

Technical Bulletin

TB24 – All RdSAP Conventions

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Contents

Introduction	4
1.01 Use of RdSAP.....	5
1.02 Flat or Maisonette.....	6
1.03 Address Close to England/Scotland border	6
1.04 Separate Part of a Dwelling.....	6
1.04b Not Self-Contained Separate Part of a Dwelling.....	7
2.0 Conventions – Measurements and Geometry	7
2.01 Measurements.....	7
2.02 Precision of Lengths	7
2.03 Sheltered Wall Lengths	7
2.04 Habitable Room Count.....	8
2.04b Heated Habitable Room Count.....	8
2.05 Basements.....	9
2.06 Rooms in the Roof.....	9
2.07 Rooms within a ‘Mansard Roof’	11
2.08 Whole Dwelling within a Roof.....	11
2.09 Porches.....	12
2.10 Mezzanine Floor.....	12
2.11 Vertical Extensions	13
2.12 More than Four Extensions.....	13
2.13 Alternative Wall	14
2.14 Window Area (Doors).....	14
2.15 Glazed Area	15
2.16 Secondary Glazing	15
2.17 Sun Rooms.....	15
2.18 Basements.....	16
2.19 Store Rooms & Utility Rooms.....	16
2.20 Garages	16
2.21 Dwelling Adjacent to Commercial Premises	17
2.22 Wall Thickness (per building part)	17
2.23 Sloping Sites	18
2.24 Party Wall Lengths	19
3.0 Conventions – Construction and Insulation	19
3.01 Cavity Wall Type.....	19
3.02 System Build Type	19
3.03a As Built (walls, floors, roofs).....	20
3.03b Unknown Insulation (walls, floors, roofs)	20
3.03c Unknown Insulation Thickness.....	20
3.04 Loft Insulation and Rafter Insulation.....	21
3.05 Age Band for Conversions	21
3.06 Internal Wall Lining	22
3.07 Insulation Thickness	23
3.08 U-value Entry.....	23

3.09 External Doors.....	24
3.10 Windows (U-values and g-values).....	24
3.11 Draught Proofing (of openable windows and doors)	24
3.12 Glazing Age.....	25
3.13 Age Band for Roof Room.....	25
3.14 High Rise Properties	26
3.15 Glazing Gap	26
3.16 Party Wall Construction in Loft Space.....	27
4.0 Conventions – Main Heating	27
4.01 Heat Emitters	27
4.02 Storage Heaters.....	28
4.03 Boiler Not Present or Not Working	28
4.04 Micro CHP	28
4.05 Definition of Community Heating	29
4.06 Heat Sources and fuel used by Community Heating.....	29
4.09 Two Main Systems	29
4.10 Liquid Biofuels.....	31
4.11 LPG Subject to Special Condition 18	31
4.12 Straw Bales and Other Biomass	31
4.13 TRVs.....	31
4.14 Electric Underfloor Heating Mats.....	31
4.15 Electric CPSU	32
4.16 Weather Compensators	32
4.17 Time an Temperature Zone Control.....	32
4.18 Central heating pump age.....	32
4.19 Heating Controller by Mobile App	32
5.0 Conventions – Secondary Heating	33
5.01 Secondary Heating	33
5.02 Open Fireplaces as Secondary Heaters.....	33
5.03 Fuels for Solid Fuel Fires and Room Heaters.....	34
6.0 Conventions – Water Heating.....	34
6.03 Dual Immersion with Single Tariff.....	34
6.04 Separate Boiler or Heat pump for DHW	34
6.05 Enclosed hot water cylinders	35
6.06 Hot water thermal store	35
6.07 Hot Water Cylinder Stat.....	35
6.08 Instantaneous Water Heater	35
6.09 Electric Shower	35
7.0 Conventions – Lighting	35
7.01 Lights	35
8.0 Conventions – Recommendations	36
8.01 Suppression of Recommendations	36
8.02 Mains Gas Available	37
9.0 Conventions – Miscellaneous	37
9.01 Open Fireplace Count (for ventilation)	37

9.02 Documentary evidence 38

9.03 Lodgement of an Incorrect EPC 38

9.04 Cooling System Present..... 39

9.05 Photovoltaics..... 39

9.06 Flue Gas Heat Recovery 40

9.07 Wind Turbines..... 41

9.08 Waste Water Heat Recovery..... 41

9.09 Solar Water Heating..... 41

9.10 Hard to Treat Cavity Walls 42

9.11 Transaction Type 42

9.12 Tenure 42

9.13 Electricity Meters 43

9.14 Park Homes 43

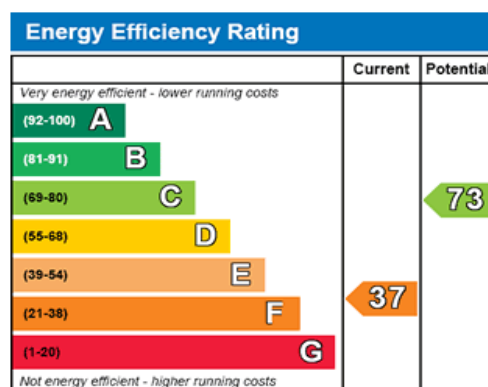
12.0 Support 43

Introduction

A background to the changes in RdSAP

In order to promote consistency of EPCs across all Accreditation Schemes, the Department for Communities and Local Government (DCLG) has appointed a Conventions Group to regularly review various issues relating to the use of RdSAP and production of EPCs, and updates to the conventions are periodically issued by DCLG.

The conventions were first issued in Sept 2009 and this is the ninth issue.



IMPORTANT NOTE – PLEASE READ

This document provides comprehensive guidance to all conventions issued by DCLG to date. Please note the most recent conventions have been **highlighted/boxed in red**.

It has been agreed that the conventions contained within this document should be implemented by all domestic energy assessors from **1st October 2016**. There are no ‘pending’ conventions included, as per previous versions of this document.

Please note that the issue dates in this document are shown as the dates on which the conventions were issued to accreditation schemes, **not** when they were implemented - this is to ensure that the dates contained in this technical bulletin match with those stated in the official conventions document issued by DCLG.

Members should also read and understand the updated Quality Assurance requirements ensuring all EPC evidence collected from 1st October 2016 complies with the new standards. Elmhurst’s revised Minimum Evidence Requirements document is available for download in *Access Elmhurst*.

1.01 Use of RdSAP

Originally released September 2009 & amended in January 2012, December 2012 & April 2015

New Build Dwellings (“On-Construction”): RdSAP should not be used for dwellings that are being or have been newly constructed. The full SAP Methodology should be used for newly built dwellings, including those dwellings created by conversion (change of use) of an existing building.

When a new building is completed after the following dates (either as a newly constructed dwelling or as a conversion from a non-dwelling to a dwelling e.g. barn, chapel, mill, pub etc), it must have an ‘On-Construction’ SAP Calculation and an ‘On-Construction’ EPC produced. Both of these documents must be derived from the Full SAP Methodology, not RdSAP. The relevant dates are:

England and Wales: 6th April 2008
Northern Ireland: 30th September 2008



When viewing page two of the final EPC, under the section called “About this document”, it is clearly stated which of these types of EPC it is and is also clearly shown on the top right hand side of the first page of an EPC.

For a new dwelling, where no on-construction EPC has been lodged, a full SAP EPC is still required, irrespective of whether the dwelling has been occupied.

If the property is in England, Wales or Northern Ireland and one or both of the following scenarios apply:

- The SAP data set (i.e. the data required to produce a full SAP EPC in order to ensure building regulation compliance) is not available and the evidence for its lack of availability has been provided, or
- The SAP data set is available but the dwelling has been altered in such a way that the data is no longer applicable and the details of the alterations are unknown (evidence of the alterations and evidence for lack of building regulation approval providing details of the alterations to be provided)

It can be assessed using RdSAP.

PLEASE NOTE: if a new-build dwelling is assessed using RdSAP because one or both of the above scenarios apply, assessors must include an explanation in their site notes and must also provide compelling evidence that all reasonable steps were taken to establish that the SAP data was not available. This would normally include copies of correspondence from the parties who may have retained this information (e.g. homeowner, building contractor, architect, solicitor, Planning Department, Building Control etc).

Scotland:

A new dwelling for which the building warrant application was submitted before **1st May 2007** or a dwelling created by change of use (a **defined** conversion) does not require a SAP EPC under building regulations but will, under EPB regulations, require an RdSAP EPC when offered for sale or rental. A new dwelling for which the building warrant application was submitted on or after **1st May 2007** will need a SAP EPC as part of the completion certificate application process.

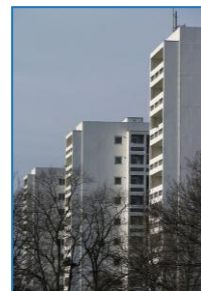
1.02 Flat or maisonette

Issued March 2010, amended March 2011

The DCLG definition of a flat or a maisonette for RdSAP purposes is:

“A dwelling that does not extend to all storeys of the building is a flat or maisonette. RdSAP makes no distinction between flats and maisonettes as regards calculations; it is acceptable to select either type as definitions vary across the UK”

The distinction of a flat from a maisonette varies across the UK and many home owners show a preference to one description over the other, and so we would advise entering whichever is considered most appropriate within the local market.



1.03 Address close to England/Scotland border

Issued April 2015

Assessors must ensure that the correct country is identified so that the EPC will be lodged in the appropriate register.



1.04a Separate part of a dwelling

Issued April 2015, amended August 2016

A property can have an additional building unit (e.g. an annexe) which, if it is self-contained and meets the dwelling definition of a building, needs to have its own EPC.

The annexe may share a party wall(s) with the main dwelling. Standalone buildings (i.e. physically separate from the main building) with a total useful floor area of less than 50m² do not require an EPC.

A building unit designed or altered for separate, self-contained use could be indicated by the accommodation having its own cooking and bathing facilities and its own access (from the outside, or via a communal corridor, without having to enter via the main dwelling), and may have separate or shared provision of heating and ventilation, but with the ability by the occupier of each dwelling to independently control those services. An example might be a self-contained flat in a building.

If the annexe is not self-contained and is heated by the main system serving the main dwelling, assess as part of the main dwelling.

1.04b Not Self-Contained Separate Part of Dwelling

Issued August 2016

If there is a separate part of the dwelling which is not self-contained but contains rooms that are used as part of the main dwelling, e.g. bedrooms, study etc. in a large detached garage or outbuilding converted into part of the living accommodation of a main property:

- If heated by the main heating system (as defined for the main dwelling), include in the assessment of the main dwelling and a single EPC for the main dwelling is to be issued.
- Otherwise, omit from the assessment.

2.0 Conventions – Measurements and Geometry

2.01 Measurements

Issued Sept 2009, amended August 2014

State on site plans whether the dimensions recorded are external or internal. Where a combination of external and internal is used this must be made clear for each dimension indicated.

Measure between the finished internal surfaces of the walls bounding the dwelling (when measuring internally). Where that cannot be done directly (i.e. when measuring room by room) include an allowance for the thickness of internal partitions.

Measure all perturbations (e.g. bay windows) but disregard chimney breasts unless assessor considers significant e.g. large inglenook.

2.02 Precision of Lengths

Issued September 2009



Floor areas must be calculated in square metres. Perimeters and room heights must be calculated in metres. The software accepts data entry with up to two decimal places.

The agreed convention for accuracy is:

“Measurements should be taken to at least one decimal place (0.1m) or better. However, if more accurate measurements have been taken they should be used, particularly for the room height dimensions”.

