



BSI Standards Publication

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

National foreword

This Published Document is the UK implementation of CEN/TR 15868:2018. It supersedes PD CEN/TR 15868:2009, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/517/1, Concrete production and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

**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

This Technical Report was approved by CEN on 9 November 2018. It has been drawn up by the Technical Committee CEN/TC 104.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

	Page
European foreword.....	3
Introduction	4
1 Scope	6
2 Overview on the adoption of EN 206:2013	6
2.1 Location of provisions valid in the place of use	6
2.2 Status given in provisions valid in the place of use for the informative annexes in EN 206	11
2.3 Uptake of permissions to use provisions valid in the place of use.....	13
2.4 Provisions valid in the place of use not mentioned in EN 206:2013, Annex M.....	42
2.5 Matters covered by provisions valid in the place of use that are outside the scope of EN 206	51
3 Specific technical issues.....	53
3.1 Exposure classes.....	53
3.1.1 Understanding of the terms used to describe the exposure classes.....	54
3.1.2 Exposure classes that have been grouped together	59
3.1.3 Examples of exposure classes.....	61
3.1.4 Recommended exposure classes for selected concrete elements.....	73
3.1.5 Chemical attack outside the scope of EN 206, Table 2	76
3.1.6 Exposure classes where resistance to damaging ASR is required.....	79
3.2 Constituents for concrete	81
3.2.1 Constituents standardized at the national level	81
3.2.2 Use of more than one cement.....	83
3.2.3 Sulfate resisting binders.....	85
3.2.4 Permitted loss-on-ignition categories of fly ash	89
3.2.5 Aggregates	90
3.2.6 Constituents unknown at national level but standardized at European level.....	103
3.3 Limiting values and cement types for an intended working life of 50 years.....	104
3.4 Use of additions.....	133
3.5 Compressive strength.....	144
4 Developing practice.....	145
4.1 Specification of fibre concrete by performance.....	145
4.2 Requirements for bleeding and segregation resistance with normal pumped concrete	147
4.3 Test methods used with self-compacting concrete.....	147
4.4 Test methods used for geotechnical applications	148
4.5 Dry-mixed concrete.....	149
Annex A Limiting values.....	152

European foreword

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

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TR 15868:2009.

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.

(6) Since the close of the survey, Austria has published EN 206 albeit in a slightly modified form and Denmark has completed their national provisions. Table 2 includes the location of the new Danish national provisions, but the other tables where Denmark is cited have not been updated.

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

1 Scope

This document provides a summary of provisions valid in the place of use used with EN 206:2013. The aims of this document 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 document 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 – Doplnující informace Concrete – Specification, performance, production and conformity – Additional information
DK	DS/EN 206 DK NA:2018 Beton – Specifikation, egenskaber, production og overensstemmelse – Regler for anvendelse af EN 206 i Danmark Concrete – Materials – Rules for application of EN 206-1 in Denmark
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 by 65, 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+NA ^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

CEN Member Country	Location of national provisions for use with EN 206
LU	No response to survey
MK	No response to survey
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 to be in accordance with the structural Code.
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

CEN Member Country	Location of national provisions for use with EN 206
TR	TS 13515: Complementary Turkish standard for the implementation of TS EN 206 TS EN 206'nın uygulamasına yönelik tamamlayıcı standard
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>

^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).

^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.

^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.

^d Published by National Standards Authority of Ireland.

^e The National Annex is made normative by the references given in NS-EN 1992-1-1/NA and NS-EN 13670/NA.

^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.

^g This document include EN 206-1:2000 and National Application Document.

^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.

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:

- 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).

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).’

