

Energy Performance Building Directive EPBD

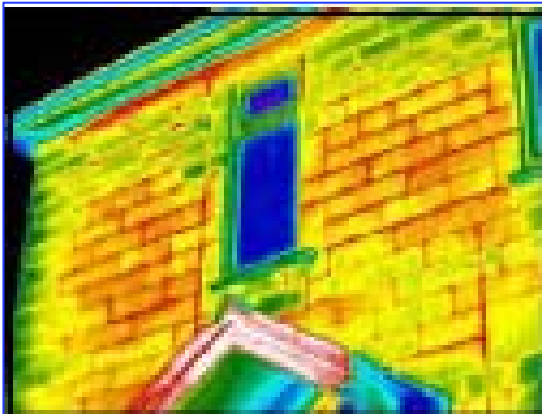
Donald Lack

Chartered Scientist

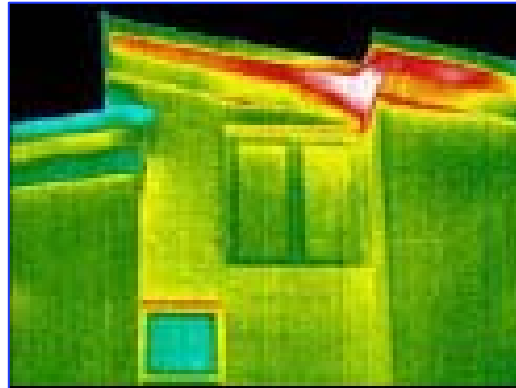
UK HECA Conference 2008 Solihull

Energy Performance Buildings Directive

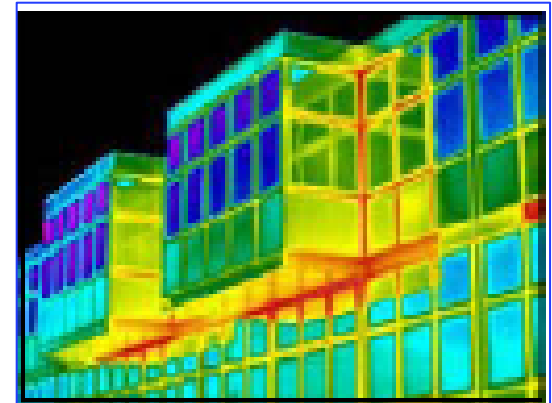
- Developed to improved the energy performance of buildings through inspection, certification of performance and advisory reports.



Thermal defects



Design anomalies



Glazing problems

Who is affected?

- New build on construction
- Existing buildings on sale, lease or rental
- Public buildings
- From April 2008 phased in by size of buildings



Building Energy Performance Rating

Operational Performance

Building occupier

Communities and Local Government

Building type: Office

This certificate shows the Operational Performance of this building by way of the Operational Rating and benchmarks. The Operational Rating is a measure of achieved performance and is based on measurement of fuel consumption. It reflects the effectiveness of maintenance and energy management administration as well as the quality of the building. The benchmarks are derived from standards taking account of the climatic conditions for the year.

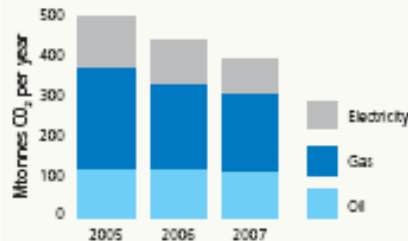
Energy Performance Operational Rating

More energy efficient



Less energy efficient

CO₂ Emissions



Benchmark

Asset rating

D3

Administrative information

Consumption data based on [estimated/actual] readings:
 Specialist services emissions excluded from
 Operational Rating calculation
 On-site generation [xMWh] saved [yMtonnes CO₂] per year

Additional technical indicators	Thermal	Electrical
Energy consumption [kWh/m ²]		
Actual emissions [kgCO ₂ /m ² per annum]		
Benchmark emissions		
Energy from on-site renewables		
Discounted energy for localities		

Building details

Address: A government office
 Total floor area: 2,927m²
 Service strategy: A/C

Main heating fuel: Gas
 Unconditioned floor area [x% = y%]

