
Alton

Dear

Re Home Energy Visit

Thank you for your interest in Energy Alton's 'Home Energy Reports' service. It was good to hear of your intention to incorporate improvements which will make a significant change to your building's thermal performance and reducing its carbon footprint.

I was not able to calculate your carbon footprint as you were new to the property and did not have sufficient records to show how much energy the building uses on an annual basis. Once you have been there for over a year you can go to several free websites that will provide you with a good indication of what it is, one such is available at- <https://footprint.wwf.org.uk/> .

I normally set out my report in the following manner: Firstly, I describe the property as I find it to give you the opportunity to correct me if you feel I have mis-interpreted anything I saw or you mentioned to me during the time of our visit. Then I make suggestions as to how it could be thermally improved and also further measures to reduce emissions of carbon dioxide. These suggestions are set out in order of rough cost at the end of the report.

About the property:

The property is a 3-bedroom semi-detached Victorian/Edwardian house built around 1900 and probably has an EPC value of around D to E with a reasonable potential to achieve C relatively easily. The building is heated by a new Valient wall mounted balanced flue condensing gas boiler. The central heating has a modern programmer and room thermostat and radiators with individual thermostatic valves (although it is possible that some of these valves need overhauling). The hot water cylinder has a factory insulated thermal jacket and its surrounding pipework is lagged. Some radiators are mounted directly on external walls. Where this occurs on uninsulated solid external walls, research has shown that radiators can provide up to nearly 40% more heat by simply inserting thermally reflective foil between the radiator and the wall (see later in the report for information relating to this).

There is no damp apparent but the property suffers from draughts through the ground floor boards and through the back door which doesn't shut properly. Such draughts are caused because the un-insulated suspended ground floor requires cross ventilation beneath it to ensure that conditions for the growth of dry rot do not occur, hence the external ventilators should NOT be blocked up. The way to overcome the problem is either to underlay and carpet the floors (the cheaper solution) or to take up the boards and lay insulation between the floor-joists ensuring that any gaps in the insulation are taped over, prior to re-laying the boarding.

All the windows are single glazed and most lack any draught seals. I would suggest that in most cases the best solution is to use clear acrylic magnetically fixed secondary glazing (if you wish to see an example of this then please email me to organise a visit to a property with the system installed). Most light fittings are apparently now LEDs which give off up to ten times as many Lumens of light per kilowatt used that either tungsten or halogen lamps. LEDs also last well over 10 times as long so it is really beneficial to go around the house carefully and swap any bulbs that are still either tungsten or halogen over for new LEDs.

There is fibre-glass insulation in the loft fitted between the first-floor ceiling joists but since these joists are very shallow this is only around 100 mm deep. Such a level of insulation is considered totally inadequate by modern standards which suggest around 220mm deep for fibreglass. Because the joists are boarded over and used for storage in the majority of the loft space, I wouldn't recommend increasing the fibre-glass to the suggested 250mm because it would render the space almost useless for storage purposes as insulation loses its thermal properties if compressed by objects stored on top of it. Instead, I would suggest boarding over the entire loft with rigid insulation boarding. The highest performing boards such as Kingspan and Celotex are mostly polyisocyanurates so you might prefer to use some of the more sustainable boards now produced such as Pavatex or Gutex which are made from recycled wood fibre and are less combustible.

The existing back extension to the kitchen area which is used as a utility room is very cold in winter and suffers from draughts through the warped external door to the back garden. This room also has a solid floor laid directly on the earth without insulation and solid uninsulated 9" brick walls. The warped back door doesn't close properly and should be adjusted or ideally replaced with a door of better thermal performance. The existing door is also single glazed and has a cat flap (which are notoriously causes of further draughts). This extension acts as a heat drain on the rest of the house making the kitchen often uncomfortably cold as well as the bathroom above it. I would strongly suggest that it would be a good idea to hang a tight-fitting door between the kitchen and the utility room which would overcome this problem

A 'Fabric First' approach to decarbonising your home

Heat loss in homes is due to two principal causes: Cold draughts and lack of insulation. By far the majority of carbon energy used in households is consumed in tackling the effects of these two issues. Hence before spending any money on buying new energy efficient cookers or other household equipment we recommend you tackle these two issues associated to the building's fabric. Because of the age of your property, it is likely that additional thermal defect issues might be uncovered by a thermal imaging survey carried out once the weather gets cold. Energy Alton can carry out such a survey for free if you contact us at the appropriate time once you have undertaken the more basic improvements noted in this report.

Whilst from an energy use point of view it is important to make the property as draught free as possible, it is important to also maintain adequate ventilation to ensure a healthy living environment. We understand that you might consider installing a wood-burning stove, if this is done it is important to ensure that adequate combustion air is ducted directly from the outside to the stove otherwise there is a risk of carbon-monoxide poisoning.

