Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 2: Fire resistance characterisation test for elements of building hardware

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1634-2:2008 sisaldab Euroopa standardi EN 1634-2:2008 ingliskeelset teksti.	This Estonian standard EVS-EN 1634-2:2008 consists of the English text of the European standard EN 1634-2:2008.
Standard on kinnitatud Eesti Standardikeskuse 15.12.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 15.12.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
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English Version

Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware - Part 2: Fire resistance characterisation test for elements of building hardware

Feuerwiderstands- und Rauchleckageprüfungen für Tür- und Abschlusseinrichtungen, Fenster sowie Beschläge - Teil 2: Charakterisierungsprüfungen zum Feuerwiderstand von Beschlägen

This European Standard was approved by CEN on 13 September 2008.

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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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 1634-2:2008) 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of an identical text or by endorsement, at the latest by May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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 EC Directive 89/106/EEC.

EN 1634 ‘*Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware*’ of the following:

— Part 1: *Fire resistance tests for doors, shutters and openable windows*;

— Part 2: *Fire resistance characterisation test for elements of building hardware*;

— Part 3: *Smoke control test for door and shutter assemblies*.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN 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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 the United Kingdom.

Introduction

This European Standard permits an evaluation of the contribution that a selected item of building hardware is able to make (either positive or negative) to the fire resistance of a hinged or pivoted doorset or an openable window assembly without requiring a full size test.

An item of building hardware does not have a fire resistance capability in itself because fire resistance is a term which can only be applied to an element of structure and is quantified by means of the fire resistance test. An item of building hardware does, however, form part of a fire barrier (fire resisting doors and openable windows) and therefore is required to have demonstrated suitability for that purpose. See Annex F for the relationship of this Test Standard with door-related product standards, test methods and classification.

This European Standard describes a procedure for determining the influence of building hardware with respect to fire resistance in terms of integrity and insulation when incorporated in a fire resisting door or openable window assembly used for personnel access, maintenance, and in some countries, as a means of escape. Such test assemblies use reduced size specimens of the proposed construction in place of the full size assembly. More than one specimen may be tested together in a standard furnace test providing the separation of the elements required by EN 1363-1 is maintained. The test is designed to characterize the influence that the selected item of building hardware has on the fire resistance of a full size assembly in a manner that solely addresses the factors attributed to that item.

There are five individual methods for characterizing the fire behaviour of the following items of building hardware. The scope of each method is given in the following:

a) Method for testing single axis hinges and pivots for side hung door assemblies and openable windows:

   1) single axis hinges[1)];

   2) single action pivots[1)];

   3) spring hinges (for evaluating the influence on integrity) - uncontrolled door closing devices;

   4) double action pivots.

b) Method for testing edge mounted securing devices, including those for use on sliding doors:

   1) mortice latches and mortice locks and mortice deadlocks, including electric locks and multi-point locks with locking plates[2)];

   2) rim latches and locks[1)];

   3) cylinders (for latches and locks);

   4) door and window bolts;

   5) exit devices.

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1) Dependent upon decision ‘tree’ indicating that the method is applicable.

2) If changed separately from the lock.

c) Method for testing non-edge mounted items of building hardware:

   1) letter plates;

   2) air transfer grilles;

   3) push plates and pull handles;

   4) door furniture (such as lever handles and knobs);

   5) door viewers;

   6) fixings/fixing techniques.

d) Method for evaluating ignition for items attached to the unexposed face of uninsulated steel or glazed doors:

   1) overhead face fixed controlled door closing devices.

e) Method for testing controlled door closing devices for use on unlatched fire resisting door assemblies:

   1) overhead face fixed controlled door closing devices[1)];

   2) spring hinges (for evaluating the ability to retain door closed) - uncontrolled door closing device.

This method is not suitable for evaluating concealed and/or floor mounted door closing devices.

Results of tests described in this European Standard are expressed in terms of performance rating which, when used in conjunction with the associated field of direct application clause, will define a range of applications for which the selected item of building hardware is suitable. This can be used when establishing the field of application of the door or openable window assembly by ensuring that only building hardware which has a positive influence is used. Whilst the instrumentation recommended is the minimum required, the use of additional thermocouples is recommended since this will assist in making further extrapolation or interpolation of the results.

