Consultation on a review of energy efficiency requirements and related areas of Building Regulations NI

Question 3B.13 Do you agree that the consequential improvements similar to those applicable to extensions to dwellings in Wales should apply here?

There are many drivers for retrofit works from changing the use of a building to replacing heating systems at the end of their life. Given the significant increase required in retrofits required to meet net zero targets, it is imperative that, from now on, anytime work is being done to a home or building, it is taken as an opportunity to undertake wider retrofit works and get closer to our net zero objectives

Question 3C.11 Do you have any evidence or insight on other aspects of ventilation for dwellings which the Department should take into account?

Buildings and dwellings in Ireland are improving. Building regulations over the last decade have improved quality, with many new structures achieving NZEB status, and airtight building envelopes. However, with some of these improvements, particularly airtightness, the importance of ventilation is often overlooked. Poor ventilation can have serious consequences for buildings and for people. It can lead to condensation and mould damaging walls and fabric, and poor health for occupants. High humidity levels can affect allergies and complicate respiratory diseases brought on by certain biological agents such as mites and mildew. In many dwellings and buildings that are compliant in terms of insulation and airtightness, the required air flow rates through passive venting are sometimes not met.

Therefore, while we welcome the introduction of self-regulating devices, (Demand Control Ventilation, and Heat Recovery Ventilation, for example) regulations must allow that it is still possible to ventilate a dwelling by natural means such as open vents in walls, and windows, thus ensuring the ability to adequately ventilate regardless of the status of any mechanical ventilation system in a building. Otherwise, in buildings that use mechanical ventilation, when the system is switched off, the air will be of poor quality, and occupants will suffer associated health problems. This is of particular concern in local authority housing, where residents do not always have control of heating and air conditioning. Whatever the outcome of this consultation, we must ensure that buildings continue to meet standards when it comes to achieving desired flow rates.

Question 3D.3 Should the new requirements only apply to new-build situations (i.e. to the erection of a building) or should it also apply to material change of use situations and/or extensions and structural alterations?

Per Q3b above

Question 3E.1 Do you agree with the proposed approach to use Building Regulations to legislate for EV infrastructure requirements?

Where car parking spaces are necessary – bearing in mind that current planning legislation discourages their use in central urban locations – the CIOB is happy with the proposed approach, and the provision of electric charging infrastructure in new and existing buildings. However, this new infrastructure should not lead to additional car parking spaces, given the national policy priority for

dense, public transport led development. For example, planning policy guidance in the Republic of Ireland states

'In larger scale and higher density developments, comprising wholly of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances'.

This guidance should not be overlooked when it comes to electric vehicles. Aspects of previous apartment planning guidance have been amended and new areas addressed in order to remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduce costs, and this should be maintained. This is a public realm issue and, as the guidance states, car parking 'should not be compromise the quality of amenity space, building design or streetscape'. This position should be maintained regardless of whether a parking space is for an electric or petrol powered vehicle. Nevertheless, the National Climate Action Plan makes electric vehicles a priority. In the interest of maintaining interdepartmental policy coherence, it therefore makes sense - in buildings and dwellings that require car parking - for there to be a enough Electric Vehicle charging points adjacent to the building, and preferably charged by a renewable system.

Question 6B.4 Do you agree that the intricacies and implications of embodied carbon mean that it is best considered at a UK wide level and that the Department should concentrate efforts on attending to the current gap in standards compared to other regions, in the first instance?

Urgent policy intervention is needed to decarbonise the built environment sector at the scale and pace required to achieve Northern Ireland's net zero target. Buildings account for 49% of the UK's carbon emissions. Heating, cooling, and lighting buildings – operational carbon – account for the majority of this, however almost half of these emissions are attributable to embodied carbon. Embodied carbon emissions result from mining, quarrying, transporting, and manufacturing building materials, in addition to construction activities, the repair, renovation and final disposal of buildings.

Embodied carbon emissions in the built environment sector are rising and require a firm policy response if Northern Ireland is to achieve its climate ambitions. Existing policy and legislation are acting antagonistically to achieving Northern Ireland's Net-Zero by 2050 goal. Specifically, there needs to be a reassessment of VAT so that it is equipped to deliver both improved energy efficiency in buildings and reduce the embodied carbon footprint of the built environment.

Under the UK's current tax structure, a reduced rate of 0% VAT is applied to demolition projects, while 20% VAT is applied on most repair and maintenance projects. This creates a perverse environment where the embodied-carbon-hungry activities of demolition and replacement are given taxation priority over the sustainable repair and restoration, of Northern Ireland's built environment. This contradicts the principles outlined in the Climate Change Act (NI) 2022, the, and the 2022 Circular Economy Strategy for Northern Ireland.

