AS 3700:2018

Masonry structures

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The following are represented on Committee BD-004:

- Australasian (Iron and Steel) Slag Association
- Australian Building Codes Board
- Australian Institute of Building Surveyors
- Building Designers Association of Australia
- Cement Concrete and Aggregates Australia
- Concrete Masonry Association of Australia
- Consult Australia
- Engineers Australia
- Galvanizers Association of Australia
- Housing Industry Association
- Master Builders Australia
- Queensland University of Technology
- Steel Reinforcement Institute of Australia
- Think Brick Australia
- University of Adelaide
- University of Newcastle

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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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Australian Standard®

Masonry structures

Originated in part as AS CA32—1963.
Previous edition AS 3700—2011.
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PREFACE

This Standard was prepared by the Standards Australia Committee BD-004, Masonry Structures, to supersede AS 3700—2011.

The objective of this Standard is to provide minimum requirements for the design and construction of unreinforced, reinforced and prestressed masonry, including built-in components.

The principal changes from the 2011 edition of the Standard include the following:

(a) Increased capacity reduction factor for compression in hollow masonry with wide spaced reinforcement.

(b) Inclusion of provisions for stack bonded masonry.

(c) Compressive strength of grouted masonry.

(d) Compression design of reinforced masonry.

(e) Concentrated loads in reinforced masonry.

(f) Minor changes to ensure consistency with AS 4773.

(g) New Appendix I on the relationship between ISO 9223 corrosivity categories and durability class. Also includes solutions for wall ties, connectors and accessories, and lintels and shelf angles, as provided in AS/NZS 2699.1, AS/NZS 2699.2 and AS/NZS 2699.3 respectively.

(h) Changes to Table 10.3 to align with changes made to AS 1170.4.

The following are excluded:

(i) Thermal performance.

(ii) Acoustic insulation.

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.

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S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard sets out minimum requirements for the design and construction of masonry of the following types:

(a) Unreinforced, reinforced and prestressed masonry using manufactured units of clay or concrete laid in mortar.

(b) Unreinforced masonry using manufactured calcium silicate units laid in mortar.

(c) Autoclaved aerated concrete (AAC) masonry laid in thin-bed mortar.

(d) Square-dressed natural stone laid in mortar.

This Standard does not provide for the following:

(i) Design values or material properties for the design and construction of masonry incorporating square-dressed natural stone. The wide variations in properties of natural stone require that each case be considered individually for the determination of relevant design values.

(ii) Specific requirements for prefabricated masonry panels or masonry in composite action with steel or concrete structural members; however, the principles of this Standard may be used for such types of construction.

(iii) Specification for design and construction of AAC laid in other than thin-bed mortar; however, for masonry so constructed the principles of this Standard may be used.

NOTE: This Standard assumes that structural design of masonry is entrusted to experienced structural engineers or similar appropriately qualified persons, and that the execution of such work is carried out under the direction of appropriately qualified persons who are experienced in masonry construction and who understand the structural requirements specified herein.

1.2 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS	
1170	Structural design actions
1170.4	Part 4: Earthquake actions in Australia
1316	Masonry cement
1391	Metallic materials—Tensile testing at ambient temperature
1478	Chemical admixtures for concrete, mortar and grout
1478.1	Part 1: Admixtures for concrete
1530	Methods for fire tests on building materials, components and structures
1530.4	Part 4: Fire-resistance tests of elements of building construction