



REDUCED DATA SAP – Collected data set:

RDSAP v3 (RDSAP 2005)

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Contents

1. Introduction	3
1.1 Glossary	3
1.2 Use of RDSAP with recently constructed dwellings	4
2. Data collection items	5
2.1 Built Form	5
2.2 Property Dimensions.....	6
2.3 Constructions	6
2.4 Windows	7
2.5 Other Details	7
2.6 Heating Systems	8
2.62 Room Heaters (applies to main heating and secondary heating)	13
2.63 Heating system controls	14
2.64 Water Heating	16
3. Reference Tables	17
3.1 Wall U-values	17
3.2 Loft insulation	18
3.3 Wall thickness.....	18
3.4 Glazing	19
3.5 Zoning Fraction (Living area fraction)	20
3.6 Floor Types	21
3.7 Semi-exposed Walls.....	21
4. Non Standard Properties - Data requirements	22
4.1 Extended Data Items	22
4.101 Number of floors > 4.....	22
4.102 More than one extension.....	22
4.103 Excessive Window area.....	23
4.104 Presence of mechanical ventilation	23
ANNEX 1: Application Boundary between RDSAP and SBEM	24
Introduction	24

1. Introduction

This document is the final "REDUCED DATA SAP – Collected data set" and is version 3 of the published RDSAP. It represents the agreed data set as at the end of 2005 and is an output of the DEFRA/BRE contract to develop the reduced data SAP. Version 3 of RDSAP represents the RDSAP 2005 agreed data set.

The revisions to the dataset between v2 and v3 relate mainly to the need to update RDSAP to SAP 2005. There have also been changes to the tables, reflecting the latest agreed position on appropriate defaults, and a few other minor changes have been made.

RDSAP has also been revised to make it appropriate for use in Northern Ireland and Scotland, with different tables for use in those countries. The UK-wide RDSAP2005 has been published separately as Appendix S to SAP 2005. RDSAP v3, as defined in this document, has been produced for Defra specifically for use in England and Wales, and only covers the data requirements for England and Wales. As such it is an appropriate reference for Home Inspectors operating in England and Wales and providing the energy inspection input for the Home Condition Report.

RDSAP v3 is the output of a process undertaken for Defra by FAERO and BRE, including field testing on actual homes undertaken by prospective Home Inspectors. It has been developed to provide a rapid yet accurate assessment of the energy performance of an existing home. It is for use in existing dwellings, based on a site survey of the property, when the complete data set for a SAP calculation is not available. It consists of a system of data collection defined in this document, together with defaults and inference procedures described at Appendix S to SAP 2005, that generate a complete set of input data for the SAP calculation.

RDSAP v3 forms part of SAP 2005 and provides a methodology for existing dwellings that is compliant with the Energy Performance of Buildings Directive. As such, it is used by Home Inspectors within the Home Condition Inspection for the purpose of creating Section H of the Home Condition Report. It is not appropriate for new dwellings, for which all data for the calculation should be acquired related to the dwelling concerned. Home Inspectors are not required to undertake Energy Performance assessments of new dwellings.

1.1 Glossary

The RDSAP v3 dataset is appropriate for mainstream (Standard) dwellings, and when used with the collection of appropriate additional data is appropriate for non-standard dwellings. The glossary below defines the meaning of Standard, Non-standard and Excluded dwellings within the RDSAP methodology.

Standard: Dwellings of mainstream size, construction and style with standard heating systems. The data collection requirements and inference rules are optimised to suit dwellings that fall into this category. Standard permutations such as simple extensions, integral garages, attic conversions and heated conservatories are all accommodated within the standard methodology. The dataset described at section 2 is appropriate for such dwellings.

Non-standard: Dwellings which due to their size, construction, style or heating system are outside the limits of what would be considered “normal”, but which can still be adequately represented within the BREDEM model, and for which a SAP can be meaningfully calculated. For these properties additional information will be collected and used to produce a more accurate result. Ensuring that Home Inspectors are given appropriate training to enable them to recognise when to collect such extended data will be a key part of the QA framework operated by Authorised companies. The dataset described at section 2, supplemented by the additional data described in section 4, is appropriate for such dwellings.

Excluded: Dwellings which, due to their size, construction or heating systems, are outside the scope of the BREDEM model and for which a valid SAP cannot be produced. A review of dwellings falling into this category was provided in phase III of the RDSAP development, and SAP2005 has reduced the number of cases of excluded dwellings. A review of the dwelling categories that require the use of procedures other than SAP and RDSAP has been completed and is included as Annex 1 to this document.