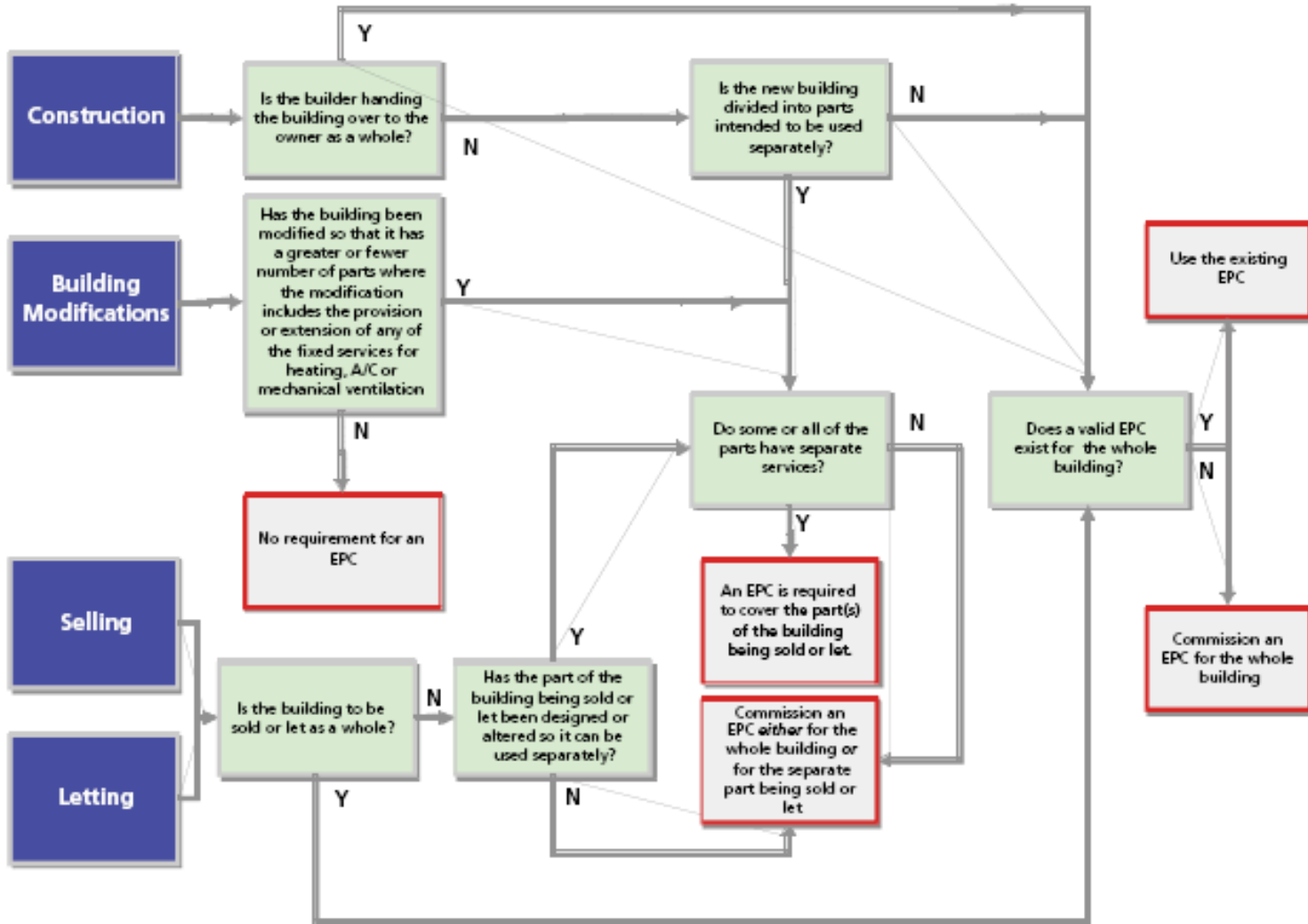
Certification details

Methodology: National calculation methodology for England & Wales
Contact: Whole office building
Certificate NR: OR-Ukew-Off/17432/06
Issued by: A Assessor
Accredited by: ORCalc
Related party disclosure: Services Managers Ltd is the contractor for facilities management in this building

Calculation tool: ORCalc v1.3b
Expiry: 20-June-2008
Company: Services Managers Ltd
Registration no: 06-10732
Signed:
Date:

This is a Display Energy Certificate as defined in S106(7)(6)





Box 1 – Public Authorities

Public Authorities include:

- Central and local government
- NHS trusts
- Schools & higher education authorities (including universities)
- Police
- Courts
- Prisons
- MOD
- Army
- Executive agencies
- Statutory regulatory bodies

Whether or not the public has restricted access.

Box 2 – Public Service

A public service is a service provided by the Government (Central or Local) to its citizens either directly or by financing provision of the service by private agents.

Box 3 – Affected Buildings

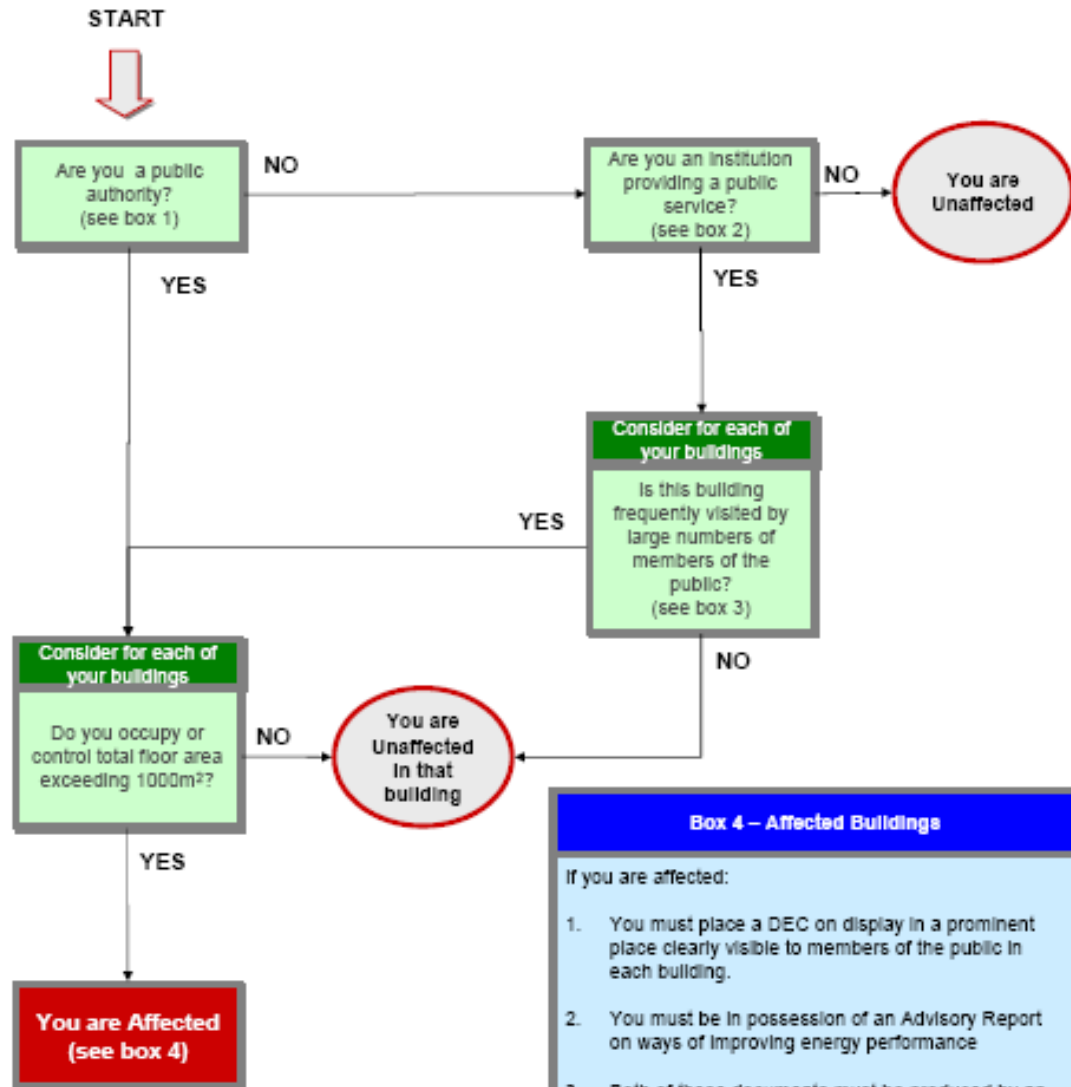
Examples of affected Buildings include:

- Schools (but not private schools)
- Leisure centres (but not private clubs)
- Hospitals (but not private hospitals unless NHS patients are admitted)
- Public golf clubhouses
- Libraries
- Museums & Art Galleries sponsored by Public Authorities.

