CARBON BITES

From the CIBSE ENERGY PERFORMANCE GROUP

CIBSE TM 54 – Evaluating Operational Energy Performance of Buildings at the Design Stage.

What is CIBSE TM54?

CIBSE TM54 is a technical memorandum published in 2013 in response to the increasing interest on the operational energy performance of buildings and how they compare to design stage predictions. The document aims to:

- help engineers respond to a project brief where an operational energy target has been set
- provide a methodology that engineers can use to undertake better-informed calculations of energy use in operation
- demonstrate that energy performance is dependent on how the building is run and maintained, as well as how it is designed and constructed.

The proposed methodology focuses on non-domestic buildings and is written mainly for engineers and consultants working in the UK (although it can be adapted to other countries).

Key Issues

- Part L models are not intended as predictions of energy use but are sometimes mistakenly used as such.
- One of the main reasons for the difference between Part L model results and operational energy use is that the calculation uses standard inputs for variables such as the hours of operation, whilst also excluding numerous energy uses such as small power, external lighting, lifts etc.
- The methodology proposed in TM54 provides an approach for estimating operational energy use at the design stage, accounting for all end uses in the building alongside realistic operating patterns and behaviours.
- A key principle of the methodology set out in this document is that the results should be presented as a range, to illustrate the level of uncertainty around estimating operational energy use at the design stage.
- Ranges are calculated based on a range of scenarios, and as a minimum, the guide suggests that a high- and low-end scenario should be generated.
- The scenarios that are selected should be based on the variables that are considered to be the least certain.
- It is also recommended that the engineers should state clearly the assumptions behind the calculations alongside the results.
- A case study using a multi-tenanted office building in Central London illustrates that the methodology can provide a good estimate of energy use in operation.

LINKS

- CIBSE TM54: http://www.cibse.org/knowledge/cibse-tm/tm54-evaluating-operational-energy-performance-of
- CIBSE TM54 Publication Launch (video) http://vimeo.com/75573901
- Mind the Gap (CIBSE Journal article) http://www.cibsejournal.com/archive/2013-09/mind-the-gap
- CIBSE tackles task of operational energy performance of buildings (MBS article): http://www.modbs.co.uk/news/archivestory.php/aid/12435/CIBSE_tackles_task_of_operational_energy_performance_of_buildings_.html
- Mind the Gap (Sustain magazine article) http://sustainmagazine.com/mind-the-gap/ Link 4