2.03 Sheltered Wall Lengths

Originally issued 2009, amended October 2010, April 2015 and August 2016

Any section of the perimeter of your dwelling (only applicable to flats and maisonettes) that has an unheated internal space on the other side of it (i.e. walls adjoining unheated corridors, stairs, lift shafts, etc) must be included in the heat loss perimeter calculation in Section 4 of RdSAP. However, the temperature in the unheated corridor is likely to be warmer than the outside air temperature, reducing heat loss from this part of the flat's perimeter. Section 6 of RdSAP takes account of this by requiring the assessor to enter a sheltered wall length.

When a dwelling (flat or maisonette) has a sheltered wall to an unheated corridor on more than one storey the sheltered length is the total for all storeys with a sheltered wall (example: 2 storeys with sheltered wall on each storey, length of sheltered wall is 5 m on each storey: enter 10 m for the sheltered length).

The sheltered wall can be in any building part but must be an alternative wall (see convention 2.13).

Where the sheltered wall extends over more than one building part, e.g. it extends across the main and an extension, assign the sheltered wall length to the building part with the longer sheltered wall and deduct the relevant amount from the heat loss perimeter of the other. Example: total unheated corridor length is 10m of which 2m is in the main building part and 8m in the extension. Record the extension as having the sheltered alternative wall of length 10m, **the heat loss perimeter of the extension by 2m** and deduct 2m from the heat loss perimeter of the main dwelling.

2.04a Habitable Room Count

Issued September 2009, amended April 2015, August 2016

Habitable rooms include any living room, sitting room, dining room, kitchen/diner, bedroom, study and similar; and also a non-separated conservatory. Excluded from the count are: any room used solely as a kitchen, utility room, bathroom, cloakroom, en-suite accommodation or similar; any hallway, stairs or landing, and also any room not having a window.

Where there are habitable 'open plan' rooms, count them as one room, i.e. if joined by an open archway or similar. So, for example, the classic knocked through lounge/dining room or kitchen/dining room should be counted as one habitable room.

The agreed convention is that a doorway with door removed counts as an archway if the hinge holes have been filled. If the hinge holes are still visible, the doorway is treated as temporarily removed and the two rooms are not to be regarded as open plan, i.e. they are two habitable rooms. Habitable rooms divided by folding doors are also regarded as two rooms.



A conservatory separated by internal quality doors from a dwelling is also regarded as a habitable room, but a conservatory separated by external quality doors from the dwelling is not a habitable room as the conservatory is disregarded from the assessment. A conservatory separated by an open plan archway is regarded as part of the habitable room to which it is attached and **is NOT counted as an additional habitable room**.

Kitchens sometimes need some thought. A small, standard kitchen is not a habitable room but a dining kitchen is a habitable room. For a kitchen to be a kitchen/diner there must be **space for a table and four chairs** however the table and chairs don't have to be present at the time of the inspection.

2.04b Heated Habitable Room Count

Issued August 2016

Includes all habitable rooms heated by either main heating system(s) or fixed secondary heating.

2.05 Basements

Issued September 2009, amended April 2015

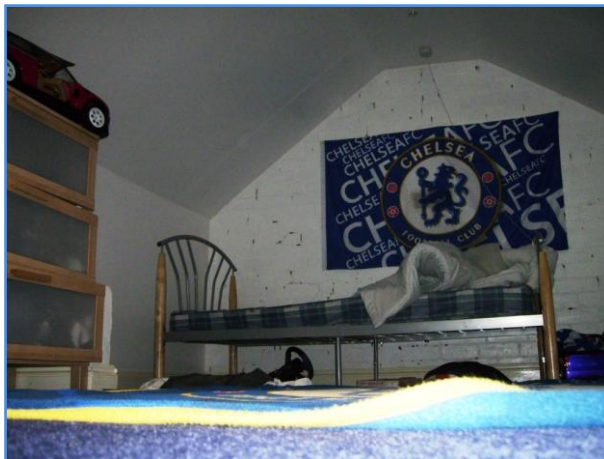
There is an agreed convention that a cellar or basement that is accessed by a permanent staircase (capable of being walked down facing forward) should be regarded as a storey if it is open plan to the storey above (i.e. no door separation) or if it is heated by fixed heating appliances. If the basement level is to be included within the assessment, it does not necessarily need to contain any habitable rooms.

In practice, most cellars will have a door separating them from the dwelling above and be unheated, so can be ignored from the RdSAP calculation.

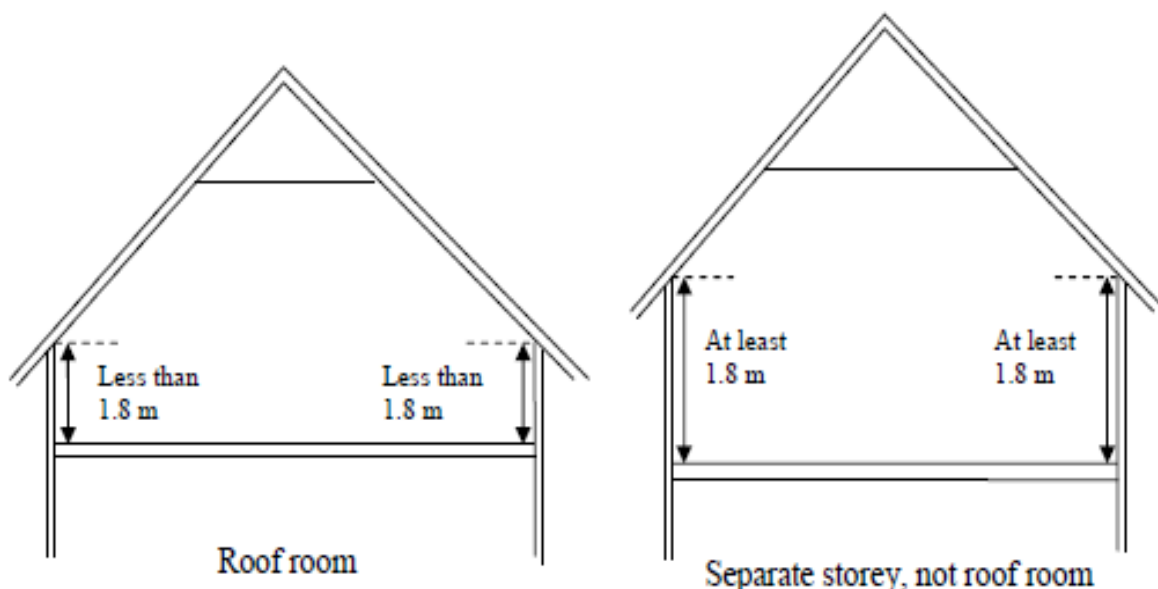
2.06 Rooms in the roof

Issued March 2010, amended January 2012 and August 2014

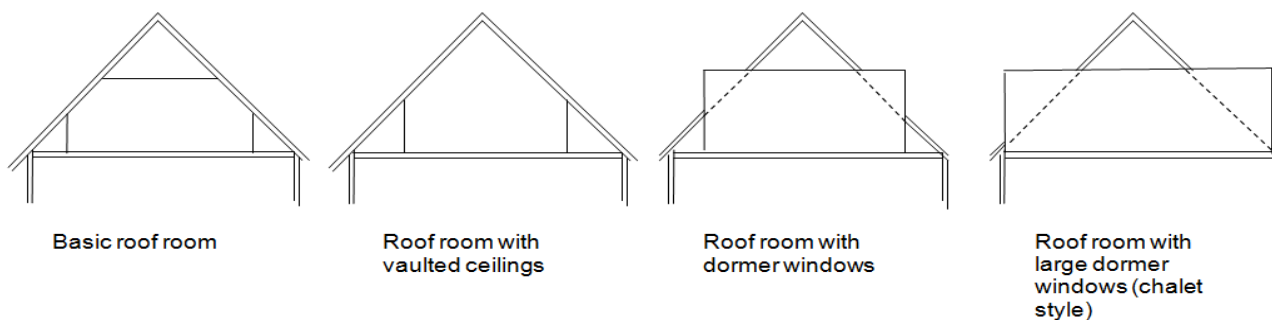
1. Room in the roof storeys must be accessible via a permanent fixed staircase (**not** a fixed step ladder), with steps that are safe to walk down facing forwards.
2. A room in the roof storey does not necessarily need to contain any habitable rooms, i.e. it can comprise only non-habitable rooms (such as a bathroom or storeroom).



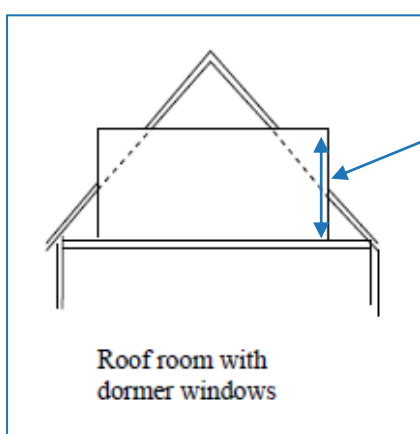
3. For a roof room to be classed as such and not a separate storey, the height of the common wall must be less than 1.8 m for at least 50% of the common wall (excluding gable ends or party walls). The common wall is a vertical continuation of the external wall of the storey below.
4. There is no explicit allowance for dormer windows except to include in the floor area of the roof rooms.



Here are some examples of a room in the roof:



So when identifying a roof room, the height of the common wall must be measured, not any internal stud wall or dormer faces at this point, as in the next diagram:



Do not measure the height of this dormer face as this is not the external common wall.

The photo on the right shows the gable end of the house. The dormer is clearly visible to the side of the roof.

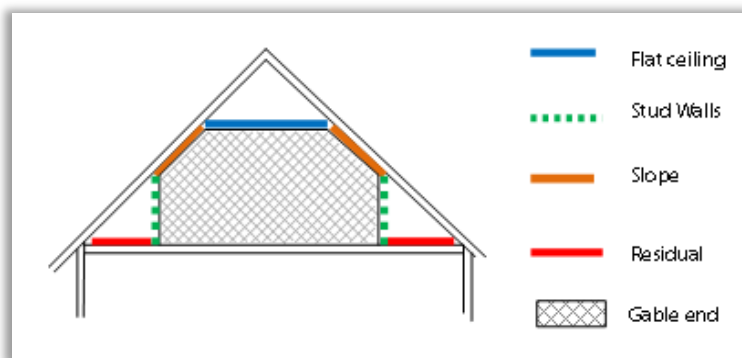


5. Detailed measurements

are required only if evidence exists that the slope/stud wall/gable walls have differing levels of insulation or their U-values are known.

6. If all elements of the roof room (slope/stud/gable) have the same insulation and the U-value is available, the U-value can be overwritten whilst leaving the RDSAP assumed areas as is.

7. Where **detailed measurements** (see point 5) are made and the floor area of the parts of the dormer windows protruding beyond the roof line is less than 20% of the floor area of the roof room, measure the elements of the roof room as if the dormers were not there. Otherwise total the vertical elements of all dormers in that building part and enter as stud wall and the flat ceiling elements as flat ceiling.



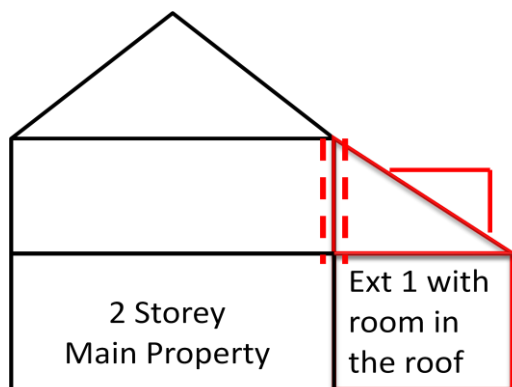
For example: (only applicable with scenario 6 above) The house pictured here has a relatively small roof room area, but a proportionately large dormer.



