Information Guide:

Sustainability Legislation

Issue **20**

CPD CERTIFIED
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MITSUBISHI ELECTRIC
AIR CONDITIONING SYSTEMS

Information Guide:

Sustainability Legislation

This is an independent guide produced by Mitsubishi Electric to enhance the knowledge of its customers and provide a view of the key issues facing our industry today. The guide accompanies a series of seminars, all of which are CPD accredited.

The changing face of construction in the 21st Century demands that designers, specifiers and suppliers work as teams to create better buildings - or occupants and the environment.

Mitsubishi Electric aims to be a part of this by encouraging employees and customers to work together to increase their knowledge of the latest technology, legislation and markets.

Contents

Energy in buildings - the current rules

This guide outlines current legislation relating to the sustainability of and energy use in domestic and commercial buildings. The guide begins with an overview of the main pieces of legislation which are currently in use, and then takes a look at planned changes which are due to be introduced shortly in the UK and Europe. The third section deals with ideas for developments that are under serious consideration by Government and which deal with wider sustainability issues such as flooding, decentralised energy generation and financial incentives for 'green' technologies.

Buildings account for half of the UK's energy use, so their design, build and management have been a particular target of Government in seeking to reduce the country's carbon emissions. The UK Government committed to cutting CO_2 emissions by 60% by 2050 when it signed the Kyoto Protocol, and in order to do this, energy use in domestic and commercial buildings must be drastically reduced.

One overarching piece of energy legislation has set the tone for what happens in the UK: the European Union Energy Performance of Buildings Directive (EPBD). Under the EPBD, a framework was developed for calculating the energy performance of buildings, and it also set minimum standards of energy use and performance for new and existing buildings.



MITSUBISHI ELECTRIC
AIR CONDITIONING SYSTEMS

EU member states are obliged to introduce EPBD requirements in stages through their national laws over a number of years. In England and Wales this process began in 2006 with the introduction of a new Part L of the Building Regulations.

The main requirements introduced by EPBD/Part L 2006, and which are currently in force, are outlined below.

1. Performance against a standard: SBEM and SAP

One of the main objectives of EPBD was to set a benchmark for the energy performance of buildings. In the UK, this translates as a Part L 2006 requirement to improve building energy performance against a (theoretical) building constructed to previous Part L 2002 standards. This is measured in terms of carbon dioxide emissions, and different types of building are required to show different reductions:

Dwellings (flats) 18%

Dwellings (houses) 22%

Non-domestic (heated only) 24%

Non-domestic (mechanically cooled) 28%

So a mechanically cooled, non-domestic building constructed today has to demonstrate that its energy requirements produce 28% less carbon dioxide than a similar construction built to previous standards. To make these demonstrations easier, Government commissioned BREd to produce the Standard Building Energy Model (SBEM) software for use by designers. For domestic buildings, the same process applies and a system known as SAP is used.

2. Air tightness testing

Buildings which are not air tight loose heat rapidly, resulting in energy waste. With this in mind, Part L also introduced a legal requirement that buildings be pressure tested on completion of construction. This applies to all non-dwellings which fall under Part L and also to housing. On new building housing estates, one dwelling can be tested as a sample property. If a building fails this test, remedial measures must be taken until the building achieves the required criteria.

3. Commissioning, handover and log books

Building services must be commissioned so that on handover their controls can be operated efficiently by the building occupies. Often, commissioning and handover are 'last minute' jobs which suffer from the inevitable time squeeze at the end of every project. However, under Part L 2006 the building occupies must be given enough information that they can run the building efficiently. This includes a requirement for a building log book. This log book should also include the data which was used in SBEM calculations to show the building's CO_2 emissions. CIBSE Commissioning Code M is the approved commissioning procedure, and use of CIBSE's TM 31 Building Log Book Toolkit is also recommended.

4. Checks for air conditioning systems

The EPBD specifically targets air conditioning systems for special treatment, with a requirement for 'regular' inspections. It makes compulsory the inspection of all air conditioning systems with a power greater than 250kW by 4 January 2009. The inspector must also produce a report recommending improvements to their efficiency. This means that inspections should already be underway in order to be ready for the deadline.

5. Energy Performance Certificates

Energy Performance Certificates (EPCs) became compulsory in April 2008. Currently, only buildings with a total useful floor area of 2,500 m^2 or over need to have an EPC when they are built, sold or rented. It should be noted that building owners can apply for an EPC as soon as they want to, and this may be an option for organisations with sustainability high on their agenda. For dwellings, the Energy Performance Certificate is part of the now compulsory Home Information Pack.

A qualified assessor must assess the building's energy use, which may include a physical survey of the building. The assessor will issue a rating for the building from the most efficient, A, to worst performance, G and issue a certificate which will be valid for ten years (or until another certificate is required). The assessor will also produce recommendations for improving energy performance with an estimate of the impact such improvements could make.

