Energy Certificates for Buildings Twelve days to go…

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Twelve days to what?

- **April 6th 2008**
  EPCs required on construction, sale and rent of all non-domestic buildings with a floor area over 10,000m²
- **July 1st 2008**
  EPCs required on construction, sale and rent of all non-domestic buildings with a floor area over 2,500m²
- **October 1st 2008**
  EPCs required on construction, sale and rent of all non-domestic buildings.
  DECs required for "all" public buildings >1000m²
  EPCs for rented homes
- **January 1st 2009**
  All air conditioning installations over 250kW must have been inspected
- **January 1st 2011**
  All air conditioning installations over 12kW must have been inspected

Outline

1. Key Requirements of the Energy Performance of Buildings Regulations
2. Asset Ratings and EPCs
3. Operational Ratings and DECs
4. Air-conditioning inspections
5. Accreditation
6. So What? Should we be bothered?

Key Requirements

Key requirements

- Art 7/Pt 2: EPC based on AR
  Pt 3: DEC based on OR (*public* buildings) plus improvement reports
- Art 8: Boiler inspection (advice, not in Regulations)
- Art 9/Pt 4: AC inspection
- Art 10/Pt 5: Energy Assessors & accreditation)

EPB Scope & Implementation

Scope

- **All** buildings: domestic and non-domestic; new and existing
- Boilers & Air Conditioning systems

Regulations

- SI 2007:991 EPB Regulation E&W – as amended
- National regulations in Scotland (Section 6) and Northern Ireland

Coming Into Force (non-domestic)

Dates	Duties
6 Apr 08	EPCs for: construction sale or rent of non-dwellings over 10,000m²
4 July 08	EPCs for construction, sale or rent of non-dwellings over 2,500m²
1 Oct 08	EPCs for the sale/rent of all other non-dwellings DECs required for all buildings affected
4 Jan 09	First inspection of all existing AC >250 kW must have occurred
4 Jan 11	First inspection of all existing AC >12 kW must have occurred

Coming Into Force (domestic)

Dates	Duties
Already	EPCs for sales of existing homes (remember the HIPs debacle?)
1 April 08	EPCs based on SAP for new dwellings
1 Oct 08	EPCs based on rdSAP for rented dwellings

Who's responsible?

- EPCs – building owners (inc social landlords for rented dwellings)
- DECs – building occupiers (who may be owners, eg. NHS Trusts, LEAs
- Air conditioning inspections – the person /body controlling the system

Asset Ratings on Construction, Sale or Rent - a Duty for Occupiers

Energy Performance Certificates and Recommendations Reports

Asset Ratings and Energy Performance Certificates

- Duty to obtain/provide placed on owners on construction, sale and rent
- Based on Asset Rating

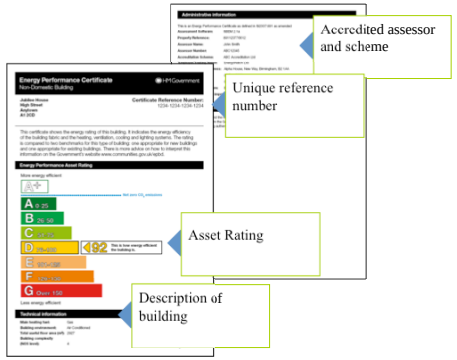
(SBEM / DSM & standard conditions)

- Accompanied by Recommendation Report
- EPC and Report must be produced by an accredited energy assessor
- Valid for 10 years

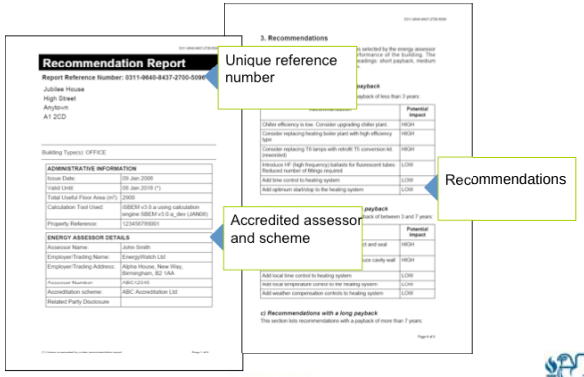
Producing EPCs

- EPCs are in two parts:
  - The Certificate itself
  - The accompanying Recommendations Report
- To produce an EPC requires
  - Gathering of information and data
  - This can be done by means of a full survey or by gathering data by some quality assured means
  - Entering the data into the calculations software
  - Using the software to calculate the Asset Rating

Certificate Details : energy performance certificate



energy performance certificate : recommendation report



Asset Ratings

- Based on the comparative performance of the building being certified against a reference building
- Reference Building is mixed mode, gas fuelled, same geometry and form as the building being certified
- Asset Rating DOES NOT equal the BER!

