

Fire resistance tests for service installations - Part 8: Smoke extraction ducts

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Smoke extraction ducts

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1366-8:2004 sisaldab Euroopa standardi EN 1366-8:2004 ingliskeelset teksti. Käesolev dokument on jõustatud 26.10.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 1366-8:2004 consists of the English text of the European standard EN 1366-8:2004. This document is endorsed on 26.10.2004 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This Part of this European Standard specifies a test method for determining the fire resistance of smoke extraction ducts. It is applicable only to smoke extraction ducts that pass through another fire compartment from the fire compartment to be extracted in case of fire. It represents fire exposure of a fully developed fire.	Scope: This Part of this European Standard specifies a test method for determining the fire resistance of smoke extraction ducts. It is applicable only to smoke extraction ducts that pass through another fire compartment from the fire compartment to be extracted in case of fire. It represents fire exposure of a fully developed fire.
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English version

Fire resistance tests for service installations - Part 8: Smoke extraction ducts

Essai de résistance au feu des installations de service -
Partie 8: Conduits d'extraction de fumées

Feuerwiderstandsprüfungen für Installationen - Teil 8:
Entrauchungsleitungen

This European Standard was approved by CEN on 1 April 2004.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 1366-8:2004) 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 January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

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 the Construction Products Directive.

EN 1366 '*Fire resistance tests for service installations*' consists of the following Parts:

Part 1: Ducts

Part 2: Fire dampers

Part 3: Penetration seals

Part 4: Linear joint seals (in course of preparation)

Part 5: Service ducts and shafts

Part 6: Raised access and hollow core floors (in course of preparation)

Part 7: Conveyor systems and their closures

Part 8: Smoke extraction ducts

Part 9: Single compartment smoke extraction ducts (in course of preparation)

Part 10: Smoke control dampers (in course of preparation)

Part 11: Fire protective systems for essential services (in course of preparation)

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This Part of this document has been prepared because a method of test for fire resisting smoke extraction ducts has become necessary to evaluate the ability of fire resisting ducts already tested to EN 1366-1 to function adequately as smoke extraction ducts.

Leakage is measured at both ambient and elevated temperatures. During the tests, air/gases are drawn through the duct at a differential pressure between the inside and outside of the duct. Leakage is determined at ambient temperature by sealing the openings in the duct located in the furnace and taking flow measurements through a flow-measuring device located just before the extraction fan. With respect to determining leakage at elevated temperatures, oxygen measuring techniques are used.

The method described in this test is complex and requires sophisticated instrumentation. It is not recommended therefore to try to test multiple assemblies in this test.

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, their testing and disposal of test residues.

An assessment of all potential hazards and risks to health should be made and safety precautions shall 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 Part of this document specifies a test method for determining the fire resistance of smoke extraction ducts. It is applicable only to smoke extraction ducts that pass through another fire compartment from the fire compartment to be extracted in case of fire. It represents fire exposure of a fully developed fire.

This method of test is only applicable to fire resisting ducts that have passed the test for the appropriate period to EN 1366-1 (ducts A and B). For duct A, it is a requirement for fire resisting smoke extraction ducts that the document under pressure of 300 Pa, as given in EN 1366-1 is increased to 500 Pa when testing to EN 1366-1. For the purposes of the test described in this document, the duct is referred to as duct C.

This test has been designed to cover both vertical and horizontal smoke extraction ducts. However, provided both horizontal and vertical tests have been carried out to EN 1366-1 on the specific system, a vertical system need not be evaluated to this method provided it has been tested in a horizontal orientation to this method. However, if the system in practice is only to be used for vertical applications in smoke extraction systems, then it will need to be tested in a vertical orientation to this method.

This method of test is only suitable for ducts constructed from non-combustible materials (Euroclass A1 and A2).

It is applicable only to four sided ducts; one, two and three sided ducts are not covered.

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 1366-1:1999, *Fire resistance tests for service installations - Part 1: Ducts*

prEN 1507, *Ventilation for buildings - Sheet metal air ducts with rectangular section - Requirements for strength and leakage*

EN ISO 5167, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full (ISO 5167-1:2003)*.

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

ISO 5221, *Air distribution and air diffusion – Rules to methods of measuring air flow rate in an air handling duct*.