

RIBA Response

Environmental Audit Committee - Energy Efficiency in Existing Homes

The Royal Institute of British Architects champions better buildings, stronger communities and higher environmental standards through the practice of architecture and our 40,000 members. We provide the standards, training, support and recognition that put our members – in the UK and overseas – at the peak of their profession. With government and our partners, we work to improve the design quality of public buildings, new homes and new communities.

The Royal Institute of British Architects (RIBA) welcomes the opportunity to respond to the inquiry on the energy efficiency of existing homes. This opportunity is particularly welcome as the RIBA called for this inquiry in our response to the Possible Future Inquiries earlier this year.

The RIBA welcomes the direction of travel signified by many of the measures proposed by Government in recent years to help the UK reach net zero. However, we believe that there is a need for greater ambition on behalf of the Government if we are to significantly improve the performance and reduce the environmental impacts of the built environment.

The RIBA recommends:

- The Government must set a more ambitious target for improving the energy efficiency of existing homes
- Energy Performance Certificates (EPCs) are not fit for purpose and should be reformed
- The Government must set out clear retrofitting policies as part of a National Retrofit Strategy
- Improving energy efficiency in existing homes is key to ensuring a green recovery post COVID-19
- Post Occupancy Evaluation must be embedded in all projects
- The Government must restrict the use of Permitted Development Rights to ensure homes are safe and sustainable
- The Government must utilise effective procurement procedures, which includes social value

To improve the energy efficiency of existing homes the RIBA recommends:

- **The Government must set a more ambitious target for improving the energy efficiency of existing homes**

The Government's target to bring all homes to Energy Performance Certificate (EPC) band C by 2035 lacks ambition. Improving energy efficiency in homes must become a national infrastructure priority with increased aspiration.

There are several benefits of setting a more ambitious target, including:

- Increasing the urgency for Government to implement energy efficiency strategies and policies;
- Stimulating the economy post COVID-19 through an increase in skilled employment and private capital investment;
- Improving health benefits for home occupants, resulting in cost savings for the NHS; and
- Positioning the UK as a world leader in energy efficiency in the lead up to COP26.

Despite these opportunities, there are some potential risks. These include:

- A lack of experience may lead to poor quality workmanship during retrofitting works;
- The prioritisation of low-cost retrofitting solutions may result in choosing readily available products with high levels of embodied carbon; and
- An inappropriate use of materials may lead to building defects.

To prevent these risks from materialising, adequate training and education to ensure competence and skills within the supply chain is key. Retrofitting policies should also utilise the Government's TrustMark Registered Businesses scheme. This will help to provide quality assurance standards when retrofit works are being delivered.

- **Energy Performance Certificates (EPCs) are not fit for purpose and should be reformed**

EPCs are not an accurate representation of the energy use of a home

Understanding how much actual energy a building uses is crucial to identify where, and which, energy efficiency improvements can be made. Operational energy, or energy measured at the meter, captures the actual energy usage of a building. EPCs do not measure operational energy – making them an inaccurate measure of the energy efficiency of a building.

Inaccurate measurements are often more acute in older buildings, which are required to utilise Reduced Data Standard Assessment Procedure (RDSAP) methodology to calculate a building's energy efficiency. RDSAP does not allow for:

- Variation of air permeability (even when a pressure test has been conducted)
- The inclusion of thermal bridging
- Modelling of mechanical ventilation except using very pessimistic defaults (and high air permeability).

These issues mean that EPCs are often inaccurate and not an effective measure of the energy efficiency of a building.

EPCs are not an adequate tool for improving energy efficiency in homes

The second issue is that EPCs are inadequate as a retrofit design tool – a purpose for which they were not intended.

Because EPCs do not measure operational energy, improving the EPC rating of a building does not necessarily achieve meaningful energy reductions. A "whole house" retrofit plan, with considered individual measures that are installed at the right time and work together is crucial for successful energy efficiency works.

When retrofitting a home, comparing the operational energy pre- and post-retrofit is key to ensuring the works have been effective in creating energy reductions and cost savings to the building user.

The Government must respond to their consultation on EPCs from 2018

In October 2018, the Government's consultation on *Energy Performance Certificates in buildings: call for evidence* closed.

To date, the Government is still analysing the responses to this consultation. Whilst uncertainty looms over when, or how, EPCs will be reformed it is difficult to make meaningful energy efficiency reductions. A response to this consultation must be delivered as a matter of urgency.

- **The Government must set out clear retrofitting policies as part of a National Retrofit Strategy**

If the UK is to meet its climate targets, improving the energy efficiency of homes must become a national infrastructure priority. To achieve this, the Government must set out a National Retrofit Strategy which includes clear governance arrangements, targets, and a long-term action plan which identifies incentives and ringfences funding for each of the following key housing groups:

- Social housing and low-income households
- "Able to pay" households
- Private rented sector – including both landlords and tenants

A National Retrofit Strategy (the Strategy) must take a long-term approach to delivery in which Government, local authorities, financial institutions and individuals play a core role in tackling fuel poverty, creating demand and growing local supply chains.