Its dormer is the same on the rear as can be seen on the front here.

When measured, the floor area of the roof rooms was 40m². Of that floor area, 20m² is within a dormer. In this instance, measure all of the vertical elements of the dormer and enter them as stud walls. Also enter the flat ceiling of the dormer and enter it into RdSAP as a flat ceiling.

A roof room can be "connected" only if there is another building part of the same dwelling with a storey (roof room or normal storey) at the same level; no assumptions are to be made about an adjacent property.



For Example:

The illustration on the left shows a property that has a room in the roof connected to the main part of the house.

2.07 Rooms within a 'Mansard Roof'

Issued March 2010



A 'Mansard Roof' is defined as being a storey, having non-vertical walls of at least 70° pitch from the horizontal, as in the photo on the left.

For RdSAP purposes, the first floor of this type of property would be entered as an alternative wall of timber frame.

Note: Rooms within a 'Mansard Roof' are not classed as room(s) in the roof.

2.08 Whole dwelling (or building part) within a roof

Originally issued March 2010, amended December 2012

How to enter a RIR flat.....?

Where a dwelling comprises only one storey which meets the room in the roof definition, the property cannot be entered as a 'Room in the Roof'. This normally applies only to flats as it is hard to conceive of a bungalow built with outside walls less than 1.8m high. So, when the property, or a building part of it, is a single storey entirely



located within a roof, RdSAP data entry must following the following rules:

- Enter the dimensions into the software as the “Lowest Floor”, **not** as “Room(s) in Roof”
- Enter the “Property Construction Type” as “Timber Frame”
- Assume an average ceiling height of 2.2m - it is not necessary to calculate the actual average storey height in these circumstances, as per the agreed convention
- The floor area and heat loss wall perimeter should be measured internally, to the point where heat losing walls are encountered. This is likely to be to the point where timber stud walls conceal cold loft spaces beyond.
- Enter the Roof Type as “Pitched (Slates/Tiles)” with insulation at “Rafters”, unless you have access to a flat ceiling above, in which case enter the depth of insulation at joist level.
- If there is a heat loss wall with anything other than timber frame construction (such as a gable end wall constructed from masonry), this will need to be entered as an “Alternative Wall”



Examples of this scenario include a flat located entirely within a roof or even a single storey room-in-the-roof extension to a dwelling which sits above a garage or car port

IMPORTANT NOTE: in the photo shown above, the top flat covers the two top storeys of this converted church. Both storeys are within the pitch of the roof. In this situation, the lower storey of this ‘duplex’ flat should be entered following the above guidance, allowing the upper storey to be entered as a normal RIR.

2.09 Porches

Issued September 2009

- Any heated porches are to be included within the assessment (separated or not)
- Any external porches that are not heated are to be disregarded from the assessment if separated from the dwelling by a door
- Any internal porches that are not heated but are thermally separated should also be disregarded from the assessment

2.10 Mezzanine Floor

Issued March 2010, amended October 2010

A mezzanine floor is an intermediate floor between the main floors of a building, often open plan to the floor below. The agreed convention for RdSAP purposes is to split the property into two parts: **Main Property** and **Extension 1**.

But how should this be split?

Part 1 – Main Property

The area of the property that comprises a main floor with the mezzanine level above should be treated as the main property, with the mezzanine floor being treated as another storey.



Part 2 – Extension 1

Any area of the property that does not include the mezzanine should be entered as Extension 1. This may include an unusually high storey height next to the mezzanine. The average floor to ceiling height will need to be calculated.

The mezzanine level may be a Room in the Roof (as shown in the photo below) and should be treated as such.

If the mezzanine is located such that it has no heat loss perimeter then assign a nominal 1 m perimeter to each floor of the mezzanine part and deduct 1 m from the heat loss perimeter of the other part.

2.11 Vertical Extensions

Issued March 2010, amended March 2011, December 2012

Where an extension has been built over part of the existing dwelling (or even over an existing extension), divide the part built over into two, one of which has “same dwelling above” and for the other describe the roof construction and insulation. Enter the new upper floor as an extension with “same dwelling below” and the building part underneath with “same dwelling above” as the roof description. It is possible for an extension to be both above and alongside the rest of the dwelling. Such building parts are not defined in RdSAP and in this case divide the extension into two, one above and the other alongside. A roof room cannot be a vertical extension in its own right.

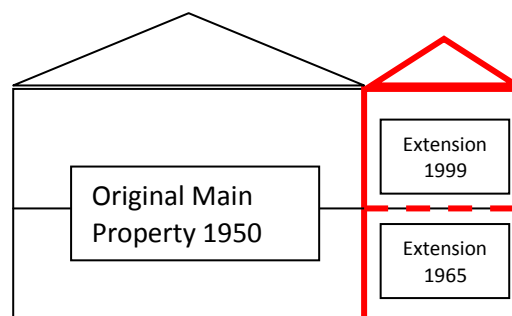
For example:

The diagram property should be entered in RdSAP as follows:

Main property - 1950 Walls/floor/roof as observed

Extension 1 - 1965 Walls/floor as observed
Roof – Same dwelling above

Extension 2 - 1999 Walls/roof as observed
Floor – Same dwelling below



2.12 More Than Four Extensions

Issued March 2010, amended March 2011

In RdSAP, an extension is any part of the dwelling that has different insulation standards or different structural characteristics (wall, floor or roof) from the rest. This may well be because the extension was built at a different time or it may be different because an occupant has insulated just part of the existing structure (as opposed to the whole property).



Entering the property as having an extension allows different levels of insulation to the walls, floor or roof to be accurately calculated.

If an extension shares the date band (different year, but same band), construction type and insulation standard with the main property, it does not need to be entered as an extension, it can simply be added to the dimensions of the main property as long as there aren't any other construction differences.

Where there are more than four extensions, it is necessary to combine parts of the building that have the most similar thermal performance to derive a "main property" and four "extensions". This normally relates to the differing date bands of the various parts of the dwelling, but not necessarily.

In order to match parts of the building accurately, it is advisable to refer to U-value table S6 contained in Appendix S of the SAP 2012 document. The Appendix S document can be found in the 'Document Download' section of the Elmhurst Members' Area.

2.13 Alternative Wall

Issued March 2010, amended January 2012, December 2012, April 2015 and August 2016



In determining whether an alternative wall is applicable, the significant features are construction type, dry lining, age band, insulation and whether sheltered by unheated corridor.

Walls of the same construction but different thickness within a building part are not considered alternative walls unless they are stone walls. Consolidate walls of the same type.

For stone walls assess the thickness at each external elevation and at each storey and use alternative wall if the thickness varies by more than 100 mm, see also 2.22.

Disregard an alternative wall when less than 10% of total exposed wall area of the building part (including windows and doors) unless documentary or visual evidence exists of different retrofitted insulation either of the alternative wall or of the remaining wall in the building.

This does not apply to a sheltered wall; treat a sheltered wall as an 'alternative wall' and always include it, even when its area is less than 10% of total exposed wall area. When entering an alternative wall area into software exclude the area of any windows and doors contained in the alternative wall.

If there are two areas of external wall of different construction types within a building part that should be regarded as alternative wall, review the way in which the property has been divided to try to eliminate this situation. Where that is not possible the alternative wall is the one with the larger area.

2.14 Window Area (Doors)

Issued March 2010, amended December 2012 and April 2015



In RdSAP what is a window and what is a door is defined by the area of glazing in relation to the area of the whole opening, i.e. door and frame. To be classed as a window a glazed door and frame must contain glazing amounting to 60% or more of its surface area. Generally, 60% or more glazing is likely to occur only in a patio door. However, a window with less than 60% glazing is not a door – a door always provides a means of entry to the property. See Convention 2.15. Where a door has less than 60% glazing this should be included in the door count and not within the overall window percentage.

2.15 Glazed Area

Issued March 2010, amended March 2011, April 2015

When entering the amount of glazing at any property, all windows, glazed doors and roof lights of the entire property, including any extensions (but excluding conservatories), are to be taken into consideration. The 'Conventions Group' has defined the following:

Typical (Normal) glazing applies when the surface area of glazing is typical for a property of that age, type, size and character. This status remains when there is up to 10% more or less glazing than would be expected for that property.

More than typical glazing applies when the surface area of glazing is approximately 15% to 30% more than typical for a property of that age, type, size and character. Perhaps due to the addition of a large sun room or numerous patio doors being added to the property.

Less than typical glazing is rare; however it applies when the surface area of glazing is approximately 15% to 30% less than would be expected for a property of that age, type, size and character.

Much More than typical and **Much less than typical** should be used for those dwellings with very unusual amounts of glazing; such as a glass walled penthouse flat or a Huf Haus. Due to this option allowing measurements of each window to be accounted for, it should also be used if a dwelling has a mixture of glazing types e.g. single, double, secondary and triple, or a mixture of glazing gaps. See convention 3.15



2.16 Secondary Glazing

Issued March 2010, amended March 2011

Secondary glazing is deemed to be; a single glazed window with fixings to allow for a secondary pane to be fitted to the existing frame (not cling film stuck over the frame). If secondary glazing has been removed from the windows at the time of inspection (most commonly for the summer season) it can still be entered as secondary glazing provided there is evidence that the glazed panels exist and can be re-fitted. If possible photograph the panels and record their existence in the site notes at the time of your inspection. Should an assessor encounter double glazing with additional secondary glazing, this should just be entered as a newer double glazing type (post 2002 in E & W, 2003 in Scotland or 2006 in Northern Ireland).

2.17 Sun Rooms

Issued October 2010, amended December 2012



For a highly glazed part of the dwelling, such as a sun room, which does not meet the criteria for a conservatory (50% of walls and 75% of roof glazed), in the majority of cases the correct data entry would be to treat the sun room as part of the main house (or extension, if relevant) and select the glazing option of 'more than typical'.

The 'more than typical' glazing option adds 25% to the total glazed area of the dwelling.

If you deem that this is not appropriate, it is acceptable to assess the window area using extended window data, by either:

- Entering the measurements of all windows and roof windows throughout the dwelling
- Entering the measurements of all windows and roof windows in the sun room, using Table S4 to obtain the window area of the rest of the dwelling, entering that as a single window with orientation east.

Whichever option you choose to use, it is essential that detailed site notes are taken.

To download a copy of Appendix S a copy may be found in the 'Document Download' section of the Elmhurst Members' Area.

2.18 Basements

Issued October 2010

Should you identify a basement during an inspection and that basement is to be included within the dimensions of your inspection, please ensure that you **do not mix internal and external measurements**.

If a basement is included in the assessment, internal dimensions should be used to measure the dwelling. For details of the definition of a basement, please review section 2.05 (also entitled 'Basements') of this document.



2.19 Store Rooms & Utility Rooms

Issued October 2010

It is not uncommon to come across a store/utility room at a property, however by following these three straight forward steps, it is now clear when you should ignore or include these rooms:

- If heated, always include
- If accessible only via a separate external door and not heated, disregard
- If directly accessible, not heated and thermally separated, disregard

Please note: An internal quality door does not provide thermal separation.