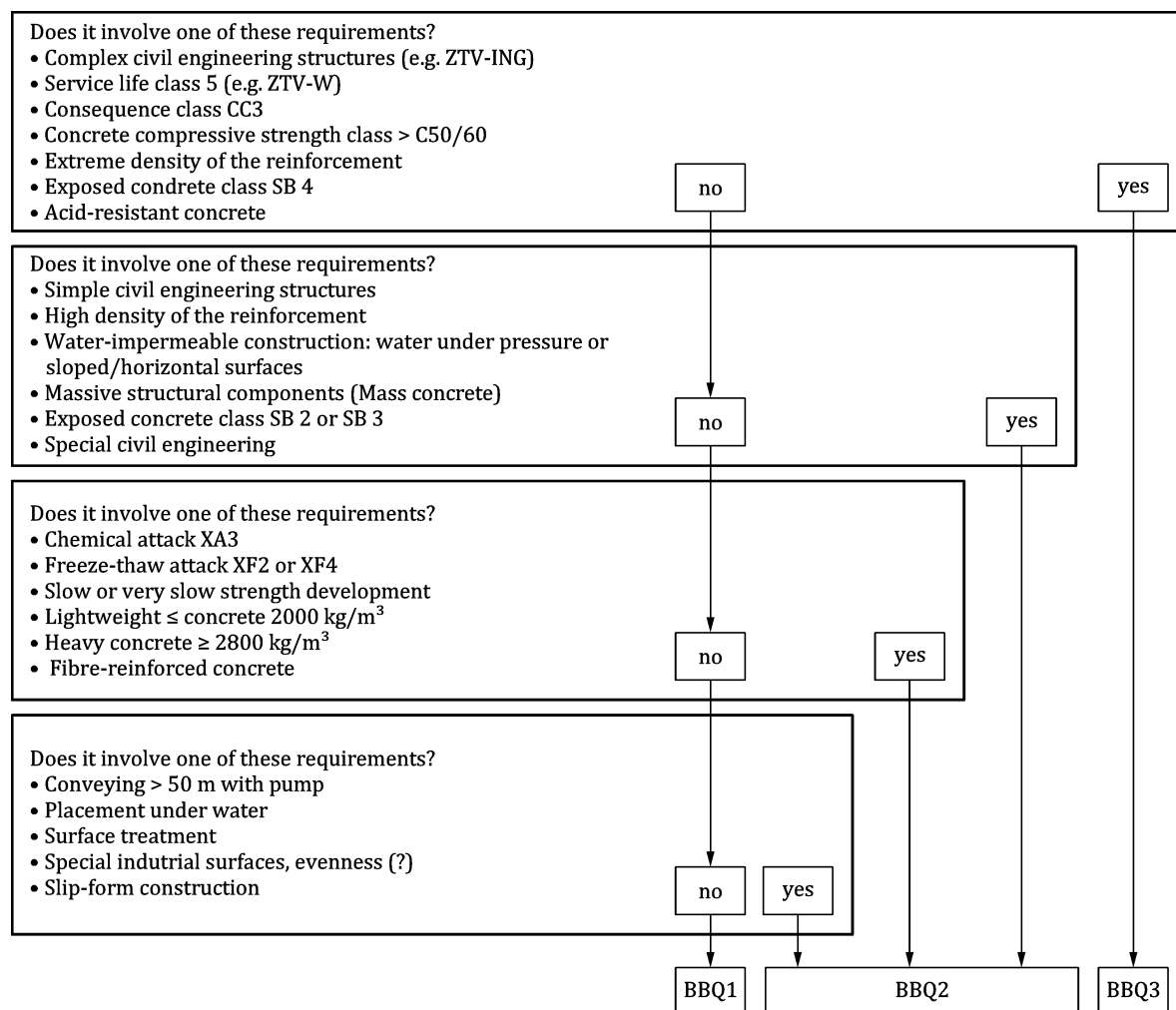


Figure 1 — Concrete construction quality concept – answering questions arising from design, building materials and construction work with assignment to a concrete construction quality class 2016

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

CEN Member Country	Informative annexes that have been made normative
CY	Table F1 of Annex F is to be normative. Annex H is to be normative. Some of the recommendations in Annex E, EN 206 are normative requirements: <i>f</i> declared (< 1,5 % coarse, < 10 % fine) <i>FL</i> < 20 <i>LA</i> < 35 WA declared Acid sulfates AS 0,8 Total sulphur < 1 % Chlorides content declared
CZ	None
FI	None
FR	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 Annex NA F replace Annex F, Annex NA F is normative Annex K and it's complement NA K2 is normative
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	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). Annex G and K
TR	Annex B1 added as normative: Identity tests and acceptance criteria Annex P added as normative: Alkali Silicate Reaction (ASR)
UK	None
Summary 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.	

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.	

Table 5 — Clause 4.1 Exposure classes related to environmental actions: Paragraphs (1) and (2)

CEN Member Country	Selection of exposure classes Special cases of chemical attack
BE	Yes. Introduction of environmental classes
CY	None
CZ	Yes
FI	No. The value given in EN 206 is acceptable
FR	Yes
GR	None
IE	Yes: Sea water included as an informative example in XA2 class
IT	None
NL	Yes, only remarks
NO	Yes. Norway has defined an Exposure Class XA4 (contact with manure) and XSA (Aggressiveness not covered elsewhere)
PT	Yes
RO	None the value given in EN 206 is acceptable
SE	Yes
CH	(1): Yes (2): Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Ten of the 16 replies (63 %) adopted this option.	

Table 6 — Clause 5.1.1 General: Paragraph (2)

CEN Member Country	Using constituents that do not conform to European standard Using constituents that conform to national standards
BE	Addition of ATG
CY	No
CZ	No
FI	No. Not relevant.
FR	None (developed in relevant constituent clause)
GR	No
IE	Yes: See NA.2.1
IT	None
NL	Yes, only remarks
NO	Yes. 5.1.1 (2) is excluded in Norway
PT	Yes
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Fifty percent of the replies took up this option.	

Table 7 — Clause 5.1.5 Admixtures: Paragraph (2)

CEN Member Country	Admixtures conforming to EN 934-1 but not EN 934-2
BE	None: No need to do so
CY	No
CZ	No
FI	No. National type approval covers products not covered by standards
FR	None (Reference to EN 934-2 is enough)
GR	No
IE	None: Not needed
IT	Yes
NL	None
NO	Yes. Other admixtures are accepted if tested according to EN 934-1 and EN 934-2
PT	None: The provisions given in EN 206 are acceptable. Anyway, there is a possibility for establishing national provisions for shrinkage reducing admixtures
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Five of the 16 (31 %) replies adopted this option.	

Table 8 — Clause 5.2.1 General: Paragraphs (2)

CEN Member Country	Selection of constituents for designed and prescribed concretes
BE	None
CY	No
CZ	No
FI	No. Prescribed concretes are not used in bearing structures
FR	Yes
GR	No
IE	Yes
IT	No
NL	Yes, only remarks
NO	Standardized prescribed concrete is not within the scope of NS-EN 206
PT	Yes for cements and aggregates
RO	None
SE	Yes
CH	(2): None; no need for provisions
TR	No
UK	Yes
Summary Six of the 16 replies (38 %) adopted this option.	

