Fresh, healthy and good air, free of dust, pollen and vermin!

Local room ventilation
Comfort Ventilation System CVS®

Dear Sir or Madam,

With the best knowledge, I try to comment he subject controlled ventilation with heat recovery:

1) Today, the construction technique offers excellent insulation values and very sealed buildings, windows and doors due to the legal pressure by the Heat Insulation Ordinance. In consequence of this better technique a new airing discipline of the inhabitants should be trained. For this, the WSVO had determined ventilation numbers, which are unfortunately known by nobody or which can't be executed by anybody due to the unrealistic realisation demands. The controlled ventilation systems of before were too expensive for the most house builder. The missing legal pressure, faulty information, moderate heating costs are responsible for the behaviour of the population, it seams that the WSVO had done nothing particular.

2) Airing discipline: Most people do not understand the physical coherencies between air, room temperature and humidity. This is the reason why we, as technicians, developed an automatic apparatus which executes the ventilation discipline. For this, it is guaranteed that the usual energy loos during the ventilation will be reduced on a minimum by a high efficient heat recovery, additionally at the same time the room internal humidity will not to be too wet or too dry.

.3) ***Objective use:*** In addition to the described (objective measurable) main functions of controlled airing, you also obtain air filtering against dust and pollen, acoustic baffle of the outside noise, elimination of gases which appear due to the out gassing of constructional substances, textiles, furniture, plants etc. Please also consider the protection against insect, a longer preservation of the basic structure of a building etc.

4) ***Subjective use:*** Beside there is also a subjective important useful effect: Fresh air at every time, better power of concentration, more well-being, lower incident rates etc.

5) ***Central/local airing:*** One core question which is often asked concerns the decision between central and local air installations. Helpful for this is a decision matrix which shows the advantages and disadvantages of both systems (point of view of the author):

Central air installations:

Advantages:

· Installation could be installed at the attic, at the corridor, at the basement
· Can be combined with heat pumps
· Only one control unit.
· Bigger air flow is possible.

Disadvantages:

· Higher costs and construction times in comparison to local apparatus

· Significant room loss due to manifolds, telephony effect between the rooms
· Dust which can be cleaned difficulty, circulation of smell and seed crystal between the rooms in the case of leakiness.
- Difficult proportioning of the air (each change in a room influences all other rooms)
· Temperature result not satisfying for all rooms (mixture of the air from all rooms will be distributed in all rooms) e. g. the temperature in the sleeping room should be lower than in the living room
· Function of the heat exchanger is not often used in the summer, for this no cooling in the summer.

Local airing installation, particular the CVS:
Advantages:
· Very cheap, very fast installation time, easy to exchange.
· Big rooms can be equipped several for a constant ventilation
· Absolutely unstrained,
· No dust
· No contamination of other rooms.
· No telephony effect,
· Low place requirement, less effort in the case of relocation.
· Easy and fast change of the filter.
· Individual air flow, easy to adjust.
· WRG always delivers the best result in the appropriate room
· Also ventilation without WRG (summer night cooling program) fort his, it is not necessary to extent the heat exchanger
· Passive cooling function in the warm season, no additional energy demand
· Easy to maintain, safe low voltage supply.
· Constant regulation of humidity no drying effects like in the desert (typically for window airing)
· No more condensation at windows and cold wall parts.
· No growth of mould,
· Faster building drying.
· Better warmth distribution.
· Reducing of the growth of acarians and of germs.

6) ***Additional heating:*** Due to the reason that there can be different heating systems of the potential user, we have not planned an additional heating into the apparatus. This one could only be electric and for this there would be another apparatus character. Our target was the development of a low energy apparatus, which delivers the best result for its work. The ventilation system CVS is an important condition for the ventilation of a house and for the elimination of the arising humidity by the inhabitants. The heating systems only copes the temperature conditions for the habitability. The ventilation system is also equal equipment for all other installation systems and no addition to the heating. In passive and low energy houses an absolutely must have! The house is getting to a lower energy house or to a null energy house with a high efficient WRG in CVS.

7) ***Heating system:*** In order to help you concerning the decision regarding the used heating system, I ask you to create a decision matrix in which you can see all positive and negatives points for a time of one generation (minimum). Depending of the primary energy form, you should plan optionally shortages situations.

