



The New Joint Australian and New Zealand Bridge Design Standard AS/NZS 5100 - Part 6: Steel and Composite Construction

Stephen HICKS

General Manager
Heavy Engineering
Research Association,
Auckland, New Zealand
stephen.hicks@hera.org.nz

Dr Stephen Hicks, born 1969, received his PhD in engineering from the University of Cambridge, UK. He currently Chairs Committee BD-090-06, which is responsible for AS/NZS 5100.6. He is also a Member of IABSE WC2 "Steel, Timber and Composite Structures".



Brian UY

Professor & Director
Centre for Infrastructure
Engineering & Safety
The University of New
South Wales, Sydney,
Australia
b.uy@unsw.edu.au

Brian Uy, born 1970, received his PhD from The University of New South Wales, Australia. He currently Chairs Committee BD-032 responsible for AS/NZS 2327 Composite structures for buildings. He was a Member of IABSE WC2 "Steel, Timber and Composite Structures".



Summary

This paper presents some of the innovations that will be included within the new joint Australian and New Zealand Bridge Design Standard for Steel and Composite Construction AS/NZS 5100.6, which will be the first harmonized standard between Australia and New Zealand for the design of bridges. As Chairs of the Committees responsible for AS/NZS 5100.6 and AS/NZS 2327, the authors of this paper present the challenges faced from the introduction concrete compressive strengths up to 100 MPa and quenched and tempered steels with a yield strength up to 690 MPa. Perhaps one of the most innovative aspects of this standard is the introduction of an appendix that provides conformity assessment requirements for steel products that are not sourced from either Australia or New Zealand. This appendix is underpinned by rigorous structural reliability analyses undertaken by Australian and New Zealand researchers, which included the present authors of this paper.

Keywords: Steel; Composites; Bridges; Codes and Standards; Quality, Safety, Reliability; Fatigue; AS/NZS 5100.6; Safety factor calibration; Headed stud shear connectors; Composite columns.

1. Introduction

This paper provides an overview of the new Australasian Bridge Design Standard for Steel and Composite Construction AS/NZS 5100.6[1], which is currently being prepared for public comment and is scheduled for publication in 2014. Building on earlier steel design standard harmonisation initiatives, such as the cold-formed steel structures standard AS/NZS 4600[2], AS/NZS 5100.6 is the first joint Australian and New Zealand design standard for bridges. It has been a catalyst for further harmonization activities in design standards for steel construction, such as the development of the new standard for steel and concrete composite buildings AS/NZS 2327[3]. In the future, it is hoped that this work may lead to a harmonization of the existing AS4100[4] and NZS 3404[5] into a joint Australian and New Zealand steel structures standard.