7 HIGH CLOSE
HEYDON
ROYSTON
SG8 8QA

Retrofit Coordination Report
23/11/2023

DOCUMENT AIMS AND OBJECTIVES

The aim of this document is to set out a clear and concise, no regrets strategy, which will lead to the compliant installation of Energy Efficiency Measures (EEMS) under SHDF Wave 2, resulting in a meaningful improvement to the thermal efficiency, building comfort energy costs and internal air quality within the dwelling.

This key objectives are to identify and clarify key responsibilities for successful compliance with PAS2035, it covers:

- Project team
- Retrofit Assessment Review
- Intended Outcomes
- Improvement Option Evaluation
- Medium Term Improvement Plan
- Air Permeability Testing
- Ventilation Strategy

PROJECT TEAM

Setting clear responsibilities and chains of communications are vital to success, the team for this project is:

Client: South Cambridgeshire District Council

Retrofit Advice: Mears Group PLC / C6 Funding

Retrofit Coordinator: Robert Kelf (C6 Funding)

Retrofit Assessor: C6 Funding

Retrofit Designer: TBC

Retrofit Contractor: Mears Group PLC

Retrofit Installers: TBC

Measure 1:

Measure 2:

Measure 3:

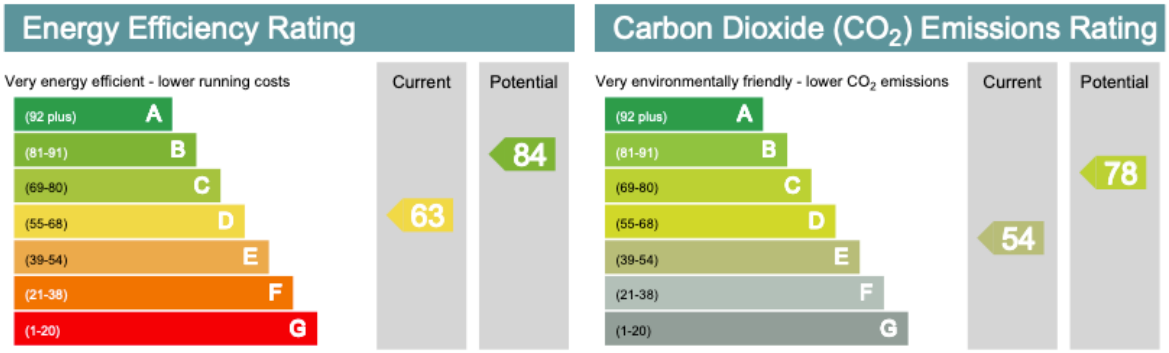
Measure 4:

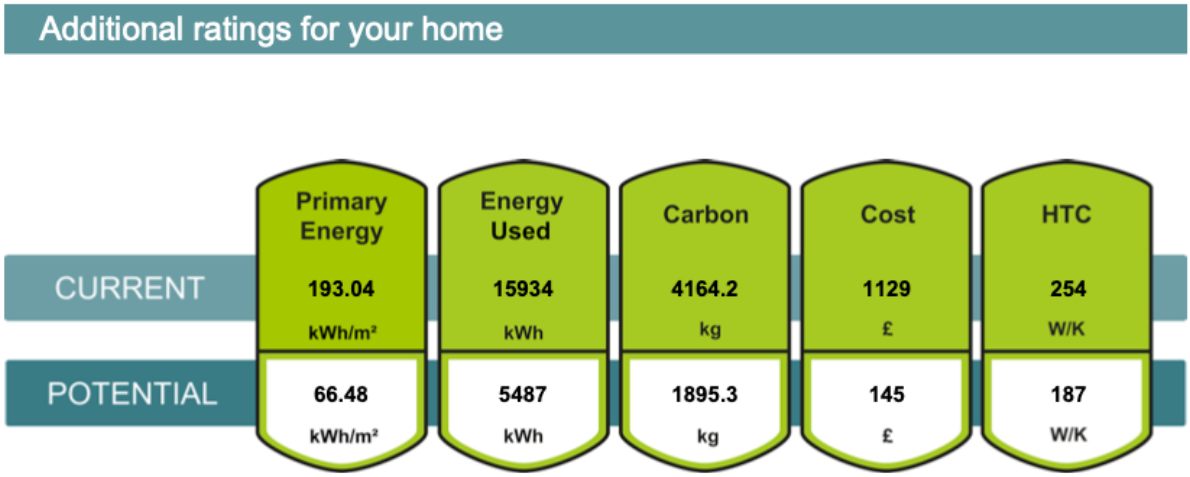
Measure 5:

