



BSI Standards Publication

# Fire classification of construction products and building elements

---

Part 1: Classification using data from reaction to fire tests

## National foreword

This British Standard is the UK implementation of EN 13501-1:2018. It supersedes BS EN 13501-1:2007+A1:2009, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FSH/21/-/8, Reaction to fire tests - Classification and application of test results.

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.

© The British Standards Institution 2019  
Published by BSI Standards Limited 2019

ISBN 978 0 580 95726 0

ICS 13.220.50

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2019.

### Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

---

EUROPEAN STANDARD

**EN 13501-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2018

ICS 13.220.50

Supersedes EN 13501-1:2007+A1:2009

English Version

## Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

Classement au feu des produits et éléments de construction - Partie 1: Classement à partir des données d'essais de réaction au feu

Klassifizierung von Bauprodukten und Bauarten zu ihrem Brandverhalten - Teil 1: Klassifizierung mit den Ergebnissen aus den Prüfungen zum Brandverhalten von Bauprodukten

This European Standard was approved by CEN on 9 November 2018.

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, Serbia, 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: Rue de la Science 23, B-1040 Brussels**

## Contents

Page

European foreword.....	5
Introduction.....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms, definitions and symbols .....	8
3.1 Terms and definitions.....	8
3.2 Symbols and abbreviations.....	14
4 Classes of reaction to fire performance.....	14
5 Test methods and field of application rules .....	15
5.1 General.....	15
5.2 Non-combustibility test (EN ISO 1182).....	15
5.3 Heat of combustion test (EN ISO 1716).....	15
5.4 Single burning item test (EN 13823) .....	15
5.5 Ignitability test (EN ISO 11925-2) .....	15
5.6 Determination of the burning behaviour of floorings, using a radiant heat source (EN ISO 9239-1) .....	15
6 Principles for testing, specimen preparation and field of application .....	16
6.1 General requirements for specimen preparation .....	16
6.2 Specific requirements for non-combustibility and heat of combustion testing.....	16
6.3 Specific requirements for the single burning item test, the ignitability test and the test for the determination of the burning behaviour of floorings, using a radiant heat source.....	16
6.4 Field of application .....	17
7 Number of tests for classification .....	17
8 Testing of construction products, excluding floorings and linear pipe thermal insulation products (see Table 1).....	18
8.1 Class E, F.....	18
8.2 Classes D, C, B .....	18
8.3 Classes A2, A1.....	19
8.4 Additional classifications s1, s2, s3 for smoke production .....	19
8.5 Additional classifications d0, d1, d2 for flaming droplets/particles .....	19
9 Testing of floorings (see Table 2) .....	19
9.1 Class E <sub>fl</sub> , F <sub>fl</sub> .....	19
9.2 Classes D <sub>fl</sub> , C <sub>fl</sub> , B <sub>fl</sub> .....	19
9.3 Classes A2 <sub>fl</sub> , A1 <sub>fl</sub> .....	20
9.4 Additional classifications s1, s2 for smoke production.....	20
10 Testing of linear pipe thermal insulation products (see Table 3).....	20
10.1 Class E <sub>L</sub> , F <sub>L</sub> .....	20
10.2 Classes D <sub>L</sub> , C <sub>L</sub> , B <sub>L</sub> .....	20
10.3 Classes A2 <sub>L</sub> , A1 <sub>L</sub> .....	20
10.4 Additional classifications s1, s2, s3 for smoke production .....	21