SBEM

- SBEM (Simplified Building Energy Model)
- Developed for the CLG by BRE
- Can be used on buildings of any size
- Offered with basic interface – iSBEM
- Suitable for use with the majority of buildings
- Allows compliance checking against Part L of Building Regulations **and** production of Asset Ratings for Energy Performance Certificates
- Designed to produce consistent evaluations of energy performance under standard operating conditions

SBEM cont..

- SBEM requires the input of the following:
  - Fabric elements
  - Geometry
  - Building services
  - Building use
  - Renewable options
- Uses locked data bases for:
  - Weather data
  - Activity data

Software approval

- Building Energy Calculation Software Approval Scheme

The website for information about the independent third party approval of energy certification software packages

Approval managed for CLG by Faber Maunsell

Go to http://ukreg-accreditation.org/Index.html for more information

Approved FI SBEM interfaces

The following software interfaces to SBEM are approved by CLG[1]:

- Hevacomp Design Database - PartL 2006 v24.00
- <Virtual Environment> v5.8.2
- Cymap 2008 (Build 90)
- DesignBuilder SBEM (v1.5)
- SBEM Lifespan (v1.0)
- Carbon Checker v1.3.1

1 – as listed on http://ukreg-accreditation.org/ND-Non-domestic.html on 18th September 2008

Approved DSM software

Dynamic simulation modelling can also be used for energy calculations – the following software is approved by CLG[1]

- TAS v 9.1
- <Virtual Environment> v5.9

1 – as listed on http://ukreg-accreditation.org/ND-Non-domestic.html on 18th September 2008

Some advantages of SBEM

- iSBEM is a simple interface, ideal for simple buildings or those requiring few zones
- Quicker for simple existing buildings, possibly not best suited to complex buildings

Some advantages of DSM

- offers more sophisticated modelling e.g. easier geometric handling
- can be used for design as well as energy rating
- handles some technologies, such as CHP, better
- requires greater user expertise

Operational Ratings, DECs and Advisory Reports

Operational Ratings and DECs

- Duty to obtain/provide placed on occupiers to obtain annually for "public buildings"
- Calculated using publicly available software (derived from CIBSE TM22)

Occupiers must:

- Display a clearly visible DEC at all times
- Possess a valid Advisory Report giving recommendations to improve performance

Public buildings

"total useful floor area over 1000m2 occupied by public authorities and by institutions providing public services and frequently visited by the public"

Current thinking:

- *Public authorities*: FOI Act definition
- *Institutions providing*:
  - *Public service*: -include part funding
    -face to face service
  - *Frequently visited*: public right of access

Operational Ratings and Display Energy Certificates

- Duty is annual for "public buildings"
- Calculated using approved software by an accredited energy assessor

Occupiers must:

- Display a clearly visible DEC at all times
- 'Possess or control' a valid Advisory Report

Approved OR software

The following software packages are approved[1] for production of operational ratings:

digitalenergy (v2.0)

ORT v1.0.0

TEAMSigma (v4.0)

1 – as listed on http://ukreg-accreditation.org/ND-Non-domestic.html on 18th September 2008

Display energy certificates

- Assessors need to collect data on energy consumption and floor area
- Consider separable energy uses or adjustments to metered consumption for occupancy
- Calculate Operational Rating using approved software
- Input building data to Advisory report tool
- Produce, lodge, deliver certificate/ report

Operational Rating

- Based on the energy consumed per unit total usable floor area compared to the use of a benchmark building
- No separate benchmarks for air conditioned offices
- A limited set of benchmarks based on Guide F and ECON 19 (ECG 19)

Advisory report

Recommendations to improve energy performance

- Filtered from generic list & building walk around, or
- From a detailed energy audit

Valid for 7 years.

Deadline 1 October 2008

Not starting time!

