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Components for smoke control systems

Part 8: Code of practice for planning, design, installation, commissioning and maintenance

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Publishing and copyright information

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Contents

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This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 50, 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 31 December 2013. It was prepared by Technical Committee FSH/25, *Smoke, heat control systems and components*. A list of organizations represented on this committee can be obtained on request to its secretary.

Information about this document

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Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its 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.

The word "should" is used to express recommendations of this standard. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Departures from the recommendations of this British Standard are possible through consultation and discussion, and with the agreement of all interested parties (see **5.2**).

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.

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.

0 Introduction

Smoke control systems create and maintain a smoke-free layer above the floor, or help to reduce smoke and heat build-up, by removing smoke and hot gases released by a fire in the development stage. In doing this, smoke control systems help to:

a) keep escape and access routes free from smoke;

b) facilitate firefighting operations;

c) delay and/or prevent flashover and thus full development of the fire;

d) protect equipment and furnishings;

e) reduce thermal effects on structural components during a fire; and

f) reduce damage caused by thermal decomposition products and hot gases.

The use of smoke control systems has become widespread. Their value in assisting in the evacuation of buildings, reducing fire damage and financial loss by preventing smoke logging, facilitating firefighting, reducing roof temperatures and retarding the lateral spread of fire is firmly established. For these benefits to be realized, however, it is essential that smoke control systems operate fully and reliably whenever called upon to do so during their installed life.

A smoke control system is made up of components that have generally been tested to recognized European and International standards, and needs to be installed as part of a properly designed system. The most relevant standards applicable to smoke control systems are BS EN 12101 and BS ISO 21927. Typical system implementation involves the selection of appropriate products, suitable deployment of these products and ensuring they are then interconnected and controlled in such a way as to meet the design criteria.

The recommendations for the design, planning, installation, commissioning, use and maintenance of a smoke control system are set out in the order given in Figure 1.

The first step in the design process is to assess the needs of the building for a smoke control system (see Clause **5**). When a decision is taken as to the type and purpose of the system, the planning and detailed design process begins (Clause **6**).

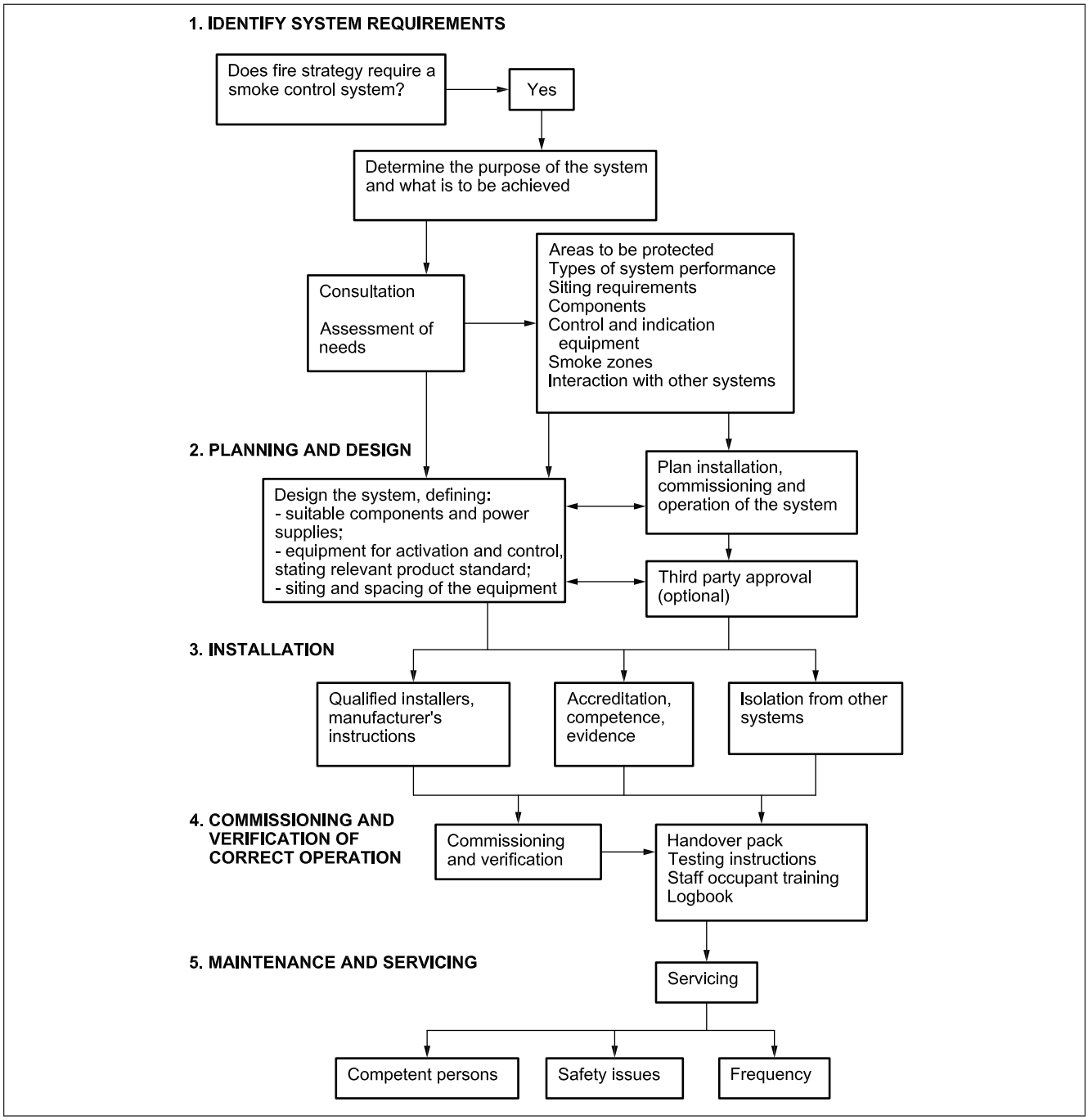
The third step is installation, which includes mounting and interconnecting the components (see Clause **7**).

