Developments in property resistance and resilience

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Overview

Flood risk management in context

The role of flood resistance and resilience

BS 85500
“Flood resistant and resilient construction”

Current / recent resilience initiatives
Portfolios of responses are now recognised as fundamental to effective FRM where:
• The advantages of one option compensates for the disadvantages of another

Forecasting/warning

Land use management

Insurance

Development regulation
Hierarchy of FRM Measures

Avoid the risk
- Allocate vulnerable developments to areas of least risk

Substitute the risk
- Use less vulnerable development types

Control the risk
- Reduce flood probability

Mitigate the impacts of the risk
- Manage the residual risks
Need for resistance & resilience measures

What are drivers?
Flood product testing
Drivers for resistance products & testing

Large number of ‘at risk’ properties that will not be protected by major schemes
- 1 in 6 properties from all sources
- 3.9m from surface water

Defra grant scheme for Local Authorities (launched 2008)

EA/LA schemes delivered as part of FGiA

Drive innovation by the manufacturers
The Pitt Report recommendations (2008)

#11 Building Regulations should be revised to ensure that all new or refurbished buildings in high flood-risk areas are flood resistant or resilient;

#12 All local authorities should extend eligibility for home improvement grants and loans to include flood resistance and resilience products for properties in high flood-risk areas;

#13 Local authorities…should encourage the take-up of property flood resistance and resilience by businesses.
Resilience of buildings – BS 85500

What the standard covers
Wall ME1 (Eng Bricks on external face and Concrete blocks on internal face) during wet test
Followed by ‘sister’ guidance (unpublished) on: Resilient “Modern Methods of Construction” – BRE
BS 85500:2015

Flood resistant and resilient construction – Guide to improving the flood performance of buildings

BS 85500, Flood resistant and resilient construction – Guide to improving the flood performance of buildings

Core document

0 Introduction

This Core Document has been created to help identify when flood resistant and resistant construction is appropriate and to give guidance on achieving these. It is applicable to new buildings, extensions and the retrofitting of existing properties.

It is based on BS 85500:2015 but contains only the main principles and applies to straightforward situations only. More extensive guidance, including the assessment of less straightforward situations is given in BS 85500.

National and local planning policies discourage inappropriate development in areas at risk of flooding. Neither this Core Document nor BS 85500 promote development in flood risk areas. Instead, they provide guidance on reducing the potential consequences where buildings are located in an area at risk of flooding after other measures or approaches, such as avoiding risk, locating development in an area of low risk or raising flood levels, have been implemented.

1 Terms and definitions

1.1 Flood resistance

construction of a building in such a way as to prevent or minimize floodwater entering the building and damaging its fabric

EXAMPLE

Use of low permeability materials

1.2 Flood resilience

measures that can be incorporated into the building fabric and/or fixtures and fittings that can be installed, to reduce the consequences of flood water entering the property

EXAMPLES

Use of sacrificial materials for internal or external finishes, e.g. gypsum plasterboard placed so that it can easily be removed below the flooded level and replaced, or materials that can resist the effects of flooding, e.g. sheet finishes.

1 Available from http://shop.bsigroup.com/
Select appropriate methods based on FRA or building survey

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<thead>
<tr>
<th>Design floodwater depth above ground floor level</th>
<th>Measure</th>
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<tbody>
<tr>
<td>Less than 300 mm</td>
<td>Resistance A)</td>
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<tr>
<td>300 to 600 mm</td>
<td>Resistance + resilience</td>
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<tr>
<td>More than 600 mm</td>
<td>Resilience + resistance for lesser events</td>
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A) Groundwater and long duration flooding could additionally require resilience
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Bibliography
Benefits of new standard

Addresses the current absence of **Building Regulations** to adequately address flooding in new developments

Useful to **planners and building control officers** in local authorities, seeking to address the ‘disconnect’ between **planning requirements and building regulations**

**Promoting the use** of more resilient materials and construction elements

Minimising delays in **reoccupying properties** after flooding

The potential to **reduce business losses**

The potential to **reduce the risk of mould** and other health risks

**Potential to save energy** as a result of reducing the need for excessive drying
The ‘original’ resilient house
The ‘updated’ view!
UK Government (Defra) study on low-cost resilience:

EC FP7 SMARTesT project:
“Six Steps to Flood Resilience” guidance (BRE & Manchester University)

BRE Client Report
Other initiatives (2)

Property Flood Resilience Action Plan (Bonfield Review)

ICE / CIWEM / RICS meetings

BSI update of PAS1188 to full Standard
- Workshop 23rd November

Agreed way forward to deliver the required standards

29th March 2017
Building protection process stream

Building & flood hazard

Independent flood survey & specification

works inspection

Certified installation

Operation, maintenance, after-care

Post-installation audit
Resilience of buildings is moving up the FRM agenda

Recent Government ‘Bonfield Review’ on *Property Flood Resilience* – delivering action plans in 2017

Still reluctance to embrace resilient measures

New British Standard assists in addressing a gap

Need wider evidence base and increased dissemination