

FLOOD-RESILIENT BUILDING

Part 2: Building in flood-risk areas and designing flood-resilient buildings

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This BRE Digest sets out an overall approach to flood-resilient building in the UK. The term 'resilience' is used within the Digest to cover a range of measures including resistance, resilience and avoidance. The Digest is in two parts.

Part 1 provides an introduction to flood-resilient building as well as covering legislation and planning, flood-risk assessment and the flood performance of buildings. Part 2 covers building in flood-risk areas, designing flood-resilient buildings and sustainable development and flood risk.

This two-part Digest will be of relevance to a number of users, including developers, designers, planners, regulators (environment and building) and others who need to take into account managing flood risk to new development.

INTRODUCTION

This part of the BRE Digest on flood-resilient building covers the overall approach to building in flood-risk areas and the design of flood-resilient buildings. The approach set out here is based upon that which has been developed in the UK in recent years. 'Avoidance', 'resistance' and 'resilience' are the terms used to define the different approaches to building in flood-risk areas. However, a development can contain elements of all three approaches.

Where development has taken place in flood-risk areas, it is often defended by river or coastal defences. These defences are generally designed and constructed such that they will prevent flooding of land up to a certain level. If the defences are over-topped then there is a risk that property will be flooded. It has been estimated that around 5.2 million homes in England are at risk of flooding from rivers, sea or surface water, and a further 1.1 million are at

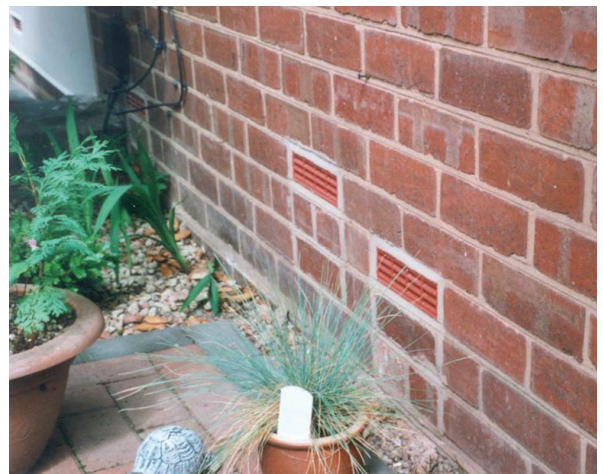


Figure 1: Raised air vents, above the predicted flood depth

risk of failure from infrastructure such as reservoirs currently constructed in flood-risk areas in the UK⁽¹⁾. In Scotland, 3.6% of homes are located in areas at risk of river or coastal flooding. There are, however, many properties that have been subject to a flood in recent years that are not in recognised flood-risk areas, often as a result of poor design of developments or poor drainage infrastructure.

In response to the flood events that have taken place in recent years, a number of flood protection products have been made available to the market. These products are suited to the protection of existing properties, but may be seen as less attractive for newbuild. Therefore, for new development, measures should be preferably applied to the building itself in order to protect it against flooding.

This part of the Digest sets out the key requirements of avoidance, resistance and resilience. Avoidance and resistance are seen as 'water exclusion' strategies (ie keeping water out), while resilience is a 'water entry' strategy (ie allowing water in). In reality designers may take the view that a range of measures will be necessary for different buildings on a site, or even for the same building.