

Modelling trade-offs between building energy and health

Speaker and affiliation

Professor Cath Noakes, School of Civil Engineering, University of Leeds, UK

Overview of your presentation

We routinely characterise the performance of a building in terms of the tangible and measurable parameters including energy consumption. The indoor environment has some consideration in performance measures, but this tends to be whether temperatures or overall ventilation rates are within specification more than any local effects and how they affect people. There is an increasing recognition that the building impact on people can be significant, and hence there is current interest in how to include health and wellbeing parameters in building performance. This presentation considers the case of disease transmission in buildings and explores how infection risk can be quantified using measurement and modelling approaches and related to measures such as ventilation energy consumption. Examples from experimental, zonal modelling, computational fluid dynamics (CFD) and epidemic models are given to indicate how health aspects can be quantified and such methods can be used to understand exposure risks and design optimal systems for airborne infection control.

