

Energy Performance Certificates for Homes...Explained



What is an Energy Performance Certificate?

The Energy Performance Certificate (EPC) is a European Union initiative as part of the drive to improve energy efficiency across the EU member countries. An EPC provides two key pieces of information:

- The energy efficiency of a property
- The environmental impact of a property

The EPC provides a rating of a property's energy efficiency and displays this as a graph, similar to those found on kitchen appliances.

Ratings come on a scale of A-G, with A being the best rating. This means that home owners and occupiers can compare the energy efficiency of different properties in a similar way to comparing the energy performance of fridges or freezers.

The EPC also includes a Recommendation Report which lists the potential improvements that can be made to a property in order to:

- Cut fuel bills
- Improve energy efficiency
- Help cut carbon emissions

The EPC is split into the following four sections:

1. Energy Efficiency rating and potential savings
2. A summary of energy performance features
3. The recommendations for improving the energy efficiency
4. Details of the properties environmental impact



When is an EPC required?

Since 2009, as part of the Energy Performance of Buildings Directive (EPBD) issued by the EU, all buildings in the UK that are constructed, sold or offered for rent need an EPC.

- An EPC is required whenever a property is marketed
- The EPC is valid for 10 years
- This applies to all sellers hoping to sell their property and to landlords offering a property for rent.

How is an EPC produced?

An EPC can only be produced by a Domestic Energy Assessor (DEA) or a surveyor who is a member of an approved Government Accreditation scheme. The DEA or surveyor will visit the property to determine the energy related features. These are then entered into a computer program which has a calculation model developed by the government and is known as Reduced Data Standard Assessment Procedure (RDSAP).

RDSAP is a cost-based rating system which uses pre-determined assumptions. It does not look at the appliances, but rather the performance of the building itself in areas such as heating and lighting. In other words, it provides an energy efficiency rating for the property itself rather than an occupancy rating.

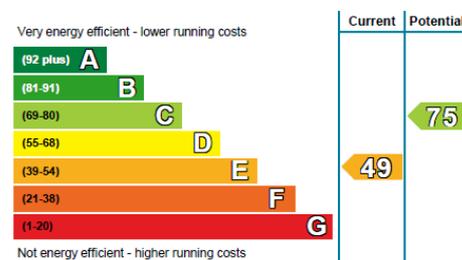
When collecting the RDSAP data the DEA will need to determine the following:

- Property type
- Age of property
- Type of construction
- Property dimensions
- Room and water heating systems
- Insulation levels
- Windows and glazing types
- Types of lighting.

This information will be entered into the calculation software and an EPC will be produced.

Energy Efficiency rating

Page 1 of the EPC displays the Energy Efficiency Rating as shown in the diagram below.



The performance of a property is rated in terms of the energy used per square metre of floor area; the energy efficiency based on fuel costs. The numbered arrows show the current rating based on the existing energy performance of the property and the potential rating if the suggested improvements are implemented.

Estimated energy use

The estimated energy costs are listed in in the EPC (see on the right) showing the estimated energy costs of the dwelling over a period of three years as well as the potential costs and savings if the recommendations are installed. The figures in the table are based on standardised assumptions about occupancy, heating patterns and geographical location. This means that the figures displayed will be different to the **actual** fuel cost.

The reasons for this are:

- RDSAP uses a standard heating pattern of 9 hours each weekday and 16 hours a day at the weekend. It further assumes that the main living area is heated at 21°C and the remainder of the dwelling at 18°C. This may be different to the actual heating pattern of the person living there, but it enables properties to be compared on a like for like basis.
- The model assumes that the number of occupants is proportional to the floor area of the dwelling and hot water usage is calculated using the same proportions. Therefore, if a single person is living in a five-bedroom house, the energy used for hot water in the model and displayed on the EPC will be higher than the actual usage. This procedure allows all properties to be compared on an equal basis.
- If the property has two space heating systems (a main heating system such as a gas boiler with radiators) and a secondary or 'top-up' heating system (e.g., an open coal fire), the model assumes that up to 15% of the space heating is provided by the secondary system. The efficiency of the secondary system is likely to be much lower than that of the main system and will therefore push the energy costs up. It may be that the secondary system is rarely used and would not contribute to 15% of the space heating, but so as to compare properties fairly, these are the standard assumptions made in the model.

Estimated energy costs of this home

	Current costs	Potential costs	Potential future savings
Lighting	£375 over 3 years	£207 over 3 years	
Heating	£4,443 over 3 years	£2,067 over 3 years	
Hot water	£549 over 3 years	£330 over 3 years	
Totals	£5,367	£2,604	

Summary of energy performance related features

The summary of energy performance related features section of the EPC shows the most crucial energy related elements of the property in the form of a table. The table is broken down into the different elements of the property such as:

- Wall construction type
- Roof construction type
- Floor construction type
- Windows and glazing
- Main Heating system present
- Main heating controls
- Secondary heating system
- Water heating
- Low energy lighting

The table then shows how each of the different elements of the property are performing in terms of their current energy efficiency and environmental performance. The descriptions provided are based on the data that has been collected specific to the property's thermal and heating elements. These descriptions are shown as stars where 1 star means least efficient and 5 stars means most efficient.

In some cases, due to the RDSAP calculation methodology, some of the elements have to be assumed. Floors are a typical example of this as it is usually not possible for the DEA to identify

whether any additional floor insulation is present. This is because the survey is non invasive and the assessor cannot use a drill to lift floorboards or pull back carpeting.

