Social Housing Decarbonisation Fund (SHDF)

Wave 2.1 – case studies on value for money considerations for the space heating demand performance outcome

Department for Business, Energy & Industrial Strategy

Purpose of slide deck

- As part of applying to SHDF Wave 2.1 for funding, applicants are expected to carry out modelling to help determine appropriate retrofits for their stock.
- Following feedback from the sector, some example case studies have been provided to support consideration of cost effectiveness for homes applied with of the 90kWh/m^2/year space heating demand level outlined in the SHDF Wave 2.1 guidance. In particular, these focus on examples where trying to ensure that homes reach 90kWh/m^2/year may not be a value for money (VfM) approach to the SHDF performance outcomes. This document must be considered alongside the published guidance for SHDF Wave 2.1.
- These case studies are for illustrative purposes only, and do not replace the requirement for applicants to carry out modelling to establish high quality proposals for the specific stock they are applying with. While these case studies will be useful for applicants to SHDF Wave 2.1, it is recognised that every home is different, with many factors coming into play to determine an appropriate retrofit approach. Applicants will have the opportunity to justify their proposed retrofit approach in the application form.

Introduction – SHDF Wave 2.1 performance outcomes policy

SHDF Wave 2.1 Performance Outcomes policy

- Applicants must improve their stock using a fabric first approach to at least **EPC C***
- Also consideration should be given to improving properties to a space heating demand of **90kWh/m²/year where reasonable and cost effective^.**

*Except where not possible for EPC F/G homes, an improvement to EPC D will be accepted with reasonable justification. References to EPC in these slides refer to the Energy Efficiency Rating (EER) of the home.

See guidance section 2.9 for further details on the performance outcomes policy for SHDF Wave 2.1.

^ The space heating demand consideration is designed to support an evidence based approach to fabric first retrofit. It is **not** designed to mandate that homes reach 90kWh/m²/year when it is not good value for money (VfM) to do so. It is also **not** designed to stop homes that cannot reach 90kWh/m²/year from being included in applications, as BEIS recognises the challenge of getting all homes to this level.

VfM consideration of SHDF Wave 2.1 space heating demand performance outcome – case studies

VfM consideration – EWI on filled cavity wall (1)

Starting condition:

Bungalow – cavity wall. Existing filled cavity wall, existing double glazing, existing loft insulation.

Start SAP score = 67
Start Space heating: 108 kWh/m^2/year

Recommended measures from modelling to reach 90kWh/m^2/year, and outputs:

EWI on filled cavity wall:
improves SAP score to 70, space heating demand to 87 kWh/m^2/year

Commentary:
The installation of EWI is likely **not** a good value for money approach to the SHDF performance outcomes in this instance.

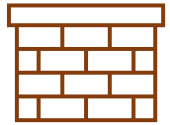
In this example, the start space heating demand is relatively close to the 90kWh/m^2/year level stipulated in SHDF Wave 2.1 guidance. Installing EWI on top of the filled cavity walls has a relatively low impact on SAP score, space heating demand and fuel bills compared to the cost of EWI. In this instance, EWI would likely therefore not be a VfM solution to reaching the SHDF performance outcomes. A better VfM solution for this home may be to explore whether there are any appropriate low cost interventions that would improve thermal efficiency but are not suggested by the model (e.g. loft insulation top up, draughtproofing), before if necessary considering any appropriate and VfM non-fabric upgrades to improve the home to EPC C, accepting that the home may be close to, rather than at, the 90kWh/m^2/year level post-retrofit.

VfM consideration – EWI on filled cavity wall (2)

Starting condition:

Mid terrace – cavity wall. Existing filled cavity wall, existing double glazing, no loft insulation.

Start SAP score = 62
Start Space heating: 144 kWh/m^2/year



Recommended measures from modelling to reach 90kWh/m^2/year, and outputs:

Loft insulation: improves SAP score to 69, and space heating demand to 98 kWh/m^2/year .

EWI on filled cavity wall: in addition to loft insulation, improves SAP score to 72, space heating demand to 81 kWh/m^2/year

Commentary:
The installation of EWI is likely **not** a good value for money approach to the SHDF performance outcomes in this instance.

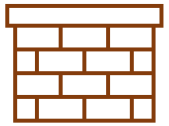
In this example, loft insulation installation makes significant space heating demand and fuel bill savings. This is a value for money intervention. Installing EWI on top of the filled cavity walls has a relatively low impact on SAP score, space heating demand and fuel bills compared to the cost of EWI. In this instance, EWI would likely therefore not be a VfM solution to reaching the SHDF performance outcomes. Given loft insulation brings the home to EPC C, and 98 kWh/m^2/year is close to 90 kWh/m^2/year, loft insulation alone would likely be an appropriate VfM approach to the SHDF performance outcomes, accepting that the home will not reach the 90kWh/m^2/year level post-retrofit.

VfM consideration – EWI on efficient solid wall home

Starting condition:

Mid terrace – solid wall. Existing double glazing, loft insulation, no solid wall insulation.

Start SAP score = 68
Start Space heating: 95 kWh/m^2/year



Recommended measures from modelling to reach 90kWh/m^2/year, and outputs:

EWI: improves SAP score to 72, and space heating demand to 73 kWh/m^2/year.

Commentary:

The installation of EWI may **not** be a good value for money approach to the SHDF performance outcomes in this instance.

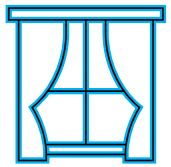
While this solid walled terraced home does not have EWI or IWI pre-application, it is reasonably energy efficient, with start space heating demand very close to 90kWh/m^2/year. If other homes in the terrace are in a similar starting condition, a better VfM solution for this home may be to explore whether there are any appropriate low cost interventions that would improve thermal efficiency but are not suggested by the model (e.g. loft insulation top up, draughtproofing), before if necessary considering any appropriate and VfM non-fabric upgrades to improve the home to EPC C, accepting that the home may be close to, rather than at, the 90kWh/m^2/year level post-retrofit.

VfM consideration – Glazing installation

Starting condition:

Flat ground floor – cavity wall. Existing double glazing, no CWI installed.

Start SAP score = 63
Start Space heating: 123 kWh/m^2/year



Recommended measures from modelling to reach 90kWh/m^2/year, and outputs:

CWI: improves SAP score to 68, and space heating demand to 94 kWh/m^2/year.

Double glazing: in addition to CWI, improves SAP score to 69, space heating demand to 83 kWh/m^2/year

Commentary:

The installation of glazing is likely **not** a good value for money approach to the SHDF performance outcomes in this instance.

Installation of cavity wall insulation improves this home most of the way to both EPC C and 90 kWh/m^2/year. The model recommends a glazing upgrade to hit the 90 kWh/m^2/year level, which has minimal impact on SAP score, space heating demand and bill savings. A better VfM solution for this home would likely be to explore whether there are any appropriate low cost interventions in addition to CWI that would improve thermal efficiency but are not suggested by the model (e.g. loft insulation top up, draughtproofing), before if necessary considering any appropriate and VfM non-fabric upgrades to improve the home to EPC C, accepting that the home may be close to, rather than at, the 90kWh/m^2/year level post-retrofit.