



NSAI
Standards

Irish Standard
I.S. EN 13501-4:2016

Fire classification of construction products and building elements - Part 4: Classification using data from fire resistance tests on components of smoke control systems

© CEN 2016 No copying without NSAI permission except as permitted by copyright law.

I.S. EN 13501-4:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 13501-4:2016

Published:

2016-06-22

This document was published under the authority of the NSAI and comes into effect on:

2016-07-11

ICS number:

13.220.50

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 13501-4:2016 is the adopted Irish version of the European Document EN 13501-4:2016, Fire classification of construction products and building elements - Part 4: Classification using data from fire resistance tests on components of smoke control systems

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

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13501-4

June 2016

ICS 13.220.50

Supersedes EN 13501-4:2007+A1:2009

English Version

**Fire classification of construction products and building
elements - Part 4: Classification using data from fire
resistance tests on components of smoke control systems**

Classement au feu des produits et éléments de
construction - Partie 4: Classement à partir des
données d'essais de résistance au feu des composants
de dispositifs de contrôle de fumée

Klassifizierung von Bauprodukten und Bauarten zu
ihrem Brandverhalten - Teil 4: Klassifizierung mit den
Ergebnissen aus den Feuerwiderstandsprüfungen von
Anlagen zur Rauchfreihaltung

This European Standard was approved by CEN on 23 April 2016.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

	Page
European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Fire scenarios	8
4.1 General.....	8
4.2 The standard temperature/time curve (post flash-over fire).....	9
4.3 The slow heating curve (smouldering fire)	9
4.4 Constant temperature attack.....	9
4.5 Specific thermal actions.....	10
4.5.1 Smoke control ducts.....	10
4.5.2 Smoke control dampers.....	10
4.5.3 Smoke barriers.....	10
4.5.4 Powered smoke and heat control ventilators.....	10
4.5.5 Natural smoke and heat exhaust ventilators	10
5 Resistance to fire performance characteristics	11
5.1 General.....	11
5.2 Performance characteristics.....	11
5.2.1 E – Integrity	11
5.2.2 I – Insulation	12
5.2.3 S – Smoke leakage	12
5.2.4 D – Stability duration under constant temperature	12
5.2.5 DH – Stability duration under the standard time-temperature curve.....	12
5.2.6 F – Functionality of powered smoke and heat ventilators	13
5.2.7 B – Functionality of natural smoke and heat ventilators.....	13
6 Declaration of performance	13
6.1 Classification periods	13
6.2 Designatory letters	13
6.3 Declaration of performance	13
6.4 Declaration of classes in product standards	13
6.5 Number of tests required for classification.....	13
6.6 Presentation of classification	14
7 Classification procedure for fire resistance	14
7.1 General.....	14
7.1.1 Procedure.....	14
7.1.2 General rules for deducing the number of fire resistance tests.....	15
7.1.3 Field of application	15
7.2 Classification of smoke control ducts	16
7.2.1 General.....	16
7.2.2 Test methods and field of application rules	16
7.2.3 Tests to be performed	16
7.2.4 Performance criteria	17

7.2.5	Classes	18
7.3	Classification of smoke control dampers	19
7.3.1	General.....	19
7.3.2	Test method and field of application rules	19
7.3.3	Tests to be performed	19
7.3.4	Performance criteria	20
7.3.5	Classes	22
7.4	Classification of smoke barriers	23
7.4.1	General.....	23
7.4.2	Test method.....	23
7.4.3	Tests to be performed	23
7.4.4	Performance criteria	24
7.4.5	Classes	24
7.5	Classification of powered smoke and heat control ventilators	24
7.5.1	Test method.....	24
7.5.2	Tests to be performed	24
7.5.3	Performance criteria	24
7.5.4	Classes	25
7.6	Classification of natural smoke and heat exhaust ventilators.....	25
7.6.1	Test method.....	25
7.6.2	Tests to be performed	25
7.6.3	Performance criteria	25
7.6.4	Classes	25
Annex A (normative) Classification report	26	
A.1	General.....	26
A.2	Content and format.....	26

EN 13501-4:2016 (E)

European foreword

This document (EN 13501-4:2016) has been prepared by Technical Committee CEN/TC 127 "Fire safety in buildings", the secretariat of which is held by BSI.

This document supersedes EN 13501-4:2007+A1:2009.

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 December 2016, and conflicting national standards shall be withdrawn at the latest by March 2018.

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.

CEN, CENELEC and EOTA committees preparing technical specifications which contain performance requirements against fire resistance tests can make reference to the fire resistance classification given in this European Standard and not refer directly to any specific fire test method.

EN 13501 *Fire classification of construction products and building elements* consists of the following parts:

- *Part 1: Classification using data from reaction to fire tests*
- *Part 2: Classification using data from fire resistance tests, excluding ventilation services*
- *Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers*
- *Part 4: Classification using data from fire resistance tests on components of smoke control systems*
- *Part 5: Classification using data from external fire exposure to roof tests*
- *Part 6: Classification using data from reaction to fire tests on electric cables*

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

Introduction

This European Standard defines a harmonized procedure for the classification for resistance to fire of construction products. This classification is based on the test procedures sited in the relevant documents listed in Clause 2 and the relevant field of application procedures.

This European Standard is prepared in support of the second basic requirement, in the EC Construction Products Regulation (305/2011) and is detailed in the Interpretative Document number 2 (ID2): Safety in case of fire (OJ C62 Vol 37).

The Interpretative Document and the Commission Decision of 3 May 2000 specify performance and classes regarding fire resistance.

These classes are identified by designation letters, each of which refers to an important characteristic of fire resistance behaviour.

This European Standard provides for a common understanding for these requirements. It interprets the functional requirements for the different groups of building products/elements and explains the method for deriving their classification on the basis of test results and/or extended application results for individual products/elements.

NOTE Test reports constitute the basis for extended application reports as explained in EN 15725.

EN 13501-4:2016 (E)

1 Scope

This European Standard specifies the procedure for classification of components of smoke control systems, using data from fire resistance tests which are within the field of application of the relevant test methods. Classification on the basis of extended application of test results is also included in the scope of this European Standard.

Products covered by this European Standard are:

- smoke control ducts;
- smoke control dampers;
- smoke barriers;
- powered smoke and heat control ventilators (fans), including connectors;
- natural smoke and heat exhaust ventilators.

Relevant documents which include the relevant test methods which have been prepared for these products are listed in Clause 2.

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.

EN 1363-1, *Fire resistance tests - Part 1: General Requirements*

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

EN 1366-1, *Fire resistance tests for service installations - Part 1: Ventilation ducts*

EN 1366-2, *Fire resistance tests for service installations - Part 2: Fire dampers*

EN 1366-8, *Fire resistance tests for service installations - Part 8: Smoke extraction ducts*

EN 1366-9, *Fire resistance tests for service installations - Part 9: Single compartment smoke extraction ducts*

EN 1366-10, *Fire resistance tests for service installations - Part 10: Smoke control dampers*

EN 12101-1:2005, *Smoke and heat control systems - Part 1: Specification for smoke barriers*

EN 12101-2, *Smoke and heat control systems - Part 2: Specification for natural smoke and heat exhaust ventilators*

EN 12101-3, *Smoke and heat control systems - Part 3: Specification for powered smoke and heat control ventilators (Fans)*

EN 15725, *Extended application reports on the fire performance of construction products and building elements*



This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- Looking for additional Standards? Visit Intertek Inform Infostore
- Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation