

Australian Standard[®]

Residential slabs and footings



This Australian Standard® was prepared by Committee BD-025, Residential Slabs and Footings. It was approved on behalf of the Council of Standards Australia on 20 December 2010. This Standard was published on 17 January 2011.

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 - Australian Chamber of Commerce and Industry
 - Australian Geomechanics Society
 - Australian Institute of Building Surveyors
 - Cement Concrete and Aggregates Australia
 - Concrete Masonry Association of Australia
 - Construction Industry Advisory Council
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 - Master Builders Australia
 - National Timber Development Council
 - Plastics and Chemicals Industries Association
 - Steel Reinforcement Institute of Australia
 - Think Brick Australia
 - University of Newcastle
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-

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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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PREFACE

This Standard was prepared by the Standards Australia Committee BD-025, Residential Slabs and Footings, to supersede AS 2870—1996.

The objective of this Standard is to specify performance criteria and specific designs for footing systems for foundation conditions commonly found in Australia and to provide guidance on the design of footing systems by engineering principles.

This Standard places particular emphasis on design for reactive clay sites susceptible to significant ground movement due to moisture changes. The Standard takes account of the following:

- (a) Swelling and shrinkage movements of reactive clay soils due to moisture changes.
- (b) Settlement of compressible soils or fill.
- (c) Distribution to the foundation of the applied loads.
- (d) Tolerance of the superstructure to movement.

Notes are included for clarification and general advice only and are not part of the mandatory provisions of the Standard.

Changes to the previous edition are as follows:

- (a) Revision of the overall Standard.
- (b) Site Class H split into Classes H1 and H2.
- (c) New Appendix H Guide to design of footings for trees.

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.

The Figures in this Standard are intended to show only the structural proportions of the footing system. All other details are purely illustrative.

Commentary to this Standard has been included at the back of this document. The Commentary is for information and advice only, and does not form part of the mandatory body of the Standard.

The layout of the Commentary follows that of the Standard. The numbering differs only in that its clauses, figures and tables are prefixed by the letter ‘C’, e.g. Clause C3.2.1 of this Commentary refers to Clause 3.2.1 of the Standard. Where there is no commentary to a Clause of the Standard it does not appear, therefore the Clause numbers in this Commentary are not consecutive. References to various publications and papers are listed as the last item of the Section or Appendix in which they occur. Section C7 provides recommendations not given in the Standard.

The Commentary is for information and advice only.

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STANDARDS AUSTRALIA

Australian Standard
Residential slabs and footings

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out the criteria for the classification of a site and the design and construction of a footing system for a single dwelling house, townhouse or similar structure which may be detached or separated by a party wall or common wall, but not situated vertically above or below another dwelling, including buildings classified as Class 1 and Class 10a in the Building Code of Australia.

The Standard may also be used for other forms of construction, including some light industrial, commercial and institutional buildings if they are similar to houses in size, loading and superstructure flexibility. The footing systems for which designs are given include slab on ground, stiffened rafts, waffle rafts, strip footings, pad footings and piled footings.

NOTE: This Standard gives no advice on detailing of the connection of superstructures to the footing systems for wind loads or earthquake loads.

For design purposes, the life of the structure is taken to be 50 years.

NOTES:

- 1 This Standard has been widely used for a number of years for the economical design of footings and slabs. Economical designs that avoid significant damage are practicable only if the soil moisture content of the foundation material under the footing or slab is stable or within reasonable limits of stability over the design life of the house or structure. For all sites (in particular sites with reactive soils) drainage and soil moisture conditions around the building need to be managed to avoid abnormal moisture conditions, as outlined in Clause 1.3.3, which may result in building damage.
- 2 Site management recommendations are given in Appendix B.
- 3 Where slab on ground construction is used for long slabs and large houses, particular consideration in design may be needed to avoid significant damage.
- 4 Information on earthquake actions is included in AS 1170.4. Information on wind actions is included in AS/NZS 1170.2 and AS 4055.

1.2 APPLICATION

To comply with this Standard—

- (a) all sites shall be classified in accordance with Section 2; and
- (b) footing system design shall be by either—
 - (i) prescribing a standard design in accordance with Section 3; or
 - (ii) applying the engineering principles described in Section 4; and
- (c) all design and construction shall comply with Sections 5 and 6.

Residential footing system design, detailing and construction shall also comply with AS 3600 except that, where in conflict, this Standard (AS 2870) shall take precedence.

NOTE: The functions of the various parties included in the design and construction of residential slabs and footings are normally as described in Appendix A.