Box 4 – Affected Buildings

If you are affected:

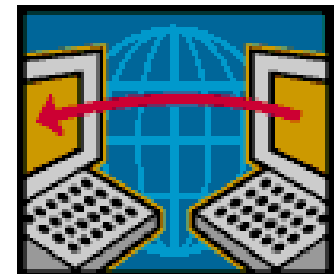
1. You must place a DEC on display in a prominent place clearly visible to members of the public in each building.
2. You must be in possession of an Advisory Report on ways of improving energy performance
3. Both of these documents must be produced by an accredited Energy Assessor.



Energy performance certificates

EPCs

- **Make EPCs available when buildings are constructed sold or rented out.**
- **The validity of the certificate shall not exceed 10 years.**
- **Member States may exclude certain categories of bldg.**
- **The EPC shall include reference values.**
- **The EPC shall be accompanied by recommendations to improve.**
- **DECs must be posted in places clearly visible to the public in “public buildgs” with a TUFA over 1000 m2 occupied by:-**
- **public authorities, and**
- **institutions providing public services to a large number of persons and therefore frequently visited by these persons.**



Regulations 4 and 9 and Schedule 2.

- The requirements apply to all buildings other than—
- (a) buildings exempt by Reg 9(a) in the Building Regs;
- (b) buildings solely or primarily used as places of worship;
- (c) temporary buildings with a planned time of use of two years or less, industrial sites, workshops and non-residential agricultural buildings with low energy demand; and
- (d) stand-alone buildings with a TUFA < 50m² which are not dwellings.
- **(Crown buildings and Statutory Undertakers are not exempt)**



Regulation 17E.

- (1) These requirements apply where:-
 - (a) a building is erected; or
 - (b) a building is modified so that it has a greater or fewer number of parts designed or altered for separate use than it previously had, where the modification includes the provision or extension of any of the fixed services for heating, hot water, air conditioning or mechanical ventilation.
- (2) The person carrying out the work shall:-
 - (a) give an EPC to the owner of the building; and
 - (b) give to the local authority notice to that effect.



Regulation 5.

- The seller or landlord shall make an EPC available to any prospective buyer or tenant:-
 - (a) at the earliest opportunity; and
 - (b) in any event before entering into a contract to sell or rent out the building, or (if sooner) no later than:-
 - (i) The 1st time written information is made available to enquirers; or
 - (ii) the time at which the person is first given a viewing.
- (Unless the bldg is to be demolished – see Reg 7)



Energy assessors (EA) and register of assessments.

- **Accreditation schemes**
- An EA must be a member of an accreditation scheme approved by the SOS.
- **Related party disclosures**
- An energy assessor must include in an EPC a declaration of any personal or
- business relationship other than the EPC commission itself.
- **Duty of care**
- EAs must carry out energy assessments with reasonable care and skill.
- **Registration of certificates etc**
- The SOS shall maintain one or more registers of the following documents
- (a) EPCs and Recommendation Reports;
- (b) DEC's; and
- (c) Advisory Reports.



6 Apr 08.	<ul style="list-style-type: none">▪EPCs required on construction for all dwellings.▪EPCs required for the construction, sale or rent of bldgs other than dwellings with a floor area over 10,000 m².
1 Jul 08	<ul style="list-style-type: none">▪EPCs required for the construction, sale or rent of bldgs other than dwellings with a floor area over 2,500 m².
1 Oct 08	<ul style="list-style-type: none">▪EPCs required on the sale or rent of all remaining dwellings▪EPCs required on the construction, sale or rent of all remaining buildings other than dwellings.▪DECs required for all “public buildings” >1,000 m².



To be clear

- ***The Government announced on 13 March 2008 transitional arrangements for buildings already on the market at 6 April. Any building which is on the market before then and remains on the market afterwards will need an EPC by 1 October at the latest. If it is sold or rented out in the meantime, an EPC must be commissioned and then handed over as soon as reasonably practicable. This is intended to make it easier for owners and landlords of large buildings to comply with the legislation. Similar provisions will apply for the introduction of EPCs on buildings over 2,500 m² in July, expiring also on 1 October 2008. This responds to industry's expectations and is intended to ensure a smooth introduction on 6 April.***

Which really means!

- So to clarify – if the building is already on the market before the 6th April then it will not be exempt and will require a certificate as appropriate to the floor area and in any case by October. I believe that it would be in the interest to have this available as soon as possible as clients are aware now and may see it as a barrier to a hand over if the EPC was not available before the contract was signed. Also the **legal profession** are very aware of the need for an EPC and are not as lenient as the Government wording above and will basically want to see the EPC is in place at time of contract. In my view.

