

RdSAP10

Methodology Update




1

Etiquette

- Please have your camera on
- Place yourselves on mute
- Use the raise hand symbol
- The course will end by 3.30pm
- We will have a 15min break about 11 o'clock, lunch is 30mins around 12.30/1.00 and another 15min break in the afternoon




2

RdSAP 10.2 Course Overview

- An introduction
- Fabric
- Openings and ventilation
- Heating: space water and controls
- New Technologies
- Addenda and recommendations



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An Introduction and some General changes




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SAP updates

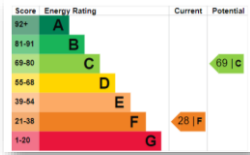
SAP 2005	SAP 2009	SAP 2012	SAP 10.2
Initial Version 2007-2012	Released in April 2012	Released Dec 2014	June 15th 2025

- Fuel price changes that are used in the calculation of the SAP rating, therefore an updated EPC will come out better/worse than a previous EPC
- New features added/removed
- New age band added

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Fuel Price assumptions



The fuel prices that drive the rating are based on fuel prices provided by BRE

Estimated energy use and potential savings

Estimated energy cost for this property over a year	£1095
Over a year you could save	£308

The estimated cost and savings show how much the average household would spend in this property for heating, lighting and hot water. It is not based on how energy is used by the people living at the property.

The estimated saving is based on making all of the recommendations in [Type A to convert this property to a better performance](#)

The fuel prices that drive the estimated savings figures are updated every 6 months.

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RdSAP 10.2 Fuel Prices

RdSAP fuel prices are to be independent of the fuel prices issued in SAP 10

The RdSAP fuel prices will currently remain as issued for SAP 2012

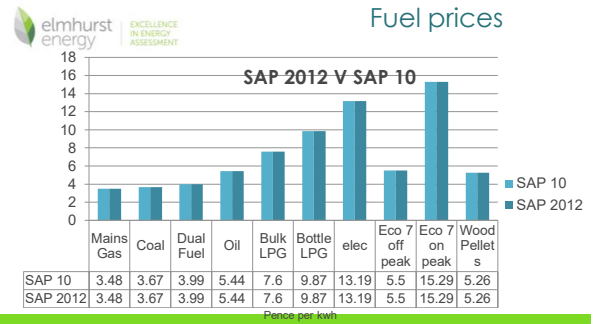
Change to RdSAP fuel prices will no longer be reliant on a change in Building Regulations

They may be altered as and when BRE believe it is in the interest of EPCs



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PROPERTY DETAILS CHANGES



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Transaction Types/Tenure

REMOVED	ONE OF	Tenure
- Assessment for Green Deal - Following Green Deal - FT Application - RHI Application - ECO Assessment	- Marketed Sale - Non-marketed Sale - Rental - Grant-Scheme (ECO, BUS etc) - Non-Grant Scheme (WESS) - Stock Condition Survey/EESH - Re-mortgaging - None of the above	- Owner Occupied - Rented (social) - Rented (private) - unknown

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Fabric Changes



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Age band changes

New age Band M

- 2023 onwards (England, Wales, N.Ireland & IOM)
- 2024 onwards (Scotland)

Data Item	Age band L (E&W)	Age Band M (E&W)	Age Band L (Scotland)	Age Band M (Scotland)
U Values walls (as built)	0.28	0.26	0.22	0.17
Joist insulation (unknown)	270mm	300mm		
Flat roof insulation	0.18	0.15		
Floor insulation	100mm	140mm	120mm	180mm
Basement wall	0.28	0.26		
Basement floor	0.22	0.18		
Door U value	1.8	1.4		

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U-Values – Solid Brick

- The u-values for solid brick walls (Age band A-E) will now vary depending on wall thickness (as per stone walls)
- Measure the wall thickness at each external elevation and at each storey and use alternative wall if the thickness varies by more than 100mm.

Wall thickness (mm)	U Value
Up to 200mm	2.5
200 to 280mm	1.7
280 to 420mm	1.4
More than 420mm	1.1



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U-Values – Stone

- The u-values for Stone walls are altering due to a calculation change.
- Thicker stone walls will benefit, thinner are worse

	U Value	U Value
Wall thickness (mm)	9.94 Sandstone	RdSAP 10 Sandstone
200mm	2.60	2.81
240mm	2.52	2.54
350mm	2.30	2.05
500mm	2.00	1.68



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Insulation changes (known thickness)

	New thickness options	Input options
Floor Insulation	unknown, 25 mm, 75 mm, 125 mm, 175 mm, 200mm	Unknown, 25mm, 50mm, 75mm, 100mm, 125mm, 150mm, 175mm, 200mm,
Wall Insulation (solid brick and stone only age band A-E)	10mm, 25mm, 75mm, 125mm, 175mm, or Measured depth (next slide)	Unknown, 10mm, 25mm, 50mm, 75mm, 100mm, 125mm, 150mm, 175mm, 200mm

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Lambda Values

- For Solid Stone/Brick In age Band A-E only, if internal or external insulation is specified
- If documentary evidence confirms the insulation's thermal conductivity, select the appropriate λ -value, or, if not available the options below should be applied (where **visual or documentary** confirms presence):
- 0.04 W/m-K** - mineral wool, rock wool, fibre glass or EPS (expanded polystyrene)
- 0.03 W/m-K** - XPS (extruded polystyrene)
- 0.025 W/m-K** - PUR (polyurethane foam), PIR (polyisocyanurate), phenolic foam



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Example

Celotex GA4000

Celotex GA4000 is a general purpose insulation board for floors, walls and roofs. It has long fibres at the front of the Celotex products range providing the user with a range of thermal insulation solutions.

Physical properties

Method	GA4000
Compressive strength	BS EN 826:2013 C50/35 (V1)40
Dimensional stability	BS EN 1824:2013 BS EN 1824:2013
Thermal conductivity	BS EN 12667:2001 0.032 W/m-K
Surface spread of flame	BS 476-7:1997 Class 1
Reaction to fire	BS EN 13501-1:2007+A1:2009 E

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Type: SO Solid Brick

Insulation: I Internal

Insulation Thickness: Measured

Insulation Thickness [mm]: 20

Conductivity Known: ☒

Thermal Conductivity: Lambda = 0.04 W/m-K

Wall Thickness [mm]:

Default U-value [W/m²K]:

U-value Known [W/m²K]: ☐

Options for Thermal Conductivity:

- Lambda = 0.04 W/m-K
- Lambda = 0.03 W/m-K
- Lambda = 0.025 W/m-K

Visual

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Wall Insulation Types



Mineral Wool



Extruded Polystyrene



Expanded Polystyrene



PUR or PIR Boards



PUR or PIR Boards

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PUR/PIR
Boards
applied on
a wall

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Convention

- Where documentary evidence confirms the thermal conductivity of the insulation material the appropriate λ -value should be selected. In instances where documentary evidence shows a λ -value between the above values round to the closest λ -value e.g. $0.019 \text{ W/m}\cdot\text{K}$ would be entered as $0.025 \text{ W/m}\cdot\text{K}$.
- Where visual/documentary evidence confirms the presence of insulation but the thermal conductivity is not available the options below should be applied;
- mineral wool, rock wool, fibre glass or EPS (expanded polystyrene) = $0.040 \text{ W/m}\cdot\text{K}$
- XPS (extruded polystyrene) = $0.030 \text{ W/m}\cdot\text{K}$
- PUR (polyurethane foam), PIR (polyisocyanurate), phenolic foam = $0.025 \text{ W/m}\cdot\text{K}$

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Alternative Walls

- New** – Option to enter 2 alternative walls per building part.
- Therefore If each building part has 2 alternative walls, you could enter up to 15 wall types for each survey!

Alternative Wall 1

Wall Area [m^2]

0.00

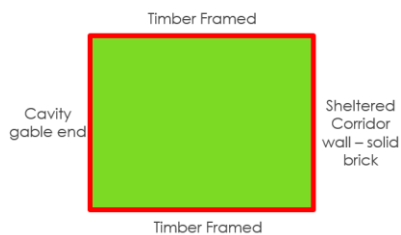
Alternative Wall 2

Wall Area [m^2]

0.00

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Example



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Windows

- Previously windows were taken out of an alternative wall measurement
- In RdSAP 10 we would measure the alternative wall including the window, then enter the windows as being in alt wall 1, alt wall 2 etc.



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New wall type – Curtain Wall

- Non-structural, which differs from many types of traditional construction
- Thin & lightweight – steel & aluminum frames & glass (although can be timber)
- Different systems include stick, unitised or panelised and semi unitised.
- Pre-2023 – age bands A - L (U= 2.0 W/m²K)
- Post 2023 – age band M - (U= 1.6W/m²K)



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Curtain wall



Different types of infill

Generally translucent or opaque parts. Can be glass, terracotta or fiber enforced plastic.



Different types of property

Often high rise, city centre locations
Rarely found in domestic houses



Benefits

Visually attractive, versatile materials, provides good weather protection to buildings, keeping them air tight and energy efficient.

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Curtain Wall

- Curtain wall isn't to be confused with window measurements



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BASEMENTS



New wall and floor type – Basement

- A basement is the floor of the building which is partly (at least 50%) or entirely below ground level.
- Included when accessed via a permanent fixed staircase such that one is able to walk downwards facing forwards and either:-
- basement is heated via fixed heat emitters, or
- basement is open to the rest of the dwelling, - (no door or internal door)
- Doesn't necessarily contain habitable rooms.



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Basements

Added to floor construction options:

- unknown
- solid
- basement floor**
- suspended timber
- suspended, not timber

Added to wall construction options:

- stone (granite or whinstone)
- stone (sandstone or limestone)
- solid brick
- cob
- cavity
- timber frame
- park home wall
- system build (i.e. any other)
- basement wall**
- curtain wall

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Heated Basement

- Any areas not directly above the basement floor will need to be split off as an extension.

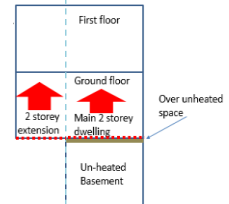


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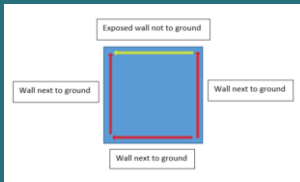
If the basement is unheated?

- Treat floor above basement as suspended floor above unheated space
- Any areas not over the basement should be split off an extension to show different floor type (solid etc)



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Basements



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Basements

Table 23 : Basement U-values

Age band	U-value (W/m ² K)	
	Basement Wall	Basement Floor
A to E	0.70	0.50
F	0.70	0.50
G to H	0.60	0.50
I	0.45	0.50
J	0.35	0.25
K	0.30	0.22
L	0.28	0.22
M	0.26	0.18

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Convention

New Convention 3.17 – Basement walls

- Basement walls are those that are adjacent to earth and can be either main or alternative walls (see convention 2.13) and are only included when the basement is heated.
- Where a basement wall is adjacent to a neighbouring property treat it as a heat loss wall unless there is evidence that the neighbouring basement is heated as it then becomes a party wall.

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ROOF INSULATION



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Roof Insulation changes

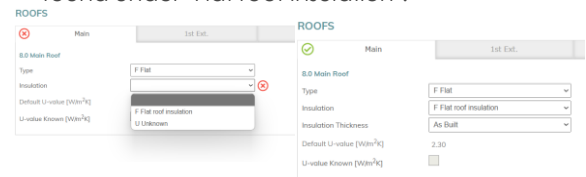
- New assumption for joists**
 - Used to assume none or little insulation (age band A-D) will now infer 100mm
 - New insulation options added - 125mm, 175mm, 225mm
- New options for Rafter, flat roof and sloping ceiling (different drop down menu options)**
 - Same thickness options as joists
 - 12mm, 25mm, 50mm, 75mm, 100mm, 125mm, 150mm, 175mm, 200mm, 225mm, 250mm, 270mm, 300mm, 350mm, 400+ mm, unknown



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Flat Roof

- Flat roof entry has changed, 'as built' can be found under 'Flat roof insulation'.



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New Roof Type

- Non-residential space above**
- Examples include:
 - Garage above
 - Unheated corridor above
 - Commercial premises above
 - Thermally separated conservatory above (like this example)
- The U values assumed are the same as flat roofs



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New Convention

- If a dwelling or part of a dwelling has commercial premises below record as partially heated space below.
- If a dwelling or part of a dwelling has commercial premises above, or has an unheated space above (e.g. garage or an unheated corridor in a block of flats), record as non-residential/other unheated space.
- If a dwelling has commercial premises alongside it, treat the separating wall as a party wall.

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ROOM IN ROOF

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Room in the Roof Types

Type 1	Type 2
Fully in the roof, no common wall present in the heated space.	Built into roof space -Common wall present in heated space
	

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The common wall

Example of a type 2

There is a small height of common wall in this photo



Example of a type 2

There is a small height of common wall in this photo



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Common Wall

- Measure the length and height of the common wall
- They are entered as common wall 1 and common wall 2
- The common wall will be assumed to be the same as the main walls, only overwrite U value if evidence exists.

Common Wall 1

Length [m]

5.00

Height [m]

2.00

Default U-value

2.99

U-value Known

☐



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Examples of roof rooms with no common walls – Type 1



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The options



Simplified

If no access to assess any insulation



Detailed

If any insulation visible in the ceiling/ slope/ stud/ gable/ common wall

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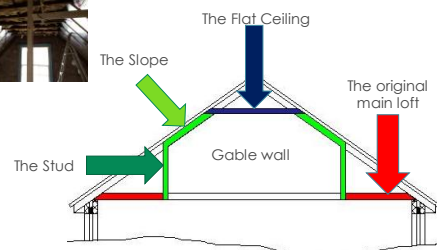
Data entry

- Choose your assessment type, one of:

- Simplified** – if no insulation visible in any element. This option does not require any measurements of any of the elements (other than the gable end length). It is similar to the 'unknown' option, no recommendation will be generated if this option is chosen.
- Detailed** – If any insulation visible in the ceiling/slope/stud/gable/common wall - all elements must be measured. The appropriate recommendations will be generated.

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Room in the roof parts

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Detailed

- Descriptions might be a bit confusing! (Length and height is in some cases length and width)
- This option involves measuring the length and height of:

- Flat ceiling
- Stud wall
- Slope

8.1 Room in Roof

Assessment		
Detailed		
Type: Room in roof type 1		
	Length	Height
Flat Ceiling 1	2.00	5.00
Flat Ceiling 2	10.00	1.00
Stud Wall 1	5.00	2.00
Stud Wall 2	10.00	2.00
Slope 1	5.00	2.00
Slope 2	0.00	0.00
Gable Wall 1	5.00	2.45
Gable Wall 2	12.00	2.45

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Stud

- Includes:
 - Stud facing cold loft space
 - Dormers that are both facing cold loft space or to outside
 - Dormer cheeks
- Measure height and length
- Add areas together if necessary and enter total area in the length and height as 1
- Enter 2 different studs if different insulation levels found



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Slopes

- Measure the total length of the slopes and height.
- If there are differing heights and lengths, or insulation, then enter as slope 1 and slope 2.
- If necessary, add sloping areas together and enter total area in the length and height as 1 (only if all the slopes have the same insulation).



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Flat Ceiling

- Flat ceiling includes:
 - A flat ceiling with/without a hatch
 - The flat roof on top of a dormer.
- Any dormers can be ignored if less than 20% of the floor area
- Use flat ceiling 1 and 2 option to show that one flat ceiling may differ levels of insulation
- Merge flat ceiling areas together if necessary and enter in the length and the height as 1



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Detailed Entry

- For each element (flat ceiling, stud etc) you would need to enter the details about the size, insulation depth and type of insulation. If a part is not known then 'as built' is available as an option.

Flat Ceiling 1

Length (m)	2.00
Height (m)	5.00
Insulation	100 mm
Insulation Type	Mineral or EPS
Default U-value	0.54
U-value Known	☐

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Gable end

- For type 1 where a simplified assessment is used the additional measurements (length) of the gable(s) will be required.
- For type 2 where a simplified assessment is used the additional measurements (length and height) of the gable(s) and common wall(s) will be required.



Field	Length	Height	Gable Type	Default U-value
Gable wall (1)	2.50	2.20	Exposed	0.45
Gable wall (2)	2.50	2.20	Party	0.25

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Gable end options

Exposed Gable

The gable end is completely exposed to the outside with no shelter



Party Gable

Adjacent to heated space, which is adjacent to a neighbouring property where that space appears to be either original room in the roof, a verified loft conversion, or dormers are visually present from the outside.



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Gable end options

Sheltered Gable

The gable is adjoining an unheated space, like a neighbouring properties loft space.



Connected

If other parts of the same dwelling are connected to the room in the roof (on the same storey)



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FLATS

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Flats

New Entry- Storeys in block

- Requirement to count the total number of storeys in the block you are assessing

FLATS

6.0 Flats

Corridor

None

Position of flat in block of flats

Ground Floor

Which Floor?

0

Storeys in block

0



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Corridor or Stairwell?

New entry – Unheated corridor or stairwell

- Where more than one sheltered wall type is present (unheated corridor and unheated stairwell), use the sheltered wall type of greatest length as your input.
- For example, if a corridor is 10m in length (6m is stairwell and 4m is corridor) then enter 10m as being adjoining a stairwell.



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Flats – Other Changes



Basement Floor option removed

Options will become

- Ground Floor
- Mid floor
- Top floor



Detachment

The option to enter the detachment for a flat has been removed (e.g. semi, mid terraced etc)



Measuring

Option for 'External' to be removed. Meaning all flats must be measured internally.

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Round Up – key changes

- Fuel prices remaining the same
- Solid brick u value calculated from the wall thickness entered
- Two alternative walls per building part
- Curtain wall option
- Basements
- Room in roof – two options
- New roof type and more insulation options
- Flats



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Any Questions?



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VENTILATION



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Mechanical Ventilation



- Mechanical Ventilation (MV) allows the supply or extract of air from a dwelling, or both.
- MV is defined as permanent continuously running fans**
- Centralised systems link a whole house, de-centralised work independently



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Mechanical Ventilation

12.2 Mechanical Ventilation

Mechanical ventilation ☒

MV PCDF Reference Number

Mechanical Ventilation Type

Mechanical ventilation without heat recovery (MV1)

Mechanical extract, decentralised (MEV1)

Mechanical extract, centralised (MEV2)

Mechanical ventilation with heat recovery (MVH1)

Positive input from loft

Positive input from outside

We have two options:

- Database** - Where make and models details are available the system should be entered via the PCDF.
- Default** - In circumstances where there is no evidence of the make and model the system must be entered using the defaults. (Note: this must be used for Positive input systems)

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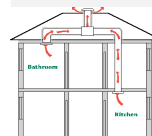
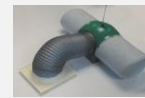


Types

Extract or Input Only

This includes:

- Positive input – from loft or outside
- Mechanical extract – Centralised
- Mechanical extract – Decentralised



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types

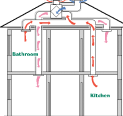
Whole house without heat recovery

This is a whole house system that is inputting fresh air and extracting stale air.




Whole house with heat recovery

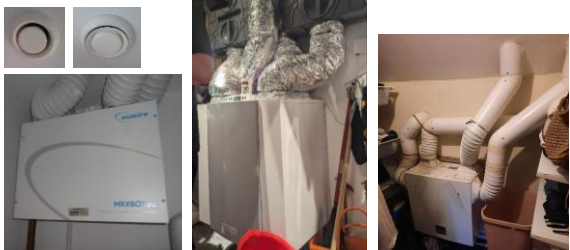
Whole house system that is inputting fresh air and extracting stale air. These systems use a heat recovery unit which recovers heat to preheat the incoming air. (more efficient)

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Mechanical Ventilation with Heat Recovery

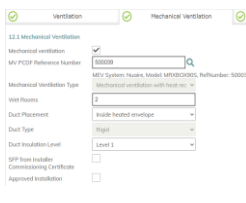


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Entry on the PCDF

- Ensure the correct manufacturer and model is selected, the types of systems you will have the option of choosing are:
 - Mechanical Extract – Decentralised and Centralised**
 - Balanced Whole house – with and without heat recovery**
- Over 800 models in there, brands like, Nuaira, Vent axia, Envirovent, Mitsubishi, Kingspan, Panasonic



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PCDF Mechanical Ventilation

Applicable when chosen from the PCDF.

Wet rooms	Duct Type	Duct Insulation
Wet rooms are spaces where significant moisture is added to the air, including kitchens, utility rooms, bathrooms, shower rooms, and rooms with flush toilets or urinals. Bedrooms with hand basins are not considered wet rooms.	The two duct types are: Rigid: Solid, inflexible ducting, usually plastic. Flexible: Made from bendable plastic over a wire coil, forming a tube.	Options for: Level 1 – If insulation known Level 2 – If insulation not known

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Whole house system

- For balanced whole house systems, when choosing from the PCDF:
 - It will be necessary when choosing a system to select how many wet rooms are being served by the system (ducts in those rooms)
 - The software will already assume the kitchen, so this is only wet rooms in addition to the kitchen
 - E.g. if you have a kitchen, a bathroom and an ensuite and all have vents in them, you would select 2 wet rooms

Wet Rooms	Flow Rate	Sp	Efficiency
1	15	1.06	91
2	21	1.34	91
3	27	1.5	90
4	33	1.64	89

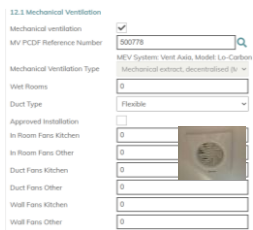
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Decentralised system

For Decentralised systems when choosing from the PCDF

- Choose the 'actual' number of wet rooms (as there are no background assumptions).
- In room fans** – means in ceiling
- Duct fans** – means a fan within the duct (we do not know of any systems that have this)
- Wall fans** – means in the wall



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Approved Installation & SFP

- You are likely only going to get an SFP if you have an approved installation certificate (Which looks like a checklist)
- Approved installers for Mechanical Ventilation Competent person scheme - current schemes and how schemes are authorised - GOV.UK
- The list is out of date and does not show ATTIMA, NICEIC, BPEC and Elmhurst who are approved.

Mechanical ventilation and air-conditioning systems

Type of building	Schemes
Dwellings (not including work on systems shared with other buildings)	BESCA, Blue Flame Certification, Certsure, NAPIT
Other buildings (not involving work on other parts of a building occupied separately)	BESCA, Blue Flame Certification, Certsure, NAPIT

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An example
Elmhurst
report/
checklist

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Natural Ventilation

- The options for ventilation have been extended to include a much longer list of options
- The aim of this is to take into account any heat that is being lost from the dwelling through open flues, chimney openings and more.
- This section is not concerned with room sealed flues (balanced or fan assisted)



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Ventilation options

- Number of Chimneys
- Number of flues (open flues, not room sealed)
- Number of chimney/flues attached to closed fire
- Number of flues attached to solid fuel boiler
- Number of flues attached to other heaters
- Number of blocked chimneys
- Number of extractor fans
- Number of passive stack vents
- Number of flueless gas fires

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Definition of an Open Chimney

Open to the room and defined as a vertical duct for combustion gases with a diameter of ≥ 200 mm (or equivalent)

Anything temporarily blocking the fireplace is disregarded (chimney balloons, insulation, newspaper etc)

A chimney fitted with a damper is also classed as an open chimney

A vent exceeding 10 x 30cm (or equivalent) found on a blocked chimney



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Number of Open flues

What to include:

An open flue or vertical duct with a diameter of <200 mm, this includes:

- A boiler with an 'open' flue (not fan assisted or balanced) with a **controlled** flow of air supply. (older boilers, range cooker boilers etc)
- An opening in a fireplace not meeting open chimney definition



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Fireplaces and flues

Number of chimney/open flues attached to closed fire

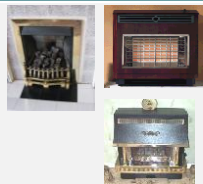
Solid fuel only



Number of open flues attached to solid fuel boiler



Number of open flues attached to other heaters



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New Convention

- A vertical duct with a diameter less than 200mm should be counted as a flue. This includes the case where a flexible gas flue liner is sealed into the chimney as this reduces the diameter to less than 200mm. The following cases are considered in SAP:
 - Open flue gas fire with flue products outlet sealed to the chimney including radiant gas fires and ILFE (Insert Live Fuel Effect or Insert Living Flame Effect)
 - Chimney or open flue attached to wood or solid fuel boiler
 - Chimney or open flue attached to wood or solid fuel stove/appliance with controlled air supply

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Fireplaces and flues

Number of blocked chimneys

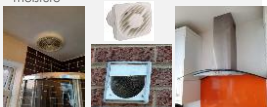
This applies to permanently blocked chimneys (only if fitted with a small vent)

If vent exceeds 10cm x 30cm or equivalent then it becomes an open chimney



Intermittent Extractor fans

Local extract fans in wet rooms (bathrooms, ensuites, WCs, kitchens). Will not be permanently on, usually pull cord, switch or come on/off with the light, some sense moisture



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Passive Stack Ventilation





This is a non-mechanical form of ventilation

Passive stack relies on convection and currents to remove stale air through ducts

Look for vents in the ceiling and ducting the loft

Choose this option if vents present but no access to loft to confirm mechanical ventilation (new convention)

82

Fireplaces and flues

- What about air bricks?
- The 'Passive Vent' option should **not** be chosen where air bricks are present in the walls (regardless of whether permanently open or not).



Flueless Gas Fire

Flueless gas fires have no flue or chimney but adequate supply ventilation for the room is needed



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Ventilation Rates

Item	Ventilation rate m ³ /hour
Chimney or open flue attached to closed fire (stove)	10
Chimney or open flue attached to solid fuel boiler	20
Chimney or flue attached to other heater	35
Open chimney	80
Chimney, permanently blocked ¹	20
Open flue/vertical duct with diameter < 200mm	20
Intermittent extract fan	10
Passive vent	10
Flueless gas fire	40

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Draught Lobby

- A draught lobby is an arrangement of 2 doors that forms an airlock on the main entrance to the dwelling, needs to be at least 2m²
- Should be that a person with a pushchair or similar can enter the lobby, then close the door behind them before then entering the main dwelling.
- Should lead into a further circulation area (Hallway) and not directly into any habitable rooms.



☒

Present
 Not present
 Unable to determine

- Examples include:
 - Thermally separated Porches (heated or unheated)
 - Corridors leading to flats unheated or heated

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PRESSURE TESTS

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Pressure Test

- Option to enter test score if Certificate available (can be any age of certificate)
- All new builds required to have a test for compliance.
- The lower the air pressure test score, the lower the energy use, carbon emissions and running costs.
- In the absence of a certificate 15 (Pa) will be assumed.
- There are two types of air pressure test methods:
 - Blower door (50 Pa)
 - Pulse (4 Pa).



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Certificate examples



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New Convention

- The pressure test result must be RdSAP default values and must not be overwritten unless specific documentary evidence is available.
- This is the measured air permeability figure (m3/m2/hr) from either a blower door (50Pa) test or a low-pressure pulse (4Pa) test.
- Documentary evidence will be via a pressure test certificate that has been produced by a person with suitable expertise and experience.
- Evidence of suitable expertise and experience can be demonstrated by membership of a recognised air tightness Competent Persons Scheme (EAS or ATIMA), that is approved by Government.
- Results from background ventilation tests are not included in the assessment.

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OPENINGS

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New Convention

- Assessors are required to measure and enter the width and height of all relevant windows (including the visible frame) in accordance with convention 2.02. This is the overall width of the window between the internal reveals, and the overall height of the window between the inner sill and the top reveal.
- Relevant windows are all windows, highly glazed doors and roof lights (see convention 2.14) in the heat loss envelopes. This includes in the envelope between the dwelling and a separated conservatory, an unheated corridor or a porch (if the porch is excluded), etc. It does not include windows in a non-separated conservatory.

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Windows

Requirement to Measure each window

- Information needed: Length and height of each window (including frame), type, orientation, location, location within building part (e.g. gable 1)



- Can't merge windows – use copy

10.0 Windows

Add new

Area	Glazing Type	Orientation	Building Part		
1	0.56 Double between 2002 and 2021	North East	Main		
2	0.56 Double between 2002 and 2021	North East	Main		
3	0.56 Double between 2002 and 2021	North East	Main		
4	2.10 Double between 2002 and 2021	North East	Main		

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Window Changes

New Post option (includes DG and Triple)

- E&W and NI Post 2022
- Scotland Post 2023



New Frame Option

For Single, Double and triple glazed, new option to state whether

- Wood
- PVC
- Metal (will give a poorer U value)

(Exception is Secondary Glazing and Post 2022 windows)

New bandings

Pre/Unknown windows option now includes Triple Glazing.

We can now state Double or Triple as:

- E&W – Post 2002 becomes Post 2002-2021
- NI – Post 2006 becomes Post 2006 – 2021
- Scotland – Post 2003 becomes Post 2003 - 2022

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Window Changes

Secondary Glazing

New option to state thickness/gap between panes of glass:

- Unknown Data
- 16mm or more – Normal emissivity
- 16mm or more – Low emissivity



Frame Factor

New option under 'known U/G values' Can be entered if known (assumed to be 0.7 for wood and PVC, 0.8 for aluminum.). Need documentary proof.



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New SAP 10

Table 24 : Window characteristics

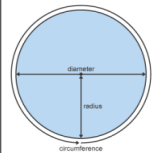
Glazing	Installed	Glazing gap between panes of glass	U-value (PVC or wooden frame)	U-value (metal frame)	U-value** (roof window)	g-value
Single	Any period	-	4.8	5.7	5.3	0.85
Double glazed*	England/Wales: before 2002, Scotland: before 2003, N. Ireland: before 2006	6 mm	3.1	3.7	3.4	0.76
		12 mm	2.8	3.4	3.1	
		16 mm or more	2.7	3.3	3.0	
Triple glazed	England/Wales: before 2002, Scotland: before 2003, N. Ireland: before 2006	6 mm	2.4	2.9	2.6	0.68
		12 mm	2.1	2.6	2.3	
		16 mm or more	2.0	2.5	2.2	
Double or triple glazed	England/Wales: 2002 to 2021, Scotland: 2003 to 2022, N. Ireland: 2006 to 2021	any	2.0	2.2	2.3	0.72
Double or triple glazed	England/Wales: 2022 or later, Scotland: 2023 or later, NI: 2022 or later	any	1.4	-	1.6	0.72
Secondary glazing	Any period	16 mm or more	2.9	-	-	0.85
		Normal emissivity	2.2	-	-	
Any glazing-known data	Any period	Any	As provided			

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New Convention

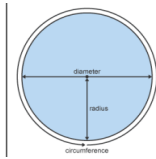
- For arched windows enter the actual width and enter the height as the average between shoulder height and the height to the top point.
- For other unusually shaped windows, calculate to area by the most appropriate means. Enter the area as the width and enter the height as 1.
- For circular windows, calculate the area using the radius (half of the diameter). First calculate the square of the radius (multiply it by itself) then multiply that by 3.14.
- For oval windows, multiply the longest radius by the shortest radius and multiply that by 3.14.
- For semi-circular or half oval windows, apply the approach above as if the other half were present and halve the result.



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Example



- If the radius of this circle is 15cm
- $15 \times 15 = 225$
- $225 \times 3.14 = 706.5$
- So enter the width of the window as 7.06 then the height as 1

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New Convention

- If secondary glazing with single glazing, record as secondary glazing. (Normal or Low-E if it can be determined).
- If secondary glazing with Age 1 double glazing, record as Age 2 double glazing.
- If secondary glazing with Age 2 double glazing, record as Age 3 double glazing.

Age 1 means pre 2002 in E&W (2003 in Scotland, 2006 in NI).

Age 2 means 2002-2021 in E&W (2003-2022 in Scotland, 2006-2021 in NI).

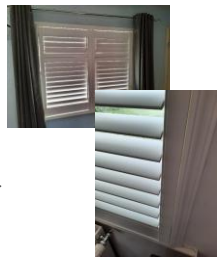
Age 3 means 2022 onwards in E&W (2023 in Scotland, 2022 in NI).

- If secondary glazing has been removed in summer, enter as above only if assessor can confirm that the panels exist and can be re-fitted. Evidence to be recorded on site notes.

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Shutters – Internal and External

- Shutters are hinged panels (usually of timber), which can be closed in order to fully cover a window. When open, these generally sit within the window reveal.
- Shutters must be operational on the day of survey, confirmed by opening the shutter.
- Shutters can be insulated by using a thin insulation material, such as aerogel blanket, within the panels of the shutters. This is often finished with a covering of timber; evidence needs to prove that they are insulated.



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Round Up – key changes

Database for selection of mechanical ventilation units

Recent Pressure test result

Natural Ventilation

Requirement to measure all the windows

Shutters



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100

RdSAP 10.2

Lighting

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Low energy?

Low energy	Non Low Energy 
• Compact fluorescent lamps (CFLs) • LED (light emitting diode)	• Incandescent lamps • Halogen lamps • Low voltage halogens • Xenon filled halogen lamps • Infrared coated halogen lamps
 	  

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Lighting Count

Rules for Lights

1. Count total number of bulbs/lamps – not the number of fittings
2. Count the number of LEDs, number of CFLs and number of incandescent lamps
3. If the number of LEDs and CFLs cannot be established individually, enter the total number of LELs



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13.0 Lighting

Total number of bulbs:	40
Number of LED and CFL Known	☒
Number of LED lights:	10
Number of CFL lights:	20
Total number of Low Energy:	30
Total number of incandescents:	10

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New Convention

- Any Fluorescent Tubes and Compact Fluorescent lamps are recorded as CFL
- Tungsten and Halogen lamps are recorded as Incandescent (i.e. are not low energy).
- LED strips are counted as one lamp per running meter (rounded to the nearest meter)
- If an individual lamp is missing, or the lamp type cannot be identified, record as CFL
- If more than 50% of the lamps which are not Incandescent cannot be identified or are not present, record all non-incandescent lamps as LEL.

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RdSAP 10.2

Space and Water Heating

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Heating additional options

- **Boilers/heat pumps and community**
 - Room stat and TRVs option added
- **Option for radiators and underfloor**
Recently removed, refer back to old convention where systems will need to be split into MH1 and MH2 (not for heat pumps).
- **Heatpumps**
 - Room stat, TRVs and Programmer option added



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Moved to Space heating - Meters

- **Presence of an electric smart meter?**
 - Makes comment on the EPC
- **Presence of a smart meter for gas?**
 - Makes comment on the EPC



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Identifying Smart meters

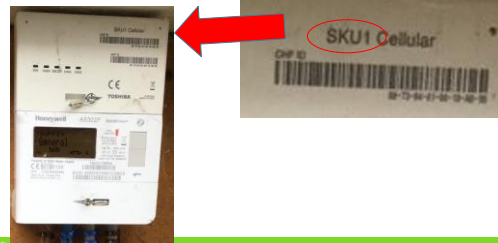
- Smart meters can be dual or single tariff and are often difficult to establish, if unsure go with Single, or Dual if off peak appliances are present.
- Look for Smets 1 or 2
- Look for SKU1 or SKU2
- Will have a display in the home
- Has been replaced since 2009



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Smart meter



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Smart meter Gas



Analogue Gas meter



Smart Gas meter

Usually see a digital box on the front, some will just look digital.

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Hot Water Cylinders

Cylinder size

- The actual size of hot-water cylinder should be used if it can be obtained from the label on the cylinder
- Otherwise:
 - Normal – up to 130 litres
 - Medium – 131 – 170 litres
 - Large – greater than 170 litres



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Heat Loss from Hot Water Cylinders

Cylinder loss can be identified from the manufacturer's label on the tank or via a specification sheet that corresponds with the hot water tank model. In such as case, evidence of the model in place is required.

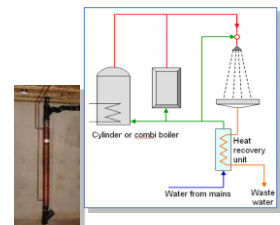
- Either - cylinder measured loss in kWh/day
- Or - cylinder insulation thickness, options available: 0, 12, 25, 38, 50, 80, 120, 160 mm



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Waste Water Heat recovery

- New way of entering:
 - Baths entered initially
 - If showers are present then you would need to 'add' individually and state if electric or non electric (mixer).
 - In all cases they can be stated as connected to a WWHRS



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17.0 Waste Water Heat Recovery System

Is WWHRS present in the property?

Total no. of Baths:

Total no. of Baths connected to WWHRS:

[Add Showers](#)

Type	Connected			
1 NonElectric	None			
2 Electric	None			

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Waste Water Heat Recovery

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Round Up – key changes

- Count the number of lamps not fittings
- Count the number of CFLs, LEDs and number of incandescent lamps
- Controls update
- Possibility to enter the actual volume and/or heat loss figures of a cylinder
- WWHRS update



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NEW TECHNOLOGIES

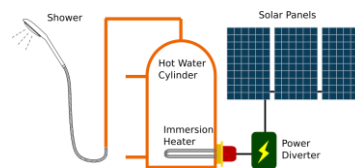
PV Diverter, Battery storage, small scale hydro



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How it works



PV Diverter

- PV Diverter redirect electrical energy from PV systems to heat the water using an electric immersion heater in a hot water cylinder.

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New Convention

- For PV diverters, written evidence of manufacturer and model of diverter system installed is required. If this cannot be obtained, then the diverter cannot be entered.



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Diverter Benefits

Energy Utilisation

Excess energy produced by the PV can now be used to benefit the dwelling when usually this energy would be lost.



Cost Saving

Reduced running costs by offsetting the use of the main water heating system through the increased amount of PV generation.



EPC Impact

Reducing CO₂ emissions and also improving the energy rating.



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PV Diverter Criteria

- PV must be present and connected to the dwelling electricity supply.
- Hot water cylinder with higher capacity than daily usage.
- No solar water system
- No battery storage

If any of these conditions are not met then the assessor can acknowledge that the PV diverter is present but the software will not include it in the calculations.



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PV Battery Storage – New Convention



- For PV batteries, photographic or written evidence of manufacturer and model of battery unit used, and usable capacity (kWh) is required. If this cannot be obtained, use a default of 5kWh per battery.

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Software

Will be available for panel details and for % of roof covering.

If you have a battery that is bigger than 5kwh then you can enter separate batteries totalling that amount.
Can only enter 4 batteries

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PV Battery Storage



Battery Amount

The number of batteries (maximum 4) and the capacity are to be recorded. Assume 5kW per battery unless otherwise documented.



Cost Saving

Reducing the costs by allowing a portion of the electricity generated to be used within the dwellings later if not immediately.



EPC Impact

The higher the PV capacity and the battery capacity, the higher the impact it will have on the EPC rating and carbon emissions.

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Small Scale Hydro

How it works

- A waterwheel transforms the energy of flowing water into rotational energy which converts into electricity.
- Hydro energy is a possible opportunity for dwellings with access to flowing water within the curtilage of the dwelling.
- Generating up to 100 kilowatts of electricity which is enough power to supply a large home, small resort or a hobby farm.



Small-scale Hydro Criteria

- The electricity generator is within the land directly around the building and the output is connected to the dwelling electricity supply.
- Total electricity generated (monthly or yearly) is signed off by a qualified and competent engineer.
- More information in the manual regarding shared systems.



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Export Capable?

- Question will be applied to PV, Wind turbine and new Small scale hydro
- Usually most smart meters are capable of exporting, but best to check by scrolling through the digital display on the meter for the words 'export'.
- Usually only smart meter.
- Choosing this button will impact on the rating.

20.0 Wind Turbine

Terrain Type

Suburban

Wind turbine present?



Export Capable Meter



Wind turbine details known?



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ADDENDUMS

Amended / Added

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New Addendums



Addendum 15
Conservation Area



Addendum 16
When PV is recommended – will make comment about also adding PV battery



Addendum 17
Where there is a PV-independent battery storage present - The assessment does not include it.

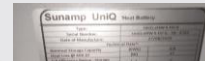
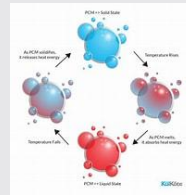
129

Addendum Changes

Addendum 18

"Phase-changing" heat storage present - The assessment does not include "Phase-changing" heat storage.

Example:
Sunamp heat battery, which stores heat, then instantly heats the hot water as it releases its heat. (classified as instant water heater in RoSAP)



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APPENDIX T

Improvement Measures

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Appendix T

G2 - Water Heating Controls

- If the existing dwelling has a water cylinder present and does not have separate water heating controls, then separate time and temperature control for water heating is recommended.

U1 - PV Battery

- Recommended of one battery at least of 5kW appears when the dwelling has PV and no battery storage.

U2 - PV Diverter

- Recommendation appears when dwelling has PV, no PV battery storage, no solar water heating and a hot water tank present.



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Appendix T

❖ Z1 – Air or ground source heat pump with radiators

- ❖ This is for houses or bungalows only, this does not apply for flats or maisonettes.
- ❖ The property must have heating other than a heat pump, community or wet underfloor.
- ❖ The relevant property has to be fairly well insulated; roof and wall insulation recommendations cannot appear.
- ❖ Only if SAP rating is better than other heating systems then the recommendation appears.



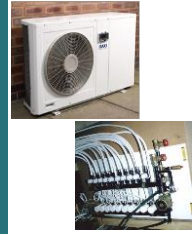
133

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Appendix T

❖ Z2 – Air or ground source heat pump with underfloor

- ❖ This is for houses or bungalows only, this does not apply for flats or maisonettes.
- ❖ The property must have heating other than a heat pump, community and wet underfloor (Z1 not applicable).
- ❖ The relevant property has to be fairly well insulated; roof and wall insulation recommendations cannot appear.
- ❖ Only if SAP rating is better than other heating systems then the recommendation appears.



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Party wall insulation

- ❖ **Removed**
- ❖ **B4 - Party wall insulation**



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Round Up – Key Changes

- ❖ PV Diverter
- ❖ Battery storage
- ❖ Small scale hydro
- ❖ Addenda
- ❖ Appendix T



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Audits

- ❖ Evidence for audit submissions
- ❖ A site note or a photograph is required for each data entry
- ❖ There are mandatory photo's that are required
- ❖ A floorplan of each storey



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Q&A Session

Thank you for listening



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