2.20 Garages

Issued October 2010

When a garage is heated from the main heating system of the house (e.g. boiler to radiators throughout the property and a radiator from that system has been identified in the garage), the garage should always be included within the floor area and heat loss perimeter.

The presence of a boiler within the garage does not make it heated; there must be a heat emitter from the main heating system present. It is strongly advisable to keep clear evidence and site notes of scenarios such as this.



2.21 Dwelling Adjacent to Commercial Premises

Issued March 2011, amended April 2015

How to treat a dwelling or part of a dwelling with a heated commercial premises either:

- Below – enter as having a partially heated space below
- Above – enter as having another dwelling above
- Adjacent – treat as a party wall

If a dwelling has commercial premises alongside it, treat the separating wall as a party wall

2.22 Wall Thickness (per building part)

Issued January 2012, amended December 2012, August 2014

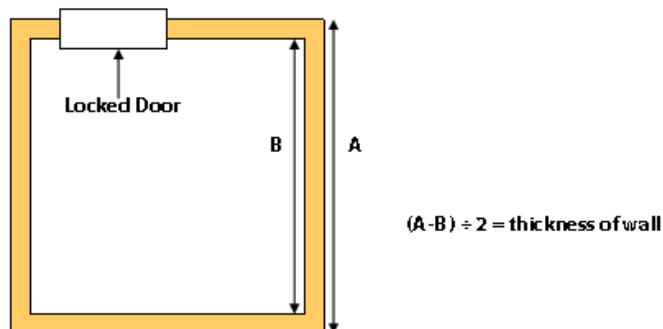
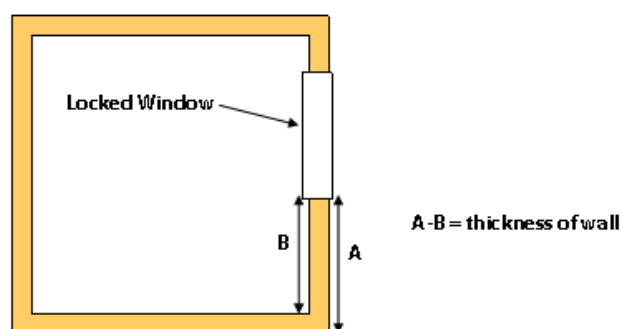


The wall thickness of all external (heat-loss) walls and alternative walls within a building part must be measured and recorded in millimetres (mm). Photographic evidence is required for each different thickness.

This is required to distinguish u-values for stone walls of different thickness and also to calculate internal measurements where assessors have chosen to measure externally.

Measure the wall thickness of each external wall elevation and any alternative walls within a building part. This will improve the accuracy of assumed wall U-values within the calculation methodology, leading to a more accurate SAP rating and subsequent recommendations.

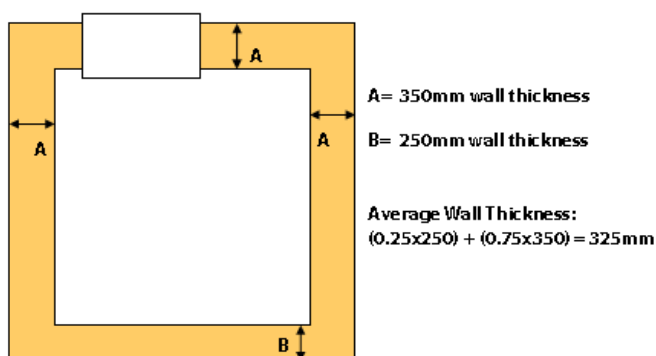
Wall thickness can normally be measured at window or door reveals. However, where this is not possible (e.g. windows are locked and cannot be opened), it may be necessary to use another method of identifying wall thicknesses such as internal/external measurement comparison or by counting bricks. The diagrams below provide further guidance in these situations:



On occasion, wall thicknesses may vary. In such cases, for the same construction, use the average of the measured value. The example here on the right shows a detached house with all walls of equal length, all being 350mm thick except one which is only 250mm thick.

To calculate the average thickness you could try the calculation shown on the right, or try:

$$350 \times 3 + 250 \div 4 = 325\text{mm}$$

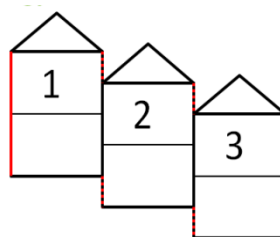


2.23 Sloping Sites

Issued August 2014

Background



Where an individual heat loss wall is not heat loss for its full height there is a new convention to clarify how to deal with these situations. This is most common where a property is positioned on a slope and is not fully flush with a neighbouring property.

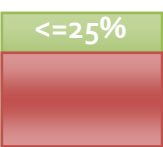


Convention

“Where an individual wall (elevation) is not heat loss for its full height (because of stepped arrangements either within the dwelling or between the dwelling and an adjacent one) obtain the “effective heat loss perimeter” for the individual wall as follows:

1. Where documentary evidence is available use it to calculate the wall’s heat loss area. Divide this area by the room height to obtain the “effective heat loss perimeter”.
2. Where documentary evidence is not available but the assessor is able to measure the heat loss area, this area is divided by the room height to obtain the “effective heat loss perimeter”.
3. If 1 or 2 is not possible, make a visual estimation and use these guidelines:

-  = Adjacent dwelling
-  = Subject dwelling heat loss



- a. if height of heat loss area is not more than 25% of the room height, the “effective heat loss perimeter” is zero (disregard as heat loss wall);



- b. if height of heat loss area is more than 75% of the room height, “effective heat loss perimeter” is equal to the actual heat loss perimeter;



- c. if height of heat loss area is more than 25% and less than or equal to 75% of the room height, the “effective heat loss perimeter” should be considered to be 50% of the wall’s actual heat loss perimeter.

4. If estimation cannot be made, use 3 c.

The “effective heat loss perimeter” of the individual wall is then included in the heat loss perimeter of the building part”.

2.24 Party wall lengths

Issued April 2015

To be recorded in all cases (except detached properties). A flat in a block having only an unheated corridor adjacent to it is treated as detached (no party wall)

3.0 Conventions – Construction and Insulation

3.01 Cavity Wall Type

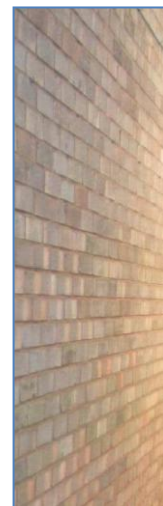
Issued March 2010

The average date of the introduction of cavity construction in most regions of the UK is early 20th century, although some regions adopted this methodology earlier to counter damp penetration from driving rain.

Early cavity walls may be found to have very thin cavities. They can be identified by stretcher bond brickwork but have a wall thickness little over 225mm (9ins).

The agreed convention is:

“.....Whenever a cavity wall is identified, regardless of the width of air gap, the construction type should be entered as a cavity wall.”



Note: If there are obvious signs of water penetration (not condensation) the recommendation for cavity fill may be suppressed.

3.02 System Build Type

Issued March 2010, amended January 2012, August 2014, April 2015

System build houses were most commonly built around the late 1940s to cope with a severe lack of housing following the Second World War. There are many types of system built properties, but they can all be defined as being pre-fabricated in some way.

Some are pre-cast concrete panels, some are steel framed, and some are poured concrete in their structure. Originally, many would have been built with a tin or asbestos roof, but either way, they were never intended to last this long and so were not designed to be structurally robust or durable. For this reason, the majority of system built homes have been altered, repaired or re-built at some point over the last 70 years.



However they were built or altered, it is important to undertake a thorough inspection of individual properties and keep notes of the structure identified. This will ensure any alterations at a particular property may be taken account of and any recommendations made will suit.



Those system build houses which are found to have an air gap within the wall structure may also be found to have had this air gap retrospectively filled with insulation. This option is not currently available within the RdSAP software.

When evidence of retro-fill insulation is present, the construction type must still be entered as system build. The added insulation is to be accounted for by selecting 'Internal Insulation' and including 'Addendum 1'.

See also convention 3.14 relating to high rise.

Timber frame should be recorded as such and not as system build, irrespective of the external cladding.

3.03a 'As built' (walls, floors, roofs)

Issued April 2015

Assume **as-built** if there is no evidence of retro-fitted insulation, including:

1. A pitched roof with sloping ceiling insulation or a flat roof with no documentary evidence
2. A roof with rafter insulation if no evidence of retro-fitted insulation
3. Roof rooms where there is no access and no documentary evidence

3.03b 'Unknown' insulation type (walls, floors, roofs)

Issued March 2010, amended April 2015, August 2016

This convention refers to unknown insulation type, **not** unknown insulation thickness.

Do not use the "unknown" option for insulation inappropriately as this automatically suppresses any insulation recommendation.

"Unknown" should be used only in exceptional circumstances, such as:

- When there is conflicting evidence (inspection and/or documentary) of added insulation whose presence cannot be ascertained conclusively
- For a fully boarded loft unless the householder has documentary evidence (maximum thickness is the depth of the joists) or is prepared to lift the boards
- Where there is a pitched roof and no access to the loft space or access prevented (see Convention 3.04) and no documentary evidence.



In these cases clarification must be provided in site notes.

Note: if the floor construction (not insulation level) cannot be determined, 'unknown' construction is appropriate.

3.03c Unknown Insulation Thickness

Issued August 2016

This Convention refers to unknown insulation thickness. 'Unknown insulation thickness' should be used only in exceptional circumstances, such as:

- Conflicting evidence of insulation thickness (visual and/or documentary)
- When you can see insulation present but cannot measure it

3.04 Loft Insulation and Rafter Insulation

Issued March 2010, amended March 2011, January 2012, August 2014, April 2015, August 2016

Where the loft is accessible, insulation should be measured and photo evidence provided of its thickness. 'No access' means there is no loft hatch or other means of gaining access to the loft space.



If there is a loft hatch or other means of gaining access but it could not be used on the date of the site visit (e.g. if it has been painted over, or an obstruction is preventing access for health & safety reasons) record as 'access, loft insulation unknown.'

If a loft is fully **obstructed** (e.g. boarded or obscured by stored items), enter 'pitched, access, loft insulation unknown' unless the householder has documentary evidence (maximum thickness is depth of joists) or is prepared to lift the boards **or remove the obstructions**.

When a modern foil or foam insulation (such as Kingspan, Tri-Iso or Celotex) is fitted at joists or rafters, the depth of insulation may be entered as an equivalent thickness of **double** the depth of its actual thickness. Record the presence of these products in site notes. **See also 3.07.**

When insulation is present at both joist and rafters, record only the joist insulation. (This is because ventilation in the roof void tends to nullify the effect of the rafters insulation), unless the rafter insulation has greater equivalent thickness in which case base the assessment on the rafter insulation only.

If the entire roof is insulated, but the depth of insulation varies across the roof, an area weighted average may be applied; however, if one part of the roof is insulated and another part is not, the property must be split into a main property and 1st extension in order to enter the different standards of insulation.

Partly boarded or obstructed lofts are treated as follows:

- ≤25% boarded/**obstructed**: treat as not boarded and record thickness of visible insulation
- >25% to 75%: divide into main and extension/s
- >75% treat as fully boarded/**obstructed**

In the case of a thatched roof for age band J onwards use 'as built' rather than rafter insulation if there is rafter insulation in addition to the thatch.



3.05 Age Band for Conversions

Issued March 2010, amended December 2012, August 2014

For a conversion which was a change of use (e.g. barn converted to a dwelling) or where a dwelling is sub-divided, use the original construction date, unless there is documentary evidence that all the thermal elements have been upgraded to the building regulation standards applicable at the conversion date.

Enter insulation levels only for those elements for which evidence is available.



Note: For subdivided dwellings, such as a large house split into flats, documentary evidence must be provided showing all thermal elements were upgraded to the building regulation standards applicable at the date of sub-division for the assessor to be able to select a more modern band than the original construction date.

See also convention 1.01

3.06 Internal Wall Lining

Issued January 2012, amended April 2015, August 2016

This convention applies only to stone, solid brick and cavity walls in age bands A to E. It is applicable when an internal lining of either plasterboard on dabs (also known as 'dry lining') or lath & plaster has created an air gap behind the lining. This air gap will create a small level of benefit to the overall wall u-value and when identified will result in a more accurate SAP rating. Internal wall lining may be identified by using a basic tap test, listening for plasterboard on dabs or battens. Where a tap test is inconclusive and no other evidence is available, do not record the presence of internal wall lining. **Dry lining alone does not confirm the presence of insulation.**

3.07 Insulation thickness

Issued January 2012, amended August 2016

The Convention says: **Any foam-type insulation can be doubled in thickness if there is documentary evidence of the type of insulation and manufacturer's information that the lambda-value (thermal conductivity) is less than 0.025.**

In practice, this means:



Multi-layered/Multi-foil Insulations - these are described as products that comprise two or more layers of heat reflecting foil. This is mixed with internal layers of thin wadding insulation or 'bubble-wrap' style layers. Each of these products would need to be identified before thermal conductivity could be ascertained. Manufacturer's specification sheets would be the best source of information.

NB: Multi-foil insulation is not the plump pillow-like bags of Rockwool-type material, which is encased in foil wrapping.

Where PIR-type foam insulation is installed to walls, floors, rafters or flat roofs, double the depth of the insulation measured should be entered into RdSAP as the thermal conductivity of these insulation types is far greater than standard board insulation or mineral fibre products.

Now the convention has been amended, we have researched the following lambda-values based on specifications of popular brands of insulation and our findings are as follows:



Rigid Polyisocyanurate (PIR) – brands such as Celotex, Kingspan, Xtratherm etc (**specified as suitable for floors, walls and roofs**) - **0.022 W/mk**

NB: Rockwool typically has a thermal conductivity value of 0.032 W/mk and is therefore NEVER doubled.

If there is both internal and external wall insulation add the insulation thicknesses together and enter as external.

3.08 U-value Entry

Issued January 2012, amended August 2014, April 2015, August 2016

The U-values of existing elements (walls/roofs/floors, etc) must be the RdSAP default values (e.g. entered 'as built') and NOT overwritten unless specific documentary evidence of the thermal conductivity of the individual materials of the building element of the property being assessed is provided AND was undertaken in accordance with the Conventions for U-value calculations – BR443 'Conventions for U-value Calculations' (BRE 2006).



To comply with this Convention, in order to overwrite a default u-value, sufficient documentary evidence is required and a copy or record kept for future reference (see convention 9.02). Sufficient documentary evidence is deemed to be:

- Relevant Building Control approval, which both correctly defines the construction in question and states the calculated u-value, or,
- A u-value calculation produced or verified by a suitably qualified person. To be deemed suitably qualified, a person should hold an OCDEA qualification (England & Wales and Northern Ireland), **Level 4 Non-domestic Energy Assessor membership**, or be a member of a recognised calculation competency scheme (BBA/TIMSA (UK)) or any **other process recognised by** Accreditation Schemes/Approved Organisations and Government.



Important Note: U-value calculation certificates must include the address of the property to which the calculation relates. Remember, the u-value must be the u-value of the whole element (e.g. not just the glazing in the case of windows), including any added insulation.

U-values for sheltered walls should not include a shelter factor, since it is added by RdSAP.

The assumed insulation thickness or U-values from the tables in the current edition of SAP (e.g. Table 6e for windows) or RdSAP (e.g. Table S10 for roofs and Table S15A for doors) can also be treated as documentary evidence provided that the evidence on which it is based is demonstrably robust (e.g. in relation to the age band for Table S10 or S15A).

Where it is known that only part of an element has been insulated, use the alternative wall if possible for the insulated part, or use extensions.

Note: The RdSAP software makes U-value assumptions regarding all building parts that have been input based on the date band entered by the assessor (for walls, floor and roof when 'as built' or 'unknown' have been entered). This convention has been created to enable assessors to accurately reflect any known U value differences where evidence is available that is 'demonstrably robust'.

Example: An end terraced house built in 1902 with solid brick walls has suffered structural damage at some point and has had the gable end wall replaced with a cavity wall in 1985. The gable wall would have to be entered as an 'alternative' cavity wall, however, if the assessor can evidence paperwork (building control, builders receipts etc) that the wall was replaced in that date band then the assumed U values can be amended to match that of a cavity in 1985, (rather than the software assuming a 1902 cavity U value).

Please refer to Appendix 'S' for all the U-value tables.

3.09 External Doors

Issued January 2012, amended December 2012, April 2015

An 'external door' is defined as any door which forms part of the heat-loss perimeter of a property. Doors to heated access corridors are **not** included in this door count. Highly-glazed doors are also treated differently (refer to Convention 2.14).

A door to an unheated access corridor is part of the sheltered wall. If there is a second door in the property it is directly to the outside.

It is possible for a property to have no external door in the RdSAP data set (when any entrance to the property is via patio doors with more than 60% glazing which are counted as windows in SAP, or via a heated corridor).

Note: This convention does not change the way we count doors, this convention is clarifying that where an alternative sheltered wall is entered the software will take into account the presence of the door and any other doors will be assumed to lead directly to outside. Therefore doors within an unheated corridor should still be included within the overall external door count.

A door is counted as insulated only if documentary evidence is provided and this evidence must include a note of the u-value or manufacturer reference which will enable the assessor to ascertain the u-value from the manufacturer. If there is more than one insulated door and they have differing u-values, the average u-value should be entered into the software.

Note: A multiple door should be recorded as such (e.g. a double door should be counted as 2 doors).

3.10 Windows (U-values and g-values)

Issued January 2012



The u-values for windows in RdSAP are defaulted from Table 6e in the SAP 2012 document and these u-values are assessed for the whole window, not just the glazing.

Where documentary evidence exists, the u-values & g-values of windows (of the whole window, including the glazing and frame) may be overwritten. Sufficient evidence is deemed to be either the manufacturers' data or a Window Energy Rating Certificate, as defined by BFRC.

3.11 Draught Proofing (of openable windows and doors)

Issued January 2012, amended December 2012

When assessing the level of draught proofing at a property, all external doors and at least two windows designed to open must be inspected within each building part, including any non-separated conservatories. Should a window be inaccessible or locked, another window should be inspected, where possible.

If all windows/doors are locked and the draught proofing cannot be ascertained, the assessor should assume double, triple and secondary glazing as being draught proofed and single as not draught proofed.

'Static' windows which have been designed without a casement or opening 'pane' should **not** be included in the draught proof calculation. The percentage of openable draught proofed windows/doors is entered into RdSAP, and can be calculated as follows:

(Number of draught proofed openable windows/doors) divided by (total number of openable windows/doors) x 100

3.12 Glazing Age

Issued August 2014, amended April 2015, August 2016

For double glazed windows, the year of manufacture can often be found either on the spacer bar at the edge of the glazed unit, or the year is stamped into the frame.

Choose 'Double Glazing with unknown install date' if there is no evidence of the date (on spacer bar or frame or documentary evidence such as a FENSA certificate or manufacturer guarantee).

Note: Where it is clear a double glazed window is pre FENSA regulations then the older date band can still be selected (e.g. pre 2002 in E&W), if it is clear the windows are newer (either by visual inspection or by occupier confirming) then the glazing age convention must be followed.

An image showing the gap between panes is not sufficient to infer the glazing age. If no evidence is available, such as a visible date stamp or FENSA documentation, use the building age as the default.



For example, if the property has been built during or after 2002 (to a minimum of 2002 building regulations) then it can be assumed that the windows installed are newer.

3.13 Age Band for Roof Room

Issued August 2014, amended August 2016

Room in the roof date band is the same as the building part underneath unless evidence proves otherwise. Evidence includes documentary evidence (e.g. planning applications) dated photographs of the property concerned validating date of construction (the evidence might establish the earliest possible date of construction if the roof room is absent in the photograph, for example).

An ideal item of documentary evidence would be a Building Control Completion Certificate although other forms of evidence may be acceptable if they provide proof of the date of conversion (remember any photographs provided by the homeowner must be dated to be acceptable as date-of-build evidence if they show the conversion in progress).



** Important note – assessors must always provide evidence of the roof room age when the selected date band differs from the building part below. If the required evidence is not available, the roof room age should be declared as being the same date band as the building part beneath**

Note: See also convention 9.02 for further guidance on what is acceptable documentary evidence.

3.14 High Rise Properties

Issued August 2014, amended April 2015

High rise properties (greater than 4 storeys) built with non-traditional construction methods (i.e. not timber frame, solid brick, cavity brick, stone) are deemed to be system built and should be recorded as such.

For high rise properties built during or after 1967, that have a cavity/stretcher bond exterior wall, enter the wall as 'Cavity Wall' and Select 'Access Issues' in Hard to Treat Cavities addenda, and include Addendum 1, 'Wall type does not correspond to options available in RdSAP'.

If the high rise property has multiple exterior wall types of cavity and other constructions, e.g. concrete panels, record the construction as system built and deal with the cavity wall following convention 2.13, Alternative wall.

If a cavity wall is entered as an alternative wall, follow 1-3 stated above.

For high rise properties with cavity walls and evidence of retro cavity fill, record as 'Filled Cavity' and include Addendum 1.



3.15 Glazing Gap

April 2015, Amended August 2016

This is the width of the spacer bar between the two panes of glass. It is required for windows with PVC frames pre 2002 or unknown (this option will not be available in the software for non-PVC types) **when that is the most prevalent type of window.**

Select the nearest value to 6, 12 or 16 mm. If you cannot easily identify the value, select either 6 or 16mm.

Where a mixture of glazing gaps or glazing types are present, all window **areas** should be measured (and entered using the 'much more/much less than typical' option.)

If there is a mixture of PVC and non-PVC frames record the frame type according to which is more prevalent.

Note: Refer to Technical bulletin 53 (TB53) for more information on glazing gaps. (page 12)



3.16 Party Wall Construction in Loft Space

Issued April 2015

The essential property to identify is masonry construction with a cavity which could be filled. Solid masonry and other constructional types are classified as "solid masonry or timber frame or system built".

The primary method of identification is from a view of the party wall within the loft space. With brickwork, solely stretcher bonds indicate cavity construction while stretchers and headers indicate solid wall construction. A solid block-work wall has blocks laid flat; the pattern looks like stretcher bond but the unit size is much larger. Note that it is only the construction in the loft space that is relevant; a cavity wall can separate the dwellings themselves but change to solid in the loft space.

Where identification is not possible or there is the construction is indicated as "unable to determine".

The party wall should be indicated as filled cavity only where it is known to have been filled (otherwise select 'cavity unfilled'.)

Where a property is divided into two or more building parts the party wall is assessed for each building part bounded by a party wall.

If there are two party walls in a building part where one can be determined but not the other (e.g. one to a heated corridor and one to another dwelling) or the constructions differ, divide into two building parts. (if 'unable to determine' in a flat/maisonette RdSAP assumes no party wall loss.)

