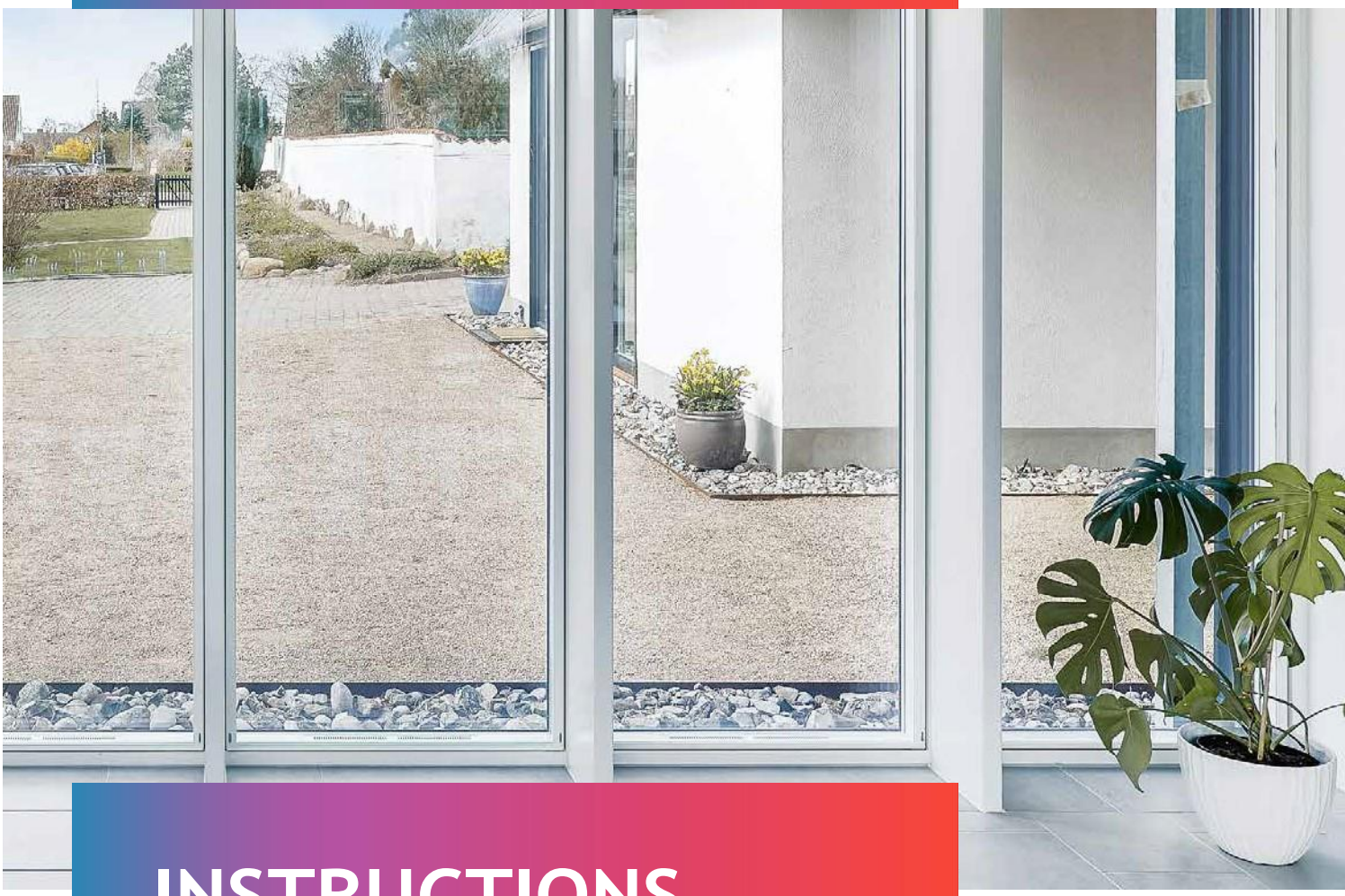
LIVINGBETTER



INSTRUCTIONS FOR ENTERING EQUIVALENT INPUT DATA INTO BE18

CALCULATION TOOL EQUIVALENT VALUES FOR ENTRY INTO BE18

Project-specific values that must be entered into the energy framework calculation are stated in the offer and order confirmation material for LivingBetter ventilation windows and IKM A/S heat pumps.

