

SINGAPORE NATIONAL ANNEX

NA to SS EN 1991-1-4 : 2009

(ICS 91.010.30)

Singapore National Annex to Eurocode 1: Actions on structures

Part 1-4 : General actions – Wind actions

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National Foreword

This National Annex was prepared by the Technical Committee on Building Structure and Sub-structure under the purview of the Building and Construction Standards Committee.

This standard makes reference to UK National Annex (NA to BS EN 1991-1-4:2005) to Eurocode 1 : Actions on structures. Part 1-4 : General actions – Wind actions.

Acknowledgement is made to BSI for the use of information from the above publication.

This Singapore NA contains information on those parameters which are left open in EN 1991-1-4 for national choice, known as nationally determined parameters. The Singapore NA is to be read in conjunction with the SS EN 1991-1-4 : 2009 – Eurocode 1 : Actions on structures – Part 1-4: General actions – Wind actions. However, the terrain categories in EN 1991-1-4 are not applicable in Singapore.

For continuation of an established design philosophy, all buildings should be capable of resisting, as a minimum, a design ultimate horizontal load applied at each floor or roof level simultaneously equal to 1.5 % of the characteristic dead weight of the structure between mid-height of the storey below and either mid-height of the storey above or the roof surface. The design ultimate wind load should not be taken as less than this value when considering load combinations.

At the time of publication, this standard is expected to be used as a reference in the Building and Construction Authority's 'Approved Document – Acceptable Solutions'.

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

NOTE

1. *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The changes in Singapore Standards are documented through the issue of either amendments or revisions.*
2. *Compliance with a Singapore Standard does not exempt users from legal obligations.*

Singapore National Annex to SS EN 1991-1-4 : 2009 – Eurocode 1: Actions on structures – Part 1-4 : General actions – Wind actions

NA.1 Scope

This National Annex gives:

- a) the Singapore decisions for the nationally determined parameters or alternative procedures for the following clauses of SS EN 1991-1-4:

– 1.1 (11) Note 1	– 7.4.3 (2)
– 1.5 (2)	– 7.6 (1) Note 1
– 4.1(1)	– 7.7 (1) Note 1
– 4.2 (1) P Note 2	– 7.8 (1)
– 4.2 (2) P Notes 1, 2, 3 and 5	– 7.10 (1) Note 1
– 4.3.1 (1) Notes 1 and 2	– 7.11 (1) Note 2
– 4.3.2 (1)	– 7.13 (1)
– 4.3.2 (2)	– 7.13 (2)
– 4.3.3 (1)	– 8.1 (1) Notes 1 and 2
– 4.3.4 (1)	– 8.1 (4)
– 4.3.5 (1)	– 8.1 (5)
– 4.4 (1) Note 2	– 8.2 (1) Note 1
– 4.5 (1) Note 1	– 8.3 (1)
– 4.5 (1) Note 2	– 8.3.1 (2)
– 5.3 (5)	– 8.3.2 (1)
– 6.1 (1)	– 8.3.3 (1) Note 1
– 6.3.1 (1) Note 3	– 8.3.4 (1)
– 6.3.2 (1)	– 8.4.2 (1) Note 1
– 7.1.2 (2)	– A.2 (1)
– 7.1.3 (1)	– E.1.3.3 (1)
– 7.2.1 (1) Note 2	– E.1.5.1 (1) Notes 1 and 2
– 7.2.2 (1)	– E.1.5.1 (3)
– 7.2.2 (2) Note 1	– E.1.5.2.6 (1) Note 1
– 7.2.8 (1)	– E.1.5.3 (2) Note 1
– 7.2.9 (2)	– E.1.5.3 (4)
– 7.2.10 (3) Notes 1 and 2	– E.1.5.3 (6)
– 7.4.1 (1)	– E.3 (2)
- b) the Singapore decisions on the status of SS EN 1991-1-4, informative Annexes A, B, C, D, E and F (see NA.3); and
- c) references to non-contradictory complementary information (see NA.4).

NA.2 Nationally determined parameters

NA.2.1 Guidance for design of torsional vibrations, bridge deck vibrations, cable supported bridges, higher order modes of vibration [SS EN 1991-1-4, 1.1 (11) Note 1]

No additional guidance is given for torsional vibrations, e.g. for tall buildings with relatively low torsional frequencies and/or a significantly offset shear centre.

For bridge deck vibrations from transverse wind turbulence the procedures given in Background paper PD 6688-1-4 should be used.