

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 to 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.

## CONTENTS

	<i>Page</i>
SECTION C1 SCOPE AND GENERAL	
C1.1 SCOPE AND APPLICATION.....	6
C1.2 REFERENCED DOCUMENTS .....	6
C1.3 NOTATION .....	7
SECTION C2 MATERIALS	
C2.1 YIELD STRESS AND TENSILE STRENGTH USED IN DESIGN .....	8
C2.2 STRUCTURAL STEEL .....	8
C2.3 CONCRETE, REINFORCING AND PRESTRESSING STEELS .....	9
C2.4 FASTENERS.....	9
C2.5 WELDS .....	9
C2.6 WELDED STUD SHEAR CONNECTORS.....	9
C2.7 STEEL CASTINGS .....	9
C2.8 WROUGHT IRON .....	10
C2.9 RIVETS.....	10
C2.10 CAST IRON .....	10
SECTION C3 GENERAL DESIGN REQUIREMENTS	
C3.1 GENERAL .....	11
C3.2 DESIGN FOR STRENGTH.....	11
C3.3 DESIGN FOR SERVICEABILITY .....	13
C3.4 DESIGN FOR STRENGTH AND SERVICEABILITY BY LOAD TESTING .....	13
C3.5 BRITTLE FRACTURE .....	13
C3.6 FATIGUE.....	13
C3.7 CORROSION RESISTANCE AND PROTECTION .....	14
C3.8 DESIGN FOR FIRE RESISTANCE .....	15
C3.9 PARTICULAR DESIGN REQUIREMENTS .....	15
SECTION C4 METHODS OF STRUCTURAL ANALYSIS	
C4.1 METHODS OF DETERMINING ACTION EFFECTS .....	19
C4.2 ELASTIC ANALYSIS .....	20
C4.3 MEMBER BUCKLING ANALYSIS.....	22
C4.4 ANALYSIS OF COMPOSITE BEAMS, GIRDERS AND COLUMNS .....	22
C4.5 ANALYSIS OF BOX GIRDERS.....	23
C4.6 STAGED CONSTRUCTION .....	23
C4.7 CONNECTIONS .....	23
C4.8 LONGITUDINAL SHEAR.....	26
C4.9 SHRINKAGE AND DIFFERENTIAL TEMPERATURE EFFECTS .....	26
C4.10 RIGOROUS STRUCTURAL ANALYSIS .....	27
SECTION C5 STEEL BEAMS	
C5.1 DESIGN FOR BENDING MOMENT .....	29
C5.2 SECTION MOMENT CAPACITY FOR BENDING ABOUT A PRINCIPAL AXIS	32
C5.3 MEMBER CAPACITY OF SEGMENTS WITH FULL LATERAL RESTRAINT ...	32
C5.4 RESTRAINTS .....	33
C5.5 CRITICAL FLANGE .....	35
C5.6 MEMBER CAPACITY OF SEGMENTS WITHOUT FULL LATERAL RESTRAINT.....	35
C5.7 BENDING IN A NON-PRINCIPAL PLANE.....	40

