

Building a Sustainable Future – Tackling Carbon in our Built environment

National Residential Retrofitting Plan

The Society of Chartered Surveyors Ireland (SCSI) wishes to highlight what it considers to be two key policy considerations towards achieving a more sustainable existing residential sector

Our recommendations are as follows:

1. **Standards** – Development of panel of experts for both consultancy and trades
2. **Extent of upgrades** - Research the benefits of ‘Deep’ or ‘Shallow retrofit combination based on age/condition of housing stock.
3. **Taxback and Grants** - Consider amendments to grants and taxback schemes for homeowners to upgrade homes

These recommendations which contribute towards achieving a more sustainable future are framed around 3 key pillars:

1. **Future proofed funding** – Avoid a ‘lending only’ approach to retrofits and seek to adopt a ‘tax back’ option for applicants
2. **Standards & Education** – Adequate education of professionals and trades for panels to protect our built heritage
3. **A balanced approach** – Depending on the building condition, it may well be prudent to carry out shallow retrofit rather than a deep retrofit

Introduction

As part of a package known as the European Green Deal, the European Commission has a “renovation wave initiative” targeted at the built environment.

In 2019, Government published its Climate Action Plan in response to climate change and the commitments entered into as a member of the European Union.

Within this plan, there are many ambitious targets to meet our obligations as members. The main targets of the plan to be implemented by 2030 are:

- 70% of all electricity generated to be from renewable sources
- 500,000 existing homes to be upgraded to B2 Building Energy rating (BER)
- Homeowners to generate their own electricity and sell back to the grid under scheme for micro-generation
- 600,000 heat pumps installed (400,000 in existing buildings)

In Government's 'programme for government - Our Shared Future', this document is a commitment from the proposed coalition Government to publish a National Retrofitting Plan as part of the National Economic Plan which will set out their commitment to:

- Developing a new area-based and one-stop shop approach to retrofitting, to upgrade at least 500,000 homes to a B2 by 2030 (as per the CAP).
- Grouping homes together to lower cost, starting in the Midlands area.
- Leveraging smart finance (e.g. loan guarantee, European Investment Bank, Strategic Banking Corporation of Ireland (SBCI)).
- Developing easy-payback mechanisms (i.e. through utility bills).

Funding

461 homes have completed deep retrofits under SEAI's pilot programme to date. The average total capital cost to upgrade a home from an average BER rating of F rating to an average A3 rating is €58,722¹. Therefore, the overall budget required to meet Ireland's target could be as much as €2.9 billion per year over the next 10 year.

There are many funding mechanisms available to homeowners along with SEAI grants to retrofit homes. The most recent finance entrant is An Post who has announced the launch of a new "green hub" providing end-to-end project management and money-saving advice for all levels of home retrofitting, along with a low-cost loan rate. The state-owned company said that this one-stop-shop approach will cover loan-only or full retrofit services, from initial home assessments to completed works, along with SEAI grant application and payment process.

Similarly, some energy providers are also providing supports to homeowners to upgrade homes in tandem with SEAI grants. However, during particularly difficult economic circumstances, such as the onset of COVID 19 and the overall cost to our economy, many homeowners do not wish to take on additional debt to upgrade their homes.

- Introduction of a tax reduction scheme in Italy to respond to COVID

The *Ecobonus 110* is a tax reduction for domestic renovation works in Italy. The measure was introduced as part of a COVID economic stimulus package and applies to the whole building sector. This 110% ecobonus or 110% renovation bonus is a tax deduction of 110% of the expenses incurred for energy efficiency in Italy. The scheme will run for an 18-month period, the tax deduction can be recovered in 5 equal instalments, however, credit transfers and invoice discounts are also available options.

For work to qualify for the ecobonus, the building must be improved by at least two energy classes. Italy also has a smaller ecobonus of 50-65% for works such as the replacement of frames, shutters, awnings, air conditioning or windows.

Government should consider tax incentives to a profile of homeowner unable to service loans for retrofitting – contributions to repay all or part of the the tax incentive could be considered where utility savings are being realised by the homeowner.

