

# SVENSK STANDARD

## SS-EN 1364-3:2014



Fastställt/Approved: 2014-02-02  
Publicerad/Published: 2014-02-03  
Utgåva/Edition: 3  
Språk/Language: engelska/English  
ICS: 13.220.50; 91.060.10

---

### **Provning av brandmotstånd – Icke bärande byggnadsdelar – Del 3: Glasfasader – Kompletta utförande**

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

This preview is downloaded from [www.sis.se](http://www.sis.se). Buy the entire standard via <https://www.sis.se/std-100790>

# Standarder får världen att fungera

*SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.*

## Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

## Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

## Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

**Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på [www.sis.se](http://www.sis.se) eller ta kontakt med oss på tel 08-555 523 00.**



# Standards make the world go round

*SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.*

## Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

## Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

## Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

**If you want to know more about SIS, or how standards can streamline your organisation, please visit [www.sis.se](http://www.sis.se) or contact us on phone +46 (0)8-555 523 00**



Europastandarden EN 1364-3:2014 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1364-3:2014.

Denna standard ersätter SIS 24820, utgåva 2 och SS-EN 1364-3:2006, utgåva 2.

The European Standard EN 1364-3:2014 has the status of a Swedish Standard. This document contains the official version of EN 1364-3:2014.

This standard supersedes the Swedish Standard SIS 24820, edition 2 and SS-EN 1364-3:2006, edition 2.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

*Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.*

*Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.*

Denna standard är framtagen av kommittén för Brandsäkerhet, SIS/TK 181.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på [www.sis.se](http://www.sis.se) - där hittar du mer information.



EUROPEAN STANDARD

**EN 1364-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2014

ICS 13.220.50; 91.060.10

Supersedes EN 1364-3:2006

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: Murs rideaux - Configuration  
en grandeur réelle (assemblage complet)

Feuerwiderstandsprüfungen für nichttragende Bauteile -  
Teil 3: Vorhangfassaden - Gesamtausführung

This European Standard was approved by CEN on 9 November 2013.

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**

<b>Contents</b>	<b>Page</b>
Foreword.....	5
Introduction .....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 Test equipment .....	9
5 Test conditions .....	9
6 Test specimen .....	9
6.1 Size.....	9
6.1.1 General.....	9
6.1.2 Internal fire exposure .....	9
6.1.3 External fire exposure .....	10
6.2 Number of specimens .....	10
6.3 Design .....	10
6.3.1 General.....	10
6.3.2 Standard configuration .....	10
6.3.3 Restraint .....	11
6.3.4 Surfaces.....	11
6.3.5 Perimeter seal .....	11
6.4 Construction.....	11
6.5 Verification .....	11
7 Installation of the test specimen .....	12
7.1 General.....	12
7.2 Supporting floors.....	12
7.2.1 Standard supporting floor .....	12
7.2.2 Non-standard supporting floor.....	12
7.3 Simulated wall construction .....	12
7.3.1 Standard construction .....	12
7.3.2 Non-standard construction.....	12
7.4 Furnace closure .....	12
8 Conditioning.....	13
9 Application of instrumentation.....	13
9.1 Thermocouples .....	13

<b>9.1.1</b>	<b>Furnace thermocouples (plate thermometers)</b> .....	<b>13</b>
<b>9.1.2</b>	<b>Unexposed face thermocouples</b> .....	<b>13</b>
<b>9.2</b>	<b>Pressure</b> .....	<b>16</b>
<b>9.3</b>	<b>Deflection</b> .....	<b>17</b>
<b>9.4</b>	<b>Radiation</b> .....	<b>17</b>
<b>10</b>	<b>Test procedure</b> .....	<b>17</b>
<b>11</b>	<b>Performance criteria</b> .....	<b>17</b>
<b>12</b>	<b>Test report</b> .....	<b>18</b>
<b>13</b>	<b>Field of direct application of test results</b> .....	<b>18</b>
<b>13.1</b>	<b>General rules</b> .....	<b>18</b>
<b>13.1.1</b>	<b>General</b> .....	<b>18</b>
<b>13.1.2</b>	<b>Exposure conditions</b> .....	<b>19</b>
<b>13.1.3</b>	<b>Overrun time</b> .....	<b>19</b>
<b>13.2</b>	<b>Rules for the complete construction</b> .....	<b>19</b>
<b>13.2.1</b>	<b>Width of the curtain walling</b> .....	<b>19</b>
<b>13.2.2</b>	<b>Height of the curtain walling</b> .....	<b>19</b>
<b>13.2.3</b>	<b>Span length</b> .....	<b>20</b>
<b>13.2.4</b>	<b>Installation angle (vertical/sloped)</b> .....	<b>20</b>
<b>13.2.5</b>	<b>Facet angles of horizontally faceted curtain walling</b> .....	<b>20</b>
<b>13.3</b>	<b>Framing system</b> .....	<b>21</b>
<b>13.3.1</b>	<b>Distance between mullions and transoms</b> .....	<b>21</b>
<b>13.3.2</b>	<b>Geometry/dimension of mullions and transoms</b> .....	<b>21</b>
<b>13.3.3</b>	<b>Connection between mullions and transoms</b> .....	<b>22</b>
<b>13.3.4</b>	<b>Framing material</b> .....	<b>22</b>
<b>13.3.5</b>	<b>Decorative frame surface treatments/coverings/coatings</b> .....	<b>23</b>
<b>13.3.6</b>	<b>Fixing of the framing system (anchoring)</b> .....	<b>23</b>
<b>13.3.7</b>	<b>Pressure plate system</b> .....	<b>25</b>
<b>13.3.8</b>	<b>Other fixing systems than pressure plate</b> .....	<b>26</b>
<b>13.4</b>	<b>Infill panels</b> .....	<b>26</b>
<b>13.4.1</b>	<b>Opaque (non-translucent/non-transparent) infill panels</b> .....	<b>26</b>
<b>13.4.2</b>	<b>Sandwich panels</b> .....	<b>27</b>
<b>13.4.3</b>	<b>Translucent or transparent infill panels</b> .....	<b>28</b>
<b>13.4.4</b>	<b>Glazing materials</b> .....	<b>30</b>
<b>13.5</b>	<b>Perimeter seals / Vertical linear joint seals</b> .....	<b>30</b>
<b>13.5.1</b>	<b>General</b> .....	<b>30</b>
<b>13.5.2</b>	<b>Orientation</b> .....	<b>30</b>
<b>13.5.3</b>	<b>Material</b> .....	<b>30</b>
<b>13.5.4</b>	<b>Width/depth</b> .....	<b>31</b>

