UK IEG
Indoor Environments Group

Healthy Indoor Environments

Challenges and Opportunities for Policymakers

SUMMARY OF A POLICY WORKSHOP

Gas Safety Trust

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Foreword

We spend up to 90% of our lives indoors; ensuring that the indoor environment benefits our health and wellbeing is therefore important. Despite this, the damaging effects of the indoor environment are rarely fully acknowledged, nor are the necessary steps to reduce such effects being taken. This is particularly disappointing as many of the features of the indoor environment that can damage health can be corrected at comparatively low cost. Why is so little being done? In part, it is because regulating the indoor environment seems to contravene the adage *'an Englishman's home is his castle'*.

Scientific research provides the evidence that features of the indoor environment have an adverse impact on our health and wellbeing. As an example, much of what is known about the effects of air pollutants on health comes from studies of outdoor air. Here there is no dispute: both short and long term exposure to common air pollutants damages the respiratory and cardiovascular systems and can adversely affect fetal development and, perhaps, the functioning of the brain. However, it seems to have been forgotten that people are exposed indoors to many of the same pollutants found outdoors, sometimes at levels higher than those found outdoors. It is well-known that the cost to the UK economy of exposure to outdoor air pollutants is high. However, no such estimate of the cost of indoor exposure and the potential benefits of reducing this exposure, has yet been made.

Occupant behaviour plays a large part in determining the quality of the indoor environment. How we use and maintain our buildings, the materials we use for building and furnishing, how we ventilate, how we use and maintain our heating and cooking appliances and how we store and use products that emit pollutants: all these actions can affect the quality of the indoor environment. The individual must bear some, but not all the responsibility. Government also has an important role to play, in developing higher standards for buildings, regulating products and devices used in homes, providing help for those who cannot afford to heat their homes adequately, and in advising people on how to maintain a healthy indoor environment. Likewise, other stakeholders such as those involved in the design, construction and maintenance of buildings, as well as those that develop and maintain products and devices used indoors, all share in this responsibility.

Recognising the importance of having effective policies that address the indoor environment for the protection and promotion of public health, I wholeheartedly supported a proposal to hold a workshop to review the current approach in the UK. At the workshop, held in July 2016, several important pieces of work were presented. Whilst the case was made that action by Government is needed to improve the indoor environment, it was clear that, to be effective, action could not be taken solely by any one Government Department or Agency, nor by Government Departments working independently of each other: collaborative action, across Government, would be needed. That this collaboration should be begun now and that a clear administrative lead should be identified and located in a Government Department, was a strong recommendation.

The recommendations produced by this workshop represent an important first step in addressing the development of an effective co-ordinated strategy; a strategy focussed on improving the indoor environment to support improved health and wellbeing. Government and stakeholders will need to work together to tackle the issues highlighted. But recommendations alone can accomplish little: action based on these recommendations will be needed.

I am greatly encouraged by the initiative shown by the delegates who attended this workshop. These are the people who lead the teams that protect public health, who collect vital information, who undertake research and who advise on policy: that they are so positive and enthusiastic is most impressive. I hope that the required support will be provided to allow this important work to progress in a properly co-ordinated way.

I would like to thank the delegates for participating in the workshop and for being so generous with their time and so clear and innovative in their contributions. I would also like to thank Gas Safety Trust and Policy Connect for sponsoring this event, and the UK Indoor Environments Group (UKIEG) Committee for organising and facilitating the workshop and for compiling this report.

Professor the Baroness Finlay of Llandaff

This Foreword is replicated from the main report of the workshop 'Healthy Indoor Environments: Challenges For Policy Makers'. The report expands on the points raised in this summary document and can be found at www.ukieg.org. See page 5 of this document for further information.

Why do healthy indoor environments matter?

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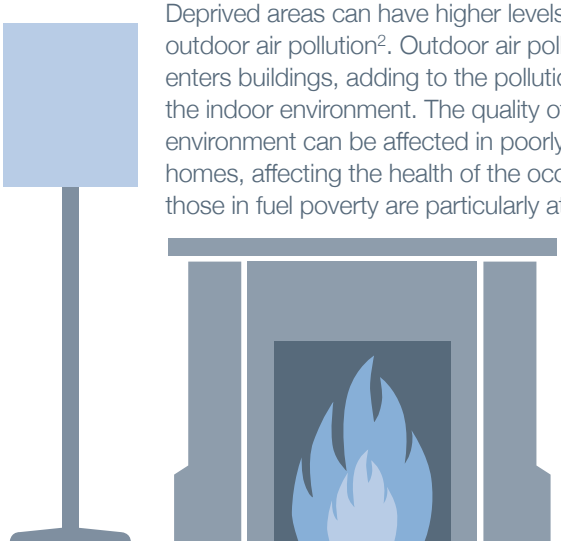
Since we spend a large amount of time indoors, the indoor environment plays a key role in supporting health and wellbeing throughout our lives. There are many different factors that can affect health and wellbeing indoors, including exposures from indoor or outdoor sources of chemicals, microorganisms and other air pollutants, light, noise, moisture and temperature. These factors are in turn influenced by building configuration and construction, the urban environment around individual buildings, occupant behaviour and operation of the building. Wider aspects such as affordability, availability of space and access to amenities, can also have an impact on health and wellbeing.

Mortality: It has been estimated that, in the UK, around 40,000 people die each year as a consequence of exposure to outdoor air pollution[2]. Cold and hot weather extremes can also result in excess deaths; in England and Wales, during 2015/16 an estimated 24,000 people died from cold exposure[3], and approximately 2,000 died due to the 2003 heatwave in England and Wales[4].

Cost of poor housing to the NHS: This has been estimated as £1.4bn in England. This rises to £2.0bn per annum for England and £2.5bn for the United Kingdom if the definition of poor housing is broadened[5].

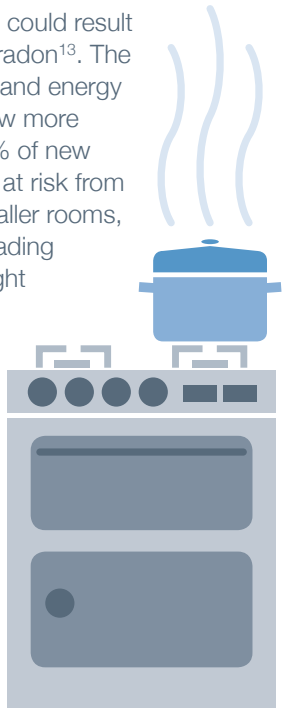
Health inequalities: In English homes, poor, non-working individuals from ethnic minorities are much more likely to live in a damp and mouldy home than white, wealthier individuals in employment[6]. The proportion of those on the lowest income who have dampness in their home is 3.4 times greater than those on a higher income[4]. The World Health Organization recommends avoiding exposure to dampness and mould,[7] as it is associated with increases of 30–50% in a variety of adverse effects on respiratory health[8]. Deprived areas can have higher levels of outdoor air pollution[2]. Outdoor air pollution enters buildings, adding to the pollution mix in the indoor environment. The quality of the indoor environment can be affected in poorly heated homes, affecting the health of the occupant: those in fuel poverty are particularly at risk.



Vulnerable groups: Older people and those who are bedbound will spend between 90 and 100% of their time indoors: respiratory, cardiovascular and other diseases associated with ageing makes them more vulnerable to poor indoor environmental conditions. Such individuals are also more vulnerable to infection; a particular concern in shared environments such as nursing homes[9]. The number of people suffering from dementia in the UK is predicted to rise from 700,000 in 2008 to 1.4 million in 2038[10]. As outdoor air pollutants are found indoors, the findings in the scientific literature that outdoor air pollution affects cognitive decline and all-cause dementia[11] is important. *'Ageing in Place'*, a key component of UK policy on older people and housing, is considered beneficial to older people's wellbeing whilst also reducing the burden on the NHS. Although many aspects of indoor environments can help support health and keep people out of hospital, the danger lies where the indoor environment is detrimental to health and wellbeing and hinders healthy ageing at home.

People in the UK can spend up to 90% of time in indoor environments[1], therefore indoor environments play a key role in supporting health and wellbeing throughout an individual's life.

Climate change mitigation and adaptation: Energy efficiency improvements in buildings for climate change mitigation can produce co-benefits, such as a reduction in cold weather mortality, but also a range of possible unintended consequences; such as increases in the concentration of pollutants generated indoors and in mould risk[12]. Home energy efficiency improvements implemented without consideration to ventilation performance could result in greater exposures to cancer-causing radon[13]. The need for integration of health protection and energy efficiency within building regulation is now more widely recognised[14]. Approximately 30% of new build housing could be currently already at risk from overheating, due to factors such as: smaller rooms, poor ventilation performance, lack of shading and inappropriate user behaviour[15]. In light of climate change, overheating risks in buildings are of concern.



