AIRMASTER®
ventilation in balance

WELL-BEING IS A CORE VALUE

Well-being is a cornerstone of the school's values. We work with many aspects of well-being, including physical well-being on the school premises. There is therefore a strong focus on the ongoing renovation and maintenance of the premises to ensure that they provide optimal light, acoustics and air quality.

"The indoor climate has a major impact on the children's ability to perform and their well-being, and we see it as an important part of the overall well-being that the air in the rooms is always pleasant to be in," says head teacher Michael Graugaard.

Many different buildings

As the building stock has very different origins, its renovation is also adapted to the individual space and its use.

- We're constantly renovating the premises as and when required and in relation to the budget we have at our disposal. We prioritise the rooms used most frequently and housing the most pupils. It's a huge advantage to be able to take one room at a time, which we can with Airmaster's decentralised ventilation system. Over time, we've installed 16 Airmaster units," continues Graugaard.

Head teacher, Michael Graugaard and technical service manager, Jesper Knecht.

Demand-controlled ventilation

The basic ventilation runs according to a weekly schedule, but the CO_2 sensors help control the ventilation as needed.

The first house on the road, where the 5th grade is located on the top floor, previously had really stale air and a high CO_2 level.

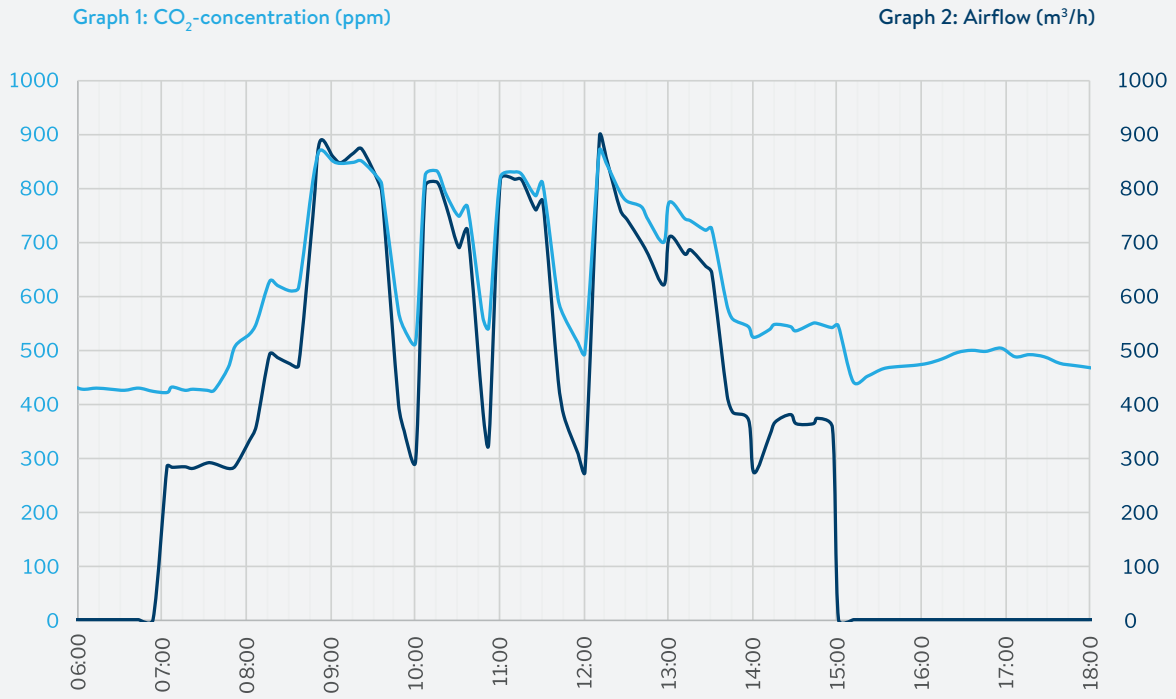
An Airmaster AM 1000 ventilation unit has changed that–now the air is fresh no matter when you enter the room. And the CO_2 level is kept below 1,000 ppm.