6. Code for Sustainable Homes

The Code for Sustainable Homes (CSH) is a certification requirement for all new homes. This means that housebuilders can apply for a 'nil-rated' certificate, which shows that their developments have been built to comply with Building Regulations only. However, the CSH is mandatory for schemes supported by English Partnerships and the Housing Corporation. The Code has six levels of sustainability, each with basic requirements which must be met and then allocating 'points' for additional factors such as rainwater recycling, use of low energy systems etc. The Code has replaced the previous EcoHomes scheme.

7. PPS22 Renewable Energy

It isn't just national Government which is setting the agenda for sustainable construction. Planning Policy Statement 22 enables local authorities to demand that a percentage of a building's energy requirement be generated from onsite renewables as a condition of planning. The usual figure is 10%, although some authorities are setting the target as high as 20%. Boroughs around London are leading the way on these targets, which have become known as the 'Merton Rule'. Other areas across the UK are catching up quickly.

Our next feature will look at developments in some of these rules which are coming up in the next few years.

Legislation developments - coming soon

The Energy Performance of Buildings Directive has very long-term goals, and so its implementation was always intended to be carried out in stages. This means that anyone involved in construction has to keep a careful eye on what's coming up in the short and medium-term.

The list opposite summarises some of the key changes to current standards and compulsory targets which are due to come into force in the not-too-distant future.



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AIR CONDITIONING SYSTEMS

1. EPCs for all - 1st October 2008

By the 1st October 2008 all commercial buildings will require an EPC when constructed, rented or sold.

2. Display Energy Certificates - 1st October 2008

From the 1st October 2008, public buildings must have a Display Energy Certificate (DEC). DECs apply to public authorities and the buildings they occupy - whether they own the building or not. As the name suggests, the certificate must be displayed publicly with the building. The DEC shows the building's rating (rated A to G, as with an EPC) as well as the building's annual energy consumption. The information required for a DEC will be fairly substantial, including monitoring of on-site and off-site energy sources. In rented buildings, the authority must work with the building owner to gather the information required.

DECs will be valid for one year only. The objective is that eventually the DECs will also show ratings from previous years to demonstrate improvement or decline. Each DEC is accompanied by a report showing suggestions for improvements. One area which has caused some confusion is the definition of 'public building'. Some buildings clearly fall into this category for example central or local government offices, NHS Trusts, police stations, courts and prisons, libraries and galleries. However, it has also been suggested that the rule applies to buildings where services are provided to 'a large number of persons' which encompasses buildings such as railway stations, even though they are not funded by public authorities. It is thought that enforcement of DECs in these situations will probably be decided through the courts.

3. Air conditioning checks - 4th January 2011

First inspection of all air conditioning systems with a rated cooling output over 12kW must have taken place by this date.

4. Code for Sustainable Homes - Level 3 compulsory in 2010

Although the Code for Sustainable Homes is currently in force, it is acceptable for housebuilders to register a statement of non-assessment. However, in 2010 all new homes will have to meet the Code's Level 3 requirements as a minimum performance standard.

The Code works by setting minimum standards at each level for criteria such as energy and water use. It then awards points for a wide range of sustainability factors from the ecology of the local area, to the number of telephone points and access to broadband. Code Level 3 requires 57 points in total and a 25% reduction in CO_2 emissions.

5. Part L 2010

The Department for Communities and Local Government which oversees the Building Regulations has made it known that it intends to introduce a new Part L in 2010. DCLG has already begun a review of the current Part L with the aim of issuing a formal consultation on the proposed changes early in 2009.

These proposed changes are part of the continuing commitment to achieve zero carbon homes by 2016, as well as addressing some anomalies in the current Part L.

There are four main objectives for the next Part L:

- Raise the targets for CO_2 reduction by setting minimum standards for building systems and elements
- Ensure greater compliance with the Part L (currently a big problem for Government)
- Further develop the SBEM software
- Improve guidance and update the Approved Documents

In the pipeline - future developments in sustainable buildings legislation

While the construction industry tends to concentrate on what's happening right now, it pays to look further down the line - especially where legislation is concerned. Here, we take a look at some of the ideas that are currently being discussed and which might just make it onto the statute books in four or five years' time.

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AIR CONDITIONING SYSTEMS

1. EPBD II

Even as the effects of the current Energy Performance of Buildings Directive are still rippling across the construction sector, Brussels has decided the EPBD needs to be strengthened. Proposed changes include making compulsory the recommendations issued with an EPC and introducing financial incentives such as tax breaks for energy efficiency properties.

The proposed changes seem strange, since it is widely accepted that successful implementation of the current EPBD in EU member states has varied widely, particularly among new members in Eastern Europe where old, inefficient, prefabricated buildings are very much the norm. EU member countries were legally obliged to implement EPBD by January 2009, but there have been 20 infringements of this rule and one court case. In spite of these failures, the EU has committed to cut its energy consumption by 20% by 2020, and in order to do this building energy use has to fall drastically. But introducing new Euro-laws takes time, and a new EPBD is unlikely to make an appearance before 2012.

