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Responsible committee: FSH/21/-/7 Reaction to fire tests - Large and intermediate scale tests

Interested committees:

Title: Draft BS ISO 13785-1 Reaction-to-fire tests for façades. Part 1: Intermediate-scale test.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 13785-1

Reaction-to-fire tests for façades — Part 1: Intermediate-scale test

*Essais de réaction au feu des façades —
Partie 1: Essai à échelle intermédiaire*

ICS: 91.060.10; 13.220.50

ISO/TC 92/SC 1

Secretariat: **BSI**

Voting begins on:
2025-10-13

Voting terminates on:
2026-01-05

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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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This document was prepared by Technical Committee ISO/TC 92 *Fire Safety*, Subcommittee SC 1, *Fire initiation and growth*.

This second edition cancels and replaces the first edition (ISO 13785-1:2002) which has been technically revised.

The main changes are as follows:

- Modifications to accommodate thicker samples
- Introduction of heat release measurement option

A list of all parts in the ISO 13785 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Fire is a complex phenomenon. Its behaviour and effects depend on a number of interrelated factors. The behaviour of materials and products depends on the characteristics of the fire, the method of use of the materials and the environment in which they are exposed. The theory of “reaction to fire tests” is explained in ISO/TS 3814^[2].

The need for improved thermal insulation of buildings both for single and multi-storey dwellings and for industrial buildings has led to an increased use of insulated and often ventilated façades.

With these types of construction products, there are three primary fire threats to the walls and ceilings/roofs of a building:

- a) an interior compartment fire venting through an opening on to a façade;
- b) an exterior fire in combustibles accumulated near a wall (e.g. rubbish, vegetation);
- c) fire in an adjacent building.

Item a) is generally the most severe and substantially the most significant.

Fire can spread in several ways. The most significant is by spread over a combustible exterior surface or the fire travelling vertically and horizontally through air cavities between external claddings or façades, or through insulation or other layers’.

The results may not, however, reflect the actual performance of exterior wall assemblies under all fire exposure and end-use design conditions.

The test specified in this part of ISO 13785 covers a simple representation of one fire scenario with façade products, typified by a fire within a building venting through a window and impinging directly on to a façade.

The two parts of ISO 13785 provide two methods of test: an intermediate scale test specified in this part, which should be used for evaluation of sub-components or “families of products” or as a tool for extensions of applications, and a large scale test method such as the one specified in Part 2 should be used to provide the end-use evaluation of all aspects of the façade system. These test methods are intended to evaluate assemblies that are not intended for use as an internal lining.

The test method of ISO 13785-1 may be used as intermediate scale for validation of fire models in façade assessment studies or in fire reconstruction.

The test specified in this part of ISO 13785 may be used for comparative purposes between façade systems or to ensure the existence of a certain level of performance considered. No other meaning is attached to performance in this test. The large-scale test in Part 2 of ISO 13785^[3] should be used to give a more realistic end-use assessment of performance.

Compared to previous version of ISO 13785-1, this edition proposes a new position of the sample in order to accommodate thicker samples, a heat flux measurement made optional and an optional heat release rate measurement.

Reaction-to-fire tests for façades —

Part 1: Intermediate-scale test

WARNING — So that suitable precautions may be taken to safeguard health, all persons involved in the fire tests should be aware of the possibility that toxic or harmful gases may be evolved during exposure of test specimens.

Hazards are encountered when assessing the fire performance of any product on an intermediate-scale and it is essential that adequate precautions be taken.

Particular attention should be paid to the potential evolution of smoke and toxic gases and to the fact that extensive flaming of specimens can occur sometimes with resultant mechanical failure of fixings and joints and possible structural collapse.

An adequate means of extinguishing the specimen should be provided.

1 Scope

This part of ISO 13785 specifies a screening method for determining the reaction to fire performance of products and constructions of façades claddings when exposed to heat from a simulated external fire with flames impinging directly upon a façade. It is intended for use by producers to reduce the burden of testing in Part 2 of ISO 13785 by eliminating those systems that fail to reach a predefined performance level in the tests described in this part of ISO 13785.

This test method is applicable only to façades claddings that are not free standing and that are used as an addition to an existing free-standing external wall.

This test method provides an intermediate scale test, which should be used for evaluation of sub-components or “families of products” or as a tool for extensions of applications. This test method may also be used as intermediate scale for validation of fire models in façade assessment studies^[4] or in fire investigations^[5].

This test method also is only applicable to vertical elements and is not applicable to determining the structural strength of the façade cladding.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13943, *Fire safety — Vocabulary*

IEC 60584-1:2013, *Thermocouples — Part 1: EMF specifications and tolerances*

ISO 834-1:1999, *Fire resistance tests - Elements of building construction - Part 1: General requirements*

ISO 24473:2008, *Fire tests — Open calorimetry — Measurement of the rate of production of heat and combustion products for fires of up to 40 MW*

ISO 9705-1:2016, *Reaction to fire tests — Room corner test for wall and ceiling lining products — Part 1: Test method for a small room configuration*