

# Extended applications of results from fire resistance tests for service installations

## Part 3: Penetration seals

ICS 13.220.50

# National foreword

This British Standard is the UK implementation of EN 15882-3:2009.

The UK committee would like to draw the attention of readers of this standard to the fact that BS EN 15882-3:2009 references EN 1366-3:2004 and is intended to provide guidance on the extended application of results of tests conducted in accordance with EN 1366-3:2004. The UK committee voted against EN 1366-3:2004 because the standard required the use of a plate thermocouple and, consequently, the UK committee did not support the preparation of EN 15882-3.

EN 1366-3:2004 has subsequently been revised and superseded by EN 1366-3:2009 but BS EN 15882-3:2009 has not been revised to work with the results of tests conducted in accordance with the 2009 edition of EN 1366-3. It is envisaged that this will be rectified in due course.

The UK participation in its preparation was entrusted to Technical Committee FSH/22, Fire resistance tests.

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.

**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 March 2010  
© BSI 2010

ISBN 978 0 580 62600 5

## Amendments/corrigenda issued since publication

| Date | Comments |
|------|----------|
|      |          |
|      |          |
|      |          |
|      |          |

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15882-3**

March 2009

ICS 13.220.50

English Version

**Extended applications of results from fire resistance tests for  
service installations - Part 3: Penetration seals**

Application étendue des résultats des essais de résistance  
au feu - Partie 3 : Calfeutrements

Erweiterter Anwendungsbereich der Ergebnisse aus  
Feuerwiderstandsprüfungen - Teil 3 : Abschottungen

This European Standard was approved by CEN on 11 January 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

Page

|                                                                                                                            |    |
|----------------------------------------------------------------------------------------------------------------------------|----|
| Foreword.....                                                                                                              | 3  |
| 1 Scope .....                                                                                                              | 4  |
| 2 Normative references .....                                                                                               | 4  |
| 3 Terms and definitions .....                                                                                              | 4  |
| 4 Extended application principles.....                                                                                     | 7  |
| 4.1 General.....                                                                                                           | 7  |
| 4.2 Principles common to all generic seal types .....                                                                      | 7  |
| 5 Extended application report .....                                                                                        | 10 |
| 5.1 Contents of the extended application report .....                                                                      | 10 |
| 5.2 Review of the extended application report .....                                                                        | 11 |
| Annex A (normative) Extended application principles for generic penetration seal types.....                                | 12 |
| A.1 Introduction .....                                                                                                     | 12 |
| A.1.1 General.....                                                                                                         | 12 |
| A.1.2 Permissible size variations for wall applications .....                                                              | 13 |
| A.2 Specific rules.....                                                                                                    | 14 |
| A.2.1 Bellows .....                                                                                                        | 14 |
| A.2.2 Blocks / plugs.....                                                                                                  | 14 |
| A.2.3 Boards.....                                                                                                          | 14 |
| A.2.4 Foams .....                                                                                                          | 15 |
| A.2.5 Modular systems.....                                                                                                 | 15 |
| A.2.6 Pillows.....                                                                                                         | 15 |
| A.2.7 Pipe closure devices .....                                                                                           | 15 |
| A.2.8 Sealants/mastics/putties .....                                                                                       | 16 |
| Annex B (informative) Additional information relating to the extended application of test results<br>on plastic pipes..... | 17 |

## Foreword

This document (EN 15882-3:2009) 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 September 2009, and conflicting national standards shall be withdrawn at the latest by September 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 was submitted to Enquiry under the reference prEN 15080-14.

EN 15882 "Extended applications of results from fire resistance tests for service installations" consists of the following Parts:

- Part 1: Fire resisting ducts
- Part 2: Dampers
- Part 3: Penetration seals
- Part 4: Linear joint seals

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(s).

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.

## 1 Scope

The purpose of this European Standard is to provide the principles and guidance for the preparation of extended application documents for penetration sealing systems tested in accordance with EN 1366-3. The field of the extended application document is additional to the direct field of application given within EN 1366-3 and may be applied to or based on a single test, or a number of tests, which provide the relevant information for the formulation of an extended application.

It should be noted that this European Standard provides general guidance on the likely effects of a change. It gives no guidance as to the magnitude, nor how this magnitude is evaluated.

Composite pipes comprising both metallic and plastics components are not covered by this European Standard.

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

EN 1363-2:1999, *Fire resistance tests — Part 2: Alternative and additional procedures*

EN 1366-3: 2004, *Fire resistance tests for service installations — Part 3: Penetration seals*

EN 13501-1:2007, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN 13501-2:2007, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN ISO 13943:2000, *Fire safety — Vocabulary (ISO 13943:2000)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1:1999, EN 1363-2:1999, EN 1366-3:2004, EN 13501-1:2007, EN 13501-2:2007, EN ISO 13943:2000 and the following apply.

### 3.1 bellows seal

flexible seal, often based on a coated fabric sleeve, to allow movement of services

### 3.2 block

product available in a variety of shapes and sizes. Generally cuboid for rectangular penetrations

### 3.3 bus bar

low impedance conductor to which several electric circuits can be connected

NOTE See IEC 60439-1.

### 3.4

#### **cable box**

consists of a metal frame with intumescent inlays that form a type of channel with lids

### 3.5

#### **cable bundles**

Several cables running in the same direction and bound closely together by mechanical means

### 3.6

#### **collar**

see pipe closure devices (3.14)

### 3.7

#### **conduit**

metal or plastic casing designed to accommodate cables. Normally a conduit is circular or oval in section. See also trunking (3.26)

### 3.8

#### **foam seal**

seal made from a material that cures at room temperature, increasing its volume upon application

### 3.9

#### **metal pipes type 1**

metallic pipes and conduits of reaction to fire class A1 according to EN 13501-1 with a melting or decomposition point greater than 1000°C (e.g. steel, cast iron, copper and copper alloys, nickel alloys), either insulated or non-insulated. Included in this group are the above pipes with a coating provided the overall reaction to fire class is minimum A2

### 3.10

#### **metal pipes type 2**

metallic pipes and conduits of reaction to fire class A1 or A2 according to EN 13501-1 with a melting or decomposition point equal to or less than 1000°C (e.g. lead, aluminium and aluminium alloys), either insulated or non-insulated

### 3.11

#### **modular system**

system comprising a steel frame into which elastomeric blocks are installed, compressed around the service.

### 3.12

#### **mortar**

blend of gypsum or cement based powder, fillers, water and chemical modifiers, with or without reinforcement

### 3.13

#### **pillow (also referred to as bag or cushion)**

deformable, pillow-like bag, filled with reactive or non-reactive material, for the temporary or permanent closing of penetrations or openings. Examples of filling materials are glass and mineral wool, vermiculite, sand, organic and inorganic foams with or without intumescent or ceramising additives

### 3.14

#### **pipe closure devices**

pre-fabricated, heat activated device that, under fire exposure, acts to crush plastic pipes or service ducts that pass through vertical or horizontal separating elements and/or fill the hollow space with an intumescent foam

NOTE Three types are considered here: collars, wraps and sleeves:

Collars incorporate an outer casing which acts as a restraint for an intumescent material, enabling the collar to be either surface fixed to the separating element or incorporated within it;