

Reduced Data SAP – amendments for 2012

February 2012

RdSAP will be changed to RdSAP 2009 v 9.91 on 1 April 2012 in England & Wales and Northern Ireland, and later in 2012 in Scotland.

This note describes the changes with respect to RdSAP 2009 v 9.90. For details of data collection and processing see SAP Appendix S and for recommendations see SAP Appendix T.

Background

A review of the Energy Performance Certificate framework, jointly conducted by the Department of Communities and Local Government (DCLG) and the Department of Energy and Climate Change (DECC) with consultation with the industry, made a number of recommendations to improve the regime. Recommendations included changes to the design of the EPC and improving the skills of energy assessors.

To support the delivery of the Green Deal and Renewable Heat Incentive (RHI) policies it was felt that the functionality of RdSAP software needed amending to help improve the reliability of existing dwelling assessments, as the EPC is to deliver data relevant to RHI and will form a key part of the Green Deal Advice Report. In addition, the SAP/RdSAP methodology was amended to enable local weather data to be used when calculating energy saving benefits of measures.

As part of its ongoing commitment DECC will continue to periodically review and update the dwelling energy performance assessment models, SAP and RdSAP, thereby improving accuracy and reflecting the latest evidence of performance. For example, RdSAP software will be revised in April 2013 to adopt the changes that will be incorporated in SAP 2012. This is necessary to ensure the models remain fully able to support Government's policy initiatives.

RdSAP vs SAP

The improved functionality of the RdSAP software means that there are more situations where RdSAP can be used to provide an existing dwelling assessment. However, in some instances it will still be necessary to assess some existing dwellings using SAP software. These circumstances are being defined for a convention.

Outline

- a. Some additional improvement measures are being included.
- b. The RdSAP data set is being extended to include additional items.
- c. Regional weather is to be used for calculation of all costs and savings.
- d. There are some additional calculations to fulfil the requirements of Green Deal.
- e. Calculations of the dwelling's heat demand for space and water heating are included.

1 Recommendations

1.1 Recommendation type

Instead of classifying measures as low cost, high cost and further, there will just be a single list.

1.2 Additional recommendations

All recommendations considered in RdSAP v 9.90 remain as they are. The following new recommendations have been added:

- Flat roof insulation
- Room-in-roof insulation
- Floor insulation

- Insulated doors
- Waste water heat recovery
- Flue gas heat recovery

There will be an annual update of RdSAP recommendations to bring in suitable retro-fit measures that have been recently recognised in the SAP methodology, for example through an Appendix Q application. This will encourage innovation in measures and make EPC customers aware of new measures which can be used to improve the energy performance of their dwelling.

1.3 Alternative recommendations

Alternative recommendations are mentioned on the EPC, where relevant, in a separate list as alternatives to the measures in the main list provided they give a positive result in terms of cost saving. This is in order to reflect the fact that while the EPC shows the most cost-effective recommendations, other technical solutions are available to improve the dwelling's energy performance. They are:

- Air or ground source heat pump
- Micro-CHP
- Biomass boiler
- External insulation with cavity wall insulation

The heating measures are mentioned on the EPC when a recommendation for a heating system upgrade is included in the main list of recommendations. External insulation with cavity wall insulation is mentioned on the EPC when a recommendation for cavity wall insulation is included in the main list of recommendations.

1.4 Order of consideration of recommendations

The order for consideration of recommendations is:

- Loft insulation
- Flat roof insulation
- Room-in-roof insulation
- Cavity wall insulation
- Internal or external solid wall insulation
- Floor insulation
- Cylinder jacket
- Draught proofing
- Low energy lighting
- Cylinder thermostat
- Heating controls (wet system)
- Heating controls (warm air system)
- Biomass boiler
- Wood pellet stove and radiators
- Biomass boiler (alternative)
- Replacement condensing gas or oil boiler, same fuel
- Condensing oil boiler (from warm air)
- Condensing gas boiler (from gas fires)
- Condensing gas boiler, fuel switch
- Flue gas heat recovery in conjunction with new boiler
- Replacement storage heaters
- Replacement warm air unit
- Solar water heating
- Waste water heat recovery
- Energy efficient glazing
- Secondary glazing
- Insulated doors
- Photovoltaics
- Wind turbine

2 Changes to data collection

The changes to data collection are primarily to improve reliability of assessments and to support the above additional recommendations (see 1.2) and to ensure that, if a recommendation is implemented, it is picked up during any subsequent RdSAP survey; for example, to reflect improvements made under Green Deal finance where it is known what measures have been installed.