What is an Accredited Energy Assessor

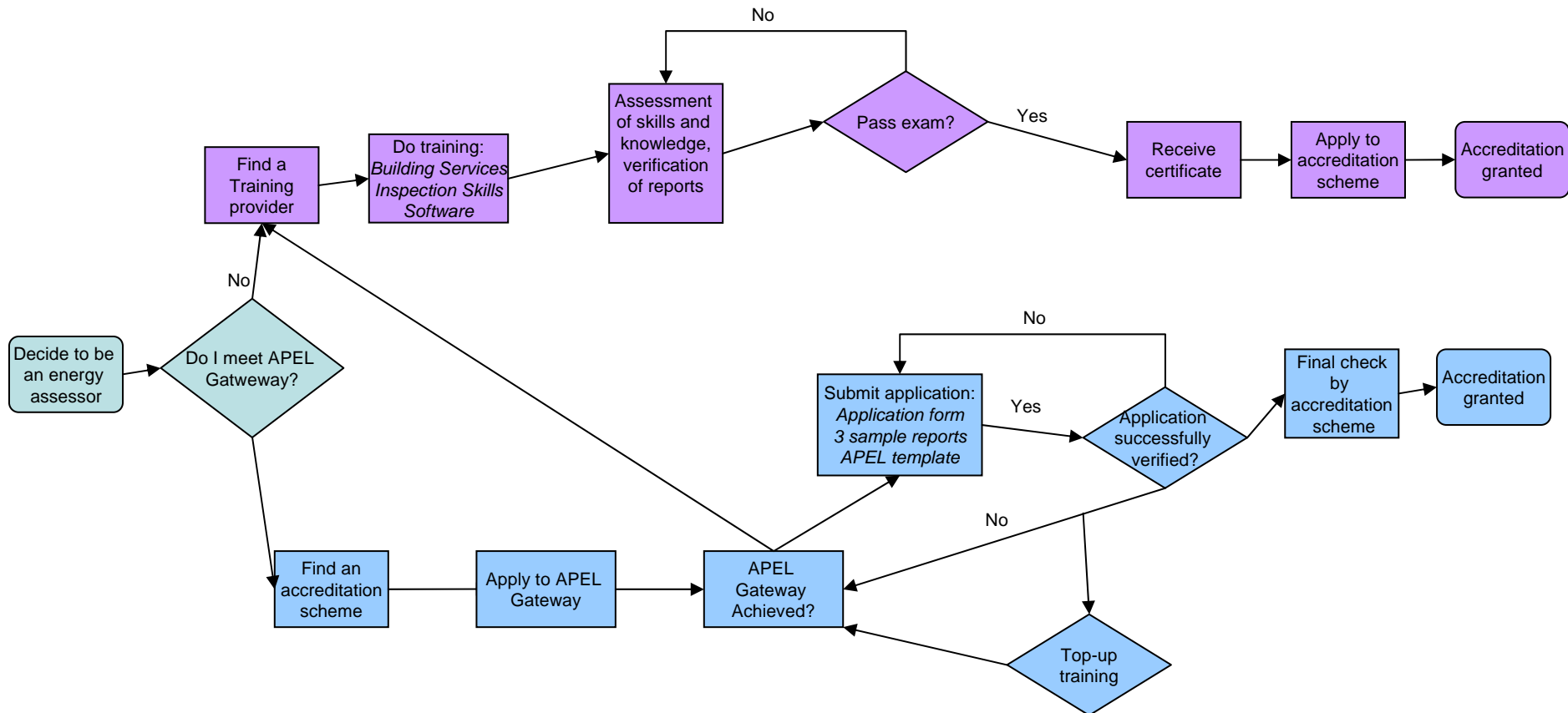
- Route 1:- A person who has completed a recognised qualification as an energy assessor for producing:
 - Display Energy Certificate (DEC) for operational ratings (ORs) for public buildings.
 - Energy Performance Certificate (EPC) at level 3 or level 4 or level 5 (different complexity) and these can be existing buildings or new build on construction.
 - Route 2: Application Form for Accreditation of Prior Experiential Learning (APEL) for the Production of Operational Ratings, Display Energy Certificates and Advisory Reports
 - or APEL for Energy Performance Certificate (EPC) and Recommendation Reports and these can be existing buildings or new build on construction.



Becoming an Energy Assessor – Qualification and APEL Routes

Qualification

CLG flowchart



APEL

Current Situation

- Most existing energy assessors are going through the APEL route which will validate their existing experience against the National Occupational Standards (NOS)
- and assess their competency for surveying buildings and producing EPC or DEC or both against the different levels within the NOS.
- The APEL route is managed by the approved accreditation bodies which are:
 - BRE
 - STROMA
 - HI Cert
 - Quidos
 - Northgate
 - CIBSE
 - RICS
 - BESCA
 - NES
 - Energy Institute
 - ECMK
 - NAPIT
 - KNAUF
 - Elmhurst



APEL Route

- Part of the APEL route is the software test for production of EPC or DEC's or both if the assessor is going for both systems levels.
- For EPC it's a detailed input of the building into SBEM Assess the energy performance of new-build non-dwellings prior to first occupancy using the Simplified Building Energy Model (SBEM) (Intermediate)
- Assess the energy performance of new-build non-dwellings prior to first occupancy using Dynamic Simulation Models (DSMs) (Advanced)
- Undertake energy inspections of existing non-dwellings with frequently occurring characteristics using the Simplified Building Energy Model (SBEM) (Basic)
- Undertake energy inspections of existing non-dwellings using the Simplified Building Energy Model (SBEM) (Intermediate) (NDB)
- Undertake energy inspections of existing non-dwellings requiring the use of Dynamic Simulation Models (DSMs) (Advanced) (NDB)
- Inspect simple / packaged air conditioning systems (ACS)
- Inspect complex / central air conditioning systems (ACS)



What is Faber Maunsell providing

- We are actively involved in the development of the software and approving the scheme accreditation bodies for CLG.
- We are registering Faber Maunsell staff through the accreditation bodies via the APEL route.
- We are ready to work with and for our clients now using our qualified staff
- We have offices around the UK to provide a local resource.
- Birmingham is acting as a centre of expertise following its work for the CLG
- We are running awareness seminars for our clients
- We are piloting operational ratings for some public sector clients

EPC costs balloon to 10 times more than planned

Energy certificates will cost £1.5bn this year, rather than £148m, assessors warn

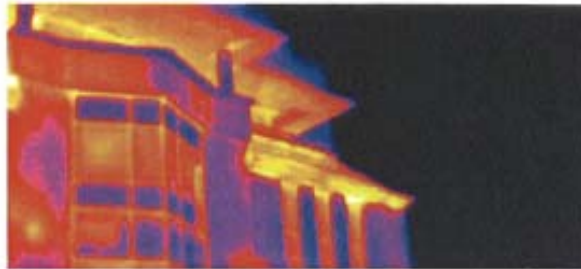
BY MICHAEL WILLOUGHBY

Energy performance certificates could cost 10 times more and take four times longer to assess than the government has estimated.