For the alternative of sun energy you can calculate a disposability of further 4, 5 million years.
8) ***Central control:*** A central control for several installed CV is also created and prepared. But at the end, we disclaimed on it, because an individual adjustment is cheaper and easier to handle for the user, because mostly, the user stays at the place of event. A central handling should be executed and the necessary procedures are not plausible for each person. Perhaps you know it from heating regulations which can be programmable so “easily”. At the end you will try different positions at the beginning, after you will not change the chosen program.
9) ***Program adjustment:*** The visible wheel at the CVS is used in order to select the program. Please read for this the detailed description in the enclosed manual.
10) ***Installation:*** The installation can be made by a craftsman of your choice; he must be equipped with the appropriate tool. For this we also offer a sheet metal stencil (20 €) with it, it is possible to realize an exact drilling. Together with an easy adjustable reach it will be very simple to execute the necessary workings.
11) ***Maintenance:*** Naturally it is possible to take out the heat exchanger in order to clean. In normal dry cases there will be no dust, because dust particles, the container of the CVS and the WT-foil charge and for this reason they scuff. This is our own experience. In kitchen with a high frying sequence and exhausted hoods which are not very effective, there can be glutinous fats and naturally they can also be find at the slats. A cleaning with warm flash water is possible, but do not use a dishwasher. (See also the manual).
12) ***Curtains:*** If the user wants to cover the CVS with a curtain, he has to calculate with a reduced effectiveness, particularly if the curtains reach the base. Depending of the penetrability of the cloth for the air, the duration of the air exchange could be much longer. The temperature of the WRG could also suffer, because the absorbed air is lying nearer to the wall temperature. A compromise could be that the left opening of the CVS looks out of the curtain that means that the CVS would be installed on the left side of the window. This is not a disadvantage, because the best effect will be achieved in half height of the room (recommended 22 – 55 % of the ceiling height); because the outside openings are placed near at the window jamb. For this the accessibility to the filter from the outside by the window is easier and the installation can be made without a framework, also in the lower levels.
13) ***Filter:*** Dust and pollen filter of the category 3 will be delivered automatically. Optional are the filters G4 and G5. The air flow will be reduced correspondingly to the time of use. A regular control is recommended. It is not advisable to use it for more than 3 months due to the organic slats which can create an unhealthful culture together with humidity (mould). The use of a filter delays the balance of the WRG, so that more used air leaves the room. You do not fear one-sided compression ratio, because there are extremely low differences in pressure 5 mm under the water head (=50 pascal). The balance will be made via the other rooms, but uncontrolled, because the balance flow does not go via the WT.

14) ***Power supply:*** The CVS will be supplied by low voltage, so it is absolutely safe if you clean it or if it will be maintenance.
a) A table short-circuit-proof power supply will be automatically delivered.
b) A clocked wall power supply with a higher effectiveness is to your disposal but with surcharge.

c) Another surcharge alternative is a clocked power supply for the construction in the wall. The plug socket will be directly installed under the CVS and it only protrudes a very short connection with suitable plug for connection with the apparatus.
d) At the planning of a house a complete supply for all CVS-apparatus at a floor can be realized to a fuse box and additionally a very short cable with phone jack can be used. You will obtain a credit of € 12, 80 regarding the non-used power supply. As central Nt such Nt is offered in our price list, it can operate 6 -10 CVS apparatus (depending of the type).
15) ***Influence of humidity:*** There is a progeny behaviour concerning the growth of germs, bacillus, virus, acaroids and moulds which depends on the humidity in the room, some of them love extremely dryness with a decreasing character up to approx. 40 % other prefer high humidity of more than 60 %. Between these two values you can consider a stop with a much reduced growths. For this room humidity values between 40 and 60 % can be seen as ideal, because it is also very beneficial for the inhabitants. Also toxic emissions and segregations of construction material are much reduced in this area. Even allergen symptoms are less active in the ideal area. For this it makes sense to regulate the air flow in order to obtain an optimal room climate. Uncontrolled airing (with the window) is not able to do this. The company GF-SOLAIR plead for controlled ventilation in the control range of the air exchange, in order to react to the different weather conditions, the different room sizes, and the different number of inhabitants. For this you can say that additional humidifier are getting needless, which are also a birthplace for mould, because if the brought humidity will be balanced by corresponding dryer fresh air, the stable humidity creates self in the ideal area.
16) ***Notoriety:*** Since the CVS is in the introduction phase; naturally the notoriety is not so big. For this we try to gain specialised dealer, craftsmen, producer of prefabricated houses and the end user in order to advertise for our product. I would be very appreciate if you supply your customer or your friends/family with information material.
17) ***Approval:*** The CVS had been measured by the TÜV Süddeutschland and the certified values are pretty impressive: Almost 90 % effectiveness, almost 70 % of primary energy savings and a reduction factor of 0, 52 (with it, the smallest value will be achieved). The certification by construction law by the DIBT is issued in spring 2001; the entry in the Bundesanzeiger appeared in autumn 2001. Due to this, house builder can use national and regional support programs, if they decide to equip all rooms with controlled ventilation with WRG.
18) ***Wet rooms:*** If the CVS apparatus does not take a shower or a bath there will be no problems. There are corresponding precautions against long running humidity into the apparatus. Normally a bathroom will dry (depending of the size) within 3 hours (step 1) so that it is possible to switch to step 3 or step 4. At the moment we work at a automating of this described switching. In the meantime the switching function should be executed by hand. So far we can guarantee that bathrooms which are too humid are getting so dry that there will be no mould (please consider that it is possible for the wetness to enter deeply in walls and ceilings which are not flagged). If there were mould in the past, it is now possible to clean carefully the appropriate places and to refinish them approx. 1 – 2 weeks after drying. (Use breathing protection).
19) ***Noise emission:*** In order to activate by air, it is necessary to use motors which can’t execute their working without any noise. Additionally there is always a compromise between the air flow and the noise emission. For this, you should compare the different executions of the product overview and take your choice. The

prices can be seen in the latest price list or at the updated page in the internet:
www.gf-solair.de
I hope that you received the information in order to answer your open questions.
Gerhard Feustle