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**Razširjena uporaba rezultatov preskusov požarne odpornosti - Nenosilne stene - 1. del: Splošno**

Extended application of results from fire resistance tests - Non- loadbearing walls - Part 1: General

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ICS

English version

## Extended application of results from fire resistance tests - Non-loadbearing walls - Part 1: General

Erweiterter Anwendungsbereich der Ergebnisse von  
Feuerwiderstandsprüfungen - Nichttragende Wände - Teil  
1: Allgemeine Grundlagen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 127.

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.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (prEN 15254-1:2005) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

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 EU Directive(s).

For relationship with EU Directive(s), see informative annex A, which is an integral part of this document.

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## 1 Scope

This Part of prEN 15254-1 identifies the general parameters and factors that affect the fire resistance of non-loadbearing walls (partitions) and need to be taken into account when considering extended application of results of non-loadbearing walls tested in accordance with EN 1364: 1. It also defines the general rules and principles to which can be applied to establish the resultant influence of a variation in one or more parameters and to determine the limits of the field of extended application together with the content of the report of the study. The standard is applicable to the following types of non-loadbearing walls:

### — Part 2

— Masonry and gypsum blocks:

- Concrete blocks
- Bricks
- Gypsum blocks
- Aerated concrete blocks
- Aerated concrete panels

### — Part 3

— Lightweight partition:

- Boards + studs (metal or timber) + insulation + voids

### — Part 4

— Glazed construction:

- Panes

### — Part 5

— Metal sandwich panel construction

### — Part 6

— Demountable partitions

Some examples of the above partitions are given in figures in the specific parts.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

- EN 1363, 1 *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- load bearing elements — Part 1: Non - loadbearing walls*
- prEN 15254-1, *Extended application of results from fire resistance tests — Part 1: General principles*
- EN 13502-2, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance test (excluding products for use in ventilation systems)*
- ENV 1991-2-2, *Eurocode 1. Basis of design and actions on structures — Part 2-2: Actions on structures exposed to fire*
- ENV 1992-1-2, *Eurocode 2. Design of concrete structures — Part 1-2: General rules. Structural fire design*
- ENV 1993-1-2, *Eurocode 3. Design of steel structures — Part 1-2: General rules. Structural fire design*
- ENV 1994-1-2, *Eurocode 4. Design of composite steel and concrete structures — Part 1-2: General rules. Structural fire design*
- ENV 1995-1-2, *Eurocode 5. Design of timber structures — Part 1-2: General rules. Structural fire design*
- ENV 13381-2, *Contribution to fire resistance of structural members — Part 3: Vertical membranes*
- ENV 13381-3, *Contribution to fire resistance of structural members — Part 3: Concrete elements*
- ENV 13381-4, *Contribution to fire resistance of structural members — Part 4: Steel elements*
- ENV 13381-7, *Contribution to fire resistance of structural members — Part 7: Timber elements*
- ISO 13943, *Fire safety - Vocabulary*

### 3 Definitions

For the purpose of this part of prEN 15254-1 the definitions given in EN ISO 13943, EN 1363-1, EN 1365-3 and prEN 15254-1, together with the following apply:

#### 3.1

##### **reference scenario**

all the fire test conditions and constructional details of the test specimen for which observations of fire behaviour, changes in temperatures, dimensions and displacement in the test specimen are given in the test report

#### 3.2

##### **reference test**

fire resistance test in accordance with EN 1364-1, and where applicable EN 1363-2, on which the extended application is based and the results of which are used as the main source of data for the extended application

#### 3.3

##### **test result**

outcome of a testing process and its associated procedures detailed within a specific test standard (which may include some processing of the results from the testing of a number of specimens). A test result is expressed in terms of one or more fire performance parameter(s)

#### 3.4

##### **constructional parameter**

aspect of the reference specimen that varies for the purpose of the prEN 15254-1 (other needs in practice) and may change of the fire resistance performance

#### 3.5

##### **factor**

one of the possible variations that may be applied to a parameter

#### 3.6

##### **factor influence**

one of the potential causes of a change in the fire resistance due to a factor

#### 3.7

##### **direct field of application of test results**

outcome of a process (involving the application of a defined rule) whereby a single test result, expressed in terms of all the relevant fire performance parameters, is deemed to be equally valid for variations in or more of the product properties

