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Pregled zahtev, veljavnih v kraju uporabe v povezavi z evropskim standardom za beton EN 206 ter razvojem uporabljene prakse

Survey on provisions valid in the place of use used in conjunction with the European concrete standard and developing practice

Überblick über Bestimmungen, die am Ort der Verwendung in Verbindung mit der Europäischen Betonnorm EN 206 gelten und über die Entwicklung in der Anwendungspraxis

<https://standards.iteh.ai/catalog/standards/sist/8a2a5f22-f057-4d64-bbd9-f27c1a967277/sist-tp-cen-tr-15868-2019>

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91.100.30	Beton in betonski izdelki	Concrete and concrete products
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conjunction with the European concrete standard and
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This draft Technical Report is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 104.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (FprCEN/TR 15868:2018) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by DIN.

This document is currently submitted to the Vote on TR.

This document will supersede CEN/TR 15868:2009.

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Introduction

(1) This CEN/TR supersedes CEN/TR 15868:2009. EN 206-1 was published in 2000 and EN 206-9 published in 2010. European standards for many concrete test methods and for most of the constituents of concrete are now published and they are being periodically updated.

(2) In 2013, EN 206-1 and EN 206-9 were revised and published as a single standard, EN 206:2013. One major change was that the clauses in EN 206 where national provisions were required or permitted were identified and listed in its Annex M. In addition CEN Member Countries are free to include in national provisions matters not covered by EN 206.

(3) In the light of these changes, CEN agreed that a revision of CEN/TR 15868 was appropriate. Some of the questions in the original survey are still valid and therefore CEN Member Countries were simply asked to update their answers. As most constituents of concrete are now standardized, the survey questions were changed to identify the few remaining national standards. When CEN agreed on a suite of tests for use with self-compacting concrete, there was an agreement, that in the future a survey would be undertaken to assess what is being used in practice and whether further tests need to be standardized. This survey includes that commitment. Other questions relate to topics, with hindsight, that should have asked in the original survey.

(4) The opportunity of having such a survey has been also used to identify developing practice as this may lead to a need for standardization in the near future.

(5) Sixteen CEN Member Countries responded to the survey, although in some cases the respondent was unable to provide answers to all the questions. Three CEN Member Countries (Austria, Denmark and Germany) have not completed their national provisions. Administrators in Austrian Standards have refused to publish EN 206 as it does not conform to CEN Rules, Denmark is still working on its national provisions and the reasons Germany has not finished their national provisions is described in 2.1. These three CEN Member Countries plus Luxembourg and Slovakia completed the original survey and this CEN Technical Report contains some of their responses to the original survey where changes are less likely, e.g. to exposure classes, limiting values and additions standardized at the national level.

CEN Member Countries

The abbreviations used in this Technical Report for CEN Member Countries are given in Table 1.

Table 1 — Abbreviations used for CEN Member Countries

Austria	AT	Lithuania	LT
Belgium	BE	Luxembourg	LU
Bulgaria	BG	Macedonia, Former Yugoslav Republic	MK
Croatia	HR	Malta	MT
Cyprus	CY	Netherlands	NL
Czech Republic	CZ	Norway	NO
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Serbia	RS
Germany	DE	Slovakia (Slovak Republic)	SK

Greece	GR	Slovenia	SI
Hungary	HU	Spain	ES
Iceland	IS	Sweden	SE
Ireland	IE	Switzerland	CH
Italy	IT	Turkey	TR
Latvia	LV	United Kingdom	UK

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FprCEN/TR 15868:2018 (E)

1 Scope

This CEN Report provides a summary of provisions valid in the place of use used with EN 206:2013. The aims of this CEN Report are to:

- a) provide a picture of how EN 206:2013 is being applied in practice;
- b) identify areas where EN 206 is being interpreted in different ways;
- c) identify areas where CEN Member Countries have found simplification to be necessary;
- d) identify where the options listed in EN 206:2013, Annex M to have provisions valid in the place of use have been taken up;
- e) identify other clauses in EN 206 where CEN Member Countries have amended or added to the requirements;
- f) identify areas within the scope of concrete production and supply not covered by EN 206, but covered by national provisions;
- g) identify developing practice that may lead to a need for standardization in the future.

