

A WORKING LAB

Here is a film where the various stakeholders and developers behind A Working Lab explain the purpose of the building.

A Working Lab is an office building dedicated to collaboration and innovation within urban development. The building was completed in August 2019 and is part of Johanneberg Science Park, next to Chalmers University of Technology. During the construction period, 16 innovation projects were launched, and the building received the certification Miljöbyggnad Guld (Environmental building Gold).

Facts:

- The building is supplied with self-produced district heating from the campus' local power plant.
- Foundation made of environmentally friendly concrete.
- Solar cell plant is around 1 000 sqm.
- Up to 430 workplaces in a flexible office space that can be adapted according to specific needs.
- A lab for future learning environments.
- Restaurant, café, co-working, conference and meeting rooms.

Developer: Akademiska Hus

Collaboration contractor: ByggDialog

Architect: Tengbom Arkitekter and Akademiska Hus

Read more about A Working Lab <https://www.akademiskahus.se/en/>

REDUCED CLIMATE IMPACT WITH SMART MATERIALS SELECTION

The building is one of Sweden's first office blocks made from wood, where new ways of implementing weather protection during construction have been tested. The choice of materials has been affected by the project's ambitious goals of reducing the climate impact in the construction and operation phases. Through smart materials choices alone, the climate impact is expected to be up to 20 percent lower, compared to when traditional building materials is used. During construction, tests were also done to increase knowledge on how to achieve good acoustics in a large building with wooden floors.

Acoustics: Akademiska Hus, RISE, ÅF, Integra

Wooden construction without weather protection: Akademiska Hus, AK-konsult Indoor Air AB (Polygon), NL-miljö, White, Byggdialog

Climate analysis: Akademiska Hus, White

DIRECT CURRENT (DC) MINIMISES ENERGY LOSSES

With the help of battery storage, the benefits of solar have been maximised, while the building's total power requirement has decreased. To minimise energy losses, lighting and ventilation that can handle direct current straight from the solar cells have been installed. This will generate 150,000 kWh of electricity per year.

Partners: RISE, AFRY, Byggdialog, Ramböll, Akademiska Hus

SIMPLER MANAGEMENT WITH A DIGITAL TWIN

A Working Lab is one of Sweden's most intelligent buildings. Everything from air pressure, temperatures and carbon dioxide levels to energy consumption, sound levels and room bookings are measured, analysed and controlled. The building was also scanned three times during production so that a digital twin could then be created together with a BIM model. In the twin, 12,000 objects have been entered to further streamline both usage and management.

Partners: Zynka BIM, Akademiska Hus

SALT STORAGE PROVIDES EFFICIENT COOLING SYSTEM

One of the first large-scale test beds for using Phase Change Material to store cooling energy is located at A Working Lab. This involves using salt to extract and store energy when the material changes from a liquid to a solid form, and vice versa. The goal is to achieve a power reduction of about 25 percent in the building's cooling system.

Partners: AFRY, Chalmers, LG Contracting, Akademiska Hus