PD CEN/TS 16459:2019

BSI Standards Publication

External fire exposure of roofs and roof coverings — Extended application of test results from CEN/TS 1187

National foreword

This Published Document is the UK implementation of CEN/TS 16459:2019. It supersedes PD CEN/TS 16459:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FSH/22/-/8, Fire resistance tests for external fire exposure for roofs.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

External fire exposure of roofs and roof coverings - Extended application of test results from CEN/TS 1187

Exposition des toitures et des couvertures à un feu extérieur - Application étendue des résultats d'essai de la CEN/TS 1187

Beanspruchung von Bedachungen durch Feuer von außen - Erweiterter Anwendungsbereich der Prüfergebnisse aus CEN/TS 1187

This Technical Specification (CEN/TS) was approved by CEN on 16 September 2019 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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European foreword

This document (CEN/TS 16459:2019) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

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 CEN/TS 16459:2013.

CEN/TS 16459:2019 includes the following significant technical changes with respect to CEN/TS 16459:2013:

— the Normative references have been updated;

— a new definition was added in 3.1 (term „layer“);

— the requirements to involve notified bodies in the preparation of EXAP rules was deleted from 5.4 and general;

— under clause 7, Table 5 was updated according to the insertion of new EXAP rules in different Annexes and sections thereof, i.e. (see next lines);

— 3.5 Roof lights and roof windows: set of specific rules was moved to Annex A;

— 3.11 Liquid applied roof waterproofing kits: set of specific rules was moved to Annex A;

— the rules for the parameter „Application on existing roofs (“renovation”)“ have been reconsidered for all Annexes and were amended and/or specified in more detail;

— Annex E „Data acceptance principles for the submission of change request to EXAP rules in Annex A to Annex D“ is completely new: This annex sets out to establish the principles upon which data presented to CEN TC127/WG 5 (External fire exposure of roofs and roof coverings) will be reviewed by the committee or its nominated *adhoc* Sub Group for consideration.

This document has been prepared under a standardization request 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 announce this Technical Specification: 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

Fire tests on individual roofs/roof coverings are carried out in accordance with CEN/TS 1187. The results from these tests can then be classified in accordance with EN 13501-5.

In order to derive classifications for similar roofs/roof coverings based on the data determined from CEN/TS 1187, additional rules are needed.

These rules are direct application rules or extended application rules. Rules within the direct field of application of test results are given in EN 13501-5 (these rules correspond to CEN/TS 1187).

This document outlines a procedure to develop rules for extended application and lists application rules which have already been developed in Annex A to Annex D for test methods 1 to 4 from CEN/TS 1187, where Annex A is related to test method 1, Annex B relates to test method 2, and so forth.

Annex A to Annex D have been developed based upon the available information and the roof systems in the market. The objective of this document is to provide a methodology for optimizing the number of tests required to cover the maximum field of application.

Annex E describes a procedure in which data acceptance principles for the submission of change request to EXAP rules in Annex A to Annex D are set.

Whilst special attention has been focused on roofs typically comprising a support deck/substrate, vapour barrier, insulation layer(s), membranes/roof coverings, there will be occasions when other separating layers or intermediate layers will be needed to satisfy other roof characteristics. These layers should be included in the consideration of the roof/the roof covering being classified.

NOTE Tests 1, 3 and 4 are carried out on a roof construction, whereas test 2 is done on a roof covering with its substrate below, where the substrate may comprise various layers.

The decision route from the diagram below shows ways to determine which procedure to follow, when classifying a roof/roof covering.

The solid line is compulsory, whereas the dotted line is optional.

