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Fire resistance tests for service installations - Part 5: Service ducts and shafts

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English Version

Fire resistance tests for service installations - Part 5: Service ducts and shafts

Essais de résistance au feu des installations de service - Partie 5 : Gaines pour installation technique

Feuerwiderstandsprüfungen für Installationen - Teil 5: Installationskanäle und -schächte

This European Standard was approved by CEN on 27 December 2020.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 1366-5:2021) 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of an identical text or by endorsement, at the latest by August 2021, and conflicting national standards shall be withdrawn at the latest by August 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1366-5:2010.

Against EN 1366-5:2010 the following changes were introduced:

1) necessary dated references were updated;

2) clearer rules were given for the scope of the standard;

3) terms and definitions clarified and completed;

4) the location of thermocouples was clarified especially when testing the specimen including service outlets and access panels;

5) drawings were improved and aligned to changes;

6) the thermocouple T3 from Version 2010 was deleted. It is not needed for measuring the property „Integrity” and it leads to confusion concerning that property.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The purpose of this test is to measure the ability of a service duct or shaft to resist the spread of fire from one fire compartment to another with fire attack from inside or outside the duct or shaft. The test specimens incorporate joints, service outlets and access openings as intended in practice and are suspended as they would be in practice. Test specimens of service ducts are not loaded as in practice but a standard load is included to represent a typical service load. Test specimens of service shafts are not loaded as in practice, but a standard load is included to represent a typical service load.

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 there is a possibility that toxic and/or harmful smoke and gases may be involved 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 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 document specifies a method for determining the fire resistance of horizontal service ducts and vertical service shafts, which pass through walls or floors and enclose pipes and cables, to classify them according to EN 13501-2. The test scenario examines the behaviour of ducts and shafts exposed to fire either from outside or from inside the system. This document is intended to be read in conjunction with EN 1363-1.

This document does not examine the risk of fire spread as a result of thermal conduction along the piping or cabling installed in service ducts or shafts or thermal conduction through the media these pipes carry. It does not cover the risk of damage produced by thermal elongation or shortening of tubes and cables as a result of fire or damaged pipe suspensions. This document does not give guidance on how to test one, two or three sided service ducts or shafts.

NOTE Guidance on testing service ducts and shafts of less than four sides will be covered in the extended field of application rules being developed by CEN/TC 127.

This test can be used for systems with boards and also for such systems with continuous covering with intumescent materials on the boards. It cannot be used for systems where intumescent material is only applied in the range of the penetration.

This test is unsuitable for evaluating service ducts or shafts with internal barriers at walls and floors.

This test is unsuitable for evaluating fire protective systems for cable systems and associated components with maintenance of integrity in case of fire. This is covered by EN 1366-11: Fire protective systems for cable systems and associated components - Part 11: Fire protective systems for cable systems and associated components.

Whilst the walls of service ducts or shafts tested to this method may provide specified levels of integrity or insulation, testing according this document does not replace the testing of the functional endurance of small electrical cables which is covered in EN 50200.

Fire resistance testing of ducts for air distribution systems is covered in EN 1366-1.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1363-1:2020, *Fire resistance tests — Part 1: General requirements*

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

EN ISO 898-1:2013, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread (ISO 898-1:2009)*

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