10.5	Additional classifications d0, d1, d2 for flaming droplets/particles.....	21
11	Classification criteria for construction products, excluding floorings (see Table 1) .....	21
11.1	General.....	21
11.2	Class F.....	22
11.3	Class E.....	22
11.4	Class D .....	22
11.5	Class C.....	22
11.6	Class B.....	23
11.7	Class A2 .....	23
11.8	Class A1 .....	24
11.9	Additional classifications s1, s2, s3 for smoke production .....	25
11.10	Additional classifications d0, d1, d2 for flaming droplets and/or particles.....	26
12	Classification criteria for floorings (see Table 2).....	27
12.1	General.....	27
12.2	Class F <sub>fl</sub> .....	27
12.3	Class E <sub>fl</sub> .....	27
12.4	Class D <sub>fl</sub> .....	27
12.5	Class C <sub>fl</sub> .....	28
12.6	Class B <sub>fl</sub> .....	28
12.7	Class A2 <sub>fl</sub> .....	28
12.8	Class A1 <sub>fl</sub> .....	29
12.9	Additional classifications s1, s2 for smoke production .....	30
13	Classification criteria for linear pipe thermal insulation products (see Table 3).....	31
13.1	General.....	31
13.2	Class F <sub>L</sub> .....	31
13.3	Class E <sub>L</sub> .....	31
13.4	Class D <sub>L</sub> .....	32
13.5	Class C <sub>L</sub> .....	32
13.6	Class B <sub>L</sub> .....	32
13.7	Class A2 <sub>L</sub> .....	32
13.8	Class A1 <sub>L</sub> .....	34
13.9	Additional classifications s1, s2, s3 for smoke production .....	35
13.10	Additional classifications d0, d1, d2 for flaming droplets and/or particles.....	35
14	Presentation of classification .....	36
14.1	Construction products, excluding floorings and linear pipe thermal insulation products.....	36
14.2	Floorings.....	36
14.3	Linear pipe thermal insulation products .....	37
15	Field of application of the classification .....	37
16	Classification report.....	38
16.1	General.....	38
16.2	Content and format.....	38
Annex A (informative) Background information for the application of the Commission delegated regulation 2016/364 on classification of reaction to fire performance of construction products pursuant to regulation N°305/2011 of the European parliament and of the Council .....		44
A.1	General.....	44
A.2	Assumptions.....	44

<b>A.3</b>	<b>Reference fire situations.....</b>	<b>45</b>
<b>A.3.1</b>	<b>Reference fire situations for construction products, linear pipe thermal insulation products but except floorings.....</b>	<b>45</b>
<b>A.3.2</b>	<b>Reference fire situations for floorings.....</b>	<b>46</b>
<b>A.4</b>	<b>Relationship between classes and reference fire situations .....</b>	<b>47</b>
<b>A.4.1</b>	<b>General.....</b>	<b>47</b>
<b>A.4.2</b>	<b>For all construction products excluding floorings .....</b>	<b>47</b>
<b>A.4.3</b>	<b>For floorings.....</b>	<b>48</b>
<b>Annex B (normative)</b>	<b>Reaction to fire classification report .....</b>	<b>51</b>
<b>B.1</b>	<b>Introduction .....</b>	<b>51</b>
<b>B.2</b>	<b>Details of classified product .....</b>	<b>51</b>
<b>B.2.1</b>	<b>General.....</b>	<b>51</b>
<b>B.2.2</b>	<b>Product description.....</b>	<b>51</b>
<b>B.3</b>	<b>Reports and results in support of this classification .....</b>	<b>52</b>
<b>B.3.1</b>	<b>Specific conditions(**).....</b>	<b>52</b>
<b>B.3.2</b>	<b>Reports.....</b>	<b>52</b>
<b>B.3.3</b>	<b>Results .....</b>	<b>52</b>
<b>B.4</b>	<b>Classification and field of application.....</b>	<b>53</b>
<b>B.4.1</b>	<b>Reference of classification .....</b>	<b>53</b>
<b>B.4.2</b>	<b>Classification .....</b>	<b>53</b>
<b>B.4.3</b>	<b>Field of application .....</b>	<b>54</b>
<b>B.5</b>	<b>Limitations.....</b>	<b>54</b>
	<b>Bibliography .....</b>	<b>55</b>

Licensed by Julian Thurbin. Current version as of 14 January 2019.  
Not to be distributed/networked. If you need multi-user/network access visit [www.bsigroup.com/license](http://www.bsigroup.com/license).



**Call us on 020 8916 2222  
to view the full document**