# Sustainable Energy Authority of Ireland (SEAI)

Public Accounts Committee Follow-Up Information Request
Submitted Tuesday 13th February 2024

**The request:** In relation to the 22,747* homes built pre 1940 which have received energy upgrade grants since 2009,

- how many protected structures are included in this figure, if that is known,
- how many listed structures are included,
- what challenges are presented by these older properties, including the kinds of energy upgrade works carried out by virtue of the way the houses are built.

For further context we refer to the minutes in relation to this request (item 2291, page 53).

** This figure relates to the 22,747 homes built pre-1940 that have received grants on the Individual Energy Upgrade scheme (also known as Better Energy Homes) since 2009.*

## How many protected structures are included in this figure [22,747], if that is known

## How many listed structures are included in this figure

SEAI does not collect this information; however, we do collect information on the year of construction. Many traditional buildings are protected structures or are located in architectural conservation areas. However, the vast majority of traditional buildings do not have statutory protection.

When we refer to a 'listed building' in Ireland, this refers to a building that has been added to a local planning authority's Record of Protected Structures; that is to say, that listed buildings in Ireland are the same as protected structures.

A protected structure is a structure that the local planning authority thinks is of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. If a planning authority believes a structure meets these criteria, the structure must be listed on the planning authority's Record of Protected Structures (RPS). All structures listed on the RPS qualify for protected status under the Part IV of the Planning and Development Act 2000. Each planning authority must keep a RPS as part of its development plan[1]. As of 2020, there are more than 40,000 protected structures across all the planning authorities' registers[2].

[1] Protected structures (citizensinformation.ie)

[2] Protected Structure Advice + Grants « Dublin Civic Trust

## What challenges are presented by these older properties, including the kinds of energy upgrade works carried out by virtue of the way the houses are built?

SEAI (Sustainable Energy Authority of Ireland) provides grant support for home energy upgrades through a number of schemes. All home energy upgrades provided through our schemes are required to meet certain standards. These standards help industry ensure that the upgrade works are fit-for-purpose.

Typically, energy upgrade products and materials are required to demonstrate compliance with Building Regulations Part D (Materials and Workmanship)[3]. This can be done through Irish Agrément certification or similar. The National Standards Authority of Ireland (NSAI) is Ireland's official standards body and provides a wide range of certification services to enable business to demonstrate that Irish goods and services conform to applicable standards. Some of the materials used by industry to upgrade elements of traditional buildings, particularly their walls, do not have this or equivalent certification.

The Department of Housing, Local Government & Heritage (DHLGH) recently published updated guidance on improving the energy efficiency in traditional buildings – *Improving Energy Efficiency in Traditional Buildings: Guidance for Specifiers and Installers (DHLHG)*[4]. This guidance provides advice to specifiers and installers and should be applied prior to commencing a home energy upgrade on a traditional building, and SEAI contributed significantly to this guidance. This document deals with the energy upgrading of traditional construction only. Guidance on the upgrading of modern construction, including early solid concrete walls and early twin-leafed or cavity wall construction, can be found in S.R. 54:2014&A2:2022 *Code of Practice for the Energy Efficient Retrofit of Dwellings*[5].

For information on the options for upgrading buildings with earthen walls and or thatched roofs, the Department of Housing, Local Government and Heritage's Vernacular Strategy provides further information on the options available for upgrading these building typologies[6]. These materials often have good thermal performance and as such, present limited opportunity for thermal upgrade.

There are a whole host of challenges with traditional buildings, but one of the main ones was the requirement for Agrément certification for wall insulation to demonstrate compliance with Part D of the Building Regulations with respect to being 'proper materials'. In general, traditional buildings are much more sensitive to the materials used to upgrade the energy performance of the building, and great care has to be taken to ensure that there are no unintended consequences of energy upgrades. It is also important to apply the principles of conservation.

The publication of 'Improving Energy Efficiency in Traditional Buildings' by the Department of Housing, Local Government & Heritage is a very important guidance document for specifiers and installers through the whole process of upgrading the energy performance of traditional buildings.

[3] gov - Technical Guidance Document D – Materials and Workmanship (www.gov.ie)

[4] gov - Improving Energy Efficiency in Traditional Buildings, Guidance for Specifiers and Installers, 2023 (www.gov.ie)

[5] S.R. 54:2014/A2:2022 Code of Practice for the energy efficient re (standards.ie)

[6] Template 5 Cover Front and Back Dept (buildingsofireland.ie)

## Types of "Traditional Building" and their performance

There are a wide variety of traditional buildings throughout the country. These mainly include those built with solid masonry walls of brick, stone, or clay, using lime-based mortars, often with a lime or earthen-based render finish, single-glazed timber or metal-framed windows and a timber-framed roof usually clad with slate but often with tiles, copper, lead or, less commonly, corrugated iron or thatch.

