AS/NZS 1170.3 Supplement 1:2003

Structural design actions—Snow and ice actions—Commentary (Supplement to AS/NZS 1170.3:2003)

Standards Australia

STANDARDS NEW ZEALAND
Paerewa Aotearoa

This Joint Australian/New Zealand Standard supplement 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 28 March 2003 and on behalf of the Council of Standards New Zealand on 24 June 2003. It was published on 4 July 2003.

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This Standard was issued in draft form for comment as DR 01218 (in part).

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Originated in Australia as AS 1170.3 Supp 1—1990.
Originated in New Zealand as part of NZS 4203:1992.
AS 1170.3 Supp 1—1990 and NZS 4203:1992 jointly revised,
amalgamated and redesignated in part as AS/NZS 1170.3 Supp 1:2003.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 5181 4

PREFACE

This Commentary was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-006, General Design Requirements and Loading on Structures, as a Supplement to AS/NZS 1170.3:2003 *Structural design actions*, Part 3: *Snow and ice actions*. This Commentary supersedes AS 1170.3—1990, *Minimum design loads on structures—Snow loads—Commentary* (Supplement to AS 1170.3—1990) and, in part, NZS 4203:1992, *Code of practice for general structural design and design loadings for buildings (Vol. 2)*.

The Commentary provides background material and guidance to the requirements of the Standard.

The clause numbers of this Commentary are prefixed by the letter 'C' to distinguish them from references to the Standard clauses to which they directly relate. Where a Commentary to a certain Clause is non-existent, it is because no explanation of the Clause is necessary.

It also provides advice and guidance on certain types of snow loads that cannot at this stage be covered by the Standard requirements (see Appendix CB on avoidance of common problems).

Worked examples that illustrate the application of some of the requirements of the Standard are given in Appendix CD.

ACKNOWLEDGEMENT

Standards Australia wishes to acknowledge and thank the following member who has contributed significantly to this Commentary:

Professor Peter Moss.

The photographs reproduced in Appendix CE of this Commentary were originally published in HB106: *Guidelines for Design of Structures in Snow Areas*, produced by the Institution of Engineers Australia. They are included here courtesy of the Institution of Engineers Australia and the Kosciusko National Parks and Wildlife Service.

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SECTION 1 SCOPE AND GENERAL

C1.1 SCOPE

This Commentary is intended to be read in conjunction with AS/NZS 1170.3:2003 (Ref. 1). The Commentary includes explanations of the provisions of AS/NZS 1170.3 and, in some cases, suggests approaches that may satisfy the intent of the Standard. Commentary Clauses are not mandatory.

Appendices contain additional information on design and worked examples as follows (see also HB 106 (Ref. 3)):

(a) Appendix CA—background to the loading equations and format of the Standard, including extracts from ISO 4355 (Ref. 2).

(b) Appendix CB—common problems and their avoidance.

(c) Appendix CC—methods for determining terrain classification.

(d) Appendix CD—worked examples.

For assessment of snow action, the Standard considers the uniform snow that accumulates under calm air conditions, the shape of the roof and the snow pattern on the roof caused by windy conditions. For vertical loads on roofs, these influences are described in terms of shape coefficients (μ_i).

Methods are given for use in alpine areas where snow may accumulate for 3 or 4 months and for sub-alpine areas where it only lasts for a few days. Sub-alpine areas are where wind speeds are high and weather conditions are such that all the snow normally melts and clears between individual weather systems.

A load case corresponding to severe imbalances resulting from snow removal, redistribution, sliding, melting, etc. (e.g., zero snow load on specific parts of the roof) should always be considered. Such considerations are important for structures that are sensitive to the form of the load distribution (e.g., curved roofs, arches, domes or other structures).

C1.2 APPLICATION

C1.3 REFERENCED DOCUMENTS

Documents referred to in this Supplement are as follows:

1 AS/NZS 1170.3, *Structural design actions*, Part 3: *Snow and ice actions*, Standards Australia.

2 ISO 4355, *Bases for design of structures—Determination of snow loads on roofs*, International Organization for Standardization.

3 HB 106, *Guidelines for design of structures in snow areas*, Standards Australia.