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Utgåva 2

Provning av brandmotstånd – Icke bärande byggnadsdelar –
Del 3: Curtain walling (t. ex. glasfasader) – Komplett utförande

Fire resistance tests for non-loadbearing elements –
Part 3: Curtain walling –
Full configuration (complete assembly)

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This standard supersedes the Swedish Standard SS-EN 1364-3, edition 1.

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EUROPEAN STANDARD

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English Version

Fire resistance tests for non-loadbearing elements - Part 3: Curtain walling - Full configuration (complete assembly)

Essais de résistance au feu des éléments non-porteurs dans les bâtiments - Partie 3: Façades rideaux - Configuration en grandeur réelle (assemblage complet)

Feuerwiderstandsprüfungen für nichttragende Bauteile - Teil 3: Vorhangfassaden - Gesamtausführung

This European Standard was approved by CEN on 24 August 2006.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 1364-3:2006) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2007, and conflicting national standards shall be withdrawn at the latest by March 2007.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the Construction Products Directive.

EN 1364 ‘Fire resistance tests for non-loadbearing elements’ consists of the following Parts:

— Part 1: Walls

— Part 2: Ceilings

— Part 3: Curtain walling - Full configuration (complete assembly)

— Part 4: Curtain walling - Part configuration[1)]

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1) To be published.

Introduction

CAUTION The attention of all persons concerned with managing and carrying out this fire resistance test is drawn to the fact that fire testing may be hazardous and that there is a possibility that toxic and/or harmful smoke and gases may be evolved during the test. Mechanical and operational hazards may also arise during the construction of the test elements or structures, during their testing and during the disposal of test residues.

An assessment of all potential hazards and risks to health should be made and safety precautions should be identified and provided. Written safety instructions should be issued. Appropriate training should be given to relevant personnel. Laboratory personnel should ensure that they follow written safety instructions at all times.

1 Scope

This European Standard specifies a method for determining the fire resistance of curtain walling systems – full configuration.

This European Standard is used in conjunction with EN 1363-1.

NOTE Annex A gives further information on the test method.

The test method is applicable to curtain walling systems, supported by the floor slab(s), designed for the purpose of providing fire resistance. The test is not appropriate for testing curtain walling systems which incorporate non-fire resistant glazing.

The fire resistance of curtain walling systems can be determined under internal or external exposure conditions. In the latter case the external fire exposure curve given in EN 1363-2 is used.

Tests on individual parts of a curtain walling system (e.g. horizontal linear gap seal, panel) or systems with non-fire resistant glazing as windows are performed using prEN 1364-4. For vertical gap seals, this standard (EN 1364-3) applies.

Overcladding is not covered by this European Standard.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 1363-1:1999, *Fire resistance tests — Part 1: General requirements*

EN 1363-2, *Fire resistance tests — Part 2: Alternative and additional procedures*

EN 1364-1, *Fire resistance tests for non-loadbearing elements — Part 1: Walls*

prEN 13119[2)], *Curtain walling — Terminology*

EN ISO 13943:2000, *Fire safety — Vocabulary (ISO 13943:2000)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1:1999, prEN 13119[2)], EN ISO 13943:2000 and the following apply.

3.1
non-loadbearing wall
wall designed not to be subject to any load other than its self-weight

[2)] To be published.

3.2
curtain wall
wall which usually consists of vertical and horizontal structural members, connected together and anchored to the supporting structure of the building and infilled, to form a lightweight, space enclosing continuous skin, which provides, by itself or in conjunction with the building construction, all the normal functions of an external wall, but does not take on any of the load bearing characteristics of the building (see EN 13830)

3.3
fire resistant glazing
glazing system consisting of one or more transparent or translucent panes with a suitable method of mounting, with e.g. frames, seals and fixing materials, capable of satisfying the appropriate fire resistance criteria

3.4
fire resistant insulated glazing
fire resistant glazing which satisfies both the integrity and insulation criteria for the anticipated fire resistance period

3.5
fire resistant non-insulated glazing
fire resistant glazing which satisfies the integrity and, where required, the radiation criteria for the anticipated fire resistance period but which is not intended to provide insulation