The cross-departmental nature of energy efficiency has meant that crucial elements of its policy have been lost between departmental remits, allowing departments to shift accountability amongst one another. Coordination of the Strategy across departments could be more effective through a HM Treasury led infrastructure approach.

Funding energy efficiency improvements

The Conservative Party earmarked £9.2 billion in their election manifesto for three energy efficiency programmes – the Social Housing Decarbonisation Fund, Home Upgrade Grants and Public Sector Decarbonisation Scheme. This money must be confirmed in full and implemented as soon as possible. However, this is not enough. The Government must introduce policies that unlock private capital through public investment.

Internationally there are examples of Government stimulus unlocking private capital. For example, in Germany in 2016, their national infrastructure bank, KfW, invested €1.7 billion to incentivise energy efficient renovation through interest rate and capital subsidies. These incentives led to unlocking €8.4 billion from building owners – i.e. for every €1 invested, building owners were motivated to borrow and spend €6. The resultant VAT on these revenues alone (€1.6 billion) nearly covered KfW's own costs.¹

Larger subsidy levels were dependent on achieving higher energy performance, which are more expensive to achieve, in turn, requiring building owners to spend more. These measures, coupled with low-cost borrowing, incentivised building owners to spend six times more than the Government investment.²

The Government must also help unlock stimulus from the financial sector. The Green Finance Institute's report: *Financing energy efficient buildings: the path to retrofit at scale* provides a series of financial innovation demonstrators designed to mobilise private capital to retrofit our housing stock. Green leases

¹ EEIG, *Rebuilding for Resilience*, pg. 15

² EEIG, *Rebuilding for Resilience*, pg. 16

and Building Renovation Passports, for example, are demonstrators that the Government could promote within the financial sector to stimulate private investment.

It is imperative that the Strategy also supports training and education through ringfenced funding to help people upskill and bring the required competence into the supply chain.

Incentives must address current concerns

Public investment in energy efficiency improvements can help unlock private capital; however, the policies must also be designed in a way, so they incentivise house-dwellers to improve their homes' energy efficiency.

Currently, there is a lack of understanding of the benefits of making a home more energy efficient. In addition, potential fuel bill savings are disproportionate to the initial cost outlay and the potential household disruption to have energy efficiency measures installed can be off-putting. These issues must be addressed to ensure significant uptake in energy efficiency measures.

Data is key

It is imperative that retrofitting measures reduce the costs to the homeowner and reduce the energy usage of a home. This means it is essential that operational energy is measured before and after the retrofit.

This data should be collected, while ensuring that safeguards are in place to protect consumer privacy, and a "data warehouse" created. The more data available, the better the understanding of the energy efficiency of our housing stock and the improvements that can be made. This data should be made available in an easy to understand format illustrating cost benefits of energy efficiency measures in the short medium and long term.

The use of regulation

Regulation should be used as a mechanism to implement retrofit policies.

The Government should ensure that if homeowners are making improvements to their homes that they are also required to make energy efficiency improvements at the same time in a considered and safe way.

This will require changes within Part L of the *Building Regulations* including:

- i. Include retrofit improvements as a requirement in the current "Consequential improvements" requirements. It would ensure that homeowners offset any home alterations or extensions which would increase a home's energy demand, via extra retrofit measures.
 - ii. Require higher standards for energy efficiency in home repairs, alterations, replacements and renovations. This should be done through increasing the energy standards that 'retained thermal elements' (parts of buildings that regulate temperature) have to satisfy.
- **Improving energy efficiency in existing homes is key to ensuring green economic recovery post COVID-19**

Retrofitting the 19 million homes that are currently below EPC band C will help stimulate the economy whilst working towards the UK's legislated net zero target by 2050.

A retrofitting programme of this scale is unprecedented, but provides an opportunity to incentivise investment, increase consumer spending, create jobs, upskill workers, alleviate pressure on the NHS and mitigate climate risks.

Stimulating investment and consumer spending

Investing in energy efficiency reduces energy bills, which increases a households' disposable income. Even with 'direct rebound' effects considered³ improving energy efficiency, over the long-term, secures cost savings which leads to an increase in consumer spending, aiding economic recovery.⁴ Due to lockdown restrictions, household spending has reduced, and energy costs have increased as people stay at home. Improving energy efficiency is a mechanism to address both problems.

Creating skilled employment opportunities across the country

Retrofitting homes to be more energy efficient would also create skilled employment opportunities. Some regions in the UK, for example the North East and West Midlands, have both a high volume of energy inefficient homes and high levels of unemployment.⁵ Investing in energy efficiency will create jobs across the country, often in areas that need it the most – providing local jobs for local people.