These instructions show where to enter the data and ensure that the building's energy framework is calculated correctly. Naturally, the data varies from that entered in connection with standard products and solutions, as these do not have the same impact on energy consumption and the indoor climate.

ENERGY VALUES FOR THE VENTILATION WINDOW

LivingBetter receives scale drawings (floor plans and façades) from the customer. Based on the drawings, we draw up proposals to indicate the volume of supply air that is required to meet BR18 requirements.

This figure is then used to calculate more precise b-values that can be entered in the BE18 program. The b-values are stated in a table at the back of LivingBetter's offer.

This calculation method has been devised in cooperation with Aalborg University (AAU) in compliance with the Danish Building Research Institute's and follows the Guidance on Equivalence Data for Special Components and Solutions - version 2022.03.15.

THE VENTILATION WINDOW

The ventilation window is defined as a double window structure with a double-glazed unit on the inside and a single-glazed unit on the outside (the opposite is also possible) fitted in conjunction with LivingBetter's patented thermostatic valve system and with air channels, made to LivingBetter's specifications and fully tested by an independent research institute.

The window's function presupposes that there is negative pressure in the building, achieved either by natural or mechanical air extraction. For the ventilation window to contribute to the energy framework calculation, a mechanical means of extraction (e.g. an exhaust air heat pump) is required that recovers energy from the exhaust air.

Fraunhofer Gesellschaft (research institute) and Aalborg University (AAU) have conducted exhaustive tests on ventilation windows fitted with the LivingBetter thermostatic valve system. The test results make it possible to calculate and substantiate air volume and energy recovery so that the solution meets energy labelling requirements.

THE EXTRACT AIR HEAT PUMP

When installed in combination with ventilation windows, IKM's extract air heat pump operates constantly and maintains negative pressure in the building at all times. The heat pump recovers energy from exhaust air. This energy is used to produce domestic hot water and central heating.

IKM A/S exhaust air heat pumps are approved in accordance with EN14825. The BE data is stated in accordance with EN14511 Air condition systems, table 9, exhaust air. Domestic hot water meets the requirements of EN16147 profile (L).

Please note: An extract air heat pump is not listed on the so-called positive list. The only heat pumps on this list are heat pumps that have an outdoor unit. Even so, IKM extract air heat pumps are approved for use in new residential houses or renovation projects.

TOOL FOR CALCULATING EQUIVALENT VALUES FOR ENTRY INTO BE18

b-value

Enter b-value in the “Data/Statisk værdi” (Data/static value) folder. The program calculates a b-value for the ventilation window’s reduced transmission heat loss.

The static U-value is stated in LivingBetter’s offer/order confirmation

Enter b-value into BE18

Calculating the b-values for LivingBetter Ventilation windows with CWT valve technology (Input data from LivingBetter offer/order is typed in blue)							Output data (enter in Energy calculation)			
The residential unit's gross area 53 m²				Differential pressure in building (Pa) 11,6 --- Recommended 12 - 16 Pa	The ventilation window's static values (data from offer/order) Without air circulation through the window (0,0 l/s) (0,0 m³/t)		The ventilation window's values with mechanical ventilation (supply air volume per valve) 3,5 l/s 12,7 m³/t			The element's glazing factor (f_f)
Mandatory basic air exchange rate (cf. BR18) for ventilation with (0,4 l/s/m2) 1,44m3/t/m2: 21,2 l/s 76,32 m³/t										
Offer/order position id	Dimension total Width	Height	Dimension VV Width	Height	No. of CWT-valves in the window element	U_w-value [W/m²*K]	g_g-value	b-value calculation b-value	g_g-value	E_w	Total f_f
L1	141,0	210,0	50,0	210,0	1	0,90	0,55	0,93	0,55	6,0	0,76
L2	120,0	124,5	120,0	124,5	3	0,90	0,63	0,72	0,63	45,0	0,84
L3	109,0	139,5	109,0	139,5	2	0,90	0,63	0,75	0,63	42,8	0,84
Total no. of CWT-valves					6						

The above output data for input into the Energy Calculation complies with the Building Regulations according to SBI Guidelines 213 'Ventilation Windows. LivingBetter A/S is not responsible for the correct residential area, etc., or whether the applicable drawings have been made available to us.

g_g-value

Enter g_g-value in the “Data/Statisk værdi” (Data/static value) folder.

