

Calculator: National Calculation Methodology: Standard Assessment Procedure

<http://www.bre.co.uk/sap2009/page.jsp?id=1642>

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 Standard Assessment Procedure (SAP) is used for implementing NCM for domestic buildings. The tool is used to determine CO2 emission rates for new buildings. It is also used to generate Energy Performance Certificates for 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	Access	Available from approved suppliers
Compatibility with other tools	Compatible with other tools implementing the UK NCM such as Simplified Building Energy Model for non-domestic buildings.	Guidance for users	SAP is accompanied by a user manual which gives details on the calculation procedure. For those wishing for an <i>Energy Performance Certificat</i> , the calculation is conducted by trained and accredited Energy Assessors.
Inputs & outputs	<p>The SAP rating is based on data regarding the energy costs associated with space heating, water heating, ventilation and lighting, minus cost savings from energy generation technologies.</p> <p>It is adjusted for floor area so that it is essentially independent of dwelling size for a given built form.</p> <p>Calculation outputs on energy performance include energy consumption per unit floor area, an energy cost rating (the SAP rating), an Environmental Impact Rating based on CO2 emissions and a Dwelling CO2 Emission Rate.</p> <p>The SAP rating is expressed on a scale of 1 to 100, the higher the number the lower the running costs.</p>	Methodology	<p>SAP is adopted by the UK Government as the methodology for calculating the energy performance of domestic buildings.</p> <p>The calculation is based on the energy balance, taking into account a range of factors that contribute to energy efficiency:</p> <ul style="list-style-type: none"> - Materials used for construction of the dwelling; - Thermal insulation of the building fabric; - Ventilation characteristics of the dwelling and ventilation equipment; - Efficiency and control of the heating system(s); - Solar gains through openings of the dwelling; - The fuel used to provide space and water heating, ventilation and lighting; - Energy for space cooling, if applicable; - Renewable energy technologies;
Database library	SAP 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.