

European Union Energy Performance of Buildings Directive

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1. Summary

- 1.1 This document explains in concise terms, the key components of the European Union Energy Performance of Buildings Directive (EPBD), how it will be implemented in Scotland and the timescales associated with its implementation. It also provides links to more detailed information.

2. Background

- 2.1 Buildings are a major consumer of energy. In the European Union (EU), building energy consumption accounts for around 40% of total energy consumption by final users (i.e. private and public enterprises and households). EU research has indicated that by improving energy efficiency in buildings, carbon savings of 22% could be possible. If achieved, this would help the EU to meet its climate change objectives under the Kyoto Protocol.
- 2.2 The EU Energy Performance of Buildings Directive (EPBD) became European Law in January 2003 with a key objective of improving the energy performance of buildings through cost effective measures.

The timescales for implementation are:

- Directive Implementation – January 2006;
- review of Energy Standards in Scottish Building Regulations – end of 2006;
- introduction of revised Energy Standards in Scottish Building Regulations – 1st May 2007;
- Articles 7, 8 and 9 of EU Directive 2002/91/EC on the energy performance of buildings must be implemented prior to January 2009.

3. The Directive

- 3.1 The EU required that all Member States implement the Directive by January 2006. However, an allowance of three years has been made for the provisions of some of the Articles to be applied (see [Section 5, EPBD Articles](#) for further information).

The Directive covers four key issues for Member States to address. These are:

- the establishment of methodologies for calculating the integrated energy performance of buildings;
- the application of minimum standards on energy performance to new buildings and certain existing buildings when they are renovated. These standards must be reviewed at least every five years;
- making available energy performance certificates (EPCs) when buildings are constructed, sold or rented out, and in certain cases necessitating display of these certificates;
- schemes for inspecting and offering advice on the energy efficiency of boiler and air conditioning systems.

4. Implementation in Scotland

- 4.1 Although energy matters are generally reserved to the UK Government, building legislation and promotion of energy efficiency are devolved to the Administrations of England, Wales, Scotland, and Northern Ireland.

Much of the EPBD impacts on how standards are set for, and applied to, new and existing buildings, as well as introducing inspection processes and certification. Consequently, the Scottish Building Standards Agency (SBSA), on behalf of Scottish Ministers, implements it in Scotland. The SBSA has been set up as an Executive Agency of the Scottish Government to undertake the national functions related to the new building standards system.

- 4.2 On 1st May 2005 a new Building Standards system came into operation in Scotland. This was the outcome of a review which lasted approximately six years and the primary legislation resulting from this is the Building (Scotland) Act 2003. The new Act makes implementation of the EPBD possible under one piece of legislation.

- 4.3 In taking forward the EPBD using the building standards system, many of the legislative measures are already in place, particularly when it comes to enforcement issues, sanctions and most importantly, maintenance of the procedures, which underlie the implementation strategy.

Some aspects of the EPBD, in particular the setting of energy standards and energy certification, build on what already exists in Scotland. However, the introduction of the inspection of or offering advice on boilers and air-conditioning systems from an energy perspective is a totally new concept in terms of building standards legislation.

In Scotland, all aspects of implementation of the EPBD have been addressed. This includes a review of the Scottish Energy Standards, which were introduced in May 2007, specifically the standards and guidance in 'Section 6: Energy' and 'Section 3: Environment' of the Technical Handbooks. Energy Performance Certificates (EPCs) became mandatory for all new buildings (both domestic and non domestic) from this date. Two model certificates have been produced, one for dwellings and one for all other buildings including public buildings.

5. EU Energy Performance of Buildings Directive Articles

- 5.1 There are 17 Articles in the EPBD, of which 7 are of particular relevance to those responsible for buildings. The requirements of these and the way in which they will be implemented in Scotland are summarised here.

Articles 3 to 6

- 5.2 Articles 3 to 6 were implemented in Scotland, as required, by January 2006. The effect of their implementation will generally be as per the proposed amendments to the Building Scotland Regulations 2004.

Article 3 – Adoption of a Methodology

Requires every Member State to apply a methodology, which calculates the energy performance of buildings. This is to be used for setting energy performance standards and establishing compliance of buildings with these standards.