The static g_g-value is stated in LivingBetter’s offer/order confirmation

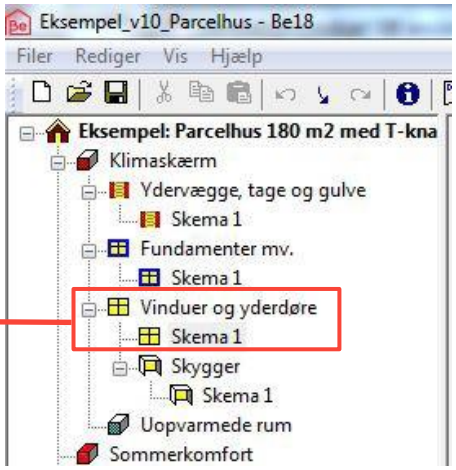
Calculating the b-values for LivingBetter Ventilation windows with CWT valve technology (Input data from LivingBetter offer/order is typed in blue)							Output data (enter in Energy calculation)			
The residential unit's gross area 53 m²				Differential pressure in building (Pa) 11,6 --- Recommended 12 - 16 Pa	The ventilation window's static values (data from offer/order) Without air circulation through the window (0,0 l/s) (0,0 m³/t)		The ventilation window's values with mechanical ventilation (supply air volume per valve) 3,5 l/s 12,7 m³/t			The element's glazing factor (f_f)
Mandatory basic air exchange rate (cf. BR18) for ventilation with (0,4 l/s/m2) 1,44m3/t/m2: 21,2 l/s 76,32 m³/t										
Offer/order position id	Dimension total Width	Height	Dimension VV Width	Height	No. of CWT-valves in the window element	U_w-value [W/m²*K]	g_g-value	b-value calculation b-value	g_g-value	E_w	Total f_f
L1	141,0	210,0	50,0	210,0	1	0,90	0,55	0,93	0,55	6,0	0,76
L2	120,0	124,5	120,0	124,5	3	0,90	0,63	0,72	0,63	45,0	0,84
L3	109,0	139,5	109,0	139,5	2	0,90	0,63	0,75	0,63	42,8	0,84
Total no. of CWT-valves					6						

The above output data for input into the Energy Calculation complies with the Building Regulations according to SBI Guidelines 213 'Ventilation Windows. LivingBetter A/S is not responsible for the correct residential area, etc., or whether the applicable drawings have been made available to us.

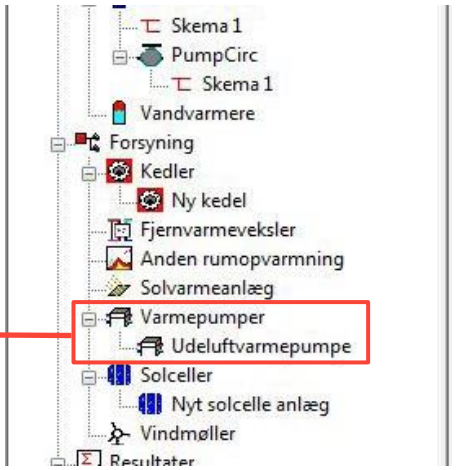
The static values for windows and doors **without** ventilation are stated in LivingBetter’s offer/order confirmation (see individual positions).

