

Application of fire safety engineering principles to the design of buildings —

Part 0: Guide to design framework and fire safety engineering procedures

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BSi
British Standards

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3.16**fire safety strategy**

combination of fire safety measures that has been shown by reference to prescriptive codes or a fire engineering study to be capable of satisfying the specified fire safety objectives

3.17**fire scenario**

set of circumstances (taking account of the building, its contents and occupants) chosen as an example that defines the development of fire and its effects in a building or part of a building

3.18**management**

persons or person in overall control of the premises whilst people are present, exercising this responsibility either in their own right or by delegation (of statutory duty)

NOTE This could be the owner.

3.19**means of escape**

means whereby safe routes are provided for persons to travel from any point in a building to a place of safety

3.20**place of safety**

predetermined place in which persons are in no immediate danger from the effects of fire.

NOTE The place of safety may be inside or outside the building depending upon the evacuation strategy.

3.21**pre-movement time**

time interval between the warning of fire being given, by an alarm or by direct sight of smoke or fire, and movement towards an exit

3.22**probabilistic study**

methodology to determine statistically the probability and outcome of events

3.23**tenability limit**

maximum exposure to fire hazards that can be tolerated without causing incapacitation

3.24**travel distance**

actual distance that needs to be travelled by a person from any point within a building to the nearest exit, having regard to the layout of walls, partitions and fittings

3.25**trial design**

group of fire safety measures which, in the context of the building parameters, might meet the specified fire safety objectives

3.26**worst case scenario**

set of credible conditions that, when taking account of the building, its contents and occupants, gives rise to the highest level of fire risk

9.6 Comparison with acceptance criteria

The outcome of the quantified analysis should be compared with the acceptance criteria and this should be described for each of the specified fire safety objectives.

9.7 Fire safety strategy

The fire safety strategy for the building will be based on the successful trial design and is likely to comprise a range of physical fire safety measures and management procedures. A description of these measures should be provided, together with performance specifications and any recommended deviations from the relevant system codes, e.g:

The sprinkler system should comply with BS 5306: Part 2 except that sprinkler heads are not required above the swimming pool.

9.8 Fire safety management

The role of fire safety management is both critical and integral to successful fire safety whether the design is based upon prescriptive codes or fire safety engineering design. Therefore, BS 7974:2001 assumes that all aspects of the fire safety engineering strategy are capable of being maintained and deployed over the lifetime of the building.

If there are any specific aspects of the design that are particularly dependent upon a high standard of fire safety management, this should be clearly highlighted and a separate fire safety management manual should be prepared. The basis on which the fire safety design of a large or complex building has been achieved should also be recorded in the fire safety manual, which should be kept on the premises concerned, for the benefit of the management of the premises.

Further information regarding the documentation of fire safety management procedures will be provided in the BS 9999 series of standards.

9.9 Conclusions

The report should draw together the main findings of the fire engineering study and should highlight any aspects of the proposed design that are likely to impact on the use of the building in terms of:

- a) fire protection requirements;
- b) limitations on likely future use;
- c) specific management requirements.

9.10 References

To ensure that the report can be fully checked by a third party, detailed references should be given for all documents and procedures used in the report. These should include details of:

- a) architectural and engineering drawings (including revision numbers);
- b) design documentation (e.g. engineering specifications);
- c) technical papers and reports.

9.11 Qualifications and experience of fire safety engineer

In most FSE studies, it will be necessary to make some engineering judgements and the expertise of the fire safety engineer will often play a major part in defining the initial design assumptions. To enable a third party to establish that the FSE study has been carried out by a person with appropriate expertise, the name, qualifications and experience of the individual fire safety engineer(s) responsible for the study should be provided.