2 Key challenges for healthy indoor environments

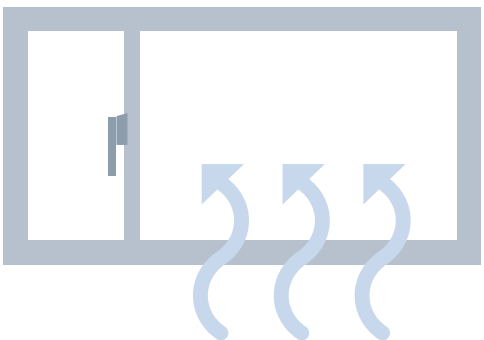
Regulation: The work environment is regulated by the Health and Safety at Work Act (1974). This was designed to protect workers from industrial hazards and does not cover, for example, the needs of children in schools or older people in private care-homes. Similarly, building regulations offer some protections for occupants, although they mainly influence the construction of new buildings. The majority of the UK building stock was built prior to modern regulations. Building regulations are predominately focused on ventilation provision and there is limited regulation regarding emissions of hazardous pollutants from building-related products. Compliance with regulations and standards post construction is not always guaranteed.

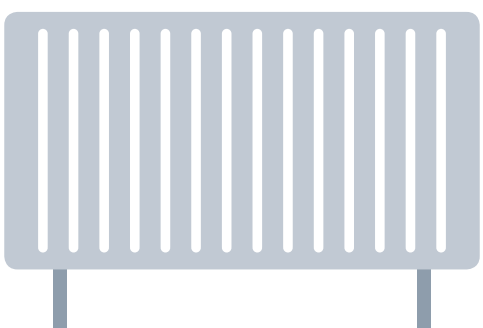
Tackling all aspects - prioritisation and coordination: There are many aspects of the indoor environment that affect health and wellbeing, which, by their very nature, fall under the remit of a number of different government departments. Whilst some aspects do receive attention across government departments in policy and regulation, others do not. For example, there is no one government department that has the remit to protect occupants from indoor air pollution despite concern and action on the effects on health of outdoor air pollution. A holistic approach to addressing healthy indoor environments will require cross government working and local authority involvement.

Policy silos: With many government departments currently having only small, isolated elements of their responsibilities associated with the indoor environment and/or health and wellbeing, healthy environments are not currently tackled in a coordinated way in national policy. This fragmentation prevents healthy indoor environments being given appropriate prominence and recognition at a Parliamentary level, or sufficient coordination at Local Authority level.

Involving multiple stakeholders: Health and wellbeing in indoor environments is a field of endeavour that involves multiple stakeholders, including the built environment industry, public health professionals, researchers, policy makers, and third sector organisations. Whilst challenging, effective communication and mutual understanding across these sectors is essential for progress to be made.

Learning from experience and best practice of other countries: This could be advantageous for the health and wellbeing of the UK population, as well as ensuring that UK products and services remain competitive internationally. The UK should learn from and consider achievements and activities in other countries such as product labelling, product emission testing, and indoor air quality guidelines.





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Recommendations

Recommendations for Government

- A lead Government Department should be designated to head up development of national strategy and policy, and co-ordinate cross-government department work on the issue of health and wellbeing in the indoor environment.

Recommendations for Parliamentarians

- Parliamentarians should support the establishment of a Commission on Indoor Air Quality to: guide changes in policy development and societal behaviour relating to health and indoor air quality; ensure effective management and enforcement of standards; and provide a mechanism for the provision of independent evidence to Government on this important topic area.
- Parliamentarians should promote a public awareness campaign, supported by industry as appropriate, to provide information and advice on the health risks associated with poor indoor environment quality and how to avoid them. Mechanisms to provide expert advice and guidance to industry should also be considered.
- Parliamentarians should continue to raise awareness and Parliamentary Questions on this subject to develop a:
  - better understanding of how air quality in the indoor environment affects the health and wellbeing of occupants;
  - deeper appreciation of the importance of indoor environments, healthy buildings and their effects on health and wellbeing by using the channels available to them (including, for example, appropriate expert committees and All Party Parliamentary Groups).
- A round-table event across all All Party Parliamentary Groups that have a remit covering any aspect of the indoor environment, health and wellbeing should be organised to consider how best APPG activity in this area might be organised to facilitate a co-ordinated approach at policy level.