Retrofit Evaluator: Robert Kelf (C6 Funding)

RETROFIT ASSESSMENT REVIEW

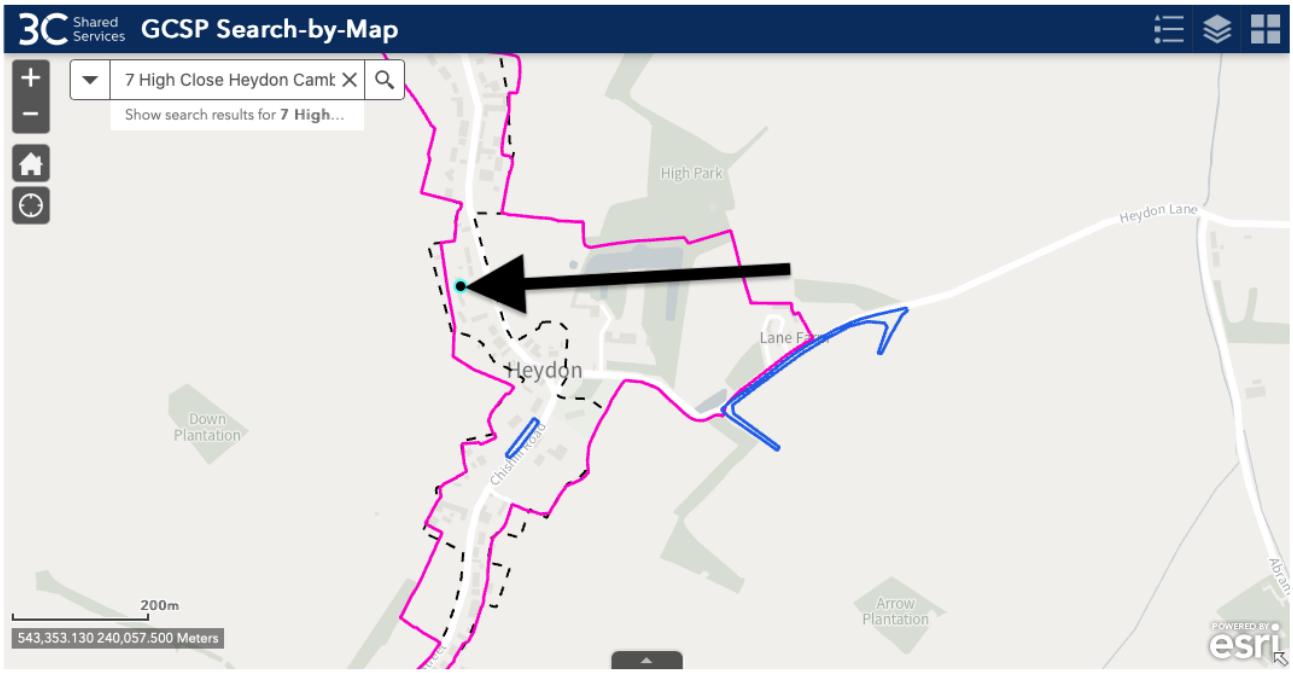
Property Baseline





Location Considerations

It has been identified that this address sits inside a conservation area.

