

Chapter 9

Thin plates

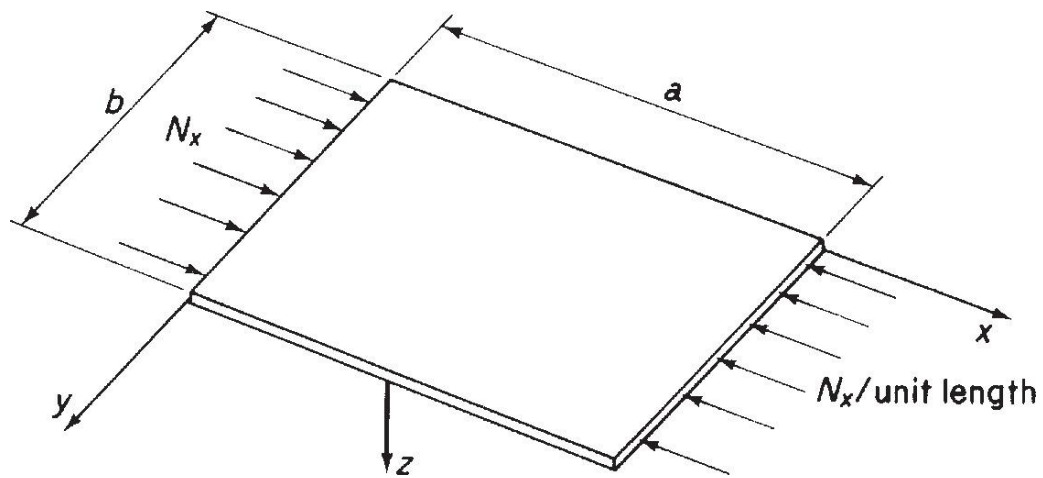


FIGURE 9.1 Buckling of a Thin Flat Plate

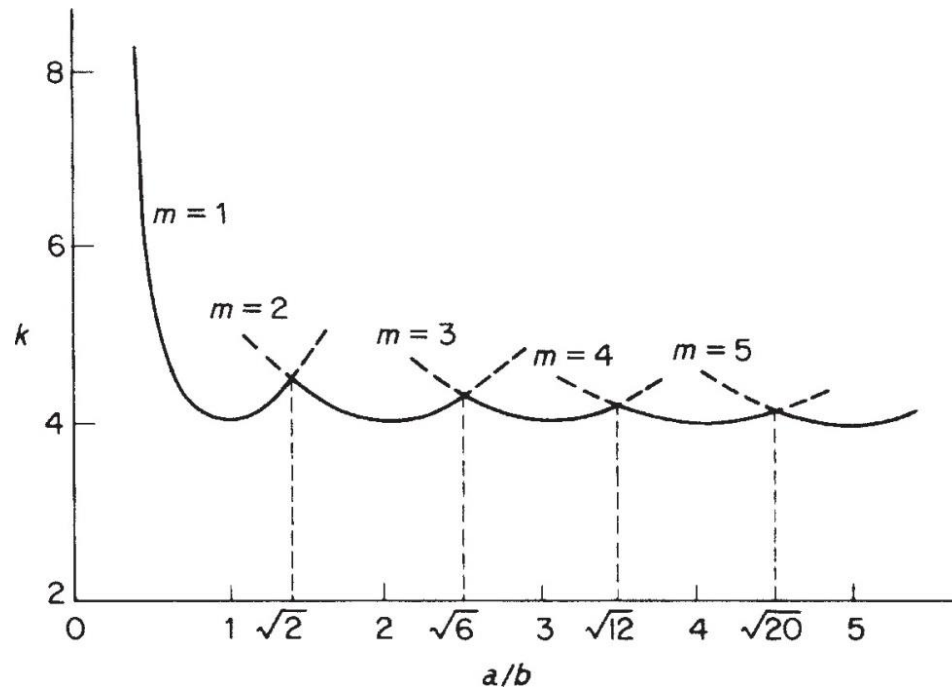


FIGURE 9.2 Buckling Coefficient k for Simply Supported Plates

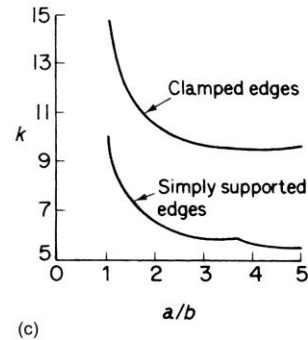
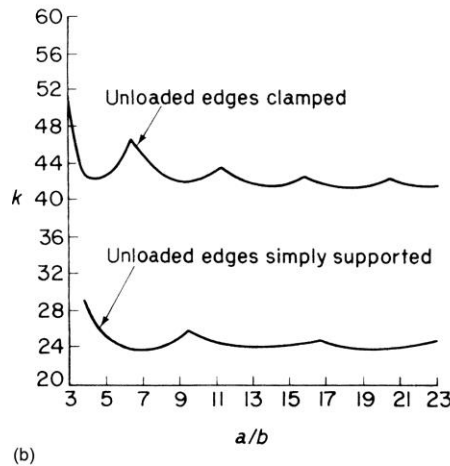
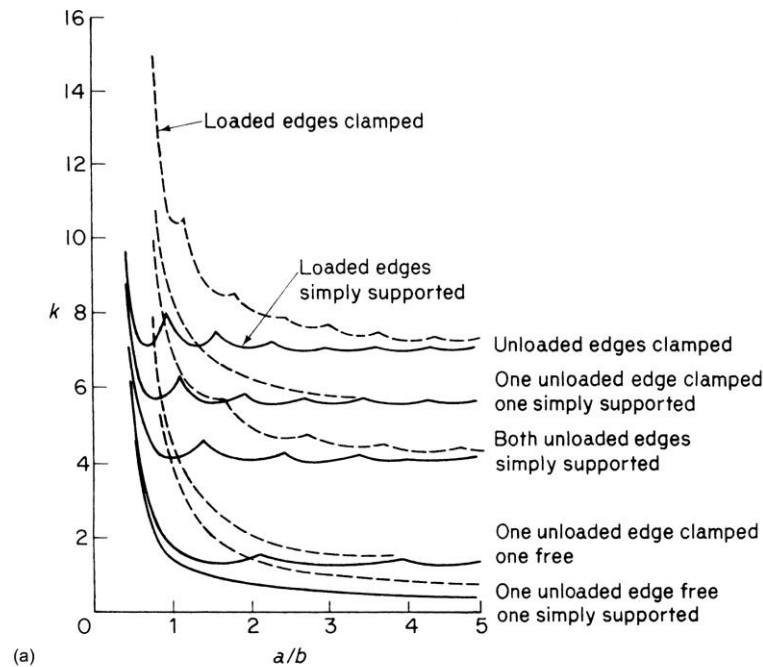