ENTER EQUIVALENT INPUT DATA

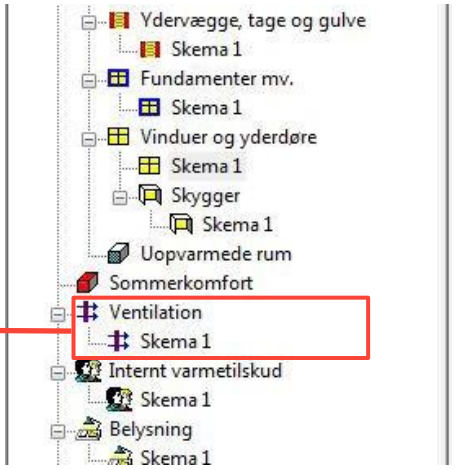
The BE18 program:
Input data b-values



The BE18 program:
Input data values
heat pump



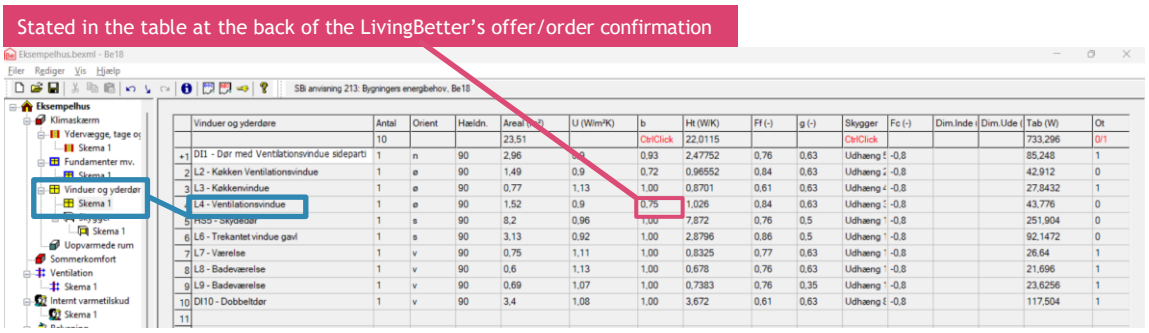
The BE18 program:
Input data values
ventilation



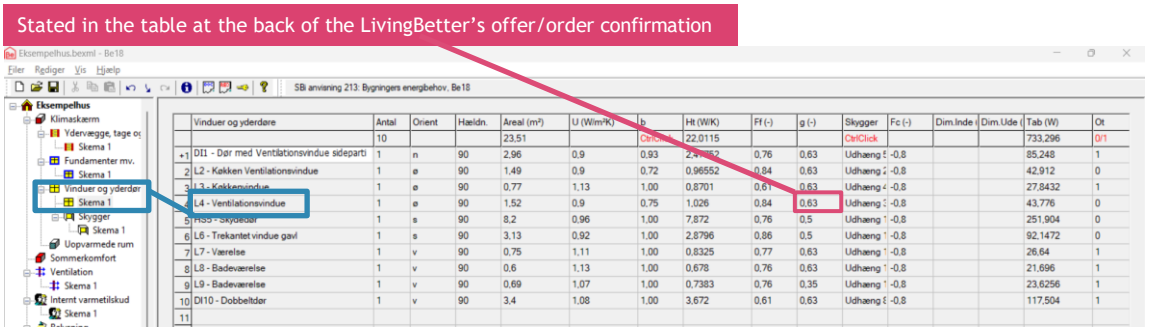
THE BE18 PROGRAM:

Enter the windows' energy parameters in the "Vinduer og yderdøre" (Windows and outside doors) folder.

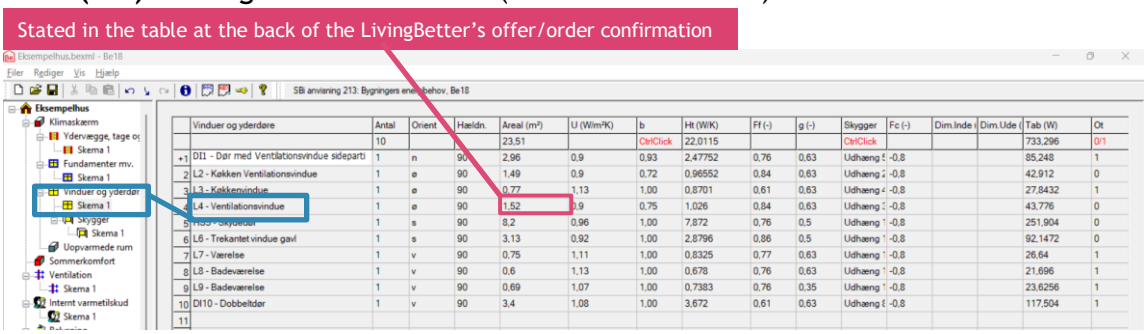
Calculate **b-value** as instructed in SBI 213 and enter in column b