EN 206 uses the phrase 'provisions valid in the place of use'. This survey uses the term 'provisions valid in the place of use' to include regulations, standards and other documents that form the basis of local practice.

As a summary of national requirements, the information in this CEN Report is incomplete and may have been subject to later revisions, particularly if the entry was based on information in CEN/TR 15868:2009. It is insufficient and not intended to provide the basis for design and specification: for this the national requirements (see Table 2) should be studied.

Table 2 identifies CEN Member Countries who did not respond to the questionnaire. The other tables in this CEN Report only include information from CEN Member Countries, or in the view of the authors, the information in CEN/TR 15868:2009 is still likely to be valid.

2 Overview on the adoption of EN 206:2013

2.1 Location of provisions valid in the place of use

Table 2 contains the location of the provisions valid in the place of use used in conjunction with EN 206:2013.

Table 2 — Location of provisions valid in the place of use used in conjunction with EN 206:2013

CEN Member Country	Location of national provisions for use with EN 206
AT	National provisions were not completed when this Technical Report was prepared
BE	(NL) Beton – Specificatie, eigenschappen, vervaardiging en conformiteit – Nationale aanvulling bij NBN EN 206:2014 (F) Béton – Spécification, performances, production et conformité – Complément national à la NBN EN 206:2014 (E) Concrete – Specification, performance, production and conformity – National supplement to NBN EN 206:2014

CEN Member Country	Location of national provisions for use with EN 206
BG	No response to survey
HR	No response to survey
CY	CYS 300: Συμπληρωματικό Κυπριακό Πρότυπο στο CYS EN 206-1:2000 Σκυρόδεμα – Μέρος 1: Προδιαγραφή, Επιτελεστικότητα, Παραγωγή και Συμμόρφωση. Supplementary Cyprus Standard for CYS EN 206-1:2000 Concrete – Part 1: Specification, Performance, Production and Conformity.
CZ	ČSN P 73 2404 Beton – Specifikace, vlastnosti, výroba a shoda – Doplňující informace Concrete – Specification, performance, production and conformity – Additional information
DK	National provisions were not completed when this Technical Report was prepared
EE	No response to survey
FI	SFS 7022 Betoni. Standardin SFS-EN 206:2014 käyttö Suomessa (Concrete. Application of standard SFS-EN 206:2014 in Finland) Informative guidance document Betoninormit 2016 by 65, Suomen Betoniyhdistys (Concrete Code 2016 by65, Finnish Concrete Association) ^a
FR	NF EN 206/CN Béton – Spécification, performance, production et conformité – Complément national à la norme NF EN 206 Concrete – Specification, performance, production and conformity – National addition to the standard NF EN 206 ^b
DE	None Comment: Revision of DIN 1045-2 as National Annex in conjunction with EN 206:2013 failed in the DIN-Enquiry procedure at the end of 2014 (reason below table)
GR	1) Greek Code for Concrete Technology 2016 (referred to herein as GCCT2016) Greek Title: “Ελληνικός Κανονισμός Τεχνολογίας Σκυροδέματος 2016” 2) ELOT EN 206:2013+NAC ^c
HU	No response to survey
IS	No response to survey
IE	National Annex; published with I.S. EN 206-1 as a single document ^d
IT	UNI 11104: Calcestruzzo-Specificazione, prestazione produzione e conformità Istruzioni complementari per l'applicazione della EN 206. (Concrete-Specification, performance, production and conformity. Additional provisions for the application of EN 206)
LV	No response to survey
LT	No response to survey
LU	No response to survey
MK	No response to survey

