

Technical Bulletin – 29/09/2017

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Non-Domestic Frequently Asked Questions

1. How should a zone which has no fixed heating be handled?

This is a recurring question from non-domestic energy assessors to the Quidos helpdesk, even though there is a Convention (6.11) which details specifically how this situation should be dealt with.

When a zone has no fixed heating within then an assessor must create a 'default' heating system within the software which should then be assigned to the unconditioned zones. This system should be a fanned electric room heater with a seasonal efficiency of 1 (100%). The below images show within iSBEM how this system would be defined:

The image shows two screenshots of the iSBEM software interface. The left screenshot shows the 'Default Electric Heating' record selector with the following details:

- Name: Default Electric Heating
- Type: Other local room heater - fanned
- Heating system: Room heater (Heat source), Grid Supplied Electricity (Fuel type)
- Cooling system: Default chiller (Pack Chiller)

The right screenshot shows the 'Default Electric Heating' record selector with the following details:

- Room heater: Room heater
- Fuel type: Grid Supplied Electricity
- Do you know the generator's seasonal heating efficiency?
 - Yes, seasonal efficiency is 1
- Do you know the generator radiant efficiency?
 - No, use default value 0.4

The only zones to which this approach does not apply are to those which are classified as indirectly conditioned (see Convention 6.13) or those which have the following activity type:

- Circulation area
- Plant Rooms
- Store rooms and warehouse storage

- d. Industrial process area
- e. Car park
- f. B1 Workshops

The rationale is that these activity types would not typically require conditioning and there is therefore no need for the 'default' system to be assigned. For all other activity types there is an expectation from the calculation engine that conditioning is required, and therefore a system must be entered.

One very important point to note on this Convention; the 'Heating only - Electric resistance' which already exists within the software should NOT be used. This is a completely different type of system - an electric central heating system with warm air distribution - which will give a much poorer EPC rating. Using this system inadvertently would almost certainly result in an audit failure.

2. How should a local extract fan be entered correctly within the software?

Rooms such as bathrooms and toilets will often have a small local mechanical exhaust located within which must be factored into the EPC assessment. A unit such as the below will often be located near an external window or within the ceiling space:



The calculation engine will assume a default ventilation flow of 5 l/s/m² for a local mechanical exhaust system, however Convention 6.07 outlines that it is not acceptable to use this figure.

Instead the assessor must take the air changes per hours figure required for a given activity within table 10.04 of the Conventions and use this as the basic for the calculation.

The calculation is undertaken as follows:

Assuming that the above extract fan is located within a domestic style bathroom which has a zone height of 2.8m, table 10.04 outlines that a domestic style bathroom requires 10 air changes per hour:

Room or Building	Air Changes per Hour
Assembly Rooms	10
Bakeries	30
Banks/Building Societies	6
Bathroom (non domestic) without Shower	8
Bathroom (non domestic) with Shower	20
Bathroom (domestic)	10

There is a long winded means of undertaking this calculation, however we will keep it simple! It is simply:

$$\text{Ventilation flow rate (l/s/m}^2\text{)} = (\text{Air changes per hour} \times \text{zone height})/3.6$$

Therefore for this example the entry should be:

$$\text{Ventilation flow rate (l/s/m}^2\text{)} = 10 \times 2.8/3.6$$

$$\text{Ventilation flow rate (l/s/m}^2\text{)} = 7.78$$

This is the figure which should be entered within the software for this particular zone:

The screenshot shows a software interface for recording data. At the top, a dropdown menu is set to 'Domestic Style Bathroom'. Below this, there are several tabs: 'HVAC & HW systems', 'Ventilation', 'Ventilation (cont)', 'Exhaust', 'Lighting', and 'Lighting Controls'. The 'Exhaust' tab is selected. Under this tab, there is a section titled 'Ventilation flow due to local mechanical exhaust'. A checkbox labeled 'Is there Local Mechanical Exhaust in the zone?' is checked. Below this, a text input field for 'Local mechanical exhaust' contains the value '7.78' followed by the unit 'l/s/m2'. At the bottom of the form, there are two more sections: 'Do you know the Exhaust Specific Fan Power?' and 'Scope of ex...'. The 'Do you know the Exhaust Specific Fan Power?' section has an empty input field. The 'Scope of ex...' section has a dropdown menu.

This calculation should be undertaken for all local extract systems which are identified. Many assessors make the mistake of entering the air changes per hour figure given within the table

into the software (in this example 10), however this approach is not correct and will also often result in an auditing failure.

3. I have a zone for which iSBEM is assuming the presence of display lighting - what should I enter for the lumens per circuit wattage under the 'Display Lighting' tab?

For certain activity types, including the majority of retail sales based activities, the calculation engine makes an assumption that display lighting is present within the zone. Under the 'display lighting' tab the software will then require the lumens per circuit wattage of the display lighting to be entered if energy efficient lamps are present:

Record selector: **Retail Sales Area**

HVAC & HW systems | Ventilation | Ventilation (cont) | Exhaust | Lighting | Lighting Controls | **Display Lighting** | Solar D

Does display lgt use efficient lamps?

Yes No or don't know

Lumens per circuit wattage: Unit

In itself this causes a problem, as the lumens per circuit wattage for the lighting is unlikely to be known. Leaving the selection as 'no or don't know' would therefore unfairly penalise the energy efficient lamps present within the zone; this is where Convention 7.04 comes in.

The convention states that when the lamp type within the zone is anything except for Tungsten/Halogen then the 'yes' option should be ticked and a value of 50lm/cw entered. This ensures that the software is assuming a value in line with what the lm/cw of the lighting is likely to be:

Record selector: **Retail Sales Area**

HVAC & HW systems | Ventilation | Ventilation (cont) | Exhaust | Lighting | Lighting Controls | **Display Lighting** | So

Does display lgt use efficient lamps?

Yes No or don't know

Lumens per circuit wattage: Unit

If the lighting within the zone is Tungsten/Halogen then the selection should be left as 'no or don't know'.

It is important that assessors always check the Display Lighting tab for all of the zones within the project in order to see whether or not the software is assuming the presence of display lighting. The software assumes a default position of 'no or don't know' for whether energy efficient lamps are being used and this must be overridden when applicable.

Happy Birthday to the Energy Performance Certificate!

It has now been 10 years since EPCs were required as part of Home Information Packs.

Since 2007, EPCs have evolved to form an integral part of the common parlance for understand your home's energy requirements, and a key document in applying of energy efficiency measures, such as Feed-in Tariff or the Renewable Heat Incentive.



In that time, over **15 million** domestic RdSAP assessments have been lodged to the England & Wales EPC Register.

Whilst a much maligned document, the humble Energy Performance Certificate remains crucial in benchmarking the energy usage of the UK's varied housing stock. With the implementation of a minimum EPC rating standard for rented properties from 2018, it looks as though future of this four-page document is secure for the time being.

RdSAP v9.93 – Coming Soon

Quidos is currently in the process of developing and testing the iQ-Energy portal in readiness for the implementation of RdSAP version 9.93.

There are very few changes for DEAs to take on board, but there will be a slight uplift to the U-Values of solid and cavity walls for Age Band A-E dwellings.

It is likely that this version of RdSAP will be implemented from 1st November 2017.