1.2 Use of RDSAP with recently constructed dwellings

The RDSAP v3 dataset is only for use with existing dwellings and is not appropriate for assessing the energy performance of a new home. Where RDSAP is used to assess the energy performance of a recently constructed home, eg where the first owner-occupier of a recently built home places it on the market, it may be possible to amend some of the default RDSAP data to reflect the design performance of the property. Rules defining this option will be published in due course.

2. Data collection items

The following data collection items form the revised RDSAP 2005 data set. The changes compared to the previously published 2001 data set, RDSAPv2, relate mainly to the SAP 2005 update.

Each entry in the list gives the reference number, name of the data item and options available when collecting that data item, in the following format:.

Ref no. Data item name

▫ Option 1 ▫ Option 2 ▫ Option 3 ▫ Option 4

2.1 Built Form

001 Property Type

▫ House ▫ Bungalow ▫ Flat ▫ Maisonette

002 Built Form

▫ Detached ▫ Semi-detached ▫ Mid-terrace ▫ End-terrace ▫ Enclosed Mid-terrace
▫ Enclosed End-terrace

003 Perimeter & Floor Dimensions

▫ Internal ▫ External

004 Main Property Age

▫ Pre 1900 ▫ 1900-1929 ▫ 1930-1949 ▫ 1950-1966 ▫ 1967-1975 ▫ 1976-1982
▫ 1983-1990 ▫ 1991-1995 ▫ 1996-2002 ▫ 2003-2006

005 Extension Age

▫ Pre 1900 ▫ 1900-1929 ▫ 1930-1949 ▫ 1950-1966 ▫ 1967-1975 ▫ 1976-1982
▫ 1983-1990 ▫ 1991-1995 ▫ 1996-2002 ▫ 2003-2006 ▫ not applicable

006 Room in Roof Age

▫ Pre 1900 ▫ 1900-1929 ▫ 1930-1949 ▫ 1950-1966 ▫ 1967-1975 ▫ 1976-1982
▫ 1983-1990 ▫ 1991-1995 ▫ 1996-2002 ▫ 2003-2006 ▫ not applicable

Non-separated Conservatory:

007 Floor Area _____m²

008 Double Glazed ▫ Yes ▫ No

009 Glazed Perimeter _____m

010 Room Height ▫ 1 Storey ▫ 1½ Storey ▫ 2 Storey ▫ 2½ Storey ▫ 3 Storey

011 No of Habitable Rooms

(Habitable rooms include living room, sitting room, dining room, bedroom, study and similar; and exclude hall, stairs and landing, kitchen, utility room, bathroom, cloakroom, en-suite and similar) _____

+ if half or more of the habitable rooms are not heated:

012 No of Heated Habitable Rooms

2.2 Property Dimensions

013 Main Dimensions

Floor	Floor area	Room Height	Heat Loss Perimeter
Room in Roof	A	N/A	N/A
+3	A	H	P
+2	A	H	P
+1	A	H	P
Lowest Occupied Floor	A	H	P

014 Extension Dimensions

Floor	Floor area	Room Height	Heat Loss Perimeter
Room in Roof	A	N/A	N/A
+3	A	H	P
+2	A	H	P
+1	A	H	P
Lowest Occupied Floor	A	H	P

For flats and maisonettes only:

015 Heat Loss Corridor

- No Corridor
- Heated Corridor
- Unheated Corridor

+ For Unheated Corridor

016 length of sheltered wall _____m

017 Flat/Maisonette Position

017a Which floor? _____

017b How many floors in block? _____

018 Floor heat loss type

- exposed floor
- semi exposed upper floor to unheated space
- semi exposed upper floor to partially heated space

2.3 Constructions

019 Main Wall Construction Type

- Stone: granite or whinstone
- Stone: sandstone
- Solid Brick
- Cavity
- Timber Frame
- System Built

(note: both timber frame and system built are usually described as non traditional construction but they have different energy performance and are therefore identified separately in RDSAP)

020 Main Wall Construction Insulation

- External
- Filled Cavity
- Internal
- As built
- Unknown

021 Extension Wall Construction Type

- Stone: granite or whinstone
- Stone: sandstone
- Solid Brick
- Cavity
- Timber Frame
- System Built

022 Extension Wall Construction Insulation

- External
- Filled Cavity
- Internal
- As built
- Unknown

+ For alternative wall

023 Alternative wall type present?

- Yes
- No

If yes:

023b Alternative Wall is part of: Main wall Extension wall (+ extension number if more than one extension present)

