

TASAPINNALISED TSEMENTKIUDPLAADID.
SPETSIFIKATSIOON JA KATSEMEETODID

Fibre-cement flat sheets - Product specification and test methods

ESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12467:2012+A2:2018 sisaldb Euroopa standardi EN 12467:2012+A2:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 12467:2012+A2:2018 consists of the English text of the European standard EN 12467:2012+A2:2018
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.04.2018.	Date of Availability of the European standard is 25.04.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 91.100.40

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12467:2012+A2

April 2018

ICS 91.100.40

Supersedes EN 12467:2012+A1:2016

English Version

Fibre-cement flat sheets - Product specification and test methods

Plaques planes en fibres-ciment - Spécifications du produit et méthodes d'essai

Faserzement-Tafeln - Produktspezifikation und Prüfverfahren

This European Standard was approved by CEN on 24 November 2015 and includes Amendment 2 approved by CEN on 9 November 2017.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Symbols and abbreviations	8
5 Requirements	9
5.1 General	9
5.1.1 Composition	9
5.1.2 Appearance and finish	9
5.2 Classification	10
5.2.1 General	10
5.2.2 Category A	10
5.2.3 Category B	10
5.2.4 Category C	10
5.2.5 Category D	10
5.2.6 Groups of sizes	10
5.3 Dimensions and tolerances	10
5.3.1 General	10
5.3.2 Nominal length and width	10
5.3.3 Thickness	11
5.3.4 Tolerances on nominal dimensions	11
5.3.5 Tolerances on shape	12
5.4 Physical requirements and characteristics	12
5.4.1 General	12
5.4.2 Apparent density	13
5.4.3 Moisture movement	13
5.4.4 Mechanical characteristics – Bending strength (<i>MOR</i>) – Modulus of elasticity (<i>MOE</i>)	13
5.4.5 Water impermeability for Categories A, B and D	14
5.4.6 Water vapour permeability for Category D	14
5.5 Durability requirements	14
5.5.1 General	14
5.5.2 Freeze-thaw for Categories A, B and D	14
5.5.3 Heat-rain for Categories A and B	14
5.5.4 Warm water for Categories A, B, C and D	14
5.5.5 Soak-dry for Categories A, B , C and D	14
5.6 Fire and safety	14
5.6.1 Reaction to fire	14
5.6.2 Release of dangerous substances	15
5.7 Product information	15
6 ^{A1} Assessment and verification of constancy of performance — AVCP	15
6.1 General	15
6.2 Type testing	16
6.2.1 General	16
6.2.2 Test samples, testing and compliance criteria	17
6.2.3 Test reports	17

6.3	Factory production control (FPC)	17
6.3.1	General	17
6.3.2	Requirements.....	18
6.3.3	Product specific requirements	20
6.3.4	Initial inspection of factory and of FPC.....	21
6.3.5	Continuous surveillance of FPC	21
6.3.6	Procedure for modifications.....	21
6.4	Inspection of a consignment of finished products.....	22
7	Test methods	22
7.1	General	22
7.2	Dimensional and geometrical tests.....	22
7.2.1	Preparation of specimen.....	22
7.2.2	Apparatus.....	22
7.2.3	Procedure	22
7.2.4	Expression and interpretation of results.....	25
7.3	Tests for physical performance and characteristics.....	26
7.3.1	Apparent density	26
7.3.2	Mechanical characteristics - Bending strength – Modulus of elasticity (Bending modulus).....	26
7.3.3	Water impermeability	31
7.3.4	Water vapour permeability	32
7.3.5	Warm water	32
7.3.6	Soak-dry	33
7.3.7	Moisture movement test	34
7.4	Tests for climatic performance.....	34
7.4.1	Freeze-thaw	34
7.4.2	Heat-rain.....	36
7.5	Test for reaction to fire performance	37
7.5.1	Sheets satisfying the requirements for the fire reaction Class A1 without the need for testing	37
7.5.2	Other sheets.....	37
8	Marking, labelling and packaging.....	45
Annex A (normative)	Consignment inspection sampling.....	46
Annex B (normative)	Statistical method for determining the corresponding wet values or revised dry specifications for the <i>MOR</i> when carrying out the dry method of test or when tested prior to coating for quality control purposes	47
B.1	Procedure	47
B.2	Determination of the correlation between the results of testing wet and dry specimens.....	47
B.3	Determination of the regression line	48
B.4	Determination of a value for wet testing from an obtained value for dry testing	48
B.5	Determination of the minimum value specified for dry testing x_{std} corresponding to the minimum value specified for wet testing in this document y_{std}	49
Annex C (normative)	Test method for the determination of moisture movement characteristic of fibre-cement sheets.....	51
C.1	General	51
C.2	Principle.....	51
C.3	Apparatus	51
C.4	Specimen preparation	51
C.5	Test procedure	51
C.6	Calculation of results.....	52
C.7	Test report	52

Annex ZA (informative)  Relationship of this European Standard with Regulation [EU]	
No. 305/2011	53
Z.A.1 Scope and relevant characteristics.....	53
Z.A.2 System of Assessment and Verification of Constancy of Performance [AVCP]	54
Z.A.3 Assignment of AVCP tasks.....	54
Bibliography.....	57

European foreword

This document (EN 12467:2012+A2:2018) has been prepared by Technical Committee CEN/TC 128 "Roof covering products for discontinuous laying and products for wall cladding", the secretariat of which is held by NBN.

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 October 2018, and conflicting national standards shall be withdrawn at the latest by January 2020.

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 includes Amendment 1, approved by CEN on 24 November 2015 and Amendment 2, approved by CEN on 9 November 2017.

This document supersedes ~~EN 12467:2012+A1:2016~~.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ~~A₁~~ A₁ and ~~A₂~~ A₂.

~~A₁~~ In comparison with EN 12467:2004, the following sections in EN 12467:2012 had been changed or added: ~~A₁~~ 3.9, 3.10, 4, 5.1.1, 5.4.3, 5.4.4, Table 7, Table 8, 7.3.2, 7.3.2.4.2, 7.3.3.3, 7.3.3.4, 7.3.7, 7.5.2.2 and Annex C.

Annex ZB concerning the EC Directive 76/769/EEC ~~A₁~~ had been deleted ~~A₁~~.

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

For relationship with ~~A₂~~ EU Regulation No 305/2011 ~~A₁~~, see informative Annex ZA, which is an integral part of this document.

A distinction ~~A₁~~ had been made A₁ between product appraisal (type tests) and factory production control requirements (acceptance tests).

The performance of a building part constructed with these sheets depends not only on the properties of the product as required by this document, but also on the design, construction and installation of the component as a whole in relation to the environment and conditions of use.

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

1 Scope

This European Standard specifies the technical requirements and establishes methods of inspection and test as well as acceptance conditions for fibre-cement flat sheets, siding shingles and planks (referred to as sheets later in this document) for one or more of the following uses:

- internal wall and ceiling finishes;
- external wall and ceiling finishes.

Products covered by this European Standard can be used for other purposes provided they comply with the relevant application standard, e.g. rigid underlays.

This European Standard covers sheets reinforced with fibres of different types as specified in 5.1.1.

This European Standard does not cover sheets for fire protection purposes.

This European Standard does not include calculations with regard to works, design requirements, installation techniques, wind uplift or rain proofing of the installed sheets.

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 197-1, *Cement — Part 1: Composition, specifications and conformity criteria for common cements*

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

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN ISO 1716, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties — Cup method (ISO 12572)*

ISO 2602, *Statistical interpretation of test results — Estimation of the mean — Confidence interval*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3951-1, *Sampling procedures for inspection by variables — Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL*