

Problem:

Find the optimum profile of a prismatic pin fin that maximizes its effectiveness subject to the following constraints:

1. Material constraint: Volume of material = V
2. Space constraint: Length of pin fin is less than L_0 .

Fin effectiveness is given by:

$$e = (k/h) * (P/A)$$

where , k =thermal conductivity(constant)

h =heat transfer coefficient (constant)

P = perimeter of cross-section

A =area of cross-section