These types of buildings perform differently from modern construction. Their thermal mass allows them to heat up and cool down more slowly. They also manage moisture differently allowing moisture to move in a controlled way into and through their semi permeable fabric. External lime render was sometimes applied as a weathering layer to reduce the amount of water absorbed whilst still allowing the wall to breath. They also rely on nature in the form of the wind and sunshine, as well as the buildings heating and natural ventilation (through windows, doors, and chimneys) to stay dry. They act like a balanced system which in good condition and with regular maintenance perform well. However, any changes to the system through any individual alteration if not correctly undertaken can cause problems such as overheating or mould growth. Therefore, it is critical that any finishes or materials used on traditional walls, such as mortars and plasters, be vapour-permeable supporting the absorption and evaporation of moisture.

As reported by 2016 census records, 16% of all private homes in Ireland were constructed prior to 1945, which were predominately of solid masonry, traditional construction. A selection of typical traditional wall build-ups is shown in Figure 1, but it should be noted that this is not a definitive list. Variations in materials, construction and thicknesses are to be expected.

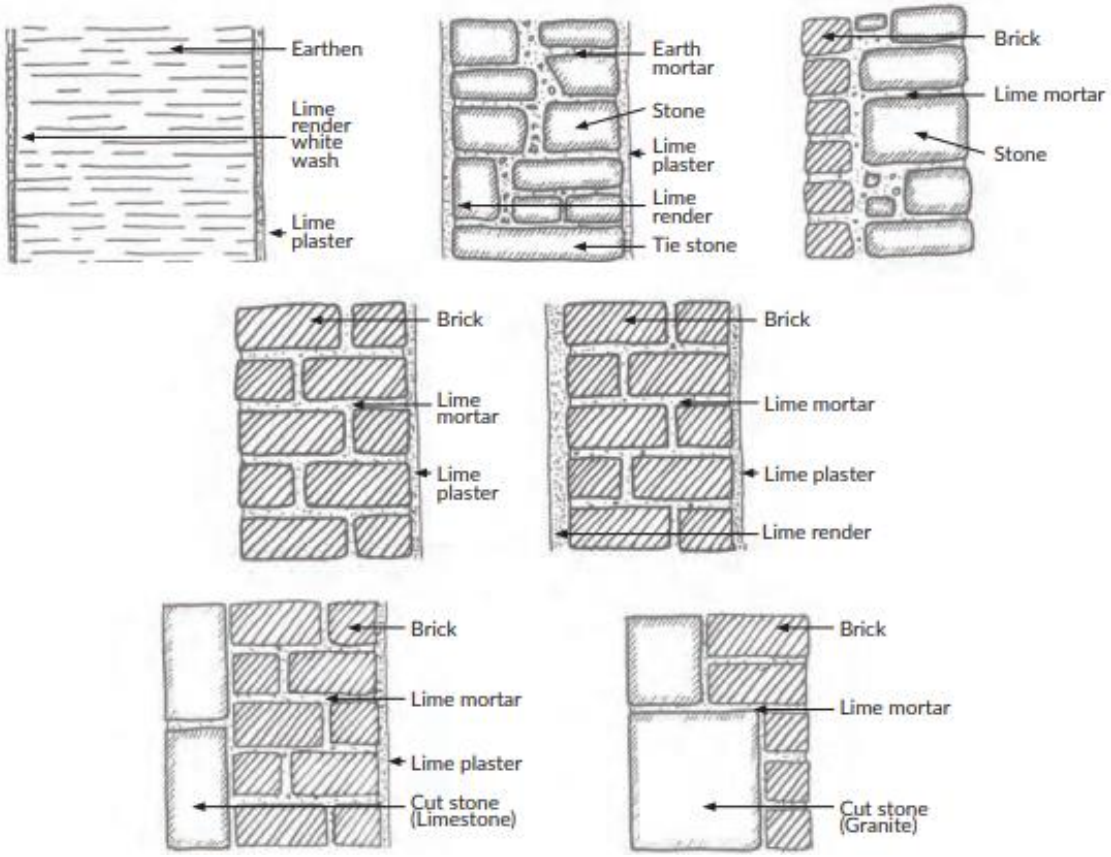

Figure 1: Selection of typical traditional wall build-ups[7]

