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AS/NZS 1170.3:2003
(Incorporating Amendment Nos 1 and 2)

AS/NZS 1170.3:2003

Australian/New Zealand Standard™

Structural design actions

Part 3: Snow and ice actions

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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 1170.3—1990, *Minimum design loads on structures*, Part 3: *Snow loads* and, in part, NZS 4203:1992, *Code of Practice for General Structural Design and Design Loadings for Buildings*.

This Standard incorporates Amendment No. 1 (April 2007) and Amendment No. 2 (June 2017). 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 and it is intended 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.

A1

The objective of this Standard is to provide designers of structures with values for snow and ice actions for use in the limit states design of structures subject to such actions.

A1 This Standard is Part 3 of the AS/NZS 1170 series, *Structural design actions,* which comprises the following parts, each of which has an accompanying Commentary published as a Supplement:

AS/NZS
1170.0 Part 0: General principles
1170.1 Part 1: Permanent, imposed and other actions
1170.2 Part 2: Wind actions
1170.3 Part 3: Snow and ice actions

AS
1170.4 Part 4: Earthquake actions

NZS
1170.5 Part 5: Earthquake actions—New Zealand

A1 The Commentary to this Standard is AS/NZS 1170.3 Supp 1, *Structural design actions—Snow and ice actions—Commentary* (Supplement to AS/NZS 1170.3:2003).

The Commentary gives background to the Clauses of the Standard. It also gives worked examples and information on issues such as siting of buildings, placing of doors, chimneys and similar and detailing of guttering, valleys, ridges, protrusions and cladding.

This Standard is not equivalent to ISO 4355:1998, *Bases for design of structures—Determination of snow loads on roofs*; however, ISO 4355 is drafted only as a guide to preparation of national Standards and the format given in ISO 4355 has been adopted in principle. A number of other Standards were consulted, including ENV 1991-2-3:1995, *Basis of design and actions on structures*, Part 2.3: *Actions on structures—Snow loads*.

This Standard is not equivalent to ISO 12494:2001, *Atmospheric icing of structures.* The adoption of this ISO Standard would have involved the collection of data on ice accumulation in Australia or New Zealand, which were not available at the time of publication.

Major changes from the previous editions of this Standard include the following:

(a) Amalgamation of Australian and New Zealand Standards.

(b) ISO 4355 has been adopted, where possible.

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(c) Incorporating changes resulting from the use of annual probabilities of exceedance (found for Australia in the Building Code of Australia and for New Zealand in AS/NZS 1170.0). (An amendment will accompany the publication of this Standard to change AS/NZS 1170.0, to remove the Appendix E, which provided adjustment of the 1990 edition of AS 1170.3.)

(d) Reassessment of snow loads and factors for varying probability of exceedance of load have been included to bring the Standard into accordance with AS/NZS 1170.0.

(e) Changing the factor for combinations involving snow (given in AS/NZS 1170.0) has been changed to 1.0 from 1.5 and 1.2 (Australia and New Zealand respectively) due to the introduction of annual probability of exceedance (see Clause 5.2).

(f) For New Zealand, introduction of alpine and sub-alpine regions.

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

A1 *AS/NZS 1170.3 is independent of the design requirement specified—thus becoming a purely technical document. It may be used to calculate snow depths and roof loads given any annual probability of exceedance. The annual probability of exceedance (P) defines the snow or ice event (in which pressures and forces occur). Thus a high accumulation of snow with an annual probability of exceedance in the range of 1/200 to 1/2000 is used for ultimate limit states, while a much more frequent event (say of 1/20 or 1/25) might be used for serviceability limit states.*

In AS/NZS 1170.3, Section 5 gives the ground snow loads factored for selected annual probabilities of exceedance using the probability factor kP and Section 4 sets out the determination of the snow actions (roof loads) that are appropriate for the annual probability specified.

The annual probability of exceedance is not defined in AS/NZS 1170.3, but is set out in AS/NZS 1170.0 [and by further reference for ultimate limit states in the BCA (Table of annual probabilities of exceedance) and in the Guide to the BCA (examples of structures for importance levels)]. AS/NZS 1170.0 gives requirements for New Zealand structures and for Australian structures not covered by the BCA. Guidance for serviceability events and associated limits is given in an informative Appendix of AS/NZS 1170.0 for loads associated with an appropriate annual probability of exceedance (P) for serviceability.

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