Young people are likely to be disproportionately affected by the economic impact of COVID-19, however, investing in education and training for school leavers provides an opportunity for a highly skilled, well paid job for life.⁶

For employees unable to return to sites due to pandemic health and safety, they should be encouraged to undertake training and education on net zero construction and retrofit, for example, training to become a retrofit coordinator. This is an opportunity to drive the upskilling of the workforce and create a high quality, professional, cost competitive construction sector.

Investment in energy efficiency and related training and education will help “level up” opportunities across the UK.

Health benefits

The five-year moving average of excess winter deaths in Great Britain is 35,600 per year. Of these, over 10,000 were attributable to living in a cold home and one in ten excess winter deaths are directly linked to fuel poverty.⁷

It is difficult and expensive to keep an energy inefficient home warm and this increases the risk of respiratory and circulatory problems. Investing in energy efficiency can minimise risks to health and wellbeing, at the same time, reducing pressure on the NHS. In England alone, it is estimated that the cost of health conditions made worse by poor housing to the NHS is between £1.4 and £2.0 billion each year.⁸

In a time where people are spending more time in their home, it is imperative that our homes are safe, healthy and affordable to run.

- **Post Occupancy Evaluation must be embedded in all projects**

Understanding building performance, compared to its design intention, is integral to continuous improvement in the built environment. Even when a building's design has energy efficiency at its heart, the promised energy efficiency standards are not always met.

POE is the process of obtaining feedback on a building's performance in use after it has been built and occupied. POE accurately measures performance-based metrics such as energy consumption, water usage, maintenance costs and user satisfaction.

³ Direct rebound effects could include a family choosing to keep their home warmer with reduced energy bills, for example.

⁴ EEIG, *Rebuilding for Resilience*, pg. 15

⁵ EEIG, *Rebuilding for Resilience*, pg. 10

⁶ Energy and Climate Intelligence Unit, Britain's homes hold the key to rebooting the economy, <https://eciu.net/blog/2020/britains-homes-hold-the-key-to-rebooting-the-economy>

⁷ EEIG, *Rebuilding for Resilience*, pg. 13

⁸ EEIG, *Rebuilding for Resilience*, pg. 13

When POE is not carried out, the building user is unaware of the energy efficiency improvements that could be made. POE highlights where a building can be improved, allowing for a process of continuous improvement, and lessons learnt, in the construction industry.

We must understand how our buildings perform to identify the improvements that can be achieved. Measuring operational energy, pre- and post-retrofit, is a vital mechanism for comparison. This will allow for occupants to see the energy reductions and cost savings of the retrofitting improvements.

- **The Government must restrict the use of Permitted Development Rights to ensure homes are safe and sustainable**

The increase in the use of Permitted Development Rights (PDR) in recent years has allowed buildings to be altered without the proper scrutiny from local authorities. PDR allows for building owners to undertake certain types of work without the need to apply for planning permission. While a significant number of homes have been delivered, the lack of regulation has seen a substantial number of extremely poor-quality housing since the policy was introduced.

Removing the oversight of local authorities and the planning system from the process has led to a decline in standards. There are also no requirements relating to the quality, size or sustainability of new homes delivered through the conversion of offices and commercial premises to dwellings. It is vital that all new homes – including those undertaken via PDR are sustainable and energy efficient.

Homes must be sustainable, long-lasting, affordable and contribute to the health and happiness of the people that live in them. PDR is fundamentally changing our building stock without consideration to sustainability and space standards. This failure to take a holistic view of what constitutes good design will inevitably lead to the continued and accelerated development of sub-standard housing.

Permitted development must be restricted to create a level playing field that ensures that all homes and buildings meet the same scrutiny, sustainability, safety and quality standards.

- **The Government must utilise effective procurement procedures, which includes social value**

Effective public procurement prioritises good design outcomes and can maximise the social, environmental and economic benefits of development. Sometimes as a result of poor procurement practice or lack of in-house expertise, public clients don't get what they expected, and communities don't get the quality they deserve.

Government must take an outcomes-based approach and invest in the right design skills, briefing and design process when setting project budgets and fee levels. Consultants should not solely be appointed on the lowest fee, as they may not be able to properly resource the level of service required. This can lead to low quality outcomes which do not deliver long-term value to the taxpayer.

Procurement procedures should be selected and tailored to suit the project needs, utilising design quality to shortlist or award contracts. The selection phase should be made as simple as possible and proportionate to the scale and complexity of the project. Rather than extensive previous experience of an identical project, a track record of undertaking projects of a similar scale and complexity should be considered when assessing a consultant.

The Government must also consider social value during the procurement process. The *Social Value Act 2012* legislated to introduce better accountability of social value through government spending. However, there is scope for more to be done, and we welcome Government moves to support this. The RIBA supports the development of more explicit award criteria to consider social value (covering areas such as community cohesion, health and wellbeing, access and inclusion, social sustainability, innovation and resilience).

It is important that the procurement practices for retrofitting works on social or low-income housing result in sustainable, safe and quality homes.