

PD 7974-8:2012



BSI Standards Publication

PUBLISHED DOCUMENT

Application of fire safety engineering principles to the design of buildings

Part 8: Property protection, business and mission continuity, and resilience

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Foreword

Publishing information

This part of PD 7974 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 August 2012. It was prepared by Technical Committee FSH/24, *Fire safety engineering*. A list of organizations represented on this committee can be obtained on request to its secretary.

Relationship with other publications

PD 7974-8 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 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 part of PD 7974 contains public sector information published in Building Bulletin 100 [1], licensed under the Open Government Licence v1.0.

Use of this document

As a guide, this part of PD 7974 takes the form of guidance and recommendations. It should not be quoted as if it were a specification or a code of practice.

It has been assumed in the preparation of this part of PD 7974 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 guidance in this part of PD 7974 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.

0 Introduction

0.1 General

This part of PD 7974 provides guidance on fire safety engineering techniques to support property, business and mission protection objectives.

Frequently, the contents of a building and the work conducted within it are of considerably greater value than the building itself, either intrinsically because of their monetary or historic or cultural value, or indirectly because of the effects of their loss on business or mission continuity, as can be the case for example in computing suites, archives, many industrial plants and also in educational establishments.

National building codes, such as the Building Regulations 2010 [2] in England and Wales ¹⁾, are intended to ensure that a reasonable standard of life safety is provided, in case of fire. The protection of property, including the building itself, often requires additional measures and insurers will, in general, seek their own higher standards before accepting the insurance risk.

For many large complex projects where fire safety engineering is used, the organizations that will own, operate and insure the building or facility are known at the design stage. Schools and hospitals, for example, usually fall into this category. When the owner, operator and/or insurer of a building is known at the design stage, it is possible for fire safety engineering to add further value to the design process by explicitly considering property protection and business continuity as well as life safety. The guidance for considering property protection and business continuity from fire, through business impact analysis (BIA), is presented in the document.

There are also a large number of projects that are developed speculatively where the operator, tenants and insurers are not known at the design stage. Many offices and retail premises are built this way. In the absence of these stakeholders, the fire engineer will not be able to explicitly address business continuity of property protection and they need to make this clear in their fire strategy.

Where the client is able to submit a business impact analysis (BIA), the protection of an organization's resources associated with the built environment that underpin the conduct of business-critical activities may be added to the fire safety objectives suite to inform the qualitative design review (QDR) process, as described in BS 7974 and PD 7974-0.

Where the client is unaware of the role that fire safety engineering can play in meeting their business resilience ambition, this part of PD 7974 will inform the client of areas where, subject to demand, additional design benefit can be delivered.

A BIA identifies a number of potential impacts that the loss of business functions can have. These business impacts may be rated in terms of their potential risk for prioritization purposes. For some potential mitigating measures, a more detailed quantitative assessment of risk and cost-benefit analysis can help evaluate the most cost-effective solution. PD 7974-7 includes data for probabilistic risk assessment and criteria for assessment. The data are based on fire statistics, building characteristics and reliability of fire protection systems. The criteria cover life safety and property protection, both in absolute and comparative terms.

¹⁾ Attention is drawn to building regulations in other parts of the UK ([3], [4]), which might not have the same functional requirements as those in England and Wales.

0.2 Common use of fire safety engineering

When developing fire safety engineering solutions for buildings, it has traditionally been common practice for the fire safety engineer to concentrate largely, or even solely, on life safety and evacuation objectives, because these are the elements often mandated by national building regulations. Although life safety is of utmost importance, a building design which focuses exclusively on life safety might not adequately protect property and business continuity resulting in a building, or plant, with diminished resilience to the effects of fire and inflexibility in future use.

0.3 Business resilience, interest, responsibility and drivers

The approach described within this part of PD 7974 is fundamental to ensuring a successful building design that fully meets the needs of the client organization. It is essential for managing the continued viability and success of the client organization.

For example, the role of the Managing Director or Chief Executive of a public company includes the requirement to be accountable for the overall performance of the company and for the day-to-day running and management of the company, under delegated authority from the Board. Their responsibilities include:

- implementing the Executive's policies and strategies;
- managing the day-to-day operations of the organization;
- managing resources efficiently and effectively to achieve the organization's objectives;
- ensuring that appropriate internal audit processes and procedures are in place;
- developing and implementing a risk management plan; and
- ensuring that there is a succession plan in place.

Indeed, it is stated in the Companies Act [5] that a director of a company has a duty to "act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole, and in doing so have regard (amongst other matters) to:

- a) the likely consequences of any decision in the long term;
- b) the interests of the company's employees;
- c) the need to foster the company's business relationships with suppliers, customers and others;
- d) the impact of the company's operations on the community and the environment;
- e) the desirability of the company maintaining a reputation for high standards of business conduct; and
- f) the need to act fairly as between members of the company".

The analysis of business vulnerabilities and the appreciation of the benefits of good business continuity planning are at the heart of many of these responsibilities, and as such business continuity initiatives need to start at the top of an organization and promulgate downwards. A business that fails following a major event, such as fire, has demonstrated a fragility that results from poor management.

At the heart of business continuity planning is the identification of critical activities and the resources upon which they depend. Resources are often grouped into categories such as people, plant, premises and infrastructure, and where the built environment is a part of the provision of these resources, there is clearly a need to consider them during the building design phase.

It is essential that, when senior management within the end-user client's organization are known at the design stage of a project, that they are willing and available to provide information and undertake the BIA process.