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CEN Member Country	Location of national provisions for use with EN 206
MT	No response to survey
NL	NEN 8005:2014 Nederlandse invulling van NEN-EN 206: Beton – Specificatie, eigenschappen, vervaardiging en conformiteit (Dutch supplement to NEN-EN 206: Concrete – Specification, performance, production and conformity)
NO	Norwegian National Annex to NS-EN 206:2013 (NS-EN 206:2013/NA:2014) Nasjonalt Tillegg til NS-EN 206:2013 ^e
PL	No response to survey
PT	National Annexes to NP EN 206:2013+A1:2016 and to NP EN 13670, which include the following the 3 National Civil Engineering Laboratory (LNEC) specifications: LNEC E 461, LNEC E 464 and LNEC E 465, already referred to in CEN/TR 15868:2009 ^f
RO	NE 012/1-2007 Normativ pentru producerea betonului NE 012/1-2007 Norm for concrete production ^g
SK	No response to survey
SI	No response to survey
ES ^h	In Spain the Code of structural concrete is under the “Interministerial Committee” located in the Ministry of Public Works The national body of Standardization is AENOR for the voluntary standards. The NAD of EN 206 should be issued by AENOR but has in accordance to the structural Code. http://standards.iteh.ai/catalog/standards/sist/8a2a5f22-f057-4d64-bbd9-242424242424
SE	SS 137003:2015 Betong – Användning av SS-EN 206 i Sverige, (<i>Concrete – Application of SS-EN 206 in Sweden</i>) Vägledning för val av exponeringsklass enligt SS-EN 206, Betongrapport nr 11 – Utgåva 3, 2016, (Guidance for selection of exposure class according to SS-EN 206, edition 3, 2016, Concrete report nr 11, Swedish Concrete Association)
CH ⁱ	SN EN 206:2013 (2 nd edition) with the following National Elements: National Annex A: Begriffe, Erläuterungen, nationale Regelungen/Definitions, explanations, national provisions National Annex B: Regelungen für die Freigabe von Zementen für die Herstellung von Beton nach SN EN 206:2013/Provisions for autorisation of cements for the production of concrete according to SN EN 206:2013 National Annex C: Regelungen für die Freigabe von Zusatzstoffen und Zement-Zusatzstoff-Kombinationen für die Herstellung von Beton gemäss der Norm SN EN 206:2013/ Provisions for autorisation of mineral additions and combinations of cements and mineral additions for the production of concrete according to SN EN 206:2013
TR	TS 13515: Complementary Turkish standard for the implementation of TS EN 206 TS EN 206'nın uygulamasına yönelik tamamlayıcı standard

CEN Member Country	Location of national provisions for use with EN 206
UK	BS 8500 <i>Complementary British Standard to BS EN206, Part 1: Method of specifying and guidance for the specifier, 2015 + A1:2016</i> and BS 8500 Part 2: <i>Specification for constituent materials and concrete, 2015 + A1:2016</i>
<p>^a Informative guidance document Betonin valinta ja käyttöikäsuunnittelu – opas suunnittelijoille by68, Suomen Betoniyhdistys (Choise of Concrete Mix and Design of the Working Life – a Guide for Designers by68, Finnish Concrete Association).</p> <p>^b NF EN 206/CN gives both the whole text of EN 206 and the national addition, the national part being in grey shaded boxes.</p> <p>^c GCCT2016 is Published by the Ministry of Public Works, Greece and refers to EN 206:2013+NA and EN 13670+NA. ELOT publishes EN 206:2013+NA.</p> <p>^d Published by National Standards Authority of Ireland.</p> <p>^e The National Annex is made normative by the references given in NS-EN 1992-1-1/NA and NS-EN 13670/NA.</p> <p>^f A lot of Portuguese requirements referred to in the CEN/TR 15868:2009 are maintained, but some were changed (e.g. the identity tests). The above LNEC specifications are being revised. The process will be finished by the middle of 2017.</p> <p>^g This document include EN 206-1:2000 and National Application Document.</p> <p>^h Spain still has not an official NAD of EN 206. It is still a subject of discussion by the mirror group of TC 104; however, a NAP for EC 2 exists and several matters related to EN206 are included in that document.</p> <p>ⁱ In addition to SN EN 206 the several Technical Bulletins (German: Merkblatt, French: Cahier technique) have to be considered. This type of document is a technical guideline and has the status of a prestandard. The following Technical Bulletins are valid:</p> <ul style="list-style-type: none"> SIA 2030: Recyclingbeton/Recycling concrete SIA 2042: Vorbeugung von Schäden durch die Alkali-Aggregat-Reaktion (AAR) bei Betonbauten/Prevention of damages due to alkali-aggregate-reaction (AAR) in concrete structures SIA 2049: Anforderungen an neue Zemente/Requirements on new cements SIA 2052: Ultra-Hochleistungs-Faserbeton (UHFB) – Baustoffe, Bemessung und Ausführung/ Ultra-high performance fiber reinforced concrete (UHPFRC) – Materials, design and execution. 	

