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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

Foreword *iii*

Introduction *1*

- 1** Scope *1*
- 2** UK National Annex to BS EN 1991-1-4:2005 *1*
- 3** Data that can be used in conjunction with BS EN 1991-1-4:2005 *11*

Annexes

- Annex A (informative) Vortex shedding and aeroelastic instabilities *21*
- Annex B (informative) Along-wind response of lattice towers *52*
- Bibliography *90*

List of figures

- Figure 1 – An example of altitude correction factors *2*
- Figure 2 – Hill parameters in undulating terrain *4*
- Figure 3 – Typical examples of buildings with re-entrant corners and recessed bays *12*
- Figure 4 – Examples of flush irregular walls *13*
- Figure 5 – Keys for walls of inset storey *14*
- Figure 6 – Key for inset storey *15*
- Figure 7 – Key to canopies attached to buildings *15*
- Figure 8 – Wind directions for a rectangular plan building *17*
- Figure 9 – Key for vertical walls of buildings *19*
- Figure 10 – Definitions of crosswind breadth and in wind depth *19*
- Figure A.1 – Strouhal number St for rectangular cross-sections with sharp corners *25*
- Figure A.2 – Strouhal number St for bridge decks *25*
- Figure A.3 – Bridge types and reference dimensions *27*
- Figure A.4 – Bridge deck details *28*
- Figure A.5 – Basic value of the lateral force coefficient $c_{lat,0}$ versus Reynolds number $Re(v_{crit,i})$ *32*
- Figure A.6 – Examples for application of the correlation length L_j ($j = 1, 2, 3$) *33*
- Figure A.7 – In-line and grouped arrangements of cylinders *37*
- Figure A.8 – Geometric parameters for interference galloping *48*
- Figure A.9 – Rate of change of aerodynamic moment coefficient $dc_M/d\theta$ with respect to geometric centre "GC" for rectangular section *49*
- Figure B.1 – Gust peak factor (Davenport's g) *54*
- Figure B.2 – Definition of fetch for two roughness changes *56*
- Figure B.3 – Fictitious square lattice tower with 12 panels *60*
- Figure B.4 – Illustration of parameters for shear patch loading *77*

List of tables

- Table 1 – Global vertical force coefficients for canopies attached to tall buildings *15*
- Table 2 – Internal pressure coefficients c_{pi} for open-sided buildings *16*
- Table 3 – Internal pressure coefficients c_{pi} for open-topped vertical cylinders *16*
- Table 4 – External pressure coefficients C_{pe} for vertical walls of rectangular-plan buildings *19*
- Table 5 – Reduction factors for zone A on vertical walls of polygonal-plan buildings *20*
- Table A.1 – Strouhal numbers St for different cross-sections *24*
- Table A.2 – Basic value of the lateral force coefficient $c_{lat,0}$ for different cross-sections *31*
- Table A.3 – Lateral force coefficient c_{lat} versus critical wind velocity ratio $v_{crit,i}/v_{m,Lj}$ *32*

Table A.4 – Effective correlation length L_j as a function of vibration amplitude $y_F(s_j)$	34
Table A.5 – Correlation length factor K_W and mode shape factor K for some simple structures	35
Table A.6 – Constants for determination of the effect of vortex shedding	39
Table A.7 – Assessment of vortex excitation effects	42
Table A.8 – Factor of galloping instability a_G	44
Table A.9 – Data for the estimation of crosswind response of coupled cylinders at in-line and grouped arrangements	45
Table B.1 – Length scale zL_u for a single roughness change from sea to country terrain, for an upwind fetch from site to sea of x (km)	54
Table B.2 – Length scale for zL_u for two roughness changes where $x_1 = 0,1$ km for an upwind fetch of x km	56
Table B.3 – Length scale for zL_u for two roughness changes where $x_1 = 0,3$ km for an upwind fetch of x km	57
Table B.4 – Length scale for zL_u for two roughness changes where $x_1 = 1$ km for an upwind fetch of x km	57
Table B.5 – Length scale for zL_u for two roughness changes where $x_1 = 3$ km for an upwind fetch of x km	58
Table B.6 – Length scale for zL_u for two roughness changes where $x_1 = 10$ km for an upwind fetch of x km	58
Table B.7 – Length scale for zL_u for two roughness changes where $x_1 = 30$ km for an upwind fetch of x km	59
Table B.8 – Meteorological parameters	61
Table B.9 – Non-dimensional coefficients, wind forces and wind moments	62
Table B.10 – Values of $\gamma(z)$ $\gamma(z')$	63
Table B.11 – Values of $C(z-z')$	64
Table B.12 – Values of $\gamma(z)$ $\gamma(z')$ $C(z-z')$	64
Table B.13 – Non-dimensional coefficients and wind forces	66
Table B.14 – Values of $\gamma(z)$ $\gamma(z')$	67
Table B.15 – Values of $\gamma(z)$ $\gamma(z')$ $C(z-z')$	67
Table B.16 – Non-dimensional coefficients, wind forces and moments	68
Table B.17 – Values of $\gamma(z)$ $\gamma(z')$	70
Table B.18 – Values of $C(z-z')$	71
Table B.19 – Values of $\gamma(z)$ $\gamma(z')$ $C(z-z')$	71
Table B.20 – Non-dimensional coefficients and wind forces	73
Table B.21 – Values of $\gamma(z)$ $\gamma(z')$	74
Table B.22 – Values of $\gamma(z)$ $\gamma(z')$ $C(z-z')$	74
Table B.23 – Non-dimensional coefficients and wind forces	76
Table B.24 – Lever arms, wind loads and moments above z_{ip}	78
Table B.25 – Lever arms, wind loads and moments below z_{ip}	78
Table B.26 – Values of $\gamma(z)$ $\gamma(z')$	80
Table B.27 – Values of $C(z-z')$	81
Table B.28 – Values of $\gamma(z)$ $\gamma(z')$ $C(z-z')$	81
Table B.29 – Meteorological parameters	83
Table B.30 – Non-dimensional coefficients, wind forces and wind moments	83
Table B.31 – Values of $\gamma(z)$ $\gamma(z')$	85
Table B.32 – Values of $C(z-z')$	86
Table B.33 – Values of $\gamma(z)$ $\gamma(z')$ $C(z-z')$	86
Table B.34 – Large ancillary wind resistance	88

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.

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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.