Calculator: National Calculation Methodology: Simplified Building Energy Model

http://www.ncm.bre.co.uk/

Summary

The National Calculation Methodology (NCM) is a methodology developed by the UK Department for Communities and Local Government for evaluating the energy performance of buildings and assessing compliance with the *EU Energy Performance of Buildings Directive*. The Simplified Building Energy Model (SBEM) software is used for non-domestic buildings in support of the NCM, the Energy Performance of Buildings Directive and the Green Deal. The tool is used to determine CO2 emission rates for new buildings. It is also used to generate Energy Performance Certificates for non-domestic buildings on construction and at the point of sale or rent.

Developers: BRE, Department for Communities and Local Government (DCLG)

Applicable sectors							Themes		
All Infrastructure	Buildings	Roads	Water	Energy	Transport	Construction	Materials	Ecology	Wastewater
							Potable Water	Carbon/GHG	Other

Countries	UK, Scotland, Northern Ireland, the Republic of Ireland and Jersey.	**Access**	Available from approved suppliers
Compatibility with other tools	Compatible with other tools implementing the UK NCM such as the Standard Assessment Procedure for domestic buildings.	**Guidance for users**	SBEM is accompanied by a user manual which gives details on the calculation procedure and use of the software. For those wishing for an *Energy Performance Certificate*, the calculation is conducted by trained and accredited Energy Assessors.
Inputs & outputs	SBEM receives inputs on: construction methods used for walls, roofs, floors, doors, glazing; on building geometry, thermal bridges, building zones (separated by occupant activity), zone envelopes; and on building services incl. HVAC systems, hot water systems, solar energy systems, photovoltaic systems, wind generators, combined heat and power systems), transpired solar collectors, lighting systems. Using this data, SBEM outputs the energy consumption and CO2 emissions of the actual building, reference building and notional building and checks actual building compliance with building regulations. Key results and more detailed analysis of outputs is presented on SBEM outputs reports which include: - Building Regulations Compliance report; - SBEM Main Output report; - Data Reflection Report for the actual and notional buildings; - Energy Performance Certificate; - Recommendations Report.	**Methodology**	SBEM enables the analysis of a building's energy consumption and carbon footprint. The software calculates monthly energy use and CO2 emissions of a building given a description of the building geometry, construction, use and HVAC and lighting equipment. Energy use is compared with that of a “reference” building, which is the basis of setting the energy rating scale for Energy Performance Certificates for England, Wales and Northern Ireland. This enables determination of the actual building's energy rating. The CO2 emissions from the actual building are compared to a Standard Emission Rate (in kgCO2/m2/annum) and this enables the determination of the actual building's “Asset Rating”. SBEM consists of a calculation methodology, which runs together with a compliance checking module and an energy performance certificate generator which utilise some of the same data during the calculation.
Database library	SBEM makes use of standard data contained on associated databases and available with other software.	**Data intensity**	Data intensity is high and the calculation is typically conducted by trained, accredited energy assessors.