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Preskusi požarne odpornosti servisnih inštalacij - 13. del: Dimovodne naprave

Fire resistance tests for service installations - Part 13: Chimneys

Feuerwiderstandsprüfungen für Installationen - Teil 13: Schornsteine

Essais de résistance au feu des installations techniques - Partie 13 : Conduits de fumée

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ICS:

13.220.50	Požarna odpornost gradbenih materialov in elementov	Fire-resistance of building materials and elements
91.060.40	Dimniki, jaški, kanali	Chimneys, shafts, ducts

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Fire resistance tests for service installations - Part 13: Chimneys

Feuerwiderstandsprüfungen für Installationen - Teil 13: Schornsteine

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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This European Standard (prEN 1366-13:2017) has been prepared by Technical Committees CEN/TC 127 "Fire safety in buildings", the secretariat of which is held by BSI, and CEN/TC 166 "Chimneys", the secretariat of which is held by UNI.

This document is currently submitted to the Enquiry.

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

EN 1366 "Fire resistance tests for service installations" consists of the following parts:

— Part 1: Ventilation ducts

— Part 2: Fire dampers

— Part 3: Penetration seals

— Part 4: Linear joint seals

— Part 5: Service ducts and shafts

— Part 6: Raised access and hollow core floors

— Part 7: Conveyor systems and their closures

— Part 8: Smoke extraction ducts

— Part 9: Single compartment smoke extraction ducts

— Part 10: Smoke control dampers

— Part 11: Fire protective systems for cable systems and associated components

— Part 12: Non-mechanical fire barrier for ventilation ductwork

— Part 13: Chimneys

Introduction

The purpose of this test is to measure the ability of a representative chimney construction to resist the spread of fire from one fire compartment to another.

The fire can attack

- only from outside the chimney;
- as well as from outside the chimney entering into the chimney.

The test method is applicable to vertical and horizontal chimneys, taking into account joints and openings as parts of the system chimney assembly.

The fire resistance from inside the chimney as a result of a sootfire (considered as resistance to fire internal to external, according to EN 1443) has to be tested in accordance to the relevant product standards and is not covered by this standard.

The test measures the length of time for which chimneys of specified dimensions, supported as they would be in practice, satisfy defined criteria when exposed to fire only from outside or from both inside and outside the chimney.

It is in the responsibility of the member states to require whether test specimen A or B (see 3.4) is to be tested.

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 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 European Standard specifies a procedure to determine the fire resistance time for chimney constructions (see normative references), shafts of chimneys or penetration elements as part of a chimney construction under standardized fire conditions. The test examines the behaviour of chimney products exposed to fire only from the outside or fire from the outside entering into the chimney. This standard is used in conjunction with EN 1363-1. In chimneys combustion air supply ducts can also be included. The standard also applies to such chimneys.

Annex A provides general guidance and background information. This European Standard is not applicable to:

- sootfire resistance conditions;
- accessories unless they are included in the system chimney to be tested;
- one, two or three sided enclosures.

If the pressure inside the chimney can in practice decrease to lower values than - 40 Pa or increase to higher values than + 5000 Pa it should be considered that this cannot be covered by the test prescribed in this standard. Additional tests of the chimney under pressure conditions outside of the ones listed are needed.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1443, *Chimneys - General requirements*

EN 1457, *Chimneys - Clay/ceramic flue liners - Requirements and test methods*

EN 1366-1, *Fire resistance tests for service installations - Part 1: Ventilation ducts*

EN 1366-2, *Fire resistance tests for service installations - Part 2: Fire dampers*

EN 1363-1, *Fire resistance tests - Part 1: General Requirements*

EN 1806, *Chimneys - Clay/ceramic flue blocks for single wall chimneys - Requirements and test methods*

EN 1856-1, *Chimneys - Requirements for metal chimneys - Part 1: System chimney products*

