



MES ENERGY SERVICES

A Guide to SAP Calculations (New Build)

SAP calculations are a Building Regulations requirement for all new houses & conversions and some extensions. The Standard Assessment Procedure (SAP) is a measure of the energy efficiency of a property and must be carried out by an accredited company such as MES Energy Service.

What does SAP measure?

SAP is the calculation of the annual energy cost for space heating, water heating, ventilation and lighting. It also quantifies the total CO₂ emissions from the property each year and this information is also used to produce the Energy Performance Certificate.

Dwelling Emission Rate < Target Emission Rate

SAP sets a target for all new dwellings based on a notional dwelling of the same floor area built to pre 1st Oct 2010 Building Regulations, plus a 25% improvement factor (TER). The new dwelling (DER) must produce lower CO₂ emissions than the TER to achieve a Building Regulations pass.

What is involved?

1) *The Design Stage Calculation:* The initial calculations are done at design stage to ensure the property will meet the minimum SAP requirements.
2) *The 'As Built' Calculation:* When the property is finished an air leakage test is carried out and the Design Stage SAP calculations are updated to provide a final SAP rating and EPC.

Energy Performance Certificates (EPC)

From April 2008 all new houses and conversions must also have an EPC to fulfil Building Regulations requirements. These can only be produced by 'on-construction' accredited SAP assessment companies such as MES Energy Services.



What do you need from us?

To produce SAP calculations we require a full set of scale plans, preferably as .pdf's (inc. sections, elevations and a site plan showing North). We also need our SAP Form completing which we can send to you or it can be downloaded from our website.

What influences SAP?:

- The shape & orientation of the dwelling: south facing windows benefit from passive solar gain
- Boiler efficiency and type of fuel used
- Thermal efficiency of walls, floors and roof
- Thermal efficiency of windows and doors
- Secondary heating: open fire's score very badly however enclosed log burners score well
- Underfloor heating tends not to score well unless connected to a heat pump
- Controllability of heating systems
- Proportion of low energy light fittings
- Thermal bridging
- Solar panels, heat pumps, bio fuel boilers, certain wind turbines etc. can improve SAP ratings
- Air tightness testing results (we are also accredited Air Tightness Engineers)

Conversions

All conversions should also have SAP calculations to fulfil Building Regulations requirements. This is done in a slightly different way to new-build homes but the principles are the same.

Extensions

Extensions with lots of glass (more than the equivalent of 25% of the floor area) should also have a SAP calculation to ensure Building Regulations compliance.

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