Some of the descriptions could lead to concern for the homeowner and it is important to understand the reasoning behind these. For example, the energy efficiency of the hot water system may be given a single star rating because of the cost associated with electricity compared to the cost of gas.

The star rating does not reflect the physical condition or quality of the system.

The energy use is displayed in the EPC underneath the table showing the homes's energy performance related features (see below) and includes the energy consumed in producing and delivering the fuel to the dwelling, and thus will be greater than the energy actually used in the dwelling.

Recommendations

The recommendations section lists measures that can improve the energy efficiency and therefore the SAP rating of the property. The measures are assessed cumulatively in a predetermined order and are only included if they make a measurable change to the energy efficiency of the building.

The recommendations section also displays typical savings per year and shows the energy efficiency ratings as a result of these improvements.

Summary of this home's energy performance related features

Element	Description	Energy Efficiency
Walls	Solid brick, as built, no insulation (assumed)	★☆☆☆☆
Roof	Pitched, 150 mm loft insulation	★★★★★
	Pitched, no insulation (assumed)	★☆☆☆☆
	Roof room(s), no insulation (assumed)	★☆☆☆☆
Floor	Suspended, no insulation (assumed)	—
	Solid, no insulation (assumed)	—
Windows	Some double glazing	★☆☆☆☆
Main heating	Boiler and radiators, mains gas	★★★★★
Main heating controls	Programmer, room thermostat and TRVs	★★★★★
Secondary heating	Room heaters, coal	—
Hot water	From main system	★★★★★
Lighting	Low energy lighting in 36% of fixed outlets	★★★★☆

Current primary energy use per square metre of floor area: 333 kWh/m² per year

Green Deal

The Green Deal is a government initiative due to be introduced in Autumn 2012. It will enable homeowners to install energy saving measures into their property with no upfront costs. These costs will be repaid through the electricity bill at a rate less than, or equal to the savings achieved by installing the measure. The Green Deal plan will remain with the property rather than with the homeowner.

The list of recommendations advises the measures which are likely to be available to the property through the Green Deal. Recommendations indicated with a green tick are likely to be fully financed through the scheme, improvement measures with an orange tick are eligible but may require some upfront payment.

Recommendations

The measures below will improve the energy performance of your dwelling. The performance ratings after improvements listed below are cumulative; that is, they assume the improvements have been installed in the order that they appear in the table. Further information about the recommended measures and other simple actions you could take today to save money is available at www.direct.gov.uk/savingenergy. Before installing measures, you should make sure you have secured the appropriate permissions, where necessary. Such permissions might include permission from your landlord (if you are a tenant) or approval under Building Regulations for certain types of work.

Measures with a green tick ✓ are likely to be fully financed through the Green Deal, when the scheme launches, since the cost of the measures should be covered by the energy they save. Additional support may be available for homes where solid wall insulation is recommended. If you want to take up measures with an orange tick ⚠, be aware you may need to contribute some payment up-front.

Recommended measures	Indicative cost	Typical savings per year	Rating after improvement	Green Deal finance
Internal or external wall insulation	£4,000 - £14,000	£203	E50	✓
Floor insulation	£800 - £1,200	£47	E52	⚠
Increase hot water cylinder insulation	£15 - £30	£20	E52	✓
Draught proofing	£80 - £120	£57	E54	✓
Low energy lighting for all fixed outlets	£35	£35	D55	
Replace boiler with new condensing boiler	£2,200 - £3,000	£144	D59	⚠
Solar water heating	£4,000 - £6,000	£33	D60	⚠
Replace single glazed windows with low-E double glazing	£3,300 - £6,500	£93	D63	⚠
Solar photovoltaic panels, 2.5 kWp	£9,000 - £14,000	£219	C70	⚠

Alternative measures

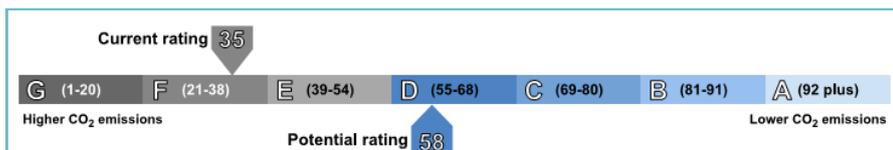
There are alternative measures below which you could also consider for your home.

- Micro CHP

Environmental Impact rating

The environmental impact rating is displayed as a linear graph on page 4 of the EPC. This is based on CO₂ emissions per metres square for the property.

The numbered arrows show the current rating based on the existing energy performance of the property and the potential rating if the suggested improvements are implemented.



Further information

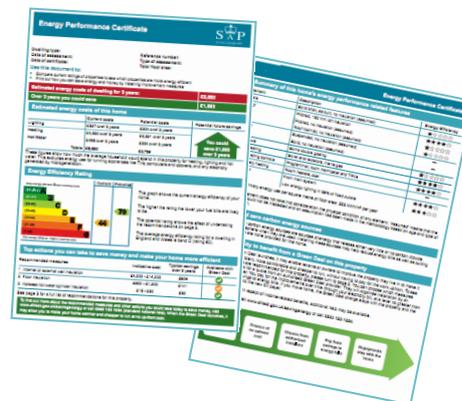
Further information on EPCs and the full EPBD legislation can be found at:

<http://actonco2.direct.gov.uk/actonco2/home.html>

www.energysavingtrust.org.uk/Take-action/Grants-and-savings/Green-Deal

www.energysavingtrust.org.uk

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