Renewable energy options

You might consider renewable energy options such as photovoltaic solar panels, which produce electricity, as your property appears to have sufficient roof space facing **south, east and west**. If a future plan is to put in a heat pump then solar panels with a battery could benefit you because of the additional electricity that a heat pump requires.

(if separate water tank with boiler) You could also install a solar diverter to use surplus energy to heat your hot water.

Recommendations

I summarise the above findings and make recommendations relative to cost as follows:

<p>Relatively simple low cost or free improvements</p>	<ol style="list-style-type: none"> 1. Put draught strips on the sash windows. 2. Add insulated reflective foil backing panels to any radiators fixed to external walls. This can save up to 40% of the output of the radiator in question. 3. Adjust back door so that it closes tightly to reduce draughts. 4. Add a draughtproof door between the kitchen and the utility room. 5. Replace any tungsten, halogen or compact fluorescent light bulbs with LEDs. 6. Increase the loft insulation over the existing bathroom extension to around 220mm using mineral wool as this area is not used for storage.
<p>Improvements involving moderate expenditure which could make significant reductions in heat loss and CO₂ production</p>	<ol style="list-style-type: none"> 7. Increase the loft insulation over the rest of the loft by boarding over the area with semi-loadbearing insulation board. 8. Provide secondary glazing to the sash windows using clear acrylic sheet with magnetic fixings. 9. Replace the back door with a new draughtproof well insulated one. 10. Lay fitted carpet on underlay in the rear room used as a study/office. 11. Ensure that household equipment such as cookers and fridges etc are high efficiency models.
<p>Improvements involving significant Work, disruption & expenditure but could save a lot of CO₂</p>	<ol style="list-style-type: none"> 12. Consider dry-lining all external walls with insulated plasterboard. This would make a significant difference the walls thermal performance and would improve your EPC considerably. 13. Instead of fitting carpet in the study referred to above take up the existing floor boards and install insulation between the floor joists taking care to make sure that any gaps between the joists and the insulation are sealed from draughts by using special sealing tapes. If you decide on this approach the products can be obtained from specialist firms such as Ecological Building Systems. 14. Once the other works are done consider solar photovoltaic panels on your roof. 15. When your gas boiler reaches the end of its life consider replacing it with an air-source heat pump.

GENERAL INFORMATION

For more information about these suggestions, please visit the following:

Centre for Sustainable Energy - downloadable fact sheets
<https://www.cse.org.uk/resource/home-energy-fact-sheets/>

Energy Saving Trust - general information on home energy
<https://energysavingtrust.org.uk/energy-at-home/>

Energy efficiency recommendations - Government energy advice
<https://www.gov.uk/improve-energy-efficiency>

Insulating hot water tanks and radiators

Radiator reflector panels can [reduce heat loss](#) through external walls by 30%. More info at
<https://energysavingtrust.org.uk/advice/insulating-tanks-and-radiators/>

Reducing the flow temperature of a combi condensing boiler

If you have a combi condensing boiler, reducing the flow temperature to 60°C can increase the efficiency by up to 8% - <https://moneysavingboilerchallenge.com/>

Air source heat pumps. See The Energy Savings Trust <https://energysavingtrust.org.uk/advice/air-source-heat-pumps/>

Ventilation

If you make your home more airtight, it's important that there is enough controlled ventilation to remove damp air and avoid condensation. Watch this short video for more info - <https://youtu.be/aBWIXLMnqBk>

Grant funding

There are several grants available to help with the cost of installing energy efficiency measures. The eligibility criteria can be complex and subject to change - for advice, we suggest that you call the Environment Centre Hampshire-wide free advice line, funded by Hampshire County Council, on 0800 804 8601.

East Hampshire District Council also has information at:

<https://www.easthants.gov.uk/climate-and-environment/increase-your-energy-efficiency>

Reliable tradespeople

If you need a reliable tradesperson, we suggest that you first check for government-endorsed accreditation by either MCS or Trustmark:

MCS - <https://mcscertified.com/find-an-installer/>

Trustmark - <https://www.trustmark.org.uk/homeowner/find-a-business>

You can also check consumer review sites, such as:

Trustpilot - <https://uk.trustpilot.com/>

Checkatrade - <https://www.checkatrade.com/>



Yours sincerely

For Energy Alton

*Caveat: Energy Alton has to make clear what the limitations of this report are: It is **not** a structural or condition survey of the property as it has not been carried out by a qualified surveyor but by an unpaid volunteer. It is simply a free outline of the property's thermal limitations for the sole purpose of trying to help the existing occupier make the property more energy efficient and thereby saving carbon energy and helping to prevent unnecessary further global warming.*

DONATION

Whilst this report is free, if you feel that this report has helped you Energy Alton would welcome a donation. Any donations towards the costs of the home energy survey and report are most welcome; no obligation. Treasurer: Michael Ward, incognito44@gmail.com, by direct transfer to Energy Alton CIC Sort Code xxxx A/c no. xxxxx . Or donate via the donate button on our website.