Table 9 — Clause 5.2.1 General: Paragraphs (5)

CEN Member Country	Prescription of standardized prescribed concrete
BE	None
CY	No
CZ	No
FI	No. Prescribed concretes are not used in bearing structures.
FR	Yes
GR	No
IE	Not specifically referenced in national provisions. However, refer to IE answer to Clause 6.4.
IT	No
NL	Yes, only remarks
NO	Standardized prescribed concrete is not within the scope of NS-EN 206
PT	None: The standardized prescribed concretes are not used in Portugal
RO	None
SE	Yes
CH	None; no need for provisions
TR	Yes
UK	Yes
Summary Five of the 16 replies (31 %) adopted this option.	

Table 10 — Clause 5.2.3.5 Resistance to alkali-silica reaction: Paragraph (1) ^a

CEN Member Country	Provisions for preventing deleterious ASR
BE	Yes. Reference to a completely new informative annex I about ASR
CY	None
CZ	Yes
FI	No. Not relevant
FR	Yes
GR	None
IE	Yes: See NA.2.6
IT	No
NL	Yes, only remarks
NO	Yes. Norway has a reference to provisions given in publication no 21 from the Norwegian Concrete Association
PT	Yes
RO	None
SE	Yes
CH	Yes
TR	Yes
UK	Yes
Summary Eleven of the 16 replies (69 %) adopted this option. What is surprising is that five replies indicated that no action was taken to minimise the risk of damaging ASR. The reasons for this are not known.	
^a See also Tables 45 and 46.	

Table 11 — Clause 5.2.8 Chloride content: Table 15, footnote a)

CEN Member Country	Selection of chloride classes
BE	Yes. Addition to footnote a
CY	Yes
CZ	Yes
FI	Yes
FR	Yes
GR	No
IE	Yes: See NA.2.8
IT	No
NL	None
NO	None
PT	Yes: The more demanding classes for reinforced and prestressed concrete in exposure classes XS and XD.
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Ten of the 16 (63 %) replies adopt this option.	

Table 12 — Clause 5.2.8 Chloride content: Table 15, footnote c)

CEN Member Country	Selection of chloride classes Different chloride classes for CEMIII
BE	None
CY	Yes
CZ	Yes
FI	Yes
FR	Yes
GR	No
IE	Yes: See NA.2.8
IT	No
NL	None
NO	Provisions are given in NS-EN 1992-1-1+NA. Max Cl 0,1 for structures in contact with salt and structures with prestressing. Max Cl 0,2 for other reinforced structures
PT	None: There is no tradition of using CEM-III cements in Portugal
RO	None
SE	Yes
CH	None: No need for provisions and no experience
TR	None (value given in EN 206 is acceptable)
UK	No. Technically a specifier may adopt a chloride class greater than 0,40 for CEM III cement concrete but where this has been proposed in the UK by the contractor the client has not approved.
Summary Six of the 16 replies (38 %) adopt this option.	

Table 13 — Clause 5.3.2 Limiting values for concrete composition: Paragraphs (1) and (3)

CEN Member Country	Choice of limiting values Requirements for an intended working life of at least 50 years
BE	Yes, addition
CY	Yes in national annex tables' footnotes, but for public contracts additional rules apply
CZ	Yes
FI	Yes
FR	Yes
GR	No
IE	Yes: See NA.2.10
IT	No
NL	Yes, only remarks
NO	None
PT	Yes – The requirements include: C, W/C and compressive strength. Requirements are also established for 100 years' service life
RO	None
SE	Yes
CH	(1): Yes (3): Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes and yes
Summary Eleven of the 16 replies (69 %) adopted this option.	

Table 14 — Clause 5.3.3 Performance-related methods: Paragraph (1)

CEN Member Country	Application of the performance based method
BE	None: no agreement on method to be used
CY	None
CZ	None
FI	Yes
FR	None (Performance test method for XF classes are shown in Annex F)
GR	None
IE	None : No experience in Ireland. Reference to S.R. CEN/TR 16563 is made
IT	None
NL	None
NO	Not permitted
PT	Yes – For reinforcement corrosion (LNEC E 465)
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	None. On the few occasions performance criteria are specified this is done without reference to EN 206.
Summary Four of the 16 replies (25 %) adopt this option.	

Table 15 — Clause 5.4.2 Cement content and water/cement ratio: Paragraph (2)

CEN Member Country	Modifying the EN 1097-6 test
BE	Yes, specification on what to do with recycled and artificial aggregates
CY	Yes
CZ	No
FI	No. Not relevant
FR	Yes
GR	No
IE	Yes: See NA.2.12
IT	Yes
NL	Yes, only recommendation
NO	No
PT	Yes – All the fines are taken into account
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	None. No demand.
Summary Nine of the 16 replies (56 %) adopt this option.	

Table 16 — Clause 6.1 General: Paragraph (2)

CEN Member Country	Requirements for the specifier
BE	None: Is fine as it is
CY	Yes
CZ	No
FI	No. Not relevant
FR	Yes
GR	No
IE	None: Not required
IT	No
NL	None
NO	None
PT	Yes – The specifier (designer) has to define: — The exposure class(es); — The curing class(es) (a minimum curing class is required for each exposure class); — The design working life; — The prevention level to avoid the occurrence of internal expansive reactions
RO	None
SE	No
CH	None; no need for additional provisions
TR	Yes
UK	Yes
Summary Five of the 16 replies (31 %) adopt this option.	

