DIN EN 13381-7

ICS 13.220.50; 91.080.20

Supersedes
DIN V ENV 13381-7:2003-09
See start of application

Test methods for determining the contribution to the fire resistance of structural members – Part 7: Applied protection to timber members; English version EN 13381-7:2019, English translation of DIN EN 13381-7:2019-09

Prüfverfahren zur Bestimmung des Beitrages zum Feuerwiderstand von tragenden Bauteilen –
Teil 7: Brandschutzmaßnahmen für Holzbauteile;
Englische Fassung EN 13381-7:2019,
Englische Übersetzung von DIN EN 13381-7:2019-09

Méthodes d'essai pour déterminer la contribution à la résistance au feu des éléments de construction –
Partie 7: Protection appliquée aux éléments en bois;
Version anglaise EN 13381-7:2019,
Traduction anglaise de DIN EN 13381-7:2019-09

Document comprises 92 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

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A comma is used as the decimal marker.

Start of application

The start of application of this standard is 2019-09-01.

For DIN V ENV 13381-7:2003-09 there is a transition period ending on 2021-03-31.

National foreword

This document (EN 13381-7:2019) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings” (Secretariat: BSI, United Kingdom).

The responsible German body involved in its preparation was *DIN-Normenausschuss Bauwesen* (DIN Standards Committee Building and Civil Engineering), Working Committee NA 005-52-02 AA “Reaction to fire of building materials and building components — Building components”.

Amendments

This standard differs from DIN V ENV 13381-7:2003-09 as follows:

a) the prestandard status has been changed to that of a full standard;

b) the standard has been editorially revised;

c) new test methods have been introduced in order to address the different fields of application of fire protection systems for solid timber products and timber frame assemblies in horizontal and vertical position and for the design models in EN 1995-1-2;

d) loaded tests are performed using large-scale test specimens depending on their intended use on walls or ceilings;

e) the start of charring and the stickability are measured with thermocouples on the timber member(s) surface of a beam specimen or a timber frame specimen;

f) charring behind a fire protection system is measured using charring specimens embedded in the cavity insulation of a timber frame specimen;

g) interpolation of results for different thicknesses of fire protection systems is not allowed;

h) the use of test results for different orientations obtained in tests in one orientation has been specified.

Previous editions

DIN V ENV 13381-7: 2003-09

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13381-7

June 2019

ICS 13.220.50; 91.080.20

Supersedes ENV 13381-7:2002

English Version

Test methods for determining the contribution to the fire resistance of structural members — Part 7: Applied protection to timber members

Méthodes d'essai pour déterminer la contribution à la résistance au feu des éléments de construction — Partie 7: Protection appliquée aux éléments en bois

Prüfverfahren zur Bestimmung des Beitrages zum Feuerwiderstand von tragenden Bauteilen — Teil 7: Brandschutzmaßnahmen für Holzbauteile

This European Standard was approved by CEN on 26 November 2018.

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

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European foreword

This document (EN 13381-7:2019) 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 December 2019, and conflicting national standards shall be withdrawn at the latest by March 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 ENV 13381-7:2002.

This European Standard is one of a series of standards for evaluating the contribution to the fire resistance of structural members by applied fire protection materials. Other parts of this standard are:

Part 1: Horizontal protective membranes.

Part 2: Vertical protective membranes.

Part 3: Applied protection to concrete members.

Part 4: Applied protection to steel members.

Part 5: Applied protection to concrete/profiled sheet steel composite members.

Part 6: Applied protection to concrete filled hollow steel columns.

Part 8: Applied reactive protection to steel members.

Part 9: Applied fire protection systems to steel beams with web openings.

Part 10: Applied protection to solid steel rods.

The main changes compared to ENV 13381-7:2002 are:

a) New test procedures have been introduced to address the different fields of applications of fire protection systems on solid timber products and timber frame assemblies in horizontal and vertical position and the design models available in EN 1995-1-2.

b) Loaded tests are performed using large-scale test specimens depending on their intended use on walls or ceilings.

c) The start of charring and the stickability is measured with thermocouples on the timber member(s) surface of a beam specimen or a timber frame specimen.

d) Charring behind a fire protection system is measured using charring specimens embedded in the cavity insulation of a timber frame specimen.

e) Interpolation of results for different thicknesses of fire protection system is not allowed.

f) The use of test results for different orientations obtained in tests in one orientation is specified.

WARNING - The attention of all persons concerned with managing and carrying out this fire resistance test, is drawn to fact that fire testing can be hazardous and that there is a possibility that toxic and/or harmful smoke and gases can be evolved during the test. Mechanical and operational hazards can also arise during the construction of test elements or structures, their testing and the 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.

The specific health and safety instructions contained within this standard should be followed.

This document has been prepared under a standardization request given to CEN/CENELEC 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.

1 Scope

This document specifies test methods for determining the contribution of fire protection kits to the fire resistance of structural timber members.

Such fire protection kits include claddings, sprayed fire protection and reactive coatings.

The method is applicable to all fire protection kits used for the protection of timber members. These can be fixed directly, totally or in part, to the timber member and can include an air gap between the fire protectionkit and the timber member, as an integral part of its design.

Evaluation of timber constructions protected by horizontal or vertical protective membranes are the subject of EN 13381-1 or EN 13381-2 respectively.

The test method is applicable to the determination of the contribution of fire protection kits to the fire resistance of loadbearing timber structural members including floors, roofs, walls, beams and columns.

This document contains the fire test which specifies the test to be carried out to determine the ability of the fire protection kit at a specified thickness to delay the temperature rise throughout the timber member, to determine the ability of the fire protection kit at a specified thickness to remain coherent and fixed to the timber member and to provide data for determining the charring rate of the protected test member, when exposed to the standard temperature/time curve according to the procedures defined herein. This document is not appropriated to classify the tested assembly according to EN 13501-2.

The test to subject reactive protection material to a smouldering temperature time fire curve and the special circumstances for this are detailed in Annex G.

The fire test methodology makes provision for the collection and presentation of data which can be used as direct input to the calculation of fire resistance of timber members in accordance with the procedures given in EN 1995-1-2.

A description of the relationship of this test method and the assessment of the results obtained therefrom to EN 1995-1-2 and guidelines for the use of this test method in accordance with that standard are given in Annex B.

This document also contains the assessment which indicates how the analysis of the test data should be made and gives guidance to the procedures by which interpolation should be undertaken.

The limits of applicability of the results of the assessment arising from the fire test are defined, together with the direct application of the results to different timber constructions with the specified thickness and fixation of the applied fire protection kit tested.