Resilience works

20 November 2017

The increasing incidence of flooding creates opportunities for surveyors to promote resilience, writes Ian Gibbs

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After the flooding in the UK in 2007, civil servant Sir Michael Pitt was commissioned by the government to provide a comprehensive review of the lessons learnt. Although many of the report?s recommendations were pursued, these had little impact on building surveyors or their work.

Since then, there have been further studies and research funded by government into all aspects of flooding and resilience, but these have not had a significant impact on the uptake of resilient measures.

However, the expectation that the government will help prevent flooding by building more defences has started to change, with the focus now on how the UK might better cope with the impacts of flooding by adapting homes and changing behaviour. As surveyors, we will need to design buildings that are more resilient and undertake resilient repairs after a flood.

In September 2016, the Department for Environment, Food & Rural Affairs (DEFRA) published The Property Flood Resilience Action Plan , setting out steps that could encourage the wider use of such measures.

The plan was the culmination of a year?s work by a team of professionals from the insurance, surveying, charity and construction sectors, led by Dr Peter Bonfield of the Building Research Establishment (BRE), supported by DEFRA and Environment Agency officials.

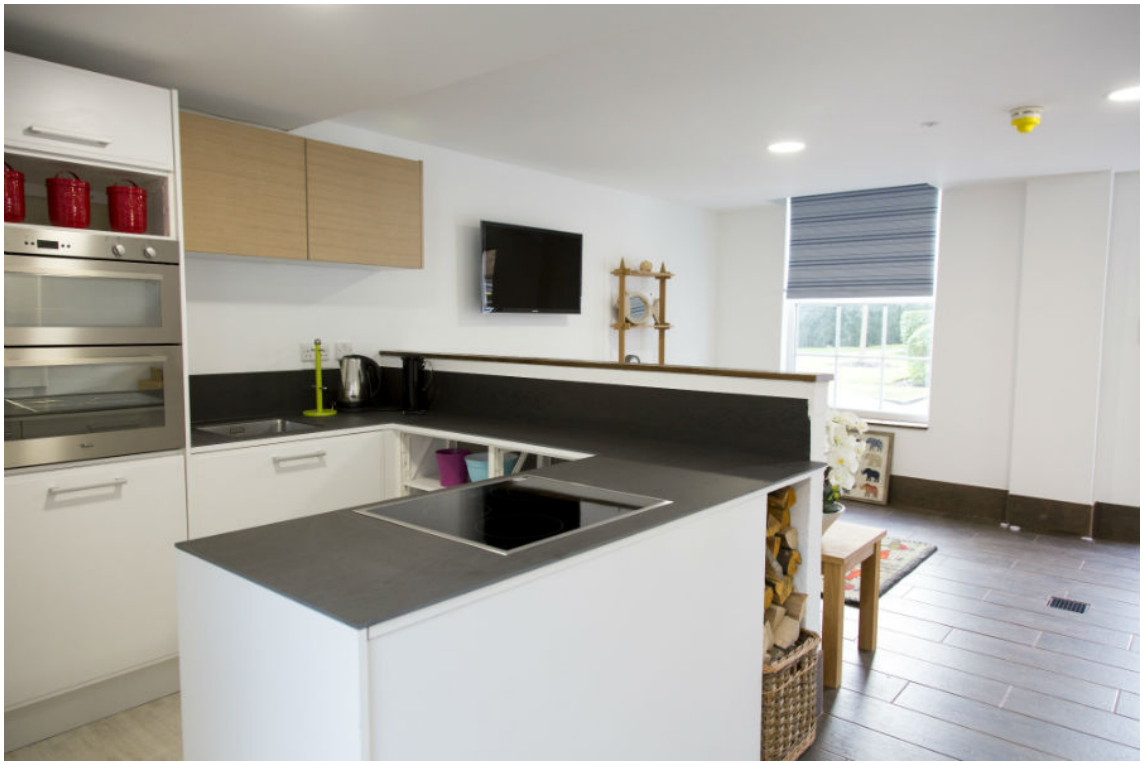

Figure 1: The kitchen at BRE's Resilient House

Plan provisions

The plan sets out several steps to increase property-level resilience, including:

- looking at how Building Regulations can be used to encourage flood-resilient construction and reinstatement;
- considering how re-insurance scheme Flood Re can support and offer incentives for flood resilience (see Building surveying journal May/June , p.16);
- creating rigorous independent standards and certification processes for surveyors, and for products and their installation;
- setting up an independent online portal to inform householders and small businesses on flood resilience; and
- establishing a partnership between key stakeholders, including surveyors, to encourage and enable the uptake of resilient measures.

I am currently working with RICS on a number of projects to ensure that surveyors are seen as key professionals in this process. The skills that we can offer include:

- understanding types of flooding and how they can combine to affect a property;
- how to interpret the flood risk survey;
- good understanding of building pathology and building defects so the effectiveness of resilient repair methods can be assessed;
- ability to understand the costs and benefit of different approaches to resilience;
- ability to empathise with a resident during the trauma of a flood, when most resilient works are undertaken;
- knowledge of different approaches to resilience and the products available; and

- capability to ensure that the installation of resilient measures meets the required standards.

Historically, there has been a distinction between 'resilience', which means using alternative methods of construction and materials to minimise the extent of damage and reduce drying time, and 'resistance', which entails constructing or altering a building to prevent the ingress of flood water.

However, rather than concentrating on this differentiation, 'resilience' now entails equipping a property the better to handle the risk of flooding regardless of the methods used, so that residents can recover more quickly after a flood.

Installing resilient measures

There are 3 stages to the process for the occupier who wants to install resilient measures:

- **flood risk survey:** to understand the risk at the property;
- **building survey and advice:** to recommend appropriate flood-resilient measures; and
- **installation:** resilient measures are fitted to the correct standard.

A trusted professional is needed to coordinate these stages, and unless building surveyors are recognised as having the skills and expertise to provide this, the gap will be filled by another party. Following the 2016 storms in Cumbria, for example, many homeowners were persuaded by a resilient product manufacturer to move straight to stage 3 without the preceding surveys, resulting in the installation of ineffective measures.

The 3 stages outlined above require specific skills and knowledge, but we also have to consider how they interrelate. A standard flood risk survey will identify the types of flooding to which the building is vulnerable, the risk of flooding and the likely depth.

The surveyor will then need to take this information and consider the construction of the building and whether keeping water out is practical or structurally prudent. For example, if the property is in an area at risk of groundwater flooding and it has a suspended timber floor then resistance would not be suitable and resilience would be the approach to take, accepting that water will enter but seeking to minimise its impact.

