



# **Masonry in small buildings**

## **Part 1: Design**



This Australian Standard® was prepared by Committee BD-004, Masonry Structures. It was approved on behalf of the Council of Standards Australia on 3 August 2015. This Standard was published on 18 August 2015.

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The following are represented on Committee BD-004:

- Australian Building Codes Board
  - Australian Institute of Building Surveyors
  - Building Designers Association of Australia
  - Cement Concrete and Aggregates Australia—Cement
  - Concrete Masonry Association of Australia
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  - Galvanizers Association of Australia
  - Housing Industry Association
  - Masonry Contractors Association of NSW
  - Master Builders Australia
  - Think Brick Australia
  - University of Adelaide
  - University of Newcastle
- 

This Standard was issued in draft form for comment as DR AS 4773.1:2015.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard®

## Masonry in small buildings

### Part 1: Design

Originated as part of AS CA32—1963.  
Previous edition AS 4773.1—2010.  
Second edition AS 4773.1:2015.  
Reissued incorporating Amendment No. 1 (November 2016).

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Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76035 210 3

## PREFACE

This Standard was prepared by the Standards Australia Committee BD-004, Masonry Structures, to supersede AS 4773.1—2010.

*This Standard incorporates Amendment No. 1 (November 2016). 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.*

The objective of this Standard is to provide minimum requirements for the design of unreinforced and reinforced masonry, including built-in components, for use in small buildings such as houses and garages. This Standard is intended for the use of designers and specifiers of small buildings and is intended as a companion document to AS 4773.2, *Masonry in small buildings, Part 2: Construction*.

The objective of this revision is to provide clarifications and minor corrections.

The Committee acknowledges valuable assistance given by organizations and individuals experienced in various aspects of design and construction of masonry.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements 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.

*This document includes commentary on some of the Clauses of the Standard. The commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.*

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STANDARDS AUSTRALIA

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**Australian Standard**

**Masonry in small buildings**

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Part 1: Design

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SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies requirements for the design and specification of masonry in buildings of Class 1 and Class 10a, as defined in the National Construction Code (NCC), and constructed from clay, concrete, or calcium silicate masonry units and as follows:

- (a) Leaf thicknesses are 90 mm or greater.
- (b) The tops of all walls are laterally supported by a roof or floor structure acting as a diaphragm with the exception of parapets, chimneys and cantilevers in accordance with Clause 14.9 and fin walls in accordance with Table 9.1.
- (c) Walls are supported on concrete slabs, footings or suspended slabs complying with the NCC.
- (d) The geometric limitations specified in Clause 1.2.2.

The Scope of this Standard does not cover the following:

- (i) Acoustics and energy efficiency.
- (ii) Construction or detailing of attachments such as basketball hoops, satellite dishes, shade structures and similar structures.
- (iii) Masonry constructed from autoclaved aerated concrete (AAC) units.
- (iv) Structures required to be designed for earthquake actions in accordance with AS 1170.4.
- (v) External walls constructed from horizontally cored units.

NOTES:

- 1 For acoustic and energy efficiency requirements, see the NCC.
- 2 For applications outside the scope of this Standard, the masonry should be constructed in accordance with AS 3700.
- 3 Information on the basis upon which the design details and tables in this Standard have been prepared is given in Appendix A.

**1.2 GENERAL LIMITATIONS**

**1.2.1 Loading**

Wind classifications and loads derived from AS 4055 are required for the use of the Tables in this Standard.

NOTES:

- 1 For wind loads on structures outside the limitations of Clause 1.2.2, AS/NZS 1170.2 should be used in conjunction with AS 3700.
- 2 The loads specified in AS 4055 include the appropriate combinations of permanent and wind actions.



