BS 851188-1:2019

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Flood resistance products

Part 1: Building products – Specification

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Contents

Summary of pages
This document comprises a front cover, and inside front cover, pages i to iv, pages 1 to 24, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 September 2019. It was prepared by Technical Committee CB/501, *Flood risk and watercourses*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes PAS 1188-1:2014 and PAS 1188-3:2014, which are withdrawn.

Relationship with other publications

Attention is drawn to the need to consider the prevention of the ingress of flood water into buildings through building fabric (i.e. walls and floors), horizontal pipes, waste water fittings and floor gullies. Anti-flood devices for buildings are covered in BS EN 13564-1.

BS 851188-1 can be used in conjunction with CIRIA *Code of practice and guidance for property flood resilience* [1]. This document sets out a complete methodology for the delivery of flood resilience and provides guidance for flood hazard and building assessment, design, installation and aftercare of flood resilience products and associated measures.

Information about this document

BS 851188, *Flood resistance products*, is issued in two parts:

- *Part 1: Building products – Specification*; and
- *Part 2: Perimeter barrier systems – Specification*.

Test laboratory accreditation. Users of this British Standard are advised to consider the desirability of selecting test laboratories that are accredited to BS EN ISO/IEC 17025 by a national or international accreditation body.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at bsigroup.com/standards, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of The Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to the following specific regulations and associated documents:

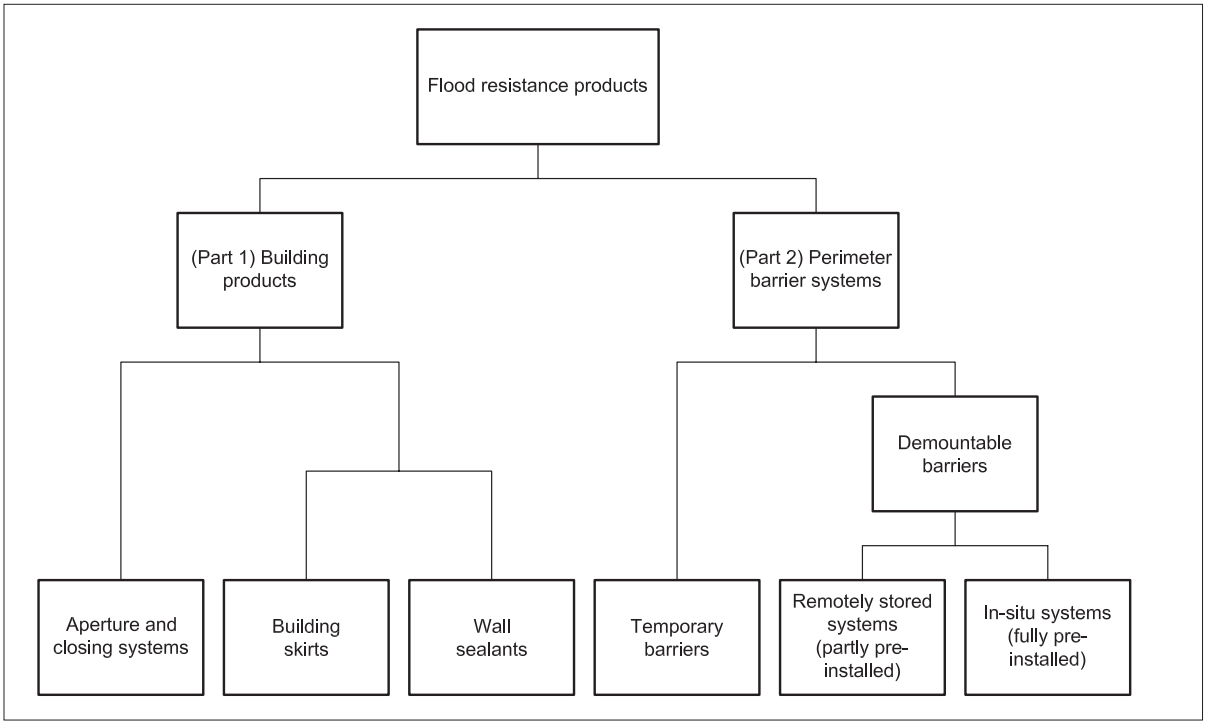
- Statutory Rules of Northern Ireland 2012, Technical Booklet L [2];
- Statutory Rules of Northern Ireland 2012, Technical Booklet E [3];
- Statutory Rules of Northern Ireland 2012, Technical Booklet K [4];
- Statutory Rules of Northern Ireland 2012, Technical Booklet R [5];
- Building Regulations (England and Wales) 2010, Approved Document B [6];
- Building Regulations (England and Wales) 2010, Approved Document C [7];
- Building Regulations (England and Wales) 2010, Approved Document F [8];
- Building Regulations (England and Wales) 2010, Approved Document H [9];
- Building Regulations (England and Wales) 2010, Approved Document J [10];
- Building Regulations (England and Wales) 2010, Approved Document M [11];
- Building Standards (Scotland) Regulations 2004, Technical Handbook 2017: domestic buildings [12];
- Building Standards (Scotland) Regulations 2004, Technical Handbook 2017: non-domestic buildings [13];
- Equality Act 2010 [14];
- Disability Discrimination Act 1995 (Northern Ireland) [15];
- Regulatory Reform (Fire Safety) Order 2005 [16];
- Fire Safety (Scotland) Regulations 2006 [17];
- Fire Safety Regulations (Northern Ireland) 2010 [18];
- Gas Safety (Installation and Use) Regulations 1998 [19]; and
- Construction (Design and Management) Regulations 2015 [20].