Last year, the communities department suggested that EPCs would cost £148m to implement in non-domestic buildings in 2008 and £1.5bn between now and 2020. It said: "The cost is likely to be £250-500 for small premises and up to £2,000 for larger ones."

However, commercial energy assessors have described the estimate as "hopelessly inadequate". They claim EPCs will cost £1.5bn this year and £11bn until 2020 to implement.

Rob Corbyn, an energy assessor



Energy certificates for a 1,500m² office may cost as much as £5,000

for consultant RLF, said: "The government said an EPC for a small commercial office would cost £500, but we estimate it will be about £4,000."

He said this was because the government had underestimated the time it took to issue EPCs:

"With travel, data collation and input, and client audit, the one day the government suggests a small office would take to assess turns into three or four."

He says he recently quoted a client £5,000 to assess a 1,500m² commercial building.

Simon Hardwick, a lawyer with Halliwells, said: "The indication from commercial energy assessors is that the government's estimates are far too low."

Peter Williams, a lawyer with Eversheds, said: "Sometimes it might be cheaper to risk the fine, but it is not safe to assume so."

Fines, imposed by the Trading Standards Office, are set at 12.5% of the rateable value of the property to a maximum of £5,000.

A communities department spokesperson said: "This programme has been running for less than a month. It is too early to draw hard conclusions around costs and time."

➤ Leader P3

Office owners overestimate their buildings' energy ratings

Two-thirds of office landlords believe their buildings will get higher energy performance ratings than those anticipated by experts.

The results of a survey by Building and the British Council for Offices, ahead of the Think 08 conference, revealed that 67% of office landlords and occupiers expected their buildings to receive either a C or D rating. Only 27% anticipated a rating of E to G. An E is

equivalent to the 1995 version of Part L of the Building Regulations.

Brian Scannell, managing director of energy assessment company NES, said survey respondents were "very optimistic". He said: "People assumed their homes would be mid-range but the average rating was D. I'd be surprised if we had a significant number of C-rated buildings."

John Field, an assessor with energy management consultant Power Efficiency, said he had come across a couple of buildings built in the eighties and nineties that had just "scraped" a C rating. He said, "Most air-conditioned buildings constructed at this time would be D or E."

➤ Clients P58

Merton Rule pioneer leaves | Get ready for Think 2008

Penalty

The penalty for failing to make an EPC available to any prospective buyer or tenant when selling or letting non-dwellings is fixed, in most cases, at 12.5 per cent of the rateable value of the building, with a default penalty of £750 where the formula cannot be applied. A formula is used as the costs of producing an EPC for non-dwellings are expected to vary according to the size, complexity and use of the building. The range of penalties under this formula are set with a minimum of £500 and capped at a maximum of £5,000.

Enforcement

Local authorities (usually by their Trading Standards Officers) are responsible for enforcing the requirement to have an EPC on sale or let of a building. Failure to provide an EPC when required by the Regulations means you may be liable to a civil penalty charge notice. Trading Standards Officers may act on complaints or undertake investigations. They may request you to provide them with a copy of your EPC and recommendation report. If asked, you must provide this information within seven days of the request or be liable to a penalty charge notice. A copy of an EPC can be requested at any time up to six months after the last day for compliance with the obligation to make it available.

EPC is required

- use energy to condition the indoor climate. This is the case where the building has any of the following fixed services: heating, mechanical ventilation or air conditioning. Although the provision of hot water is a fixed building service, it does not “condition the indoor environment” and would not therefore be a trigger for an EPC. The same argument applies to electric lighting. Where a building is expected to have heating, mechanical ventilation or air conditioning installed, it will require an EPC based on the assumed fit out.

Industrial Sites

Buildings which are **industrial sites and workshops with low energy demand**. These include buildings, or parts of buildings designed to be used separately, whose purpose is to accommodate industrial activities in spaces where the air is not conditioned. Activities that would be covered include foundries, forging and other hot processes, chemical process, food and drinks packaging, heavy engineering and storage and warehouses where, in each case, the air in the space is not fully heated or cooled. Whilst not fully heated or cooled these cases may have some local conditioning appliances such as a plaque or air heaters or air conditioners to serve people at work stations or refuges dispersed amongst and not separated from the industrial activities.

Displaying the Information



The bigger, the better

This Romanian school has displayed the building label prominently, which in turn encourages citizens - and other local building managers - to take notice. Organisers report that most building managers put up Display® labels at building entrances in an A3 size, but they are hopeful that more and more will manage to create large labels like the one pictured.

Bristol Create Building



- Displaying the Certificate important
- Failure to do so will lead to a fine
- Failure to produce a advisory report will lead to a fine

On Construction

3.1 Responsibilities for providing an EPC on construction or modification of a non-dwelling

When a building being **constructed** is physically complete, it is the responsibility of the **person carrying out the construction** to give an EPC and recommendations report to the **owner of the building** and to notify Building Control that this has been done. Building Control will not issue a certificate of completion until they are satisfied this has been done.

On Modification

If a building is **modified** to have more or less parts than it originally had and the modification includes the provision or extension of fixed services for heating, air conditioning or mechanical ventilation (ie those services that condition the indoor climate for the benefits of the occupants) then an EPC will be required. When the modifications are physically complete, it is the responsibility of the **person carrying out the modification works** to give an EPC and recommendations report to the **owner of the building** and to notify Building Control that this has been done. Building Control will not issue a certificate of completion until they are satisfied this has been done.

Sale or Rent

As soon as a building is in the process of being offered for **sale**, it is the responsibility of the **seller** to make available an EPC to prospective buyers.

As soon as a building is in the process of being offered to **let**, it is the responsibility of the **prospective landlord** to make available an EPC to prospective tenants.

It is the responsibility of the seller or landlord offering the accommodation for sale or let to make an EPC available for their building. A lease assignment would be considered to be a sale or letting and the assignor should normally provide the EPC. The landlord's obligations will generally be satisfied if the assignor provides the EPC to the assignee.