FIGURE 9.3 (a) Buckling Coefficients for Flat Plates in Compression; (b) Buckling Coefficients for Flat Plates in Bending; (c) Shear Buckling Coefficients for Flat Plates

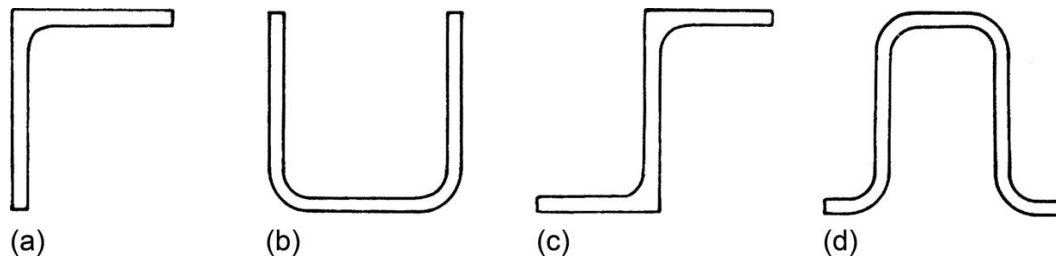


FIGURE 9.4 (a) Extruded Angle; (b) Formed Channel; (c) Extruded Z; (d) Formed “Top Hat”

