Bedömning baserad på provning av brandmotstånd –
Del 3: Genomföringar

Extended application of results from fire resistance tests for
service installations –
Part 3: Penetration seals
Hitta rätt produkt och ett leveranssätt som passar dig

Standards
Genom att följa gällande standard både effektivisera och säkra du ditt arbete. Många standarder ingår dessutom ofta i paket.

Services
e-nav är vår online-tjänst som ger dig och dina kollegor tillgång till standarder ni valt att abonnera på dygnet runt. Med e-nav kan samma standard användas av flera personer samtidigt.

Leveranssätt
Du väljer hur du vill ha dina standarder levererade. Vi kan erbjuda dig dem på papper och som pdf.

Andra produkter

Matriser är en översikt på standarder och handböcker som bör läsas tillsammans. De finns på sis.se och ger dig en bra bild över hur olika produkter hör ihop.

Standardiseringsprojekt
Du kan påverka innehållet i framtida standarder genom att delta i någon av SIS ca 400 Tekniska Kommittéer.

Find the right product and the type of delivery that suits you

Standards
By complying with current standards, you can make your work more efficient and ensure reliability. Also, several of the standards are often supplied in packages.

Services
Subscription is the service that keeps you up to date with current standards when changes occur in the ones you have chosen to subscribe to. This ensures that you are always working with the right edition.
e-nav is our online service that gives you and your colleagues access to the standards you subscribe to 24 hours a day. With e-nav, the same standards can be used by several people at once.

Type of delivery
You choose how you want your standards delivered. We can supply them both on paper and as PDF files.

Other products
We have books that facilitate standards compliance. They make it easier to understand how compliance works and how this benefits you in your operation. We produce many publications of our own, and also act as retailers. This means that we have more than 500 unique titles for you to choose from. We also have technical reports, specifications and workshop agreements.

Matrices, listed at sis.se, provide an overview of which publications belong together.

Standardisation project
You can influence the content of future standards by taking part in one or other of SIS's 400 or so Technical Committees.

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

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.
# Contents

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

3 Terms and definitions


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 accomodate 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;
Wraps have no casing and hence must be located within the separating element, which acts as a restraint for the intumescent;

Sleeves pass completely through the separating element and may include an outer casing.

3.15 **pipe diameter**
nominal external diameter of the service pipe

3.16 **plastic pipes**
pipes not classified to A1 or A2 according to EN 13501-1 (e.g. made from thermoplastic or thermosetting material) including non-homogeneous materials (e.g. glass fibre reinforced plastic pipes or layered pipes), either insulated or non-insulated, hereafter referred to as "plastic pipes".

3.17 **plug**
as block (3.2), but cylindrical/conical in shape (for circular penetrations)

3.18 **interrupted insulation**
pipe insulation that does not pass through the seal

3.19 **sustained insulation**
pipe insulation that passes through the seal

3.20 **putty**
material similar to some sealants/mastics, capable of being formed and directly installed by hand, but remaining in a plastic condition

3.21 **seal depth**
shortest distance between the exposed and unexposed surfaces of the seal

3.22 **seal thickness**
shortest distance between the surface of the service and the surrounding aperture

3.23 **sealant/mastic, flexible**
single or multi-component material, comprising organic and/or inorganic fillers pre-dispersed in a binder (i.e. acryl, polysulphide, silicone, etc) that cures or dries after application to an elastic or plasto-elastic material

3.24 **service support construction**
mechanical support provided in the form of clips, ties, hangers, ladder racks or trays, or any device designed to carry the load of the penetrating services

3.25 **sleeves**
see pipe closure devices (3.14)

3.26 **trunking**
metal or plastic casing with a removable lid designed to accommodate cables. Normally square or rectangular in section (also see conduit 3.7)
3.27 waveguide
circular, elliptical or rectangular metal tube or pipe or a coaxial assembly of tubes/pipes through which
electromagnetic waves are propagated in microwave and radio wave frequency communications

3.28 working clearances
distances between services or between services and the seal edge

3.29 wrap
see pipe closure devices (3.14)

4 Extended application principles

4.1 General
Due to the diverse nature of materials and constructions used to seal openings in fire resistant separating
elements it has been necessary to separate the extended application principles into generic seal types. Where
more than one variation is to be incorporated the overall effect shall be considered. Principles common to all
generic seal types are given in 4.2. Principles and guidance relating to each specific generic seal type are
given in Annex A. Annex B provides guidance on the application of test results on plastic pipe seals.

Variables for each seal type, which require consideration, are included in this report. These are as follows:

1) Separating element;
2) Type of service;
3) Size of service;
4) Seal size and configuration.

Each sub-clause gives the possible variation and the rule relating to the variation.

4.2 Principles common to all generic seal types
The rules given in the following sub-clauses are applicable to all generic penetration seal types incorporated in
Annex A, unless stated otherwise in the specific section.

Table 1 – Seal material (primary generic penetration seal material as per Annex A)

<table>
<thead>
<tr>
<th>Variation</th>
<th>Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change of material(s) comprising parts of the sealing system</td>
<td>Not permitted unless otherwise specifically stated in Annex A</td>
</tr>
</tbody>
</table>

Table 2 – Separating elements — Concrete or masonry

<table>
<thead>
<tr>
<th>Variation</th>
<th>Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in thickness and/or density</td>
<td>Not permitted</td>
</tr>
<tr>
<td>Increase in thickness</td>
<td>Permitted except in the case of pipe closure devices where specific rules regarding the position of the seal within the separating element are outlined in the relevant section</td>
</tr>
</tbody>
</table>