The explanation as to why Germany has no national provisions is as follows:

‘Cement and concrete have proved particularly successful for decades because quality control for their production and use has been closely regulated and the requirements for safe and durable structures have been satisfied. However, in a few applications there is doubt about whether all the necessary concrete technology and implementation parameters have been clearly described and appropriately taken into account in the design. Against this background the analysis of the positions taken up over the new draft of the German National Annex, to EN 206:2013, DIN 1045-2:2014-08 has shown some essential conflicting viewpoints of building owners, contractors and concrete producers. Added to this is the fact that so far in Germany the opening clauses of EN 206 have been widely used to incorporate in the national application document all the stipulations that are required from the national point of view and that are needed to achieve a high quality of concrete construction. This route is no longer possible at the normative level. At the end of 2014 there was no consensus for the adoption of the draft of DIN 1045-2:2014-08 as the application document for DIN EN 206:2014-07 (German translation of EN 206:2013).

As a consequence, the target has now been set to create comprehensive and consistent definitions of the requirements across the whole value chain specific to structural elements for the design, concrete and its constituents, execution and quality control within a consistent concept of different concrete quality classes. The German Committee for Structural Concrete (DAfStb) is the platform for conducting the work. In accordance with a Board decision their results led to the start of a DAfStb Guideline with the aim to set up this classification system on concrete quality (three classes BBQ1, BBQ2 and BBQ3, c.f. Figure 1).

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In many cases the regulations in DIN EN 206:2014-07 may well be sufficient with a DIN 1045-2 in which only the permissible opening clauses in the European standard are used. However, the significantly longer design service lives of, for example, bridges and hydraulic engineering structures, set far greater demands that can only be achieved by an extended concept of concrete construction quality. The developments in concrete technology towards the “five components system” already described with a wide spectrum of compressive strength classes that, on the one hand, improve the workability and extend the areas where concrete can be used but, on the other hand, sometimes also make the concretes more sensitive, are making new approaches essential. Public building owners and contractors are calling for better consideration of site-relevant concrete properties for sophisticated structural elements, construction methods and special types of concrete. Examples mentioned are, for instance, the tendency to segregation or the machining of fresh surfaces not cast in formwork. This mainly affects complex civil engineering structures. However, there are also cases in normal building construction that necessitate better coordination.

The concrete construction quality classes could, for example, give rise to:

- performance requirements for concretes for the designated purposes;
- procedures/requirements for the concrete producer;
- procedures/requirements for the contractors, and possibly provision for
- concrete/contractor vs designer “feedback” (the “Concrete team”).

This therefore involves procedures along the entire value-added chain. An example of this is extended initial type testing or suitability testing in case of larger pumping distances. In this way it could be possible to achieve appropriate concrete properties for demanding construction projects, including under construction site conditions. However, not all challenges can be overcome through the building materials or the construction work. With the new concept, designers should also be made aware of where they have “provoked” demanding concrete technology through their specifications (e.g. extreme levels of reinforcement). This means that the concrete producer and the contractor have to develop strategies and guidelines with the involvement of the designer in order to show the client the limits of what is feasible through concrete technology and execution of the work. In the current discussions BBQ1 is planned to be part of the new DIN 1045-2 (National Annex).’