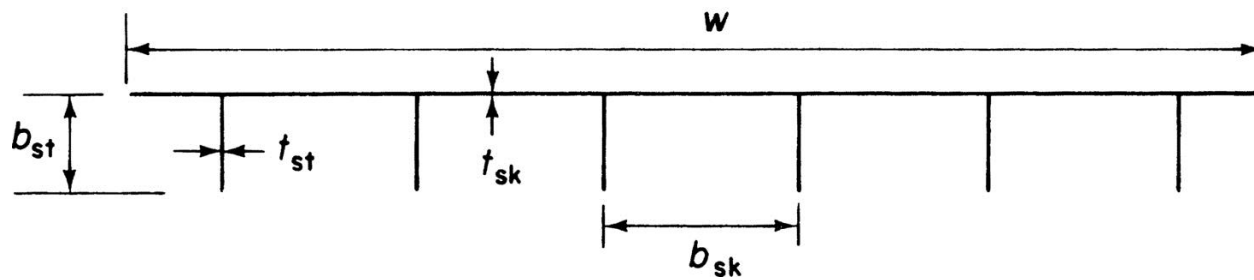


FIGURE 9.5 Stiffened Panel

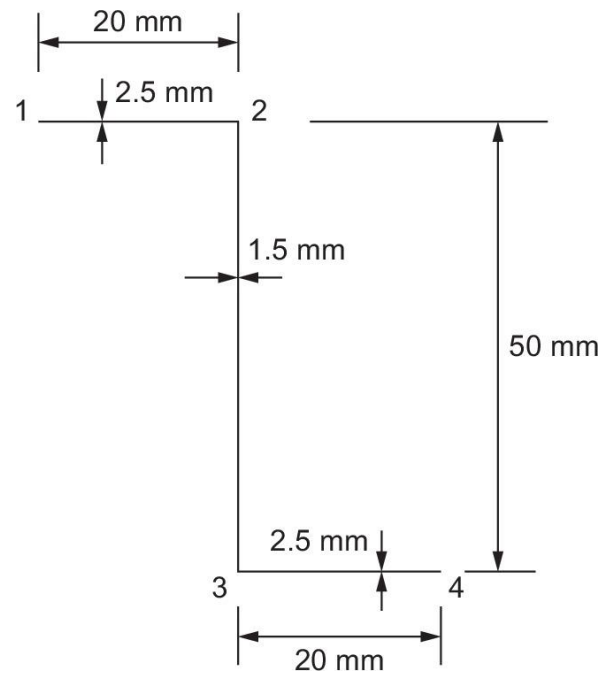


FIGURE 9.6 Column Cross-Section of Example 9.1

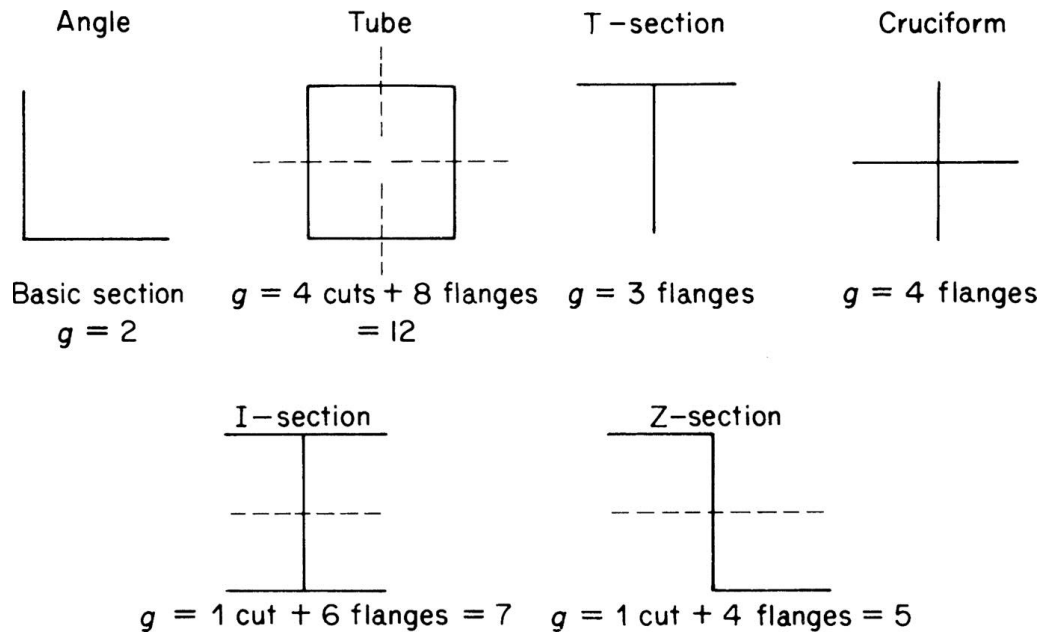


FIGURE 9.7 Determination of Empirical Constant g

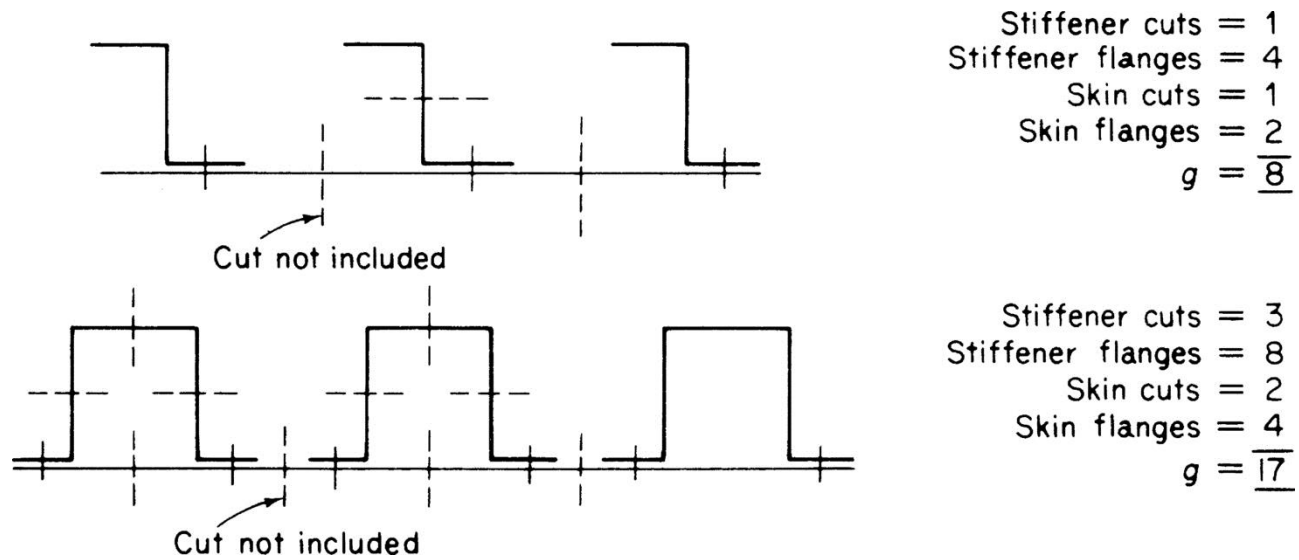