023c Alternative Wall Construction Type

- Stone: granite or whinstone ▫ Stone: sandstone ▫ Solid Brick ▫ Cavity
- Timber Frame ▫ System Built

023d Alternative Construction Insulation

- External ▫ Filled Cavity ▫ Internal ▫ As built ▫ Unknown

023e Alternative Wall Area (m²) _____

024 Main Roof Construction

- Pitched ▫ Flat ▫ Other Dwelling Above

025 Main Roof Insulation at

- Rafters ▫ Joists ▫ No Access

026 Main Roof Insulation at Joist Level

- None ▫ 12mm ▫ 25mm ▫ 50mm ▫ 75mm ▫ 100mm ▫ 150mm ▫ 200mm ▫ 250mm
- ≥300mm ▫ Don't Know

027 Extension Roof Construction

- Pitched ▫ Flat ▫ Other Dwelling Above

028 Extension Roof Insulation at

- Rafters ▫ Joists ▫ No Access

029 Extension Roof Insulation at Joist Level

- None ▫ 12mm ▫ 25mm ▫ 50mm ▫ 75mm ▫ 100mm ▫ 150mm ▫ 200mm ▫ 250mm
- ≥300mm ▫ Don't Know

2.4 Windows

030 Area of Glazing

- Normal ▫ More than typical ▫ Less than typical ▫ Much more than typical (ie use non standard data, see Section 4, para 4.103)

031 Proportion Double-glazed _____%

032 Double-glazing Installed

- Pre 2002 ▫ Post or during 2002 ▫ Don't know

2.5 Other Details

033 No. of Open Fireplaces _____

034 Is Solar Water Heating Present?

- Yes ▫ No

035 Is Photovoltaic Supply Present?

- 035a** ▫ Yes ▫ No

If yes:

035b PV area as proportion of roof area _____%

036 Is low energy lighting present?

- 036a** ▫ Yes ▫ No

If yes:

036b Proportion of low energy lighting (as % of fixed outlets) _____%

2.6 Heating Systems

Notes to Heating Codes

Note 1: where the main heating is via a wet central heating boiler fired by gas or oil, the preferred method to specify it is via the SEDBUK system, using items 037 – 040. However, on site it will always be appropriate to also collect the alternative heating code data using item 041, to allow for cases when the installed boiler cannot be found in the SEDBUK system.

Note 2: the available options for items 041 to 044 will be identified by 3 letter codes. The following tables (2.61 to 2.64) list all the options for items 041 to 044, and codes for each option will be defined in due course. In practice, software provided by authorised companies will allow these codes to be built up from separate data entry of the relevant features of the heating and control systems and fuel used.

Note 3: The system and controls are to be selected from the tables (2.61 to 2.64) and the fuel for main and secondary heating is selected from the following options:

Main heating fuel for individual heating system:

- mains gas - bulk LPG - bottled LPG - heating oil - electricity - solid multifuel - house coal - manufactured smokeless - anthracite - wood logs - wood chips - wood pellets

Main heating fuel for community heating system:

- gas - oil - anthracite - waste combustion - biomass - biogas - electricity (heat pump) - unknown

Secondary heating fuel:

- none + above list for main heating

These fuel options are not listed in the dataset, since the codes, when published, will identify the fuel used.

Main Heating

037 Brand name _____

038 Model (all designations) _____

039 Boiler ID (if available) _____

040 SEDBUK Boiler Index No. _____

And/Or:

041 Main Heating code ___ ___ ___

041a □ underfloor heating □ radiators

042 Main Heating Control code ___ ___ ___

043 Secondary Heating code ___ ___ ___

044 Water Heating code ___ ___ ___

044a + for immersion water heating systems only:

□ single immersion □ dual immersion

045 Hot Water Cylinder Size (litres)

- No Cylinder
- No access
- Normal (90-130)
- Medium (131-170)
- Large (>170)

046 Hot Water Cylinder Insulation

- None
- Jacket
- Spray Foam

+ For Jacket or Spray foam:

