SolarVenti®

Solar Air Collectors

for kindergardens, schools etc.

SolarVenti Professional

www.solarventi.com

The purpose:
To solve ventilation and dehumidifying tasks in an economically affordable way.

The present problem:
1. Day nurseries, schools and clubs often do not follow guidelines regarding indoor climate and Co_2-levels. Studies show that Co_2-levels often are far too high most of the day, where teaching takes place (source: DTU, Denmark a.o.)
2. Studies also show that the learning abilities of the students are less efficient, if conditions regarding indoor climate are not improved (source: DTU, Denmark a.o.).
3. Lifetime of building parts will decrease, if indoor humidity is too high and ventilation is not adequate. There will be a potential risk of mould and fungis.

The normal solution:
Normally there is only one way to improve conditions: installing or optimizing the ventilation system.
Using the normal solution means high expenses for installing and running the system.

The optimized solution:
Lots of schools have exhaust systems connected to the “wet” rooms (toilets, bathing facilities, kitchens etc.)
This removes odours and humidity but does not apply fresh air to the building.

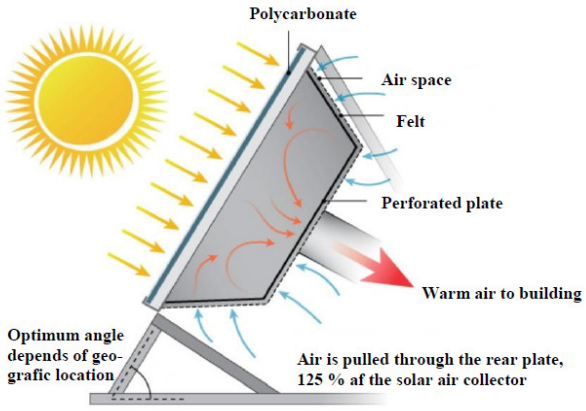
Solar Air collectors supply the building with fresh and preheated air.

1. The solar air collector is placed on the ground, the wall or the roof.
2. A complete renovation of the building is not necessary, only modules for fresh air supply.
3. The system is controlled by energy from the sun (PV-panels) or small electrical fans.
4. Co_2-sensors (option) can secure the quality of the indoor air and reduce running costs.

The result is lower indoor humidity, a reduction of heating costs and ventilation off the specified building.

SolarVenti recommends use of Co_2-sensors for the applications in this brochure.

Maintenance free:
The filter (which is also the absorber) is automatically cleaned by the heat from the sun, when the fan is turned off, and the temperature exceeds 80 degrees C.
The system is thus maintenance free.



Function:

The air enters the collector through a patented double-perforated rear wall.

The air passes through the absorber, made of a black technical material, which is resistant to high temperatures. The material is also an effective air filter.
Unique to this collector is the conversion of solar energy to warm, fresh air. The air gap between the rear wall and the absorber provides sufficient thermal resistance to transfer heat energy to the incoming air, eliminating the need for insulation.

The recommended air volume is 80-150 $m^3/h/m^2$ collector area.

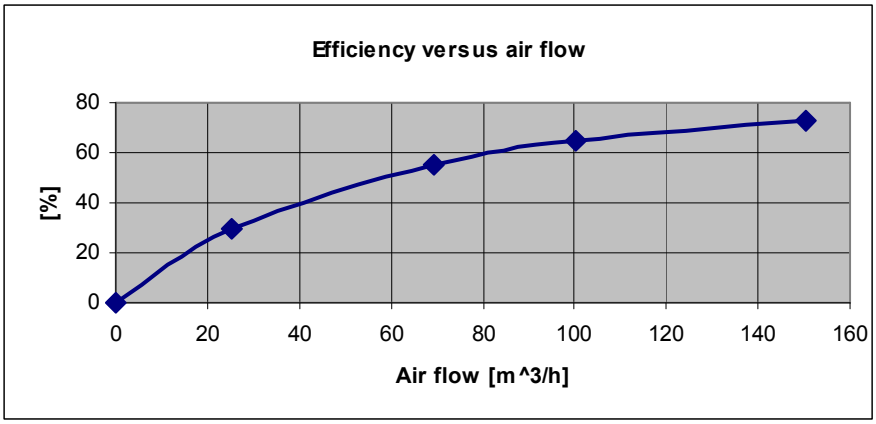
Application details	Day nursery		Kindergarden		School/club	
Size of solar air collector (m^2)	6		10		20	
Air flow (m^3/hour) ****	612		1.062		1.827	
City	Hamburg	Munich	Hamburg	Munich	Hamburg	Munich
Heat power in angle 60° (kWh) *	2.100	2.900	3.600	5.100	6.600	9.400
Reduction in heating costs - oil (Euros) **	277	382	474	672	869	1.238
Reduction in heating costs - gas (Euros) **	218	301	374	530	685	976
Reduction in heating costs - electricity (Euros) **	634	876	1.087	1.540	1.993	2.839
Size of institution (m^2)	100		200		250	
Number of adults ***	9		9		12	
Number of children ***	30		60		120	
Investment in Euros (approx.)	€ 2.400		€ 4.000		€ 8.000	
City	Hamburg	Munich	Hamburg	Munich	Hamburg	Munich
ROI (pay back time) with oil in years *	8,7	6,3	8,4	6,0	9,2	6,5

