



BESA's response to the MHCLG consultation entitled: The Future Homes Standard; 2019 consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings

Submission deadline: 7 February 2020

Submission to: FutureHomesStandardConsultation@communities.gov.uk

About BESA

The Building Engineering Services Association (BESA) is the **UK's leading trade organisation for building engineering services contractors** – representing the interests of firms active in the design, installation, commissioning, maintenance, control and management of engineering systems and services in buildings, with a particular focus on heating, cooling and ventilation. We have more than 1,000 members with a combined estimated turnover of £3.6 billion; BESA's members operate through the whole process from design of a building through construction, occupation, refurbishment and, ultimately, decommissioning.

Our submission

BESA's headline perspective:

- We support MHCLG's focus on reviewing Parts L and F of the Building Regulations in tandem. It is critical that in pushing for improvements in energy efficiency, we do not take steps that negatively impact on indoor air quality.
- This takes on added significance given the recent health concerns raised to two independent clinical institutes that set out the link between indoor air pollution and children's respiratory health¹. This revealed that indoor air quality can be as much as 13 times worse than outside air², but that it can be controlled through a combination of improved building systems and occupant behaviour.
- On the basis of such information, and so that the Government can take steps to reduce what we see as a looming nationwide health issue, we propose the adoption of the latest in efficient ventilation systems, clean air technology and the most up to date filtration standard (ISO16890) in the revised Building Regulations. This would allow building engineers to efficiently tackle even the very smallest particulates including PM1 (the smallest easily measurable), which was identified by the WHO as a Group One carcinogen and linked to early onset Alzheimer's disease.
- There is also a growing problem inside buildings with NOx emissions from transport, which is known to cause inflammation of the airways, reduce lung function and increase the frequency and severity of asthma attacks. More guidance should be provided to reduce the amount of harmful exterior emissions penetrating buildings – and there should be more focus placed on maintenance of ventilation systems.

¹ 'The Inside Story: Health effects of indoor air quality on children and young people' – a joint report by the Royal College of Paediatrics and Child Health (RCPCH) and the Royal College of Physicians (RCP).

² <https://www.southampton.ac.uk/news/2016/04/health-impact-of-air-pollution.page>

- We support adopting progressively tougher ventilation requirements that could be adjusted in line with new energy efficiency benchmarks in order to create buildings that are energy efficient, comfortable and healthy.
- We believe that local authorities should have the power to enforce mandatory measuring and monitoring of indoor air quality with specific focus on airborne particulates PM2.5 and below; along with CO², ozone and VOCs levels, which are linked to heart and lung diseases as well as certain cancers.
- Ultimately, and on an over-arching level, we support the Government establishing a binding target to improve indoor and outdoor quality through the Environment Bill. Currently, the Environment Bill simply sets out that the Government will introduce a binding target to improve air quality and PM 2.5 rates, but is silent on indoor air quality.

Q30 Do you agree that we have adequately covered matters which are currently in the Domestic Ventilation Compliance Guide in the new draft Approved Document F for new dwellings?

Yes. It makes sense to use the latest edition of the Domestic Ventilation Compliance Guide to ensure that Approved Document F is clearer for contractors to understand and follow.

Q36 Do you agree that using individual volatile organic compounds, informed by Public Health England guidelines, is an appropriate alternative to using a total volatile organic compound limit?

Yes, they are in themselves adequate, however, CO₂ should also be measured because it is the cost-efficient and effective way to establish the success of the ventilation strategy as a whole. Indeed, CO₂ measurement could act as a simple proxy for other contaminants, which may be internally generated. If CO₂ is well diluted by ventilation, then usually other internally generated contaminants will also be diluted. Given a 400-450ppm background outdoor air level of CO₂, indoor air quality levels above 1,000ppm should be regarded as unsatisfactory, and below 700ppm as ideal.

Q37 Do you agree with the proposed guidance on minimising the ingress of external pollutants in the draft Approved Document F?

Yes. Consideration should be given to gas phase filtration where external pollution ingress is possible.

Q39 Do you agree with the proposal to remove guidance for passive stack ventilation systems from the Approved Document?

Yes. We support the proposal to remove guidance on passive stack ventilation system (and we suggest that this could also apply to intermittent fans, although we accept guidance here is proposed to be simplified).

Q43 Do you agree with the proposed approach in the draft Approved Document for determining minimum whole building ventilation rates in the draft Approved Document F?

No. There should be a final performance measurement dependent on room size (using a CO₂ measurement) with the intended number of occupants present in order to demonstrate that the specification, design and execution of the ventilation strategy was successful.

Q47 Do you agree with the proposal to provide a completed checklist and commissioning sheet to the building owner?

Yes. The effectiveness of ventilation systems will over time depend on how they are used and maintained. As such, it makes sense to make the building/property owner aware of the work that has taken place, and for the required maintenance regime to ensure the system continues to run efficiently and maintain the warranty of the unit.