PROB #6-6

LRFD	ASD
$P_u = (1.2)(250) + (1.60)(400) = 940\,k$ From AISC Table 4-1 USE W12 x 96 ($\phi P_n = 957\,k$)	$P_a = 250 + 400 = 650\,k$ From AISC USE W12x106 ($\frac{P_n}{\Omega_c} = 706\,k$)

PROB #6-10

LRFD	ASD
$P_u = (1.2)(350) + (1.6)(400) = 1060\,k$ Enter AISC Table 4-1 with $K_y L_y = 12$ ft W12x96 (1080 k) W14 x 90 (1070 k) Try W12 x 96 ($\frac{r_x}{r_y} = 1.76$) Equivalent $K_x L_x = \frac{K_x L_x}{\frac{r_x}{r_y}}$ $= \frac{24}{1.76} = 13.64$ ft Reenter tables with $K_y L_y = 13.64$ ft W12x106 (1144 k) Try lighter W14x90 ($\frac{r_x}{r_y} = 1.66$) Equivalent $K_x L_x = \frac{K_x L_x}{\frac{r_x}{r_y}}$ $= \frac{24}{1.66} = 14.46$ ft Reenter tables with $K_y L_y = 14.46$ ft W14x99 (1116 k) ← USE W14 X99	$P_a = 350 + 400 = 750\,k$ Enter AISC Table 4-1 with $K_y L_y = 12$ ft W12x106 (798 k) W14 x 99 (751 k) Try W12x106 ($\frac{r_x}{r_y} = 1.76$) Equivalent $K_x L_x = \frac{K_x L_x}{\frac{r_x}{r_y}}$ $= \frac{24}{1.76} = 13.64$ ft Reenter tables with $K_y L_y = 13.64$ ft W12 x 106 (762 k) Try lighter W14x99 ($\frac{r_x}{r_y} = 1.66$) Equivalent $K_x L_x = \frac{24}{1.66}$ $= 14.46$ ft Reenter tables with $K_y L_y = 14.46$ ft W14x109 (819 k) USE W12x106