Note: Refer to Technical bulletin 53 (TB53) for more information on how to collect information on party walls. (pg.7)

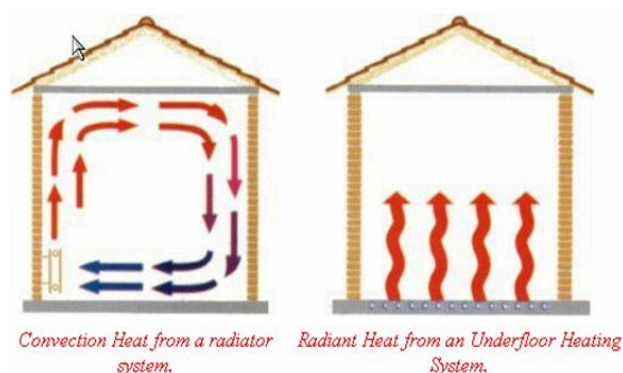
4.0 Conventions – Main Heating

4.01 Heat Emitters

Issued September 2009, amended January 2012, April 2015

If one main heating system is a "wet" system (i.e. utilising hot water to distribute the heat), the software requires the assessor to indicate whether the delivery is to radiators or to underfloor pipework.

Where one heating system feeds radiators and an underfloor system, radiators must be selected as the heat emitters. This is because the presence of some radiators in the system will require the boiler to deliver at a higher flow temperature. (Unless flow temperature is known)



Where known the design flow temperature should be entered for condensing boilers and heat pumps. This applies to both radiators and under floor systems.

The design flow temperature for condensing boilers and heat pumps should be recorded as unknown unless there is documentary evidence that the system has been designed and commissioned as a low temperature model.

4.02 Storage Heaters

Issued September 2009, amended March 2010, amended April 2015

Storage heaters will generally be easy to identify. Overnight, these appliances take advantage of the off peak electricity rate and charge by heating the internal storage bricks. A dual rate electricity meter is therefore necessary at this property.

Note: If storage heaters are identified but the dwelling does not have an off-peak electricity supply, the heaters should be entered into RdSAP as direct acting “Panel, Convector or Radiant Heaters” (Code REA) and Addendum 6 should be selected. If those storage heaters (as in the above scenario) are fan assisted or high heat retention, the recommendation for high heat retention storage heaters should be suppressed.



A storage heater can be classified as high heat retention only if located in the database. If there are both high heat retention storage heaters and other types, treat as two main heating systems.

4.03 Boiler Not Present or Not Working

Issued September 2009

- If a heating system is **fitted/installed** but it is anticipated that the system is not operable due to disrepair, it should still be entered into RdSAP due to an agreed convention that all heating systems are capable of repair, even if a like for like replacement is necessary. This also applies to heating appliances that display “Condemned” stickers.
- If a property has no heating system present at all on the day of inspection, you must select the main heating code ‘**NON**’. This assumes the use of portable electric heaters and will also automatically enter a control code indicating no thermostatic control. It will also read in the Summary of the final EPC that there is currently no heating system at this property. NB: Selecting ‘0’ at the point of heated habitable rooms input will automatically populate the heating system with ‘NON’ and the software will assume that the dwelling is heated via portable electric heaters.
- If a boiler or other heating system is missing at the time of inspection, enter that no heating system is present (as above). **If the boiler is not ‘fitted/installed but is intended – enter ‘no heating system’.** Do not rely on claims by an occupier or owner that the boiler or other system is “on order”. If necessary an updated EPC can be produced after the boiler is fitted.

4.04 Micro CHP

Issued September 2009, amended March 2011

Micro CHP systems are gas boilers (although they are actually a “Sterling Engine”) that produce a small output of locally generated electricity (typically 1-2 kWh) as well as hot water for space heating and DHW (Domestic Hot Water).

It is likely that these appliances will form part of the RdSAP methodology in the future, but at present all that assessors can do is: enter the appliance as a **gas condensing boiler** and select **Addendum 5** to explain the circumstances in the EPC.



4.05 Definition of Community Heating

Issued September 2009, amended April 2015

Community heating, also known as group or district heating, is a system in which a heat generator provides heat and/or hot water to more than one premises. Each dwelling supplied by the system is to be assessed individually.

Note: A simple boiler serving more than one dwelling is also classed as Community Heating. It is not necessary for the boiler to be a specialist installation. If the heat generator is in the dwelling, it is entered as the heating system for that dwelling, i.e. if a boiler is situated in a property but the boiler also supplies another dwelling it is simply input as the boiler type (rather than as 'community heating'.)

If the heat generator is not in the dwelling, it is entered as 'community heating' in the software.

4.06 Heat Sources and fuel used by Community Heating

Issued September 2009, amended April 2015

RdSAP 9.92 includes the facility to enter a community scheme network number from the PCDF database. Where the community scheme can be identified in the community network database, it is to be selected. If there is more than one data record only the current record can be used.

Otherwise, where PCDF details are not known, the community heating system should be entered as a generic option in the RdSAP software, although ascertaining the fuel type can be difficult in some cases. Assessors should try to establish what fuel is present, if this is not possible then select Mains Gas.

4.09 Two Main Systems

Issued March 2011, amended January 2012, amended April 2015, August 2016

If second main heating system is used only for domestic hot water see Convention 6.04

The first thing to establish is what constitutes the main heating system. Usually this is very obvious (e.g. a boiler in the kitchen and hot water radiators in all rooms) but sometimes it is not so clear.

A main system is generally one that would be described as central heating (a heat generator providing heat to several rooms via a heat distribution system), but the term 'main' does also include things such as storage heaters and fixed direct-acting heaters in each room.



There is guidance in SAP 2012 'Appendix A' stating how to determine the main heating system. It reads:

If there is a central system that provides both space and water heating and it is capable of heating at least 30% of the dwelling, select that system as the main heating system. If there is no system that provides both space and water heating, then select the system that has the capability of heating the greatest part of the dwelling. For this purpose only habitable rooms should be considered (i.e. ignore heaters in non-habitable rooms). If there is still doubt about which system should be selected as the main system, select the system that supplies useful heat to the dwelling at lowest cost (obtained by dividing fuel cost by conversion efficiency).

RdSAP now has an option for two main systems. This will cover the occasional situation where different heating systems heat different parts of a dwelling. To identify which system should be entered, the percentage of the floor space of the dwelling served by each system needs to be specified.

Where there are two main systems, these conventions determine how the two systems should be entered:-

1. System 1 always heats the living area
2. When both systems heat the living area, main system 1 is the one that heats the most habitable rooms
3. When both systems heat the same number of habitable rooms, main system 1 is the system that provides water heating
4. When neither or both main heating systems heat water, main system 1 is the system which is cheapest to run (fuel cost from SAP Table 12 divided by the efficiency of heating system).

Clarification notes:

1. If main system 1 heats all habitable rooms, main system 2 can be ignored unless it serves domestic hot water
2. Main systems 1 and 2 cannot be room heaters except where the dwelling's heating is provided by room heaters only.
3. Multiple types of storage heater: If there is more than one type of storage heater present in a dwelling (old large-volume, fan assisted, integrated storage/direct acting, high heat retention) treat as two main systems. If then main system 1 or main system 2 has more than one type, choose the **most prevalent**.
4. When there are two main systems, system 1 is that which heats the living area irrespective of the percentage of floor space it serves. On entering two systems into RdSAP, the percentage of floor area should be entered proportionately to the floor area served by each system
5. Where two systems serve the same heating circuit (such as a heat pump for the entire property, with a back up oil boiler for the same circuit) the default assumption should be a 50/50 percentage split. A different ratio can be used, but only if there is clear documentary evidence to the contrary.
6. When there are two main systems and a recommendation is made for heating system upgrade, include addendum .
7. If there is more than one main heating system within a room, select one of the systems in accordance with the rules in SAP 2012 'Appendix A'. The other heating system should be disregarded



A second main system is not to be confused with a secondary heater. See section 5.01 to 5.03 for rules on secondary heaters. The latter are room heater(s) heating individual room(s) either as a supplement to the main heating in the room (e.g. a wood burning stove in the main room) or for rooms not heated by the main system(s). If there are more than two main heating systems, use the rules as described for determining main system 1 and 2 and disregard the third.

4.10 Liquid Biofuels

Issued March 2011

This convention relates to the following fuel types:

B30K Oil – a blend of 30% cooking oil and kerosene (regular heating oil). More expensive but with lower carbon emissions than pure kerosene.

Bioethanol – distilled from any biomass source.



4.11 LPG Subject to Special Condition 18

Issued March 2011

In addition to the new biofuels being added to RdSAP codes, 'LPG Special Condition 18' has also been added. This is described as being; large bulk supply LPG, under special contracts, and operating in defined geographical areas including Stornoway (Scotland), Llanfyllin (Wales) and Colden (England). Under such a contract, the LPG is charged at the same price as mains gas.

Note: Only apply this code if documentary evidence exists which confirms that the property receives LPG at mains gas prices.

4.12 Straw Bales and Other Biomass

Issued December 2012

Straw bales and other types of biomass fuel that are currently not available within the RdSAP software should be selected as **wood logs** and include addendum 12.

Addenda	Circumstances	Addendum text on EPC
12	Dwelling is using a biomass fuel that is not in the RdSAP fuel options	The dwelling uses a type of fuel that is not included in the available options. The nearest equivalent fuel type was used for the assessment.

4.13 TRVs

Issued August 2014, amended April 2015, August 2016

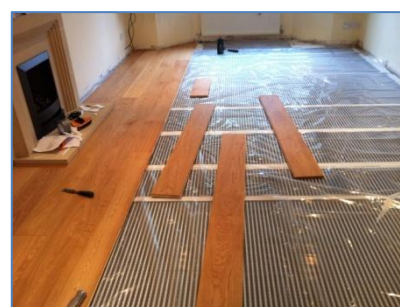
Include when on 50% or more of the radiators (**all radiators, not just those in habitable rooms**).

4.14 Electric Heating Appliances

April 2015, amended August 2016

Electric underfloor heating mats are often installed underneath laminate flooring or ceramic tiles, and provide fast heating in comparison with other types installed within the fabric of the building.

If electric underfloor heating mats or infra-red heaters are present in a property, treat them as electric panel heaters in RdSAP.



4.15 Electric CPSU

Issued April 2015

An electric CPSU uses 10-hour or 18-hour tariff. If the CPSU is on a 7-hour tariff treat as a water storage boiler. If on single-tariff record as direct-acting electric boiler.

4.16 Weather compensators

Issued April 2015

Included only if located in the PCDF database.

Note: Refer to Technical bulletin 53 (TB53) for more information on weather compensators. (pg.18)



4.17 Time and Temperature Zone Control

Issued April 2015

Time and temperature zone control is either:

- a. Separate plumbing circuits, either with their own programmer, or separate channels in the same programmer **or**
- b. Programmable TRVs or communicating TRVs that are able to provide time and temperature zone control (conventional TRVs without a timing function provide only independent temperature control). In this case the device must be located in the database



In both cases, subject to conditions in SAP 2012 9.4.14 (pg.30)

In the case of direct-acting electric systems, including under-floor heating, it can be achieved by providing separate temperature and time controls for different rooms.

Note regarding this convention:

Refer to Technical bulletin 53 (TB53) for more information on time and temperature zone control. (pg.17)

4.18 Central heating pump age

Issued April 2015

This applies to a separate pump only, not within boiler. Record age as 'unknown' if cannot be seen (including pumps within the boiler). Age is 2013 or later if it has a label stating the EEI (energy efficiency index); otherwise it is 2012 or earlier.



