

1870s semi-detached house Wiltshire

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Case study 40



£545

Saving
on fuel bills

32%

Reduction
in carbon
emissions

| Measures installed | Total cost | Annual CO ₂ saving (tonnes) | Annual fuel bill saving |
|---------------------------------|-------------------|--|-------------------------|
| Loft insulation top up | Warm Front funded | 0.69 | £118 |
| Cavity wall insulation | Warm Front funded | 0.70 | £122 |
| Replacement boiler and controls | Warm Front funded | 1.14 | £196 |
| Flat roof insulation | £2,414 | 0.55 | £94 |
| Secondary glazing | £1,464 | 0.06 | £15 |
| Total package | £3,878 | 3.14 | £545 |

The home

This is a stone built semi-detached house located within a designated conservation area in Wiltshire. Built originally in the 1870s, a flat roofed two storey cavity wall extension was added in the 1960s. All windows in the home are double glazed, other than the two sash windows at the front of the house. Although an efficient gas condensing boiler had recently been installed, energy use within the home was high and the family were keen to look at ways to reduce heat loss from their home.

What they did

The Target 2050 survey had highlighted a number of improvements that could be made to increase the thermal efficiency of the house. Potential solutions included externally or internally insulating the original stone walls, and internally insulating the sloping ceilings in the attic room. Planning restrictions at this time prevented external insulation work, though the cavity wall areas were insulated, and an extension flat roof was internally insulated. The two single glazed sash windows at the front of the house have now had secondary glazing units fitted which has significantly improved the comfort levels in this room.

“The secondary glazing in our living room has eliminated the cold draughts as well as reducing the noise from vehicles outside.”



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Insulation improvements

External insulation on the original stone built areas of the home would be the most effective method of reducing heat loss. As external insulation affects the appearance of the property, initially this was proposed for the main gable, and solid rear wall areas only. As the property is within a conservation area, the planning department at Wiltshire Council were approached.

A response from the Council indicated that although insulating the smaller rear section of the house would be likely to be approved, they had concerns about insulating the main gable wall as this would alter the character of the building, and adversely impact on the conservation area. A decision was therefore made not to pursue a planning application for any external insulation work at this time.

Cavity wall insulation could though be completed within the rear extension. This work was completed by Domestic & General insulation and is expected to reduce the house carbon emissions by 0.70 tonnes per year and save the family over £100 on their annual fuel bill.

Insulation improvements were also proposed for the upper floor area of the original house. As there was no access point, a loft hatch had to be cut by the installers before topping up the insulation to the recommended depth of 270mm.

The loft room sloping ceilings and the front aspect walls on the ground and first floors could be insulated internally, and would not require any planning approval. It was decided not to insulate these however as the family were concerned about the loss of room area and eaves storage due to the depth of the insulation boarding.

A decision was made to improve the insulation in the ground floor flat roof located within the rear extension. As the external roof cover was in good condition, it was decided that this could be completed internally. The existing plasterboard



Secondary glazing installed behind single glazed window

was removed, and rigid foam insulation fitted before adding new plasterboard, and skim plaster finishing. This improvement, along with the cavity insulation to this area should make the room more comfortable in the future.

Secondary glazing

The two sash windows at the front of the house were single glazed, meaning that these rooms proved to be more difficult to heat. Secondary glazed units that would not affect the outward appearance of the property were fitted by Domestic and General. The owners have noticed that this glazing not only prevents draughts, but also reduces the level of any outside noise. The owner commented that 'secondary glazing is a good alternative to typically more expensive double glazing as it not only helps to keep the rooms warmer, but allows you to keep the original character windows.'

| Energy consumption | Total (kWh) | Per m ² floor area |
|----------------------------|---------------------|-------------------------------|
| Before improvement (2010) | 45,029 | 436 |
| After improvement (2011) | 28,941 | 280 |
| With all possible measures | 12,670 | 123 |
| UK average (2011) | 19,800 ¹ | 217 ⁴ |

| Running costs | Total | Per m ² floor area |
|----------------------------|---------------------|-------------------------------|
| Before improvement (2010) | £1,998 | £19.36 |
| After improvement (2011) | £1,453 | £14.08 |
| With all possible measures | £833 | £8.07 |
| UK average (2011) | £1,032 ³ | £11.34 ⁴ |

¹Ofgem 2011

²English Housing Condition Survey 2011

| CO ₂ emissions | Total (tonnes) | Kg per m ² floor area |
|----------------------------|-------------------|----------------------------------|
| Before improvement (2010) | 9.67 | 94 |
| After improvement (2011) | 6.53 | 63 |
| With all possible measures | 2.99 | 29 |
| UK average (2011) | 6.00 ² | 66 ⁴ |

³Ofgem 2011

⁴Based on 91m² from English Housing Condition Survey 2011