2. Flood resistance

The floods of 2007 will live long in the memory. Flooding is an expensive business: around 10,000 businesses were affected in 2007, along with 48,000 homes. The cost of the damage was estimated at just over £3 billion. An independent review by Sir Michael Pitt made over 90 recommendations for reducing the likelihood of such devastating effects. The Government agreed that it would bring in compulsory flood preparation measures in the next round of regulation updates in 2010.

3. DECs for commercial buildings

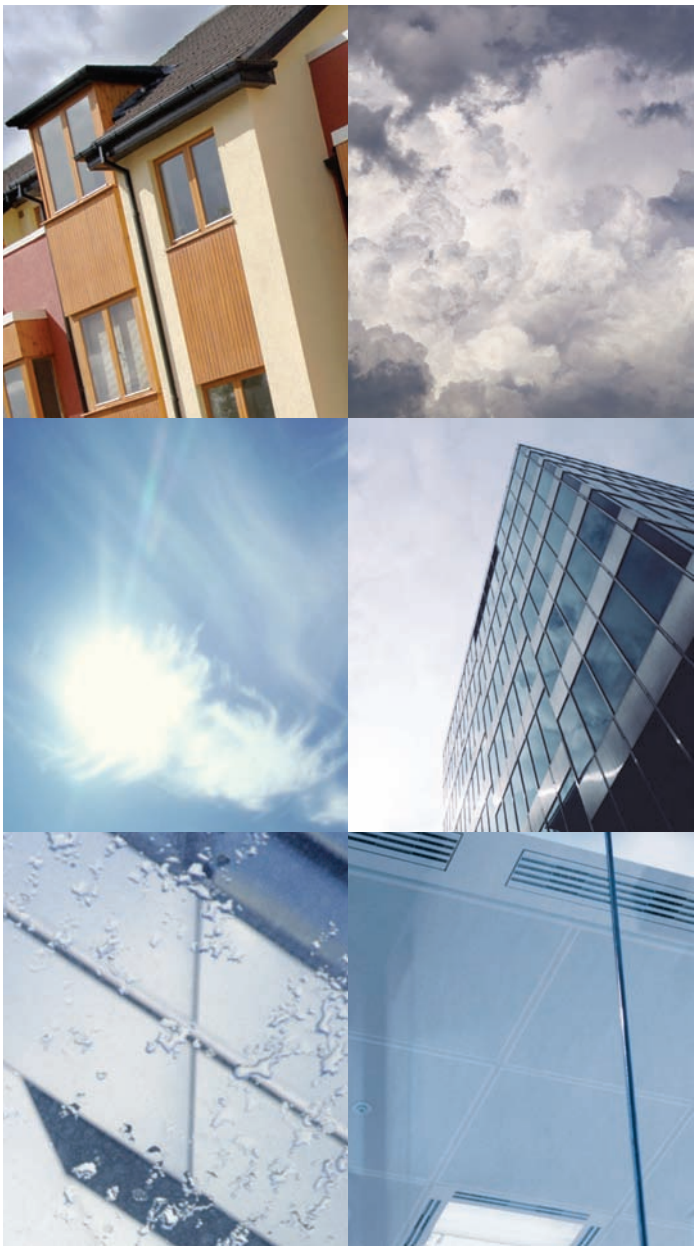
Under current rules, only buildings used by public authorities will have to show Display Energy Certificates from October 2008. However, some private organisations are considering DECs on a voluntary basis, and the Department for Communities and Local Government has agreed that it will be possible for these companies to lodge operational performance of their buildings and receive a certificate for display.

Organisations want to be sustainable in their day-to-day operations, but also keen that these efforts are seen by their customers. DECs offer a good way to show year-on-year improvements in energy saving. No date has been set for making DECs in large commercial buildings compulsory.

4. Tax cuts for green initiatives

The Inland Revenue already applies Enhanced Capital Allowances to energy efficient equipment on its approved Energy Technology List. The April 2008 budget also introduced capital allowances on four other key areas: energy efficient lighting; active facades; external solar shading and thermal insulation.

As is to be expected with tax-related incentives, this is something that accountants will have to deal with. However, there is a growing trend that in future more tax incentives could be offered to encourage more sustainable businesses.



Further **information**

Useful websites

www.communities.gov.uk

Includes all the Building Regulations, as well as links to information on the Code for Sustainable Homes and SBEM.

www.homeinformationpacks.gov.uk

Information on HIPs for consumers and professionals.

www.diag.org

Information on the Energy Performance of Buildings Directive, including EPCs and DECs

If you missed the CPD seminar on **Sustainability Legislation**, you can call your Mitsubishi Electric Regional sales office to arrange an in-house presentation of this information.

Please call one of the numbers below:

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Issue 20 Version 1 (July 2008)

www.greengatewayinitiative.co.uk