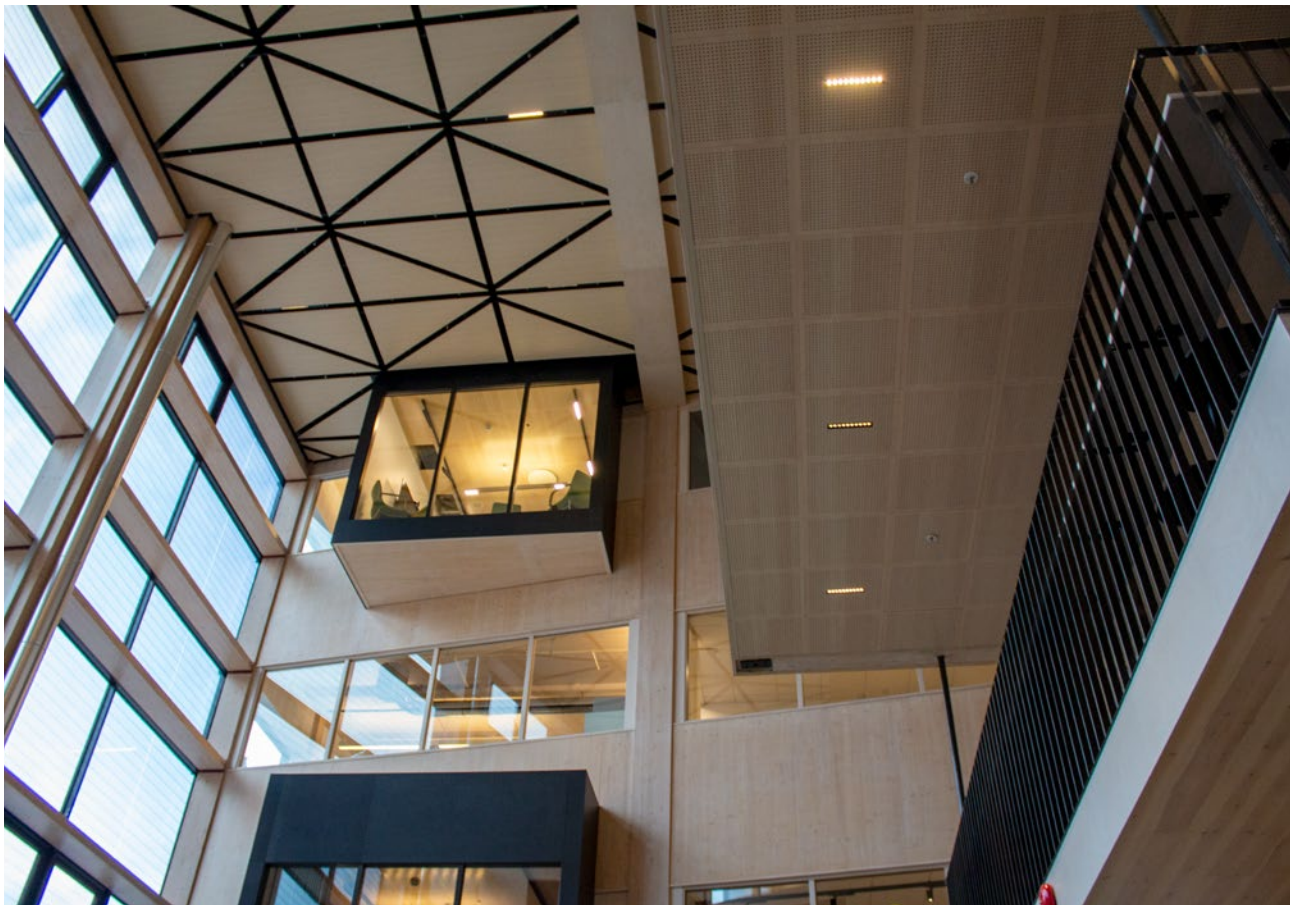
CASE STUDY

A Working Lab - An award-winning example of sustainable construction

Swegon



How do you combine a construction project with several innovation projects? The answer is with enthusiasm, patience and great commitment. Today, many call A Working Lab in Johanneberg for Sweden's most intelligent building, and an intelligent building requires an intelligent ventilation solution.

In 2019, Akademiska Hus opened the doors to A Working Lab in Gothenburg, a building that they describe as an innovation arena and office building. The facade stands out from its surroundings with its bright red colour, and on the inside you notice that there is even more that makes it unique. When you enter the building, you immediately see one thing that sets it apart from any other: It's built of wood.

" Research is conducted in the building on materials and the different technical solutions, both during the construction period and now during the administration phase"

Olle Nyström, Akademiska Hus

Spread over seven floors there is a restaurant with the ambition of reducing food waste, offices, conference and meeting rooms, a co-working environment, Makerspace and their unique service offering Learning Lab.

"It is an open building where the majority is activity based; as well as being an innovation building where things are tested live. Among others, PCM technology to store cooling, electricity supply with a DC grid while moisture has been measured during the construction period", says Olle Nyström, HVAC engineer at Akademiska Hus.

Together with Chalmers, RISE and ByggDialog as innovation partners and researchers, 16 different innovation projects have been carried out during the building process.

A close collaboration

In a complex project like this, it is important that everyone works towards the same goal. The project has therefore used partnerships where all those involved have worked with full transparency towards each other with the project's best in focus. The collaboration contractor has been ByggDialog, who are experts in partnering and developer has been Akademiska Hus. Ventab, who has also worked with ByggDialog before, was responsible for ventilation and property automation.

When choosing ventilation there were a number of factors that were important to bear in mind. These included flexibility, economy, technology and how well the solution fitted with the high level of ambition related to environmental certification. The contractor's choice of supplier for the indoor climate landed on Swegon and WISE.

"Collaboration with Swegon has worked really well. It's a collaboration contract, where everyone needs to contribute to a cost-effective and good solution,"

Olle Nyström, Akademiska Hus

WISE in the innovative building

As the building project and innovation project are based on different logics, flexibility has been important. The choice of ventilation solution landed on WISE, which also satisfied other demands that were specified.

Restaurant on the ground floor with the ambition to reduce food waste to zero.

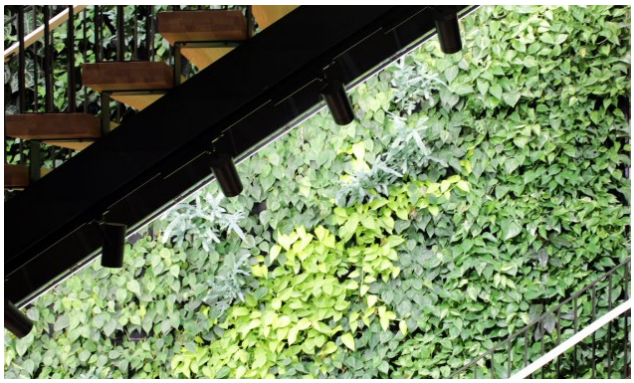
WISE Colibri in meeting rooms and phone rooms.

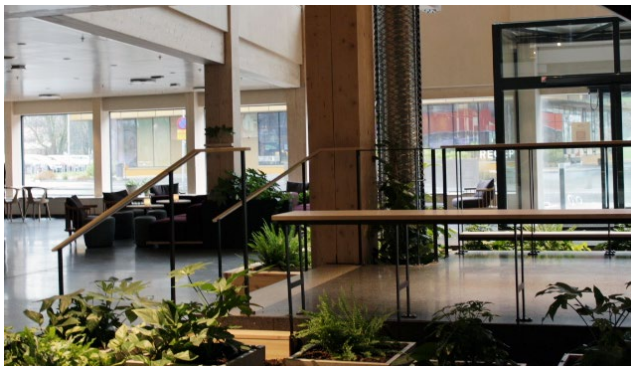
WISE is a complete system comprising all the products needed for the indoor climate. This includes a type of damper where you can decide afterwards how it should be used, for example, if it should be constant flow regulation or constant pressure regulation. This is something that also helped when it came to logistics. “You can place the pallets on the right floor in a different way; otherwise a lot of logistics would be needed to put things right,” says Mikael Holmstedt, project manager at Ventab.

In order to understand how the house works, Akademiska Hus has also had the ambition to use the indoor climate system to gather data. Researchers from Chalmers and IVL have already started the research project with the focus on measuring the content of VOC in two different rooms. With the help of WISE, they control the air flow in both rooms and other flows on a weekly basis in each room. Using an odour panel and VOC meter, they want to find out how long the smell of ‘new’ lasts and to estimate how much energy would be consumed by a modified ventilation schedule.