2.1 Entry of U-values for construction elements

There is an option for the assessor to enter U-values of construction elements (walls, roofs, floors, windows, doors), where these are known. The RdSAP assessor is not expected to calculate or estimate U-values: this option is used only when documentary evidence is available specifying what the U-values are.

Note. The options for specifying the insulation of elements by insulation thickness remain and are extended to include additional thickness options as noted below. The insulation of an element is described either by insulation thickness (specified by the RdSAP assessor or supplied by RdSAP when given as 'as built' or 'unknown'), or by the entry of a U-value.

2.2 Additional data items

2.2.1 Walls

a) Wall thickness

The thickness of walls is recorded, except for those cases where it cannot be determined. It is used for the estimation of the U-value of uninsulated stone walls and for conversion of external dimensions to internal.

b) Internal wall lining

The presence of a wall lining (plasterboard on dabs or battens, lath and plaster) is recorded and if present modifies the U-value of uninsulated stone and solid brick walls.

c) Additional insulation options

These are:

- insulation thickness of internal or external insulation can be 50, 100 or 150 mm
- cavity wall with both cavity insulation and internal or external insulation

d) Alternative wall

An alternative wall can be described for each building part (main dwelling or an extension) instead of there being only one alternative wall. In addition the wall between a flat and an unheated corridor or stairwell can now be designated as an alternative wall and so better described when its construction or insulation differs from that of the external walls.

This functionality means that it will be technically possible to calculate the savings from partial installation of a measure, for example external solid wall insulation to only certain walls.

2.2.2 Roof rooms

When the U-values of the elements of roof rooms are known it is possible to enter details of the corresponding areas (flat ceiling, slope, stud wall, gable wall)

2.2.3 Floors

Insulation options of 50, 100 or 150 mm.

2.2.4 Draught proofing

The percentage of windows and doors that are draught proofed.

2.2.5 Doors

The number of external doors is now recorded. In addition, where the U-value is known, this is also recorded along with the number of doors that are insulated.

2.2.6 Windows

Where known, the U-value and solar transmittance of windows is recorded.

When all windows are measured, their orientation is also recorded.

2.2.7 Flue gas heat recovery

Where present, a flue gas heat recovery system is recorded.

2.2.8 Waste water heat recovery

Where present, the details of a waste water heat recovery system for mixer showers are recorded.

2.2.9 Photovoltaics

Provision for up to three (for when there is more than one PV array at different orientations or pitch).

2.2.10 Solar water heating

Where evidence exists, the details of solar water heating are recorded. This comprises collector type, area, efficiency and heat loss coefficient, hot water store volumes and the presence of a solar-powered pump.

2.2.11 Wind turbine

Where evidence exists, the details of a wind turbine are recorded. This comprises number of turbines, rotor diameter and hub height.

2.3 System build, stone walls and cavity wall insulation

Related to the insulation of walls, if any of the following items are applicable they are used to construct an addendum to the EPC advising that further investigation should be made to establish the best insulation option:

- cavity fill recommended
- system build
- stone walls
- access issues
- narrow cavity (< 50 mm)
- high exposure

The first three are set automatically by software; the RdSAP assessor indicates the other three when applicable.

This is needed to flag to householders, potential installers and Green Deal Providers that further investigation is needed before determining the best type of insulation for the wall. This is particularly important due to the large number of "hard-to-treat" cavities in the UK for which certain types of insulation would be appropriate.

3 Amendments to calculations

Additional data is provided in RdSAP to support the new data options given above. Calculations are done as described in the SAP 2009 specification.

The energy ratings (energy efficiency and environmental impact) are obtained using average UK weather as before. However all cost, emission and primary energy figures are obtained using weather data for the region in which the property is situated.

4 Additional outputs

4.1 Dwelling's heat demand

Data for the dwelling's annual heat demand, that is the space and water heating requirements in kWh per year to be provided by the space and water heating systems, is calculated and shown on EPCs, along with the impact (i.e. reduction in space heating demand) of applying loft insulation, cavity wall insulation and solid wall insulation (as applicable to the property).

4.2 Green Deal

All improvement measures are considered for eligibility for GD finance. A protection mechanism under the Green Deal is that the golden rule must be met. This states that expected savings must be equal or greater than the Green Deal repayment charge attached to the electricity bill. This will be indicated on the EPC, using standardised costs, interest rates and lifetimes. The Golden Rule is assessed by RdSAP software and if met results in a green tick for the measure on the EPC; if not it is an orange tick. Exceptions are low-energy light bulbs which are not part of Green Deal and have no tick, and solid wall insulation which always has a green tick (as ECO subsidy may be available). A proposed Green Deal Package is identified on EPCs in England & Wales, consisting of all measures that have a green tick.

Note. Green Deal will apply in England, Wales and Scotland.