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BSI Standards Publication

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

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National foreword

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

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

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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 + STEFFER 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 Wöhnl	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 Procon, 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
$f_{c,is}$	*in situ* compressive strength
$f_{ck,is}$	characteristic *in situ* 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 *in situ* compressive strength at a specific test location
$f_{c,is,reg}$	indirect test value converted to its equivalent *in situ* 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}
n	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