2-2. Bar AB is hung by two cables CD and EG. The total weight of the bar is $W \sim N(1500, 30^2)\,\text{N}$. A vertical force $P \sim N(600, 15^2)\,\text{N}$ acts on the bar as shown in the figure. Assume that the allowable normal stress of the cables is $S_a \sim N(120,12^2)\,\text{MPa}$. If W, P, and S_a are independent, determine the diameters of the cables so that the probability of failure of each cable is less than 10^{-4}. (**Ans.** $d_{CD} > 4.51\,\text{mm}$)