

Connection Design Manual for LiteSteel® beam

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Connection Design Manual for LiteSteel® beam

LiteSteel Technologies
A.C.N. 113 101 054

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Relevance of information contained in this Publication

Material Standards and product qualities:

USERS OF THIS PUBLICATION SHOULD NOTE THAT THE SPANS, DESIGN CAPACITIES, CALCULATIONS, TABULATIONS AND OTHER INFORMATION PRESENT IN THIS PUBLICATION ARE SPECIFICALLY RELEVANT TO LITESTEEL BEAM SECTIONS SUPPLIED BY LITESTEEL TECHNOLOGIES.

Consequently, the information contained in this publication cannot be readily used for fabricated sections as those sections may vary significantly in grade, thickness, size, material Standard compliance (including chemical composition, mechanical properties, tolerances) and quality when compared to LiteSteel beam sections supplied from LiteSteel Technologies (LST).

Structural steelwork / engineering Standards:

The maximum design loads and design capacities listed in this publication are based on the limit states design method of AS/NZS 4600 and the factored limit states design loads and combinations considered within AS/NZS 1170. Hence, much of the information contained herein will only be of use to persons familiar with the limit states design method and the use of:

- ⇒ AS/NZS 4600: 1996 Cold-formed steel structures
- ⇒ AS/NZS 1170: Structural design actions
- ⇒ AS 4100: 1998 Steel structures

Always ensure that you are using current information on the LST product range. This can be verified by comparing the document version date (noted at the bottom of the page) with the current version date of each publication. The current version date of all LST publications can be obtained by referring to www.litesteelbeam.com.au or by contacting LST.

Foreword

LiteSteel Technologies proudly releases its innovative new product: LSB[®] (LiteSteel[®] beam). This significant advancement in patented steel technology is made possible through the pioneering application of the new simultaneous Dual Electric Resistance Welding (DERW) process. This process delivers a unique dimensional shape which provides maximum structural performance in bearing, bending moment, and deflection from the amount of steel employed.

The added benefits in weight, strength, and on site flexibility give the structural engineer new levels of versatility when specifying structural beams.

All LSB products feature DuoSteel[™] (380/450 grade) material giving strength where it is needed. LiteSteel beam AZ+[™] sections are supplied with an Aluminium-Zinc alloy protective coating. AZ+ provides significantly higher protection against the formation of red rust compared to plain galvanised coatings of the same coating mass.

LSB structural beams have applications in both residential and commercial and industrial construction. On average, the LSB is 40% lighter than a universal beam with equivalent bending strength. This makes handling LSB easy: in most cases, beams can be manually lifted into position without the need of a crane or other mechanical lifting device. This places LSB into the same weight category as manufactured structural lumber. The in-use characteristics of LSB take steel to a new level. Builders can use their existing power tools to cut, screw or nail LSB or join it with an alternate building material such as timber or fibre cement flooring. New product specific screws and brackets support the easy use of LSB in beam and joist applications.

This Connections Manual provides a range of connection details with design models and connection capacities for common connections in typical structural steel construction. Further connection details and capacities are given in the companion publications "Residential Construction Manual for LiteSteel[®] beam" and "Industrial & Commercial Floors using LiteSteel[®] beam". They should enable architects and engineers to easily determine connection requirements for LSB across a range of various structural applications.

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Rigid Connections

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In addition, particular thanks is extended to all those who gave constructive comment and support in the preparation of this document.

Preface

The LiteSteel beam (LSB) is the result of extensive research and development by LiteSteel Technologies in response to demand for a high performance beam with superior connectivity in general domestic and commercial structural applications.

This Connections Manual has been produced to support engineers and draftsmen with the design, detailing and specification of LSB in various applications.

Companion publications which are also available are the Design Capacity Tables for LiteSteel® beam, Residential Construction Manual for LiteSteel® beam, and Industrial & Commercial Floors using LiteSteel® beam.

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Our Ref: 2165-04 CDM Certification WB.doc

1 March 2005

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Dear Sir,

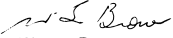
Re: Engineering Certification of "Connection Design Manual for LiteSteel™ beam" 2005 Edition

I hereby certify that the design manual "Connection Design Manual for LiteSteel™ beam" and the design tables contained therein conform with accepted engineering principles and the following Australian Standards:

AS/NZS 4600: 1996 Cold-formed steel structures
AS 4100:1998 Steel structures



The tables, when used within the parameters and limitations presented in this document, will provide structural solutions which satisfy the requirements of the referenced standards.

Yours faithfully,
Warren Brown & Associates Pty Ltd



Warren Brown
MIEAust, RPEQ 1144

Let our experience work for you



National Association of
Steel Formed Housing Inc.
Member of
AUSTRALIAN STEEL INSTITUTE

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LiteSteel beam.
With the corrosion protection
brilliance of AZ+.

Along with its revolutionary on-site flexibility, LiteSteel beam now gives you the added peace of mind of a brilliant corrosion protection coating. AZ+ is an aluminium and zinc alloy that provides a level of atmospheric corrosion protection that is superior to ordinary zinc coatings of the same mass. AZ+ takes corrosion protection against the formation of red rust to new levels, a significant advantage when you're building in Australia's harsh climatic environments.



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