$$\dot{Q}_{roof}(t) = \frac{A_R}{L} \int_0^L \dot{Q}(y,t)dy \tag{5.1}$$

$$T_w(y,t) = T_{wo}(y) + Re\left(\sum_{n=1}^{\infty} T_{wn} e^{inwt}\right) \tag{5.2}$$

$$\dot{m}_w = 0 \qquad \text{for an open roof pond} \tag{i}$$

$$M_w = 0,\ \dot{m}_w = 0 \qquad \text{for water film, spray, gunny bag system} \tag{ii}$$