- 5.3 For non-domestic buildings, the asset based energy rating methodology; 'Simplified Building Energy Model' (SBEM) has been adopted as the principal methodology/tool. The latest version, v3.0.b for EPCs which is applicable to Scotland, is available free at the following address: www.ncm.bre.co.uk

At present there is work in progress to make some minor changes to the SBEM tool to make it appropriate for use with new buildings which are subject to the Scottish Energy Standards. These are:

- only one set of climate data will be used for the whole of Scotland, i.e. degree days (Glasgow);
- the reference data embedded in the tool, used to create the 'notional building' and subsequently subjected to a percentage improvement, will have the current Scottish wall U-value of $0.3\text{W/m}^2\text{ }^{\circ}\text{C}$;
- enhanced management and controls allow for an adjustment of the Building's Emissions Rating (BER) under SBSA's proposed non-domestic energy guidance. Where 'lighting voltage reduction' management schemes are used, the BER can be reduced by an adjustment factor of 0.010. This can only be used on the building's electrical lighting load. The Scottish adaptation of SBEM should allow for this adjustment.

Article 4 – Setting of energy performance requirements

Member States must set minimum energy performance requirements for buildings based on the methodology established (refer to Article 3). These requirements must be reviewed at least every five years and updated to reflect technical progress.

- 5.4 The SBSA commenced this work in 2005 by way of a review of the Scottish Energy Standards (see Section 4) and completed it in early 2007. In doing this, Scotland is in compliance with this EPBD requirement. Revisions for implementation in 2010 and beyond have now begun.

Article 5 – New buildings

All new buildings must meet the new energy performance requirements.

- 5.5 The Scottish Building Standards system will be used to ensure that new buildings meet the new minimum energy performance requirements. This will mainly be through the process of obtaining building warrants. Existing compliance guidance will apply until the new performance requirements are set and the regulations updated.

Article 6 – Existing buildings

Buildings with a total useful, (heated), floor area of over 1,000m² undergoing major renovation must have their energy performance upgraded to meet the new minimum energy performance requirements, where this is technically, functionally and economically feasible.

- 5.6 The Scottish Building Standards system requires that all buildings, regardless of size, comply with current minimum Building Standards regulations. Exemptions do apply and further details are provided within the relevant Technical Handbooks.

Articles 7 to 9

- 5.7 Legislation for implementation of Articles 7 to 9 is in place. A direction to Public Bodies to apply legislation (see Section 6, [Determining if an EPC is required](#)) must be implemented before January 2009. Implementation is based on SBEM for non-domestic buildings, although there will be the scope to use detailed simulation software made available by commercial software vendors, SBSA will be able to provide guidance on appropriate software tools. For further guidance see section 6.1.1 of the current Building Regulations at the following link:

http://www.sbsa.gov.uk/tech_handbooks/th_pdf_2007/Section_6_Non-domestic_20072.pdf

Article 7 - Energy performance certificate

Whenever a building is constructed, sold or rented out, a certificate indicating its energy performance must be made available. Certificates may not be more than 10 years old.

- 5.8 In general, certification will be carried out using the building energy performance assessment methodology and calculation tools.

Article 8 – Inspection of Boilers

Requires inspection of boilers and/or advice to be given to users of boilers.

- 5.9 In Scotland, compliance has been achieved with the provision of advice to users on the replacement of boilers, modifications to heating systems and on alternative solutions. The SBSA has engaged with the Energy Saving Trust (EST) as a partner organisation for the issue of advice on dwellings. This advice can be viewed at the following link:
http://www.sbsa.gov.uk/h-improvements/home_improv_leaflets.htm

The SBSA is also working with the Carbon Trust in relation to non-dwellings and this advice produced by the Carbon Trust is available at:
http://www.sbsa.gov.uk/european_issues/euroguidance.htm

Article 9 – Inspection of air conditioning systems

Requires regular inspections of all air-conditioning systems with an effective rated output of more than 12kW. Appropriate advice must also be provided to users on possible improvements or replacement and on alternative solutions.

- 5.10 It is proposed that the inspection interval will be between 3 and 5 years and these services will be undertaken by organisations, which have entered into a protocol agreement with SBSA such as the Chartered Institution of Building Services Engineers (CIBSE) and the Heating and Ventilating Contractors Association (HVCA).

6. Determining if an EPC is required

- 6.1 Energy Performance Certificates (EPCs), were introduced on 1st May 2007. Any new building where the building warrant application was submitted on or after 1st May 2007 is required to have an EPC attached to the completion certificate.

