References

City Hall



Uponor involvement

- Installation of clamp-on sensors; AI and remote optimisation analysis – gaining meaningful and actionable insights from easy-to-read visualisations to improve the heating and cooling system.

A flexible waterfront building

The challenge began in 2021 when the building was completely redesigned to cut energy waste. Uponor Ecomate was installed to gain actionable insights into heating, cooling and power usage and improve the Town Hall's energy consumption and carbon footprint.
Built in 2013/14, the atrium building with a panoramic view features architectural finesse in a future-oriented waterfront environment. In 2014, it was awarded the German Design Award in the "Architecture and Urban Space" category. Its 360° design offers a clear view of the city and the harbour. With a total area of 8,600 m^2, the building houses a variety of educational facilities, offices and meeting rooms over five floors.

A building of this size with large glass surfaces and open floor plans makes it difficult to manage comfort and energy consumption simultaneously. Although the energy statistics were already in a good range, there was still room for improvement.

The challenge began in 2021 when the building was completely redesigned to cut energy waste. Uponor Ecomate was installed to gain actionable insights into heating, cooling and power usage and improve the Town Hall's energy consumption and carbon footprint.

Project Facts:

Location	Floor space	Completion
Haderslev, Denmark	8,600	2021
Building Type	**Number of floors**	
Office building	5	
Address	**Website**	**Project Type**
Christian X's Vej 39, 6100 Haderslev	https://www.haderslev.dk/forside/	Renovation

Partners

Client: Haderslev Kommune

Architects: AART & Zeni Arkitekter

https://aart.dk/en/projects/vuc-syd

Innovative improvements in an inspirational environment

After the installation of the clamp-on sensors, significant volumes of data were analysed to gain meaningful insights from simple visualisations. With an energy consumption of 141 kWh/m^2/year, i.e. 376,920 kWh/year, there was still room for improvement. The data obtained gave us insights into electricity usage, heating and cooling, and comfort plans.

Power
Electricity consumption was at a high idle level. The ventilation system was active outside of business hours, and the temperature provided by the air heating ceiling was too high.

Heating / cooling
The poor cooling of the district heating system led to very high consumption, and the radiators had to be adjusted on all floors.

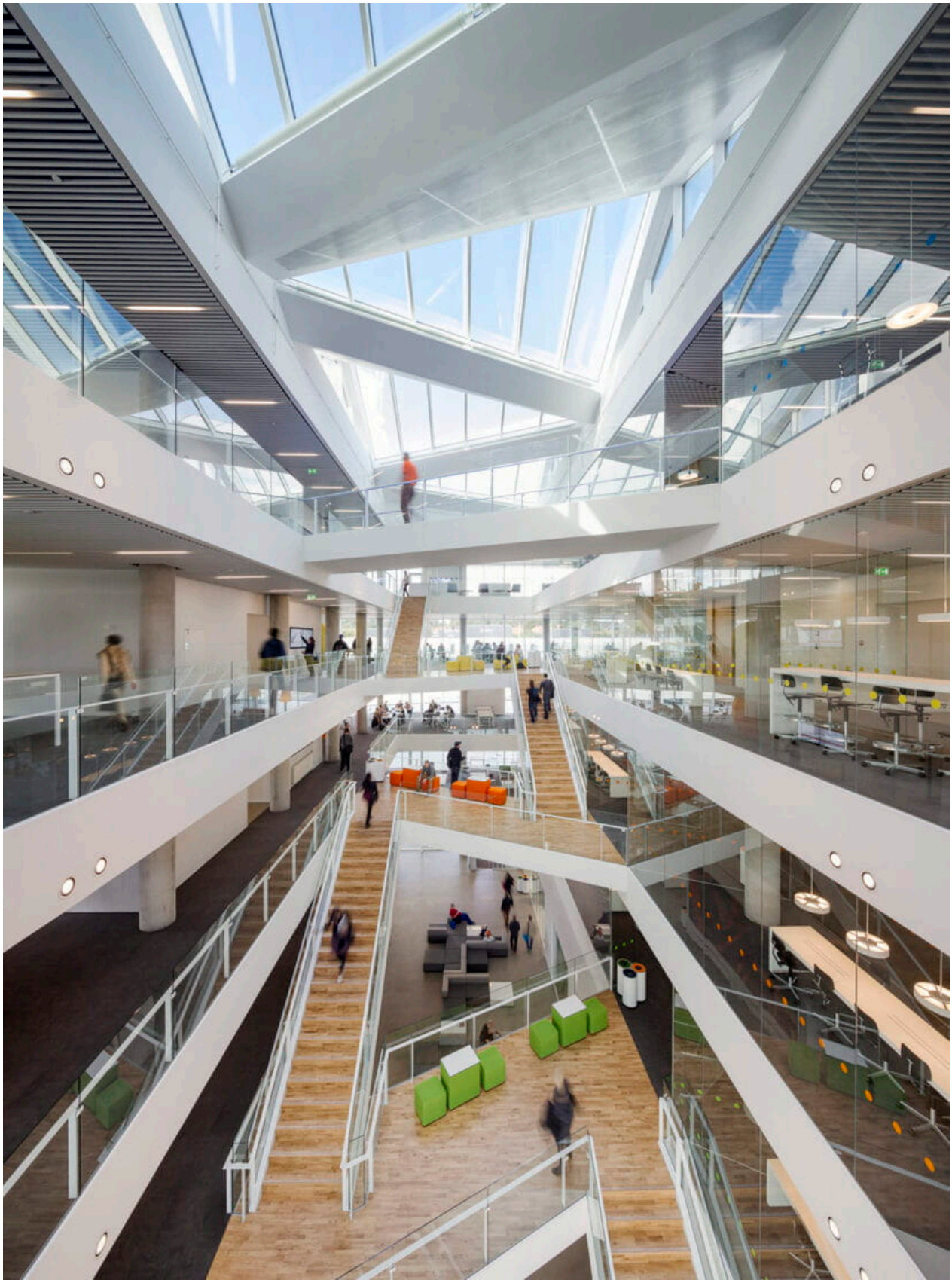
Comfort
The CO_2 sensors required recalibration.

Solution
The built-up area of the building amounts to 1,472 m2 per all 5 floors. Because of the open architecture, there are no walls to insulate the individual floors.
Based on the findings obtained with our sensors, we estimated that the ground floor requires 100% heating. The remaining 4 floors, however, only require 20%. Using this calculation, the total heating area of 8,600 m^2 decreased to 2660.4 m^2. Consequently, the energy consumption dropped from 376,920 kWh per 2660.4 m^2 square metre to 141.7 kWh/m^2.

Savings
Optimisation of the building's heating, cooling and ventilation systems resulted in the following savings:

- 311,084 kWh/year
  (combined heating / cooling and electricity)
- € 27,000/year
- 15.8 tonnes CO_2/year
- ROI: 3 months
- Weather-dependent heating control enabled a further energy efficiency potential of 15%

City Hall gallery





The building won the following awards:

- German Design Award in the category "Architecture and Urban Space" in 2014
- Iconic Award in 2013