

The specific fan power of a fan coil unit (SFP_{fcu}) is defined as follows:

$$SFP_{fcu} = \frac{P_{mains}}{q_{fcu}}$$

where:

$$P_{mains} = \text{power supplied to the fan coil unit, W}$$

$$q_{fcu} = \text{airflow rate through the fan coil unit, l/s}$$

Table 6.9 of Approved Document L Volume 2 Buildings other than dwellings 2021 edition ⁽¹⁾ which limits specific fan power of fan coil units to a maximum of 0.4 W/(l/s), measured as the rating weighted average of the fan coil unit installation in accordance with BS 8850⁽²⁾

This is calculated by summing the product of the power supplied (P_{mains}), including ancillary items, and the specific fan power (SFP_{fcu}) for each fan coil unit in the installation, divided by the sum of the power supplied (P_{mains}) for all the fan coil units in the installation. This can be expressed thus:

$$\frac{(P_{mains(1)} \times SFP_{fcu(1)}) + (P_{mains(2)} \times SFP_{fcu(2)}) + (P_{mains(3)} \times SFP_{fcu(3)}) + \dots}{P_{mains(1)} + P_{mains(2)} + P_{mains(3)} + \dots}$$

For example, for a project with four different fan coil units, the rating weighted average SFP_{fcu} could be:

$$SFP(\text{rating weighted average}) = \frac{(85 \times 0.3) + (175 \times 0.2) + (80 \times 0.7) + (115 \times 0.5)}{85 + 175 + 80 + 115}$$

$$= 0.38$$

Note that because the majority of fan coil units in this example installation have low specific fan powers the $SFP(\text{rating weighted average})$ of the installation is below 0.4 W/(l/s), despite the inclusion of a small fan coil unit with a high individual specific fan power.

The user guide for the Simplified Building Energy Model (SBEM)* calculation tool, for calculating annual energy use, makes reference to a default value for SFP_{fcu} of 0.3 W/(l/s) for fan coil unit systems. This is quite low due the fact that around 90% of applications are for existing buildings. Note the program allows this figure to be over written with a specific project value

* The SBEM⁽³⁾ ⁽⁴⁾ has been developed by BRE for the Department for Leveling Up, Housing and Communities (DLUHC) from the National Calculation Methodology which is the annual energy use calculation for demonstrating compliance with approved document ADLV2 2021.



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Today most fans are available fitted with electronically commutated (EC) DC motors with onboard speed control equipment to further promote energy efficiency. The specific fan power for fan coil units fitted with these fans can be below 0.4 W/(l/s).

1. Approved Document L Volume 2 Buildings other than dwellings 2021 edition
2. BS 8850 Fan coil unit performance – Determination of specific fan power – Test method.
3. Current approved version iSBEM_v5.6.b to carry out calculations for the purposes of Building Regulations Part L compliance, EPC, or Green Deal assessments in England.
4. Version iSBEM_v6.1.a which implements England's 2021 NCM that is due to come into force on 15 June 2022 in support of the 2021 Edition of the Approved Document L, Volume 2, in England