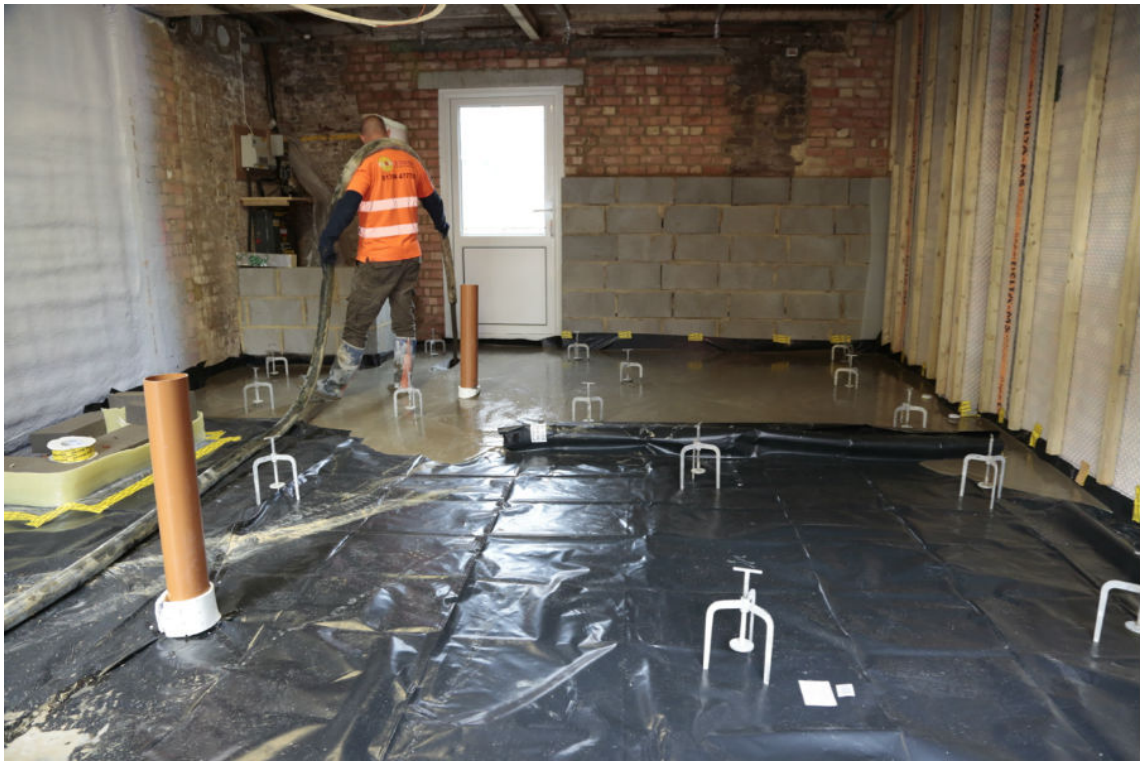

Figure 2: The BRE's Resilient House under construction

Database

The development of a property flood resilience database by BRE, working with insurers and interested parties, will also help, because this will require input from a suitably qualified chartered surveyor.

The database will be easily accessible for insurers, so they can identify properties with appropriate flood resilient measures installed that can demonstrably reduce the effect of a flood. Each property will be given a property flood resilience (PFR) score to help insurers make decisions on providing cover and the level of premium.

It is important to note, though, that the BRE database is still in development and not yet adopted by the sector. Having a survey conducted by a professional surveyor will not necessarily become a requirement for homeowners to obtain insurance under Flood Re, either.

Building materials

As surveyors, we will understand the construction and possible water entry points. However, we must also understand how resilient the existing building materials are to water. The current practice of stripping properties back to the structure and removing resilient building materials as a recovery measure suggests that more training is needed to understand how such materials can survive a flood.

Understanding the impact of water on materials goes hand in hand with knowing how they can be dried using modern methods. The benefits to be gained by reducing strip-out and using the appropriate drying techniques need to be explained to the occupier, who should be reassured that resilience does work ? especially if they have been flooded before and had to experience a complete strip-out.

The key skill we need to bring is thinking holistically about the flood risk type, the construction, what the occupier is trying to achieve, aesthetics and cost before making our recommendations. As surveyors, we will often be providing an holistic service in making the property resilient, so it is important that we ensure specialist products are fit for purpose and properly installed. However, most resilient measures involve standard construction processes and do not need a specialist installer, so our role will be to specify then inspect and sign off the complete works. This may mean doing some research to understand the resilient properties of different materials, as this information is not normally provided with most building products.

Cost of resilience

Another key question we need to be able to answer is the cost of resilient measures.

Recent DEFRA research has modelled different property types and detailed resilient measures and their costs. This study demonstrated with practical examples that the additional cost of a package of selective resilient measures was between ?1,900 and ?4,700 greater than the normal insurance reinstatement cost.

This would have to be funded by any future government grants ? because currently such grants are made on a one-off basis for each flood event, and may not be repeated. Education about the practical costs and benefits means the professional has the knowledge to provide effective advice to clients.

