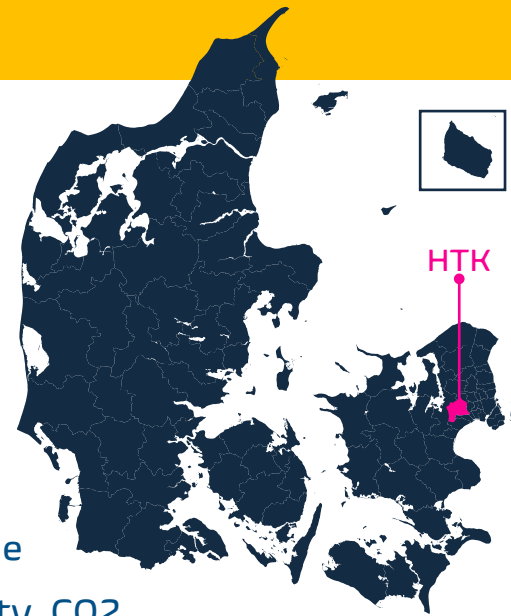




MORTEN K. RASMUSSEN - Climate Consultant HTK

A platform built around the real needs of our municipality, robust & simple, tested over a long time



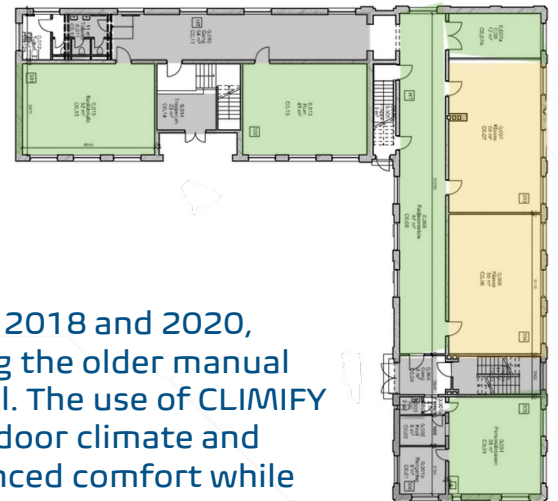
NO. OF BUILDINGS	3
NO. OF LOCATIONS	+150
TYPE OF BUILDINGS	Schools
SCOPE	Monitoring & Control
CASE STUDIES	Borgerskolen, Ole-Rømer Skole
SENSORS & ACTUATORS INSTALLED	Temperature, Relative humidity, CO2, Light, Presence, Smart Thermostats, Window opening, Heat meters

CASE STUDY

Borgerskolen



INSULATION & HVAC	Double paned windows, brick walls, no wall insulation, insulated roof
HVAC	District Heating, Ventilation system, various types of radiators
SCOPE	Monitoring & Feedback-Based Control of room set set-points
INSTALLED HARDWARE	ELSYS ERS CO2, MClimate VICKI eTRV, Sensative window strips, BLE beacons (indoor geolocation)



The school adopted the CLIMIFY and FEEDME systems in 2018 and 2020, respectively. Smart thermostats were installed, replacing the older manual thermostats, providing room-wise indoor climate control. The use of CLIMIFY helped building's managers and teachers visualize the indoor climate and objectively identify issues. The use of FEEDME has enhanced comfort while simultaneously lowering the running costs of the heating system.

FeedMe and Smart thermostats reliably increase perceived comfort and decrease energy use. All the classrooms have several radiators, and the old manual TRVs were commonly set

to diverging settings. Different settings of the TRVs within the same room can lead to discomfort (high asymmetries in heat distribution). Moreover, a TRV set to the max results in a very high return temperature, which can lead to penalty fees from the DH network. Overall, comfort (positive indoor climate perception) was increased by over 24% thanks to the Human in the Loop smart TRV control of FEEDME.

KEY-NUMBERS

BUILDING'S YEAR	1900
NO. OF LOCATIONS	20
HW investment	65.000 DKK
Return of investment	<3 years
Energy savings	>15%

