



Department for  
Business, Energy &  
Industrial Strategy

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The IHBC National Office  
Jubilee House  
High Street  
Tisbury  
Wiltshire  
SP3 6HA  
Consultations@ihbc.org.uk

2 September 2021

**Dear Sir**

## **Energy Company Obligation ECO4: 2022 -2026**

The Institute of Historic Building Conservation is the professional body of the United Kingdom representing conservation specialists and historic environment practitioners in the public and private sectors. The Institute exists to establish the highest standards of conservation practice, to support the effective protection and enhancement of the historic environment, and to promote heritage-led regeneration and access to the historic environment for all.

We are very pleased to have the chance to comment on the consultation documents. The Institute's comments are as follows:

### **1. Introduction**

The views expressed here are directly related to the implications of government ECO4 proposals to carry out deep retrofit of the least energy efficient traditionally built solid wall homes to meet the new energy efficiency requirements and achieve net zero carbon targets by 2050.

### **2. Government policy to achieve net zero carbon targets.**

The currently dominant theory favouring free market capitalism is underpinned by a belief in the technological progress and power of the market. This is reflected in ECO4 where products and installation methods will be left to the mercy of the governments 'Innovation Measure Route' where incentives will be provided for early adopters who provide products and installation methods that provide significant improvements over current systems.

### **3. Applying inappropriate deep retrofit to traditional buildings**

Unless properly regulated the proposed 'Innovation Measure Route' can lead to patented solutions provided by the private sector that are exclusive and too expensive for home owners and lead to situations where home owners will choose cheaper non-vapour permeable applications that will be inappropriately applied to traditional forms of vapour permeable construction with disastrous results. Please note that reference to vapour permeable traditional construction in this response refers to solid walls built of permeable fabric (stone/cob/brick/etc) that both absorbs and readily allows the evaporation of moisture. Given ECO4 proposes to achieve 22,000 solid wall insulation targets per year there is cause for concern.

This survey introduces the measures and the system but what it does not do at all is to focus on building typologies which would have allowed us to make more specific comments about building fabric. One section indicates that the process is committed to providing greater support to "hard to treat" homes through a new score uplift. Whilst we can well imagine that "hard to treat" homes could well include vernacular structures or structures of great age it is challenging to make specific or constructive comments on the text since it is not fabric specific apart from the remarks about solid walling. Perhaps the most important thing we could suggest would be to provide in conjunction with the measures proposed better information on the typologies of structures involved in which economically it might be appropriate to assist owners or occupiers. The question we suggest is whether the measures are likely to impact on a range of traditional building structures and if so whether the standards of care being applied by nominated providers would be appropriate if more traditional structures were being upgraded to become more energy efficient.

### **4. Unrealistic RPC targets for thermal upgrading of traditional buildings**

Account should be taken of the fact that solid wall construction of any appreciable thickness also acts as a thermal store, retaining heat provided a low level of heat is constantly maintained. The default values in RdSAP suggest that the U Values of solid masonry walls are worse than they are in reality on most occasions leading to the installation of solid walls. This will not improve the insulation values of the walls by the target amount since the walls are already performing better than the initial reading indicates.

Requiring an in-situ U value test rather than a remote calculation could more accurately give the real U value in a wall and reduce the risk of costly mistakes for wrongly installed insulation which may not increase the actual U value and cause damaging problems.

The current SAP assessment method is to be replaced by a new revised SAP (Version 10) and will be more onerous and require higher levels of thermal improvement to achieve targets. Many homes will not be able to achieve this and the risks and unintended consequences of taking action should be analysed. An arbitrary requirement to increase SAP levels can not be applied safely to many sort types of building. Applying internal insulation can lead in buildings of traditional construction to problems such as condensation and overheating. The private sector rental regulations already make provision for the exclusion of wall insulation and provision for an expert to assess whether buildings are suitable for wall insulation. This approach should be adopted in ECO4 to ensure that insulation is installed only when it is safe to do so and to bring consistency to regulation.

For example, to achieve band D or C proposed in ECO4 will require thermal upgrading of the building fabric. Building regulation standards in England require a U-value of 0.3 for the thermal upgrading of external walls where more than 50% of a wall is renovated (there are exemptions and special considerations for listed buildings/conservation areas etc but not for most traditional buildings). To achieve these U-value requirements, home owners will have a choice to insulate using either modern 70mm thick thin profile non-vapour permeable insulations such as polyisocyanurate insulation boards (Celotex/Kingspan) or use vapour permeable insulations that are in excess of 150mm thick and three times the cost. From experience the home owner will almost always choose the thinnest, cheapest and most inappropriate option unless it is properly regulated.

