8-14. A 26-ft column consists of four steel angles laced together. The cross-section is shown in the figure. The column is pin connected at both ends. Each of these angles has an area of $A = 3.75\,\text{in}^2$, and moments of inertia of $I_x = I_y = 2.7\,\text{in}^4$. If an axial load $P \sim N\left(3\times10^5,\ \left(4\times10^4\right)^2\right)\text{lb}$ is applied to the column, and the modulus of elasticity follows $E \sim N\left(29\times10^6,\ \left(2\times10^6\right)^2\right)\text{psi}$, determine the distribution of the critical axial buckling load. Also, determine the probability of buckling. Assume that *E* and *P* are independent.

(Ans. $P_{cr} \sim N\left(5.72\times10^5,\ \left(3.95\times10^4\right)^2\right)\text{lb},\ p_f = 6.4261\times10^{-7}$)