

6.33 The modulus of resilience, yield strength, and elastic modulus of elasticity are related to one another through Equation 6.14; the value of E for steel given in Table 6.1 is 207 GPa. Solving for σ_y from this expression yields

$$\begin{aligned}\sigma_y &= \sqrt{2U_r E} = \sqrt{(2)(2.07 \text{ MPa})(207 \times 10^3 \text{ MPa})} \\ &= 925 \text{ MPa (134,000 psi)}\end{aligned}$$