NHER Accreditation Scheme

SAVA certification scheme

Energy Performance Certificates for homes...

...Explained

What is an Energy Performance Certificate?

The Energy Performance Certificate (EPC) is one of many new measures that are being applied across the EU member countries to improve energy efficiency. An EPC provides two key pieces of information

- The energy efficiency of a property on a scale from A – G (The most efficient being A and G the least efficient)
- The environmental impact of a property.

It also provides recommendations and cost effective ways to improve the energy efficiency of a property. The benefit is that, if acted upon, this can mean lower energy bills due to lower energy consumption, and in turn lower carbon emissions.

When is an EPC required?

By 2009, as part of the Energy Performance of Buildings Directive (EPBD) all buildings in the UK that are constructed, sold, or rented out will be required to have an EPC.

- A new EPC is required every time the property is marketed.
- Landlord must provide an EPC to prospective tenants, the first time the property is let, or are let after October 2008. The EPC is valid for ten years.

Why is an EPC important?

All EPCs on existing homes are produced using the same methodology. This means that all home owners and occupiers can compare the energy efficiency of different properties – in a similar way to comparing the fuel consumption of different cars.

Part of the EPC is a recommendation report which will list the potential rating that your house would achieve, if the changes were made. This information can be used to:

- Cut fuel bills
- Improve energy performance in the home
- Help cut carbon emissions

How is an EPC produced?

An EPC can only be produced by either a Domestic Energy Assessor (DEA) or by a Home Inspector (HI), who must be approved by either a Government approved Accreditation or Certification scheme. The DEA will visit the property to assess the energy related features. These are then entered into a computer programme which is a calculation model, developed by the Government, known as RDSAP (Reduced Data Standard Assessment Procedure).

This is a cost based rating system using pre determined assumptions and therefore rates the house on its "built in" energy efficiency rather than the actual energy consumed. A DEA will also investigate:

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

These will then be passed through the RDSAP calculation and an EPC will be produced.

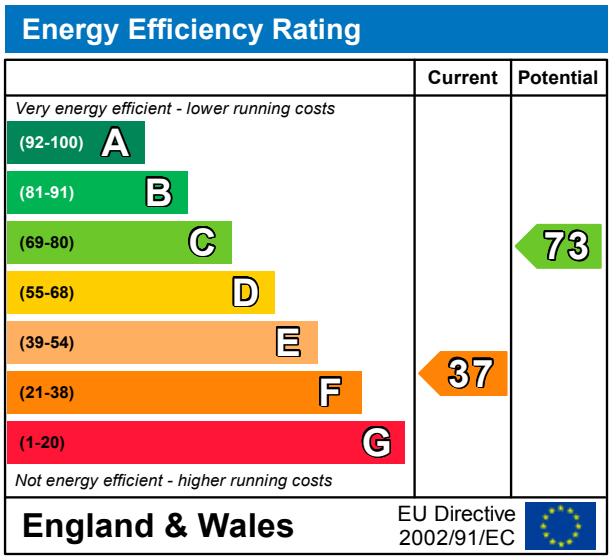
EPC Format:

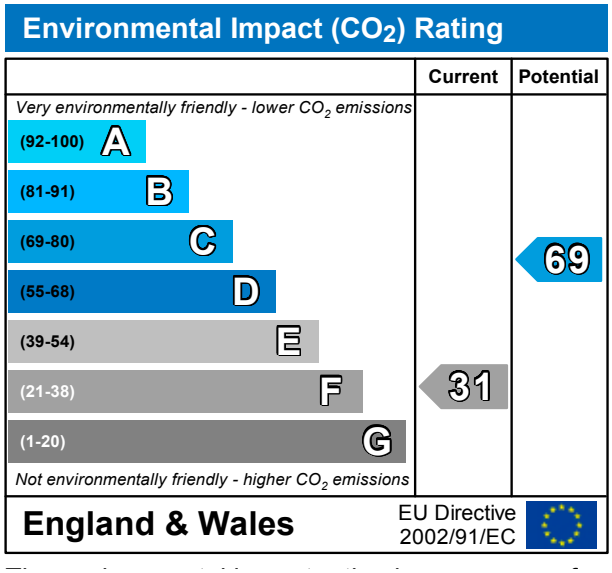
The EPC shows information relevant to the individual property in the form of tables and a graph similar to that seen on domestic appliances. The EPC is split into the following sections:

1. Asset Rating
2. Estimated Energy Use
3. Summary of energy performance features
4. Recommendations

1. Asset Rating:

The Asset Rating section displays the Energy Efficiency Rating and Environmental Impact Rating as shown below:





The performance of the property is rated in terms of the energy used per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon (CO2) emissions.

