PD ISO/TR 16730-5:2013

BSI Standards Publication

Fire safety engineering — Assessment, verification and validation of calculation methods

Part 5: Example of an Egress model

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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

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Partie 5: Exemple d'un modèle d'évacuation

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 92, *Fire safety*, Subcommittee SC 4, *Fire safety engineering*.

ISO 16730 consists of the following parts, under the general title *Fire safety engineering — Assessment, verification and validation of calculation methods*:

— *Part 3: Example of a CFD model (Technical Report)*

— *Part 5: Example of an Egress model*

The following parts are under preparation:

— *Part 2: Example of a fire zone model (Technical Report)*

— *Part 4: Example of a structural model (Technical Report)*

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Certain commercial entities, equipment, products, or materials are identified in this part of ISO 16730 in order to describe a procedure or concept adequately or to trace the history of the procedures and practices used. Such identification is not intended to imply recommendation, endorsement, or implication that the entities, products, materials, or equipment are necessarily the best available for the purpose. Nor does such identification imply a finding of fault or negligence by the International Standards Organization.

For the particular case of the example application of ISO 16730-1 described in this part of ISO 16730, ISO takes no responsibility for the correctness of the code used or the validity of the verification or the validation statements for this example. By publishing the example, ISO does not endorse the use of the software or the model assumptions described therein, and state that there are other calculation methods available.

Fire safety engineering — Assessment, verification and validation of calculation methods —

Part 5: Example of an Egress model

1 Scope

ISO 16730-1 describes what the contents of a technical documentation and of a user's manual should be for an assessment, if the application of a calculation method as engineering tool to predict real-world scenarios leads to validate results. The purpose of this part of ISO 16730 is to show how ISO 16730-1 is applied to a calculation method, for a specific example. It demonstrates how technical and users' aspects of the method are properly described in order to enable the assessment of the method in view of verification and validation.

The example in this part of ISO 16730 describes the application of procedures given in ISO 16730-1 for an evacuation model (EXIT89).

The main objective of the specific model treated in this part of ISO 16730 is the simulation of the evacuation of a high-rise building with a large occupant population.

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.

ISO 16730-1, *Fire safety engineering — Assessment, verification and validation of calculation methods — Part 1: General*

3 General information on the evacuation model considered

The name given to the evacuation model considered in this document is "EXIT89". EXIT89 is a computer model developed to simulate the evacuation of a high-rise building with a large occupant population. Some of the features of the model include

— the presence of disabled occupants throughout a structure,

— random delay times among occupants to simulate the spread of start times that will occur in large groups of people,

— the choice of using shortest paths or directed routes for evacuation so that the user can demonstrate the impact of a trained staff streamlining evacuation vs. the crowded use of familiar paths by an untrained, unassisted population,

— counterflows, either to simulate the impact of the operations of the fire service or to handle merging flows or the presence of obstructions in the travel path,

— a choice of options affecting travel speed, and

— occupant travel up or down stairs.