NOTE For rooms containing gas appliances, attention is drawn to the Gas Safety (Installation and Use) Regulations 1998 [19] and manufacturers’ instructions regarding the free circulation of air both in and out of the building. In such instances special care is to be taken with the use of flood resistant airbricks/air vents and airbrick/ air vent resistance products. It is important that airbrick/air vent flood resistance products are removed as soon as floodwaters have receded so that sub-floor ventilation is maintained.

Introduction

The general classification of flood resistance products and the relationship between groups of products with each other is shown in Figure 1. Figure 1 also indicates which part of the BS 851188 series is relevant for each classification.

Figure 1 — *Flood resistance products: general classification*



NOTE 1 Attention is drawn to the need to ensure a safe evacuation of persons in the event of an emergency and for access and egress of persons with impaired movement. This is particularly important for basements, where there is a risk that flooding could occur rapidly and to a depth sufficient to be a risk to life. In basement situations, consideration can be given to other measures such as water level alarm systems and automatic pumping systems.

NOTE 2 Measures including the installation of flood barriers or any building alterations that are designed to improve the resilience of the building to flood water should not diminish the building's capacity to facilitate the evacuation of occupants or expel through ventilation any potentially harmful gases, fumes and vapours.

NOTE 3 When a designer considers applying a product to a building, the design and the intended method of deployment of the product with its designated maximum water depth (DMWD) should not adversely affect the structural integrity of the building. Attention is drawn to the Construction (Design and Management) Regulations 2015 [20] and parts relevant to the roles and responsibilities of designers.

1 Scope

This British Standard specifies requirements for the designation, testing, factory production control, installation manual, deployment instructions, user manual and marking for different types and configurations of flood resistance products.

This British Standard is applicable to flood resistance products intended for use in the temporary sealing of building apertures and entrances to properties, including boards, skirt and wall sealant systems, and flood doors, in the event of static flood water rising above a minimum level of 540 mm above aperture threshold level, except where they are designed to completely cover or replace small apertures, such as airbricks or air vents. The flood resistance products are expected to be effective at flood heights from ground level to the designated maximum water depth (DMWD). It covers

wall aperture closure systems and foam products. Skirt and wall sealant systems are used in the temporary sealing of the above or below ground external faces of buildings and properties.

This British Standard specifies the method of testing and product performance.

The range of building aperture sizes covered is a nominal width of up to 6 000 mm. For skirt and sealant systems the range of building sizes covered is governed by the system constraints, but theoretically the system could be installed to provide protection to any size of building.

NOTE 1 The hydrostatic pressures exerted by floodwater can cause sudden or long-term structural damage and undermine the foundations of a building or cause leakage through the walls, floor or sub-floor, unless the building is specifically designed to withstand such stresses. Typically, residential buildings are not structurally capable of excluding flood water above 600 mm deep (see BS 85500 for guidance). The actual water level that can be safely retained by the external walls depends upon the construction, type, form, age and condition of the walls. It is advisable that an appropriately qualified building surveyor, civil engineer or structural engineer inspects the external walls, before any flood resistance product for building apertures is installed.

NOTE 2 Flood resistance products are normally intended to prevent water more than 540 mm above the aperture threshold level from entering the building. An allowance of 60 mm has been assumed to allow for the aperture or entrance threshold against which the lower edge of the product seals.

NOTE 3 The test conditions given in Annex A represent typical conditions that can be experienced during a flood. This includes testing the flood resistance product for leakage under static water levels, waves up to 0.1 m high and parallel currents up to 1.0 m/s.

NOTE 4 This British Standard does not cover testing with contaminated or saline water; however, product manufacturers are required to provide information about the performance of their products in these conditions (see Annex B).

NOTE 5 Ongoing and scheduled repair and maintenance of components covered in this British Standard might be essential to ensure their long-term reliability and effectiveness. Instructions on these aspects of the product are provided by the product supplier. For details, see CIRIA Code of practice and guidance on property flood resilience [1]. After care and maintenance forms parts of the user manual.

This British Standard does not cover groundwater protection systems, where groundwater rises up through the foundations.

This British Standard is not applicable to temporary or demountable flood resistance products which are designed to be installed away from and not attached to buildings (including flood resistance products intended for installation across driveway entrances and gateways at property boundaries). These are covered by BS 851188-2.

This British Standard is not applicable to penstocks for use in water supply, sewage treatment and other liquid flow applications, which are covered by BS 7775. It is also not applicable to anti-flooding devices for faecal and/or non-faecal wastewater for use in drainage systems of buildings operating under gravity, which are covered by BS EN 12056-1.

This British Standard does not cover flood resilience products designed to enable rapid recovery from flooding. Products covered by this British Standard are designated as flood resistance products.