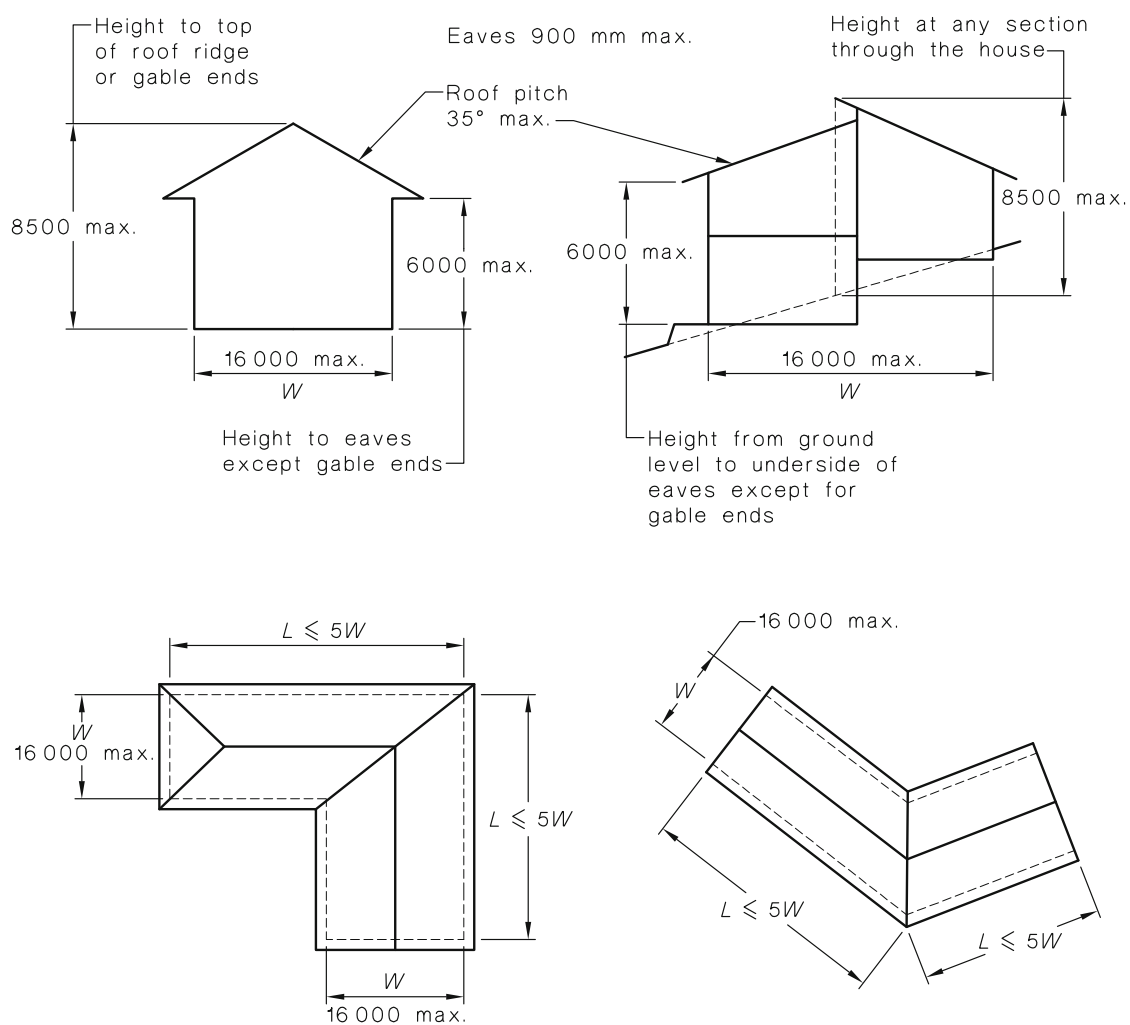
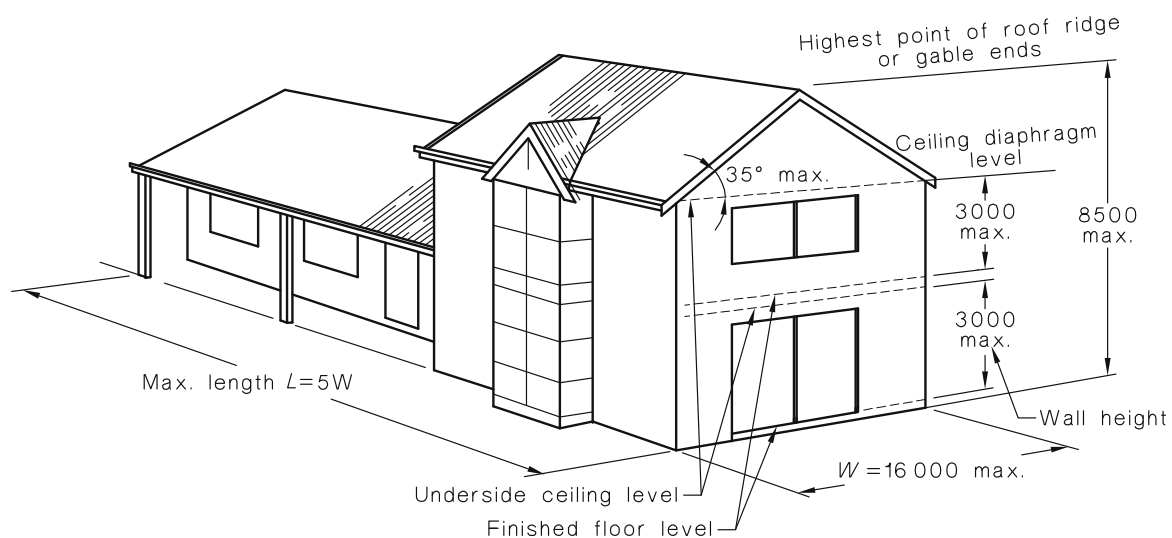
### 1.2.2 Limitations for building geometry

For the purpose of this Standard, the following limitations apply (see Figure 1.1):

- (a) The distance from ground level to the underside of eaves shall not exceed 6.0 m. The distance from ground level to the highest point of the roof, neglecting chimneys, shall not exceed 8.5 m; and the height of each storey, measured as floor to ceiling at external walls shall not exceed 3.0 m.
- (b) The width ( $W$ ), including roofed verandas but excluding eaves, shall not exceed 16.0 m, and the length ( $L$ ) shall not exceed five times the width.
- (c) The roof pitch shall not exceed  $35^\circ$ .
- (d) Eaves width shall not exceed 900 mm.
- (e) The building shall include a continuous ceiling that acts as a diaphragm.

NOTES:

- 1 Atria exceeding these dimensions are outside the scope of this Standard.
- 2 Where the geometry lies outside the limitations of this Section, the design may be carried out in accordance with AS 3700.



DIMENSIONS IN MILLIMETRES

FIGURE 1.1 BUILDING GEOMETRY