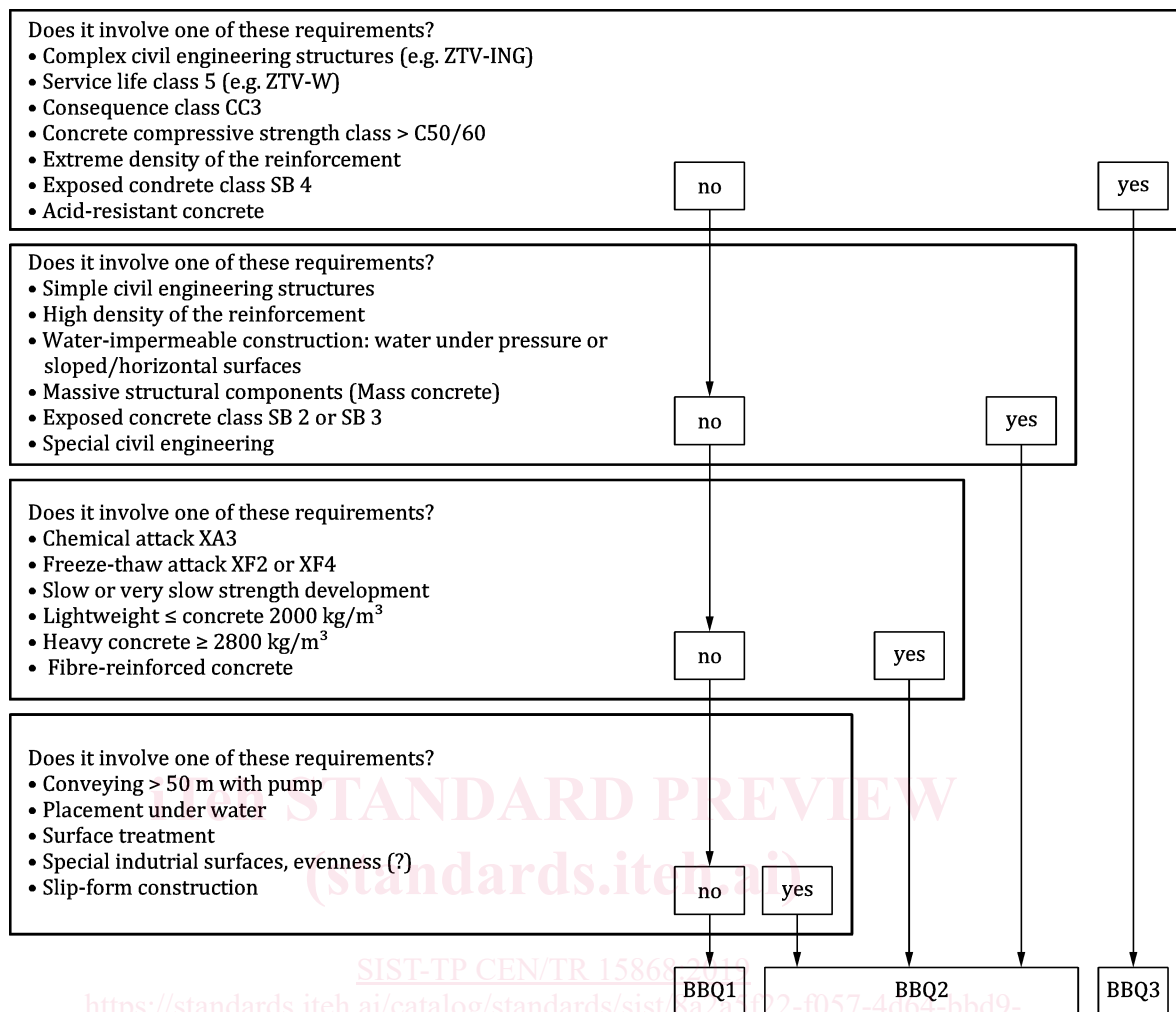


Figure 1 — Concrete construction quality concept – answering questions arising from design, building materials and construction work with assignment to a concrete construction quality class 2016

It should be noted that EN 206 is intended for normal concrete structures and it has never prevented the specification of additional requirements for special structures or circumstances (see EN 206, Scope Clauses (5) and (6)).