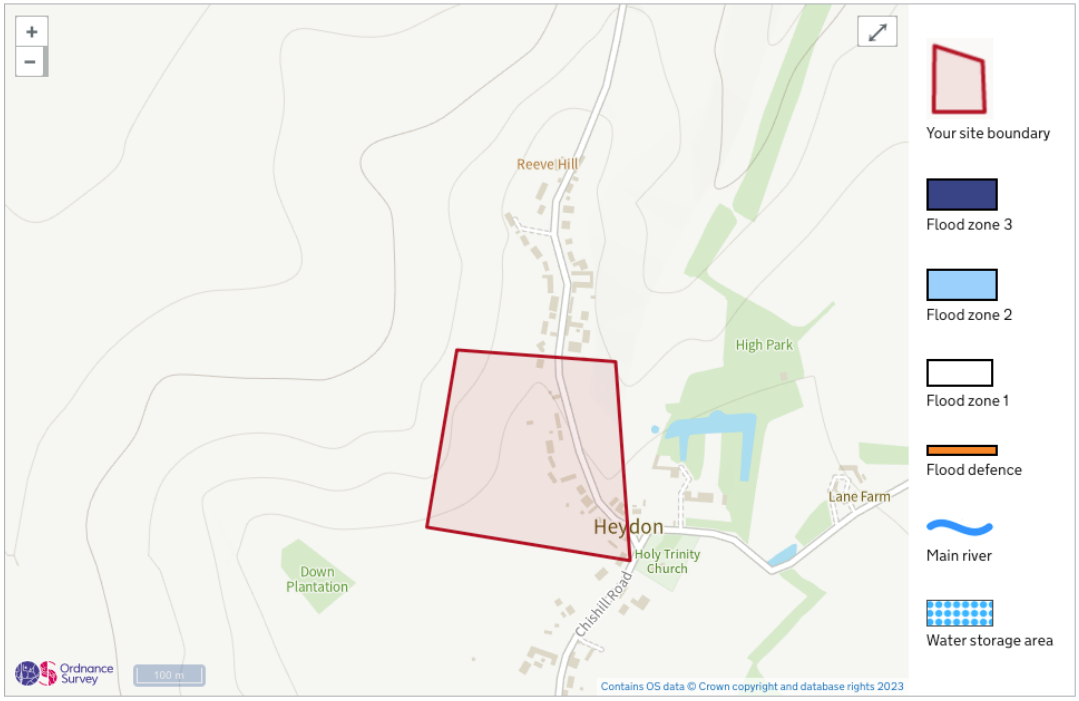


Exposure

The property is in an area of sheltered exposure to wind driven rain, offering no immediate concerns.

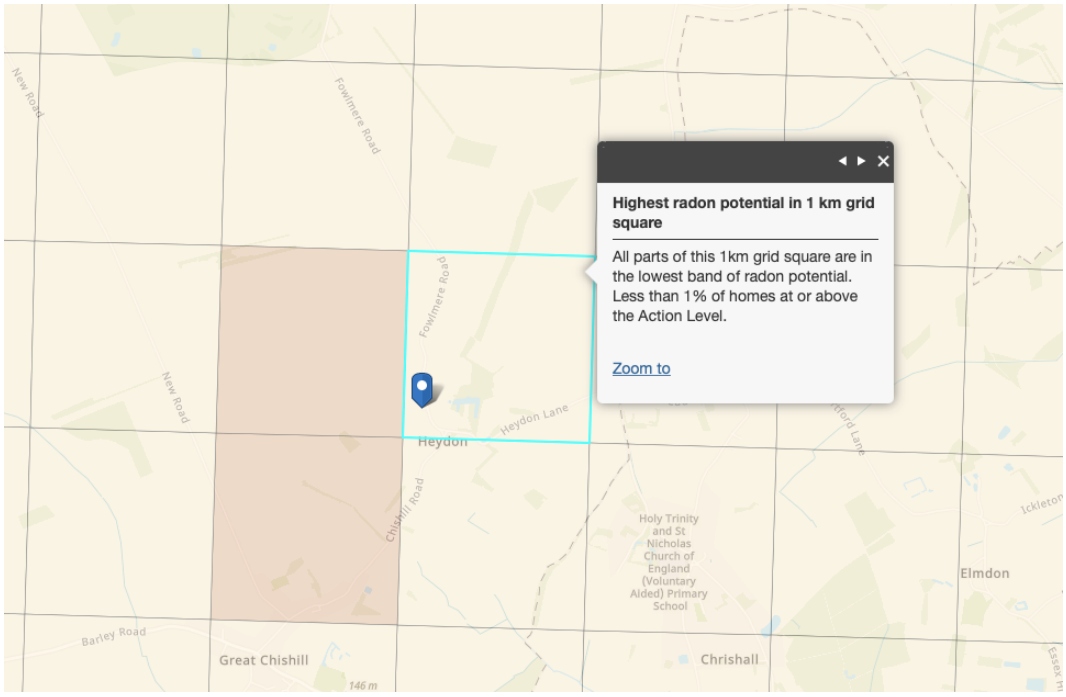
Flood Risk

The property is in Flood Zone 1 offering no immediate concerns however Zone 3 is very close.



Radon

Using the available information, there is less than 1% chance that this property has a Radon level which is equal to or greater than the Action Level. This is the lowest probability banding used by UK Radon. A test would be required to determine the actual level of Bq per m3.