Table 17 — Clause 6.4 Specification of standardized prescribed concrete: Paragraph (2)

CEN Member Country	Exposure classes other than X0 or XC1
BE	None: not frequently applied in BE
CY	None
CZ	No
FI	Yes
FR	Yes
GR	None
IE	Yes: See NA.3 & Annex NB: also refer to IE response to 5.2.1
IT	No
NL	Yes
NO	No. Standardized prescribed concrete not allowed
PT	None: The standardized prescribed concretes are not used in Portugal
RO	None
SE	Yes
CH	None; Switzerland has no provisions for a standardized prescribed concrete, since this type of concrete is not used.
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Six of the 16 replies (38 %) adopt this option.	

Table 18 — Clause 7.2 Information from the producer of the concrete to the user: Paragraph (4)

CEN Member Country	Warning on health risks
BE	None: is fine as it is
CY	Yes
CZ	No
FI	No. Finnish Safety and Chemicals Agency (Tukes) is providing guidance for this
FR	Yes
GR	No
IE	None: Not required to 'standardize' in national provisions
IT	No
NL	Yes
NO	Yes. Health aspects to be declared
PT	None: Anyway, in the National Annex of EN 206, the precautions to be taken when handling fresh concrete are established
RO	None
SE	No –information given in EN 206 acceptable
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Six of the 16 replies (38 %) adopt this option.	

Table 19 — Clause 7.3 Delivery ticket for ready-mixed concrete: Paragraph (3)

CEN Member Country	Description for standardized prescribed concrete
BE	None: standardized prescribed concrete is not frequently applied in BE
CY	Yes
CZ	No
FI	No. Not relevant
FR	Yes
GR	Yes
IE	Yes: See NA.4.1
IT	No
NL	Yes
NO	No additional national provisions
PT	None: The standardized prescribed concretes are not used in Portugal
RO	None
SE	Yes
CH	None; this type of concrete is not used in Switzerland
TR	Yes
UK	Yes
Summary Eight of the 16 replies (50 %) adopt this option.	

Table 20 — Clause 8.2.1.2 Sampling and testing plan: Table 17, Footnote d

CEN Member Country	Definition of production day
BE	Yes: footnote added
CY	Yes
CZ	Yes
FI	Yes
FR	Yes
GR	Yes. Production day is considered each calendar day, provided concrete production more than 8 m ³ takes place.
IE	Yes: See NA.5.1
IT	Yes
NL	Yes
NO	Yes. A “day” is defined as when the production has reached 20 m ³ or when a series of production days has reached 20 m ³
PT	Yes – Day during which at least 25 m ³ of a concrete or concrete family were produced; if the production is less than 25 m ³ , the production day is the period to achieve this concrete volume.
RO	Yes, one day production (concrete produced in 8 h) (proposal)
SE	Yes
CH	Yes
TR	Yes
UK	Yes
Summary All replies adopted this option.	

Table 21 — Clause 8.2.1.3.2 Criteria for mean results: Paragraph (11)

CEN Member Country	Rule of application
BE	None
CY	Yes
CZ	No
FI	No. The CUSUM method as in Appendix H.2 is accepted (but H.3 Shewhart charts not)
FR	Yes
GR	No
IE	None
IT	No
NL	None
NO	Yes. Both methods in Annex H may be used
PT	None: The method C is not allowed in Portugal for conformity control
RO	None
SE	No
CH	None; no experience so far
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Four of the 16 replies (25 %) adopt this option.	

Table 22 — Clause 8.2.3.3 Conformity criteria for properties other than strength: Table 21, Footnote c

CEN Member Country	Higher test rate
BE	None: fine as it is
CY	No. The value given in EN 206 is acceptable
CZ	Yes
FI	No. The value given in EN 206 is acceptable
FR	Yes
GR	No. The value given in EN 206 is acceptable
IE	None for footnote c; but see NA.5.3 for additional guidance re alkali calculation and limits
IT	No
NL	None
NO	Yes. Air content to be checked at the beginning of the production day and later each 50 m ³
PT	None: The provisions given in EN 206 are acceptable
RO	None
SE	No, value given in EN 206 is acceptable
CH	None; no need.
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Four of the 16 replies (25 %) adopted this option.	

**Table 23 — Clause 8.2.3.3 Conformity criteria for properties other than strength:
Table 23, Footnote a**

CEN Member Country	Alternative limits
BE	None: No need for modification
CY	None
CZ	Yes
FI	No. The value given in EN 206 is acceptable
FR	Yes
GR	None
IE	None: not required.
IT	No
NL	None
NO	No additional national provisions
PT	None: The provisions given in EN 206 are acceptable
RO	None
SE	No
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Four of the 16 replies (25 %) adopt this option.	

Table 24 — Clause 9.4 Testing: Paragraph (2)

CEN Member Country	Relationship given in provisions valid in the place of use
BE	None fine as it is
CY	No
CZ	No
FI	No. General relationship is not given
FR	None (No specific French tests on these topics)
GR	No
IE	Yes: See NA.6.1
IT	No
NL	None
NO	No additional national provisions
PT	None: The provisions given in EN 206 are acceptable
RO	None
SE	Yes
CH	None; no need for other provisions.
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Three of the 16 replies (19 %) adopt this option.	