The fourth step is the commissioning of the system and verification of correct operation (see Clause **8**).

Once the smoke control system is handed over to the relevant responsible person, it is important that the system is maintained and serviced to ensure it remains fully operational (Clause **9**).

The statutory responsibilities for a smoke control systems are set out in Annex A. Annex B provides model certificates for the various steps of an installation, while Annex C provides a model format of a system logbook. Annex D contains figures relating to the location of roof ventilators in areas potentially subject to positive pressures.

Figure 1 **Process for planning, designing, installing, commissioning and maintaining a smoke control system**



1 Scope

This British Standard gives recommendations for the planning, design, installation, commissioning and maintenance of smoke control systems, including smoke clearance, in and around buildings. The recommendations are applicable to systems intended for the protection of life and/or protection of property, including:

a) natural smoke ventilation;

b) mechanical smoke ventilation;

c) smoke barriers;

d) smoke and heat exhaust ducts;

e) smoke dampers, and

their controls, power supplies and interconnections.

This British Standard is not applicable to non-fire-related functions of smoke control systems.

This British Standard does not give recommendations as to whether or not to install smoke control systems in any given premises.

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 5839-1, *Fire detection and fire alarm systems for buildings – Part 1: Code of practice for design, installation, commissioning and maintenance*

BS 7346-4:2003, *Components for smoke and heat control systems – Part 4: Functional recommendations and calculation methods for smoke and heat exhaust ventilation systems, employing steady-state design fires – Code of practice*

BS 7346-5, *Components for smoke and heat control systems – Part 5: Functional recommendations and calculation methods for smoke and heat exhaust ventilation systems, employing time-dependent design fires – Code of practice*

BS 7346-7, *Components for smoke and heat control systems – Part 7: Code of practice on functional recommendations and calculation methods for smoke and heat control systems for covered car parks*

BS 7671, *Requirements for electrical installations – IET Wiring Regulations*

BS 8519:2010, *Selection and installation of fire-resistant power and control cable systems for life safety and fire-fighting applications – Code of practice*

BS 9991, *Fire safety in the design, management and use of residential buildings – Code of practice*

BS 9999:2008, *Assistive products for persons with disability – Classification and terminology*

BS EN 1366-3, *Fire resistance tests for service installations – Part 3: Penetration seals*

BS EN 12101-1, *Smoke and heat control systems – Part 1: Specification for smoke barriers*

BS EN 12101-7, *Smoke and heat control systems – Part 7: Smoke duct sections*

BS EN 12101-8, *Smoke and heat control systems – Part 8: Smoke control dampers*