

**Housing and Community Safety Scrutiny  
Committee**

**24 February 2020**

Report of the Head of Building Services

**Environmental Retrofitting - Briefing Note**

**Summary**

Retrofitting, is the term generally used to describe the process of carrying out construction work to improve the energy efficiency of an existing building.

**Background**

Retrofitting can be carried out in a number of different ways, but these can be summarised as, treatments to the fabric of the building, changes to more efficient heating systems, or changes away from heating based on fossil fuels. The route you chose is dependent on the extent of improvement you require, the type of improvement possible in the home, and the budget you have to do this work.

The common approaches include;

- Work to reduce drafts and ‘cold bridging’ through the fabric of the building. This can be done through installing insulation in lofts, wall cavities, or on the external and internal surfaces of walls; and blocking any unnecessary gaps or openings through walls, roofs, floors, and around doors and windows. It can also involve removing building elements or materials that allow the transfer of cold temperatures from the outside of the building to the inside; like metal windows frames, door thresholds, or wall ties.
- Installing more energy efficient heating systems, for example from storage heating to an energy efficient gas boiler.

- Switching away from fossil fuel based energy, or switching to a less impactful fossil fuel; oil to gas for example.

In the UK we use qualified Domestic Energy Assessors to survey homes and produce an Energy Performance Certificate (EPC). This certificate summarises the overall energy performance of a home using an A-G rating scheme, with 'A' indicating a building is very efficient, and 'G' indicating a building is inefficient. A more detailed measure, referred to as the Standard Assessment Procedure (SAP), or the Reduced Standard Assessment Procedure (RdSAP), sits behind the A-G rating system. SAP refers to the survey methodology used. SAP produces a score of 1-100, with 100 indicating the highest efficiency level, these scores are collated into bands that align to the A-G rating system. So for example a SAP score of between 69-81 equates to a 'C' rating.

Only around 30 per cent of homes in the UK currently meet EPC Band C. This figure is higher for social housing. In York 37 per cent of the entire housing stock meets EPC band C. Whereas 66% of the council housing stock in York meets band 'C'.

There are a number of other methods used to measure the energy performance of homes, but these relate to very highly energy efficient homes. So for example new homes are increasingly being built to a 'Passivhaus' standard, or existing homes can be retrofitted to the 'ENerPHit' standard. A Passivhaus is a building where thermal comfort can be achieved by post-heating or post-cooling the fresh air flow required for a good indoor air quality, without the need for additional recirculation of air. Our new housing developments will largely be built to this standard. EnerPHit is a slightly relaxed standard for retrofit projects, where the existing design of the building or conservation issues mean that meeting the Passivhaus standard is not feasible.

A typical home can often be brought up to an EPC 'C' rating, through simple insulation and draft proofing, without the need to change the heating away from using fossil fuel. Tenants can remain in their homes while the work takes place.

Both Passivhaus and ENerPHit standards require the building to be completely air tight, and they must have a Heat Recovery System. In the UK they will often also require some form of 'non-fossil' fuel based heating system, like an air source or ground source heat pump system.

Tenants will typically need to move out for 3-4 weeks to allow the works to take place.

The key considerations that need to be made when deciding on an appropriate retrofit approach are; What is your energy performance objective? How quickly do we need to achieve it? How much money do we have to achieve it? How you do this in a way that provides maximum carbon saving for every pound you spend?

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