047 Thickness of insulation present (mm)

- 12
- 25
- 38
- 50
- 80
- 120
- 160

048 Hot Water Cylinder Thermostat

- Yes
- No

049 Electricity meter type

- Single
- Dual
- Unknown

050 Is mains gas supply available?

- Yes
- No

2.61 Main Heating Systems

CENTRAL HEATING SYSTEMS WITH RADIATORS OR UNDERFLOOR HEATING

Gas boilers and oil boilers

Boiler	Assumed for calculation
Gas boilers (including LPG) 1998 or later	
Non-condensing with automatic ignition – regular – fan flue	
Non-condensing with automatic ignition – regular – balanced or open flue	
Non-condensing with automatic ignition – combi – fan flue	
Non-condensing with automatic ignition – combi – balanced or open flue	
Non-condensing with permanent pilot – regular – fan flue	
Non-condensing with permanent pilot – regular – balanced or open flue	
Non-condensing with permanent pilot – combi – fan flue	
Non-condensing with permanent pilot – combi – balanced or open flue	
Condensing – regular – fan flue	with automatic ignition
Condensing – regular – balanced or open flue	with automatic ignition
Condensing – combi – fan flue	with automatic ignition
Condensing – combi – balanced or open flue	with automatic ignition
Back boiler	Back boiler; balanced or open flue
Gas boilers (including LPG) pre-1998, with fan-assisted flue	
Non-condensing - regular	High or unknown thermal capacity
Non-condensing - combi	
Condensing - combi	
Condensing - regular	
Gas boilers (including LPG) pre-1998, with balanced or open flue	
Wall mounted	
Floor mounted, pre 1979	
Floor mounted, 1979 to 1997	
Combi	
Back boiler	
Combined Primary Storage Units (CPSU) (mains gas and LPG)	
Non-condensing -	With automatic ignition; fan flue
Condensing	With automatic ignition; fan flue

Oil boilers

Standard oil boiler pre 1997
Standard oil boiler, 1998 or later
Condensing
Combi, pre-1998
Combi, 1998 or later
Condensing combi
Oil room heater + boiler, pre 2000
Oil room heater + boiler, 2000 or later

Standard oil boiler 1985 to 1997

Range cooker boilers (mains gas and LPG)

Single burner with permanent pilot
Single burner with automatic ignition
Twin burner

With automatic ignition (non-condensing) pre 1998

Range cooker boilers (oil)

Single burner
Twin burner

Non-condensing, pre 1998

Solid fuel boilers

Manual feed boiler
Auto (gravity) feed boiler
Open fire with back boiler to radiators

Closed roomheater with boiler to radiators
Range cooker boiler)

in heated space
in unheated space
Open fire with back boiler to radiators, trapezium grate

Integral oven and boiler

Electric boilers

Direct acting electric boiler
Electric CPSU
Dry core storage boiler
Water storage boiler

in heated space
in heated space
in heated space

Heat pumps (see also warm air systems)

Ground-to-water heat pump (electric)
Ground-to-water heat pump with auxiliary heater (electric)
Water-to-water heat pump (electric)
Air-to-water heat pump (electric)

COMMUNITY HEATING SCHEMES

Community heating boilers
Community heating with CHP

ELECTRIC STORAGE SYSTEMS

Old (large volume) storage heaters
Modern (slimline) storage heaters
Fan storage heaters
Integrated storage/direct acting heater

ELECTRIC UNDERFLOOR HEATING

Off-peak tariffs:

Off-peak only	In concrete slab
Integrated (storage/direct acting)	without low tariff control

Standard tariff:

On peak only	In thin screed (45-60 mm)
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WARM AIR SYSTEMS

Gas fired warm air

Ducted or stub-ducted. pre 1998	On-off control, natural draught
Ducted or stub-ducted. 1998 or later	On-off control, fan-assisted
Ducted or stub-ducted with flue heat recovery	
Condensing	

Oil-fired warm air

Any	Ducted output (on/off control)
-----	--------------------------------

Electric warm air

Electricaire system

Heat pumps

Ground-to-air heat pump (electric)
Ground-to-air heat pump with auxiliary heater (electric)
Water-to-air heat pump (electric)
Air-to-air heat pump (electric)

OTHER SPACE HEATING SYSTEMS

Electric ceiling heating

2.62 Room Heaters (applies to main heating and secondary heating)

ROOM HEATERS

Assumed for calculation

Gas (including LPG) room heaters:

- Gas fire, open flue, pre-1980 (open fronted)
- Gas fire, open flue, 1980 or later (open fronted), sitting proud of, and sealed to, fireplace opening
- Gas fire or wall heater, balanced flue
- Gas fire, closed fronted, fan assisted
- Condensing gas fire
- Flush fitting Live Fuel Effect gas fire (open fronted), sealed to fireplace opening
- Flush fitting Live Fuel Effect gas fire (open fronted), fan assisted, sealed to fireplace opening
- Decorative Fuel Effect gas fire, open to chimney
- Gas fire, flueless

Balanced or open flue

Oil room heaters

- Room heater, pre 2000
- Room heater, 2000 or later

Solid fuel room heaters

- Open fire in grate
- Closed room heater

Electric (direct acting) room heaters:

- Panel, convector or radiant heater
- Portable electric heater

2.63 Heating system controls

Type of control

GROUP 1: BOILER SYSTEMS WITH RADIATORS OR UNDERFLOOR HEATING

No time or thermostatic control of room temperature

Programmer, no thermostat

Room thermostat only

Programmer + room thermostat

Programmer + at least two room thermostats

Programmer + room thermostat + TRVs

Time and temperature zone control

Programmer, TRVs and bypass

Programmer, TRVs and boiler energy manager

Adjustments for features of control systems:

(applicable to any control option above and in addition to the adjustments selected above)

Load or weather compensation

GROUP 2: HEAT PUMPS

No time or thermostatic control of room temperature

Programmer, no thermostat

Room thermostat only

Programmer + room thermostat

Programmer + at least two room thermostats

Programmer + TRVs + bypass

Time and temperature zone control

Adjustments for features of control systems:

(applicable to any control option above and in addition to the adjustments selected above)

Load or weather compensation

GROUP 3: COMMUNITY HEATING SCHEMES

Flat rate charging, no thermostatic control of room temperature

Flat rate charging, programmer and room thermostat

Flat rate charging, programmer and TRVs

Charging system linked to use of community heating, programmer and TRVs

GROUP 4: ELECTRIC STORAGE SYSTEMS

Manual charge control
Automatic charge control

GROUP 5: WARM AIR SYSTEMS

No thermostatic control of room temperature
Room thermostat only
Programmer + room thermostat
Time and temperature zone control

GROUP 6: ROOM HEATER SYSTEMS

No thermostatic control of room temperature
Appliance thermostats
Programmer + appliance thermostats
Room thermostats only
Programmer + room thermostats

GROUP 7: OTHER SYSTEMS

No thermostatic control of room temperature
Room thermostat only
Programmer + room thermostat
Temperature zone control
Time and temperature zone control

2.64 Water Heating

HOT-WATER

Assumed for calculation

From main system

From secondary system

Electric immersion (on-peak or off-peak)

From a circulator built into a gas warm air system Pre 1998

Single-point gas water heater (instantaneous at point of use)

Multi-point gas water heater (instantaneous serving several taps)

Electric instantaneous at point of use

3. Reference Tables

3.1 Wall U-values

U-values for the wall descriptions calculated using the Main House (or Extension)
Age

Wall type	2003-2006	1996-2002	1991-1995	1983-1990	1976-1982	1967-1975	1950-1966	1930-1949	1900-1929	Pre 1900
<i>SAP appendix S reference</i>	J	I	H	G	F	E	D	C	B	A
Stone: Granite or Whinstone (as built)	0.35	0.45	0.60	0.60	1.0	1.7	2.4	2.4	2.4	2.4
Stone: Sandstone (as built)	0.35	0.45	0.60	0.60	1.0	1.7	21.	2.1	2.1	2.1
Solid Brick (as built)	0.35	0.45	0.60	0.60	1.0	1.7	21.	2.1	2.1	2.1
Stone/Solid Brick (external ins.)	0.25	0.30	0.35	0.35	0.45	0.55	0.60	0.60	0.60	0.60
Stone/Solid Brick (internal ins.)	0.25	0.30	0.35	0.35	0.45	0.55	0.60	0.60	0.60	0.60
Cavity (as built)	0.35	0.45	0.60	0.60	1.00	1.60	1.60	1.60	1.60	2.10
Filled Cavity	0.35	0.45	0.35	0.35	0.40	0.50	0.50	0.50	0.50	0.50
Timber Frame (as built)	0.35	0.40	0.40	0.40	0.45	0.80	1.00	1.90	1.90	2.50
System Build (as built)	0.35	0.45	0.6	0.6	1.00	1.7	2.0	2.0	2.0	2.0
System Build (external ins.)	0.25	0.30	0.35	0.35	0.45	0.55	0.60	0.60	0.60	0.60
System Build (internal ins.)	0.25	0.30	0.35	0.35	0.45	0.55	0.60	0.60	0.60	0.60

3.2 Loft insulation

3.2a: Assumed U-values for when loft insulation is unknown:

Main or extension age	SAP Appendix S reference	Assumed Roof U-value			
		Pitched, insulation between joists	Pitched, insulation between rafters	Flat roof	Room-in-roof
2003-2006	J	0.16 (250 mm)	0.20	0.25	0.30
1996-2002	I	0.26 (150 mm)	0.35	0.35	0.35
1991-1995	H	0.29 (150 mm)	0.35	0.35	0.35
1983-1990	G	0.40 (100 mm)	0.40	0.40	0.50
1976-1982	F	0.68 (50 mm)	0.68	0.68	0.80
1967-1975	E	1.5 (12 mm)	1.5	1.5	1.5
Until 1966	A, B, C, D	2.3 (none)	2.3	2.3	2.3