* Hamburg and Munich, Germany, Calculated in the software RetScreen, indoor temperature: 21ºC

** Prices August 2013, DK / Oil Eur 1,33/Liter and Energistyrelsen www.ens.dk

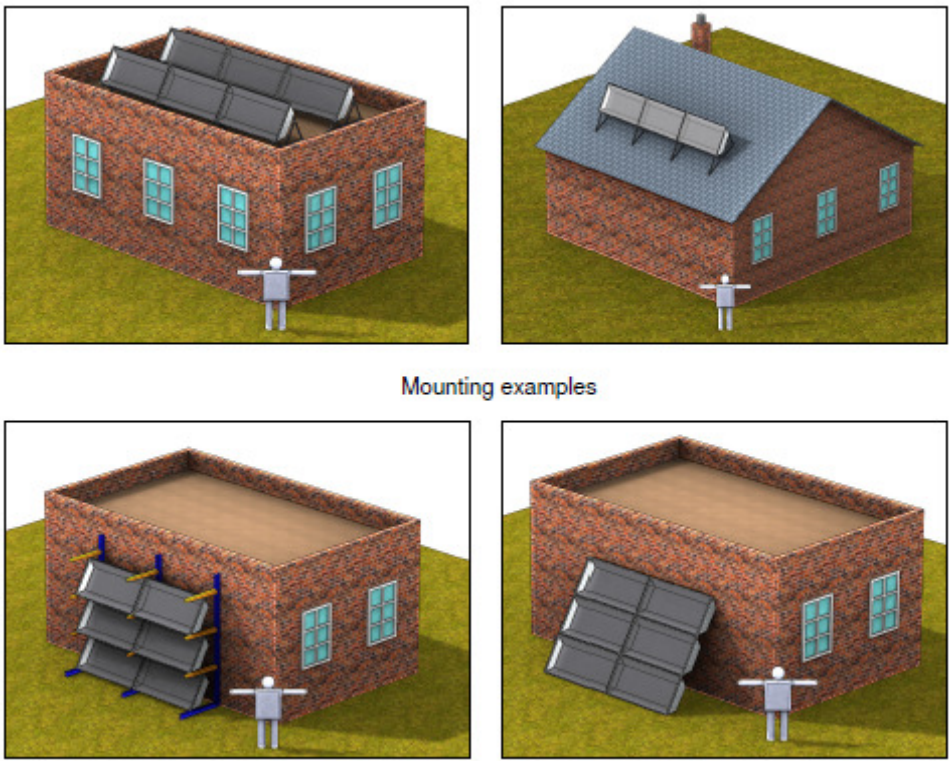
*** Recomendations from BUPL (Danish Union of Early Childhood and Youth Educators)

**** According to the danish building regulatives (BR10, $6.3)



Benefits:

- Short payback time.
- Powerful dehumidification, and free supplementary heated fresh air, resulting in lower energy consumption.
- Improves the operation of existing ventilation systems.



Mounting examples

Economy:

The SolarVenti Professional ® Solar Air System significantly reduces running costs for heating and dehumidification of larger commercial and industrial buildings.

Installing a SolarVenti Professional ® Solar Air System in conjunction with an existing ventilation system (HVAC) saves costs for both heating and dehumidification.

Payback time is usually between 3 and 8 years.

Using the internationally recognized Canadian software RETScreen, based on climate data from NASA, significant savings can be shown.

SolarVenti A/S, Fabriksvej 8, DK-8881 Thorsø, Danmark
www.solarventi.com
tlf: +45 8696 6700