PD 7974-5:2014

BSI Standards Publication

PUBLISHED DOCUMENT

Application of fire safety engineering principles to the design of buildings

Part 5: Fire and rescue service intervention (Sub-system 5)

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 56, an inside back cover and a back cover.

Foreword

Publishing information

This Published Document is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 November 2014. It was prepared by Panel FSH/24/-/3, *Revision of PD 7974-5*, under the authority of Technical Committee FSH/24, *Fire safety engineering*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This Published Document supersedes PD 7974-5:2002, which is withdrawn.

Relationship with other publications

This Published Document takes information on building characteristics and the design fire from the qualitative design review (QDR) together with the time of fire service notification from sub-system 4 (PD 7974-4) and the time of evacuation from sub-system 6 (PD 7974-6). It provides information on the effect of fire service activities on the growth of the fire, which is used by sub-system 1 (PD 7974-1).

PD 7974-5 is a new part of the PD 7974 series. The series comprises:

- Part 0: *Guide to design framework and fire safety engineering procedures*;
- Part 1: *Initiation and development of fire within the enclosure of origin (Sub-system 1)*;
- Part 2: *Spread of smoke and toxic gases within and beyond the enclosure of origin (Sub-system 2)*;
- Part 3: *Structural response and fire spread beyond the enclosure of origin (Sub-system 3)*;
- Part 4: *Detection of fire and activation of fire protection systems (Sub-system 4)*;
- Part 5: *Fire and rescue service intervention (Sub-system 5)*;
- Part 6: *Human factors – Life safety strategies – Occupant evacuation, behaviour and condition (Sub-system 6)*;
- Part 7: *Probabilistic risk assessment*;
- Part 8: *Property protection, business and mission continuity, and resilience*.

These Published Documents are intended to be used in support of BS 7974.

Information about this document

This is a full revision of the standard and introduces the following principal changes:

- the standard has been rewritten to accommodate changes resulting from the National standards of fire cover having been withdrawn and replaced by locally determined standards of fire cover developed through a process called “integrated risk management planning”;
- guidance is provided on the relationship between building design and fire and rescue service operating procedures.

Use of this document

As a guide, this Published Document takes the form of guidance and recommendations. It should not be quoted as if it were a specification or a code of practice and claims of compliance cannot be made to it.

Presentational conventions

The guidance in this standard is presented in roman (i.e. upright) type. Any recommendations are expressed in sentences in which the principal auxiliary verb is "should".

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

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 Published Document cannot confer immunity from legal obligations.

Introduction

This Published Document is one of a series of documents intended to support BS 7974. BS 7974 provides a framework for developing a rational methodology for design using a fire safety engineering approach through the application of scientific and engineering principles to the protection of people, property and the environment from fire. The Published Documents (PDs) contain guidance and information on how to undertake quantitative and detailed analysis of specific aspects of the design. They are a summary of current practice and it is intended that they be updated as new theories, calculation methods and/or data become available. They do not preclude the use of appropriate methods and data from other sources. BS 7974 can be used to define one or more fire safety design issues to be addressed using fire safety engineering. The appropriate PD(s) can then be used to set specific acceptance criteria and/or to undertake detailed analysis. A fire safety engineering (FSE) approach that takes into account the total fire safety package can often provide a more fundamental and economical solution than more prescriptive approaches to fire safety. It might in some cases be the only viable means of achieving a satisfactory standard of fire safety in some large or complex buildings. Fire safety engineering can have many benefits. The use of BS 7974 can facilitate the practice of fire safety engineering and in particular it can:

a) provide the designer with a disciplined approach to fire safety design;

b) allow the safety levels for alternative designs to be compared;

c) provide a basis for selection of appropriate fire protection systems;

d) provide opportunities for innovative design; and

e) provide information on the management of fire safety for a building.

Fire is an extremely complex phenomenon and there are still gaps in the available knowledge. When used by suitably qualified persons, experienced in fire safety engineering, the series of documents can provide a means of establishing acceptable levels of fire safety economically and without imposing unnecessary constraints on aspects of building design.

1 Scope

This part of PD 7974 provides guidance on fire safety engineering and the necessary interaction with fire service intervention activities. This Published Document applies irrespective of whether the design objective, or fire service activities, are intended to support life safety, property, business, mission, or heritage protection objectives, as defined in the qualitative design review (QDR) process described in BS 7974 and PD 7974-0. The guidance provides an understanding of both the capabilities and limitations of fire service intervention, and takes into account the physiological demands on fire-fighters, the fire-fighting procedures that are used and the limitations of fire-fighting equipment.

This part of PD 7974 is intended to be applied to the design of new and, where appropriate, the appraisal of existing, buildings and plant.

It also contains analytical tools that allow an analysis of fire and rescue service intervention and offers a range of approaches that could improve the efficiency and effectiveness of fire and rescue service intervention if analysis indicates that design objectives might not be achieved.

The fire and rescue service can request access and facilities to assist them with emergencies other than fire. The recommendations contained in this document could be of value when considering such requests but the primary purpose of this document is concerned with fire.