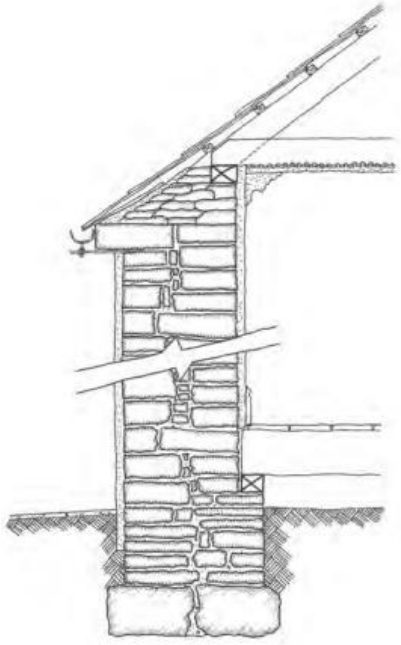

Figure 2: Typical solid masonry wall[8]

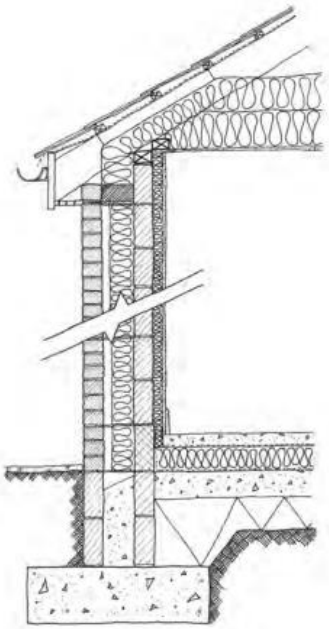

Figure 3: Typical modern cavity wall[9]

All work on traditional buildings requires an approach which is specific to their context. A holistic or whole-building approach to energy upgrading is advisable for all traditional buildings regardless of their protection status. A whole-building approach integrates fabric, services (including heating and ventilation systems) and human behaviour with the building's context. It also considers its historical significance and conservation needs.

A standard procedure for developing a retrofit strategy for traditional and historic buildings is set out in I.S. EN 16883: 2017[10]. The recommended procedure includes the steps necessary to identify the appropriate energy-efficiency improvements for a particular building.

The procedure can be broken down into 10 clear steps, namely;

- Step 1: Initiate the process
- Step 2: Assess the building
- Step 3: Specify objectives and targets
- Step 4: Assess and select measures for improved energy performance
- Step 5: Undertake risk mitigation measures

[7] Figure 1: Selection of typical traditional wall build-ups; Department of Housing, Local Government and Heritage (2023), *Improving Energy Efficiency in Traditional Buildings: Guidance for Specifiers and Installers*.

[8] Figure 2: Typical solid masonry wall; Department of Housing, Local Government and Heritage (2023), *Improving Energy Efficiency in Traditional Buildings: Guidance for Specifiers and Installers*.

[9] Figure 3: Typical modern cavity wall; Department of Housing, Local Government and Heritage (2023), *Improving Energy Efficiency in Traditional Buildings: Guidance for Specifiers and Installers*.

[10] I.S. EN 16883:2017 CONSERVATION OF CULTURAL HERITAGE - GUIDELINES (standards.ie)

- Step 6: Create a short list of measures and review their impact
- Step 7: Revise objectives and energy-efficiency targets
- Step 8: Review with the statutory authority (as required)
- Step 9: Appoint suitably qualified contractors/specialists
- Step 10: Implement, document and evaluate

Table 5 in Improving Energy Efficiency in Traditional Buildings: Guidance for Specifiers and Installers (DHLHG)[11] provides further details on the actions recommended within each step.

Note: Not all steps will be required in every case and further statutory requirements may apply. All traditional building projects should start with consideration of the specific conditions and hygrothermal behaviour of the building fabric as well as an assessment of the building's character and special interest to ensure the buildings significant features and original character are retained.

Members may also be aware that a new funding scheme under Ireland's two European Regional Development Fund (ERDF) Regional Programmes was announced on 9th February 2024 by Minister of State for Local Government and Planning, Kieran O'Donnell and Minister of State for Nature, Heritage and Electoral Reform, Malcolm Noonan. This Scheme provides €120 million to support local authorities and their citizens to transform publicly owned vacant or derelict heritage buildings within town centres through renovation, renewal, and adaptive reuse.

Heritage buildings under the Scheme are classified as structures that form part of the architectural heritage and have unique architectural, historical, archaeological or artistic qualities, or are linked to the cultural and economic history of a place. The press release is linked as follows: gov - Minister O'Donnell announces launch of new €120m fund to renovate heritage buildings in town centres (www.gov.ie)

- ENDS

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[11] gov - Improving Energy Efficiency in Traditional Buildings, Guidance for Specifiers and Installers, 2023 (www.gov.ie)