Korekergbetoonist valmiselemendid arvutusliku ja konstruktiivse sarrusega

Prefabricated components of lightweight aggregate concrete with open structure with structural or non-structural reinforcement

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1520:2011 sisaldab Euroopa standardi EN 1520:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 1520:2011 consists of the English text of the European standard EN 1520:2011.
Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.03.2011.	Date of Availability of the European standard text 16.03.2011.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 91.100.30

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1520

March 2011

ICS 91.100.30

Supersedes EN 1520:2002

English Version

Prefabricated reinforced components of lightweight aggregate concrete with open structure with structural or non-structural reinforcement

Composants préfabriqués en béton de granulats légers à structure ouverte avec des armatures structurales et non-structurales

Vorgefertigte Bauteile aus haufwerksporigem Leichtbeton und mit statisch anrechenbarer oder nicht anrechenbarer Bewehrung

This European Standard was approved by CEN on 5 February 2011.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document (EN 1520:2011) has been prepared by Technical Committee CEN/TC 177 “Prefabricated reinforced components of autoclaved aerated concrete or lightweight aggregate concrete with open structure”, the secretariat of which is held by DIN.

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 September 2011, and conflicting national standards shall be withdrawn at the latest by December 2012.

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 supersedes EN 1520:2002.

Among others, the following changes have been made compared to EN 1520:2002:

— terms and definitions have been updated;

— the order of clauses has been changed;

— lightweight aggregate concrete parameters have been adapted;

— normative references for reinforcement steel have been updated;

— properties and requirements of components have been adapted, e.g. acoustic properties, thermal resistance;

— evaluation of conformity has been adapted;

— Annex A and Annex ZA have been adapted;

— the standard has been editorially edited.

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 EU Directive 89/106/EEC.

For relationship with EU Directives, see informative Annex ZA, which is an integral part of this document.

This document uses the methods given in the Guidance Paper L, clause 3.3, of the European Commission.

This European Standard is used together with a national application document. The national application document may only contain information on those parameters which are left open in this European Standard for national choice, known as Nationally Determined Parameters, to be used for the design of the construction products and civil engineering works to be constructed in the country concerned, i.e.:

— values and/or classes where alternatives are given in this European Standard;

— values to be used where a symbol only is given in this European Standard;

— country specific data (geographical, climatic, etc.), e.g. snow map;

— the procedure to be used where alternative procedures are given in this European Standard.

It may contain

— decisions on the application of informative annexes;

— references to non-contradictory complementary information to assist the user to apply this European Standard.

There is a need for consistency between this document for construction products and the technical rules for works. That means all the information accompanying the CE Marking of the construction products should clearly mention which Nationally Determined Parameters have been taken into account.

EN 1520 describes the design principles and requirements for safety, serviceability and durability of prefabricated components of lightweight aggregate concrete with open structure and with structural or non-structural reinforcement. The design of the components is based on the limit state concept used in conjunction with partial safety factors.

EN 1520 is intended to be used together with Eurocodes EN 1990, EN 1991 and EN 1998.

Numerical values for partial safety factors and other reliability parameters are recommended as basic values that provide an acceptable level of reliability. They have been selected assuming that an appropriate level of workmanship and of quality management applies.

This European Standard gives values with notes indicating where national choices may be made. Therefore, the National Standard implementing EN 1520 should be used with a national application document containing all Nationally Determined Parameters to be used for the design of prefabricated components of lightweight aggregate concrete with open structure and with structural or non-structural reinforcement to be constructed in the relevant country.

National choice is allowed in EN 1520 through the following clauses:

4.3	A.5.2
5.1.1.1	A.6
5.3.5	A.6.1
5.3.7	A.6.2
5.4.3	A.6.3.3.3
5.5.1	A.8.1.4
5.6.2	A.8.2.1.2
5.6.4.2	A.8.2.2.2
7.3	A.9
A.3	B.3.2
A.4.1	B.3.3
A.4.2	B.4.3.1
A.4.3	B.4.3.3
A.5.1	Annex C

Regulatory classes are only given for "Reaction to fire" and "Resistance to fire". All other classes used in this European Standard, i.e. density classes and strength classes, are technical classes.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard is for prefabricated components of lightweight aggregate concrete (LAC) with open structure and with structural or non-structural reinforcement intended to be used in building construction

a) for structural elements:

- loadbearing wall components (solid, hollow core or multilayer);
- retaining wall components (solid) with or without surcharge loading;
- roof components (solid, hollow core or multilayer);
- floor components (solid, hollow core or multilayer);
- linear components (beams or piers).

b) for non-structural elements:

- non-loadbearing wall components (e.g. for partition walls);
- cladding components (without fixtures) intended to be used for external facades of buildings;
- small box culverts used to form channels for the enclosure of services;
- components for noise barriers.

