

System 800xA

Fresh air for alert students at Jönköping University in Sweden



At Jönköping University in Sweden, the climate control system has been replaced with ABB's 800xA control system. An improved overview and increased control are now producing environmental savings.

A few students hang back in the lecture hall after the lecture. Despite a long lecture and many people in the hall, the air is fresh and reasonably warm. "There's no problem with the air here at the University, it's great," the students say as they collect together their notes.

HÖFAB, Högskolefastigheter i Jönköping AB is responsible for the ventilation and everything else that concerns Jönköping University's buildings. Mikael Falk, works engineer with responsibility for heating and ventilation in a number of properties with a total area of 85,000 square meters.

"Our ambition is to be at the forefront of technology and from the start we had the largest installation in Sweden following the KNX standard for lighting control," Mikael says.

For a time, the ventilation was controlled by KNX, several other systems and other hardware, but Mikael Falk was not happy with it.

"It did not work in an optimal way. We wanted to keep a better check on everything and to have a simpler system to use and program," Mikael Falk says, counting on his fingers: "At the worst point, I had seven different programming languages to deal with..."

Mikael had previously when working at a paper mill come across ABB's AC800M controller with the Control Builder programming tool and his interest had been aroused by its functionality. When HÖFAB entered into a public procurement process for a new computerized surveillance system, the contract was awarded to Goodtech Project & Services AB, automation contractors and ABB's partner, which delivered ABB's System 800xA with AC800M controllers.

“We have full control of several fans with their 18 kW motors and, with pressure regulation, can control them down to 30-35 percent speed – instead of running them at 100 percent as we did before. This saves electricity and wear.”

Many parameters for the university's room ventilation are shown on HÖFAB's 800xA system. Mikael Falk shows Gert Svensson from ABB the set values and graphs showing what is happening in the rooms. Parameters of the ventilation system can be adjusted also via hand held terminals like iPads and Smart Phones.



Goodtech started the revamp in spring 2010. “The ‘brains’ – the CPUs – were changed to AC800M while we chose to keep the existing I/O units that receive the signals,” Mikael Falk says.

Gert Svensson from ABB observes that this was a so-called Evolution, which made it possible to keep the investments that had already been made in the existing infrastructure. “It is time efficient. The new components are connected during a minimal stop in production that takes hours rather than weeks,” Gert Svensson says.

Efficient installation

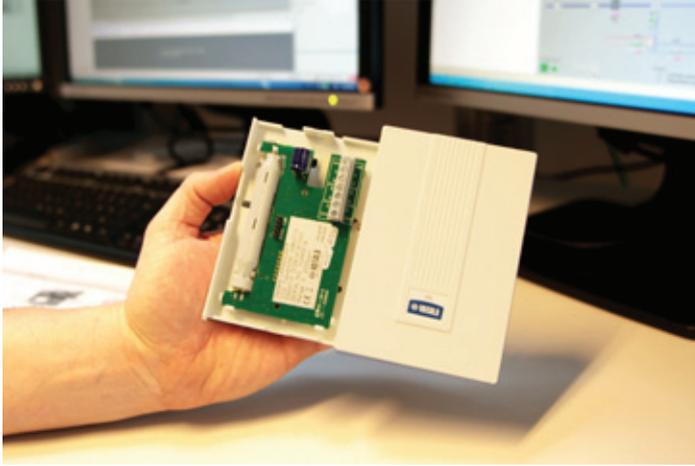
In HÖFAB's control room, Mikael Falk shows off his operator workstations with double monitors that display process screens in the overall System 800xA.

“The installation and the new programming have gone well. We now have a complete view of the structure,” he says and simply clicks up a graphical overview of the building.

The control system receives signals from more than 1000 control instruments in the form of temperature sensors and carbon dioxide meters, and it controls more than 3000 objects, such as fans, dampers and valves for the ventilation and remote heating systems.

Via the monitors, Mikael Falk and his colleagues can see all the alarms in a single overview, have full control of the hardware and observe the air quality in every large room and hall. “One big difference in the functionality is that we now have a ventilation system that is regulated based on need. Previously it was presence controlled – if a single person went into a large hall, the ventilation started up on full. Now the ventilation is controlled by the carbon dioxide level in the air and it only increases when it is needed.”

Regulation based on need has resulted directly in large savings in electricity and heat consumption. Other measures have also contributed to improving energy efficiency. On one of the computer monitors, Mikael Falk shows several fans, which are blowing air seven floors up in one of the University's larger buildings.



The ventilation system is equipped with 4-20 mA CO₂ sensors delivered by Vaisala, Finland.



The properties of the University of Jönköping has a total area of 85,000 square meters.

“With the new system, we have full control of these fans with their 18 kW motors and, with pressure regulation, can control them down to 30-35 percent speed – instead of running them at 100 percent as we did before. This saves electricity and wear.”

Environmental savings

The new control system is not yet completely ready, but the savings are already clear.

“We will save SEK 1-1.5 million in electricity and remote heating costs per year. On an investment of around SEK ten million,” Mikael Falk says.

In the University library, students wander between the bookshelves searching for knowledge. In the conversation room, quiet discussions are in progress. Nothing can be heard from the whirring ventilation fans, despite the ventilation drums visible among the beams in the roof of this hundred-year-old converted workshop. A comfortable climate in all of its aspects is the guiding star for HÖFAB’s specialists, with Mikael Falk in the lead.

“Building automation is to some extent more complex than automation in steelworks and we are proud of the installation. ABB’s System 800xA with AC800M functions extremely well in building automation,” Mikael Falk says and adds:

“We save both electricity and the environment and our client, Jönköping University, obtains a better climate on the premises plus lower costs. It ought to be illegal NOT to build an installation like this.” As a proof that the new control system was well invested money the university’s library recently was awarded a top-ten ranking by students for the excellence of its physical environment in an international comparison of 238 university libraries.

HÖFAB

Högskolefastigheter i Jönköping AB, HÖFAB, owns and manages buildings for Jönköping University, which has 12,000 students and 800 employees. The buildings cover a total of 85,000 square meters, with the oldest building dating back to the 1870s.

HÖFAB has seven employees; all specialists, and engages contractors for the practical work.

Goodtech and ABB

HÖFAB’s new control system, System 800xA, has been delivered, installed and tailored to the existing system units by ABB’s partner, Goodtech Projects & Services AB as turnkey contractor.

Goodtech is an engineering group that delivers projects, services and products for electrical and process engineering, environmental engineering and industrial engineering for the energy, industry, infrastructure, construction and public sectors in the Nordic countries. Goodtech ASA is listed on the Oslo Stock Exchange and has slightly more than 1400 employees at some 40 locations in Sweden, Norway and on the island of Åland.

The delivery to Jönköping University includes 14 AC800M controllers with distributed I/O of type S800, 800xA operator work places, new local operator panels, new temperature and carbon dioxide sensors as well as actuators and valves for the new room functions.

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