Table 25 — Clause 9.7 Batching of constituents: Paragraph (2)

CEN Member Country	Tolerance on batching constituents
BE	Addition on what to do in case of a small batch
CY	Yes
CZ	No
FI	Yes
FR	Yes
GR	No
IE	None: not required
IT	No
NL	Yes
NO	No additional national provisions
PT	None: The provisions given in EN 206 are acceptable
RO	None
SE	No
CH	None; no need for other provisions
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Five of the 16 replies (31 %) adopt this option.	

Table 26 — Clause 9.9 Production control procedures: Table 28, Row 3, Column 4

CEN Member Country	Frequency of testing weighing equipment
BE	None: Fine as it is
CY	Yes
CZ	No
FI	Yes
FR	Yes
GR	Yes, additional requirement at NA
IE	None: Not required.
IT	Yes
NL	None
NO	Yes. Each year
PT	Yes – At least once a year
RO	None
SE	No
CH	Yes
TR	Yes
UK	Yes
Summary Ten of the 16 replies (63 %) adopt this option.	

**Table 27 — Clause 10.2 Assessment, surveillance and certification of production control:
Paragraph (1)**

CEN Member Country	Requirement for assessment by a third party
BE	None: Not applied in Belgium
CY	No
CZ	No
FI	Yes
FR	None (certification is not mandatory)
GR	No
IE	None: Not required to 'standardize' in national provisions
IT	No
NL	None
NO	Yes. The concrete plant shall be certified
PT	Yes – For execution Classes 1 and 2
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Six of the 16 replies (38 %) adopt this option.	

Table 28 — Annex A.4 Test conditions: Paragraph (5)

CEN Member Country	Record of test results leading to the composition of standardized prescribed concrete
BE	None: No standardized prescribed concrete in BE
CY	None
CZ	Yes
FI	No. Not relevant.
FR	None
GR	None
IE	None: Mix details are specified in Annex NB (of NA document), based on previous history of use
IT	No
NL	None
NO	Standardized prescribed concrete is not within the scope of NS-EN 206+NA
PT	None: The standardized prescribed concretes are not used in Portugal
RO	None
SE	No
CH	None; not relevant since, a standardized prescribed concrete is not used.
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Two of the 16 replies (13 %) adopted this proposal. Five of the 16 replies indicated that they did not use standardized prescribed concrete.	

Table 29 — Annex D.2.1 Cement: Paragraphs (1) and (3)

CEN Member Country	Selection of cement types
BE	Yes
CY	Yes
CZ	No
FI	No. The values given in EN 206 are acceptable.
FR	Yes
GR	Yes, after Clause (3) the following is added: The use of cement types CEM II, CEM II/A-M, CEM II/B-M, CEM IV/A and CEM IV/B that have as their main constituent natural pozzolana (P), calcareous fly ash (W) and limestone (L or LL) are allowed.
IE	Yes: See NA.8.1
IT	Yes
NL	Yes
NO	The same provisions for cements as for normal concrete according to NS-EN 206+NA
PT	Yes – The use of cements is controlled by the exposure class. If it is allowed for the particular exposure class, there is no additional limitation for use in geotechnical applications.
RO	None
SE	No
CH	(1): Yes (3): Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes, but just to redirect to UK General requirements
Summary Eleven of the 16 replies (69 %) adopt this option.	

Table 30 — Annex D.3.3 Water/cement ratio: Paragraph (1)

CEN Member Country	Maximum w/c ratio
BE	None: No need for modification
CY	Yes
CZ	No
FI	No. The values given in EN 206 are acceptable
FR	None (Defined in annex NA F)
GR	No
IE	None: Other guidance provided
IT	Yes
NL	None
NO	The same provisions for w/c as for normal concrete according to NS-EN 206+NA
PT	None: The provisions given in EN 206 are acceptable
RO	None
SE	No
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes, but just to redirect to UK General requirements
Summary Four of the 16 replies (25 %) adopt this option.	

Table 31 — Annex D.3.4 Fresh concrete: Paragraph (2)

CEN Member Country	Other target values
BE	Yes: Reference to Bauer testing method
CY	No
CZ	No
FI	No. The values given in EN 206 are acceptable
FR	None (Rules are OK)
GR	No
IE	None: Not required
IT	Yes
NL	Yes
NO	The same provisions for fresh concrete as for normal concrete according to NS-EN 206+NA
PT	None: The provisions given in EN 206 are acceptable
RO	None
SE	No
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes, but just to redirect to UK General requirements
Summary Six of the 16 replies (38 %) adopt this option.	

**Table 32 — Annex F Recommendation for limiting values of concrete composition:
Paragraph (3)**

CEN Member Country	Limiting values
BE	Yes: Annex F has been completely rewritten based on Belgian experiences
CY	Yes
CZ	Yes
FI	Yes
FR	Yes
GR	Yes. Values the same but with additional cement types. Informative Annex F is Normative. After Paragraph (3) add: In the case of mix designs using aggregate with $D_{\max}$ as follows : — Greater than 32 mm and up to incl. 63 mm, reduce cement quantity by 20 kg/m ³ . — Greater than 8 mm and less than 20 mm, increase cement quantity by 20 kg/m ³ — Less than or equal to 8 mm, increase cement quantity by 40 kg/m ³ without modification of the W/C ratio
IE	The limiting values in this Table do not apply in Ireland. Alternative Tables with limiting values are included in the Irish NA and this is referenced in NA.2.10
IT	Yes
NL	None
NO	Yes. National provisions deviating from Table F.1 are given
PT	Yes – The cements allowed and the limiting values are established in LNEC E 464
RO	None
SE	Yes
CH	Yes
TR	None (value given in EN 206 is acceptable)
UK	Yes
Summary Thirteen of the 16 replies (81 %) give different national values and GR adopt the table but add additional requirements.	