Not sale or let

The purpose of providing an EPC during the sale or letting process is to enable potential buyers, tenants or building occupiers to consider energy performance of a building as part of their investment. Certain transactions would not amount to a sale or let to a new owner or tenant and would therefore not require an EPC. Examples would include:

- lease renewals or extensions
- compulsory purchase orders
- lease surrenders.

There may be other types of transaction that it might be argued do not require an EPC, for example not-for-value transactions, but this will depend on the individual circumstances of any case.

EPC free of charge

A valid EPC and recommendation report must be made available *free of charge* by the seller or landlord to a *prospective buyer or tenant* when non-dwellings are sold or let. This information should be provided at the earliest opportunity and no later than:

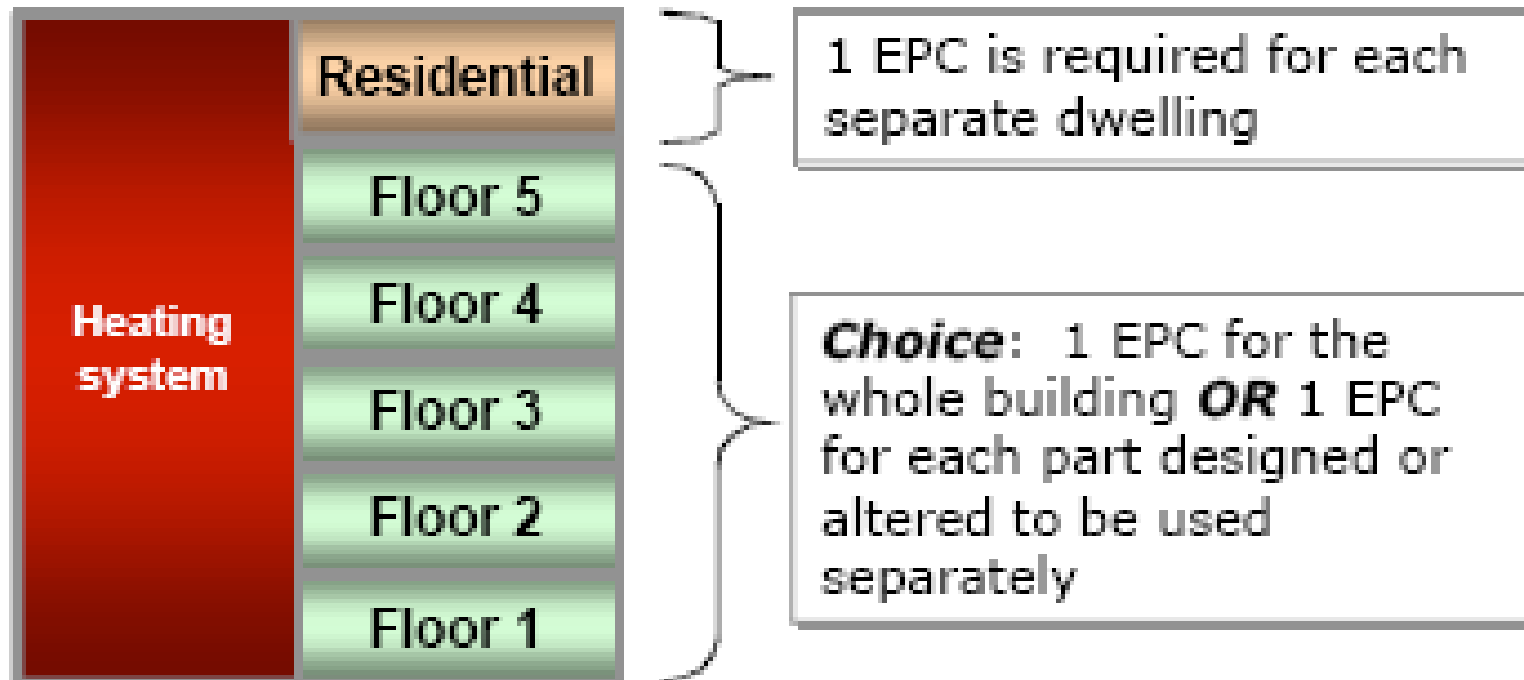
- when any written information about the building is provided in response to a request for information received from the prospective buyer or tenant; or
- when a viewing is conducted; or
- in any event, before entering into a contract to sell or let.

EPC not provided

An EPC does not have to be made available if:

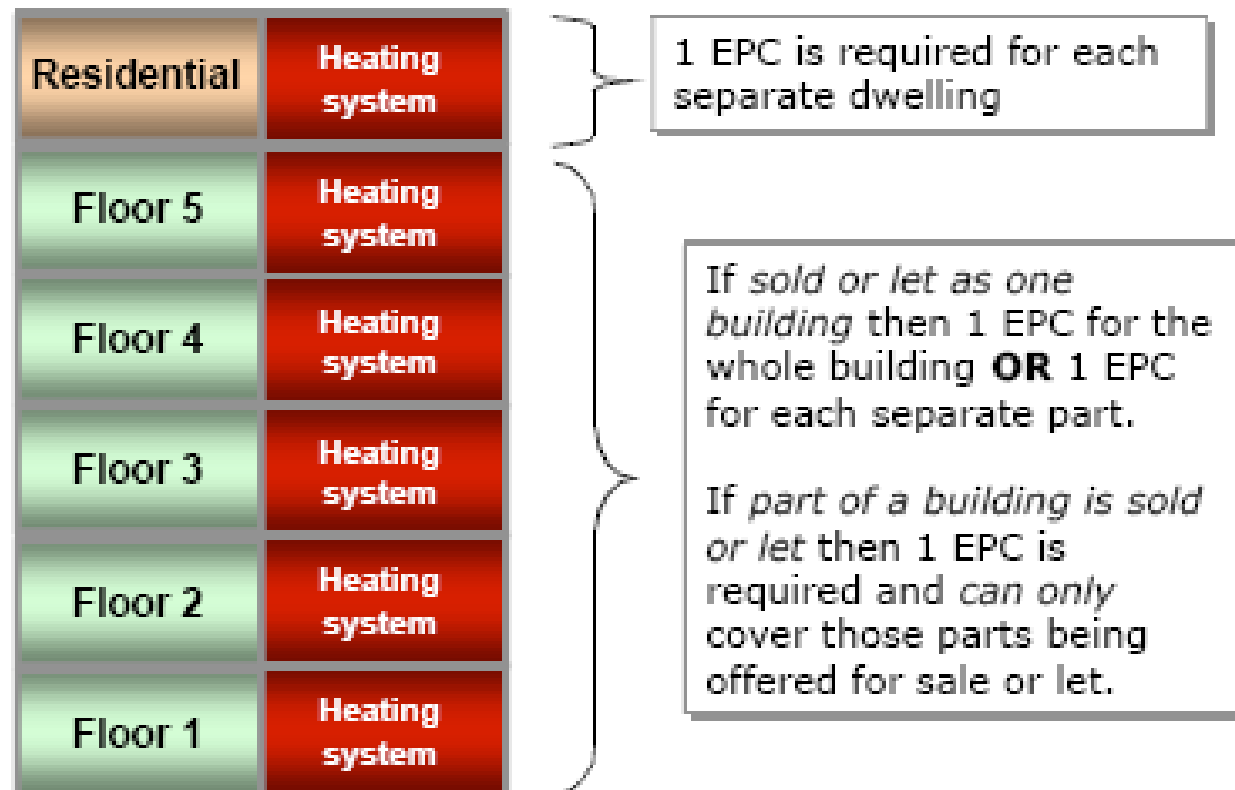
- the seller has reasonable grounds to believe that the prospective buyer or tenant is unlikely to have sufficient funds to purchase the building or is not genuinely interested in buying or renting the building; or
- the seller or tenant is unlikely to be prepared to sell the building to the prospective buyer (although this does not authorise unlawful discrimination).

EPCs Required



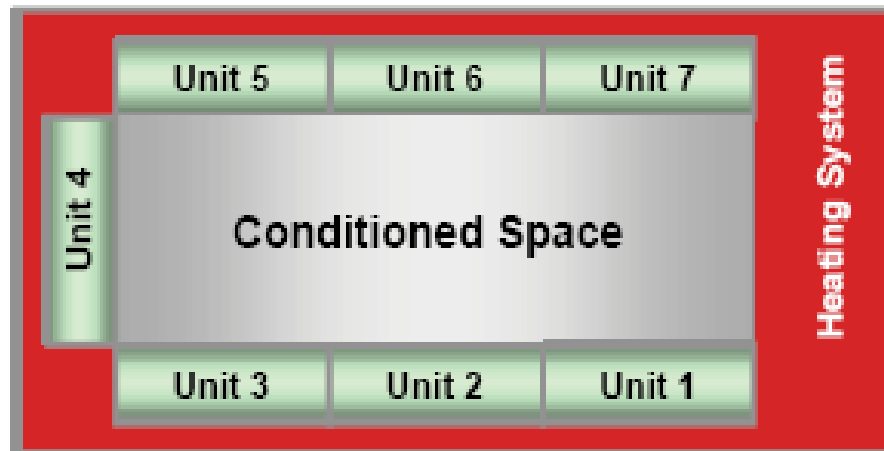
EPC required

A.2. BLOCK WITH INDEPENDENT HEATING SYSTEMS



EPC Required

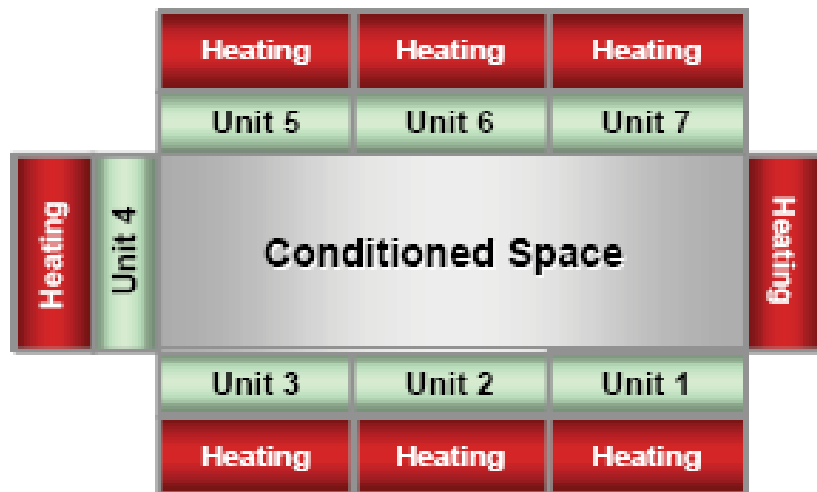
A.1. CENTRES WITH CONDITIONED CENTRAL SPACE



Choice: 1 EPC for the whole building OR 1 EPC for each part designed or altered to be used separately (The energy consumption of the part will be based on an energy use per square metre for the whole building)