Attention is drawn to the need to ensure that the test described in this European Standard is performed under suitable conditions which afford adequate protection to personnel against the risk of fire and/or inhalation of smoke and/or toxic products of combustion.

1 Scope

This European Standard specifies a method for characterizing the influence on fire performance of items of building hardware for incorporation into hinged or pivoted vertically installed fire door assemblies (having either one or two leaves) or vertically installed openable window assemblies, of known fire resistance of up to and including 240 minutes integrity (and where relevant insulation) in accordance with EN 1634-1. It applies to the testing of building hardware for use on hinged and pivoted doors and openable windows which include framed glazed doors and windows, but not glass doors. It does not include a test for durability or other performance characteristics, which should be evaluated according to the product standard for the item of building hardware or as given in EN 14600.

The method is suitable for characterizing building hardware for use on non-metallic door or window assemblies consisting of cellulosic materials or mineral boards faced with cellulosic materials, hung in either cellulosic, mineral cored or metal frames: or conventional steel doors made from sheet steel, not more than 1,5 mm thick, hung in steel frames (steel doors include doors filled with mineral board or mineral fibre cores but not steel clad timber/cellulosic doors). The size of these assemblies can be up to that given in the field of direct application for the door leaf construction concerned.

This method is not directly appropriate for evaluating building hardware for use on glass or glazed doors with decorative perimeter framing. The appropriateness of this method of test can be established by reference to the flow chart given in Annex A.

This European Standard does not constitute a fire resistance test for a leaf, window, frame, intumescent seal, or anything other than the selected item of building hardware. The use of any resulting field of direct application is restricted to leaf and frame constructions which have been successfully tested to EN 1634-1. The method has been developed primarily to permit the evaluation of building hardware for hinged or pivoted door assemblies and openable windows, but the method is also suitable for evaluating some items of building hardware, which are non-edge mounted, for use with sliding doors and openable windows.

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 1154:1996, *Building hardware — Controlled door closing devices — Requirements and test methods*

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

EN 1634-1:2000, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware — Part 1: Fire resistance test for doors and shutter assemblies and openable windows*

EN 1935:2002, *Building hardware — Single-axis hinges — Requirements and test methods*

EN 12209[3)], *Building hardware — Locks and latches — Mechanically operated locks, latches and locking plates — Requirements and test methods*

EN 12519:2004, *Windows and pedestrian doors — Terminology*

3) Only selected locks, deadlocks and latches from EN 12209 are subjected to the requirements of this European Standard, EN 1634-2.

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 14600:2005, *Doorsets and openable windows with fire resisting and/or smoke control characteristics — Requirements and classification*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1634-1:2000, EN 12519:2004, EN 14600:2005 and the following apply:

3.1
associated construction
section of door leaf, window and/or frame if appropriate, into or onto which the item of building hardware is fitted, including any special protection, e.g. intumescent strips, that may be used to obtain the required result (Figure 1)

3.2
door frame/door lining
sub-structure installed in an aperture in a wall from which a door leaf is hung or pivoted

3.3
element of building construction
defined construction component e.g. wall, partition, floor, doorset, roof, beam or column

3.4
air transfer grille (louvre)
non-ducted grille installed in a door, to allow air to transfer naturally from one room or zone to another without connection to a mechanical ventilation system which may operate by various methods

NOTE This test identifies the integrity and insulation criteria of a door panel incorporating the air transfer grille.

3.5
glass door
door where the leaf consists entirely of glass and onto which the building hardware is directly attached

3.6
glazed door
door which incorporates at least one glass panel which is supported in the leaf construction to which the building hardware is directly attached

3.7
high temperature sealing material
material used to seal gaps in the associated and the supporting construction and between the two constructions (except where there is anticipated movement and/or expansion) which is able to maintain the integrity of the test construction for the required duration

3.8
hinged supporting construction
panel constructed for the greater part from re-usable non-combustible material such as refractory board or aerated concrete slab (supporting construction) and onto which is mounted the associated door or window section (associated construction), and is designed to simulate the movement and mass of the full size assembly (see Figure 1)