

AS 3735—1991

Australian Standard[®]

**Concrete structures for retaining
liquids**

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Australian Post Tensioning Association
Board of Works, Melbourne
Brisbane City Council
Cement & Concrete Association of Australia
Confederation of Australian Industry
Engineering & Water Supply Department, S.A.
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PREFACE

This Standard was prepared by the Standards Australia Committee on Concrete Structures Retaining Liquids.

This Standard supplements and takes precedence over the requirements of AS 3600–1988, *Concrete structures*, that specifically relate to concrete structures used for retaining liquids at ambient temperature.

In the preparation of this Standard the Committee referred to BS 8007:1987, *Code of practice for the design of concrete structures for retaining aqueous liquids*, NZS 3106–1986, *Code of practice for concrete structures for the storage of liquids*, and other relevant technical documents, and the assistance gained from these sources is acknowledged.

A Commentary provides background information and explanation on the application of this Standard and is published as Supplement No. 1 to AS 3735.

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STANDARDS AUSTRALIA

Australian Standard

Concrete structures for retaining liquids

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements that specifically relate to concrete structures and members, that contain reinforcing steel or tendons, or both, used for retaining liquids at ambient temperature.

The Standard supplements and takes precedence over the requirements of AS 3600.

The principles of concrete design and construction embodied in this Standard apply to structures and members made of concrete —

- (a) with a characteristic compressive strength at 28 days (f'_c) in the range of 20 MPa to 50 MPa; and
- (b) of saturated, surface-dry density in the range of 1800 kg/m³ to 2800 kg/m³.

The Standard does not apply to the design of —

- (i) dams;
- (ii) aqueducts, hydraulic tunnels or similar structures;
- (iii) small septic tanks (see AS 1546);
- (iv) portable precast concrete water tanks of less than 25 000 L capacity;
- (v) fibre-impregnated concrete that does not comply with the design requirements and procedures of AS 3600; or
- (vi) precast concrete pressure pipes (see AS 1392).

This Standard is to apply to concrete structures for storage of liquids where the exposure conditions for concrete are within the specified limits. Such structures include those retaining water or sewage, public swimming pools, and swimming pools the area or overall length of which are greater than specified in AS 2783. However, the specifications of the relevant authority shall be used where applicable.

NOTE: The design of a structure or member to which this Standard applies should be carried out by, or under the supervision of, an engineer as specified in AS 3600.

1.2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

- 1012 Methods of testing concrete
- 1012.13 Part 13: Determination of drying shrinkage of concrete
- 1170 SAA Loading Code
- 1170.2 Part 2: Wind loads
- 1392 Precast concrete pressure pipes
- 1478 Chemical admixtures for use in concrete
- 1546 Small septic tanks
- 1650 Hot-dipped galvanized coatings on ferrous articles
- 2121 SAA Earthquake Code
- 2121M Seismic zone map of Australia
- 2758 Aggregates and rock for engineering purposes
- 2758.1 Part 1: Concrete aggregates
- 2783 SAA Concrete Swimming Pools Code
- 2841 Galvanized steel wire strand
- 3600 Concrete structures
- 3610 Formwork for concrete
- 3735 Concrete structures for retaining liquids
- Supp 1 Supplement 1: Commentary

ASTM

- A 775M Specification for epoxy-coated reinforcing steel bars

NZS

- 3106 Code of practice for concrete structures for the storage of liquids