$$-k\frac{\partial T}{\partial y}\Big|_{y=th/2} = \bar{h}\left(T_{y=th/2} - T_{\infty}\right)$$

$$T_{x=0} = T_{b}$$

$$th/2 \qquad \frac{\partial^{2}T}{\partial x} + \frac{\partial^{2}T}{\partial y} = 0$$

$$\frac{\partial T}{\partial x}\Big|_{x=L} = 0$$

$$\frac{\partial T}{\partial y}\Big|_{y=0} = 0$$