

## Part I

### 5. FABRICATION

#### 5.1 Reduced Beam Sections (RBSs)

##### 5.1.1 Holes and Attachments

No holes may be drilled or punched in either flange of the beam within the length that has received the radius cut, or between the RBS cut and the column. Shear studs and mechanical deck fasteners to the beam flange within the length of the radius cut are prohibited. Spot welds for the attachment of metal decking are permitted.

##### 5.1.2 RBS Cut Tolerances

The tolerance on the depth of each RBS cut is plus or minus 1/4 inch, measured at the mid-thickness of the flange at the narrowest point of the cut flange. The length of the cut shall be within plus or minus 15% of the specified length. The depth of cut on each side shall be balanced, with no more than 3/8 inch total variation in the depth of cut from one side to the other. (Example: plus 1/8 inch on one side, minus 1/4 inch on other side.) The balance of remaining flange width about the web of the beam is not a consideration.

##### 5.1.3 Cut Surface Roughness

After thermal cutting, the RBS surface shall have a surface roughness of no more than 500 microinches (AWS C4.1-77 sample 4). Grinding of thermally cut edges shall be provided only as necessary to meet this criteria. Corners between the cut RBS surface and the top and bottom of the flanges shall be ground to remove sharp edges, but a minimum radius or chamfer is not required.

##### 5.1.4 Gouges and Notches

Gouges and notches that occur in the thermal cut RBS surface may be repaired by grinding if not more than 1/4 inch deep. The gouged or notched area shall be faired by grinding so that a smooth transition exists, and the total length of the area ground for the transition shall be no less than 10 times the depth of the removed gouge. If a sharp notch exists, the area shall be inspected by MT after grinding to ensure that the entire depth of gouge or notch has been removed. Grinding may not increase the depth of the RBS cut section more than 1/4 inch beyond the specified depth of cut.

##### 5.1.5 Welded Repair of Notches and Gouges

Gouges and notches that exceed 1/4 inch in depth, but not to exceed 1/2 inch in depth, and those notches and gouges where repair by grinding would increase the effective depth of the RBS cut beyond tolerance, may be repaired by welding. Notches and gouges exceeding 1/2 inch in depth may be repaired only with the approval of the Engineer. The notch or gouge shall be removed and ground to provide a smooth radius of not less than 3/8 inch for welding. The repair area shall be preheated to a temperature between 400°F and 550°F, measured at the location of the weld