SLOVENSKI STANDARD
SIST EN 12602:2008

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Montažni armirani elementi iz avoklaviranega celiļnega betona

Prefabricated reinforced components of autoclaved aerated concrete

Vorgefertigte bewehrte Bauteile aus dampfgehärtetem Porenbeton

Eléments préfabriqués armés en béton cellulaire autoclavé

Ta slovenski standard je istoveten z: EN 12602:2008

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91.100.30	Beton in betonski izdelki	Concrete and concrete products

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EUROPEAN STANDARD

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English Version

Prefabricated reinforced components of autoclaved aerated concrete

Eléments préfabriqués armés en béton cellulaire autoclavé

Vorgefertigte bewehrte Bauteile aus dampfgehärtetem Porenbeton

This European Standard was approved by CEN on 21 March 2008.

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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 Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 12602:2008) has been prepared by Technical Committee CEN/TC 177 “Prefabricated reinforced components of autoclaved aerated concrete or light-weight 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of an identical text or by endorsement, at the latest by October 2008, and conflicting national standards shall be withdrawn at the latest by January 2010.

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 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,

— 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 12602 describes the design principles and requirements for safety, serviceability and durability of reinforced prefabricated components of autoclaved aerated concrete. The design of the components is based on the limit state concept used in conjunction with partial factors.

EN 12602 is intended to be used together with Eurocodes EN 1990, EN 1991 (all parts) and EN 1998.

Numerical values for partial 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, procedures and classes with notes indicating where national choices may have to be made. Therefore the National Standard implementing EN 12602 should be used with a national application document containing all Nationally Determined Parameters to be used for the design of prefabricated reinforced components of autoclaved aerated concrete to be constructed in the relevant country.

National choice is allowed in EN 12602 through the following clauses:

A.3.2

A.3.3

A.4.1.2.1

A.4.1.3.2

A.4.1.3.3

A.5.2

A.5.3.3.3 (3)

A.6.3

A.7

A.8

A.9.4.1

A.10.2.2

A.10.3

B.3.2.2

B.3.3.2

B.3.3.3.2

Annex D

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.

Annexes A, B, C, CA, CC and CD are normative.

Annexes CB, D, E, F and ZA are informative.

This document includes a Bibliography.

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, 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 the United Kingdom.

1 Scope

This European Standard is for prefabricated reinforced components of autoclaved aerated concrete to be used in building construction for:

a) Structural elements:

— loadbearing wall components;

— retaining wall components;

— roof components;

— floor components;

— linear components (beams and piers).

b) Non-structural elements:

— nonloadbearing wall components (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.

Depending on the type and intended use of elements for which the components are utilised, the components can be applied - in addition to their loadbearing and encasing function - for purposes of fire resistance, sound insulation and thermal insulation indicated in the relevant clauses of this European Standard.

Components covered by this 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 and integrity E of resistance to fire);

— fixtures;

— finishes for external components, such as tiling.

NOTE AAC components may 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 678, *Determination of the dry density of autoclaved aerated concrete*

EN 679, *Determination of the compressive strength of autoclaved aerated concrete*

EN 680, *Determination of the drying shrinkage of autoclaved aerated concrete*

EN 772-16, *Methods of test for masonry units – Part 16: Determination of dimensions*

EN 772-20, *Methods of test for masonry units – Part 20: Determination of flatness of faces of aggregate concrete, manufactured stone and natural stone masonry units*

EN 989, *Determination of the bond behaviour between reinforcing bars and autoclaved aerated concrete by the the "Push-Out" test*

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 dimensions of prefabricated reinforced components made of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1351, *Determination of flexural strength of autoclaved aerated concrete*

EN 1352, *Determination of static modulus of elasticity under compression of autoclaved aerated concrete or 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 15304, *Determination of the freeze-thaw resistance of autoclaved aerated concrete*

EN 1737, *Determination of shear strength of welded joints of reinforcement mats or cages for prefabricated components made of autoclaved aerated concrete or lightweight aggregate concrete with open structure*

EN 1738, *Determination of steel stresses in unloaded reinforced components made of autoclaved aerated concrete*

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

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

EN 12269-1, *Determination of the bond behaviour between reinforcing steel and autoclaved aerated concrete by the "beam test" – Part 1: Short term test*

EN 12269-2, *Determination of the bond behaviour between reinforcing steel and autoclaved aerated concrete by the "beam test" – Part 2: Long term test*

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 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 data from fire resistance tests, excluding ventilation services*

EN 15361:2007, *Determination of the influence of the corrosion protection coating on the anchorage capacity of the transverse anchorage bars in prefabricated reinforced components of autoclaved aerated concrete*

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

ISO 4356, *Bases for the design of structures – Deformations of buildings at the serviceability limit states*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1.1
autoclaved aerated concrete
autoclaved aerated concrete (AAC) is manufactured from binders such as cement and/or lime combined with fine siliceous based material, cell generating material and water. The raw materials are mixed together and cast into moulds where the mix is allowed to rise and set into cakes. After this part of the process, the cake is cut into the required sizes of components and cured with high pressure steam in autoclaves

3.1.2
raw materials
raw materials are the constituents which combined with additives and agents, where appropriate, can be used in the manufacturing process

3.1.3
reinforcement
reinforcement is commonly composed of steel mats, cages and/or steel bars. Other types of reinforcement can be used. Depending on the function of the components, the reinforcement can be structural or non-structural

Structural reinforcement is reinforcement which is necessary for the loadbearing function of the component as part of the structure. It consists of steel.

Non-structural reinforcement is reinforcement which is necessary in order to ensure adequate resistance of the component during handling, transportation and construction. Any suitable kind of reinforcement may be used for this purposes

3.1.4
corrosion protective coating
corrosion protective coating is a coating applied on the surface of the reinforcement to protect the reinforcement against corrosion

3.1.5
declared value
value declared by a manufacturer which is derived from values under specified conditions and rules