Australian Standard™

Concrete structures for retaining liquids—Commentary

(Supplement to AS 3735—2001)

Standards Australia

This Australian Standard was prepared by Committee CE-022, Concrete Structures for Retaining Liquids. It was approved on behalf of the Council of Standards Australia on 17 November 2000 and published on 13 March 2001.

The following interests are represented on Committee CE-022:

Australian Pre-mixed Concrete Association

Institution of Engineers Australia

University of Queensland

Water Services Association of Australia

Additional interests participating in the preparation of this Standard:

Association of Consulting Engineers Australia

Australian Chamber of Commerce and Industry

Australian Post Tensioning Association

Australian Water and Wastewater Association

Brisbane City Council

Department of Public Works and Services, N.S.W.

Melbourne Water

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(Supplement to AS 3735—2001)

Originated as AS 3735 Supp1—1991.
Second edition 2001.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 3715 3

PREFACE

This Supplement was prepared by the Standards Australia Committee CE-022, Concrete Structures for Retaining Liquids, to supersede AS 3735 Suppl—1991.

This Commentary provides background information to AS 3735—2001, and is intended to be used in conjunction with that document. It is not intended to be used as a Standard, or other reference document.

The paragraph numbers of this Commentary are prefixed with the letter C and refer directly to the respective Clause numbers of AS 3735, e.g. Paragraph C5.3.1 refers to Clause 5.3.1. Where there is no commentary to a clause of the Standard, the paragraph number does not appear. Figures and tables are designated C2.2, C3.1, etc., and do not correspond to those in the Standard.

References are listed as the last paragraph of the Section in which they occur.

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SECTION C1 SCOPE AND GENERAL

C1.1 SCOPE

A lower concrete strength limit of 20 MPa has been imposed, as strength grades less than this are not considered suitable for structures.

An upper concrete strength limit of 50 MPa has been adopted, because much of the research on which the Standard is based involved concrete strengths at or below this value. Nevertheless, higher strength concretes are being used in Australia and overseas (Refs 1 and 2). The Standard may be applied to such concretes, provided that the physical properties appropriate to them are used in design.

The Standard also limits the use of lightweight aggregate in structural concrete. Most Australian structural concretes employ only lightweight coarse aggregate, resulting in concrete with a surface-dry density that is seldom less than 1800 kg/m^3.

In the preparation of a Standard such as this, a certain level of knowledge and competence of the majority of users has been assumed. As indicated by the Note to Clause 1.1, it was assumed that the predominant users of this Standard would be professionally qualified civil engineers experienced in the design of concrete structures for retaining liquids, or equally qualified but less experienced persons working under their guidance. It is therefore intended that the Standard be applied and interpreted primarily by such persons.

C1.5 USE OF ALTERNATIVE MATERIALS OR METHODS

The designer is usually required to seek approval from the appropriate Authority for the use of alternative materials or methods and such approval would not mean a relaxation of the requirements of the Standard, e.g. the use of fibre impregnated concrete would not mean an automatic relaxation of the requirements for conventional reinforcement or tendons.

C1.5.3 Ferrocement

Ferrocement should comply with the following:

(a) Sand/cement ratio, by volume, of not more than 3:1.

(b) For galvanized and epoxy coated steel reinforcement, the minimum cover given in Table 4.3 may be reduced by 15 mm, provided no negative tolerance is permitted and the surface is hand trowelled.

C1.6 DRAWINGS AND SPECIFICATIONS

The information applicable to most concrete members may be shown on only one of the drawings, usually the first sheet.

REFERENCES

1 CHOY, R.S. *High-strength concrete* Cement and Concrete Association of Australia. Sydney, 1988. Technical Report TR/F122.

2 RUSSELL, H.G. *High-strength concrete in North America* International symposium on utilization of high-strength concrete. Norway. Stavanger, 1987.