Note regarding this convention:

Refer to Technical bulletin 53 (TB53) for more information on central heating pumps. (pg.15)

4.19 Heating Controlled by mobile app

Issued August 2016

Heating controls adjustable via a mobile app only, where there are no visible controls in the dwelling are not included in the assessment, i.e. enter 'no time or thermostatic control'.

5.0 Conventions – Secondary Heating

There are several circumstances that require a secondary heating system to be entered:

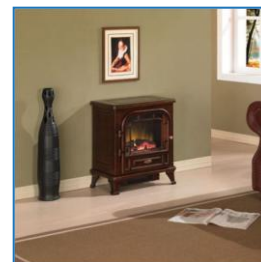
- A secondary heating system must be entered if a fixed heater is present in a habitable room of the dwelling, even though that room might be heated adequately by the main heating system. This is quite a common scenario in living rooms served by the central heating system but also fitted with a “focal point” secondary heater such as an open solid fuel fire, a gas fire or an electric fire fixed to the wall or fitted into a fire surround.



Note 1: If the main heating system heats all habitable rooms adequately, and no secondary heaters are present, there is no need to specify a secondary heating system.

If a secondary heating system is required the following guidance should be adopted:

- Enter a room heater code (those starting with an R) taken from the tables in Appendix F of the Elmhurst RdSAP Manual. Note that “central” heating codes, e.g. boiler codes or storage heater codes cannot be entered as the secondary heating system code.
- If there are two or more secondary systems present serving various habitable rooms, the one heating the majority of rooms should be chosen.
- If two or more secondary systems serve equal numbers of habitable rooms, choose the one using the lowest cost fuel. If they are served by the same fuel choose the appliance that is the least efficient.
- If there are some unheated habitable rooms and no form of secondary heating in any of the heated habitable rooms but a room heater is present in a non habitable room (e.g. a hall, landing or kitchen) select that heater as the secondary heating code for the dwelling. Otherwise the software will assume portable electric heaters.



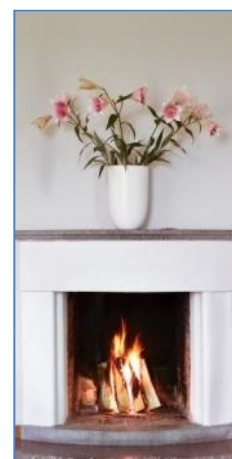
Note 2: An electric fire serving as a focal point in a room (e.g. located in the fireplace) is regarded as a fixed heater, even if not wired to a permanent spur (i.e. even if just plugged into a regular socket), and must therefore be included in the assessment as a secondary heater.

Note 3: When a secondary heating system is entered, the software assumes a fixed proportion of the dwelling is heated by that system, irrespective of the actual proportion heated by that system. The proportion assumed to be heated by the secondary heating system varies in relation to the type of main heating system. The software assumptions as to the proportion of the dwelling heated by the secondary system are set out in Table 11 of SAP 2005 and are typically 10-20% of the dwelling.

5.02 Open Fireplaces as Secondary Heaters

Issued March 2010, amended October 2010

This convention clarifies when an open fireplace is to be regarded as a room heater and when it is to be disregarded.



1. A fireplace is a room heater if there is an open flue connected to it and a fire burning grate is present, irrespective of whether or not the fireplace is being used by the current household. This may be the secondary heating system, dependant on the standard rules for choosing the secondary heating system.
2. However any such fireplace located in a bedroom is not regarded as a room heater (because in practice it is very unlikely that anyone would ever light fires in bedrooms) and so, they should be disregarded when identifying the main and secondary heating type as well as counting the number of heated habitable rooms.
3. When an open fireplace is the only fixed heat emitter in a bedroom, this bedroom is NOT to be counted as a heated habitable room.

Note 1: The ventilation provided by fireplaces in bedrooms should still be counted within the 'Number of open fireplaces' in Section 10. of RdSAP data entry if they are fully open from fireplace to chimney.

Note 2: The fuel to be specified is smokeless fuel in smoke control areas and dual fuel outside smoke control areas.

5.03 Fuels for Solid Fuel Fires and Room Heaters

Issued October 2010

When you come across a solid fuel fire or stove that you wish to enter as either the main or secondary heating, but there is no fuel present to indicate the fuel type used, which fuel type should you enter?

If it can burn only one fuel, specify that fuel (includes exempted appliances burning wood in Smoke Control Areas), although this is not always immediately obvious to identify.



Otherwise:

- If the property is within a smoke control area, enter a smokeless fuel for an open fire or enter anthracite for a closed heater *or*
- In any other areas (not smoke control), enter dual fuel for an open fire and dual fuel for a closed heater (if capable, otherwise use anthracite).

6.0 Conventions – Water Heating

6.03 Dual Immersion with Single Tariff

Issued October 2010, amended March 2011

It has been agreed that when a dual immersion water heater is identified, but only a single rate electricity meter is present, the water heater should be entered as a single immersion and Addendum 6 should be selected.

6.04 Separate Boiler or Heat Pump for DHW

Issued March 2011, amended April 2015

Sometimes there is a separate boiler or heat pump providing domestic hot water (DHW) only. A generic boiler can be selected from the water heating options. If the boilers or heat pumps are located in the database then

specify two main heating systems with:

- Main heating system 1 is the one providing space heating (e.g. 100% of heat)
- Main heating system 2 is the one providing DHW (e.g. 0% of heat)

The RdSAP software will then realise that main heating 2 is serving 0% of space heating and will therefore assume water heating only.

6.05 Enclosed hot water cylinders

Issued August 2014, amended April 2015

For an unvented pressurised steel-encased hot-water cylinder (e.g. Megaflo), treat insulation value as 50 mm factory-applied foam and assume cylinder stat is present.



For Elson (wooden box) type record actual insulation thickness (or 'no access' if not visible) and check for the presence of a cylinder stat.

6.06 Hot water thermal store

Issued August 2014

Treat as a cylinder. (i.e. if steel encased follow convention 6.05 above.)

Note: This is no change to Elmhurst's current guidance.

6.07 Hot water cylinderstat

Issued April 2015

Include only when mounted on the side of the cylinder and has an electrical connection.

Note: this means that a TRV installed next to a cylinder is **not** counted as a cylinderstat.



6.08 Instantaneous water heater

Issued August 2016

Enter these as instantaneous water heaters (Model shown [right]-Electric - code HES) if they store only a small volume of water. A 'small' volume means less than or equal to 55 litres. If the storage volume exceeds 55 litres, specify an immersion heater. If a small volume model is fuelled by gas, enter as a boiler/circulator for water heating only (HGB) or multi-point gas water heater (HGM) depending on the type present.



6.09 Electric Shower

Issued August 2016

If the only water heater is an electric shower, specify as 'electric instant water heating' – code HES

7.0 Conventions – Lighting

7.01

Issued September 2009, amended August 2014, August 2016

- Include only fixed fittings – this included fixed under-cupboard kitchen strip lights.
- LEDs are considered as low energy lights.
- Where there are 4 or more recessed downlighters / ceiling lights divide the bulb count by 2.
- The number of light fittings is counted (not the number of bulbs, e.g. a chandelier is one fitting)
- If no lamp is present: do not treat as a low energy outlet unless it can be fitted only with a low energy lamp.



Lights

8.0 Conventions – Recommendations

8.01 Suppression of Recommendations

Issued September 2009, amended December 2012

The software will generate standard text recommendations based on the data entered and will automatically include them in the energy report if it calculates that the recommendation will make a significant improvement in the energy rating.

The assessor is able to remove recommendations from an energy report (EPC) but should only do so when **documentary** evidence that a specific recommendation is not appropriate.

If recommendations are removed from the report the reason for removal must be recorded in your site notes.

The EPC now contains caveats to the effect that further guidance on specific recommendations should be sought from appropriate professionals, e.g. heating engineers, trade associations, Building Control Officers and product manufacturers. So assessors need not be overly concerned about their liability for the recommendations in an EPC. In particular, the fact that a property is a Listed Building or located in a conservation area is not sufficient reason on its own to suppress recommendations.



8.02 Mains Gas Available

Issued September 2009, amended March 2010

If mains gas appliances have been identified earlier in the data entry, this question is automatically completed as mains gas being available.

The agreed convention is that there must be a gas meter in the property for mains gas to be described as available. This question is not asking if mains gas is available in the area, in the road or even available as a gas pipe terminating in the property with gas meter removed (see photo).

If a gas meter is available the software may recommend changing non-gas heating and hot water supplies to gas fired systems in the EPC.

Only enter Gas Mains into RdSAP if there is a gas meter or a gas mains burning appliance (e.g. gas cooker) within the property. A closed off gas pipe does NOT count.



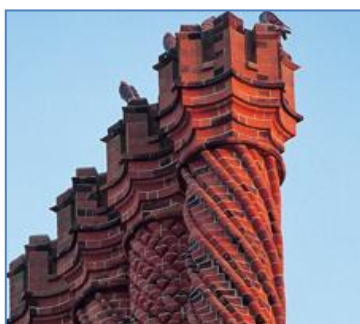
“Where a boiler is identified as being present and installed (connected to the full heating system) at the property, but the gas meter has been removed for security reasons, enter the boiler as the main heating system and indicate that gas mains is available.”

Note: As gas mains make such a significant difference to both the SAP rating and the recommendations, inspection site notes should clearly detail assessor’s findings at a property in this situation.

9.0 Conventions – Miscellaneous

9.01 Open Fireplace Count (for ventilation)

Issued March 2010



When identifying what constitutes as an open fireplace, the following points should be used as reference:

The definition of an open fireplace is “.....a vertical duct with a flue diameter of at least 200mm, or its equivalent.”

All open chimneys and/or open fireplaces that meet this definition should be counted and included within Section 10 of RdSAP, irrespective of which room they are in.

However, fireplaces do not count as being “open” in the following circumstances:

- A flue that has been permanently closed off and sealed, even with an air brick
- An open flue that is less than 200mm in diameter
- An open flue fitted with a flexible gas flue liner
- A heating appliance with controlled air flow, such as a mechanical damper or closing doors



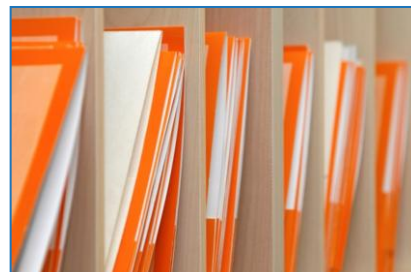
During inspection, it is not uncommon to come across a temporarily sealed fireplace, with a newspaper or old curtain being used as a bung. These are not permanent and so do not constitute a viable reason to disregard an otherwise open fireplace from the count.

Note: This question in RdSAP relates only to the number of open fireplaces as it affects the ventilation rate assumed for the calculation of RdSAP. See also Convention 9.01.

9.02 Documentary evidence

Issued March 2010, amended August 2014, April 2015, August 2016

Sometimes evidence of insulation may not be visible. However, documentary evidence may be offered by a owner. The following are deemed to be acceptable (but not limited to) documentary evidence:



- ✓ Official letters from the applicable RSL (Registered Social Landlord)
- ✓ Certificates
- ✓ Warranties
- ✓ Guarantees
- ✓ Building control sign-off documentation/sign-off from anybody else, including RSLs

The assessor must be confident that the documentary evidence is valid and be able to demonstrate that it relates to the actual property being inspected and that there is no physical evidence to the contrary.