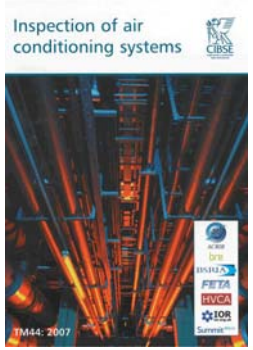
Air-conditioning inspections

Requirement

Regulation 22 of Part 4 of the Regulations requires:

- regular inspection of air conditioning systems over 12kW
- includes assessment of capacity and efficiency of the system in relation to the load, together with recommendations for possible replacement, improvement, or alternative solutions
- preparation of a report on the inspection

Air conditioning inspections



- Methodology for inspections of AC systems >12kW
- gives guidance on assessment and reporting
- requires accredited inspectors

Overall approach

- Simplicity of inspection, minimising costs and disturbance to operation
- While providing useful advice to owner / operator
- Simplest level to identify poor performers
- Minimise burden for well maintained systems
- Non-invasive 'observation' basis
- Minimise risks and potential liabilities to inspector

Inspection methodology

- Two track approach

  simple systems – simple inspections

  complex systems – a more detailed inspection
- Broadly, systems with air distribution ductwork (rather than flexible pipes) will require the more detailed inspection

Process

three key stages in the inspection

1 off- site paperwork (eg. logbooks) and energy data (if available)

2 on site examination

3 report and proposals for possible improvements

Inspection – basic procedure

- Review documentation
- Compare maintenance with industry good practice
- Inspect system components
- Assess controls and settings
- Estimate cooling load
- Review potential for improvement or alternatives
- Report findings and advice

Air conditioning Deadlines

4 January 2009 > 250kW

4 January 2011 > 12kW

Not starting time!

Accreditation of Assessors

Why Accreditation Schemes?

- Energy Assessors must be accredited by an accreditation body approved by CLG
- Regulation 25 (1) states:

  An energy assessor must be a member of an accreditation scheme approved by the Secretary of State.
- Accreditation Bodies are responsible for ensuring that assessors are "fit and proper"
- **In-house assessors allowed if accredited**

The role of energy assessors

Why do we need energy assessors?

The EPB Regulations require them to provide certificates and reports for:

- new (non domestic) buildings – on construction
- existing buildings – on sale or rent
- air conditioning systems (>12kW)
- public buildings – annually for display

Energy Assessors & Accreditation

- Energy Assessors accredited based on either qualification or prior experience
- Accreditation Bodies approved by CLG
- CLG specify calculation methods
- DECs & EPCs to be lodged in national register operated by Landmark
- In-house assessors allowed if accredited, with safeguards

The role of accreditation bodies

Accreditation Scheme Duties

- Accreditation Schemes must ensure that assessors are "fit and proper" persons
- Accreditation to be based on either qualification or prior experience and learning (APEL)
- Schemes must confirm assessors PI Insurance
- Schemes lodge DECs & EPCs on national register
- ? a/c inspection reports ?
- Schemes must undertake QA of certificates

Accreditation Schemes

To join an approved accreditation scheme Assessors must:

- show evidence of competence to join
- work to approved scheme rules
- follow scheme rules & QA procedures
- be subject to random audits
- have professional indemnity insurance

CIBSE Certification Ltd

- CIBSE Certification Ltd has been approved to accredit energy assessors and air conditioning inspectors for all categories
  - Low Carbon Energy Assessors
  - Air conditioning inspectors
- See www.cibsecertification.com for full information

LOW CARBON CONSULTANTS

Established by CIBSE in 2006 to provide a basis for the provision of Energy Assessors in support of the EPBD

Becoming an accredited energy assessor

Requirements for assessors

- For each type of certificate or inspection there is a National Occupational Standard, setting out the minimum competences required of those undertaking the task.
- Assessors will need to hold a qualification based on the NOS or demonstrate that they have acquired all the necessary competence through prior experience and training (APEL)

To become a Low Carbon Energy Assessor

- To produce Display Energy Certificates (DECs) existing LCCs Building Operation will need top-up training to cover
  - data collection
  - calculation procedure
  - certificate production
  - lodgement and admin procedures

Becoming a CIBSE Low Carbon Energy Assessor to produce DECs

- Fill in an application form – rules change on October 1st – so please get in quick!
- Check whether you are exempt from the professional screening requirements
- If you are not exempt CIBSE Certification can undertake this screening for you.