Recommendations on Regulations and Standards

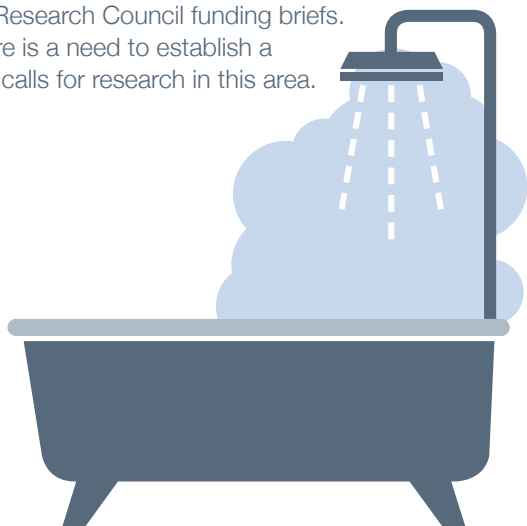
- Mechanisms need to be developed and agreed between industry and relevant government /agencies for supporting and checking compliance with standards and regulations post building construction.
- New health-based standards and guidelines that have an impact on the indoor environment must be developed for the UK and existing health based standards and guidelines must be promoted, managed and enforced.
- Building-related guidance should be developed to facilitate health protection provision for the vulnerable in relation to the health effects of climate change linked to the indoor environment.
- Standards regarding the sources of indoor pollutants, and most appropriate measures for control should be developed, using approaches already implemented by other countries where appropriate.

Recommendations for Local Government

- Local Authorities could collaborate with the building industry - including developers and building management organisations - to develop strategies which reduce pressures on the NHS by providing indoor environments that match the needs of older people and people with pre-existing medical conditions, as well as help prevent or ameliorate relevant health outcomes.
- Local Authorities should develop plans to monitor the quality of indoor environments, especially social and privately-rented housing, to include the standardised gathering and sharing of information in harmony with systems such as the English Housing Health and Safety Rating System.

Recommendations for Research Councils

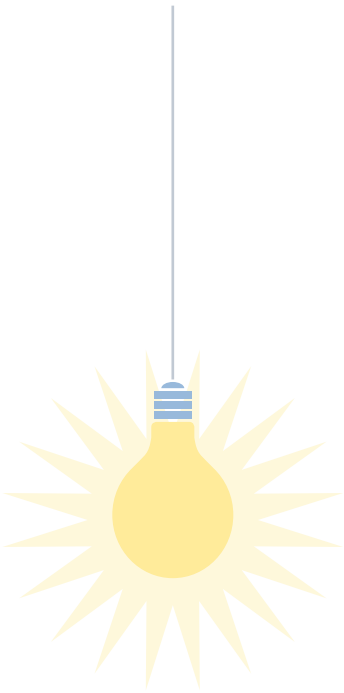
- The UK Research Councils should recognise that the cross disciplinary nature of this issue does not readily fit into Research Council funding briefs. Therefore, there is a need to establish a framework for calls for research in this area.



For a full list of recommendations please refer to the Workshop Report (see page 5).

4 Conclusion

It is possible to reduce the negative health effects caused by the indoor environment, and harness its wellbeing potential. However, effective action on this complex issue requires coordinated working between government, parliament, industry and academia. Actions based on the recommendations made here have the potential to deliver significant advances.



Background

Recognising the cross-cutting nature of this issue and the significant challenge in achieving policy coordination, the UKIEG - with support from the Gas Safety Trust, Policy Connect and Professor the Baroness Finlay of Llandaff – organised a one-day workshop, held in London on 14th July 2016. The meeting brought together 15 attendees from different government departments, agencies, All Party Parliamentary Groups and sponsor organisations. The discussion addressed:

a) issues and priorities from the perspectives of different government departments and agencies;

b) opportunities and challenges presented in addressing this issue;

c) whether better coordination might be required and, if so, how this could be achieved.

This briefing outlines the key points of the workshop discussion and relevant recommendations, developed by the report authors, to improve existing and future healthy indoor environment programmes and policies. Further details can be found in the full workshop report available at **www.ukieg.org**.

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About the UKIEG

The UK Indoor Environments Group (UKIEG) is an independent and impartial multidisciplinary network of professionals working in the field of health and wellbeing in the indoor environment. We are committed to promoting the development, synthesis, dissemination and application of evidence relating to policy and practice relating to UK indoor built environments, with the ultimate aim of improving health and wellbeing. Membership of UKIEG is free. The Group is coordinated by a Committee of 10-15 members.

UKIEG further information: www.ukieg.org • Twitter: @theUKIEG • LinkedInGroup: UKIEG

About Gas Safety Trust

The Gas Safety Trust, established in 2005 as a registered charitable body, has become the UK's leading gas safety research charity with the key objectives of further improving gas/fossil fuel safety for the public and industry throughout the UK and reducing the incidents of death and serious injury from carbon monoxide (CO) exposure. The Trust does this through the funding of research and data collection relating to CO poisoning. Since 2013 the Trust has awarded £1.5 million to a variety of programmes and projects relating to gas/fossil fuel safety and CO.

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Disclaimer

The content outlined in this document does not necessarily reflect the position of individual workshop attendees and/or their government department or agencies.

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