	<i>Page</i>
C5.8 DESIGN OF WEBS.....	41
C5.9 ARRANGEMENT OF WEBS .....	41
C5.10 SHEAR CAPACITY OF WEBS.....	43
C5.11 INTERACTION OF SHEAR AND BENDING .....	46
C5.12 COMPRESSIVE BEARING ACTION ON THE EDGE OF A WEB .....	47
C5.13 DESIGN OF LOAD-BEARING STIFFENERS.....	48
C5.14 DESIGN OF INTERMEDIATE TRANSVERSE WEB STIFFENERS.....	49
C5.15 DESIGN OF LONGITUDINAL WEB STIFFENERS .....	50
<b>SECTION C6 COMPOSITE BEAMS</b>	
C6.1 GENERAL .....	53
C6.2 DESIGN FOR BENDING MOMENT .....	54
C6.3 SECTION MOMENT CAPACITY.....	55
C6.4 BEAM MOMENT CAPACITY.....	55
C6.5 VERTICAL SHEAR CAPACITY .....	55
C6.6 LONGITUDINAL SHEAR.....	55
<b>SECTION C7 COMPOSITE BOX GIRDERS</b>	
C7.1 DESIGN OF COMPOSITE BOX GIRDERS.....	58
C7.2 COMPOSITE BOX GIRDERS WITHOUT LONGITUDINAL STIFFENERS .....	58
C7.3 FLANGES IN BEAMS WITH LONGITUDINAL STIFFENERS .....	58
C7.4 WEBS IN BEAMS WITH LONGITUDINAL STIFFENERS.....	59
C7.5 TRANSVERSE MEMBERS IN STIFFENED FLANGES.....	59
C7.6 DIAPHRAGMS AT SUPPORTS.....	60
C7.7 LONGITUDINAL SHEAR.....	63
C7.8 GEOMETRIC REQUIREMENTS FOR LONGITUDINAL STIFFENERS.....	63
<b>SECTION C8 TRANSVERSE MEMBERS AND RESTRAINTS</b>	
C8.1 GENERAL .....	65
C8.2 DEFINITIONS .....	65
C8.3 PARTICULAR REQUIREMENTS.....	65
C8.4 DESIGN OF RESTRAINTS TO FLEXURAL MEMBERS.....	65
C8.5 SEPARATORS AND DIAPHRAGMS.....	66
C8.6 DESIGN OF RESTRAINTS TO COMPRESSION MEMBERS.....	67
<b>SECTION C9 MEMBER SUBJECT TO AXIAL TENSION</b>	
C9.1 DESIGN FOR AXIAL TENSION .....	68
C9.2 NOMINAL SECTION CAPACITY .....	68
C9.3 TENSION MEMBERS WITH TWO OR MORE MAIN COMPONENTS .....	70
C9.4 MEMBERS WITH PIN CONNECTIONS.....	70
<b>SECTION C10 MEMBERS SUBJECT TO AXIAL COMPRESSION</b>	
C10.1 DESIGN FOR AXIAL COMPRESSION.....	72
C10.2 SECTION CAPACITY .....	72
C10.3 NOMINAL MEMBER CAPACITY .....	73
C10.4 LACED AND BATTENED COMPRESSION MEMBER.....	75
C10.5 COMPRESSION MEMBERS BACK-TO-BACK .....	77
C10.6 COMPOSITE COMPRESSION MEMBERS .....	78
<b>SECTION C11 MEMBERS SUBJECT TO COMBINED ACTIONS</b>	
C11.1 GENERAL .....	81
C11.2 DESIGN ACTIONS .....	81
C11.3 SECTION CAPACITY .....	81
C11.4 MEMBER CAPACITY .....	82
C11.5 CAPACITY OF COMPOSITE COMPRESSION MEMBERS .....	84

	<i>Page</i>
<b>SECTION C12 CONNECTIONS</b>	
C12.1 GENERAL .....	86
C12.2 DEFINITIONS .....	86
C12.3 PARTICULAR REQUIREMENTS FOR CONNECTIONS .....	86
C12.4 DEDUCTIONS FOR FASTENER HOLES .....	88
C12.5 DESIGN OF BOLTS, RIVETS AND PINS .....	89
C12.6 DESIGN OF WELDS .....	98
<b>SECTION C13 FATIGUE</b>	
C13.1 GENERAL .....	108
C13.2 FATIGUE LOADING .....	109
C13.3 DESIGN SPECTRUM .....	110
C13.4 EXEMPTION FROM ASSESSMENT .....	111
C13.5 DETAIL CATEGORY .....	111
C13.6 FATIGUE STRENGTH .....	112
C13.7 FATIGUE ASSESSMENT .....	113
C13.8 PUNCHING LIMITATION .....	113
<b>SECTION C14 BRITTLE FRACTURE</b>	
C14.1 GENERAL .....	115
C14.2 METHODS .....	115
C14.3 NOTCH-DUCTILE RANGE METHOD .....	115
C14.4 DESIGN SERVICE TEMPERATURE .....	116
C14.5 MATERIAL SELECTION .....	116
C14.6 FRACTURE ASSESSMENT .....	117
<b>SECTION C15 TESTING OF STRUCTURES OR ELEMENTS</b>	
C15.1 GENERAL .....	122
C15.2 DEFINITIONS .....	122
C15.3 TEST REQUIREMENTS .....	123
C15.4 PROOF TESTING .....	123
C15.5 PROTOTYPE TESTING .....	124
C15.6 REPORT OF TESTS .....	125
<b>APPENDICES</b>	
CA ELASTIC RESISTANCE TO LATERAL BUCKLING .....	126
CB STRENGTH OF STIFFENED WEB PANELS UNDER COMBINED ACTIONS ..	128
CC SECOND ORDER ELASTIC ANALYSIS .....	129
CD ECCENTRICALLY LOADED DOUBLE-BOLTED OR WELDED SINGLE ANGLES IN TRUSSES .....	130
CE NOMINAL SECTION MOMENT CAPACITY FOR COMPOSITE SECTIONS UNDER SAGGING MOMENTS .....	131
CF INTERACTION CURVES FOR COMPOSITE COLUMNS .....	132
CG FABRICATION .....	133
CH ERECTION .....	142
CI MODIFICATION OF EXISTING STRUCTURES .....	147

## STANDARDS AUSTRALIA

## Australian Standard

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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 covered 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.