



BESA Written Evidence to Public Bill Committee

Environment Bill 2019-20

The Building Engineering Services Association (BESA) is the UK's leading trade association for contractors specialising in the heating, ventilation, cooling and air conditioning (HVAC) of buildings, representing more than 1,000 member companies, with a combined estimated turnover of £3.6 billion.

Executive Summary

1. We know that air pollution is one of the most significant factors impacting health worldwide and increasingly we are seeing the true impact poor indoor air quality (IAQ) has. Research from the Royal College of Paediatrics and Child Health has shown the very significant health impacts of IAQ with causal links to respiratory conditions such as asthma and other allergic conditions including conjunctivitis, dermatitis and eczema. We believe that the Environment Bill must address this looming health issue. Below we provide context about the issue and then how the Bill could be amended to combat dangerous indoor air pollution.
2. BESA would welcome the opportunity to present to the Committee and share our members' professional expertise, in addition, BESA would be pleased to arrange for one of our qualified contractor members to conduct a reading of the indoor air quality at the Palace of Westminster and Portcullis House to provide an understanding of what you, your colleagues and staff breathe in at work.

Context

3. Most people spend 90% of their lives indoors. Indeed, on average, British children spend just 68 minutes outdoors each day; since we spend most of our lives in buildings, a failure to redress this will outweigh any progress on outdoor air quality. In the average house, concentrations of Volatile Organic Compounds (VOCs) released from these sources are up to seven times higher indoors than in the air outside. The use of personal-care and household products indoors produces a significant portion of outdoor VOC pollution.¹
4. BESA welcomes the Government's moves to improve (what we presume is) outdoor air quality through the Environment Bill; however, our members feel there has been a missed opportunity to address IAQ and believes this Bill provides a platform to do so. BESA believes the Government should have a particular focus on addressing IAQ in schools across the country.
5. As building engineers in the HVAC sector, we are disappointed that Part 4 of the Bill is silent on addressing the pressing issue of IAQ. As referenced earlier, research published by the Royal College of Paediatrics and Child Health and the Royal College of Physicians has showed that indoor air is often many times more polluted than external air. This is due to the combination of a number of contaminants including smoke, damp, traffic fumes, chemical aerosols and particulates from wood burning.

¹ https://www.rcpch.ac.uk/sites/default/files/2020-01/the-inside-story-report_january-2020.pdf

6. BESA and its members are committed to working with industry to promote awareness of IAQ and indoor clean air zones that protect occupants from the worst impacts of air pollution. To that end, we have established a Health and Wellbeing in Buildings Group and recently launched a 'Building Safe Havens' campaign which is aimed at promoting the concept of indoor clean air zones. For a building to be a 'Safe Haven' BESA believes it must not only be airtight, but also well ventilated and protected by properly specified and maintained filtration and air purification systems.
7. If buildings do not have appropriate ventilation, filtration and air purification systems, many of polluting particulates are brought inside into a more confined space with potentially more serious consequences for occupants.
8. BESA has been joined in our calls for action on IAQ by World Health Organisation advocate for air quality and children's health Rosamund Adoo Kissi-Debrah, who recently said it was vital there be a focus on sources of indoor pollution, which can be controlled more easily, cheaply and quickly than external pollution. With 4.2 million people worldwide dying from poor indoor air, the published research should be a call to action, she believes.

The hidden impact of indoor air pollution

9. Although clearly an extreme example, the recent Australian wildfires provide a dramatic example of the consequences of built environments not being appropriately designed to protect occupants; this included civil servants with responsibility for coordinating relief efforts who were unable to work due to dangerous indoor air in government buildings in the capital, Canberra.
10. In populated areas, buildings can amplify the single source of a virus or infection. In light of the recent global outbreak of Coronavirus, BESA agrees with Dr Joseph G. Allen who recently told the Financial Times that buildings could be either a blessing or a curse in the effort to fight epidemics.² Dr Allen noted that the global transmission of SARS in 2003 was triggered by one person, in one room, on one floor of a hotel in Hong Kong. The building amplified this single source of contamination, transmitted it to 16 other people, who then proceeded to distribute it around the world. However, improving filtration and ventilation, increasing the rate of fresh air, and adjusting indoor humidity levels in most buildings is not difficult. Dr Allen noted that increasing ventilation and filtration rates above industry minimums reduces the risk of virus transmission by 50%. He believes that most buildings are using "cheap filters" that capture less than 20% of airborne virus-sized particles and by improving these, it would be possible to capture more than 80%. BESA agrees with his call for wider use of portable air purifiers with high efficiency particulate filters.

Proposals for amendments to the Bill

11. We recommend the following amendments be made to the Bill:
 - Section 1(3)(a) should be amended to clarify that the air quality refers to be both indoor and outdoor air quality.
 - Section 2 should be amended with a new provision requiring the Secretary of State to set by regulation an indoor air quality target for buildings.
 - Section 3 (9) should be amended to ensure the statutory instrument also contains regulations setting minimum ventilation rates and maximum concentration levels for specific types of indoor air pollutants including PM2.5 and below; CO₂ levels; ozone;

² Financial Times, February 9, 2020 [How healthy buildings can help us fight coronavirus](#)

VOCs and NOx and reflect the latest, best practice advice from by the World Health Organisation.

- Section 5 should be amended to include a provision for the Secretary of State to compel public sector bodies to conduct mandatory measuring and monitoring of IAQ in buildings in their estates, and the Secretary of State should report on the level of IAQ compliance across the whole of government.
- Section 6 of Schedule 11 should be amended to include an additional duty on local authorities to compel building owners and managers to carry out IAQ checks and order improved measures of non-compliant premises used by the public including schools, hospitals, and commercial offices.

12. As cited earlier, the RCPCH and RCP report, *The inside story: Health effects of indoor air quality on children and young people*, found a causal link between indoor pollution and children's respiratory health. Given the number of hours children spend at school, BESA believes IAQ in schools can be improved by extending the existing OFSTED inspection regime to include the reporting of poor air quality levels in schools, particularly those in high risk urban areas and on or close to busy roads.