and anticipated where unprotected basements are flooded. It is worth remembering that the cellar will act as a sump encouraging any free water in the surrounding ground to drain into it. When water invades the cellar from outside then the ground retained by the walls and floors will have become saturated also. Removing the free water from the cellar walls and floor will encourage the wet ground water to continue to drain into the cellar space. If the masonry walls have cracks and fissures or lack continuity, ground water may enter quickly as its flow is unrestricted. If the walls are complete, without cracking, then the free water will penetrate through the masonry into the cellar at a slower rate through the capillaries of these otherwise solid structures.

In some circumstances it may be possible to dry the surfaces of walls more quickly than the penetrating water can move through the capillary structure of the wall. This explains why structures can be dried but then become wet again. The moisture content in walls and floors in most



unprotected basements will fluctuate depending on the prevailing ground water conditions.

Perceived wisdom is for the cellar to be returned to a pre-flood condition to meet the requirements of the insured and the insurer. It is our view however that this may be unreasonable and unachievable in the short term. The walls and floor of the cellar cannot truly return to the pre-flood condition until or unless the surrounding earth retained by the basement walls returns to the pre-flood condition. Even then the conditions are susceptible to rapid change as the weather and ground water conditions fluctuate from season to season and from year to year.

One way to deal with wet basement walls and floors is to apply waterproof coatings. This process commonly referred to as "tanking" can have the effect of elimination of water penetration and creating dry cellar conditions.

It must be noted however that unless waterproofing systems are correctly designed, specified and applied then additional problems can and will occur in the future. In addition without comprehensive and expensive conversion work the client's expectation of the performance of only limited waterproofing measures are unlikely to be met.

In any situation where unprotected basements (even where flooding has not taken place) where walls have been plastered, rendered, lined with plasterboard or panelling or where floors have been covered in carpets or decking these are at serious risk of failure or deterioration over time unless the cellar is waterproofed correctly. Flooding may have accelerated the deterioration of these materials but will not be the only cause.

Providing waterproofing solutions in any cellar particularly an existing structure is complicated. The "Code of practice for protection of below ground structures against water from the ground - BS8102: 2009", sets out in detail how waterproofing should be undertaken in new and existing structures. Any failure to undertake waterproofing work to these standards is likely to lead to failure and could result in deteriorating conditions within the cellar over the long term.

Waterproofing previously unprotected cellars in order

to allow the speedy recovery following flooding is possible but this work must be designed and undertaken by competent waterproofing specialists. The Property Care Association represents specialists in waterproofing and the repair of buildings that have been affected by water or dampness. The PCA are pleased to be able to work in partnership with National Flood School to provide guidance and information aimed at improving recovery outcomes for homeowners and insurers.

For further information contact:

**Property Care Association** 

11 Ramsay Court Kingfisher Way Hinchingbrooke Business Park Huntingdon Cambs PE29 6FY

Tel: 0844 375 4301 Fax: 01480 417587 Email: <u>pca@propety-</u> <u>care.org</u> Web: <u>www.property-</u> <u>care.org</u>

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