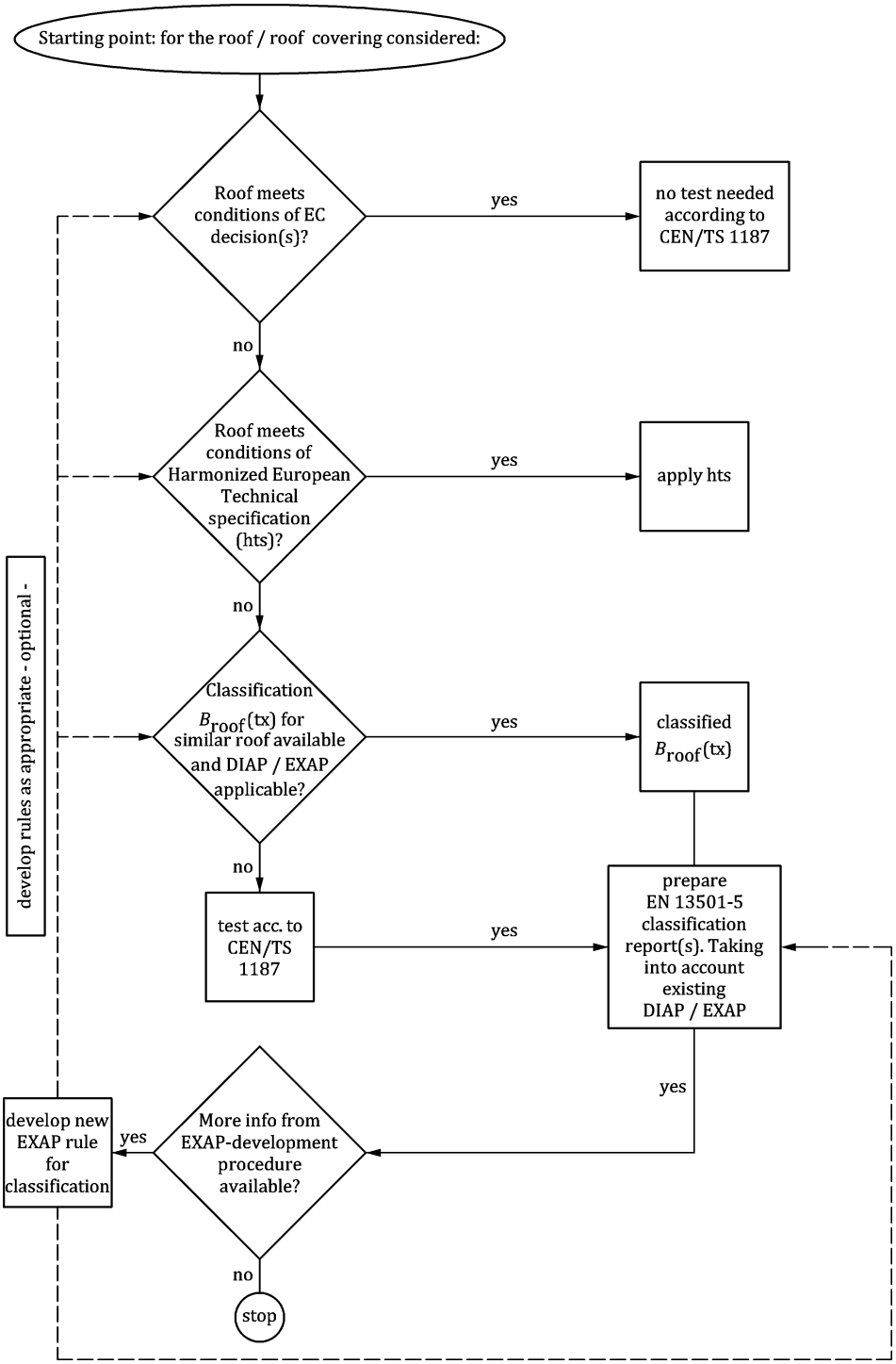

Figure 1 — Decision process on classification of roofs/roof coverings

1 Scope

This document gives guidance on the process and development of extended fields of application using test results obtained from CEN/TS 1187, tests 1 to 4, and included in test reports, and other relevant information in order to evaluate and classify the performance of roofs/roof coverings. This document provides a methodology to consider the possible effect(s) on classification to EN 13501-5 from single or multiple changes to the individual product and end-use application parameters of the roof/roof covering.

Specific application guidance is given in Annex A, Annex B, Annex C and Annex D for CEN/TS 1187, tests 1 to 4 respectively.

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.