Becoming an Assessor (2)

- To meet CLG requirements you must demonstrate your competence to use aproved software. This requires training and an exam.
- Take top-up training if required
- Submit LCEA certificate to CIBSE Certification with evidence of PI cover and professional membership and signed code of conduct.

Becoming an Assessor (3)

- Submit completed specimen assessments or certificates for accreditation.
- It is envisaged that most LCEAs will submit specimens which they have been commissioned to prepare but if no commissions have been received at the time of application, candidates can provide a certificate of other premises.

Energy Assessors and Part L

- Accredited energy assessors who can show competence with Part L will be able to have their Part L BER calculations accepted by building control as from 1 October 2008
- Regulation 20D Competent Persons scheme will cease to exist

Training available

- Courses for
  - Low Carbon Energy Assessors
  - Air conditioning inspectors
  - are being run around the country
- Focus on providing top up training for existing LCCs first

Other information

Boiler advice

- *UK is not regulating for boiler inspections*
- CLG leaflets available

http://www.communities.gov.uk/planningandbuilding/theenvironment/energyperformance/boilers/

Building owner / operator encouraged to:

- Check boilers
- Estimate savings

Scotland & Northern Ireland

- CIBSE Scotland has a protocol with Scottish Building Standards Agency to provide an interim register of energy assessors, preparing one for a-c
- Proposals for an energy assessor scheme being prepared with SBSA
- Scotland **not** using Operational Ratings for Display – **full EPCs required**
- Northern Ireland similar to England & Wales

So What?

I've got a business to run – what are you lumbering me with this stupid red tape for?

I've got an EPC. So what?

- You can sell or rent the building
- You know the energy performance of your building and its impact on asset value
- Potential tenants or purchasers know too

EPCs a further chip on the table for negotiations

Asset Ratings and Energy Performance Certificates

- What do my EPC and Recommendations Report tell me?

- They tell me what the potential energy performance of my building is under standard conditions

Operational Ratings and DECs

- What is a Display Energy Certificate?

  an indication of actual building energy use compared to typical energy use by similar buildings of that type

- How does it differ from an EPC?

  more like mpg than "0-60 in 6 seconds"

  tells you how effectively asset is managed

  a measure of real operational energy use

Mind the Gap *in reporting:*
What EPCs cover

Fixed building services in the base building:	Fixed building services added in occupier's fitout:	Equipment and appliances added in occupier's fitout:
EPC: Yes Under standard conditions	**EPC:** Maybe Under standard conditions	**EPC:** NO
EPC: NO	**EPC:** NO	**EPC:** NO

Mind the Gap *in reporting:*
What DECs cover

Fixed building services in the base building:	Fixed building services added in occupier's fitout:	Equipment and appliances added in occupier's fitout:
DEC: Yes In actual operation	**DEC:** Yes In actual operation	**DEC:** Yes In actual operation
DEC: Yes In actual operation	**DEC:** Yes In actual operation	**DEC:** Yes In actual operation

And if I don't get a certificate?

- Civil penalties apply
  - not having an EPC - 12.5% of the rateable value of the hereditament;
  - no DEC? - £500
  - no Advisory Report? - £1,000
  - no air conditioning inspection? - £300

Failure to produce a certificate or report when required by enforcement officials? - £200

How can CIBSE help you?

Forthcoming CIBSE publications to help you with EPB Regulations

- TM44: Assessment of air conditioning systems (A methodology to satisfy the requirements of Art 9 of the EPBD) *(Now available)*
- TM46: Operational ratings and building energy benchmarks
- TM47: Display Energy Certificates and Operational Ratings
- Guide to energy and carbon emissions calculations

hours of carbon clean-up

One of the ways we are trying to help

100 hours campaign

The campaign consists of several toolkits

- information, guidance, stickers, posters, free aids, and a programme of staff involvement activities designed to help companies reduce their energy use
- 2 toolkits of information and guidance to help companies cut the cost of getting their Energy Performance and Display Energy Certificates

Structured Approach

- Suggested routes:
  - First steps, further steps and bigger steps

Which guide companies to:

- Prepare for the campaign
- Reduce lighting related CO2 emissions
- Reduce equipment related CO2 emissions
- Reduce heating, cooling and ventilations CO2 emissions
- Reduce other sources of CO2 emissions.

Activities

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Thank you for listening

Any questions?

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