

საქართველოს სტანდარტი

ქარხნული წარმოების ბეტონის პროდუქტი. გოფირებული /წიბოებიანი
გადახურვის ელემენტები

საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2018 წლის 17 აგვისტოს № 85 განკარგულებით

3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 13224:2011 „ქარხნული წარმოების ბეტონის პროდუქტი. გოფირებული /წიბოებიანი გადახურვის ელემენტები“

4 პირველად

5 რეგისტრირებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2018 წლის 17 აგვისტო №268-1.3-013934

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

English Version

Precast concrete products - Ribbed floor elements

Produits préfabriqués en béton - Eléments de plancher
nervurés

Betonfertigteile - Deckenplatten mit Stegen

This European Standard was approved by CEN on 1 October 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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....4

Introduction6

1 Scope7

2 Normative references7

3 Terms, definitions, and symbols.....7

3.1 Terms and definitions7

4 Requirements8

4.1 Material requirements8

4.2 Production requirements8

4.3 Finished product requirements.....8

4.3.1 Geometrical properties8

4.3.2 Surface characteristics 10

4.3.3 Mechanical resistance..... 10

4.3.4 Resistance and reaction to fire 11

4.3.5 Acoustic properties 11

4.3.6 Thermal properties 11

4.3.7 Durability 11

4.3.8 Other requirements..... 11

5 Test methods..... 12

5.1 General..... 12

5.2 Tests on concrete 12

5.3 Measuring of dimensions and surface characteristics 12

6 Evaluation of conformity..... 12

6.1 General..... 12

6.2 Type testing..... 12

6.3 Factory production control..... 12

6.4 Finished products..... 12

7 Marking and labelling 13

8 Technical documentation 13

Annex A (informative) Examples of elements 14

Annex B (normative) Minor floor elements 16

B.1 General..... 16

B.2 Additional requirements for minor floor elements..... 16

B.2.1 General..... 16

B.2.2 Dimensions..... 16

B.2.3 Minimum strength of concrete 17

B.3 Special rules for minor floor elements 17

B.3.1 Bearing length..... 17

B.3.2 Transverse load distribution 18

B.3.3 Detailing..... 18

Annex C (informative) Unintended negative moments..... 20

Annex D (informative) Thermal maps..... 23

Annex E (informative) Transverse load distribution..... 27

Annex F (informative) Diaphragm action 28

საინფორმაციო ნაწილი. სრული ტექსტის სახსრავად შეიძინეთ სტანდარტი.

Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive	29
ZA.1 Scope and relevant characteristics	29
ZA.2 Procedure for attestation of conformity of precast ribbed floor elements	31
ZA.2.1 System of attestation of conformity	31
ZA.2.2 EC Certificate and Declaration of conformity	32
ZA.3 CE marking and labelling.....	33
ZA.3.1 General	33
ZA.3.2 Declaration of geometrical data and material properties (method 1)	35
ZA.3.3 Declaration of product properties (method 2).....	37
ZA.3.4 Declaration of compliance with a given design specification provided by the client (method 3a)	39
ZA.3.5 Declaration of compliance with a given design specification provided by the manufacturer according to the client's order (method 3b)	41
Bibliography.....	43

Foreword

This document (EN 13224:2011) has been prepared by Technical Committee CEN/TC 229 “Precast concrete products”, the secretariat of which is held by AFNOR.

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 May 2012, and conflicting national standards shall be withdrawn at the latest by August 2013.

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 13224:2004+A1:2007.

Significant technical changes compared to the previous version are:

- a) change in the scope to also cover elements with bottom slab (as shown in Annex A);
- b) deletion of the requirement on planarity (in 4.3.1.1 and 5.2);
- c) deletion of the requirement on camber or sag (in 4.3.1.1 and 5.2);
- d) addition of a rule for elements without shear reinforcement in 4.3.3.3;
- e) adoption of the new template for Annex ZA.

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 the Construction Products Directive (89/106/EEC) of the European Union (EU).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This standard is one of a series of product standards for precast concrete products.

For common aspects, reference is made to *EN 13369: Common rules for precast products*, from which also the relevant requirements of the *EN 206-1: Concrete — Part 1: Specification, performances, production and conformity* are taken.

The references to EN 13369 by CEN/TC 229 product standards are intended to make them homogeneous and to avoid repetitions of similar requirements.

Eurocodes are taken as a common reference for design aspects. The installation of some structural precast concrete products is dealt with by EN 13670:2009 *Execution of concrete structures*. In all countries it can be accompanied by alternatives for national application.

The programme of standards for structural precast concrete products comprises the following standards, in some cases consisting of several parts:

- EN 1168, *Precast concrete products — Hollow core slabs*
- EN 12794, *Precast concrete products — Foundation piles*
- EN 12843, *Precast concrete products — Masts and poles*

- EN 13224, *Precast concrete products — Ribbed floor elements*
- EN 13225, *Precast concrete products — Linear structural elements*
- EN 13693, *Precast concrete products — Special roof elements*
- EN 13747, *Precast concrete products — Floor plates for floor systems*
- EN 13978, *Precast concrete products — Precast concrete garages*
- EN 14843, *Precast concrete products — Stairs*
- EN 14844, *Precast concrete products — Box culverts*
- EN 14991, *Precast concrete products — Foundation elements*
- EN 14992, *Precast concrete products — Wall elements*
- EN 15037, *Precast concrete products — Beams for beam-and-block floor systems*

This standard defines in Annex ZA the application methods of CE marking to products designed using the relevant EN Eurocodes (EN 1992-1-1 and EN 1992-1-2). Where, in default of applicability conditions of EN Eurocodes to the works of destination, design Provisions other than EN Eurocodes are used for mechanical strength and/or fire resistance, the conditions to affix CE marking to the product are described in ZA.3.4.

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 the United Kingdom.

Introduction

The evaluation of conformity given in this standard refers to the completed precast elements which are supplied to the market and covers all the production operations carried out in the factory.

For design rules and resistance to fire, reference is made to EN 1992-1-1 and EN 1992-1-2. Additional complementary rules are provided where necessary.

4.3.3 and 4.3.4 include specific provisions resulting from the application of EN 1992-1-1, and EN 1992-1-2 rules made specific for the concerned product. The use of these provisions is consistent with a design of works made with EN 1992-1-1 and EN 1992-1-2.

საინფორმაციო ნაწილი. სრული ტექსტის საწინააღმდეგო შეიძინეთ სტანდარტი.