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Proposed topic: Improving building ventilation and indoor air quality

The nature of the issue that the Committee should explore

Good indoor air quality is essential for human health. Removing indoor pollutant sources and ensuring effective ventilation can reduce airborne transmission of infections, reduce exposure to harmful indoor air pollutants, manage overheating and mitigate mould and damp.

People spend up to 90% of their day indoors yet indoor air quality is rarely studied.. Many public buildings such as health facilities, schools, retail, hospitality and workplaces have spaces that are used by the general public and employees who are exposed to indoor air pollution without being able to control their environments. Government led initiatives to improve indoor air quality would act to reduce or prevent ill health in these and other settings.

From the 2022 [Chief Medical Officers report](#): *“A better understanding of how we can prevent and reduce indoor air pollution should now be a priority.”*

Why it deserves attention from the Committee now

Increasing evidence shows indoor air quality and ventilation impact health and wellbeing including on respiratory symptoms, workplace and school sickness absence, productivity and sleep quality. Recent cases have highlighted the devastating health impacts of poor air quality.

In the case of [Awaab Ishak](#) interventions to improve indoor air quality could have prevented premature death. Awaab was two years old when he died because of mould in a social housing flat in Rochdale, and inadequate ventilation was cited as part of the cause. Over 320,000 private renters in England are suffering with mould and condensation problems, on top of [160,000](#) in social housing, according to government figures. Mould complaints in England’s social housing [have doubled](#) over the past two years.

In the case of [Ella Kissi-Debrah](#) outdoor air pollution exacerbated asthma symptoms and resulted in a premature death. Ella was 9 years old when she died following a series of severe asthmatic episodes of respiratory and cardiac arrest. Air pollution from outdoor traffic emissions, but also ingress into her home was a significant contributory factor to both the induction and exacerbations of her asthma.

These cases illustrate the diversity of hazardous exposures to air pollution and the challenge with identifying simple solutions. The ingress of outdoor air for ventilation is vital for diluting indoor pollution sources, including reducing damp and mould to avoid future cases like Awaab's. However, the complexity is highlighted by Ella's case for which the ingress of outdoor pollution would risk further exacerbation of health problems.

These risks are exacerbated by the cost-of-living crisis which is increasing the number of inadequately ventilated and poorly heated indoor spaces and use of polluting fuels such as wood

burners and paraffin heaters. This will exacerbate health problems that already disproportionately affect those with the lowest incomes, with existing buildings being hard to treat. Net-Zero strategies to insulate buildings and increase airtightness presents a further risk of creating unhealthy buildings if ventilation is not addressed. A recent survey commissioned by FUVN found that 66% of UK homes do not have adequate ventilation.

How Government policy in this area could be developed or improved

There are a range of policies that relate to indoor environments including the building regulations ([Part F](#)) in England for ventilation requirements and [NICE indoor air quality guidelines](#) for homes. There is limited guidance on appropriate values for pollutants indoors; standards have ventilation rate recommendations and there are proposed values for some pollutants in the draft [Clean Air Bill](#) but good indoor air quality is poorly defined and rarely measured.

The [Royal Academy of Engineering](#) has highlighted the substantial challenges with ensuring good indoor environments in practice. There is no requirement for older buildings to meet contemporary standards, meaning that these only apply to a minority of buildings. There are minimal mechanisms for checking compliance with standards, and evidence from multiple projects suggests large numbers of buildings do not meet current ventilation requirements.

There is an opportunity, particularly with the creation of the building safety regulator, to put a greater focus on ensuring compliance and improving indoor air quality in existing buildings. We suggest that this includes: properly coordinating indoor air policy across government departments; implementing regulatory changes that focus on improving existing buildings; better guidance and greater expectations to those who design, retrofit and manage buildings; greater enforcement of compliance with standards; and implementing visible monitoring of indoor air quality in public spaces to support compliance and identification of areas for improvement.

The authors

The authors of this evidence are members of the [Future Urban Ventilation Network](#) which is part of the [UKRI NERC Clean Air Programme](#). The network is developing a technical framework to enable a new integrated health evidenced approach to urban building design. Our membership and stakeholders include academic researchers, health practitioners, industry and policy makers. Members of the network were contributors to the recent CMO annual report on air quality.

Feb 2023