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AS/NZS 1170.2:2002
(Incorporating Amendment No. 1)

Australian/New Zealand Standard™

Structural design actions

Part 2: Wind actions

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-006, General Design Requirements and Loading on Structures. It was approved on behalf of the Council of Standards Australia on 29 March 2002 and on behalf of the Council of Standards New Zealand on 28 March 2002.
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The following are represented on Committee BD-006:

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, BD-006, General Design Requirements and Loading on Structures, to supersede AS 1170.2—1989, *Minimum design loads on structures*, Part 2: *Wind loads*, and in part Part 5 of NZS 4203:1992, *Code of practice for general structural design and design loading for buildings*.

*This Standard incorporates Amendment No. 1 (*April 2005*). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

This Standard is published as a joint Standard (as are also AS/NZS 1170.0 and AS/NZS 1170.1) and it is intended that it is suitable for use in New Zealand as well as Australia. However, NZS 4203, *General structural design and design loadings for buildings* remains current in New Zealand until the publication of all parts (including Part 4: Earthquake action) and for a transition period afterwards.

This Standard will be referenced in the Building Code of Australia by way of BCA Amendment 11 to be Published on 1 July 2002, thereby superseding the previous edition, AS 1170.2—1989, which will be withdrawn 12 months from the date of publication of this Edition.

The objective of this Standard is to provide designers of structures with wind actions for use in the design of structures subject to wind action. It provides a detailed procedure for the determination of wind actions on structures, varying from those less sensitive to wind action to those for which dynamic response must be taken into consideration.

This Standard is Part 2 of the AS/NZS 1170 series *Structural design actions*, which comprises the following parts, each of which will have an accompanying Commentary published as a Supplement:

Part 0: General principles

Part 1: Permanent, imposed and other actions

Part 2: Wind actions

Part 3: Snow and ice actions

Part 4: Earthquake action

The Commentary to this Standard is AS/NZS 1170.2 Supp 1, *Structural design actions—Wind actions—Commentary* (Supplement to AS/NZS 1170.2:2002).

The wind speeds provided are based on existing data. At the time of drafting, it was considered that there was insufficient evidence to indicate any trend in wind speeds due to climatic change.

This Standard is based on ISO 4354, *Wind actions on structures*. ISO 4354 gives general format and guidance on detail for the drafting of national Standards on wind actions.

This edition differs from the previous editions as follows:

(a) The format of ISO 4354 has been adopted except that the effects of exposure are applied to the wind speed to give directional site wind speeds before conversion to pressure (see Note to Clause 2.4).

(b) Importance factors have been replaced with variable annual probability of exceedance, to enable reliability-based design. Values of wind speed are determined using the annual probability of exceedance (see AS/NZS 1170.0).

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(c) It is a joint Standard intended for use in Australia and New Zealand.

(d) Average roof height is used to calculate wind pressures for rectangular enclosed buildings.

(e) Actions determined from wind tunnel tests or other methods are not covered through the 'deemed-to-comply' solution given in this Standard, but must be separately established (by a special study; see AS/NZS 1170.0).

(f) A simplified procedure is not included.

(g) Wind speeds for permissible stress design are not included (see the Commentary, AS/NZS 1170.2 Supp 1).

(h) Directional wind speed multipliers have been revised and extended beyond the capital cities in Australia.

(i) Generally, the clauses have been updated to incorporate the latest research and to improve useability. The following new information has been included:

  (i) Elevation effect for Tasmania.

  (ii) Separation zone for crests of steeper slopes.

  (iii) Combination factor for major structural members.

  (iv) Parapet reduction factor.

  (v) Hyperbolic paraboloid roofs.

  (vi) Methods for open lattice structures and lattice towers (including ancillaries).

  (vii) Flags and spheres.

(j) The calculation of dynamic wind response has been simplified and the use of an hourly mean wind speed for dynamic analysis has been replaced with the 3 s gust. When dynamic response is to be determined, a single additional factor is determined.

The Joint Committee has considered exhaustive research and testing information from Australian, New Zealand and overseas sources in the preparation of this Standard. The design wind actions prescribed in this Standard are the minimum for the general cases described.

Particular acknowledgment should be given to Monash University, University of Queensland, James Cook University, Curtin University of Technology, Building Research Association of New Zealand, Bureau of Meteorology (Aust) and National Institute of Water and Atmospheric Research (NZ) for their contributions to the drafting of this Standard.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be an integral part of this Standard.

Notes to the text contain information and guidance and are not considered to be an integral part of the Standard.

A1 Essentially, AS/NZS 1170.2 is independent of the design requirement specified—thus becoming a purely technical document. It may be used to calculate wind speeds, wind pressures and wind forces given *any* annual probability of exceedance. The annual probability of exceedance (P) defines the wind event (in which pressures and forces occur). Thus a major wind storm with an annual probability of exceedance in the range of 1/200 to 1/2500 is used for ultimate limit states, while a much more frequent wind event (say of 1/25) might be used for serviceability limit states.

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