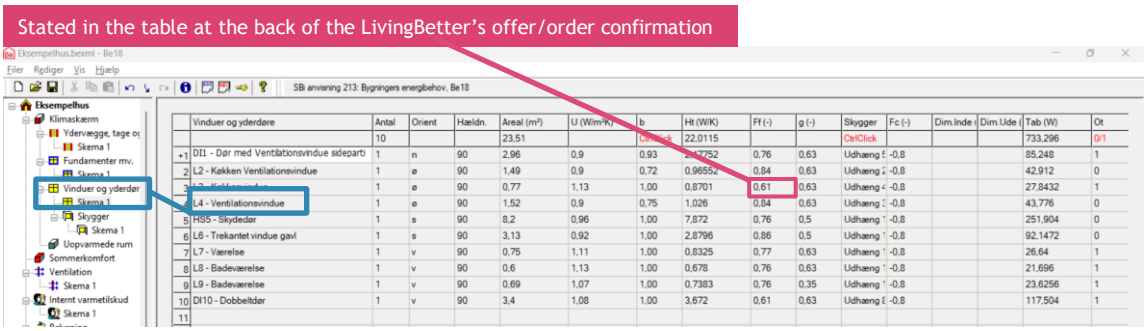
The **g_g-value** is entered in column g



Area (m2) is the gross window area (stated in the offer)

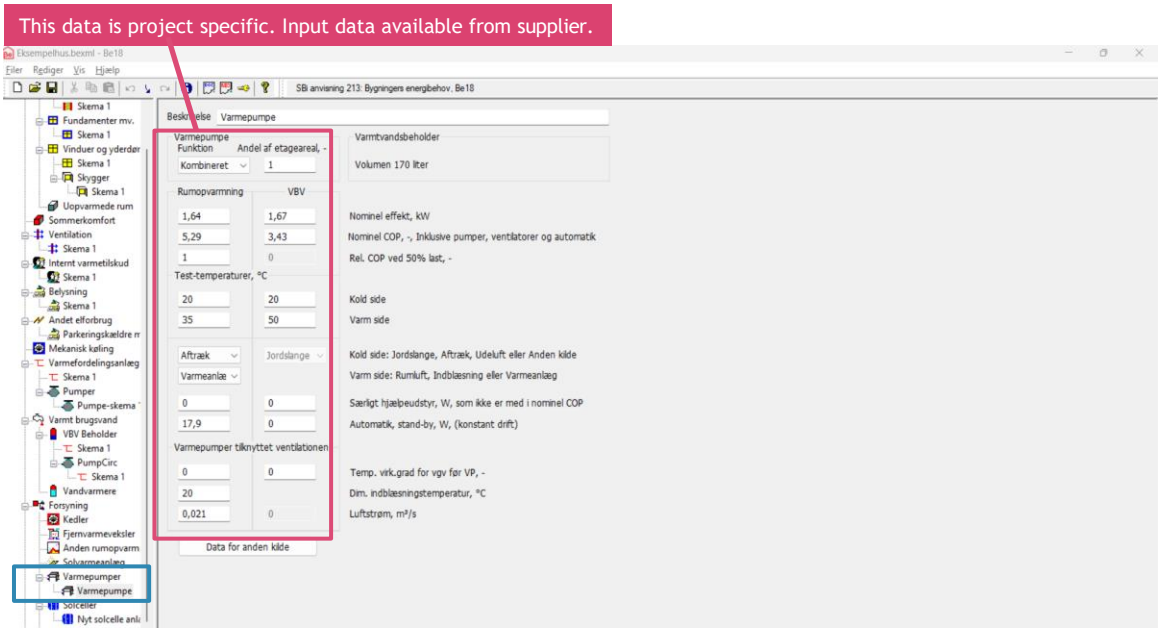


Ff (-) is the window's glazing factor (%). Calculated as area of glass/gross area

