

12. A strut is subjected to an eccentric force $P \sim N(1000, 100^2)$ lbf with an offset of $e = 0.30$ in as shown in the figure. The size of the strut is $2 \times 2 \times 6$ in. If the yield strength of the strut is $S_y \sim N(1500, 150^2)$ psi and P and S_y are independent, determine the probability of failure using the First Order Second Moment Method.

Answer: $p_f = 1.480(10^{-6})$

