4 DETAILING CONSIDERATIONS

DETAILING CONSIDERATIONS—CONNECTION

1 The economics and practicality of field welding should be reviewed with the fabricator before it is specified. Any field welding should be arranged for welding in the flat or horizontal position. Good working access and welding screens are required.

2 Flange 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.

3 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.

4 A full penetration butt weld may shrink up to 2–3 mm when it cools and contracts. Such shrinkage can cause erection problems when plumbing the columns. This is best controlled by fabricating the beam longer than required by the amount of the weld shrinkage or by increasing the weld root opening by that amount.

5 Lamellar tearing of the column flange may be of concern when there is a flange weld on one side and a stiffener weld on the other and both are shrinking and contracting. The correct welding procedure and sequencing should be employed (see Reference 16 for a discussion of lamellar tearing).

6 This connection requires extra care in both shop fabrication and field erection. 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 flanges such that the flanges at each end are parallel and the effect of any beam camber does not result in out-of-square beam flanges which make erection and field fit-up difficult.

7 Any shop welded connection has the benefit of all the welding being carried out in controlled fabrication shop conditions where the workpiece can be placed in jigs or manipulators for ease of welding. It does involve more connections due to the need for beam or column splices adjacent to the beam-column connection (Figures 2(a) and 3).

8 For the field welded connection, the web erection cleat may be used as a backing plate for a full penetration butt weld to the web.

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by

T.J. Hogan

contributing author

N. van der Kreek

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