

Ian Wright
CLG Minister

It's a little known fact that buildings contribute to almost fifty per cent of the carbon emissions in the UK, which is more than the emissions from both cars and planes. Together we need to take action to make buildings more energy efficient as part of the UK's commitment to tackling climate change.

Energy Performance Certificates highlight the existing energy efficiency of a building and what can be done to make it more efficient but EPC's are just the start they represent a real opportunity but we need to turn them into action.

Reducing carbon emissions by making buildings more energy efficient makes business and commercial sense.

Energy efficient buildings use less energy cost less to run and also demonstrate a real commitment to corporate social responsibility.

This short video gives an insight into how a building is assessed and an EPC produced.

We in Communities and Local Government recently obtained an EPC for our own building Eland House and followed the progress of the assessment so that you can see what the assessor is looking for and what key factors in a building contribute to its energy performance.

The Energy Performance of Buildings Directive is a challenge for everyone with an interest in commercial and residential property, but it is also an important opportunity.

We need to take action now.

Voice Over

The introduction of EPC's is being phased in so that by the 1 October 2008 all buildings in England and Wales will need an Energy Performance Certificate when built sold or rented.

EPC's look similar to energy labels currently provided with vehicles and appliances such as fridges and use

the same coloured A to G efficiency scale. "A" being very efficient and "G" being least efficient.

They also include a recommendation report which highlights specific actions that can be taken to reduce the carbon emissions from the building. The certificates can only be produced by an accredited energy assessor. Assessment is a complex process that requires a skilled assessor to collect key information about the building. This information is then fed into government approved software that determines the rating and produces the EPC. So what does an assessment involve?

We follow Energy Assessor Debbie Hobbs as she assesses the Communities and Local Government building. The assessment starts with the review of the buildings fabric its structure and type of construction insulation and glazing.

Debbie Hobbs
Energy Assessor

When we start the energy assessment of a building the first thing we need to find out is about the actual fabric of the building and in this case there is obviously a lot of glass and the glass itself is very efficient glass, it's actually way ahead of its time when it was built.

The other kind of things we are looking for is the ventilation which in this case comes off the floors and extracted into the atrium and that's very important in terms of the air conditioning design.

I guess that the final thing we are looking for here is the lighting around the perimeter has light level sensors on it so it will dim when there is enough day light coming through the atrium.

Voiceover

Heating cooling and hot water systems have a significant impact on how a building functions, the type of plant installed, how the system is designed and the fuels used all determine how energy efficient a system is.

Debbie Hobbs
Energy Assessor

Another piece of information we need to collect, actually put in the model of the building, is about the air conditioning and here in Eland House is actually a very efficient form of air conditioning called displacement ventilation. The air comes in through these big air handling units and then is supplied through the grills in the floor which make it very efficient because it goes with the buoyancy of the air

Hywel Davies
Technical Director
Chartered Institution
of Building Services
Engineers

Buildings services use a significant amount of energy and have a major impact on the energy performance of buildings. Improving building energy performance can significantly improve the way buildings work, make them better places to work in and save money and cut carbon omissions at the same time.

Even small changes to systems can make a big difference to energy performance. Mechanical and electrical systems should be set up and controlled so that they run efficiently and effectively when they are needed and don't run when they are not. Energy Assessors are highly experienced accredited professionals who will be able to give advice on how to set the systems up so on obsolete systems that might be considered for replacement.

Air conditioning inspections will look at the way the systems are set up as well as looking at the size of the system compared to the space it is serving. People who have got existing maintenance contracts will be able to have the inspection as an additional service.

Voiceover

The type of lighting installed in a building can greatly affect its energy performance. Debbie looks at the lighting in Eland House and explains what it means in terms of energy efficiency.

Debbie Hobbs
Energy Assessor

You know the really important thing when you are doing an energy performance assessment is actually the type of lighting you have got. In this building it is particularly important because there is so much open plan office space. Here we have actually got compact florescent lighting which is a really efficient form of lighting.

Another key factor to do with lighting is how you are actually controlling it, so in here we have got occupancy sensors, which means the lights will go out when no one is in the room.

In terms of lighting one of the recommendations that comes out of this EPC is actually to change the lighting in the bottom of the atrium which has got some older lighting called metal halide and to replace it with some more energy efficient lighting such as the fluorescents which are in this office.

Voiceover

Commercial buildings often have many different zones and uses of space this needs to be taken into account when assessing a building. Office space for example will be different in terms of energy efficiency from a restaurant or kitchen in the same building.

Debbie Hobbs
Energy Assessor

Within the model you have to create different activities and assign them to different zones so for instance here we have obviously got the canteen and within this building you have also got the car park, the office space and things like the boiler room are all different activities and for each zone an activity you actually have an associates heating and cooling load that relates to whatever you have labeled it with.

David Strong
Chairman
Building Performance Directive
Implementation Advisory Group

Now the introduction of EPC's is really important in that it will allow the prospective purchaser or tenant of a building to make a much more informed choice, this will help to drive up standards. EPC's are a very

simple mechanism really, in that they allow a very visual representation of how energy efficient a building is at a glance so anybody either visiting a building or a prospective purchaser or a tenant can come to a conclusion regarding the energy performance. With nearly fifty per cent of UK carbon omissions coming from buildings, getting the fabric and the design of buildings right is absolutely crucial and very often it is possible to reduce the energy used by buildings by twenty to thirty per cent simply by adopting cost effective improvements.

Both of course are very interesting because it shows what can be done when you take a historic building and by upgrading the fabric and the performance of the building we have actually managed to convert it into the country's first ultra low energy ultra low carbon building.

Voiceover

Once Debbie has collected all the necessary information from Eland House the details are analysed and inputted into the accreditation scheme and lodged in the national EPC Register. A rating is calculated in accordance with a national methodology that takes into account the elements we have seen, such as the construction of the building, heating and hot water systems, ventilation and fuels used.

Debbie Hobbs
Energy Assessor

When you come back from your site visit the most essential thing to have is some scaled floor plans, from that you can zone up the building and for each zone of the building you then tell the model what type of air conditioning, heating and lighting it has in it. Also for each zone you put in the details and dimensions of the fabric and the height and the width of the building and once you have got all the information added you can press a button and you can generate your Energy Performance Certificate.

Once you have generated your EPC all you have to do to register it is e-mail a file to your Accreditation Body.

Voiceover

Once the Certificate has been produced and registered the assessor will provide the building owner or manager with their EPC.

So how did Eland House do?

Carl von Reibnitz
CLG Sustainability
Manager

Eland House is actually a C which is very good for a building of its age and only marginally below the bench mark for equivalent new build. The recommendation report has actually been very useful both in identifying opportunities and also assessing the potential impact of these. Being a government department and having led on the development of the EPC legislation we are actually already highly focused on reducing carbon omissions as an organisation and have already got many opportunities already scheduled for the coming year.

I've no doubt the recommendation reports will prove invaluable to environmental and building managers not only will it help improve energy efficiency and reduce associated carbon omissions, it will also help make the building more attractive to potential buyers and future tenants.

Andrew Warren
Director
Association for the
Conservation of Energy

An Energy Performance Certificate is not an end in itself, it's a means to an end. What it is doing is telling you whether or not you have got an acceptable building or whether you have actually got a gas guzzling building that you need to do something about. Because the whole point is the certificate when you get it will tell you not just what the current performance is, but also what you can do to up the rating to be a B or even an A rating building .

There are fundamentally two reasons why any company would want to upgrade their building.

The first one is to do with saving on fuel bills. Fuel bills are going up we all know that, well if you can improve the energy rating of a building then the

likelihood is that you are going to have much lower fuel bills, much lower outgoings. That's point one.

The other point also is it says what type of company you are to the outside world. If you are occupying a gas guzzling building then you are not really much of a good corporate citizen you don't really care.

If you are prepared to actually upgrade your building so it's obvious that you are occupying a B or even an A rated building, that's saying we care, we have genuine social responsibilities, corporate social responsibilities and we want to say we are good environmental citizens.

That's what having a good Energy Performance Certificate tells one.

Voiceover

For more information on Energy Performance Certificates or to find an accredited assessor visit www.communities.gov.uk.