CEN/TS 1187:2012, *Test methods for external fire exposure to roofs*

EN 490, *Concrete roofing tiles and fittings for roof covering and wall cladding — Product specifications*

EN 492, *Fibre-cement slates and fittings — Product specification and test methods*

EN 494, *Fibre-cement profiled sheets and fittings — Product specification and test methods*

EN 506, *Roofing products of metal sheet— Specification for self-supporting products of copper or zinc sheet*

EN 508 (all parts), *Roofing products from metal sheet— Specification for self-supporting products of steel, aluminium or stainless steel sheet*

EN 534, *Corrugated bitumen sheets — Product specification and test methods*

EN 544, *Bitumen shingles with mineral and/or synthetic reinforcements — Product specification and test methods*

EN 1013, *Light transmitting single skin profiled plastics sheets for internal and external roofs, walls and ceilings – Requirements and test methods*

EN 1304, *Clay roofing tiles and fittings — Product definitions and specifications*

EN 1849-2, *Flexible sheets for waterproofing — Determination of thickness and mass per unit area - Part 2: Plastic and rubber sheets*

EN 12326-1, *Slate and stone for discontinuous roofing and external cladding — art 1: Specifications for slate and carbonate slate*

EN 13162, *Thermal insulation products for buildings — Factory made mineral wool (MW) products — Specification*

EN 13163, *Thermal insulation products for buildings — Factory made expanded polystyrene (EPS) products — Specification*

EN 13164, *Thermal insulation products for buildings — Factory made extruded polystyrene foam (XPS) products — Specification*

EN 13165, *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification*

EN 13166, *Thermal insulation products for buildings — Factory made phenolic foam (PF) products — Specification*

EN 13167, *Thermal insulation products for buildings — Factory made cellular glass (CG) products — Specification*

EN 13169, *Thermal insulation products for buildings — Factory made expanded perlite board (EPB) products — Specification*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-5, *Fire classification of construction products and building elements — Part 5: Classification using data from external fire exposure to roofs tests*

EN 13707, *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*

EN 13956, *Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

EN 14351-1, *Windows and doors — Product standard, performance characteristics — Part 1: Windows and external pedestrian doorsets*

EN 14509, *Self-supporting double skin metal faced insulating panels — Factory made products - Specifications*

EN 14782, *Self-supporting metal sheet for roofing, external cladding and internal lining — Product specification and requirements*

EN 14783, *Fully supported metal sheet and strip for roofing, external cladding and internal lining — Product specification and requirements*

EN 14963, *Roof coverings — Continuous rooflights of plastics with or without upstands — Classification, requirements and test methods*

ENV 1187:2002, *Test methods for external fire exposure to roofs*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 1187:2012, EN 13501-5 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
adhesive
organic or inorganic material, e.g. polyurethane-based, bitumen-based, dispersion adhesive, glue which is used to attach the surfaces of two or more products/components

Note 1 to entry: Adhesives or glues of the kind mentioned above could be applied separately and will thus form a separate layer within the roof build-up, while factory pre-applied adhesives or glues are part of the specific product/component forming a layer.

3.2
'as tested'
term applicable for when rule does not exist for a specific parameter

3.3
binder content
amount of binding material (by % weight or % volume) within the product

Note 1 to entry: The binder could be inorganic or organic in nature. In the case of the latter, it will add a fire load to the product containing the binder, and will be considered within the classification of products or product groups. Within the substructure of products like mineral wool insulation products, particular felt layers, some tiling products, and some multi-layer weather-proofing surface products the binder will typically be cured.

Note 2 to entry: The definition of this term does not apply to compound waterproofing sheets.

3.4
direct field of application of test results
outcome of a process (involving the application of defined rules) whereby a test result is deemed to be equally valid for variations in one or more of the product properties and/or intended end use applications

3.5
end-use application parameter
aspect of the mounting and fixing arrangement of a product reflecting/simulating its end-use application, which can affect the fire performance

Example: type of substrate, fixing method, type and position of joints

3.6
extended field of application of test results
outcome of a process (involving the application of defined rules that can incorporate calculation procedures) that predicts, for a variation of a product property and/or its intended end use application(s), a test result on the basis of one or more test results to the same test standard