

Rosewarne Stable Block- Energy Monitoring Results

Does breathable internal insulation effectively increase thermal performance of solid walls, reduce damp problems and maintain good air quality?

How does the life cycle impact of a retrofitted historic building compare to demolishing and building new

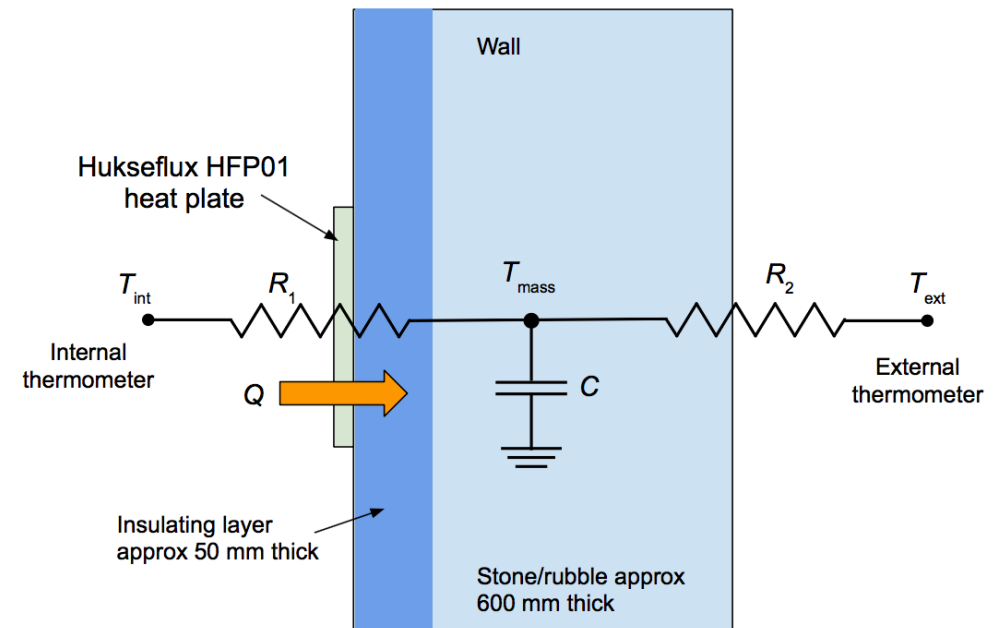
A retrofitted building's thermal performance will usually be worse than that of a new building leading to higher in-use energy and emissions.

Our analysis seeks to determine to what extent this is mitigated by the lower embodied energy and carbon of the retrofit and how this is affected by choice of materials.

To determine in-use energy and emissions:
Use dynamic single thermal mass model

$$Q^p = \frac{(T_{\text{int}}^p - T_{\text{mass}}^p)}{R_1}$$

$$C \frac{T_{\text{mass}}^{p+1} - T_{\text{mass}}^p}{\tau} = \frac{T_{\text{int}}^{p+1} - T_{\text{mass}}^{p+1}}{R_1} + \frac{T_{\text{ext}}^{p+1} - T_{\text{mass}}^{p+1}}{R_2}$$



After Biddulph et al.