FIGURE 9.8 Determination of g for Two Types of Stiffener–Skin Combination

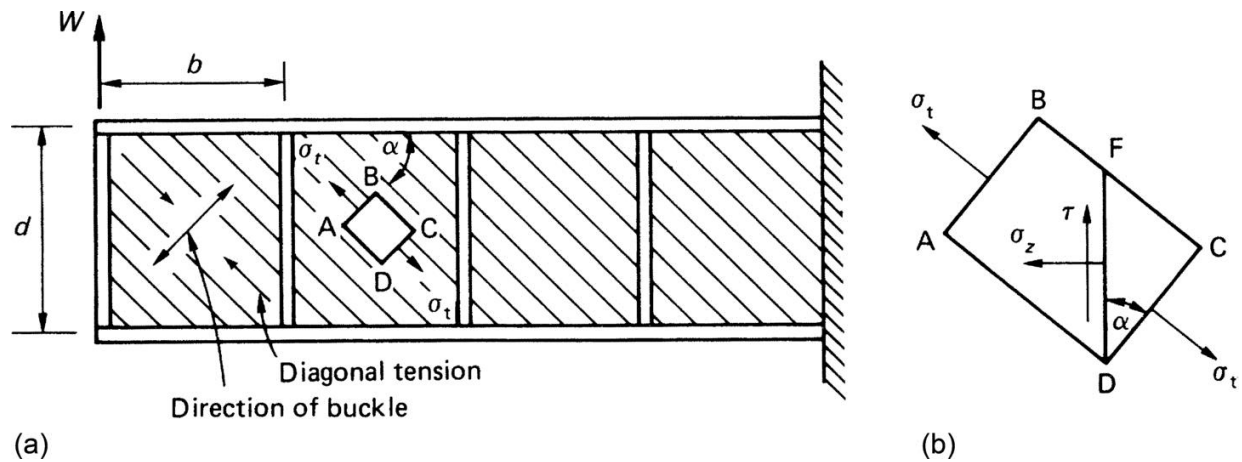


FIGURE 9.9 Diagonal Tension Field Beam

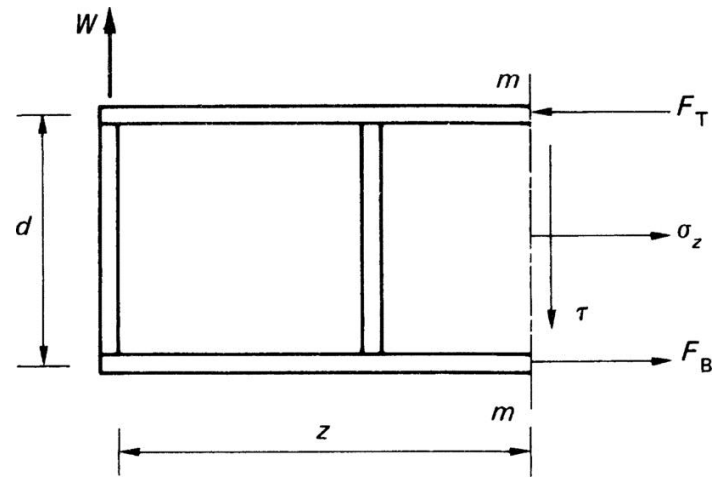


FIGURE 9.10 Determination of Flange Forces

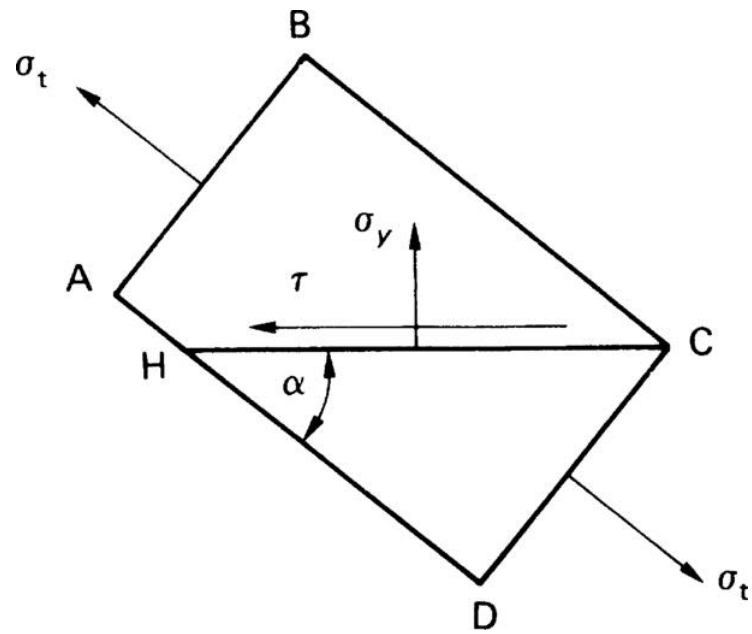


FIGURE 9.11 Stress System on a Horizontal Plane in the Beam Web