3.2b: Assumed U-values for when loft insulation thickness is known:

Insulation thickness (mm)	Assumed Roof U-value
None	2.3
12	1.5
25	1.0
50	0.68
75	0.50
100	0.40
150	0.29
200	0.20
250	0.16
>= 300	0.13

3.3 Wall thickness

Gives the wall thickness in metres from the Wall Construction and Main House/Flat Age

Wall type	Post 1995	1991-1995	1983-1990	1976-1982	1967-1975	1950-1966	1930-1949	1900-1929	Pre 1900
SAP Appendix S reference	I, J	H	G	F	E	D	C	B	A
Stone as built	0.45	0.42	0.42	0.42	0.45	0.50	0.50	0.50	0.50
Stone + internal or external insulation	0.52	0.49	0.49	0.49	0.52	0.57	0.57	0.57	0.57
Solid Brick as built	0.30	0.27	0.27	0.25	0.24	0.22	0.22	0.22	0.22
Solid brick + internal or external insulation	0.37	0.34	0.34	0.32	0.31	0.29	0.29	0.29	0.29
Cavity	0.30	0.27	0.27	0.26	0.25	0.25	0.25	0.25	0.25
Timber Frame	0.30	0.27	0.27	0.27	0.27	0.25	0.15	0.15	0.15
System Build	0.30	0.30	0.30	0.30	0.25	0.25	0.25	0.25	0.25
System Build + internal or external insulation	0.37	0.37	0.37	0.37	0.32	0.32	0.32	0.32	0.32

3.4 Glazing

U-values assigned to the window types and (conservatory roof) below

3.4a:

Windows	U-value for heat loss	g-value for solar transmittance
Single glazed (assumed wooden frame)	4.8	0.85
Double glazed, installed before 2002 (assumed uPVC frame)	3.1	0.76
Double glazed, installed after 2002 (assumed uPVC frame)	2.0	0.72

3.4b:

Conservatory windows (non separated conservatory)	U-value for heat loss	g-value for solar transmittance
Single glazed (assumed wooden frame)	4.8	0.85
Double glazed (all ages) (assumed uPVC frame)	3.1	0.76

3.4c:

Conservatory roofs (non separated conservatory)	U-value for heat loss	g-value for solar transmittance
Single glazed (assumed wooden frame)	5.1	0.85
Double glazed (all ages) (assumed uPVC frame)	3.3	0.76

Solar gains are calculated using the SAP equations with g-values from tables 3.4 a-c.

The following items are fixed:

ff = 0.7

Orientation = E/W

Solar flux = 48

For windows, Overshading is always taken as average, = 0.77

For conservatory roofs, Overshading is always taken as roof lights, = 1

Window areas (y) are assumed from Built Form, Main Age and Main/Extension Total Floor Areas (x).

3.4d:

Age	SAP Appendix S reference	House/Bungalow	Flat/Maisonette
Pre 1950	A, B, C	$y = 0.122x + 6.875$	$y = 0.0801x + 5.580$
1950-66	D	$y = 0.1294x + 5.515$	$y = 0.0341x + 8.562$
1967-75	E	$y = 0.1239x + 7.332$	$y = 0.0717x + 6.560$
1976-82	F	$y = 0.1252x + 5.520$	$y = 0.1199x + 1.975$
1983-90	G	$y = 0.1356x + 5.242$	$y = 0.051x + 4.554$
1991-95	H	$y = 0.0948x + 6.534$	$y = 0.0813x + 3.744$
1996-02	I	$y = 0.1382x - 0.0267$	$y = 0.1148x + 0.392$
2003-06	J	$y = 0.1435x - 0.403$	$y = 0.1747x - 2.834$

3.5 Zoning Fraction (Living area fraction)

The Zoning Fraction gives the Zone 1 area (living area) when multiplied by the Total Floor Area (TFA)

Number of habitable rooms	Zoning Fraction
1	0.75
2	0.50
3	0.30
4	0.25
5	0.21
6	0.18
7	0.16
8	0.14
9	0.13
10	0.12
11	0.11
12	0.10
13	0.10
14	0.09
15+	0.09