The timetable for existing buildings is as follows:

- 1st December 2008 – sale or rent of domestic dwellings through the Single Survey;
- 4th January 2009 – sale or rent of all other buildings;
- 4th January 2009 – if it is a public building and an EPC is required then it must be affixed to ‘public buildings’ by this deadline.

- 6.2 SBSA guidance states that in order to be considered to be a public building, all of the following criteria must be met:
the conditioned (heated/cooled) area of the building is over 1,000m²;

- the building is occupied by public authorities or provides public services to a large number of persons;
- the building is frequently visited, at least weekly, by members of the general public;
- the public have a right of access to the building, or parts of the building, providing services directly to the public;
- public funding, including part funding, is used to operate, general upkeep, or fund staff costs.

Examples include, Hospitals, Health Centres, Resource Centres, etc.

For existing buildings, use the flow diagram given in [Appendix I](#) to determine if an EPC is required.

Actions necessary if an EPC is required for an existing building

- 6.3 If an EPC is required for an existing ‘public’ building the following steps are necessary to comply with EPBD. The EPC must be:

- produced using SBEM or approved equivalent compliant software by an accredited organisation. ([See Section 7 Energy Performance Certificates - Protocols](#))
- affixed in the respective building in a prominent place, e.g. reception or entrance area by January 4th 2009.

It is the responsibility of the NHS Board to ensure that all buildings which require an EPC have these displayed by the 4th January 2009. It is an offence

under Section 25 of the Building (Scotland) Act 2003 to not display a required certificate. This advice can be viewed at the following link:

http://www.opsi.gov.uk/legislation/scotland/acts2003/pdf/asp_20030008_en.pdf

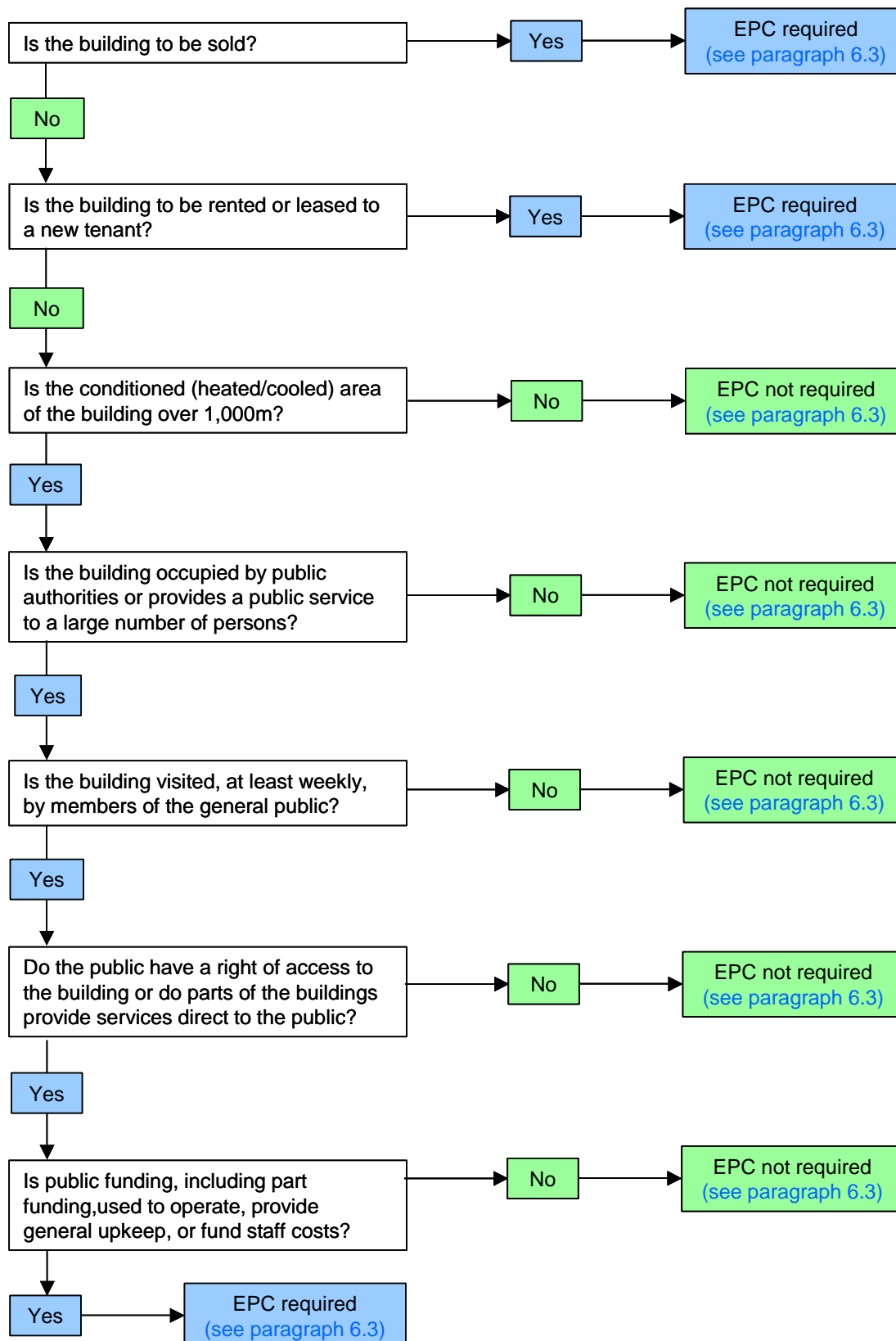
7. Energy Performance Certificates - Protocols

