AS 5100.6 Supp 1—2007

AS 5100.6 Supplement 1—2007

Bridge design—Steel and composite construction—Commentary (Supplement to AS 5100.6—2004)

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PREFACE

This Commentary was prepared by the Standards Australia Committee BD-090, Bridge design to supersede HB 77.6 Supp 1, *Australian Bridge Design Code—Steel and Composite Construction—Commentary (Supplement to SAA HB 77.6—1996)*.

The objective of this Commentary is to provide users with background information and guidance to AS 5100.6—2004.

The Standard and Commentary are intended for use by bridge design professionals with demonstrated engineering competence in their field.

In this Commentary, AS 5100.6—2004 is referred as 'the Standard'.

The clause numbers and titles used in this Commentary are the same as those in AS 5100.6, except that they are prefixed by the letter 'C'. To avoid possible confusion between the Commentary and the Standard, a Commentary clause is referred to as 'Clause C…..' in accordance with Standards Australia policy.

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SECTION C1 SCOPE AND GENERAL

C1.1 SCOPE AND APPLICATION

The Section sets out the requirements for the design of steel and composite construction in bridges, including road, railway and pedestrian bridges. The Section should also be used when structures of wrought or cast iron are being rated, but the appropriate material properties need to be used, as well as capacity reduction factors that reflect any reduced ductility.

Steel elements less than 3 mm in thickness are excluded for reasons of practicality, concern about corrosion, and because such sections are not used for bridges. Members from thinner material are usually cold-formed and fall within the scope of AS/NZS 4600. In addition, the connections in elements less than 3 mm thick are better controlled by the provisions of AS/NZS 4600 than by the Standard.

The limit of 450 MPa for the yield stress used in design stems from a lack of research data on steel grades above this value, and the applicability of all of the member design provisions for a higher design yield stress cannot be confirmed. Australian steel Standards generally contain no steel grades with a specified yield stress greater than 450 MPa, with the exception of one grade (XF500) specified in AS/NZS 1594. Additional provisions to those in the Standards may be required for steels of higher yield stress.

The Clause does not preclude the use of steels having a specified yield stress greater than 450 MPa provided the yield stress used in design (f_y) is limited to 450 MPa.

Hollow section members specified in AS 1163 are most commonly cold-formed, but have traditionally been designed using the previous editions of the Standard since they were for many years hot-rolled. Tests carried out on members manufactured in accordance with AS 1163 confirm the applicability of the provisions of the Standard for such members. All other cold-formed members should be designed in accordance with AS/NZS 4600. Cold-formed hollow section members specified in AS 1163 with a wall thickness less than 3 mm should be designed in accordance with AS/NZS 4600, since the Clause excludes such members.

Composite steel construction is covered by Sections 6 and 7 of the Standard.

C1.1.1 Scope

(No Commentary.)

C1.1.2 Application

(No Commentary.)

C1.2 REFERENCED DOCUMENTS

The Standards listed in the Clause are subject to revision from time to time and the current edition should always be used. The currency of any Standard may be checked with Standards Australia.