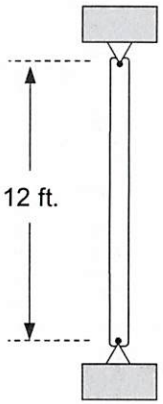
Classroom Problem 4.6-1: Compute the available strength of the compression member **W14 x 68** of **A992** steel (F_y=50 *ksi* and F_u=65 *ksi*) with pinned ends with the aid of a) **Table 4-14** and b) **Table 4-1a** from Part 4 of the ***Manual***.



FROM TABLE 1-1 (1-24) $A = 20.0\ in^2$ $r_x = 6,01\ in$ $r_y = 2,46\ in$

$K = 1.0$ $\dfrac{KL}{r_{min}} = \dfrac{1.0(12\ ft)(12\ in/ft)}{2,46\ in} = 58.54 < 200$ o.k.

* FROM TABLE 4-14 WITH $L_c/r = 58,54$ & $F_y = 50 ksi$

$\frac{L_c}{r}$	$\phi_c F_n$ (ksi)
58	35.2
59	34.9

$\phi_c F_n = 35.2 + (34.9 - 35.2)\,0.54$

$= 35.04\ ksi$

$\phi_c P_n = \phi_c F_n A = 35.04\ ksi\,(20,0\ in^2) = 700.8^k$

* FROM TABLE 4-1a WITH $L_c = 12\ ft$

$\phi_c P_n = 701^k$