**SS-EN 1364-3:2014 (E)**

<b>13.5.5</b>	<b>Fixing of the perimeter seal .....</b>	<b>31</b>
<b>13.5.6</b>	<b>Covering .....</b>	<b>31</b>
<b>13.6</b>	<b>Supporting floor.....</b>	<b>31</b>
<b>13.7</b>	<b>Walls abutting the curtain walling.....</b>	<b>32</b>
<b>Annex A</b>	<b>(normative) Field of direct application of test results for unitised construction .....</b>	<b>55</b>
<b>A.1</b>	<b>General.....</b>	<b>55</b>
<b>A.2</b>	<b>Rules for the complete construction .....</b>	<b>55</b>
<b>A.2.1</b>	<b>Width of the curtain walling.....</b>	<b>55</b>
<b>A.2.2</b>	<b>Height of the curtain wall .....</b>	<b>55</b>
<b>A.2.3</b>	<b>Span length .....</b>	<b>55</b>
<b>A.3</b>	<b>Infill panels .....</b>	<b>55</b>
<b>A.3.1</b>	<b>Opaque (non-translucent/non-transparent) infill panels .....</b>	<b>55</b>
<b>A.3.2</b>	<b>Sandwich panels.....</b>	<b>55</b>
<b>A.3.3</b>	<b>Translucent or transparent infill panels .....</b>	<b>55</b>
<b>Annex B</b>	<b>(informative) Explanatory notes .....</b>	<b>56</b>
<b>B.1</b>	<b>Notes to Clause 1 “Scope” .....</b>	<b>56</b>
<b>B.1.1</b>	<b>Test principles and requirements .....</b>	<b>56</b>
<b>B.1.2</b>	<b>Fire from the outside of the building (e.g. E, EW and EI (o → i)) .....</b>	<b>56</b>
<b>B.2</b>	<b>Notes to Clause 3 “Terms and definitions” .....</b>	<b>56</b>
<b>B.3</b>	<b>Notes to Clause 5 “Test conditions” .....</b>	<b>57</b>
<b>B.4</b>	<b>Notes to Clause 6 “Test specimen” .....</b>	<b>57</b>
<b>B.5</b>	<b>Notes to 7.2.1 “Standard supporting floor” .....</b>	<b>57</b>
<b>B.6</b>	<b>Notes to Clause 9 “Application of instrumentation” .....</b>	<b>57</b>
<b>B.6.1</b>	<b>Thermocouples .....</b>	<b>57</b>
<b>B.6.2</b>	<b>Deflection measurement .....</b>	<b>57</b>
<b>B.7</b>	<b>Notes to Clause 13 “Field of direct application of test results” .....</b>	<b>58</b>
<b>B.7.1</b>	<b>Overrun time.....</b>	<b>58</b>
<b>B.7.2</b>	<b>Width of the curtain walling.....</b>	<b>58</b>
<b>B.7.3</b>	<b>Installation angle (vertical/sloped).....</b>	<b>58</b>
<b>B.7.4</b>	<b>Horizontally faceted curtain walling .....</b>	<b>58</b>
<b>B.7.5</b>	<b>Height of the curtain walling / span length .....</b>	<b>58</b>
<b>B.7.6</b>	<b>Framing system .....</b>	<b>58</b>
<b>B.7.7</b>	<b>Infill panels / spandrel panels.....</b>	<b>59</b>
<b>B.7.8</b>	<b>Perimeter seal .....</b>	<b>59</b>
<b>Bibliography</b>	<b>.....</b>	<b>63</b>



## **Foreword**

This document (EN 1364-3:2014) 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 July 2014, and conflicting national standards shall be withdrawn at the latest by July 2014.

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 supersedes EN 1364-3:2006.

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 89/106/EEC.

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**

**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 – full configuration.

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

NOTE Annex B gives further information on the test method.

The test method is applicable to curtain walling type B (for definition see 3.4). The test is not appropriate for testing curtain walling type A (for definition see 3.3).

The fire resistance of curtain walling may be determined under internal or external exposure conditions. In the latter case the external fire exposure curve given in EN 1363-2 may be used, subject to deviating national regulations.

Tests on individual parts of a curtain walling (e.g. perimeter seal, infill panel or fixing of the framing system (anchoring) used to attach the curtain walling to the floor element) or systems with fire resistance requirements only to the spandrel area may be performed using EN 1364-4. For vertical linear gap seals, this part of the standard applies.

This European Standard does not cover double skin façades, over-cladding systems and ventilated façade systems on external walls. It does not deal with the reaction to fire behaviour of curtain walling.

This standard is intended to be read in conjunction with EN 1363-1 and EN 1363-2.

## 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 13119, *Curtain walling - Terminology*

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

EN 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 13830, *Curtain walling - Product standard*

EN ISO 13943, *Fire safety - Vocabulary (ISO 13943)*