**Table 33 — Annex F Recommendation for limiting values of concrete composition:
Table F.1, Footnote b**

CEN Member Country	Selection of sulfate-resisting cements
BE	Yes: Annex F has been completely rewritten based on Belgian experiences, reference to national standard
CY	Yes
CZ	Yes
FI	Yes
FR	Yes
GR	Yes
IE	The limiting values in this Table do not apply in Ireland. Alternative limiting values are provided in Table NA.7 of the Irish NA, with appropriate notes for sulphate exposure
IT	Yes
NL	None
NO	Yes. National provisions for sulphate resistant binder are given
PT	Yes – The cements considered as sulphate-resisting are listed in LNEC E 464
RO	None
SE	Yes
CH	Yes
TR	Yes
UK	Yes
Summary	
Fourteen of the 16 replies (88 %) provide guidance on what are regarded as sulfate-resisting cements.	

The adoption of these permissions ranges from as low as 13 % of the replies (Table 28: Record of test results leading to the composition of standardized prescribed concrete) to 100 % of the replies (Table 20: Definition of a production day).

2.4 Provisions valid in the place of use not mentioned in EN 206:2013, Annex M

As noted by some respondents, Table 34 should, in theory, be empty, but this is not the case.

This table includes the clauses where a CEN Member Country needed to amend or add to the provisions in EN 206 together with a summary of the amendment or addition to the text of EN 206. Clauses listed in Annex M of EN 206, where permission has been given to include provisions valid in the place of use, are not included in this table (see 2.3), nor are provisions covering matters that are not addressed in EN 206 (see 2.5).

The reply from Cyprus indicated that the respondent may have missed a few changes. They identified three changes but there may be 2 to 3 more not identified changes.

Table 34 — Provisions valid in the place of use not mentioned in EN 2006:2013, Annex M

Clause	Title of clause	Paragraph number
3.1.1.17	Specification of concrete	
FR: Changed to clarify that it may be a composite of several specifications from different parties		
3.1.1.18	Specifier	
FR: NOTE added listing specifiers		
3.1.1.21	Engineered concrete	
FR: New definition. Definition of a specific type of designed or prescribed concrete: “Béton d’ingénierie”		
3.1.2.18	Other constituents	
FR: New definition. Definition of ‘Other constituents’ not in 5.1 (e.g. glass fibers, viscosity agents)		
3.1.3.13	Total water content	
FR: Modified to include water contained in ‘Other constituents’		
4.3.1	Compressive strength classes	(1)
PT: For concrete with slow or very slow strength development, to be applied in massive structures, the resistance class may defined on basis of compressive strength at 90 days. GR: Three additional strength classes, C26/32, C28/35 and C32/40. IE: Five additional strength classes, C28/35, C32/40, C53/65, C57/70 and C75/90. SE: Four extra strength classes have been added for normal weight and heavy concrete: C28/35, C32/40, C54/65 and C58/70. These classes have been added to harmonize with Swedish design practice. UK: Three extra strength classes have been added for normal weight and heavyweight concrete: C6/8, C28/35 and C32/40 and two extra lightweight concrete compressive strength classes, LC28/31 and LC32/35. These classes have been added to harmonize with UK design practice.		
5.1.3	Aggregates	No number, part of 5.1.3
NL: Recycled aggregates from crushed concrete: $\rho_{rd} \geq 2\,000\text{ kg/m}^3$ Recycled aggregates from crushed masonry: $\rho_{rd} \geq 1\,500\text{ kg/m}^3$		
5.1.6	Additions (including mineral fillers and pigments)	(1)
FR: Lists other additions SE: A table with requirements of mineral fillers have been added (denoted Table 5 – Requirements for fillers according to SS-EN 12620+A1:2008). TR: Trass is added to the list of additions		
5.1.7	Fibres	(1)
SE: A remark is given that more information is given in the material part of SS 812310 (“Fibre concrete – Design of fibre concrete structures”).		
5.1.8	Other constituents	
FR: New clause on ‘Other constituents’.		