The numbered arrows in the Asset Rating display shows the current rating based on the existing energy performance of the property and a potential rating based on the suggested improvements being implemented.

2. Estimated Energy Use:

The estimated energy section shows the estimated energy use, carbon dioxide (CO2) emissions and fuel costs of the dwelling as shown below:

Estimated energy use, carbon dioxide (CO_2) emissions and fuel costs of this home

	Current	Potential
Energy Use	453 kWh/m² per year	178 kWh/m² per year
Carbon dioxide emissions	13 tonnes per year	4.9 tonnes per year
Lighting	£81 per year	£65 per year
Heating	£1173 per year	£457 per year
Hot water	£219 per year	£104 per year

The figures in the table above 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 reason for this are:

a. RDSAP uses a standard heating pattern within the calculation, of 9 hours each weekday and 16 hours a day at the weekend, and 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.

b. The model also 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 5 bedroom house, the energy used for hot water in the model and, displayed on the EPC, will be higher than the actual usage. Again this procedure allows all properties to be compared on an equal basis.

c. In addition the model assumes that all properties are based in the middle of England, and uses the average outside temperature of that region for the heating calculations. However, a property in the Southwest of England is likely to require less energy for heating than a comparable property in the Northwest – which would be reflected in the actual bills.

d. If the property has 2 heating systems present, a primary or 'main' heating system; perhaps a gas boiler with radiators and a secondary or 'top-up' heating system; maybe 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 primary 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 again so as to compare properties fairly these are the standard assumptions made in the model.

e. The energy use displayed in the EPC also 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.

3. 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:

The table is broken down into the different elements of the property and displays its current energy efficiency and environmental performance. The descriptions are based on the data that has been collected specific to the property's thermal and heating elements these are Very Poor, Poor, Average, Good, and Very Good.

In some cases, due to the RDSAP calculation methodology, some of the elements have to be assumed. Floors are a prime example of this as it is not possible for a DEA to identify whether any additional floor insulation is present as the survey is non invasive i.e. a DEA cannot use a drill to lift floorboards or pull back carpeting.

Some of the descriptions could lead to concern from the homeowner and it is necessary to explain the reasoning behind these. For example, in the table below, the energy efficiency of hot water is given a "poor" rating this is due to the cost associated with electricity compared to the cost of gas. The environmental impact is also rated as "poor" due to the carbon emissions associated with electricity generation.

4. Recommendations:

The recommendations section lists measures that can improve the SAP rating of the property. These are separated into:

- Lower cost measures - below £500 installation cost
- Higher cost measure s- above £500 installation cost

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.

This section also displays typical savings per year, and shows the Energy Efficiency and Environmental Impact rating as a result of these improvements.

Summary of this home's energy performance related features

The following is an assessment of the key individual elements that have an impact on this home's performance rating. Each element is assessed against the following scale: Very poor / Poor / Average / Good / Very good.

Element	Description	Current performance	
		Energy Efficiency	Environmental
Walls	Cavity wall, as built (no insulation)	Poor	Poor
Roof	Pitched, 250 mm loft insulation	Good	Good
Floor	Solid, no insulation (assumed)	–	–
Windows	Partial double glazing	Poor	Poor
Main heating	Boiler and radiators, mains gas	Average	Average
Main heating controls	Programmer, room thermostat and TRVs	Average	Average
Secondary heating	None	–	–
Hot water	From main system, no cylinderstat	Poor	Poor
Lighting	Low energy lighting in 75% of fixed outlets	Very good	Very good
Current energy efficiency rating		F 37	
Current environmental impact (CO_2) rating			F 31

The Asset rating displays the potential ratings for lower and higher cost measures only.

Finally, there is a description of each recommendation, as well as how it can be used to improve the energy efficiency of the home. It also gives advice as to the application/installation of the recommendation.

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