



BSI Standards Publication

**Further guidance on the application of
EN 13791:2019 and background to the provisions**

National foreword

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Further guidance on the application of EN 13791:2019 and background to the provisions

Guide pour l'application de la norme EN 13791:2019 et
contexte des spécifications

Weiterführende Anleitung zur Anwendung der EN
13791:2019 und Hintergrund zu den Regelungen

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Contents		Page
European foreword.....		4
Introduction		5
1	Scope	6
2	Symbols and abbreviated terms	6
3	General principles adopted for the revision	7
4	<i>In situ</i> compressive strength and other concrete properties assumed in the EN 1992-1-1 design process	8
4.1	General.....	8
4.2	Concrete compressive strength based on test specimens.....	9
4.3	Concrete compressive strength based on the strength of cores from the structure	11
5	Differences between test specimens and concrete in the structure.....	11
5.1	Introduction	11
5.2	Reference test specimen.....	12
5.3	Effects of the moisture condition on <i>in situ</i> specimens	13
5.4	Effect of maturity on concrete strength	14
5.5	Effects of curing.....	14
5.6	Effects of vibration.....	15
5.7	Effects of excess entrapped air	15
6	Testing variables that influence core strength	15
6.1	Introduction	15
6.2	Direction relative to the casting	15
6.3	Imperfections	15
6.4	Diameter of core	16
6.5	Length/diameter ratio	16
6.6	Flatness of end surfaces.....	16
6.7	Capping of end surfaces	16
6.8	Effect of drilling	16
6.9	Reinforcement.....	16
7	Scope in EN 13791:2019, Clause 1	17
8	Terms and definitions, symbols and abbreviations in EN 13791:2019, Clause 3.....	17
9	Investigation objective and test parameters in EN 13791:2019, Clause 4.....	18
10	Test regions and test locations in EN 13791:2019, Clause 5	18
11	Core testing and the determination of the <i>in situ</i> compressive strength in EN 13791:2019, Clause 6	18
12	Initial evaluation of the data set in EN 13791:2019, Clause 7.....	19
13	Estimation of compressive strength for structural assessment of an existing structure in EN 13791:2019, Clause 8	20
13.1	Based on core test data only (see EN 13791:2019, 8.1)	20
13.2	Based on a combination of indirect test data and core test data (see EN 13791:2019, 8.2).....	25
13.3	Use of indirect testing with selected core testing (see EN 13791:2019, 8.3).....	30

14	Assessment of compressive strength class of supplied concrete in case of doubt in EN 13791:2019, Clause 9	30
14.1	General in EN 13791:2019, 9.1	30
14.2	Use of core test data (see EN 13791:2019, 9.2).....	31
14.3	Indirect testing plus selected core testing (see EN 13791:2019, 9.3)	32
14.4	Screening test using general or specific relationship with an indirect test procedure (see EN 13791:2019, 9.4).....	32
14.5	Procedure where the producer has declared non-conformity of compressive strength in EN 13791:2019, 9.5	36
14.6	Use of comparative testing.....	36
	Annex A (informative) Examples of the calculations	39
A.1	Example A1: Calculating the rebound number	39
A.2	Example A2: Calculating the <i>in situ</i> strength from core test data	41
A.2.1	Example A2.1	41
A.2.2	Example A2.2	41
A.3	Example A3: Assessing the data for a test region to check whether it contains two or more compressive strength classes	42
A.4	Example A4: Check for statistical outliers	45
A.5	Example A5: Calculation of characteristic <i>in situ</i> compressive strength from core test data	47
A.6	Example A6: Establishing a correlation between an indirect test and <i>in situ</i> compressive strength.....	48
A.7	Example A7: Using combined indirect testing and core testing to estimate the characteristic <i>in situ</i> compressive strength and the compressive strength at a location where only an indirect test result is available.....	52
A.8	Example A8: Estimating the characteristic <i>in situ</i> compressive strength using indirect testing and three cores taken from the weaker area.....	55
A.8.1	Example A8.1	55
A.8.2	Example A8.2	55
A.9	Example A9: Screening test using a generic relationship	56
A.10	Example A10: Screening test using a rebound hammer that has been calibrated against test specimens made from the same concrete.....	59
A.11	Example A11: Assessment of compressive strength class of concrete as placed using indirect testing and selected core test data	63
A.12	Example A12: Assessment of compressive strength class of recently supplied concrete using core test data only	64
	Bibliography	66

European foreword

This document (CEN/TR 17086:2020) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by Standards Norway.

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This document should be read in conjunction with EN 13791:2019.