2.2 Status given in provisions valid in the place of use for the informative annexes in EN 206

Table 3 list the informative annexes in EN 206 that have been made normative in the provisions valid in the place of use.

Table 3 — Informative annexes in EN 206 made normative in provisions valid in the place of use

CEN Member Country	Informative annexes that have been made normative
BE	Annex F, Annex K.4, Annex L rules 15, 19 and 20 have been made normative

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CEN Member Country	Informative annexes that have been made normative
CY	<p>Table F1 of Annex F is to be normative.</p> <p>Annex H is to be normative. Some of the recommendations in Annex E, EN 206 are normative requirements:</p> <p><i>f</i> declared (< 1,5 % coarse, < 10 % fine)</p> <p><i>FL</i> < 20</p> <p><i>LA</i> < 35</p> <p>WA declared</p> <p>Acid sulfates AS 0,8</p> <p>Total sulphur < 1 %</p> <p>Chlorides content declared</p>
CZ	None
FI	None
FR	<p>Annex E is replaced by NA 5.1.3 and reference to NF P 18-545 (national provision to EN 12620). These paragraphs are normative</p> <p>Annex NA F replace Annex F, Annex NA F is normative</p> <p>Annex K and it's complement NA K2 is normative</p>
GR	None
IE	None
IT	Annex F
NL	None
NO	None
PT	In Annex L, the recommendations established with the use of “should” have been made normative
RO	Annex E
ES	None
SE	None
CH	<p>Annex C is required for all types and applications of concrete and for types of concrete producers (ready-mixed, site-mixed concrete and concrete for precast elements).</p> <p>Annex G and K</p>
TR	<p>Annex B1 added as normative: Identity tests and acceptance criteria</p> <p>Annex P added as normative: Alkali Silicate Reaction (ASR)</p>
UK	None
<p>Summary</p> <p>Nine of the 17 replies did not change the status of any of the informative Annexes. Only three replies made Annex F or Table F.1 normative. France replaces Annex F with its own version and then makes this version normative.</p>	

2.3 Uptake of permissions to use provisions valid in the place of use

Annex M of EN 206 lists clause where permission to use provisions valid in the place of use are permitted. The following tables show the extent to which these permissions have been acted upon. The detail of what has been added will be found in the provisions valid in the place of use and this information is not given in the following tables; however, respondents were asked for the reason why they had not acted upon a permission as this information is not available elsewhere.

NOTE Annex M has missed the inclusion of the permission in Annex B.5 (1).

Table 4 — Clause 1, Scope: Permitted national provisions: Paragraphs (5) and (6)

CEN Member Country	(5) Additional or different requirements may be given for specific applications in other European Standards (6) Supplementing requirements or different testing procedures may be specified for specific types of concrete and applications
BE	None: good as given in EN 206
CY	None
CZ	Yes
FI	Yes
FR	Yes
GR	None
IE	None: no additional guidance required
IT	Yes
NL	None
NO	None
PT	None: The provisions given in EN 206 are acceptable
RO	Yes , Concrete used in roads (NE 014) Concrete used in dams (PE 713)
SE	Yes
CH	(5): Yes (6): None (yet). For massive structures, special/additional requirements might be given in the project specification. For dry mixed concrete special/additional requirements will probably follow soon.
TR	None (value given in EN206 is acceptable)
UK	Yes
Summary Fifty percent of the replies took up this option.	