

KIUDBETOONIST TAVA- JA ERIPLAADID.
SPETSIFIKATSIOON JA KATSEMEETODID

Fibre-cement slates and fittings - Product specification
and test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 492:2012+A1:2016 sisaldb Euroopa standardi EN 492:2012+A1:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 492:2012+A1:2016 consists of the English text of the European standard EN 492:2012+A1:2016.
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 06.07.2016.	Date of Availability of the European standard is 06.07.2016.
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 reproduutseerimise 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:
Aru 10, 10317 Tallinn, Eesti; 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:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 492:2012+A1

July 2016

ICS 91.100.40

Supersedes EN 492:2012

English Version

Fibre-cement slates and fittings - Product specification and test methods

Ardoises en fibres-ciment et leurs accessoires en fibres-ciment - Spécification du produit et méthodes d'essai

Faserzement-Dachplatten und dazugehörige Formteile - Produktspezifikation und Prüfverfahren

This European Standard was approved by CEN on 4 August 2012 and includes Amendment 1 approved by CEN on 24 November 2015.

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, 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: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	6
4 Symbols and abbreviations	7
5 Product requirements	8
5.1 General.....	8
5.1.1 Composition	8
5.1.2 Appearance and finish.....	8
5.2 Dimensions and tolerance	8
5.2.1 General.....	8
5.2.2 Thicknesses.....	8
5.2.3 Tolerances on nominal dimensions	9
5.3 Physical requirements and characteristics for fibre-cement slates.....	9
5.3.1 General.....	9
5.3.2 Apparent density.....	9
5.3.3 Mechanical characteristics	9
5.3.4 Water impermeability	10
5.4 Durability requirements	10
5.4.1 General.....	10
5.4.2 Freeze-thaw.....	10
5.4.3 Heat-rain	10
5.4.4 Warm water	10
5.4.5 Soak-dry.....	10
5.5 Fire and safety	10
5.5.1 External fire performance	10
5.5.2 Reaction to fire.....	10
5.5.3 Release of dangerous substances.....	10
5.6 Product information	11
6  Assessment and verification of constancy of performance — AVCP.....	11
6.1 General.....	11
6.2 Type testing.....	11
6.2.1 General.....	11
6.2.2 Test samples, testing and compliance criteria	12
6.2.3 Test reports.....	12
6.3 Factory production control (FPC)	12
6.3.1 General.....	12
6.3.2 Requirements	13
6.3.3 Product specific requirements.....	16
6.3.4 Initial inspection of factory and of FPC	16
6.3.5 Continuous surveillance of FPC.....	17
6.3.6 Procedure for modifications	17
6.4  Inspection of a consignment of finished products .....	17

7	Test methods	17
7.1	General	17
7.2	Dimensional tests	17
7.2.1	Preparation of specimen.....	17
7.2.2	Apparatus	18
7.2.3	Procedure	18
7.2.4	Expression and interpretation of results.....	18
7.3	Tests for physical performance and characteristics.....	18
7.3.1	Apparent density	18
7.3.2	Mechanical characteristics: Breaking load test.....	19
7.3.3	Water impermeability	21
7.3.4	Warm water	21
7.3.5	Soak-dry	22
7.4	Tests for climatic performance.....	23
7.4.1	Freeze-thaw	23
7.4.2	Heat-rain.....	25
7.5	Test for fire performance	26
7.5.1	Test for external fire performance.....	26
7.5.2	Test for reaction to fire.....	26
8	Marking, labelling and packaging.....	34
Annex A (normative) Consignment inspection sampling.....	35	
Annex B (normative) Statistical method for determining the corresponding wet values or revised dry specifications for the bending moment when carrying out the dry method of test for quality control purposes	36	
B.1	Procedure	36
B.2	Determination of the correlation between the results of testing wet and dry specimens.....	36
B.3	Determination of the regression line	37
B.4	Determination of a value for wet testing from an obtained value for dry testing	37
B.5	Determination of the minimum value specified for dry testing x_{std} corresponding to the minimum value specified for wet testing in this standard y_{std}	38
Annex C (informative) Examples	40	
C.1	Examples of dimension h	40
C.2	Examples of fibre-cement slates installed showing lines of fixing	42
Annex D (normative) Requirements of Decision 2001/671/EC regarding the external fire performance of roof coverings expressed following the classes defined in EN 13501-5.....	43	
Annex ZA (informative) [A1] Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation	45	
Z.A.1	Scope and relevant characteristics	45
Z.A.2	Procedure for AVCP of fibre-cement slates and fittings	47
Z.A.2.1	Systems of AVCP	47
Z.A.2.2	Declaration of performance (DoP)	51
Z.A.3	CE marking and labelling [A1]	55
Bibliography	58	

European foreword

This document (EN 492:2012+A1:2016) 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 January 2017, and conflicting national standards shall be withdrawn at the latest by April 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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.

This document supersedes ~~A1~~ EN 492:2012 A1.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of ~~A1~~ EU Regulation No 305/2011 A1.

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

~~A1~~ In comparison with EN 492:2004, the following sections in EN 492:2012 had been changed or added: ~~A1~~ Clause 2, 3.6, 3.7, 5.1.1, 5.3.3, 5.5.3, 6.3.2, 6.4, 7.3.4.4, 7.3.5.4, 7.5.1.2, 7.5.2.2, Annex A, Annex D.

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

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

The performance of a roof or another building part constructed with these products depends not only on the properties of the product as required by this standard, but also on the design, construction and installation of the components 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the technical requirements and establishes methods of control and test as well as acceptance conditions for fibre-cement slates and their fibre-cement fittings for one or more of the following uses:

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

This European Standard applies to fibre-cement slates with a height dimension h (see Clause 4) not exceeding 850 mm for overlapping assembly. For the purpose of this European Standard, fibre-cement slates have been classified according to their bending moment.

This European Standard covers fibre-cement slates reinforced with fibres of different types as specified in 5.1.1.

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

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*

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

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test 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 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)*

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*