

New ISO working group “Data for building systems simulation” calls for experts

ISO/TC 86/SC 6/WG 16 has started the development of standard ISO titled “Data from Air Conditioning and Heat Pumps for Energy Efficiency Simulation of Building Systems”.

ISO/TC 86/SC 6/WG 16 would welcome additional experts that can contribute to this effort.



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Background

Performance mapping of air conditioners and heat pumps is required for building system energy use simulations.

The measuring points of current performance product standards are developed to compare a product with other products. The measuring points do not necessarily correlate with the typical points used in building system simulations.

Performance mapping of air conditioners and heat pumps is required for building energy use simulations. Given the calculation interval, the operating conditions and the required heat output, any building simulation has to determine how much of the load can be covered (i.e. maximum available capacity in the

given conditions) and which are the required energy inputs. This requires that a suitable set of product data and parameters is provided by the manufacturer. There are already several standardized product testing standards, but they are not primarily aimed to provide data for that purpose. Trying to establish the performance map of a heat pump or air conditioner for energy performance calculation of the heat or cold generation system is difficult and may result in poor accuracy. It is currently difficult to define usable methods because of the difficulty to find the required data, misinterpretation of available data, possible large burden for manufacturers, and so on. Discrepancy between the measuring points of current performance standards aimed to characterize products as such and typical use points in buildings are also an issue. To resolve these issues, this standard is to be developed.



The working group shall develop or refer to the required performance mapping methods for air conditioners and heat pumps, intended for use in building system simulation. The ISO standard is aimed to establish data sets and where needed possible calculation methods to enable performance mapping of air conditioners and heat pumps intended for building system simulation with suitable accuracy based on reasonable product measurement requirements.

Expertise

ISO/TC 86/SC 6/WG 16 is inviting experts to participate in the development of ISO standard. The experts should have knowledge related to:

- Performance mapping methods for air conditioners and heat pumps;
- Performance simulation of air conditioning systems and heat pump systems;
- Performance measurement of air conditioners and heat pumps.

More information

In Europe the energy performance assessment of heat and cold generating systems are described in several standards of the EPB family of standards, see: <https://epb.center/support/overview-epb-standards/>

And articles in the REHVA journal:

<https://www.rehva.eu/rehva-journal/detail/06-2020>

<https://www.rehva.eu/rehva-journal/detail/rehva-journal-04-2021>

Two standards are most relevant in this context:

- EN 15316-4-2 Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies - Part 4-2: Space heating generation systems, heat pump systems
- EN 16798-13 Energy performance of buildings - Ventilation for buildings - Part 13: Calculation of cooling systems – Generation

Related European product standards are amongst others:

- EN 14511 series: Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors.
- EN 14825 Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling - Testing and rating at part load conditions and calculation of seasonal performance.

How to become involved in an ISO Working Group?

The interested expert has to contact the National Standard Body (NSB), they have the authority to register a WG member. In many cases the NSB accommodates a national mirror committee that follows the work in this ISO/TC 86 and experts taking part in the standardisation work in one of the Working Groups are in general also part of this national mirror group.

Questions? Feel free to contact the undersigned convener of the ISO/TC86/SC6/WG16. ■