

GENERAL

- 1 Where flange cover plates are used, assemble joints with nuts to outside of cover plate. This arrangement is recommended for ease of bolt tensioning, since in universal sections sufficient clearance is not always available between flanges for a standard air wrench (see DESIGN GUIDE 1 for information on wrench dimensions—Reference 16).
- 2 Where packers are required, these can be conveniently provided as hot rolled strip in thicknesses of 1.6, 2.0, 2.5 or 3.0 mm as necessary, which are prepunched to match the holing on the cover plate component.
- 3 Two web cover plates, one on each side of the web, are recommended for bolted splices. This creates a symmetric load transfer with respect to the plane of the web.
- 4 In order to accommodate out-of-alignment of member webs at a splice, the use of packers may be necessary.
- 5 For members assumed to be in full bearing contact, the ends of the member must be prepared in accordance with Clause 14.4.4.2 of AS 4100 (Ref. 1). This specifies that the maximum clearance between the abutting surfaces shall not exceed 1 mm and shall not exceed 0.5 mm over at least 67% of the contact area. Cold sawing of members to length meets this requirement.

When members are prepared for full contact splices, compression forces in the flanges and the web may be assumed to be transferred by bearing alone rather than through plates or connectors. If full contact is not provided, plates and connectors must be designed to transmit the compression force.

- 6 Column splices should be located in positions where access for the installation of the bolts is easily obtained (see Figure 7).

NOTES ON BOLTING PRACTICE

- 7 Bolting category 8.8/TB is the usual category chosen for bolted splice connections. Category 8.8/TF is only chosen when slip under serviceability loads must be limited. In practice, very limited slip will occur in any bolted splice using 8.8/TB category which contains at least two rows of bolts in the flange each side of the splice location.
- 8 Only one bolt category should be used in any bolted splice connection, for both flanges and web.
- 9 Only one bolt diameter should be used for both the flange and the web splice. Bolt diameters are usually either M20 or M24, larger bolt diameters being difficult to install and to obtain the minimum bolt tension specified in Section 15 of AS 4100 (Ref. 1).
- 10 The use of the three plate flange splice results in the flange bolts being loaded in double shear, which is markedly more efficient from a design point of view and is favoured for larger members. It is more difficult to erect and the one plate flange splice is generally preferred wherever possible.
- 11 Threads would normally be assumed included in the shear plane for both the flange and web splices, although in thicker flanges threads excluded is achievable. For the three plate flange splice, it is common to have threads intercept one shear plane and plane shank the other. Check using the guidance in DESIGN GUIDE 1—Reference 16.



Design Guide 13
Splice connections

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