Eurovent Special Project ‘Air Handling Units 2030’ is setting new standards in terms of energy efficiency and Life-Cycle-Costs

New participants are still able to join the ongoing project

Europe’s leading manufactures of Air Handling Units (AHUs) are currently developing a comprehensive methodology for Life Cycle Cost (LCC) analysis. The future Eurovent Recommendation is going to establish a new standard for LCC calculation on the market. The new methodology will contribute to a level-playing field for all manufacturers. It is going to provide a straight-forward and sound way to estimate the total costs related to AHUs throughout the entire lifespan of the system.

The Recommendation is not only addressing sophisticated calculations of energy consumption, but also maintenance costs, the efficiency of energy production, and disposal costs. The project is going to establish a new common standard for LCC calculations on the market.

This new tool will allow for a comparison of benefits resulting from specific applied features, and to compare advantages of various products, which are not visible at a glance. The new methodology will contribute to a level-playing field for all manufacturers, providing an easy way to estimate the total costs related to AHUs throughout the entire lifespan of the system.

To facilitate calculations, a DLL for integration with any AHU selection software is going to be developed during the final project stage. Although the project is ongoing, new participants are more welcome to join and contribute.

Considering investment costs only is misleading

Expenses related to ventilation or air conditioning systems do not culminate in acquisition costs. On the contrary, investment costs usually represent only several percents of the total Life Cycle Costs. Depending on how complex a system is, the running costs associated with VAC can amount up to 30% of total expenses incurred by the building users.

The applied technical solution for a specific project has a significant impact on the facility management costs. Apart from the primal project foundations, which must be met in any case due to formal and functional requirements, the efficiency of air handling and air transport processes have the key impact on energy consumption. These tasks are performed by air handling units, which tend to be the most expensive products of a system in terms of acquisition costs.

Other important issues to be considered are energy production efficiency of an available source and maintenance costs. The latter include inspection and service costs, and are highly reliant on construction features of applied units. Finally, at the end of the system lifetime, the disassembly and disposal costs must be acknowledged.

Often, investors and designers are not aware on a planning phase of the running costs level and tend to optimise an investment taking care of acquisition costs only. Such an approach cannot result in finding the optimal solution, considering the entire lifespan of a system or a building.

Unfortunately, an estimation of total Life Cycle Costs is not an easy task. The lack of comprehensive calculation tools for determining all above mention costs is the obstacle.
As a matter of fact, there are many computer programmes available on the market for LCC calculation. Yet, since no common standard is established, their outcomes cannot be compared. Moreover, only energy costs are covered in these analyses. Another problem is that computations are performed in a simplified manner not addressing important performances influencing energy consumption and maintenance cost. Hence, they offer very limited accuracy, not allowing to highlight the crucial features having an impact on total costs.

**The Eurovent Special Project ‘Air Handling Units 2030’**

Answering this situation, manufactures participating in the Eurovent Product Group ‘Air Handling Units’ decided to set up a Special Project called ‘Air Handling Units 2030’. The project was launched last year. A kick-off meeting took place in Prague in February 2017.

The main project objectives are:

- To establish a uniform and widely accepted standard for calculating Life Cycle Cost of air handling units
- To disseminate the results of the project among all market players and to contribute this way to a level-playing field for all manufacturers
- Effectively promote the developed methodology, establishing it as the mainstream standard used by consultants and planners

**Intended results of the Project – the Guidelines and the DLL**

Along with the Recommendation, a document providing exhaustive guidelines and background of LCC calculation, and a DLL (Dynamic-link library) are being developed. The DLL is going to be programmed by an external IT company in a way enabling easy and user-friendly integration into any AHU selection software used by AHU manufacturers in Europe and the Middle East.

**Issues considered in the LCC calculations**

The Eurovent project addresses many aspects uncovered so far in existing tools, including:

- Determination of freezing point for various types of heat recovery exchangers for different input conditions
- Evaluation of power recovered under freezing conditions (below freezing point)
- Defining variability of moisture efficiency at various input conditions (impact on energy consumed for cooling and humidification)
- Defining the relation between temperature and moisture efficiency under operation with reduced load (heat wheel with limited speed)
- Impact of dry/wet operating conditions for cooling coils on energy consumption.
- Impact of air filters energy efficiency on energy consumption
- Implementation of adiabatic cooling technology

Apart from advanced energy consumption calculations, Life Cycle Cost analysis will cover other aspects, such as:

- Maintenance cost
- Efficiency of energy production
- Disposal
This will enable us to display advantages resulting from applying various technologies and to highlight savings coming from the specific product’s feature. Such a comprehensive comparison of various products, very similar at a glance, is not available at present. These unique features will make the Eurovent tool unprecedented.

**How to join the Special Project**

Although the project is already ongoing, new participants are still welcome to join. The benefits of joining this forward-thinking project include:

- Active participation in drafting the recommendation content
- Providing input concerning specific technologies applied in your products
- Free access to developed DLL (companies not participating in the project will have to purchase the DLL and will be charged an annual licence fee afterwards)
- Effective promotion of your company on the European and international level

**Recommended Actions**

All Eurovent members interested in joining the project, notably AHU manufactures, and suppliers of components applied in AHUs, are asked to contact Mr Igor Sikonczyk igor.sikonczyk@eurovent.eu.