Constraints

- Presence in a conservation area may require some consideration. No other constraints.

Significance

This property does not have any historical, aesthetic, communal or evidential significance.

Defects and Pre-Requisite Work

- Significant repairs to the render were being completed at the time of the Retrofit Assessment. Presuming these are completed then no further action should be needed with regards to the external walls.

Baseline Airtightness

TBD

Ventilation Assessment

There are a number of issues with damp or mould identified, most are probably related to the issues with the render. The extension has damp issues related to historical leaks and having no heating.

There are trickle vents present on all windows including wet rooms.

Kitchen extraction: Nuaire Genie IEV with flow rate of 6.1 l/s.

Bathroom extraction: Vent Axia IEV which doesn't work.

Undercuts are required in the following rooms: Bedroom 2.

There is purge ventilation in all habitable rooms. Windows have an opening angle of greater than 30 degrees.

This property has a solid floor and therefore no sub floor ventilation.

Occupancy Consideration

The occupancy for this dwelling is considered standard with 3 residents. There are no unusual uses of electricity.

There are no identified elements within the property which may contribute to unusual or excessive production of moisture or air pollutants.

Overheating

Overheating is not considered to be an issue within the property, there is no excessive glazing and the opportunity for cross ventilation is present.

INTENDED OUTCOMES

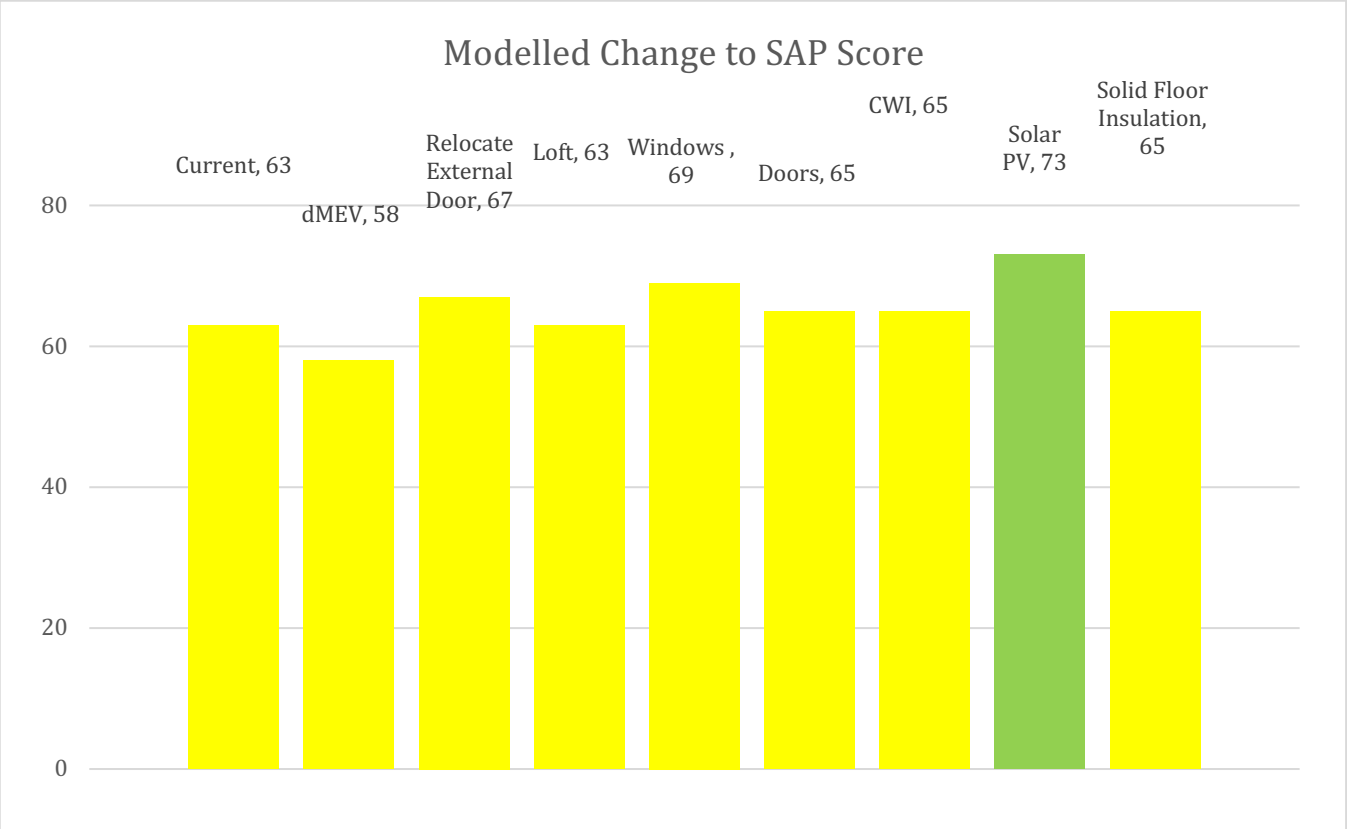
Results	
Reductions in energy use	Yes
Reduction in energy costs and/or alleviation of fuel poverty	Yes
Reduction in emissions associated with energy use	Yes
Improvement in internal comfort	Yes
Improvement of Internal Air Quality (IAQ)	Yes
Reducing the risk of overheating	No
Elimination of condensation damp and mould	No
Improvement in energy rating (e.g. SAP)	Yes
Meeting a performance standard (e.g. NZEB or Passive House EnerPHit)	No
Improving the usefulness or sustainability of the building	No
Protecting the building against decay or deterioration	No
Improving resistance to water penetration and resilience against flooding	No
Protecting the architectural heritage	No
Integration of EEMS and other improvements	No