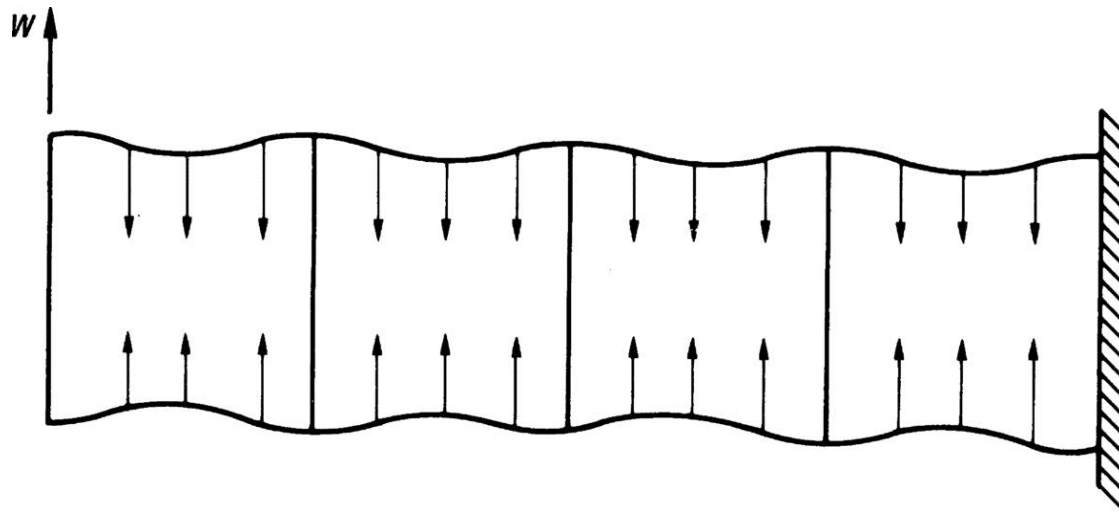


FIGURE 9.12 Bending of Flanges Due to Web Stress

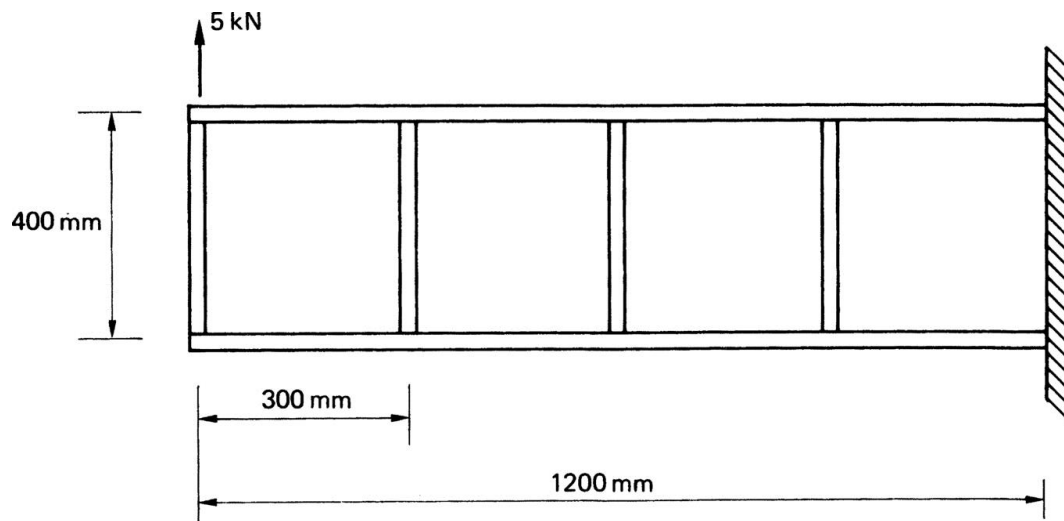


FIGURE 9.13 Beam of Example 9.2

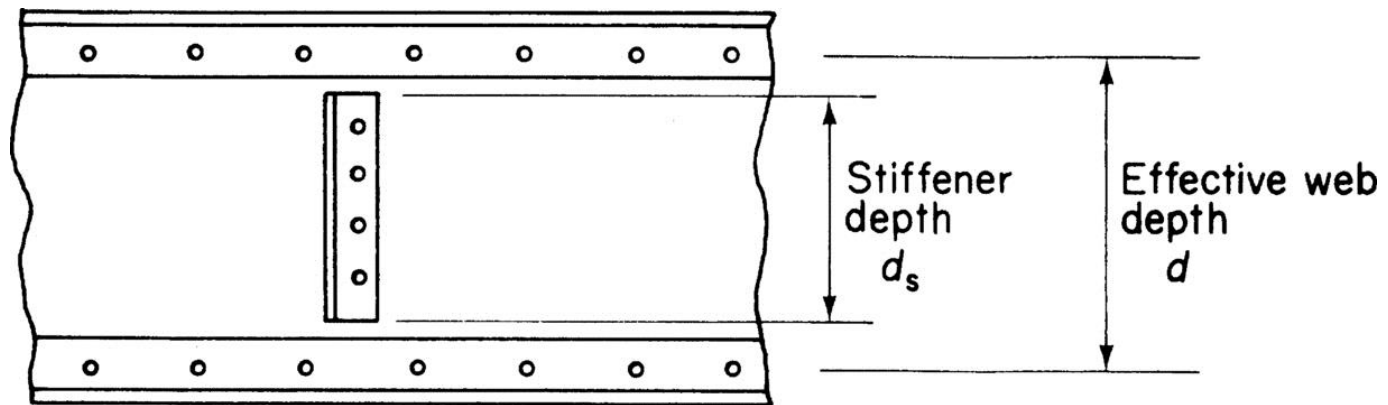


FIGURE 9.14 Calculation of Stiffener Buckling Load

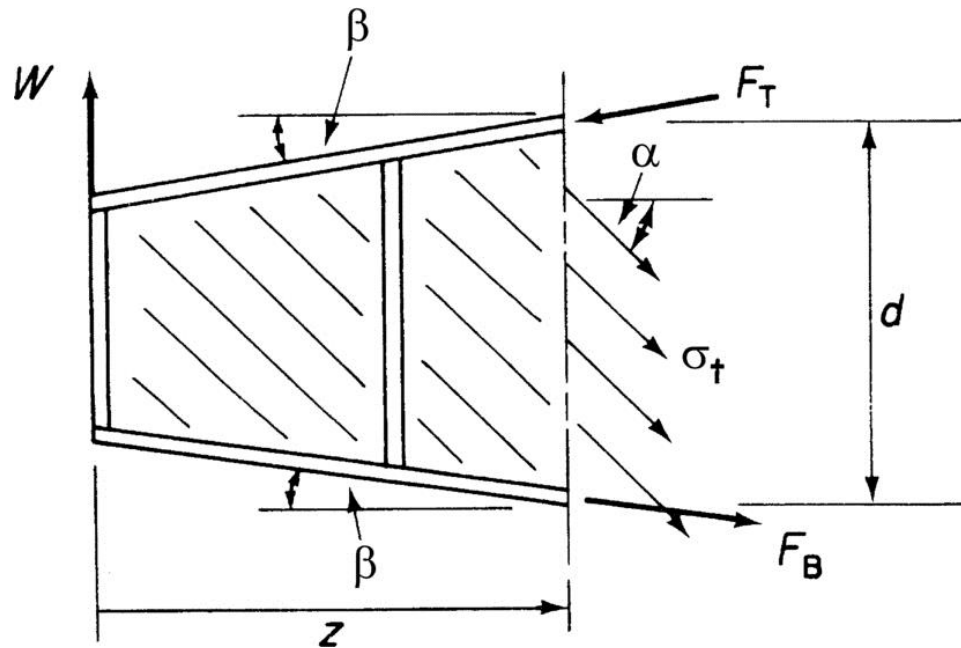