3.6 Floor Types

	Suspended Timber	Solid Un-insulated	Solid Insulated	Solid Insulated	Upper exposed or semi exposed *		
Earth Type	Clay	Clay	Clay	Clay	N/A		
SAP Appendix S reference	A, B	C - H	I	J	A -G	H, I	J
Age band	Pre 1930 Ground Floor	1930 – 1995 Ground Floor	1996 – 2002 Ground Floor	2003 – 06 Ground Floor	Pre 1991	1991 - 2002	2003 - 06
Edge Insulation	No	No	No	No	N/A		
Full Insulation	No	No	Yes	Yes	N/A		
Insulation Thickness	0	0	25mm	75mm	N/A		
Insulation Conductivity	N/A	N/A	0.035	0.035	N/A		
Number of vents	1	0	0	0	N/A		
Vent Area	= Ground Floor Exposed Perimeter (P) * 0.003	N/A	N/A	N/A	N/A		
U-Value	N/A				1.20	0.51	0.25

* Note that the U-value of a floor above a partially heated space is always taken as 1.0 regardless of the age band.

3.7 Semi-exposed Walls

R_u for Access corridors and stairwells for flats – 0.4

4. Non Standard Properties - Data requirements

The following data collection items form the extra data set arising from the extended data requirements, defined in Phase III of the RDSAP development contract.

Each entry in the list gives the reference number, name of the data item and options available when collecting that data item, in the following format:

Ref no. Data item name

▫ Option 1 ▫ Option 2 ▫ Option 3 ▫ Option 4

4.1 Extended Data Items

4.101 Number of floors > 4

E001 Additional floors for Main

Floor	Floor area	Room Height	Heat Loss Perimeter
+6	A	H	P
+5	A	H	P
+4	A	H	P

E002 Additional floors for Extension

Floor	Floor area	Room Height	Heat Loss Perimeter
+6	A	H	P
+5	A	H	P
+4	A	H	P

4.102 More than one extension

E003 Second Extension Dimensions (including additional floors if required)

Floor	Floor area	Room Height	Heat Loss Perimeter
Room in Roof	A	N/A	N/A
+6	A	H	P
+5	A	H	P
+4	A	H	P
+3	A	H	P
+2	A	H	P
+1	A	H	P
Lowest Occupied Floor	A	H	P

E004 Second Extension Age

▫ Pre 1900 ▫ 1900-1929 ▫ 1930-1949 ▫ 1950-1966 ▫ 1967-1975 ▫ 1976-1982
▫ **1983-1990 ▫ 1991-1995 ▫ 1996-2002 ▫ 2003-2006 ▫ not applicable**

E005 Second Extension Wall Construction Type

▫ Stone: granite or whinstone ▫ Stone: sandstone ▫ Solid Brick ▫ Cavity
▫ Timber Frame ▫ System Built

E006 Second Extension Wall Construction Insulation

▫ External ▫ Filled Cavity ▫ Internal ▫ As built ▫ Unknown

E007 Second Extension Roof Construction

- Pitched
- Flat
- Other Dwelling Above

E008 Second Extension Roof Insulation at

- Rafters
- Joists
- No Access

E009 Second Extension Roof Insulation at Joist Level

- None
- 12mm
- 25mm
- 50mm
- 75mm
- 100mm
- 150mm
- 200mm
- 250mm
- ≥300mm
- Don't Know

4.103 Excessive Window area

E010 Measured Windows

	Area ¹ (m ²)	Glazing Type ²	Location/Element ³
W1	A	G	L
W2	A	G	L
W3	A	G	L
W4	A	G	L
W5	A	G	L
W6...	A	G	L
Wx	A	G	L

¹ Area – Area of opening including both frame and glazing

² Glazing Type – Single, Double pre 2002, Double post or during 2002

³ Location/Element – The element where the window is located, i.e. main house wall, extension wall (identified if more than one), internal heat loss wall, main roof, extension roof (identified if more than one).

N.B. When completing the extended data section for windows, ignore data item 030 Area of glazing and item 031 Proportion of double glazing (%) from the normal data set. Conservatories and doors are unaffected, the extended data only replaces the windows in the dwelling.

4.104 Presence of mechanical ventilation

E011 Mechanical Ventilation Present

- Yes
- No (checkbox – tick if present)

E012 With Heat Recovery?

- Yes
- No

ANNEX 1: Application Boundary between RDSAP and SBEM

The following guidance applies to the calculation of energy performance for EPBD Article 7 for existing homes, whether via a Home Inspection undertaken by a Home Inspector, or via the procedures to be adopted for rentals and non marketed sales such as Right to Buy. The text also gives guidance to Home Inspectors about applying this guidance within the Home Condition Report inspection process.

