Energy Assessment of Buildings- Notification 1

Approved methodologies and software for calculating the energy performance of buildings in Northern Ireland

December 2014

The Energy Performance of Buildings (Certificates and Inspections) Regulations (Northern Ireland) 2008 (as amended).

The Building Regulations (Northern Ireland) 2012 (as amended).

Department of Finance and Personnel

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December 2014

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1.0 Energy Assessment of Buildings- Notifications

This document is one of three notifications the Department of Finance and Personnel (the Department) provides in relation to the energy assessments required under the Energy Performance of Buildings (Certificates and Inspections) Regulations (NI) 2008 (as amended)[1] (referred to as the "EPB Regulations" in this document) and the Building Regulations (NI) 2012 (as amended)[2]. Table 1 summaries the notifications required under legislation. This notification informs the public of the approved calculation methodologies and software available to operate this legislation.

Table 1. Notifications for Energy Assessment of Buildings

Regulation	Description of Notification Required	Notification
EPB Reg. 2	The definition of 'asset rating' means a numerical indicator of the amount of energy estimated to meet the different needs associated with a standardised use of a building, calculated according to a methodology approved by the Department;	Notification 1
EPB Reg. 2	The definition of 'operational rating' means a numeric indicator of the amount of energy consumed during the occupation of the building over a period of 12 months (unless regulation 13(3) applies), ending not earlier than 3 months before the nominated date, calculated according to a methodology approved by the Department;	Notification 1
EPB Reg. 19	'accreditation schemes' means a scheme approved by the Department	Notification 2
EPB Reg. 5A	The energy performance indicator shall be in a form approved by the Department	Notification 3
EPB Reg. 8	The Energy Performance Certificate (EPC)shall be in a form approved by the Department	Notification 3
EPB Reg. 12	The Display Energy Certificate (DEC) be in a form approved by the Department	Notification 3
EPB Reg. 24	The 'keeper of the register' is the person nominated by the Department to keep a register on the Department's behalf.	Notification 2
Building Regulations Reg. 38	The National Calculation Methodology is to be implemented with 'Government Approved Software'. Notification of the approved software is required.	Notification 1

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[1] S.R.2008 No.170, as amended by S.R.2008 No.241, S.R 2009 No.369, S.R 2013 No.12 and S.R 2014 No.43
[2] S.R.2012 No.192, as amended by S.R.2012 No.375 and S.R.2014 No.44

2.0 National Calculation Methodology (NCM)

2.1 The management and co-ordination of energy calculation methodologies and software for building energy assessment is co-ordinated at a UK level[3] in consultation with the devolved administrations under the framework of the National Calculation Methodology (NCM). The NCM has stimulated the development of software to cover the submission of EPCs, for assessment against each region's energy standards under building regulations and for other specialised uses (eg Green Deal in GB).

2.2 This document notes the particular approved methodologies and software for use in Northern Ireland, in accordance with the NCM.

2.3 This Notification of Approval is valid until withdrawn by the Department or superseded.

2.4 The following methodologies have been developed under the NCM and are approved for use in Northern Ireland. In each case, the use of approved software (Section 3) is required, compliant with the applicable version of the methodology as outlined in Section 4.

   (a) **The Standard Assessment Procedure (SAP)** is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings. SAP is developed and maintained by Building Research Establishment Ltd (BRE). Editions of SAP are periodically updated to reflect increased standards required under building regulations. Other updates are periodically implemented to reflect minor software developments or minor amendments of measurement conventions.

   (b) **Reduced Data SAP (RdSAP**) is an application of SAP for use in existing dwellings, where, during a site survey of the property, the complete data set required for a SAP calculation is not easily acquired. RdSAP is confined to use for the lodgement of EPCs in existing dwellings. It is not used for building regulations applications or for EPCs for newly constructed dwellings.