FIGURE 9.15 Effect of Taper on Diagonal Tension Field Beam Calculations

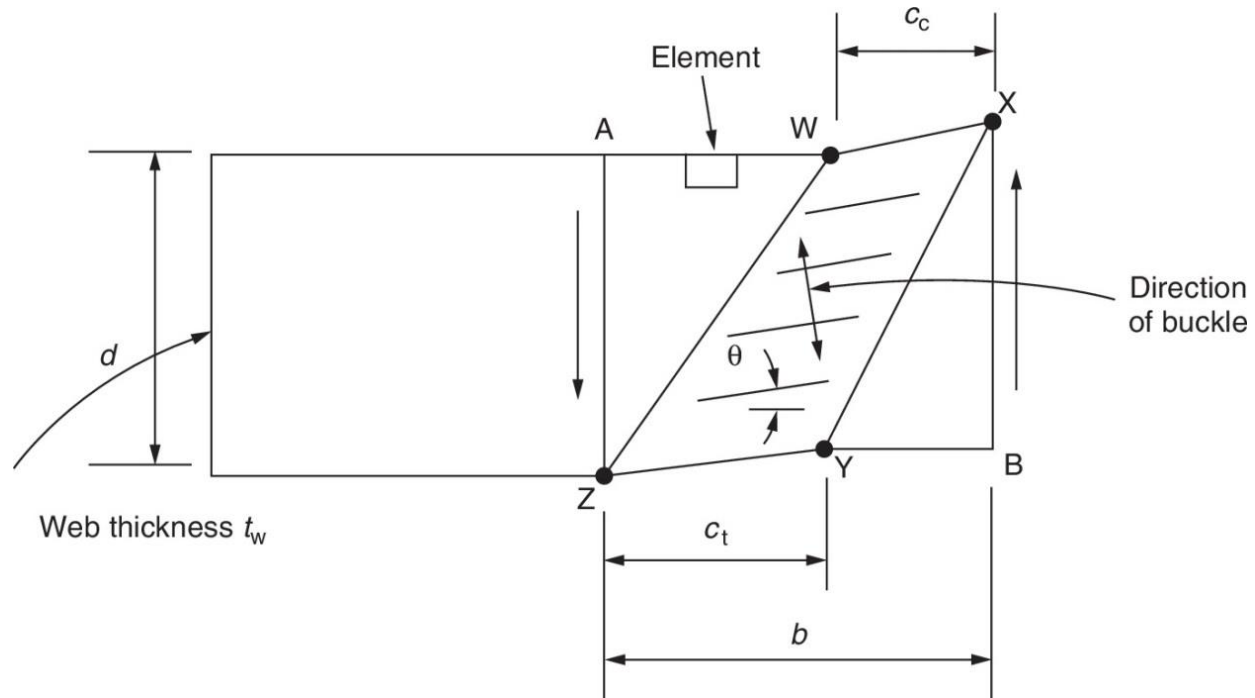


FIGURE 9.16 Collapse Mechanism of a Panel of a Tension Field Beam

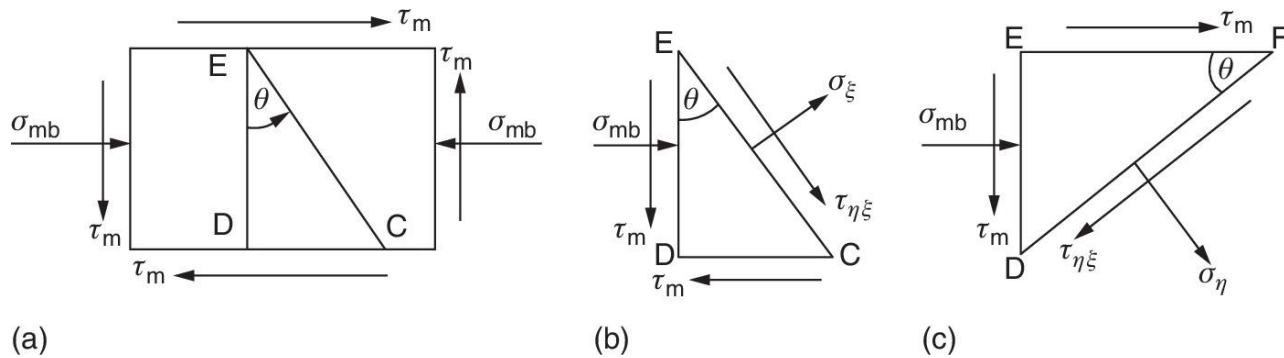


FIGURE 9.17 Determination of Stresses on Planes Parallel and Perpendicular to the Plane of the Buckle

