5 BOLTED MOMENT END PLATE BEAM SPLICE CONNECTION

5.1 Description of connection

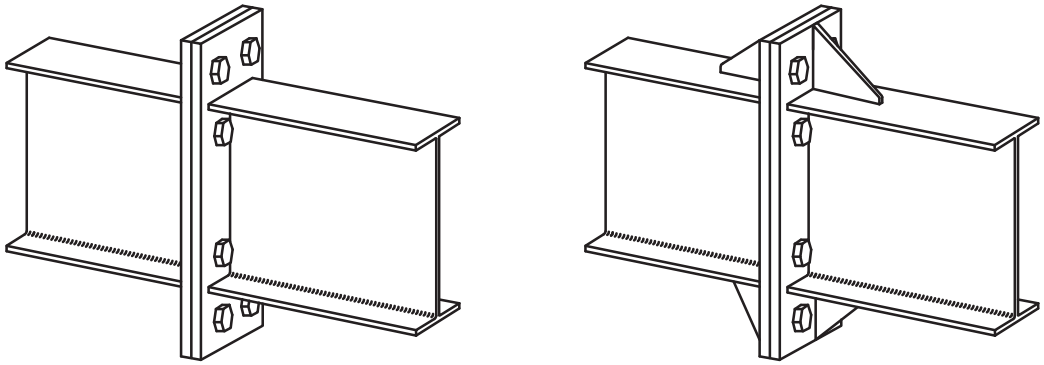

FIGURE 21 BOLTED MOMENT END PLATE BEAM SPLICE CONNECTION

Extended bolted end plate moment connections are a very common form of connection in rigid construction, being used as beam-to-column connections in regular rectangular steel framed structures and as ridge and knee connections in portal framed buildings.

Bolted end plate beam-to-column moment connections are dealt with in Section 6 of this publication. This Section deals with:

- bolted moment end plate beam splice connections (Figures 23(a), 24(a));
- bolted moment end plate apex connection (Figures 23(b), 24(b)); and
- bolted moment end plate mitred knee connection (Figures 23(c), 24(c)).

This Section is restricted to extended end plate connections in five forms:

- four bolt unstiffened end plate (Figure 22(a));
- four bolt stiffened end plate (Figure 22(b));
- eight bolt stiffened end plate (Figure 22(c));
- six bolt unstiffened end plate (Figure 22(d)); and
- eight bolt unstiffened end plate (Figure 22(e)).

The advantages of the connection are:

(a) Field bolted connection with no field welding.

(b) Site erection is fairly rapid and economic.

(c) If fabrication is accurate, plumbing of the frame is readily achievable.

The disadvantages of the connection are:

(a) The fabrication techniques required are somewhat stringent because of the need for accuracy in beam length and ‘squareness’ of the beam end.

(b) End plates may warp due to the heat of welding.

(c) End plates may be subject to lamellar tearing in the region of the beam flange welds.

(d) The bolts are in tension, which can result in prying forces (see discussion in Appendix A of DESIGN GUIDE 10—Reference 4).

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by

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first edition—2009

AUSTRALIAN STEEL INSTITUTE
(ABN)/ACN (94) 000 973 839

Design capacity tables for structural steel
Volume 4: Rigid connections—Open sections

Published by: AUSTRALIAN STEEL INSTITUTE

FIRST EDITION 2009 (LIMIT STATES)

National Library of Australia Cataloguing-in-Publication entry:
Hogan, T.J.
Design capacity tables for structural steel. Volume 4: Rigid connections—Open sections

1st ed.
Bibliography.
ISBN 978 1 921476 18 1 (pbk.).
ISBN 978 1 921476 19 8 (pdf.).

1. Steel, Structural—Standards – Australia.
2. Steel, Structural—Specifications – Australia.
3. Joints, (Engineering)—Design and construction.
I. van der Kreek, N.
II. Australian Steel Institute.
III. Title
(Series: Structural steel connection series).

This publication originated as part of
Design of structural connections
First edition 1978
Second edition 1981
Third edition 1988
Fourth edition 1994

Also in this series:
Design Capacity Tables for Structural Steel Volume 3: Simple connections—Open sections
Handbook 1: Design of structural steel connections
Design Guide 1: Bolting in structural steel connections
Design Guide 2: Welding in structural steel connections
Design Guide 3: Web side plate connections
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