Clause	Title of clause	Paragraph number
5.2.2	Selection of cement	
FR: Use of more than one cement limited to special cases NL: Always applicable CEM I; CEM II/A-S & CEM II/B-S; CEM II/A-V & CEM II/B-V; CEM II/B-T; CEM III/A & CEM III/B The suitability of other cements must be proven based on CUR-Recommendation 48. CEM III/C and VLH III/C or equivalent cement/addition combinations with clinker content < 20 % may be used in mass concrete.		
5.2.3.1	Selection of aggregates: General	
TR: Grading and particle size distribution determination shall be in conformity with Annex N of TS 13515. Requirements given in EN 12620+A1 must be fulfilled as given in Tables E.1 and E.2. Water absorption and particle density must be declared.		
5.2.3.3 & 5.2.3.4	Use of reclaimed/recycled aggregates	
FR: Additional requirements		
5.2.3.4	Aggregates from recycled construction materials	(1)
NL: Incorporation of Type A.1; A.2; B and C SE: A division of aggregates from recycled construction materials into two Classes, A and B, is made. The properties of the classes are defined, where reference is made to SS-EN 12620+A1:2008. It is also defined the percentages of each type that is allowed in different exposure classes (in Table 6 – Maximum percentage of the coarse aggregate that may be composed of recycled construction materials).		
5.2.4	Use of mixing water	
TR: Recycled water is not permitted for high strength concrete or for air-entrained concrete.		
5.2.5.2.1	k-value concept: General	
TR: If a Type II addition is used, the minimum cement content may be decreased to the limit given in 4 th row of TS EN 206, Tables F.1.1 and F.1.2.		
5.2.5.2.2	k-value for fly ash conforming to EN 450-1	(1) to (4)
SE: A higher k-value ($k = 0.5$) may be used for a certain fly ash combined with a certain cement if a sufficient high reactivity has been shown for the combination. See also Q12. TR: Fly ash may also be used with CEM II/B and CEM III/A&B. The maximum amount of fly ash to be taken into account shall be less than 15 % for the cements having main constituent D.		
5.2.5.3	Principles of the Equivalent Concrete Performance concept	(3)
GR: Add NOTE (1) Use of cements CEM I and CEM II is allowed, except types CEM II/B-LL and CEMII/B-L.		
5.2.5.4	Principles of the Equivalent Performance of Combinations Concept	(1) and (2).
SE: A procedure to use the EPCC-concept is proposed in Appendix O (normative) and P (informative).		
5.2.6	Use of admixtures	
FR: Modified to a total of 3 l/m ³ from admixtures plus the water in 'other constituents'. TR: For prestressed concrete elements, a requirement for air entrainment is introduced.		
5.2.7	Use of fibres	

Clause	Title of clause	Paragraph number
TR: Mixed steel fibres may be used in concrete production if there is an agreement between the supplier and user. Galvanized steel fibres are not permitted in prestressed concrete elements.		
5.2.8	Chloride content	No number, part of 5.2.8
CY: Limiting value when containing steel 0,4 but in public contracts mainly 0,2 % Limiting value when containing prestressing steel 0,1 % FR: Prescribed values GR: Table 15 is modified as follows: Category "Not containing steel reinforcement or other embedded metal with the exception of corrosion resisting lifting devices", Add additional category Cl 1,50 with 1,5 % Cl-content. In Notes, add Note d): The limit of 1,0 % of the Standard has been increased to 1,5 % where this is unavoidable from lack of acceptable quality water and is allowed for by the nature of the works.		
5.2.9	Concrete temperature	(1)
CY: Many words on this topic PT: The maximum temperature of concrete on delivery shall be 35 °C TR: The maximum temperature of concrete on delivery shall be 35 °C. There are additional requirements for mass concrete.		
5.3	Requirements related to exposure classes	
CH: Requirements on durability properties (carbonation, chloride, freeze-thaw, ASR and sulfate resistance.		
5.3.1	Requirements related to exposure classes: General	
FR: NOTE added referring to a French document of freeze-thaw resistance. NL: Table with minimum values for content of fine material in m^3/m^3 concrete, depending on D_{max} (maximum aggregate size). (fine material defined as $< 0,25 \text{ mm}$) Table with minimum values for air content that can be calculated as fine material in m^3/m^3 concrete. Incorporation and classification of "mass concrete" and adapted requirements to concrete composition for w/c ratio and MCC		
5.3.2	Limiting values for concrete composition	(3)
GR: Add the following clause: Cover requirements for reinforced concrete elements The requirements for minimum cover for durability are given in Table F-1. The total cover for structural elements and other requirements are specified in Eurocode 2 (EN 1992-1-1) and the GCCT currently in effect. For reasons of adequate durability to environmental actions, elements inside the building interior but in contact with expansion or seismic joints, shall be considered in general as being exposed to environmental actions.		
5.4.1	Consistence	
FR: Additional requirements for the measurement of consistence. TR: Limit values for consistence have been added into this clause.		
5.4.3	Air content	
TR: For concrete with high consistence, the minimum air content recommended in Annex F is changed.		
5.5.1.1	Strength: General	
FR: Other sizes of moulded specimens and their relationships NL: The concrete crushing machine must be calibrated		

Clause	Title of clause	Paragraph number
5.5.1.2	Compressive strength	
TR: 100 mm cube specimens and 100 × 200 mm cylinder specimens are allowed with correlation coefficients. Compressive strength at 56 or 90 days may be used if there is an agreement between the parties.		
5.5.3	Resistance to water penetration	
TR: Requirements for concrete with low water permeability are specified.		
6.1	Specification of concrete: General	(2)
FR: Permits only $D_{\max}$ to be specified.		
6.2.2	Basic requirements	(4)h
FR: Additional requirements specified. PT: The consistency Class S4 or higher is recommended to be specified for hot weather conditions and the duration of transport or discharge is expected to be high. In case of SCC, the segregation resistance shall be specified. TR: If compressive strength is determined for other than 28 days, this day shall be specified.		
6.2.3	Additional requirements	4 th bulletpoint
FI: Betonin pakkasenkestävyyden laadunvalvonta ja vaatimuksenmukaisuuden toteaminen (Frost resistance of concrete: quality control and attestation of conformity.) These instructions provide guidance to the attestation of conformity of the frost resistance and salt-frost resistance of concrete in Exposure Classes XF1 ... XF4, with a design working life of 50 or 100 years, including F- and P-factor methods. FR: Clarified that there are no specific performance classes for fibre concrete. TR: Agreement among specifier, producer and user for adequate air content is required.		
6.5	Engineered concrete	
FR: New clause on requirements for 'Engineered concrete'		
7.2	Information from the producer of the concrete to the user	(2)
FR: Additional requirements specified. PT: For the determination of r , the tests shall be performed at $2 \text{ d} \pm 4 \text{ h}$ and at $28 \text{ d} \pm 8 \text{ h}$.		
7.3	Delivery ticket for ready-mixed concrete	(1)
GR: Clause "name or mark of the certification body, if relevant" is changed as follows: For concrete with FPC, name or mark of the certification body For concrete without FPC, the designation "Without FPC"		
7.3	Delivery ticket for ready-mixed concrete	(2)