#### 3.8

##### **extended field of application of test results**

outcome of the process (involving the application of defined rules that may incorporate calculation procedures) that predicts the result of a test, expressed in terms of all the relevant fire performance parameters, on the basis of one or more test results to the specific test method and related to the particular product (including variations of the product properties)

#### 3.9

##### **classification**

process defined in EN 13501-2, whereby the fire performance parameters obtained from the results of one test, or a set of tests, or from a process of extended application, are compared with limiting values for those parameters that are set as criteria for achieving a certain classification. The relevant classes and related criteria for fire resistance, for reaction to fire and for external fire exposure to roofs, are specified in Commission Decisions (2000/367/EC, 2000/147/EC and 2001/671/EC respectively)



#### 4 Basis and methodology of establishing the extended application

The standard test and its report may not include enough information for the formation of the extended application. Therefore additional data from a reference test may be necessary. This standard gives some information on the needed data. The sponsor of the test and extended application should ask the notified body in charge of the prEN 15254-1 for the needed additional instrumentation to install on the elements to test.

An extended application analysis is required when the application of non-loadbearing walls differs in one or more parameters from the tested one, described in the test report and/or in the classification document, and which is not covered by the field of direct application of the classification document.

The extended application of the element shall be based on the reference fire test results performed according to EN 1364-1 and possibly complemented by one or more additional small or full scale tests or historical tests.

The situation of this test will be referred to as the “reference scenario” and the result of the test, i.e. the fire resistance with respect to the integrity and insulation, as “EI”.

After the identification of the relevant parameters, the factors to consider are listed. The factor influences shall be evaluated when forms an opinion as to whether:

- the field of application can be extended or not, maintaining the classification EI; and/or
- the performance EI has to be decreased or can be increased and if so, by how much.

After compiling the list of factors, the factors influences shall be analysed as follows:

- a) initially on a factor by factor basis, and then
- b) on a global basis where the interaction between the factor influences needs to be taken into account.

When establishing the factor influences, qualitatively or quantitatively, the following cases have been distinguished:

- 1 The reference test(s) as well as the factor(s) under consideration is - without additional fire test(s) - open to an analysis on basis of:
  - a) a valid empirical rule based on common knowledge
  - b) any other a valid calculation model, or
  - c) other test results performed in the same test conditions and some variation in one constructional parameter.
  - d) the Eurocode(s);

The rules for a to d are specified in the parts 2 to 8.

- 2 For an analysis of the reference scenario and the factor(s) under consideration, additional fire tests are needed and feasible.
- 3 No valid calculation model or empirical data are available for full analysis of the reference scenario and additional fire test(s) are not possible; in this case the only option is expert judgement.

Calculation models and empirical rules proposed in this standard have been validated on the basis of similar tests as the reference test. Historic data and additional tests shall be interpreted according to the rules given in parts 2 to 8.

Extended application is only possible for the same fire scenario as the one described in the test report.

Complementary tests cannot be used for their data without the authorisation of their owner.

As the types of non-loadbearing walls vary widely in technologies, the specific rules are given in parts 2 to 6.

A list of possible parameters applicable to any type of non-loadbearing wall is given in clause 5.

Annex A gives an example of the procedure to establish an extended application

## **5 Critical parameters**

The parameters listed in 6.1 to 6.4 may affect the fire performance, i.e. the value of EI, and shall be taken into account when preparing an extended application. The specific constructional parameters vary depending upon the nature of the construction being considered. See parts 2 to 6.

NOTE This is not an exhaustive list; in special cases other parameters may be appropriate also.

### **5.1 Common thermal parameters**

- a) nominal temperature time curves

### **5.2 Common mechanical parameters**

- a) restraint against thermal expansion
- b) rotational restraint

### **5.3 Common constructional parameters**

- a) height of the wall
- b) width of the wall <https://standards.iteh.ai/catalog/standards/sist/f5e4bc39-f97b-4a4c-8bac-baac3fedef70/osist-pren-15254-1-2005>
- c) span between supports or stiffeners
- d) dimensions cross section
- e) shape of cross section of the included structural components
- f) thickness of panels
- g) number of layers
- h) type of fixings
- i) axes of fixings

## **6 Fire engineering rules for the establishing of the factor influences in a quantitative manner**

### **6.1 General**

**6.1.1** An adequate understanding of the structural and thermal performance, as well as an understanding of other relevant features, should be achieved based on the scope of the required extended application.