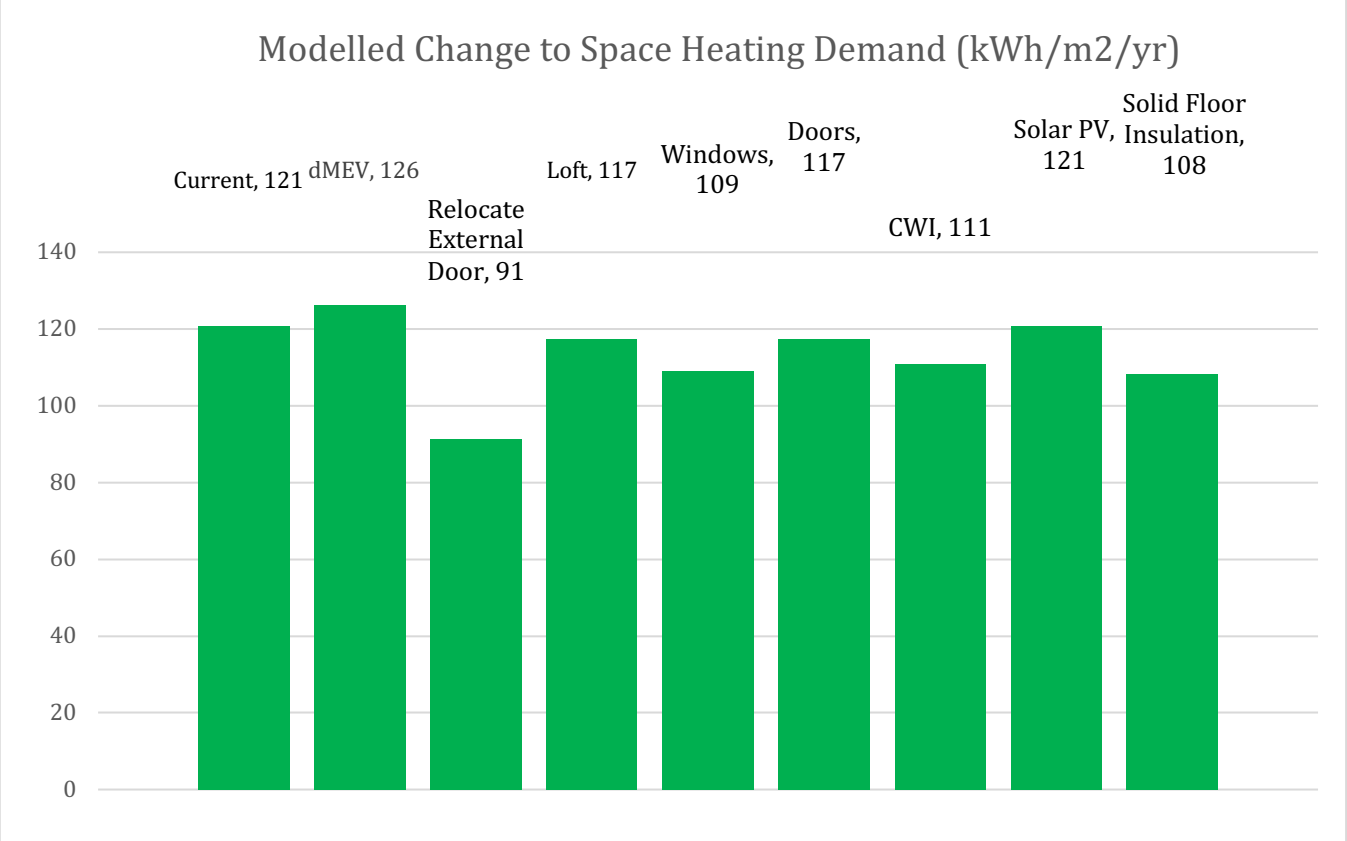
RISK ROUTE ASSESSMENT

Due to the number of properties within the project, the risk route identified is Path C.

IMPROVEMENT MODELLING OF INDIVIDUAL MEASURES

The following graphs display the potential improvements to SHDFs two key metrics when installing recommended measures individually. Beneath, is more detailed information for the individual measures.