- Interest Free loans

Achieving quantum is critical to the success of our retrofits plan. To meet this target, we need to retrofit more than 4000 homes per month. So how can government facilitate a scheme that can achieve mass roll out of retrofits and ensure quality of service? One way would be where communities

¹ SEAI Update September 2020

and housing estate would all agree to a plan of systematic retrofits and repay any shortfall from grants by way of interest free loans over an appropriate period of time.

‘Deep’ or ‘Shallow’ Retrofit – Innovation for our sector

In some instances, a shallow retrofit may be sufficient for a household, this would eliminate the need to move out of a property while works are being undertaken.

A deep retrofit is a process which involves the complete energy overhaul of a home through a range of high-impact measures which lead to a high-performing home and significant energy savings over time. There are technical challenges in getting deep retrofit right, and many documented large-scale failures on already completed projects. For many properties, similar reductions in greenhouse gas emissions and improvements in occupier satisfaction can be achieved in a shorter period of time with shallow retrofit combined with the installation of renewables. A shallow retrofit usually involves an energy upgrade by undertaking a number of energy saving measures in the home e.g. heating system upgrades and cavity wall insulation.

Many property values may not be high enough to make economic sense to carry out a ‘deep’ retrofit and therefore other options are required to improve thermal performance and should be considered using a ‘shallow’ retrofit.

The Energiesprung “energy jump” model which originated in the Netherlands is amongst the most successful European NZEB projects. As an exterior insulation system, the retrofitting does not require the resident to move out and is generally completed within one week. The process uses prefabrication as much as possible and created prefabricated panels which are then installed over existing external walls and roofs. 3D scanning techniques are employed for each property, measuring all relevant dimensions. They are then fed into a BIM model that generates drawings for factory manufacture. This framework of custom factory production and short on-site periods would prove appealing to homeowners who would not be in a position to move out of their homes, even temporarily. This approach would be highly desirable; it would require technological innovation in Ireland to make it achievable.

Finally, it is worth noting here that houses and apartment blocks will present different challenges when undertaking retrofitting and these need to be accounted for during initial planning stages. Apartments in particular can cause difficulties. It may be prudent to initially focus on individual housing units (single and two storey properties, whether terraced, semi-detached or detached).

Quality and Standards

Some of the most difficult buildings to tackle are those considered as historic or protected structures, however, all buildings are unique and have their individual challenges so it is important that a proper evaluation is undertaken by appropriate professionals or teams to ensure that the correct decisions are made at the outset for every case.

By having a reasonable volume of skilled contractors who are able to undertake the work is also important to prevent potential price inflation for construction services. There are a number of considerations here as to how best incentivise industry to branch into this area which offers good opportunity over the coming years. One consideration is to use the IGBC’s Renovation Advisor Register as a way to identify retrofitting experts to undertake projects.

- Risks for traditional/period buildings

With modern building methods and materials, there is a considerable risk associated with using the wrong type of products or incorrect installations of products on more sensitive building types. For instance, there are examples where thermal upgrades of older buildings were completed which

resulted in trapped moisture and therefore high levels of mould growth leading to uninhabitable dwellings. These risks apply equally to poorly executed work in more modern buildings. This concern is still valid today and therefore this significant risk must be addressed by way of approved professionals and approved installers together with suitable regulatory standards to which retrofit work needs to be completed, to ensure these errors are not repeated. The oversight of construction workers by competent construction professionals during the retrofit process is another way to reduce risk associated with poor installations and poor use of material choice.

Appendix

- Deep retrofit - a 'fabric first' approach to reducing energy losses such as external wall, roof and floor insulation, reducing cold bridging and energy losses that are hard to install and severely impact occupancy followed by appropriate heating and ventilation technology potentially to achieve NZEB or A1 BER target
- Mid retrofit - easy install by owner or existing standard grant aided improvements such as windows and attic insulation and heating upgrades that don't impact occupancy and can achieve a B2 BER target.
- Shallow retrofit - a 'technology first' approach to heating and energy such as adding PV's and external air source heat pumps or exhaust air ventilation heat pumps that don't impact either the fabric or occupancy to target minimum B2 BER.

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