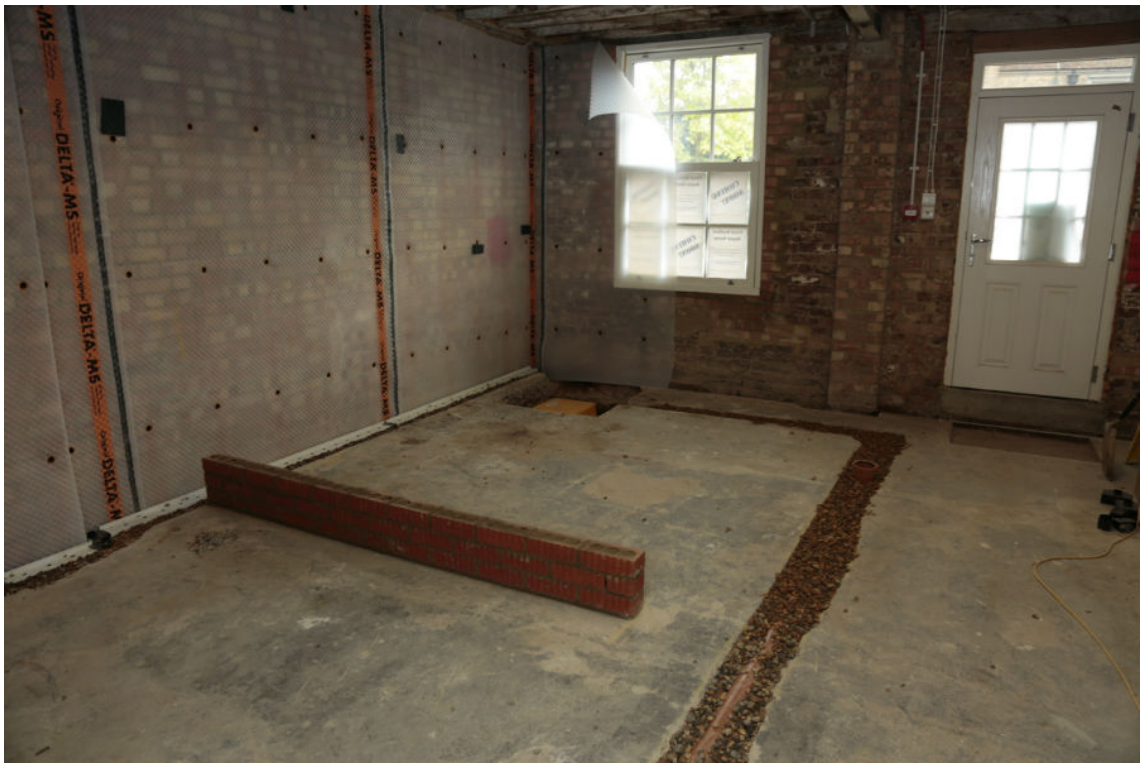

Figure 3: The BRE's Resilient House floor drainage

Projects

A key proposal in the action plan is to ensure the development of standards and clear technical guidance. The Construction Industry Research and Information Association is working on a code of practice and guidance for property flood resilience, and RICS is part of the development team; RICS is also closely involved in designing the training that will qualify surveyors to provide flood resilience advice and services.

BRE has developed a prototype Resilient House to show how practical measures can be taken in a home to prevent the entry of flood water (see images and Building surveying journal May/June , p.5). Recent research undertaken by the University of the West of England , Bristol for DEFRA, Supporting the uptake of low cost resilience: summary of technical findings , also sets out current information on the resilient measures available and their costeffectiveness, using case studies that give a practical insight.

The RICS Flooding and Insurance working group is currently drafting a guidance note as well, so that, as surveyors, we are clear on what is expected when providing advice on resilience. Furthermore, a website has been set up by the Centre for Resilience to make it easier for public and professionals alike to access information about flood resilience.

Resilience is developing fast, and there are opportunities for surveyors to become trusted professionals in this area.

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Further information

- Images ? BRE
- This feature is taken from the RICS Building surveying journal (October/November 2017)
- Related categories: Flood remediation , Flood risk