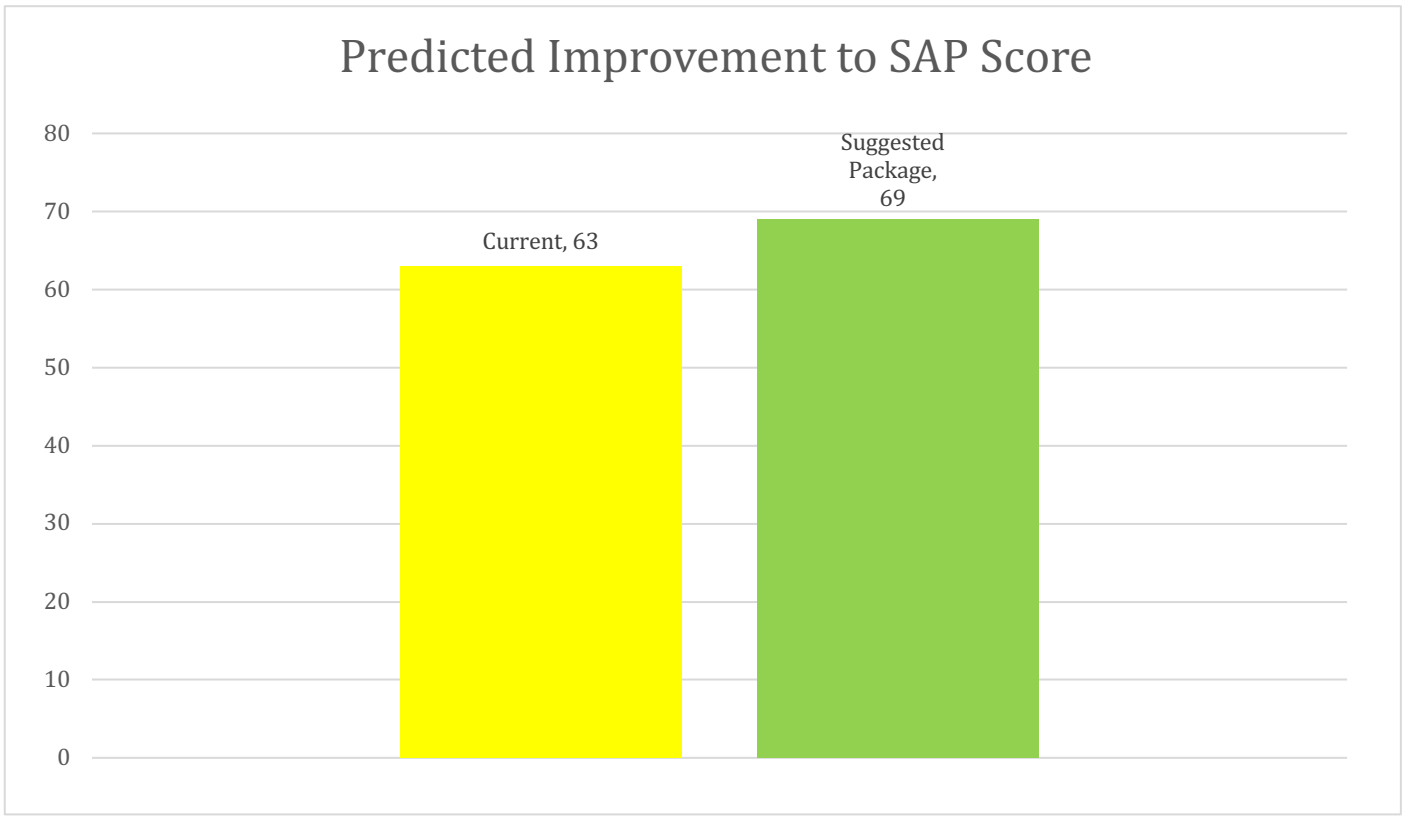


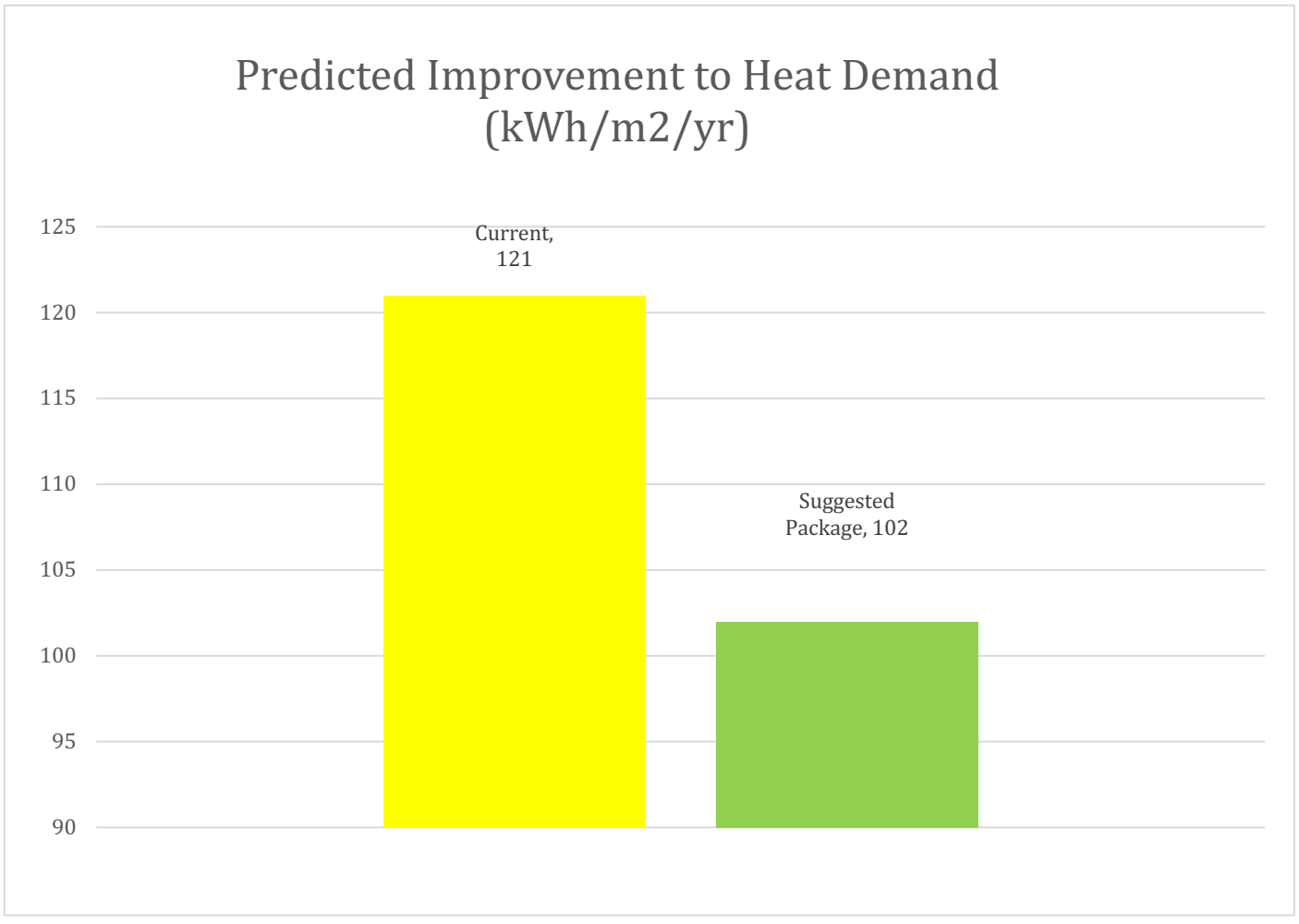


Measure	Capital Cost	Annual Fuel Savings	Simple Payback	Lifetime Fuel Savings	Lifetime CO2 Saving	Carbon Cost Effectiveness
Loft Insulation (between/under/over rafters)	£350	£20.00	18 Year(s)	£800.00	3.28 /tCO2	-137.2 /tCO2
Cavity wall insulation	£1,500	£57.00	26 Year(s)	£2,394.00	9.83 /tCO2	-90.95 /tCO2
Solar PV	£5,500	£688.00	8 Year(s)	£17,200.00	24.32 /tCO2	-481.09 /tCO2
Floor insulation (solid ground floor)	£6,000	£74.00	81 Year(s)	£3,108.00	12.68 /tCO2	228.08 /tCO2
New or Replacement Windows	£6,000	£68.00	88 Year(s)	£1,700.00	5.56 /tCO2	834.53 /tCO2
Higher performance external doors with less than or equal to 60% glazing area	£1,000	£19.00	53 Year(s)	£475.00	1.19 /tCO2	600.84 /tCO2

Recommended package of measures to be installed

CWI extract and refill, loft top up, insulated loft hatch, windows, insulated doors (relocate rear door to the kitchen to make the extension outside of the heat loss perimeter) and dMEV.





Measure	Capital Cost	Annual Fuel Savings	Simple Payback	Lifetime Fuel Savings	Lifetime CO2 Saving	Carbon Cost Effectiveness
Package 1 - Loft Insulation (between/under/over rafters), Cavity wall insulation, New or Replacement Windows, Higher performance external doors with less than or equal to 60% glazing area	£8850	£164	54 Year(s)	£5369	19.86 /tCO2	1207.22 /tCO2

