

AS 5100.5—2004
AP-G15.5/04
(Incorporating Amendment Nos 1 and 2)

AS 5100.5—2004

Australian Standard[®]

Bridge design

Part 5: Concrete



This Australian Standard® was prepared by Committee BD-090, Bridge Design. It was approved on behalf of the Council of Standards Australia on 9 December 2003. This Standard was published on 23 April 2004.

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- Australasian Railway Association
 - Austroads
 - Bureau of Steel Manufacturers of Australia
 - Cement and Concrete Association of Australia
 - Institution of Engineers Australia
 - Queensland University of Technology
 - Steel Reinforcement Institute of Australia
 - The Association of Consulting Engineers Australia
 - University of Western Sydney
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This Standard was issued in draft form for comment as DR 00378.

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-090, Bridge Design, to supersede HB 77.5—1996, *Australian Bridge Design Code*, Section 5: *Concrete*.

This Standard incorporates Amendment No. 1 (April 2010) and Amendment No. 2 (December 2010). 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 AS 5100 series represents a revision of the 1996 HB 77 series, *Australian Bridge Design Code*, which contained a separate Railway Supplement to Sections 1 to 5, together with Section 6, *Steel and composite construction*, and Section 7, *Rating*. AS 5100 takes the requirements of the Railway Supplement and incorporates them into Parts 1 to 5 of the present series, to form integrated documents covering requirements for both road and rail bridges. In addition, technical material has been updated.

This Standard is also designated as AUSTROADS publication AP-G15.5/04.

The objectives of AS 5100 are to provide nationally acceptable requirements for—

- (a) the design of road, rail, pedestrian and bicycle-path bridges;
- (b) the specific application of concrete, steel and composite construction, which embody principles that may be applied to other materials in association with relevant Standards; and
- (c) the assessment of the load capacity of existing bridges.

These requirements are based on the principles of structural mechanics and knowledge of material properties, for both the conceptual and detailed design, to achieve acceptable probabilities that the bridge or associated structure being designed will not become unfit for use during its design life.

Whereas earlier editions of the *Australian Bridge Design Code* were essentially administered by the infrastructure owners and applied to their own inventory, an increasing number of bridges are being built under the design-construct-operate principle and being handed over to the relevant statutory authority after several years of operation. This Standard includes clauses intended to facilitate the specification to the designer of the functional requirements of the owner to ensure the long-term performance and serviceability of the bridge and associated structure.

Significant differences between this Standard and HB 77.5 are the following:

- (i) *Grade 500 MPa reinforcement* Introduction of 500 MPa reinforcing steel conforming to AS/NZS 4671, *Steel reinforcing materials*.
- (ii) *Crack control requirements* Crack control requirements similar to those for AS 3600, *Concrete*, have been introduced. In addition, for exposed sites, crack control requirements for dead load and self weight only have been included.

In line with Standards Australia policy, the words ‘shall’ and ‘may’ are used consistently throughout this Standard to indicate respectively, a mandatory provision and an acceptable or permissible alternative.

Statements expressed in mandatory terms in Notes to tables 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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