EPC required

B.1. CENTRES WITH CONDITIONED CENTRAL SPACE

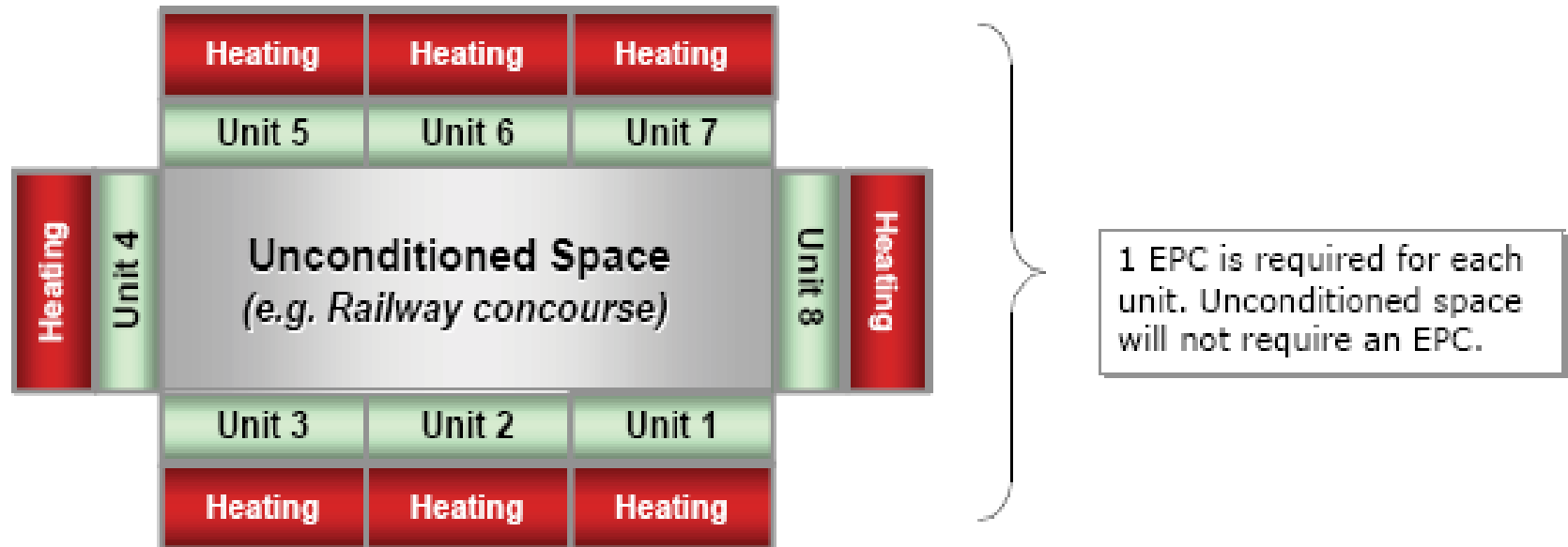


1 EPC for the whole building *if it is being sold or let as one building.*

1 EPC for each unit if it is being sold or let (which would include the energy use of the fixed services for the unit plus a proportion of the energy use for the shared conditioned areas where its purpose is solely or mainly for access to the unit. This will be in the ratio of total useful floor area in the unit to total useful floor area of the all the units)

EPC Required

B.2. CENTRES WITH UNCONDITIONED CENTRAL SPACE

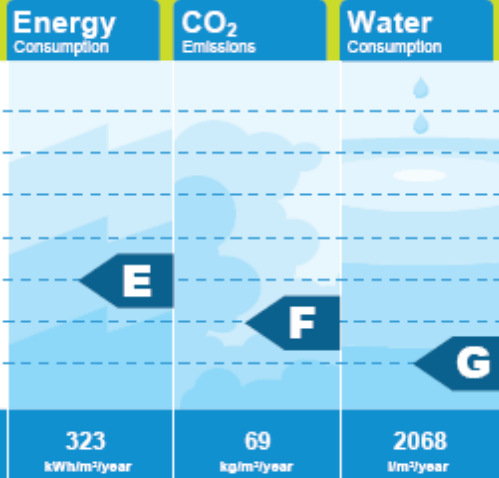


2006



Newhall Street Office

How does this building compare?



Towards a class A building

Simple actions

General architects office area with computer work station was surveyed for energy efficiency in August 2007 to identify energy and water use and possible carbon savings.

Technical solutions

A programme of energy efficiency and awareness and switch off campaign will be carried out in the year to improve the energy, water and carbon reductions for this office.

Energy sources



Improving performance by one class could save annually:

The energy consumption of	The CO ₂ emissions of a car going	Water consumption for
3.5 family houses	3.8 trips around the earth	104962 showers

For further information
Faber Maunsell
 Sustainable Energy and Carbon Management
 Great Lakes
 Tel: +44 (0)121 383 0964
 dcm@fmaunsell.com

www.display-campaign.org

Display Energy Certificate

How efficiently is this building being used?



deint
 Birmingham
 Main rd
 this town
 Birmingham
 B1 3MM

Certificate Reference Number:
 6915-5518-6220-1609-5506

This certificate indicates how much energy is being used to operate this building. The operational rating is based on meter readings of all the energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epcd.

Energy Performance Operational Rating

This tells you how efficiently energy has been used in the building. The numbers do not represent actual units of energy consumed; they represent comparative energy efficiency. 100 would be typical for this kind of building.

More energy efficient



100 would be typical



Less energy efficient

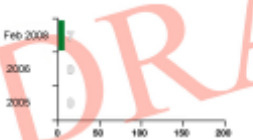
Total CO₂ Emissions

This tells you how much carbon dioxide the building emits. It shows tonnes per year of CO₂.



Previous Operational Ratings

This tells you how efficiently energy has been used in this building over the last three accounting periods.



Technical information

This tells you technical information about how energy is used in this building. Consumption data based on estimated readings.

Main heating fuel: Natural Gas
 Building Environment: Natural Ventilation
 Total useful floor area (m²): 25000
 Asset Rating:

	Heating	Electrical
Annual Energy Use (kWh/m ² /year)	30	0
Typical Energy Use (kWh/m ² /year)	95	270
Energy from renewables	0%	100%

Administrative information

This is a Display Energy Certificate as defined in S6(7):991 as amended.

Assessment Software: OR Calc v 0-7
 Property Reference: 11225565555
 Assessor Name: David Jack
 Assessor Number: 3333
 Accreditation Scheme: A Body 1
 Employer/Trading Name: Faber Maunsell
 Employer/Trading Address: 0470 Newhall Street Birmingham
 Issue Date: 27/02/2008
 Nomination Date: 01/09/2007
 Valid Until: 30/09/2009
 Related Party Disclosure: 955
 Recommendations for improving the energy efficiency of the building are contained in Report Reference Number: 0056-1025-5228-6965-5510

Questions?

- Follow up contacts:

Donald Lack MSc CSci FEI FIO PHE
Chartered Scientist and Sustainability Consultant
Regional Director
Faber Maunsell Ltd
Beaufort House
94/96 Newhall Street
Birmingham
B3 1PB
Tel +44 (0)121 262 1900
DD +44 (0)121 262 1956
Fax +44 (0)121 262 1994
Mob +44 (0)7921 646299
E-mail: donald.lack@fabermaunsell.com
W. www.fabermaunsell.com