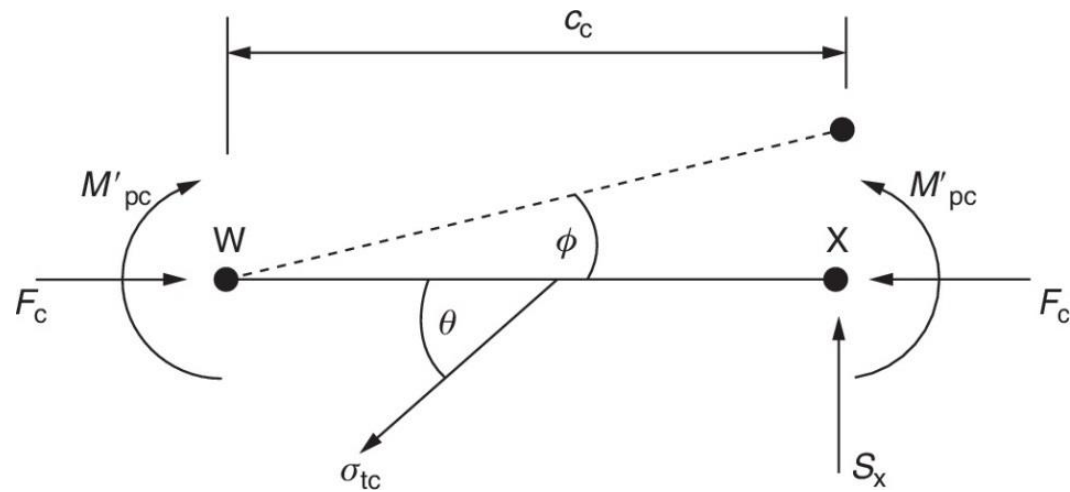


FIGURE 9.18 Determination of Plastic Hinge Position

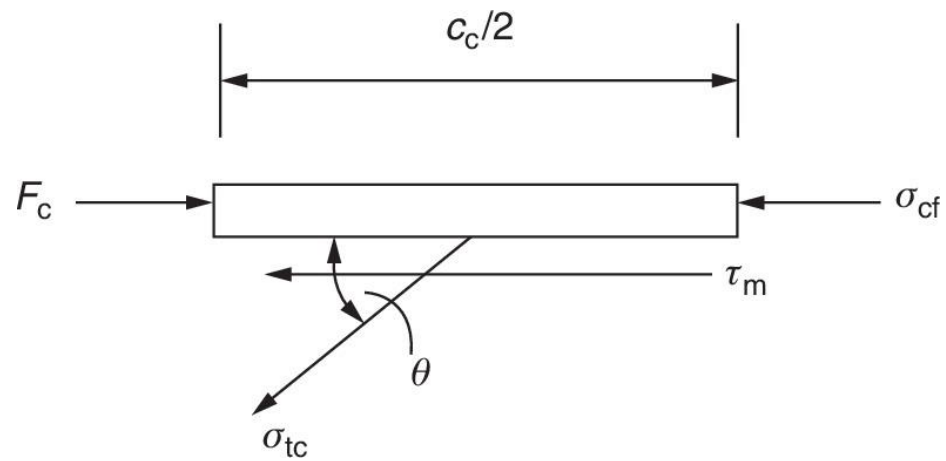


FIGURE 9.19 Determination of Flange Stress

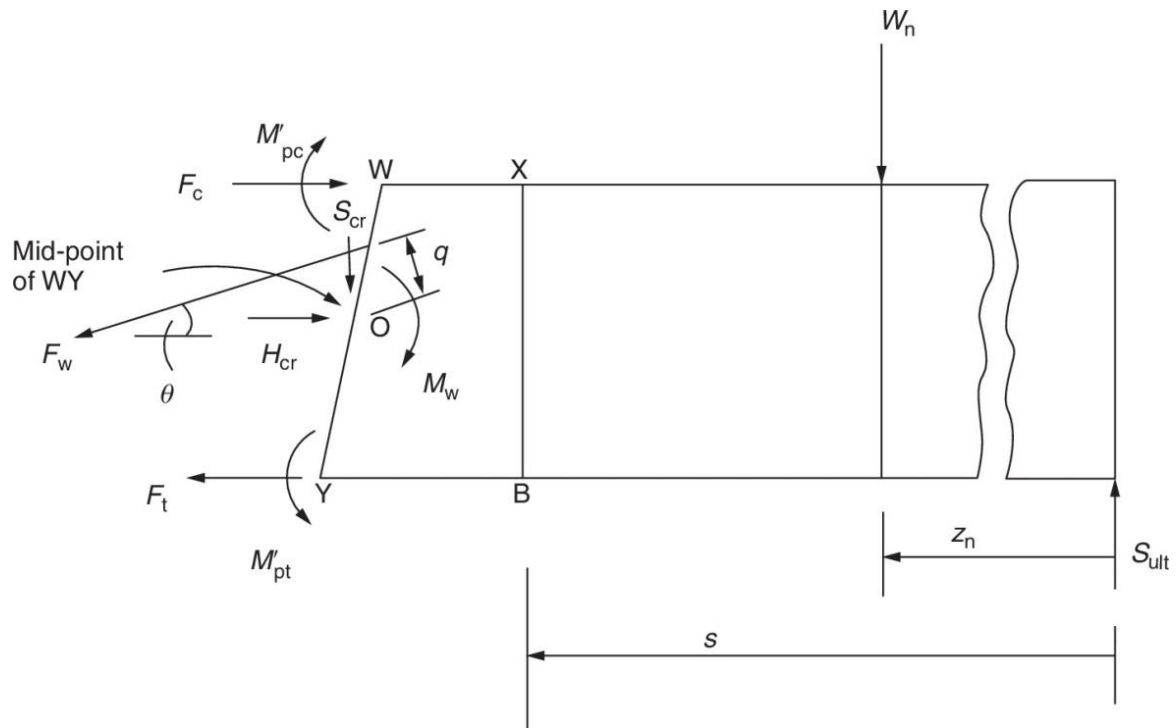


FIGURE 9.20 Determination of Flange Forces

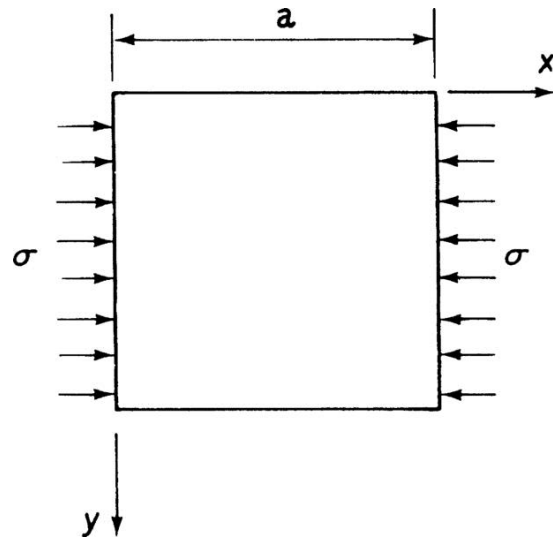


