Ventilation tool

A lack of independent information concerning controlled ventilation with heat recovery is according to [Vond18] one of the central obstacles to the growth of energy efficient ventilation with heat recovery in residential buildings. This results in the installation of other systems (e.g. exhaust ventilation or free air ventilation) and sees the energy-saving potential of heat recovery lost.

Phase
The ventilation tool provides independent information at the very beginning of the planning process.

Purpose
The tool provides independent data for ventilation units with heat recovery. With very specific and simple input parameters, the tool provides a selection of applicable ventilation units for specific projects.

User
The ventilation tool is meant for building owners and other interested parties planning to install a ventilation unit in their home. Furthermore, it delivers effective arguments to energy consultants and designers in order to convince costumers to invest in an energy and cost-efficient ventilation unit with heat recovery.

Input
- Number of persons
- Number and kind of extract air rooms
- Available space for a ventilation device (storage room, bathroom wall/ceiling, kitchen wall/ceiling, living room façade integrated)

Output
- Required air flow rate
- List of suitable ventilation devices for the specific boundary conditions
- Calculated electric energy consumption for the selected ventilation unit, calculated savings of ventilation heat losses for the selected ventilation unit and specific air flow rate
- Additional information to required components and maintenance

Computer platform
Windows, Excel tool

Strength
The tool offers collected information for customers such as building or flat owners. Currently, it’s hard to find good independent information for controlled ventilation, which in [Vond18] was found to be one of the main reasons for deciding against a controlled ventilation system with heat recovery.
Weakness

The tool is used in the early decision phase before the real planning process starts. Designers of ventilation units or installers might need further information and assistance in order to design and install a cost and energy efficient ventilation unit.

Outcome

The Ventilation Tool will specifically address the following:

- Avoidance of ‘over-dimensioning’, therefore ensuring savings from correct selection of a ventilation device. Additionally, the operation at lower air change rates is more cost efficient.
- Providing information for different installation options in order to find the option that best fits a specific project (helping to reduce installation costs e.g. for additional casing...)
- The calculated savings of ventilation heat losses and power consumption will hopefully convince customers to decide for a ventilation unit with a highly efficient heat recovery process as well as low electric power consumption.
- This information helps in considering all required components from the beginning in order to avoid failures, which helps to reduce the overall costs of ventilation with heat recovery.

Ventilation tool for building owners, energy consultants and designers

Input parameter:
- Number of persons
- Number and kind of extract air rooms
- Number and kind of supply air rooms
- Number and kind of transfer area
- Available space for ventilation device
- Installation room
- Selection of ventilation device

Output parameter:
- Recommended air flow rate
- List of suitable ventilation unit

Additional information:
- Required components
- Required functions
- Recommendations respective maintenance and initial operation
- Calculation of savings of ventilation heat loss based on the selected device
References


Contact

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