

BlueScope Composite Steel Road Bridges Design Guide

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ABSTRACT

Steel is a popular material for the construction of steel bridges worldwide. Steel bridges offer numerous advantages due to the inherent properties of steel, such as its high strength-to-weight ratio, which is particularly beneficial for longer spans. This results in lower dead loads, leading to more efficient structures and reduced foundation costs. The lightweight nature of steel, combined with its ease of inspection, predictable performance, and low maintenance requirements, gives steel bridges an edge over concrete ones.

This paper describes the updated Composite Steel Road Bridges: Guidelines and Charts, which was prepared to assist bridge designers with the preliminary design of economical multi-girder composite steel bridges using Australian Bridge Design code (AS 5100.2 and AS/NZS 5100.6). The guide is written for all bridge engineers or asset owners, irrespective of their experience in composite steel design. The guide includes easy-to-use design charts and tables for various simply-supported and continuous bridge configurations. Most importantly, the design guide includes key inputs from BlueScope to improve construction efficiencies and costs.

This paper will summarise the key updates to the design guide, summarise some key factors that can reduce steel bridge fabrication and construction costs, and present the design tables and charts that were developed to undertake preliminary design of multi-girder road bridges. Examples are provided to demonstrate how the design tables and charts are utilised.