FIGURE P.9.1

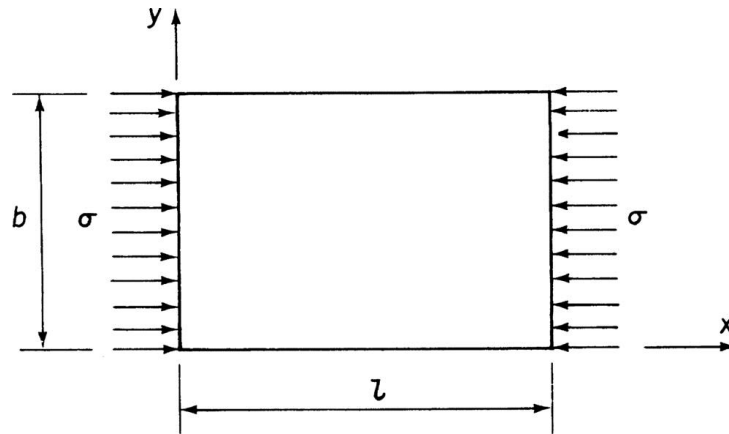


FIGURE P.9.2

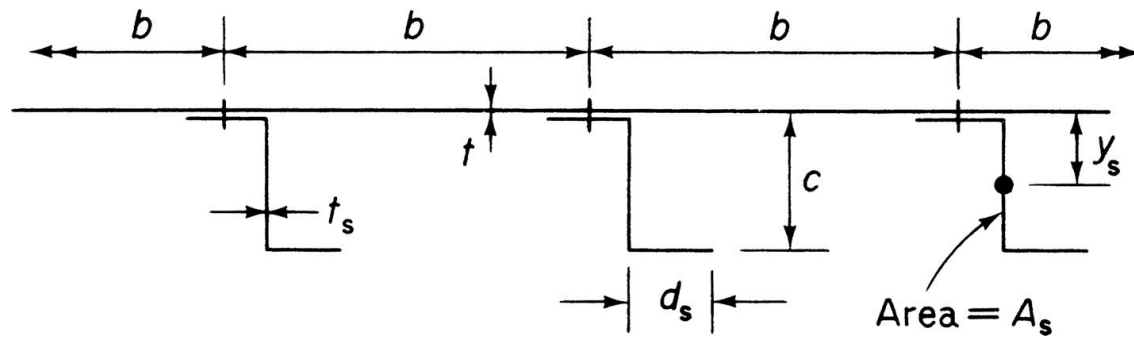


FIGURE P.9.3

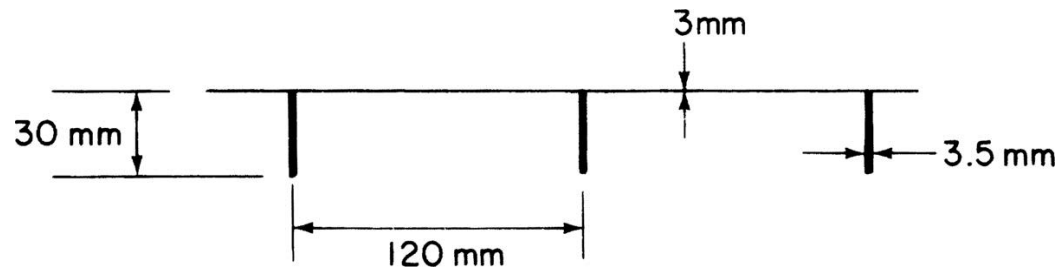


FIGURE P.9.4

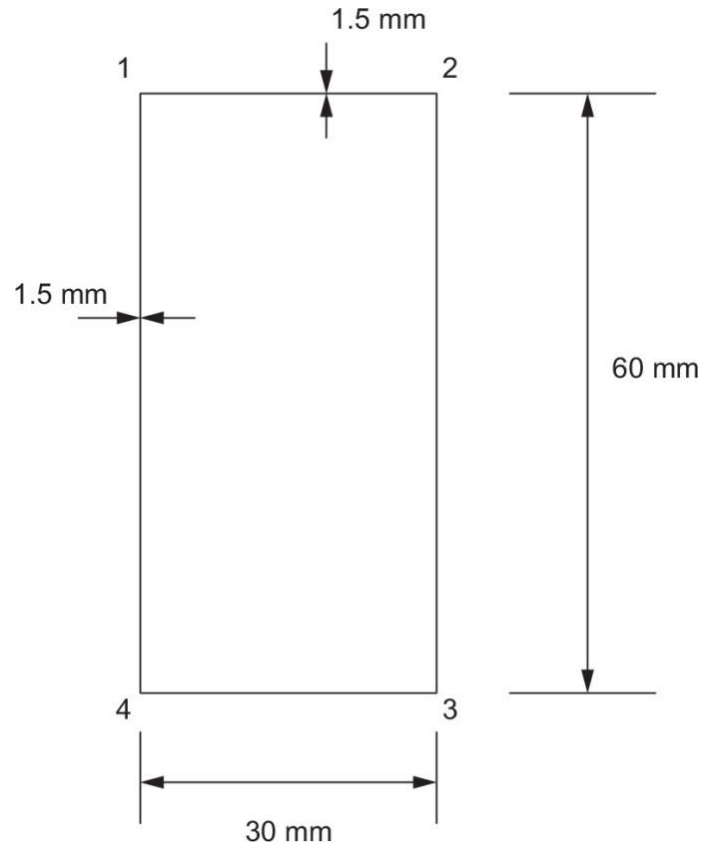


FIGURE P.9.5

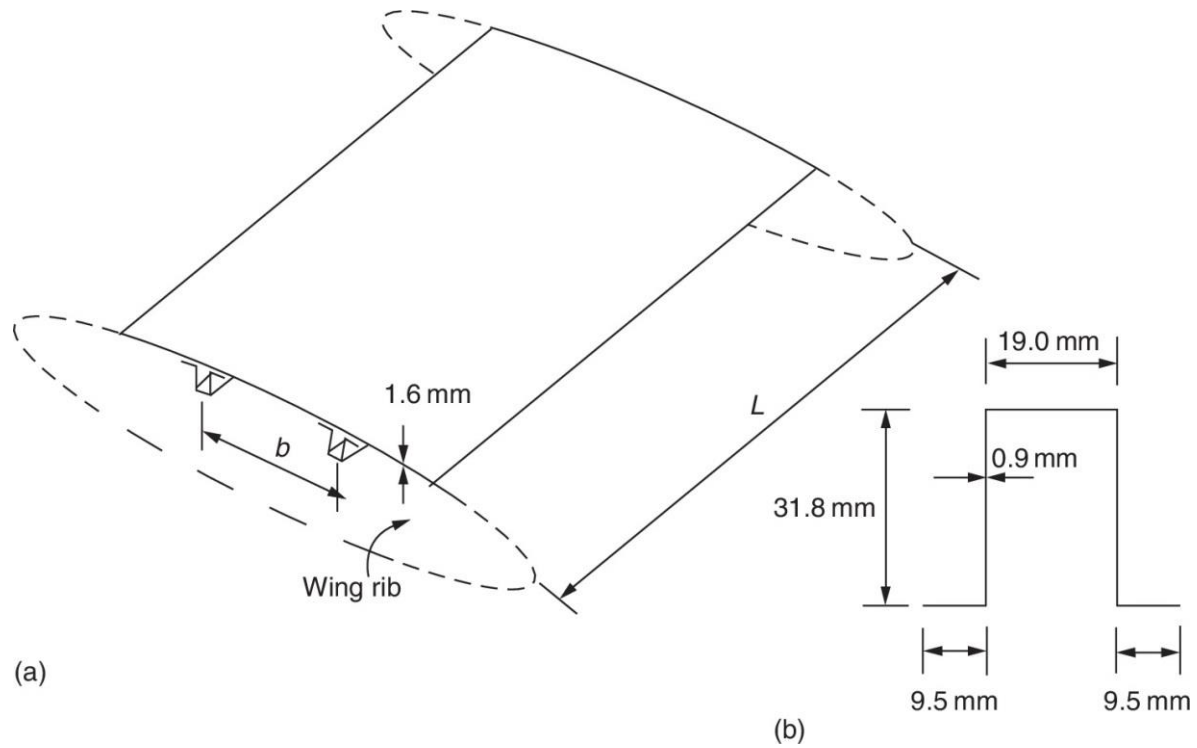


FIGURE P.9.10