- 7.1 The Scottish Building Standards Agency (SBSA) has entered into protocols with The Chartered Institution of Building Services Engineers, Scotland (CIBSE Scotland), The Association of Building Engineers (ABE), The Energy Institute (EI), The Royal Institution of Chartered Surveyors (RICS), The Heating and Ventilation Contractors Association (HVCA), Building Research Establishment (BRE) and National Energy Services (NES) to deliver services in relation to Energy Performance Certificates. The protocols can be viewed at the following link http://www.sbsa.gov.uk/european_issues/epcprotocols.htm:

To obtain EPCs, NHS Bodies can use one of the following routes:

- organisations accredited under one of the above protocols;
- their own staff if they belong to one of the above protocol agreements and have taken and passed the necessary training;
- enter into a sharing agreement with one of the organisations accredited under one of the above protocols which allows NHS staff to collect the required data. The accredited organisation would enter the data into the SBEM software tool and make a sample check of the data supplied by the NHS staff.

Appendix I: Flow diagram to determine if an EPC is required



Appendix II: Further information

For further information please contact:

Energy and Climate Change Manager
Health Facilities Scotland
4th Floor, Empire House,
131 West Nile Street
Glasgow G1 2RX
Tel: 0141 352 5543
Fax: 0141 332 0703
Email: john.dunlop@hfs.scot.nhs.uk
Web: <http://www.hfs.scot.nhs.uk>

Scottish Building Standards Agency
Denholm House
Almondvale Business Park
Livingston
EH54 6GA
Tel: 01506 600 400
Email: info@sbsa.gov.uk
Web: <http://www.sbsa.org>

References

Acts and Regulations

All websites current as of 31st March 2008.

Building (Scotland) Act 2003

http://www.opsi.gov.uk/legislation/scotland/acts2003/asp_20030008_en_1

Building Scotland Regulations 2004

<http://www.opsi.gov.uk/legislation/scotland/ssi2004/20040406.htm>

EU Directive 2002/91/EC

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:331:0027:0027:EN:PDF>

Energy Performance of Buildings Directive

http://www.diag.org.uk/media/18832/epd_final.pdf

Organisations

Scottish Building Standards Agency (SBSA)

<http://www.sbsa.gov.uk/>

[http://www.sbsa.gov.uk/pdfs/Article 3,4,5 & 6 EPBD guidance.pdf](http://www.sbsa.gov.uk/pdfs/Article%203,4,5%20&%206%20EPBD%20guidance.pdf)

http://www.sbsa.gov.uk/european_issues/euroconsultation.htm

[Annex A - Proposals for Implementing Articles 7, 8 and 9](#)

http://www.sbsa.gov.uk/tech_handbooks/th_pdf_2007/Non-domestic_20072.pdf

Building Research Establishment <http://www.ncm.bre.co.uk>

Chartered Institute of Building Services Engineers <http://www.cibse.org/>

Heating and Ventilating Contractors Association <http://www.hvca.org.uk/>

Carbon Trust <http://www.carbontrust.co.uk/default.ct>

Other Information

Scottish Energy Standards

[http://www.sbsa.gov.uk/tech_handbooks/th_pdf_2007/Section 6 Domestic 2007.pdf](http://www.sbsa.gov.uk/tech_handbooks/th_pdf_2007/Section_6_Domestic_2007.pdf)

Simplified Building Energy Model <http://www.ncm.bre.co.uk>