0.4 Insurer involvement in fire safety engineering design process

Whilst life safety objectives are often mandated by national building regulations, commercial property insurers also champion property and business protection objectives and might have specialist advisers available to help their customers. When available, contact and consultation with the proposed building's or plant's insurers is vitally important and the fire safety engineer is encouraged to make efforts to involve the client's property insurer whenever practicable.

Often, the insurer of a building or plant during its design and build phase will not be the same organization that will finally insure the occupied premises.

It is crucial that the fire safety engineer has a complete a brief as possible from all stakeholders including the end-user client. This might need facilitation by the architect or "design and build" contractor.

1 Scope

This part of PD 7974 provides guidance on fire safety engineering techniques to support property, business and mission protection objectives, in order to address property loss, assist business/mission continuity and/or provide resilience against the effects of fire. It describes a business impact analysis (BIA) process which can be used by the building's or plant's design team in order to inform the qualitative design review (QDR) process, as described in BS 7974 and PD 7974-0. It provides input into the fire engineering objective setting part of the QDR.

NOTE The phrases "mission continuity" and "business continuity" are both used within this part of PD 7974, to indicate that this part of PD 7974 covers all organizations, not just businesses.

It is intended that this part of PD 7974 is applied to the design of new buildings and plant, where appropriate. It can also be applied to the appraisal of existing buildings and plant.

This part of PD 7974 covers all aspects of a building and its contents. It does not cover plant and buildings used for the bulk storage or processing of flammable liquids or explosive materials.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 7974, *Application of fire safety engineering principles to the design of buildings – Code of practice*

BS 9999:2008, *Code of practice for fire safety in the design, management and use of buildings*

PD 7974-0, *Application of fire safety engineering principles to the design of buildings – Part 0: Guide to design framework and fire safety engineering procedures*

3 Terms and definitions

For the purposes of this part of PD 7974, the terms and definitions given in BS 7974 and the following apply.

3.1 activity

process or set of processes undertaken by an organization (or on its behalf) that produces or supports one or more products or services

NOTE Examples of such processes include accounts, call centre, IT, manufacture, distribution.

[SOURCE: BS 25999-1:2006, 2.1]

3.2 business continuity

strategic and tactical capability of the organization to plan for and respond to incidents and business disruptions in order to continue business operations at an acceptable pre-defined level

[SOURCE: BS 25999-1:2006, 2.2]

3.3 business continuity management (BCM)

holistic management process that identifies potential threats to an organization and the impacts to business operations that those threats, if realized, might cause, and which provides a framework for building organizational resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities

NOTE Business continuity management involves managing the recovery or continuation of business activities in the event of a business disruption, and management of the overall programme through training, exercises and reviews, to ensure the business continuity plan(s) stays current and up-to-date.

[SOURCE: BS 25999-1:2006, 2.3]

3.4 business continuity management lifecycle

series of business continuity activities which collectively cover all aspects and phases of the business continuity management programme

NOTE The business continuity management lifecycle is illustrated in Figure A.1.

[SOURCE: BS 25999-1:2006, 2.4]

3.5 business continuity management programme

ongoing management and governance process supported by top management and appropriately resourced to ensure that the necessary steps are taken to identify the impact of potential losses, maintain viable recovery strategies and plans, and ensure continuity of products and services through training, exercising, maintenance and review

[SOURCE: BS 25999-1:2006, 2.5]

3.6 business continuity plan (BCP)

documented collection of procedures and information that is developed, compiled and maintained in readiness for use in an incident to enable an organization to continue to deliver its critical activities at an acceptable pre-defined level

[SOURCE: BS 25999-1:2006, 2.6]

3.7 business impact analysis

process of analysing business functions and the effect that a business disruption might have upon them

[SOURCE: BS 25999-1:2006, 2.8]

3.8 consequence

outcome of an incident that will have an impact on an organization's objectives

NOTE 1 There can be a range of consequences from one incident.

NOTE 2 A consequence can be certain or uncertain and can have positive or negative impact on objectives.

[SOURCE: BS 25999-1:2006, 2.10]

3.9 cost-benefit analysis

financial technique that measures the cost of implementing a particular solution and compares this with the benefit delivered by that solution

NOTE The benefit may be defined in financial, reputational, service delivery, regulatory or other terms appropriate to the organization.

[SOURCE: BS 25999-1:2006, 2.11]

3.10 critical activities

those activities which have to be performed in order to deliver the key products and services which enable an organization to meet its most important and time-sensitive objectives

[SOURCE: BS 25999-1:2006, 2.12]

3.11 disruption

event, whether anticipated (e.g. a labour strike or hurricane) or unanticipated (e.g. a blackout or earthquake), which causes an unplanned, negative deviation from the expected delivery of products or services according to the organization's objectives

[SOURCE: BS 25999-1:2006, 2.13]

3.12 emergency planning

development and maintenance of agreed procedures to prevent, reduce, control, mitigate and take other actions in the event of a civil emergency

[SOURCE: BS 25999-1:2006, 2.14]

3.13 exercise

activity in which the business continuity plan(s) is rehearsed in part or in whole to ensure that the plan(s) contains the appropriate information and produces the desired result when put into effect

NOTE An exercise can involve invoking business continuity procedures, but is more likely to involve the simulation of a business continuity incident, announced or unannounced, in which participants role-play in order to assess what issues might arise, prior to a real invocation.

[SOURCE: BS 25999-1:2006, 2.15]

3.14 impact

evaluated consequence of a particular outcome

[SOURCE: BS 25999-1:2006, 2.17]