Evidence of intent to install does not qualify as acceptable documentary evidence (e.g. a receipt for a boiler that is intended to install after the inspection)

9.03 Lodgement of an Incorrect EPC

Issued March 2010

Once an EPC is lodged it cannot be edited or deleted. However, DCLG appreciate that there are certain scenarios where this may cause a problem, namely:

- i) The EPC is lodged against the wrong UPRN
- ii) The property address on the EPC is incorrect
- iii) A software issue has caused the EPC PDF file to become corrupted
- iv) The assessor has made an error in the data entry

If an EPC is incorrect, for whatever reason, it is possible for an accreditation scheme to invalidate the EPC by changing its status to 'Not for Issue' at the Central Register. However, the survey must be re-submitted within 14 days with the correct details. Any future searches for such EPCs are then directed to the correct, re-lodged EPC.

Should you wish to invalidate an EPC, please submit the following information via a link found [here](#):

- ✓ Name, Surveyor ID and contact details for the assessor
- ✓ RRN of the incorrect EPC
- ✓ Confirmation that the EPC is to be invalidated
- ✓ The reason it is incorrect
- ✓ Confirmation of the re-lodgement and the associated RRN



9.04 Cooling System Present

Issued March 2011

This convention agrees that only a fixed cooling system should be included. Any reversible heat pumps are not classed as a cooling system as it would already be entered as a heating heat pump system and should not be duplicated.

9.05 Photovoltaics

Issued March 2011, amended January 2012, April 2015, August 2016

RdSAP assessors are able to indicate PV output more accurately if the relevant information is available to them.

The options are:

- None
- Panel Details
- % of roof area



If 'Panel Details' are selected, additional data entry fields will be presented by the software:

- **PV Cells kW Peak**
 - The measure of Kilowatt peak output (kW/p) identified. Look for a schematic wiring diagram which may be adjacent to the electricity meter or the consumer unit, (it may also be found in the loft in some installations) or the presence of an MCS certificate, either of which should state the peak power (kWp) of the PV array. Please note that the **gross figure** is the one required for data entry, **not** the net figure. The homeowner should have a handover pack for the system if it was installed by a registered MCS installer, which will contain documentation confirming the size of the array. If a data sheet for one of the panels is present, this can be multiplied by the number of panels on the roof to obtain the kWp figure.
 - **If the kWp cannot be ascertained, do not allocate the PV, except where it is connected to a meter serving a single dwelling. Where the meter is serving a single dwelling, record the percentage of the total roof area occupied by PVs. The total roof area includes main dwelling and all extensions, where present.**
- **Orientation**
 - South, South East or South West
- **Pitch**
 - Estimate the pitch as the nearest to horizontal, 30°, 45°, 60° or vertical; if midway between two of these use the higher value.
- **Overshading**
 - Very little, Modest, Significant or Heavy. If in doubt select 'Modest'

- **Connection to dwelling's electricity meter**

- The PVs will be connected into a dedicated circuit breaker, labelled 'PV' or similar. In most cases, the PV system will be connected to the dwelling's electricity supply, but where the array is situated on a separate building this may not be the case, so exercise caution. **Where it cannot be determined that the PV supply is feeding into a meter serving the dwelling being assessed then no PVs should be allocated to that dwelling.** If this is the case, ensure a suitable site note is present to explain the circumstances.
- **PV connection to the dwelling's meter must be verified by the presence of a PV generation meter (take a photograph) or documentary evidence. In all cases, PV generated electricity is included in the assessment of a dwelling only if the dwelling has a PV generation meter serving it.**
- **Where the PV supply is serving more than one building, or multiple dwellings within the building, the total capacity of the PV is allocated between the buildings on an area-weighted basis based on an estimate of the total floor area of all the buildings or dwellings served by the PV array. This applies in all scenarios where the PV supplies more than one building, or multiple dwellings within the building, including where the other buildings are either all dwellings, or a mix of dwellings and non-domestic buildings.**

Note: Please ensure that photographic evidence of the above information is retained for your records. Alternatively, the relevant details can be found within the manufacturer's literature (again, the exact source should be recorded in site notes).

In instances where the kW/p cannot be determined, select the '% of roof area' option from the 'Photovoltaic panel' drop down menu and enter the percentage of the roof area occupied by PVs in relation to the **total** roof area.



The total roof area includes the main dwelling and all extensions (where present). The '% of total roof area' option will use a default kWp, based on the calculated PV area.

Also, on occasion, there may be PV panels located on various planes of the overall roof of a property. In which case, they should each be entered as separate systems. Divide the kWp figure in proportion to the number of panels on each orientation.

9.06 Flue Gas Heat Recovery

Issued January 2012

Flue gas heat recovery is a system that can be either built into a new condensing boiler or fitted retrospectively to an older condensing boiler.

Condensing boilers which include built-in flue gas heat recovery systems will have this information recorded within the PCDF database and therefore do not require any additional data entry.

If a flue gas heat recovery system is installed above the boiler, the manufacturer and model details should to be verified in order to allow the assessor to locate it in the PCDF.



If it does not appear within the PCDF, no default option is available but the presence of the system should still be recorded within the assessor's site notes.

9.07 Wind Turbines

Issued January 2012

RdSAP v9.91 will allow the assessor to overwrite the default values although satisfactory documentary evidence must be obtained before doing this.

9.08 Waste Water Heat Recovery

Issued January 2012, amended December 2012, April 2015, August 2015

Waste water heat recovery systems are very rare and identification can be difficult, as these are normally enclosed and inaccessible (e.g. located behind a bath panel or shower tray). In some instances, it may be possible to see the system in a garage or basement below a bathroom and an example is shown on the right.

A waste water heat recovery system can only be included if it is found in PCDF. If the specific model cannot be found in the database, there is no default option but its presence should be recorded in site notes.

If a waste water recovery system is identified as being present, count the number of rooms with baths and/or showers, including rooms with only an electric shower. If two showers are found in the same room, count these as one shower.

Only mixer showers count for instantaneous waste water heat recovery. 'Mixer shower' means a shower where the hot water is provided by a boiler (either combi or regular), heat pump or immersion heater, and the shower must be permanent, i.e. not temporarily attached to bath taps when in use. In the case of a shower that is integral with bath taps, i.e. designed as part of a unit switchable between shower and taps, it is counted as a mixer shower only if there is a bracket at least 1.5m above the plughole and there is a curtain or screen present.

Where a 'storage' waste water heat recovery system is present it will be necessary to record the following information:

For instantaneous types:

- Number of rooms with bath and/or shower, including rooms with only an electric shower. If two showers are found in a room, count as one.

For storage types:

- Record the total number of baths and showers of any type
- Record the total number of baths and showers connected to the waste water heat recovery system.

9.09 Solar Water Heating

Issued January 2012, amended April 2015

Documentary evidence is required to over-write the default collector or solar store values although orientation, tilt and over shading can be over-written on the basis of visual evidence alone. If the panel/collector details are available but the solar store information is not, the default values can be used



for the solar store. If the solar store is combined and details are being recorded, the volume of the combined cylinder must also be recorded.

Shower type is required when solar water heating details are known. In this context "electric shower" means a shower where the water is heated as the shower runs. If the shower is supplied from a hot-water cylinder it is classified as non-electric even though the cylinder is electrically heated.

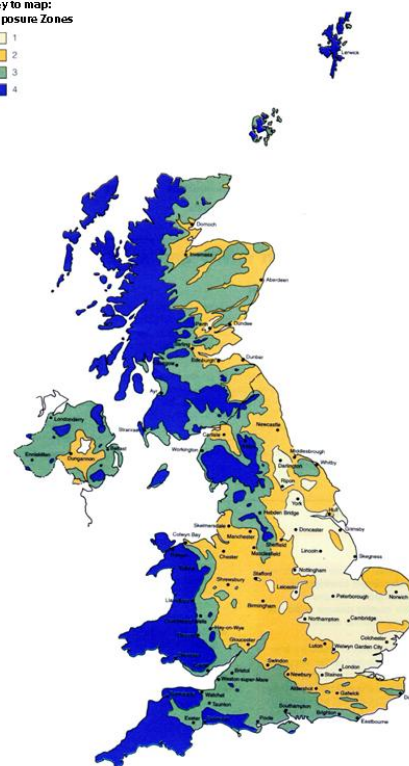
9.10 Hard to Treat Cavity Walls

Issued January 2012

Some walls which are of cavity construction may be unsuitable for retro-fit cavity fill insulation for one or more of the following reasons:

1. If it is unlikely that an installer could gain access to a wall on the grounds of Health and Safety regulations, the recommendation for cavity fill can be suppressed. This includes scenarios such as a narrow passageway, a busy thoroughfare, a building of more than 2 storeys or where a conservatory or large outhouse attached to the property would not allow for the erection of scaffolding.
2. The dwelling is located in a geographical 'high exposure' area, as indicated by exposure zones 3 or 4 on the map below. In this instance, the recommendation for cavity fill can be suppressed.

Key to map:
Exposure Zones



9.11 Transaction Type

Issued December 2012, Amended August 2016

If more than one transaction type is applicable, seek clarification from the client and in case of doubt select the one nearest the top of the list.

'None of the above' should be avoided where possible. 'Right to Buy' transactions should be described as 'Non-marketed sale'. As far as possible, accuracy is important as transaction types are used by the Government for statistical purposes. If 'None of the above' is selected, the reason for producing the EPC should be included in your site notes.

9.12 Tenure

Issued December 2012

The current options for tenure are:

- Owner –Occupied
- Rental (social)
- Rental (private)

Note (1): Where 'rental' is selected as the transaction type, tenure must be entered as rented (social) or rented (private).

Note (2): When marketed or non-marketed sale is selected as transaction type, the tenure will usually be owner-occupied (although there can be exceptions, such as the sale of a property with a sitting tenant).

Note (3): If the property is vacant on the inspection date, try to find out the last tenure and select this e.g. owner occupied, rented (social) or rented (private).

9.13 Electricity Meters

Issued December 2012

Usually, the dwelling uses either the standard domestic tariff (single meter) or an off-peak tariff (dual meter). In these cases select 'single' or 'dual' as appropriate and an addendum is not required. In some cases of older installations the property may have two separate single rate meters present and it is unclear whether a dual meter or single meter should be identified. If that applies:

If the main space heating is electric:

- ✓ Select dual meter if the main heating is via off peak electric devices and single meter otherwise (e.g. direct acting heaters).

If the main space heating is not off-peak electric but the water heating is heated by electric:

- ✓ Select a dual meter if it has a dual immersion and a single electric meter if it has a single immersion.



If neither of the above applies, select a single meter.

Note: to clarify this point, if the dwelling does not have any off-peak electric main heating systems or any water heating devices that are designed to operate on an off-peak tariff, a single rate electricity meter should be selected where there are two meters present.

It is also a requirement to select the appropriate addendum in these scenarios:

- If a dual meter is selected in the above scenarios include addendum 10
- If a single meter is selected include addendum 11

9.14 Park Homes

Issued August 2014, amended April 2015

For the purposes of RdSAP a park home is a pre-fabricated dwelling of modular lightweight construction without its own foundations (although it may sit upon a concrete base) and which is capable of being moved from one place to another.

Convention 3.08 applies to U values. For U-values of existing park homes, documentation obtained from the manufacturer can be used.

Park homes have their own set of age bands.



Note regarding this convention:

Refer to Technical bulletin 53 (TB53) for more information on park homes. (pg.6)

12.0 Support

With all queries about conventions and the addenda changes, please do not hesitate to ring the Existing Dwellings Team on 01455 883 257 or send us your queries by e-mail to existingdwellings-support@elmhurstenergy.co.uk