Clause	Title of clause	Paragraph number
FR: Additional information specified. GR: a) add reported property: — concrete density, in kg/m ³ b) in clauses: “type and strength class of cement, if specified” and “type of addition and admixture, if specified” “if specified” is deleted c) add: — addition of chemical admixture in situ, according to Clause 7.5 IE: Additional information permitted to be given on product data sheet (and not on each delivery ticket)		
7.5	Mix adjustments	
FR: No added water permitted. TR: No added water permitted on site.		
8.1	General	
FR: Conformity control for ‘Engineered concrete’ SE: Testing of the freeze-thaw resistance of concrete – frequency and criteria for acceptance are defined.		
8.2.1.1	Conformity compressive strength: General	
GR: Add at the end : “For concrete without FPC, identity testing according to Annex B is mandatory.” TR: In case of production interruption more than 12 months, the criteria for initial production shall be used.		
8.2.1.3.1	Comp. strength: Criteria individual results	
TR: For high strength concrete, $f_{ci} \geq 0.90 f_{ck}$		
8.2.1.3.2	Comp. strength: Criteria for mean strength	
FR: Control charts not accepted for conformity control GR: After Equation (3) in (5) add: The mean strength is evaluated from “n” non overlapping consecutive tests and if $\sigma < 3 \text{ N/mm}^2$, then σ is set to $\sigma = 3 \text{ N/mm}^2$ (Criterion 3)		
8.2.2.3	Conformity tensile splitting strength	
TR: If overlapping test results are used, the overlapping interval shall be declared to inspection body at initial production.		
8.2.3	Conformity control for properties other than strength	
CH: Provisions for testing and conformity criteria for durability properties (carbonation, chloride, freeze-thaw resistance)		
8.3	Conformity prescribed concrete	
TR: The tolerance for w/c ratio is $\pm 0,02$		
8.4	Action in case of non-conformity	
TR: More details for assessing the strength in the structure or in structural components are given.		
9.1	General	(1)

Clause	Title of clause	Paragraph number
CY: A Civil Engineer or similar field shall be responsible for the production at the concrete plant. GR: Add clarification: “(1) All concrete, whether with or without FPC, shall be the subject of ...”		
9.3	Recorded data and other documents	
TR: The records for production control shall be kept for a minimum duration of 5 years.		
9.4	Production Control – Testing	(1)
IE: Requirement that sampling and testing be carried out by competent personnel.		
9.5	Concrete composition and initial testing	(1)
SE: A procedure for testing freeze-thaw resistance for concrete in exposure class XF4 is defined. The procedure may also be applied for concrete in exposure class XF2 or XF3. TR: No need for new initial type tests within defined limits of equivalent cement.		
9.6	Personnel, equipment and installation	(1)
SE: Requirements of competence for personnel involved in production of fresh concrete are defined. A division is made into three competence classes: I-T, II-T and III-T. It is also defined at which situation the different competence classes apply (made in Table 10 – Requirements of competence). Reference is also made to Concrete Report 8 from the Swedish Concrete Association (Further education in the concrete area – Vidareutbildning inom betongområdet).		
9.6.1	Personnel	
NO: Norway has given requirements to education, practise and certification of the personnel on a concrete production plant. TR: For every concrete production plant, at least one competent technical personnel shall be present and the requirements for this personnel are defined.		
9.6.2.1	Storage of constituents	
TR: Suitable equipment for the homogenisation of liquid admixture before their use shall be available and used.		
9.6.2.2	Batching equipment	No number, part of 9.6.2.2
NL: Batching equipment must be allowed by the Dutch “Nederlands Meetinstituut” and calibrated when mandatory.		
9.6.2.3	Mixers	
FR: Mixers in the plant are capable of achieving a uniform distribution of the constituents, if mixing is not done in the plant homogeneity shall be proven.		
9.7	Batching tolerances	
FR: Other batching tolerances are given (not just for small loads) GR: Table requirements are modified to more strict values: Cement, Water, additions used at > 5 % mass of cement : ± 2 % of reqd. quantity Total aggregates: ± 3 % of reqd. quantity For each separate aggregate fraction: ± 3 % or $\pm 30 \text{ kg/m}^3$, of reqd. quantity, whichever is larger		
9.8	Mixing of concrete	
TR: For normal concrete, minimum 30 seconds of mixing is required unless homogeneity is proved via specific test.		
9.9	Production control procedures	