Package Summary

A fabric first approach was used to compile a package of measures designed to achieve the agreed intended outcomes.

Additional Measure Information

- Doors have been modelled with a u-value of 1.4. The rear door should be moved to the kitchen to move the extension outside of the heat loss perimeter.
- Windows have been modelled with a u-value of 1.3.
- Low energy lighting (LEL) is currently in most fixed fittings however not all will be LED, recommend to replace any old style LEL such as CFL with LED.

Measures Disregarded for Install

- Replacing the water cylinder would be beneficial but is likely to get done when the time comes to replace the oil boiler as suspect this will be replaced with an ASHP. At this time the oil boiler is fairly new.
- Solid Floor Insulation – this measure is deemed too disruptive at this time

RECOMMENDED ORDER OF INSTALLATION

Installing the individual measures in an order which does not compromise the efficiency of the retrofit as a whole is critical. Some measures may have no interaction with others so can be installed at any stage but the below is a recommended schedule of install:

1. dMEV
2. Windows
3. Doors
4. Loft
5. Cavity

MEDIUM TERM PLAN

Seq.	Measure	Capital Cost	Annual Fuel Savings	Simple Payback	Lifetime Fuel Savings	Lifetime CO2 Saving	Carbon Cost Effectiveness
3	Solar PV	£5500	£688.00	8.0 Year(s)	£17200	24.32/tCO2	-481.09/tCO2
4	Floor insulation (solid ground floor)	£6000	£74.00	81.1 Year(s)	£3108	12.68/tCO2	228.08/tCO2

PROPOSED VENTILATION STRATEGY

This property currently has an intermittent extraction strategy utilizing:

- Kitchen extraction: IEV with extract rate of 6.1 l/s.
- Bathroom extraction: IEV which doesn't work.

Recommend a continuous ventilation strategy utilizing dMEV units with both humidity sensors and a manual boost function. The dMEV strategy should meet the following requirements:

Rooms	Req's min extract rate l/s	Room volume, m3	Room vent, proportion	Extract rate	Boost function required?	Boost rate l/s
Kitchen	13	41.79	83	26	No	-
Bathroom	8	8.82	17	5	Yes	8

Suggest a variance from the above specification: Bedroom 4 has been discounted from the whole dwelling ventilation rate because it would usually be used as a living room. The whole dwelling ventilation rate has been calculated at 31 l/s. Suggest the trickle rates are balanced more than suggested in the above specification with boost rates commissioned at 20% greater than the trickle rate.

This property requires undercuts in Bedroom 2.

The new windows in the kitchen and bathroom should not have trickle vents. All windows in habitable rooms should have trickle vents with an equivalent area of 4000mm2.