   (c) **The Simplified Building Energy Model (SBEM)** is the approved methodology for energy calculations for standard buildings other than dwellings. The SBEM 'engine' and its interface iSBEM are developed and maintained by BRE and provided to software developers to add front end interfaces (FI-SBEM). Versions of SBEM are periodically updated to reflect major changes in standards required under building regulations. Minor software developments and amendments on conventions are reflected with a change in revision letter (a,b,c etc).

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[3] The Department of Energy and Climate Change (DECC) maintain and co-ordinate domestic methodologies and software (SAP and RdSAP). The Department for Communities and Local Government (DCLG) maintain and co-ordinate the non-domestic methodologies and software.

(d) **Dynamic Simulation Models** (DSMs) are specifically approved software packages which simulate building energy characteristics without using the DCLG approved SBEM 'engine'. Approved DSMs have been validated to ensure outputs in accordance with the NCM.

(e) **"The Government's methodology for the production of Operational Ratings, Display Energy Certificates (DECs)**[4]**and Advisory Reports for buildings"**[5] is produced by DCLG and is approved for use in Northern Ireland. This methodology provides an operational rating for buildings other than dwellings. Operational Rating Calculator (ORCalc) is the approved software methodology to provide outputs for lodgement of DECs onto the NI Register.

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[4] More information on DECs can be found on the energy performance of buildings section for the DFP web-site http://www.dfpni.gov.uk/index/buildings-energy-efficiency-buildings.html
[5] https://www.gov.uk/government/publications/government-methodology-for-producting-operational-ratings-display-energy-certificates-and-advisory-reports

3.0 Approved Software[6]

3.1 Dwellings

Approved software for energy calculations for dwellings is listed in tables maintained by BRE. Refer to www.bre.co.uk/sap2009 and www.bre.co.uk/sap2012 for further details.

3.2 Buildings other than dwellings

Approved software for energy calculations for buildings other than dwellings is noted in Tables 2 and 3.

Table 2. Approved Non-Domestic Software: SBEM and DSM

	Organisation	Program Name	Version	Software Type	Approval date	Approved for EPB regulations	Part F 2012 compliant
1	BRE /DCLG	iSBEM	V4.1.e	I-SBEM 4.1.e	26/01/ 2013	YES	YES
2	IES Ltd	Virtual Environ-ment	4.1.e.5	I-SBEM 4.1.e	Feb 2013	YES	YES
3	Design Builder	Design Builder SBEM	v4.2.0	I-SBEM 4.1.e	03/10/ 14	YES	YES
4	G-ISBEM Ltd	G-ISBEM Standard G-ISBEM + Site Notes	V17.0	I-SBEM 4.1.e	05/02/ 2013	YES	YES
5	BuildDesk Ltd	Carbon Checker	1.7.3	I-SBEM 4.1.e	18/02/ 2013	YES	YES
6	Property Tec-tonics	Lifespan SBEM v4.1.e	N/A	I-SBEM 4.1.e	05/02/ 2013	YES	YES
7	Bentley	Hevacomp Simulator	V8.1 with update 29 (Edition 25.00.00.29)	DSM	27/06/ 2013	YES	YES
8	IES Ltd	Virtual Environ-ment	V6.4.0	DSM	Feb 2013	YES	YES
9	Environmental Design Solu-tions Ltd	TAS	V9.2.1.5	DSM	March 2013	YES	YES

[6] The programmes listed in Section 3 of this Notification have been approved by the department on the basis of prior approval by DCLG. While the Department has taken due care, it will not be held liable for any failure or consequence thereof that may occur in their use or application.