A simple on-line assessment tool which is straightforward for householders and contractors to use should be provided to enable them to undertake the assessment. A tool that is up to date, simple to use and understand and provides clear unambiguous options. This could be used in conjunction with predictive simulation models such as WUFI for the hygrothermal analysis of materials and performs dynamic simulations of coupled heat and moisture transfer. Unlike the old 'Glaser' method, WUFI can provide realistic simulation of hygrothermal conditions in building components and buildings under actual climatic conditions, including driving rain and solar radiation. Current tools such as the STBA retrofit guidance wheel<sup>1</sup> may also provide useful detail in dealing with buildings of different types successfully.

This type of approach will help ensure that a home will be able to achieve the highest band possible in each individual case without adding unnecessary or unsuitable measures..

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<sup>1</sup> <https://responsible-retrofit.org/greenwheel/>

## **5. The need for practical guidance for traditional and historic buildings.**

There is no practical guidance contained in the Approved Documents to the Building Regulations for the deep retrofit of traditional, historic and listed buildings proposed by ECO4. Instead, the Approved Documents favour guidance for modern forms of construction, which are adopted by designers, builders, home owners, approved by building control and inappropriately applied to traditional historic and listed buildings.

Well-placed sources in building control have advised that it is very common for building control bodies to reject vapour permeable solutions to traditional solid walled buildings in favour of inappropriate modern solutions even though a product has third party certification. Building control sources have also confirmed that a very high percentage of thermal upgrading to traditional homes is being carried out using non-vapour permeable applications and it is difficult to control and regulate without proper up to date guidance in the Approved Documents. Even Historic England guidance referred to in the governments 'The Future Building Standards: Consultation on changes to Part L' has been superseded by new research.

Without proper guidance, the implementation of proposed fast-track insulation systems through the 'Innovation Measure Route' under ECO4 will only make this situation worse.

We welcome the exemption for Listed Buildings and for some works in Conservation Areas. However the reliance on works in Conservation Areas not obtaining Planning Permission is not a suitable measure of the negative impact works may have upon the Conservation Area. Many works may not need permission but be very damaging. It also does not apply equally over all Conservation Areas where some have more control through Article 4 Directions and others do not. Whilst an exemption is not necessary or required for other buildings of traditional construction there should be special consideration for their treatment to ensure the right materials and methods are used to prevent damage and unintended consequences.

## **6. Approved Documents to the Building Regulations are inappropriate for deep retrofit of traditional buildings**

ECO4 proposals will trigger thermal upgrading to at least 22,000 homes per year that will require Building Regulations approval. There are concerns already being raised by industry that current elemental U-value requirement of 0.3 for upgrading solid walls to traditional buildings are unrealistic and problematic particularly for 'hard to treat homes' as it traps water, caused deterioration of the building fabric and increases the risk of condensation and mould growth that can affect the occupant's health. It is vital that where greater support is provided for those buildings inappropriately described as 'hard to treat homes' the U-value requirements for solid walls should be reviewed to a lesser and more realistic standard though the proposed new score uplift in ECO4.

## **7. PAS is not suitable for all retrofit projects**

Although ECO4 mentions the use of PAS 2030 and 2035 it only provides theoretical specifications and guidance, it fails to provide any practical guidance or diagrams on the retrofit of homes using vapour permeable materials. PAS 2035 refers to the Building Regulations 172 times and the Approved Documents 46 times – advising the reader to comply with these standards which in themselves provide very little or no guidance. A major problem with PAS 2035 is the public must pay to use it, putting it out of the reach of most people who will not be able to use it and most likely to default to the Building Regulations which apply in each country and Approved Documents for guidance.

## **8. Conclusion**

It is vitally important that any proposals contained within ECO4 should have proper consideration and guidance for the deep retrofit of traditionally built solid wall homes to ensure appropriate vapour permeable solutions are applied to traditional forms of vapour permeable construction to prevent potentially disastrous results.

We hope these remarks are of assistance,

Yours sincerely

Fiona Newton  
IHBC Operations Director