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BSI Standards Publication

PUBLISHED DOCUMENT

Background information to the National Annex to BS EN 1991-1-4 and additional guidance

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Contents

Summary of pages
This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 92, an inside back cover and a back cover.

Foreword

Publishing information

This Published Document is published by BSI and came into effect on 31 December 2015. It has been prepared by Working Group 2 of BSI Subcommittee B/525/1, *Actions (loading) and basis of design*, under the authority of Technical Committee B/525, *Building and civil engineering structures*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This Published Document supersedes PD 6688-1-4:2009, which is withdrawn.

Information about this document

The new edition of this Published Document introduces the following principal changes:

a) Annex B inserted; and

b) further reading updated.

Relationship with other publications

This Published Document gives non-contradictory complimentary information for use in the UK with BS EN 1991-1-4:2005 and its UK National Annex.

NOTE BS EN 1991-1-4 contains guidance applicable to all structures. Therefore, B/525/10, which is responsible for Eurocodes for the design of bridges, was consulted in the drafting of this Published Document.

Use of this document

This publication is not to be regarded as a British Standard.

As a guide, this Published Document takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this Published Document is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions in this Published Document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

The word "should" is used to express recommendations of this Published Document. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this Published Document. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

This Published Document uses the decimal comma.

Contractual and legal considerations

This publication does not purport to include all necessary provisions of a contract. Users are responsible for its correct application.

This Published Document is not to be regarded as a British Standard

Introduction

When there is a need for guidance on a subject that is not covered by the Eurocode, a country can choose to publish documents that contain non-contradictory complimentary information that supports the Eurocode. This Published Document provides just such information and has been cited as a reference in the National Annex to BS EN 1991-1-4:2005.

1 Scope

This Published Document is a background paper that gives non-contradictory complementary information for use in the UK with BS EN 1991-1-4:2005 and its UK National Annex.

This Published Document gives:

a) background to the decisions made in the National Annexes for some of the Nationally Determined Parameters;

b) commentary on some specific subclauses from BS EN 1991-1-4:2005; and

c) additional data that can be used in conjunction with BS EN 1991-1-4:2005.

2 UK National Annex to BS EN 1991-1-4:2005

2.1 The fundamental value of the basic wind velocity $v_{b,0}$ [NA to BS EN 1991-1-4:2005, NA.2.4]

The fundamental value of basic wind velocity $v_{b,0}$ is defined as the 10-minute mean wind velocity with a 0,02 annual risk of being exceeded, irrespective of direction and season, at 10 m above ground level in terrain Category II, which is defined as open country with low vegetation and isolated obstacles with separations of at least 20 obstacle heights.

While the 10-minute averaging period is the meteorological standard for much of continental Europe, some individual countries use 1 hour, including the UK and Germany. Both these countries have adopted a factor of 1,06 to adjust the measured 1-hour average data to the 10-min period, based on empirical calibrations.

In the UK the basic wind velocity is obtained from: $v_{b,0} = v_{b,map} c_{alt}$

"Map" values, $v_{b,map}$ may be found in the UK wind map, which gives values that have been adjusted to sea level and to Category II roughness everywhere. The UK map is similar to the map in BS 6399-2:1997, except that the source data record has been increased from 11 years to 30 years and the original hourly-mean values have been factored up by 1,06 to represent 10-minute mean values. Thus the map in the National Annex is statistically more accurate.

Altitude factor c_{alt} and corrections to account for changes of surface roughness are both National Choices. The former reduces the need to assess the effects of hills (orography) in many cases, while the latter allows conservatism to be reduced for sites further downwind of a coast or town boundary.