Table 3. Approved Software: ORCalc and Air Conditioning Inspection Reports

	Organisation	Program name	Version	Software type	Approval date	Approved for EPB regulations	Part F 2012 compliant
1	Camco/EPES	EPLabel	v2.4	ORCalc v3.6.1	14/04/11	YES	N/A
2	IES Ltd	DEC Assessor	v5.0	ORCalc v3.6.1	21/04/11	YES	N/A
3	i-Prophets Energy Services	Digitalenergy	v3.1	ORCalc v3.6.1	06/04/11	YES	N/A
4	Property-Tectonics Ltd	Lifespan DEC	v3.6.0	ORCalc v3.6.1	07/04/11	YES	N/A
5	SystemsLink	ORToolkit	v3.6	ORCalc v3.6.1	06/04/11	YES	N/A
6	TEAM	Sigma DEC	v4.0	ORCalc v3.6.1	07/04/11	YES	N/A
7	DCLG	ORCalc	v3.6.2	ORCalc v3.6.2	17/05/12	YES	N/A
8	Quidos Ltd	AIRS	v2.0	A/C Inspection Reporting	07/04/11	YES	N/A
9	Sterling Accreditation	Sterling e-Volve	v1.2	A/C Inspection Reporting	02/03/12	YES	N/A
10	ECMK	AC Reporter	v1.0	A/C Inspection Reporting	11/04/12	YES	N/A
11	DCLG	AirCon Software	v2.0.6	A/C Inspection Reporting	07/09/11	YES	N/A

3.3 Application for approval of software

a)   Application may be made to the Department for the approval of software packages to form part of the methodology for the calculation of the energy performance of buildings, such as those listed in Section 3 or for software in relation to the production of Air Conditioning Inspections.

b)   Approval of methodologies is co-ordinated at UK Government level by DECC for SAP and RdSAP and by DCLG for all other uses. **Approval of software for Northern Ireland is predicated upon verification and approval by the appropriate UK government Department**. To date, Northern Ireland specific requirements have required only very minor adaptations from software providers. The Department reserves the right to impose additional criteria for validation and testing for Northern Ireland specific outputs as necessary.

3.4 Updates of information

Tables of approved software, referred to in Section 3, will be revised from time to time to include new software applications or new versions of existing ones as they are approved by the Department.

4.0 Approved Methodologies for Calculating Energy Performance

4.1 For compliance with Part F of the Building Regulations (Northern Ireland)

a) From 31st October 2012[7], applications made to demonstrate a dwelling's compliance with regulation 40 of the Buildings Regulations (Northern Ireland) shall use software compliant with SAP2009 which is approved for use in Northern Ireland.

b) For buildings other than dwellings, applications from 31st October 2012 shall use software listed in Table 2, which shall be either approved DSM software or software compliant with SBEM version 4.1.e, to demonstrate compliance with regulation 40.

4.2 For lodgement of EPCs for dwellings on sale or rent

From 8th December 2014 for the purposes of regulations 5 and 8 of the EPB regulations, the asset rating of a dwelling shall be calculated using software compliant with SAP2009 or RdSAP2012 and approved for use in Northern Ireland.

4.3 For lodgement of EPCs for dwellings at construction completion

From 31st October 2012 for the purposes of regulations 6 and 8 of the EPB regulations, the asset rating of a dwelling shall be calculated using software compliant with SAP2009 and approved for use in Northern Ireland.

4.4 For lodgement of EPCs for buildings that are not dwellings

From 31st October 2012 for the purposes of regulations 5, 6 and 8 of the EPB regulations, the asset rating of a building (which is not a dwelling) shall be calculated using software listed in Table 2, which shall be either approved DSM software or software compliant with SBEM version 4.1.e.

4.5 For lodgement of DECs for certain public buildings

For the purposes of regulations 11 and 12 of the EPB regulations, the operational rating of a building (which is not a dwelling) shall be calculated using approved software compliant with ORCalc.

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[7] Valid building regulations applications submitted prior to 31st Oct 2012 may use previously approved versions of SAP, SBEM or the approved DSM in submissions in relation to Part F requirements associated with that application.

4.6 For Air Conditioning Inspection Reports

There is no requirement for an approved methodology for air conditioning inspection reports, although assessors are required to follow CIBSE guidance document TM44 under their Scheme Operating Requirements, as specified by DCLG. For the purposes of lodgement in accordance with regulation 16 of the EPB regulations, air conditioning inspection reports should use approved software listed in Table 3.

Signed by authority of the Department

D.C. McDonnell

A senior officer of the Department.

5.0 Further Information

5.1   Further information may be obtained from:

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