

Australian Standard™

**Composite structures**

**Part 1: Simply supported beams**

This Australian Standard was prepared by Committee BD-032, Composite Construction. It was approved on behalf of the Council of Standards Australia on 3 June 2003 and published on 18 August 2003.

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The following are represented on Committee BD-032:

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Australian Building Codes Board

Australian Steel Institute

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AS 2327.1—2003

Australian Standard™

## **Composite structures**

### **Part 1: Simply supported beams**

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## PREFACE

This Standard was prepared by the Standards Australia Committee BD-032, Composite Construction, to supersede AS 2327.1—1996 *Composite structures in structural steel and concrete*, Part 1—*Simply supported beams*.

This revision incorporates a number of technical and editorial changes. The principal differences are briefly outlined in the following:

- 1 *Shear connectors:*
  - (a) The value of the density reduction factor ( $k_r$ ), used in the calculation of the design shear capacity ( $f_{ds}$ ) of shear connectors with lightweight concrete, has been changed to equal 1.0 for welded-studs (since the effect of lower concrete density is already taken into account in the calculation of nominal shear capacity ( $f_{vs}$ ) using Equation 8.3.2.1(2)), and a constant value of 0.8 for channels and high-strength structural bolts.
  - (b) A procedure for calculating the nominal shear capacity ( $f_{vs}$ ) of channel or high-strength structural bolt shear connectors during the initial part of Construction Stage 5 when  $15 \leq f'_{cj} < 20$  MPa, previously omitted from AS 2327.1, has been included, viz. at  $f'_{cj} = 15$  MPa,  $f_{vs}$  equals 80% of the values given in Table 8.2 and Table 8.3  $f'_c = 20$  MPa, and linear interpolation is used for values of  $f'_{cj}$  between 15 and 20 MPa.
  - (c) The Grade 300, 100 PFC (parallel flange channel) may now be used as a fully equivalent shear connector to the Grade 250, 100 TFC (channel).
- 2 *Open-rib and closed-rib profiles* Distinction is made between open-rib and closed-rib profile steel sheeting when designing the shear connection of the composite beam.
- 3 *Welded stud locations* Clause 8.4.2 clarifies that when automatically welded studs are placed in the pans of sheeting ribs deemed to be perpendicular to the steel beam, no more than two studs are permitted between adjacent sheeting ribs. New rules have been written to allow shear connectors to be placed closer to steel ribs of closed-rib profiles.
- 4 *New reference material* New reference material has been provided for designers regarding the design of beams with large web penetrations and design for occupant-induced vibrations.
- 5 *Reinforcement*  $f_{yr} = 500$ . The maximum design yield strength has been increased to 500 MPa for the longitudinal shear reinforcement in the composite slab.

The terms 'normative' and 'informative' are 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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