

4-8. The load of a street light system follows a normal distribution of $L \sim N(100, 15^2)$ N as shown. Consider only the normal stress in rod AC at point A. What is the probability of failure if it has a yield stress $S_y \sim N(300, 50^2)$ MPa? The beam has a cross sectional area of 10 mm^2 . Assume L and S_y are independent. $\theta = 45^\circ$. (Ans. $p_f = 1.46 \times 10^{-9}$)