Introduction

(1) To achieve a balanced standard, CEN/TC 104/SC 1/TG 11 comprises experts with different backgrounds and affiliations. The membership of TG 11 is given in Table 1.

Table 1 — Membership of the European Technical Standard Committee, CEN/TC 104/SC 1/TG 11, responsible for the revision of EN 13791

Member	Affiliation
Professor Tom Harrison	Convenor
Dr Chris Clear	Secretary
Vesa Anttila	Rudus, Finland
Prof. Wolfgang Breit (papers only)	Technische Universität Kaiserslautern, Germany
Dr Neil Crook	The Concrete Society, UK
Ir. F.B.J. (Jan) Gijsbers	CEN/TC250/SC2
Bruno Godart	IFSTTAR, France
Dr. Arlindo Gonçalves	Laboratório Nacional de Engenharia Civil, Portugal
Christian Herbst	JAUSLIN + STEBLER INGENIEURE AG, Switzerland
Rosario Martínez Lebrusant	Jefe del Área de Certificación y Hormigones, Spain
Dorthe Mathiesen (papers only)	Danish Technological Institute, Denmark
David Revuelta	Instituto Eduardo Torroja, Spain
Dr.-Ing. Björn Siebert followed by Dr Enrico Schwabach	Deutscher Beton- und Bautechnik-Verein E.V.
Prof. Johan Silfwerbrand	Swedish Cement and Concrete Research Institute, Sweden
Ceyda Sülün followed by Francesco Biasioli	ERMCO
José Barros Viegas (papers only)	BIBM
Dr.-Ing. Ulrich Wöhl	German expert and member of former TG11
Christos A Zeris (papers only)	National Technical University of Athens, Greece

(2) In addition, guidance on rebound hammer and pulse velocity testing was provided by David Corbett of Proceq, Switzerland and statistical help with combining core and indirect test results was provided by André Monteiro of the Laboratório Nacional de Engenharia Civil, Portugal.

(3) Contact and exchange of information was also maintained with RILEM Technical Committee TC ISC 249, which works on onsite non-destructive assessment of concrete strength.

(4) Where a reference is cited to a paragraph without being preceded by a reference to a standard, e.g. EN 13791:2019, Clause 6, the reference is to a paragraph in this document. For example '13.3 (2)' means paragraph (2) in 13.3 of this document.

1 Scope

This document explains the reasoning behind the requirements and procedures given in EN 13791 [1] and why some concepts and procedures given in EN 13791:2007 [2] were not adopted in the 2019 revision. The annex comprises worked examples of the procedures given in EN 13791:2019.

2 Symbols and abbreviated terms

For the purposes of this document, the following symbols and abbreviated terms apply.

CLF	core length factor
CoV	coefficient of variation
f_c or $f_{c,cube}$	compressive strength of standard test specimens, 2:1 cylinder or cube
$f_{c,1:1core}$ or $f_{c,2:1 core}$	core compressive strength associated with a length: diameter ratio of either 1:1 or 2:1
f_{cd}	design compressive strength in the structure
f_{ck}	minimum characteristic compressive strength of test specimens based on 2:1 cylinders
$f_{ck, cube}$	minimum characteristic compressive strength of test specimens based on cubes
$f_{c,is}$	<i>in situ</i> compressive strength
$f_{ck,is}$	characteristic <i>in situ</i> compressive strength (expressed as the strength of a 2:1 core of diameter ≥ 75 mm)
$f_{ck,is,28}$	assumed characteristic compressive strength in the structure
$f_{ck,is, > 28}$	assumed characteristic compressive strength in the structure after 28 days
$f_{ck,spec}$	specified minimum characteristic strength
$f_{ck,spec,cube}$	specified minimum characteristic cube strength (Some CEN members specify cube strength)
$f_{c,is,highest}$	highest value of $f_{c,is}$ for a set of 'n' results.
$f_{c,is,lowest}$	lowest value of $f_{c,is}$ for a set of 'n' results
$f_{c,is,est}$	estimated <i>in situ</i> compressive strength at a specific test location
$f_{c,is,reg}$	indirect test value converted to its equivalent <i>in situ</i> compressive strength using a regression equation
$f_{c,m}$	mean (average) concrete compressive strength of 2:1 test cylinders
$f_{c,m(n)is}$	mean (average) value of a set of 'n' values of $f_{c,is}$
k_n	factor applied to the sample standard deviation
k_t	reduction factor for α_{cc}
m	number of valid indirect test results in test region under investigation
n	number of core test results
p	number of parameters of the correlation curve
R^2	coefficient of determination