Given that that UK-wide tax reform appears unlikely, to remedy this the CIOB is proposing that the Department should begin engage with the Assembly to instigate a conversation about using its devolved powers to implement a demolition levy – one that bypasses the current devolution settlement around tax – to level the unequal playing field that threatens the sustainability of our built environment.

Question 6B.6 Have you any practical suggestions for how circular economy principles may be best encouraged in construction or, if necessary, regulated for in the future

As per 6b.5 response: Given that that UK-wide tax reform appears unlikely, to remedy this the CIOB is proposing that the Northern Ireland Government use its devolved powers to implement a demolition

levy – one that bypasses the current devolution settlement around tax – to level the unequal playing field that threatens the sustainability of our built environment.

Furthermore, the tax system – and stamp duty in particular – is frequently used as a lever to achieve wider policy goals. Could it also be used to reduce residential emissions? The proposal is to defer stamp duty liability33 on properties that have been purchased – by individuals, groups, or businesses – with the sole purpose of improvement. Once the enhanced property has been resold, the stamp duty liability is paid. The crux of the proposal is to encourage investors to fix up older, less energy efficient stock for resale, thereby creating a 'green flipping' business model, providing an additional incentive to retrofit, and increasing the overall number of residential retrofits.

The following provisos apply:

• Works must make significant improvements to the energy performance of the property (measured through BER or EPC)

• Works must be carried out by suitably qualified professionals/VAT registered companies – ensuring quality design and works, and to avoid free-ridership (see 'free-rider' section below)

• Occupation is not permitted during the period of work

• Occupation by the renovator is not permitted after the works are complete, nor can the buyer become the landlord of the property

• The stamp duty incurred should not increase from the first purchase

Importantly, the proposal is not a standalone measure which will achieve a sufficient reduction in residential emissions. However, as part of a package of measures, could it provide a stimulus to counter the stubbornly low number of residential retrofits?

The CIOB sees potential to reduce future demand for new construction through design that supports adaptability, repair, and maintenance, in line with the indicators of the EU Framework for sustainable Buildings, Levels. The most significant environmental impacts of constructing a building relate to its structure and facade. If the useful life of the building, and therefore also its structure, can be extended, there can be significant environmental benefits.

CIOB supports the idea of using procurement processes to score a procured building's adaptability to change of use, and propose that this be germane to the decision to reward public construction contracts. While an adaptability requirement this may be overly onerous on smaller developments in peripheral locations, implementing an adaptability score is particularly important in central urban locations, where changes in demands for building types are frequent. We have already seen progress made in terms of social value being scored in procurement processes. This strategy is an opportunity to score circular economy principles such as adaptability of buildings in procurement decisions too.

Given the scale of building and demolition taking place in Northern Ireland's cities, creating a publicly accessible inventory of the materials available from a building prior to its demolition could be a useful way of connecting planned building projects to demolition projects such that optimal use is made of materials that will otherwise end up in landfill. CIOB advocates for pre-demolition assessments' in our work on sustainability. Pre-demolition assessments can establish an unbiased, qualified appraisal of a building's viability, presenting the environmental and economic case for its repair or replacement. A pre-demo assessment would be an ideal opportunity to provide a publicly accessible inventory of the materials and resources available in the planned demolition project.

Further, these inventories could link in with community development projects locally to support community building projects. This link could be given regulatory footing using the Central Procurement Directorate's implementation of social clauses in their work with the construction sector

Question 6D.1 Do you have any particularly local evidence on design vs as-built performance gaps?

Nearly all case studies included in a recent review found significant challenges with performance in situ. Guerra-Santin et al. (2013) cite a study from Zero Carbon Hub, which found that less than one-third of the properties observed performed reasonably in line with their predicted heat loss, a measure of 15% or less. Pretlove and Kade's (2016) study of Code Level 3, 4, and 5 homes found significant challenges in half of the level 5 homes' grey-water recycling systems, PV system failures in two of the six dwellings observed, and single-home failures with a central heating system and electrical malfunctions in a micro-CHP system. JRF's (2012) examination of two low-carbon dwellings found significant commission failures with the MVHR systems in both homes. Multiple studies have evaluated the Elm Tree Mews project. It has been noted that heat losses within the project were 54% higher than predicted (Morgan et al., 2015), with significant operational challenges with EET onsite and suboptimal performance from the communal heat pump system (Bell et al., 2010). In their study of 25 dwellings, Johnston et al. found that heat loss measures exceeded their predicted levels in all homes, and for the majority of cases, the gap observed was "considerable" (2015, p. 620). Pretlove and Kade (2016) note that component or system failure can undermine performance such that conventional methods of heating or energy generation would be less environmentally harmful. This argument is supported by the experience at Elm Tree Mews, where EET challenges resulted in higher emissions than would have been achieved with a conventional gas system (Bell et al., 2010).

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