EN 1856-2, *Chimneys - Requirements for metal chimneys - Part 2: Metal flue liners and connecting flue pipes*

EN 1857, *Chimneys - Components - Concrete flue liners*

EN 1858, *Chimneys - Components - Concrete flue blocks*

EN 12446, *Chimneys - Components - Concrete outer wall elements*

EN 13063-1, *Chimneys - System chimneys with Part 1: Requirements and test methods for soot fire resistance clay/ceramic flue liners*

EN 13063-2, *Chimneys - System chimneys with Part 2: Requirements and test methods under wet conditions clay/ceramic flue liners*

EN 13063-3, *Chimneys - System chimneys with clay/ceramic flue liners - Part 3: Requirements and test methods for air flue system chimneys*

EN 13069, *Chimneys - Clay/ceramic outer walls for system chimneys - Requirements and test methods*

EN 13084-1, *Free-standing chimneys - Part 1: General requirements*

EN 13084-2, *Free-standing chimneys - Part 2: Concrete chimneys*

EN 13084-4, *Free-standing chimneys - Part 4: Brick liners - Design and execution*

EN 13084-5, *Free-standing chimneys - Part 5: Material for brick liners - Product specifications*

EN 13084-6, *Free-standing chimneys - Part 6: Steel liners - Design and execution*

EN 13084-7, *Free-standing chimneys - Part 7: Product specifications of cylindrical steel fabrications for use in single wall steel chimneys and steel liners*

EN 13502, *Chimneys - Requirements and test methods for clay/ceramic flue terminals*

EN 14241-1, *Chimneys - Elastomeric seals and elastomeric sealants - Material requirements and test methods - Part 1: Seals in flue liners*

EN 14471, *Chimneys - System chimneys with plastic flue liners - Requirements and test methods*

EN 14989-2, *Chimneys - Requirements and test methods for metal chimneys and material independent air supply ducts for roomsealed heating applications - Part 2: Flue and air supply ducts for room sealed appliances*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 1366-1, EN 1366-2, EN 1443, EN 1457, EN 1363-1, EN 1856-1, EN 1856-2, EN 1857, EN 1858, EN 12446, EN 13063-1, EN 13063-2, EN 13063-3, EN 13069, EN 13084-1 to −7, EN 13502-2, EN 14471, EN 14989-2 and the following apply.

3.1
thermal pre-treatment
process simulation of operating conditions during nominal operating temperature

3.2
fire resistance duration
minimum duration, in minutes, while the test specimen fulfils the requirements imposed

3.3
fire resistance classes
classification of the specimen tested according to their fire resistance duration in minutes, given in EN 13501

3.4
test specimen
chimney construction consisting of chimney components and any ancillary components that make up a shaft including any penetration elements that are used for the execution of the test

3.4.1
test specimen A
test specimen without any opening in the test furnace

3.4.2
test specimen B
test specimen with an opening in the test furnace

3.4.3
layer
sheet, quantity or thickness of material typically one of several, covering a surface or body

4 Test equipment

4.1 General

In addition to the test equipment specified in EN 1363-1 the following is required:

4.2 Furnace

This shall be capable of subjecting the test specimen to the standard heating and pressure conditions specified in EN 1363-1 and be suitable for performing the test in the vertical or horizontal (see the corresponding figures) orientation.

4.3 Equipment for measuring gas pressure

This shall be provided in the test furnace according to EN 1363-1.

4.4 Equipment for measuring thermal movements

This shall be provided for measuring expansion/contraction of the test specimen and shall have an accuracy of ± 1 mm.

5 Test conditions

The heating conditions and the test furnace atmosphere shall conform to those conditions given in EN 1363-1. The test furnace pressure shall be controlled

— to 15 Pa throughout the test at the mid-height position of the horizontal test specimen or

— to 20 Pa throughout the test 100 mm below the penetration of the vertical test specimen through the ceiling of the test furnace.

Details of test conditions within the test specimen during the test are given in Clause 10.