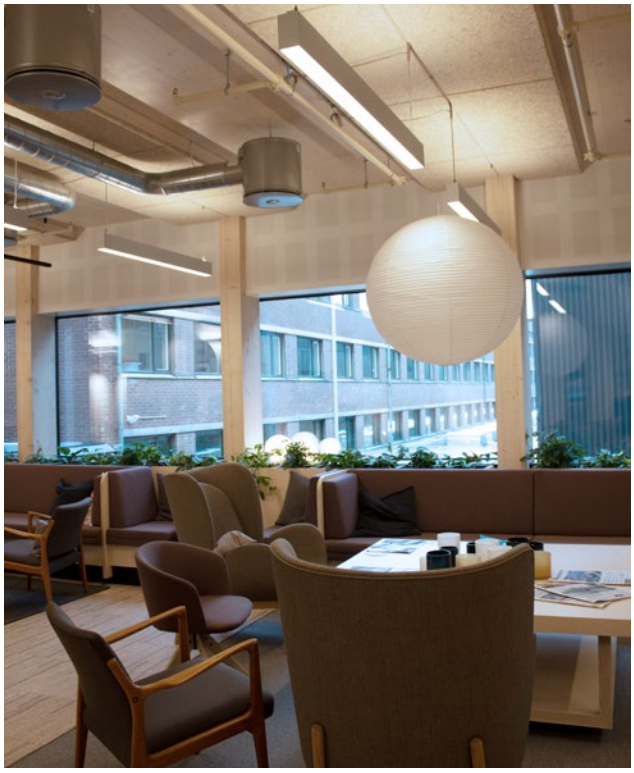
The seven floors feature a modular design with active diffusers and there are only a few locations in the building where the diffusers are not intelligent. “There are only a few locations where we don’t have active diffusers, so it’s almost everywhere,” says Mikael Holmstedt.

Thus, the entire building is designed to be extremely flexible and is equipped with innovative technology, which is one of the reasons why A Working Lab won the prize ‘West Sweden’s Smartest Real Estate’ which was presented at the Real Estate trade show. However, the property also needed to be sustainable and energy efficient to win the award.





Green details in the building.



Activity based office with exposed WISE-diffusers

High ambition for environmental certification

A central part of the project has been the environment and all materials have been chosen with great care. Extra focus has been placed on creating a property with low energy usage where the aim has been to lie below 35 kWh/m^2 per year, exclusive tenant usage. For example, the electricity supply comes from a DC grid with solar cells and battery storage.

Wood, which leaves a minimal carbon footprint, has been a key material in the project, this in turn has led to reduced impact on the climate, which Akademiska Hus has worked hard for. All new building projects must be certified according to 'Sweden Green Building Council Gold', a Swedish system for environmental certification of buildings, which A Working Lab has already achieved.

When it comes to environmental certification, high demands are placed on everything from energy performance to the indoor climate. WISE, which gives full control of these parameters, is perfectly suited for projects where there are high demands on environmental certification. All component products in the WISE system are, of course, also assessed and approved according to the Swedish Building Product Declaration, which has been a requirement during the process.

A Working Lab

Lessons ahead of future projects

There are many lessons to be learned in this kind of project. For example, working with partnering has been optimal in order to work transparently and to make decisions which have not only been beneficial to the construction, but also for the innovation project. At the same time, it has been important for all those involved to be able to follow along as the whole project has progressed to ensure nothing goes wrong.

Good collaboration between consultants is a prerequisite to get similar projects to work, at the same time it is important that you can sit down early in the project to set all parameters. Exactly as a collaboration contract needs to work. However, it became clear that innovation projects and construction projects do not follow the same logic. As a result it was necessary to carry out project planning at the same time as it was built. Nevertheless, with great commitment and patience most things can be solved, and you can gain knowledge that can be useful for future projects.

Overview

Gross area: 11 700 m^2

Businesses in the premises: Trade and industry, primarily within the town planning sector
Built: 2019
Environmental labelling: Miljöbyggnad Gold
Products installed: WISE system with WISE diffusers (WISE Sphere Free, WISE Colibri Ceiling), diffusers for constant air flow (among others LOCKZONE Free).