The first villa on the road, where the 5th grade is located on the top floor, previously had really stale air and a high CO_2 level.

Measurements from classroom B5

As a rule, the ventilation units run to a weekly schedule, which means that they start up in the morning at 7 am and shut down again at 3 pm – unless a CO_2 level above 500 ppm is registered in the room. During the day, the ventilation runs with minimum airflow, which is set to 30% of the unit's capacity. When a CO_2 concentration above 500 ppm is registered, the unit automatically increases its airflow, and at 900 ppm, the unit runs at 100%.

This way, there is synergy between the CO_2 level and energy consumption. A constant good indoor climate is achieved throughout the day – with the lowest possible energy consumption. So, the graphs below show quite clearly the CO_2 level and airflow when there is activity in the room. Many students will, for example, leave the classroom at break times, causing CO_2 levels to drop considerably and the ventilation to decrease the airflow.



Measurements from classroom B5 on a normal school day.
If graph 1 is compared to graph 2, the relationship between the CO_2 level and the airflow rate of the ventilation unit is clear.

Haahrs School in Svendborg (Denmark) dates back to 1893 but has changed both address and not least size since then. Over time, the main building, where the school has been located since 1894, became too small, and several private houses on the road have been purchased. New buildings have also been built on the site, so the school now consists of a total of eight buildings housing 500 students at all levels from SFO (the after-school club) to 10th grade.

Dimensioning of ventilation needs

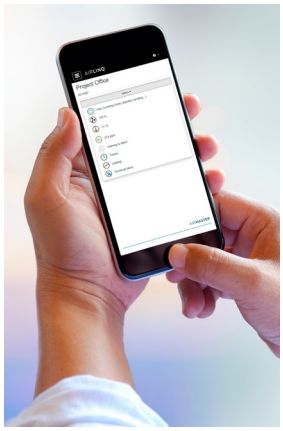
The red building, which was modernised in 2011, houses the 10th grade, among other things. The two 10th grade classes have a number of lessons together, but also separately. This is taken into account in their classrooms, which are right next to each other. So, it is actually one room with a folding wall, allowing it to be converted into two rooms in next to no time.

When the airflow needed to keep pupils bright and alert all day was calculated, one AM 1000 ventilation unit in each room was enough, but due to the transverse beams, it would not have worked. The airflow would not flow freely, and the result would not have been good.
Two AM 500 were therefore installed in each room, mounted across the classrooms. The airflow from the four ventilation units is not obstructed by beams or lamps and keeps the pupils bright and alert with a good indoor climate.

AM 500 ventilation units were installed throughout the school. The airflow from the four ventilation units is not obstructed by beams or lamps.

A summer day

Although not an air conditioner, the ventilation unit can help a little on hot days – there are functions in the control that can take advantage of night cooling and bypass of the heat exchanger, which otherwise recovers the energy from the heat in the room.



Online control

- All the newer units are on Airlinq Online, and I can just go in and change something, even if I'm in Esbjerg," comments Jesper Knecht, technical service manager, and continues "with the older Airmaster systems, we're thinking about running them in our CTS system. That will make it a little easier in terms of control, but the units are running just fine at the moment, no trouble with them."

- Installation-wise, I have to say that you sigh a little when there's an AM 1000 out on the street that you've got to carry up a narrow staircase, but we did it. We got it installed quickly and the same went for the new façade ventilation grille from Airmaster," says Knecht.

The different buildings offer different possibilities for the installation of ventilation. In the grey house, they opted for a ventilation unit with horizontal intake and exhaust. In the red centre building, however, it made more sense to install a unit with vertical intake/exhaust through the roof.

SOLCLIME
Soluciones de Climatización y Energía
Calle Poeta Monmeneu 12 bajo · 46009 · Valencia · Spain
+34 96 347 61 63
oficina@solclime.net
www.solclime.net

AIRMASTER®
ventilation in balance