

4 DETAILING CONSIDERATIONS

DETAILING CONSIDERATIONS—CONNECTION ELEMENTS

- 1 8.8/T (fully tensioned) bolt category is used, with M20 or M24 bolt diameters.
- 2 Holes are 2 mm larger than the nominal bolt diameter.
- 3 Fabrication of this type of connection requires close control in cutting the beam to length and adequate consideration must be given to squaring the beam ends such that end plates at each end are parallel and the effect of any beam camber does not result in out-of-square end plates which make erection and field fit-up difficult. Shims may be required to compensate for mill and shop tolerances (Figure 8).

It is recommended that beams generally not be cambered with this connection since the resulting beam rotation may cause field fit-up problems (Ref. 6). If camber must be provided, the detailing must be such as to achieve parallel end plates.

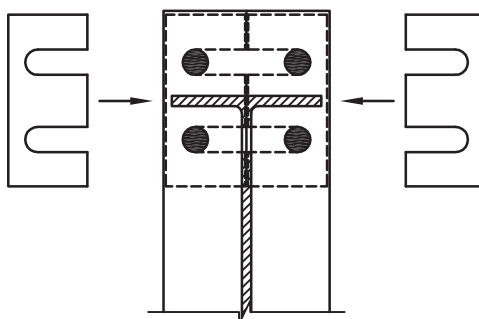


FIGURE 8 SHIMS USED BETWEEN END PLATE AND COLUMN FLANGE (after Ref. 6)

- 4 Flange butt weld preparations will require a backing strip which requires local coping of the beam web. The backing strip is usually left in place, although the structural engineer may require it to be removed for design situations involving fatigue or seismic considerations—which are not covered by the recommended design model of this DESIGN GUIDE.
- 5 Preference should be given to the use of fillet welds rather than butt welds, at least for fillet welds up to 8 mm leg length.
- 6 A full penetration butt weld may shrink up to 2–3 mm when it cools and contracts. Such shrinkage can cause problems in erecting the frame to AS 4100 tolerances. This issue is best controlled by fabricating the beam longer than required by the amount of the weld shrinkage or by increasing the weld root opening.
- 7 Lamellar tearing of the end plate may be of concern especially for a thicker end plate. The correct welding procedure and sequencing should be employed (see Design Guide 2 for a discussion of lamellar tearing—Reference 16).

Lamellar tearing of the column flange may be of concern when there is a stiffener weld on one side which is shrinking and contracting. The correct welding procedure and sequencing should again be employed (see Design Guide 2 for a discussion of lamellar tearing—Reference 16).
- 8 End plates will typically be Grade 250 plate material complying with AS 3678 (Ref. 7).

Design Guide 12
Bolted end plate to column moment connections

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first edition—2009



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

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FIRST EDITION 2009 (LIMIT STATES)

National Library of Australia Cataloguing-in-Publication entry:

Hogan, T.J.

Design Guide 12: Bolted end plate to column moment connections

1st ed.

Bibliography.

ISBN 978 1 921476 14 3 (pbk.).

ISBN 978 1 921476 15 0 (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:

- 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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