3.6
glazed elements
building elements with one or more (light transmissive) panes, that are built in a frame with fixings, gaskets or seals

3.7
pane
single piece of glass

3.8
mullion
vertical structural framing member of a curtain wall supporting adjacent infill elements, glass areas, windows, panels or doors (see prEN 13119)

3.9
transom
horizontal structural framing member of a curtain wall supporting adjacent infill elements, glass areas, windows, panels or doors (see prEN 13119)

3.10
over-cladding system
protection system fixed to an external wall for weather protection

3.11
associated wall construction
mechanism of closing the vertical side of the furnace for the required period of fire resistance

4 Test equipment

4.1 General

In addition to the test equipment specified in EN 1363-1, and if applicable EN 1363-2, the equipment in 4.2 and 4.3 is required for internal or external exposure.

4.2 Internal exposure

The test equipment includes:

— two floors adequately supported by the floor of the laboratory and/or the furnace;

— associated and/or simulated wall constructions which provide an enclosure between the furnace and the specimen.

4.3 External exposure

A supporting frame which supports the specimen and is designed to allow the specimen to be supported and located adjacent to the furnace, see Figure 1.

5 Test conditions

The heating and pressure conditions and the furnace atmosphere shall conform to those given in EN 1363-1 or, if applicable, EN 1363-2.

6 Test specimen

6.1 Size

6.1.1 General

The exposed width and height shall not be less than 3 m.

There shall be a clearance of 50 mm between the floor of the test room (or any other element under the edge of the test specimen to give support) and the bottom edge of the test specimen (see Figures 2 and 3).

6.1.2 Internal fire exposure

The test specimen for internal exposure shall include the curtain wall and the horizontal joints and, if required, the vertical gap seal with the simulated wall.

If the vertical gap seal is not part of the test specimen, then two associated wall constructions are required.

The test specimen (see Figure 2) shall be of sufficient height to allow:

a) a minimum of 500 mm of the test specimen to extend beyond the top of the upper floor construction, and

b) the test specimen to extend 150 mm below the upper surface of the lower floor construction with the bottom edge supported as in practice.

If an assessment of a vertical linear gap is required, the test specimen shall then be of sufficient width to allow a minimum of 500 mm of the test specimen to extend beyond the outside of the simulated wall.

6.1.3 External fire exposure

For external exposure the test specimen shall be the curtain wall only, see Figure 3. The test specimen shall allow:

a) a minimum of 500 mm of the test specimen to extend beyond the top of the upper floor. The floor is optional in this case and an alternative construction may be used but the size of the specimen shall comply with this requirement.

   The 500 mm extension of the test specimen beyond the side of the associated wall construction, specified in 6.1.2, may be reduced or removed when using external fire exposure;

b) the test specimen to extend 150 mm past the upper surface of the lower floor construction with the bottom edge unsupported.

6.2 Number

The number of test specimens shall be as given in EN 1363-1. However, where information is required under different exposure conditions, additional tests shall be undertaken for each situation using separate test specimens.

6.3 Design

6.3.1 General

The test specimen shall be either:

a) fully representative of the construction intended for use in practice, including fixings, expansion joints, linear gap seals, any surface finishes and fittings which are essential and may influence its behaviour in the test, or

b) be designed to obtain the widest field of direct application of the test result to other similar constructions as defined in Clause 13.

6.3.2 Restraint

The test specimen shall be fixed to the top and bottom floor construction with either the type of fixings used in practice or with fixings representative of the type of fixings used in practice.

Both vertical edges shall be unrestrained. A gap seal between the associated and simulated wall construction and the mullions shall be used to allow unrestrained movement of the mullions (see Figure 6 for options).

Maximum movement of the mullion is achieved when option in Figure 6 D1B is used.

6.4 Construction

The test specimen shall be constructed as described in EN 1363-1.

6.5 Verification

Verification of the test specimen shall be carried out as described in EN 1363-1.

7 Installation of the test specimen

7.1 General

The test specimen shall be supported by the floor constructions, see 7.2, as in practice.