

An Indoor Air Quality Observatory to quantify health impacts of buildings

A national observatory for indoor air quality would provide essential longitudinal data to evidence the impact of the indoor environment on health. Data would enable effective interventions to be designed to improve public health, while at the same time providing evidence on building performance to support net zero targets and climate adaptation for the built environment. Support for this initiative would strengthen the case for funding opportunities. Most importantly, any input would ensure the effective design of the Observatory to maximise its health-benefit potential for the wider population.

Background

It is well recognised that air quality has a substantial impact on human health. The ability to relate outdoor air quality data to health outcomes has been achieved through the significant worldwide investment in networks of air quality sensors combined with models and analysis to evaluate spatial and temporal variation in air quality.

However, people spend around 90% of their time indoors, so the majority of air breathed is inside buildings and transport vehicles. As more attention is being focused to conserve energy, new buildings are being “sealed” having an impact on ventilation and chemical pollutants, biological agents that may accumulate indoors, as well as on physical parameters such as temperature and humidity.

There is growing awareness of the importance of indoor air quality and the wider indoor environment for health, with exposure to contaminants occurring within the built environment, from both indoor and outdoor sources. The COVID-19 pandemic has highlighted the importance of indoor environments for transmission of disease. The indoor environment also impacts on physical and mental health, as well as productivity, performance, decision making and creativity.

Proposed initiative

The establishment of an observatory for indoor air quality would coordinate the assessment of the impacts of the indoor environment on health. Its function would be to oversee indoor air monitoring activities and provide evidence for policy makers. It would involve government agencies, academics and consultants, develop guidance and protocols for monitoring indoor environments, provide a central repository for data storage, prioritise indoor air pollutants based on exposure and health effects, and provide training by developing policy briefs and information leaflets.

The observatory would enable future research characterising indoor sources, the differential toxicity of pollutants present in indoor air and people’s exposure to them, which will enable quantification of the burden of disease associated with a range of hazards in indoor environments. Data from the observatory would also support better understanding of building performance and therefore contribute towards policy goals such as progress towards net zero.

Engagement and support

Stakeholder engagement has thus far been successful in gaining strong support from the academic community, numerous Governmental departments' scientific teams, and key senior air-quality and health figures. To strengthen the vision, we are now ready to engage with wider stakeholder groups such as industry, health charities, senior civil servants, MPs, and policy makers, and funders.