Introduction

SAP and SBEM are two different methodologies for assessing the energy performance of buildings. SAP is the government approved methodology for the energy assessment of dwellings, whilst SBEM is the methodology that will be approved by Government for the energy assessment of buildings other than dwellings. SAP includes a variant, RDSAP, which has been specifically designed for use by Home Inspectors and others when inspecting existing homes, and will be the government approved methodology for such inspections. Thus, the presumption should always be to use RDSAP for a home inspection, unless the home is of such unusual character that SBEM is considered more appropriate. The categories of properties where SBEM should be used in preference to RDSAP are listed below.

1. Very large dwellings > 450 m²

A dwelling whose total floor area exceeds 450 m² is to be handled by SBEM. In this respect it is the floor area on all floors, but contained within the heated envelope of the dwelling, that is required. In assessing whether the total floor area exceeds 450 m² the Home Inspector should follow the RDSAP conventions defining the heated area of the dwelling. Thus, this floor area does not include unheated outbuildings, or additions such as unheated porches, that are outside the thermal envelope of the dwelling. It is extremely rare to find a dwelling whose floor area as defined by RDSAP exceeds 450 m².

2. Multi-residential properties

This includes, for example, nursing homes, student accommodation and similar which are not self-contained dwellings. These are to be handled by SBEM. Note however that some rooms found within properties that might be thought of as Multi-residential (e.g. Houses in Multiple Occupation, sheltered accommodation) will be handled using RDSAP (see category 3 which follows).

3. Flats, Houses in Multiple Occupation (HMOs) and Sheltered Accommodation

A flat is treated in RDSAP as a self-contained dwelling; flats extending over two floors, often referred to as maisonettes, are for simplicity referred to as flats in this text. Small flats within HMOs and sheltered accommodation may also be considered to be self contained, even though they usually share some common heated areas, such as corridors, communal kitchens and/or lounges. These small flats are commonly referred to as bedsits, bedsitters or studio flats, but again, for simplicity in the following text, they are referred to as flats from here on. All are treated the same in RDSAP, as described below.

If the common areas of the building are unheated, the walls between the flat and the common areas are included within the heat loss calculation for the flat. If the common areas are heated, the calculation for the flat is on the basis of no heat transfer through these walls. When any flat is sold or rented to a new occupier, an energy certificate is prepared relating to the flat using RDSAP.

For energy certification of the whole building, the flats are certificated using RDSAP, but the remainder of the building (i.e. excluding the flats themselves) is assessed using SBEM. In this case the SBEM calculation includes only the common areas, because the flats have been individually certified using RDSAP. This additional SBEM calculation would be applicable when the whole building changes hands, e.g. by being transferred to another management company or sale to a new private landlord, and would be provided in addition to the individual RDSAP certificates. The common areas in, for example, sheltered housing accommodation include any manager's office, guest bedrooms or visitor areas: but if there is a self-contained caretaker's flat, that would be considered on its own as one of the dwellings and assessed using RDSAP.

It is considered unlikely that a Home Inspector would be asked to undertake an inspection of a complete block of flats or block of sheltered accommodation as this would be outside the terms of reference of the Home Condition Report. However it is feasible that a Home Condition Report might be requested on a HMO when it is marketed for sale, so the Home Inspector should be aware of the need to use SBEM for the common areas in this case.

4. Mixed use

Sometimes a given building can be part dwelling, part other use. Examples include:

1. penthouse flat on top of an office block
2. a workshop, an office, or a shop occupying one or two rooms in what otherwise is living accommodation.

RDSAP is always used to rate the dwelling part, but the treatment of the commercial part depends on whether it could revert to domestic use on a change of ownership. Thus there are two categories:

4a. Could not revert to domestic use

In the case of a self-contained dwelling within a larger building, the dwelling is assessed using RDSAP and the remainder of the building is assessed using SBEM. The separating walls and floors between the dwelling and the commercial parts are treated according to the normal use of the remainder of the building. Thus, the walls are treated as:

- adiabatic (same temperature on both sides) if the spaces adjacent to the dwelling are normally heated;
- as heat loss elements, if the spaces are not normally heated

If there is a common heating system, it is treated as a community system.

4b Could revert to domestic use

Where the property is mainly residential, but part of the accommodation is used for commercial purposes (e.g. as an office or shop), the whole dwelling is assessed using RDSAP providing:

- there is direct access between the part used commercially and the remainder of the accommodation, and
- the commercial part is contained within the same thermal envelope.

Otherwise the commercial part is treated separately and is assessed using SBEM.