NOTE 1 In addition to their loadbearing and encasing function, components can also be used to provide fire resistance, sound insulation and thermal insulation.

Components covered by this European Standard are only intended to be subjected to predominantly non-dynamic actions, unless special measures are introduced in the relevant clauses of this European Standard.

The term "reinforced" relates to reinforcement used for both structural and non-structural purposes.

This European Standard does not cover:

- rules for the application of these components in structures;
- joints (except their strength);
- fixtures;
- finishes for external components, such as tiling.

NOTE 2 LAC components can be used in noise barriers if they are designed to fulfil also the requirements of EN 14388.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 206-1:2000, *Concrete — Part 1: Specification, performance, production and conformity*

EN 990, *Test methods for verification of corrosion protection of reinforcement in autoclaved aerated concrete and lightweight aggregate concrete with open structure*

EN 991, *Determination of the dimension of prefabricated reinforced components made of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 992, *Determination of the dry density of lightweight aggregate concrete with open structure*

EN 1352, *Determination of static modulus of elasticity under compression of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1354, *Determination of compressive strength of lightweight aggregate concrete with open structure*

EN 1355, *Determination of creep strains under compression of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1356, *Performance test for prefabricated reinforced components of autoclaved aerated concrete or lightweight aggregate concrete with open structure under transverse load*

EN 1364-1, *Fire resistance tests for non-loadbearing elements — Part 1: Walls*

EN 1365-1, *Fire resistance tests for loadbearing elements — Part 1: Walls*

EN 1365-2, *Fire resistance tests for loadbearing elements — Part 2: Floors and roofs*

EN 1365-3, *Fire resistance tests for loadbearing elements — Part 3: Beams*

EN 1365-4, *Fire resistance tests for loadbearing elements — Part 4: Columns*

EN 1521, *Determination of flexural strength of lightweight aggregate concrete with open structure*

EN 1739, *Determination of shear strength for in-plane forces of joints between prefabricated components of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1740, *Performance test for prefabricated reinforced components made of autoclaved aerated concrete or lightweight aggregate concrete with open structure under predominantly longitudinal load (vertical components)*

EN 1741, *Determination of shear strength for out-of-plane forces of joints between prefabricated components made of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1742, *Determination of shear strength between different layers of multilayer components made of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1745, *Masonry and masonry products — Methods for determining design thermal values*

EN 1793-1, *Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 1: Intrinsic characteristics of sound absorption*

EN 1793-2, *Road traffic noise reducing devices — Test method for determining the acoustic performance — Part 2: Intrinsic characteristics of airborne sound insulation*

EN 1992-1-1:2004, *Eurocode 2: Design of concrete structures — Part 1-1: General rules and rules for buildings*

EN 10025-1, *Hot rolled products of structural steels — Part 1: General technical delivery conditions*

EN 10025-2, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10080, *Steel for the reinforcement of concrete — Weldable reinforcing steel — General*

EN 12354-1, *Building acoustics — Estimation of acoustic performance of buildings from the performance of elements — Part 1: Airborne sound insulation between rooms*

EN 12354-2, *Building acoustics — Estimation of acoustic performance of buildings from the performance of elements — Part 2: Impact sound insulation between rooms*

EN 12664, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

EN 12667, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*

EN 12939, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Thick products of high and medium thermal resistance*

EN 13055-1, *Lightweight aggregates — Part 1: Lightweight aggregates for concrete, mortar and grout*

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

EN 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using test data from fire resistance tests, excluding ventilation services*

EN ISO 140-3, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995)*

EN ISO 140-6, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 6: Laboratory measurements of impact sound insulation of floors (ISO 140-6:1998)*

EN ISO 354, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1:1996)*

EN ISO 717-2, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 2: Impact sound insulation (ISO 717-2:1996)*

EN ISO 1182, *Reaction to fire tests for products — Non-combustibility test (ISO 1182:2010)*

EN ISO 1716 *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716:2010)*

EN ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2009)*

EN ISO 6946, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO 6946:2007)*

EN ISO 10456, *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values (ISO 10456:2007)*

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties (ISO 12572:2001)*

EN ISO 15148, *Hygrothermal performance of building materials and products — Determination of water absorption coefficient by partial immersion (ISO 15148:2002)*

ISO 80000-1, *Quantities and units — Part 1: General*