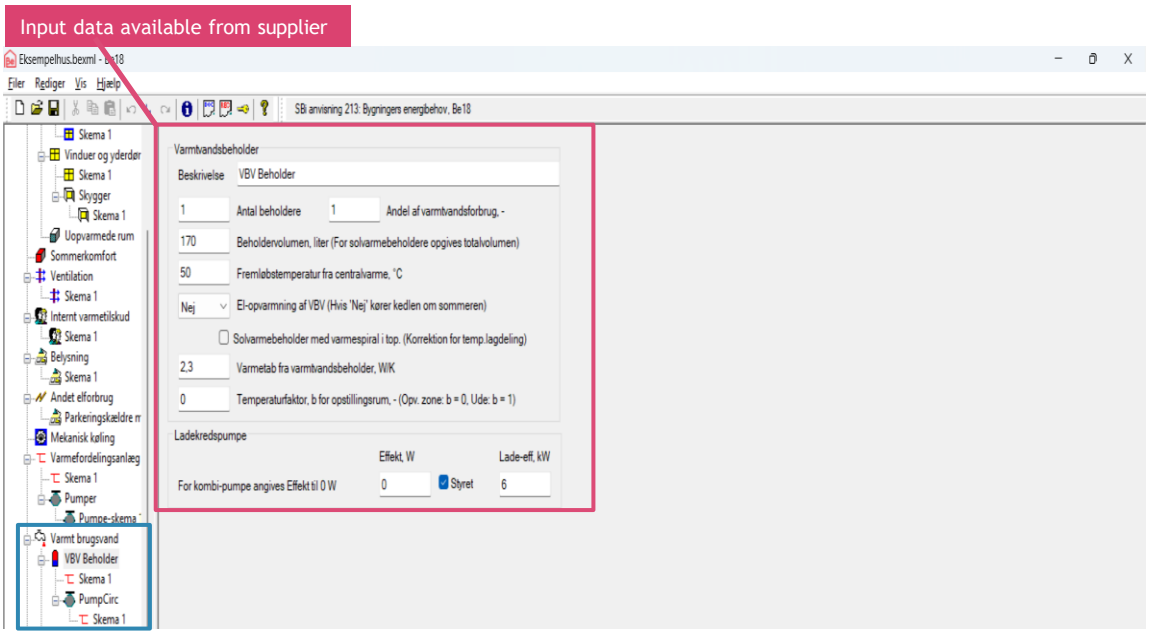


THE BE18 PROGRAM:

Heat pumps:
Enter the heat pump's energy parameters in the table in the "Varmepumper" (Heat pumps) folder.

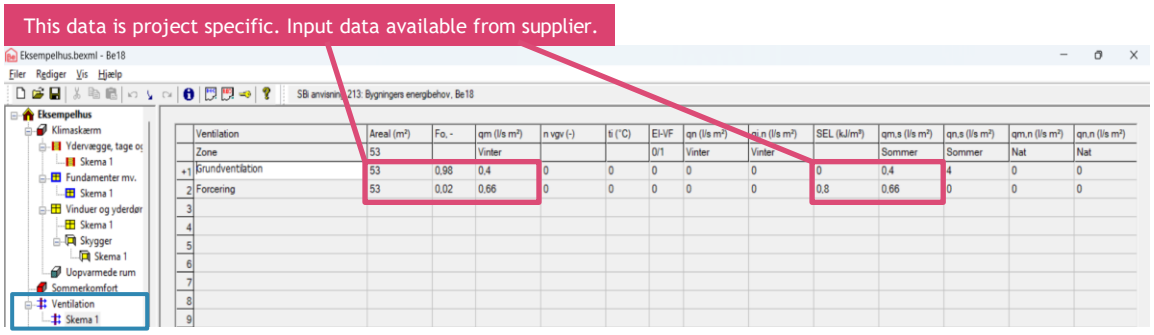


Domestic hot water:
Enter the heat pump's hot water tank data and (if relevant) circulation pumps and distribution data in the VBV Beholder (Domestic hot water tank) and PumpCirc tables respectively, in the "Varmt brugsvand" (Domestic hot water) folder.



THE BE18 PROGRAM:

Ventilation:
Enter project-specific calculated values in the table in the "Ventilation" folder.



The heat pump calculation shows both the base ventilation qm (l/s/m²) and the forced air volume qm (l/s/m²).

Example of heat pump data: