First rate

Jes Rutter considers some of the simpler ways for you to improve a building's EPC energy rating

The Minimum Energy Efficiency Standards (MEES), formerly known as Minimum Energy Performance Standards, will make it unlawful to let domestic or commercial buildings in England and Wales that do not achieve a minimum energy performance certificate (EPC) rating of E or higher from April 2018.

As poor energy performance is not limited to old or obsolete buildings, the MEES will have significant impacts for a number of landlords, tenants and property advisors. Landlords need to take action now to avoid higher compliance costs and to protect the revenues that they receive from their properties.

As the EPC is an asset rating, it is based on the asset itself – that is, the building's fabric and installed building services – rather than on how much the present occupiers use those services.

A building with a poor energy rating may currently have reasonably low fuel bills simply because the present occupiers do not heat the premises. Conversely, a high energy rating may not be matched by low fuel bills where the current occupiers heat and illuminate the premises overnight even though they are unoccupied.

Have data to hand

To collect the relevant data, the assessor will undertake a full visual inspection and measured survey. In some instances, a comprehensive data set may be impossible to collect by visual inspection alone, and the assessor will refer to any additional information provided by the building owner or occupier. If no such information is made available, the assessment will proceed on the basis of the default values in the official energy rating methodology.

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As these defaults assume a higher level of energy consumption, if you are able to provide any written information of this type it is more likely that the assessment will lead to an improved energy rating.

Cost-effectiveness

Incorporating energy-saving features into new buildings is now common and relatively cost-effective; retrofitting is generally more difficult and costly. It is possible to achieve very good ratings on old buildings, but the higher the rating achieved, the greater will be the relative cost for achieving it.

After April 2018, an E rating will be the minimum required for any property that is let, so landlords must ensure that their building stock is at least up to this standard. While an E rating is still pretty poor, many landlords will have to take action to achieve even this level, and will be looking to do so for the least expenditure possible.

An EPC is based on consideration of a range of elements, including the building fabric, its airtightness and the building services installed – heating, cooling and hot water, for example – as well as the lighting and lighting controls, and any use of renewable energy or low- or zero-carbon technologies.

The first step for landlords of buildings with a rating of F or G would be to review the recommendations made by the assessor following the inspection and then to survey each aspect of the building envelope and services to see where improvements can be made.

Some will have more influence on the energy banding, some will be more expensive to implement and some will be more physically difficult. Another consideration is whether the building is currently occupied, and the potential impact that any work may have on these existing tenants.

Measures could be as simple as installing energy-saving light bulbs and draughtproofing. However, they could also involve comprehensive improvements, such as replacing an ageing boiler, putting in secondary glazing or upgrading heating controls, and installing systems that are likely to improve overall energy efficiency.

Where to seek improvements

Building envelope

While wholesale alteration of the building fabric is likely to be an unrealistic option, ensuring that repairs are carried out, gaps filled and insulation is as good as it can be are all essential.

It may also be possible to replace sections of the envelope that have poor thermal insulation qualities with better material for a relatively low cost, such as replacing corrugated plastic or PVC with fibre cement-profiled sheeting or corrugated roofing.

Roofs
You should ascertain whether the roof is insulated, and if any insulation that is installed could be improved.

Construction joints and connections
There are often heating or cooling losses at joints and connections; for example, at floor slabs that extend outdoors, heat can be conducted away through the slab.

Penetrations of the building envelope
Where, for example pipes, conduits or chimneys penetrate walls and roofs, there are often gaps that should be insulated.

Floor insulation
Suspended timber floors should be insulated with mineral wool supported by netting between the joists, and the gaps between floors and skirting boards should be sealed to reduce draughts. Solid concrete floors with no insulation can have rigid insulation laid on top. Any floors that are above unheated spaces, such as garages or warehouses, should also be insulated because you may be losing a lot of heat through these.

Doors, window frames and skirting
Look for leaks resulting from poorly fitting doors and windows; but spot repairs to sources of major loss such as roof leaks usually offer faster payback than fixing door and window seals. Consider double glazing if it is not already in place. Install rapid roller doors to goods entrances.

Heating, ventilation and air conditioning
The heating, ventilation and air conditioning (HVAC) system is usually one of the biggest consumers of energy in a building. Even the highest-rated HVAC system wastes energy without a well-sealed duct system and good control and maintenance.

Some points to consider for improving efficiency are as follows:

- improve the controls for temperature and timing
- install de-stratification fans to high bay workshops
- optimise ventilation with the addition of active controls
- reset incoming transformer voltage tapping to give optimum voltage supply
- replace heating boilers with modern condensing type boilers
- ventilate compressor room with cold air from outside to ensure minimum inlet air temperatures.

Building energy management system
A building energy management system (BEMS) controls and monitors mechanical and electrical equipment – such as ventilation, lighting, power systems, fire systems and security systems – via computer.

As a longer-term strategy for helping owners or managers improve their energy efficiency ratings, a correctly configured BEMS can offer many additional benefits:

- higher rental value
- flexibility on change of building use
- time-saving billing of individual tenants for services and facilities
- remote monitoring of plant such as fire and plumbing pumps, air-handling units, electrical supplies, sewage treatment, water and grey water treatment
- intelligent reporting.

Space and water heating
Some areas to consider when seeking energy efficiency improvements include:

- replacing the boiler or heating system
- new heating controls; for example, timers, programmers and thermostatic radiator valves
- point-of-use water heaters
- insulation of hot water pipework and hot water cylinder.

Lighting
Switching to energy-efficient lighting is one of the fastest and most cost-effective ways to cut your energy bills and improve your EPC rating. Consider these changes:

- LED lighting is the most efficient source available
- slimline T5 tubes can be used instead of T8 fluorescent lights
- low-energy compact fluorescent lamps can be installed instead of standard bulbs
- timers and motion sensors could also be installed.

Electrical appliances
The efficiency of electrical appliances varies widely, and some easy ways to improve an EPC assessment are to:

- replace old appliances with more energy-efficient ones i.e. A-rated or higher
- install programmable on–off timers
- ensure all electrical appliances have energy saving settings and use them.

Renewable energy
It is best to reduce energy use and increase efficiency as much as possible before considering renewables. However, energy generated from on-site renewable sources will reduce the building's reliance on importing power and could provide a steady income to help meet running costs or pay for other activities.

Government initiatives have been established to provide a financial

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incentive for the generation of renewable energy, through the Feed-in Tariff for electricity generation such as solar photovoltaics (PV), and the Renewable Heat Incentive for heat generation such as biomass boilers.

Some technologies you could consider for heat and electricity generation are:

- **electricity:** PV, micro wind, biomass combined heat and power
- **heat:** solar hot water (solar thermal), biomass boiler, ground-source, air-source or water-source heat pumps.

Even with the incentives, however, these are not likely to be a cheap or quick fix to improve your EPC.

Advice and assessment
It is always worth consulting a specialist for advice on the best approach for your specific property and circumstances.

In fact, a good starting point is to ask your assessor to carry out a pre-assessment survey. This will allow them to conduct a preliminary property inspection and discuss potential improvements, as well as the likely rating resulting from those measures, before you begin the EPC assessment proper.

All EPCs are valid for 10 years, so it is worth ensuring that you do everything you can to achieve the highest possible rating and maximise the potential yield of your building.

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