l_w = total length of weld including end weld (see Fig. 3-11).

F_w = nominal design strength of weld from *AISC-LRFD* = $0.60F_{EXX}$

$t_w(\text{max}) = t_p - {}^{1}\!/_{16}\text{inch}$

If plate dimensions do not permit sufficient weld, return to Step 1 and select a longer plate length.

Step 6: Determine the required panel zone thickness according to the methods of Section 3.3.3.2. For purposes of this calculation, substitute $d_b+(t_{plt}+t_{plb})$ for d_b and the quantity $d_b + \frac{t_{plt} + t_{plb}}{2}$ for d_b - t_{fb}

Step 7: Determine continuity plate requirements according to Section 3.3.3.1, For this purpose, use the plate width as the quantity b_f.

Step 8: Detail the connection as shown in Figure 3-11.

3.5.5 Reduced Beam Section Connections

This section provides procedures for design of fully restrained, Reduced Beam Section (RBS) connections. These connections utilize circular radius cuts in both top and bottom flanges of the beam to reduce the flange area over a length of the beam near the ends of the beam span. Welds of beam flanges to column are complete joint penetration groove welds, meeting the requirements of *FEMA-353, Recommended Specifications and Quality Assurance Guidelines for Steel Moment Frame Construction for Seismic Applications*. In this type of connection, no reinforcement, other than weld metal, is used to join the flanges of the beam to the column. Web joints for these connections may be either complete penetration groove welds, or bolted or welded shear tabs. Table 3-6 provides limitations and details of the prequalification. Figure 3-12 provides typical details for this connection type. These connections are prequalified for use in Special Moment Frame or Ordinary Moment Frame systems within the limitations indicated in Table 3-6. When this type of connection is used, the elastic drift calculations should consider the effect of the flange reduction. In lieu of specific calculations, a drift increase of 9% may be applied for flange reductions ranging to 50% of the beam flange width, with linear interpolation for lesser values of beam flange reduction.

Commentary: This type of connection has performed adequately in tests with both welded and bolted web connections. While a welded web connection is more costly than the more conventional bolted web connection, it is believed that the welded web improves the reliability of the connection somewhat. The welded web provides for more effective force transfer through the web connection, thereby reducing stress levels at the beam flanges and beam flange groove welds.