

DEMONSTRATION OF 4DH TECHNOLOGY IN A NEW BUILDING - AALBORG UNIVERSITY

POTENTIAL DESIGN AND PLANS

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NEW BUILDING FOR PLAN, AAU

- Department of Development and Planning, Aalborg University
- New building ready by summer 2016 (The Danish Building & Property Agency)
- Location: Campus West, AAU
- Users: Students, researchers and department staff



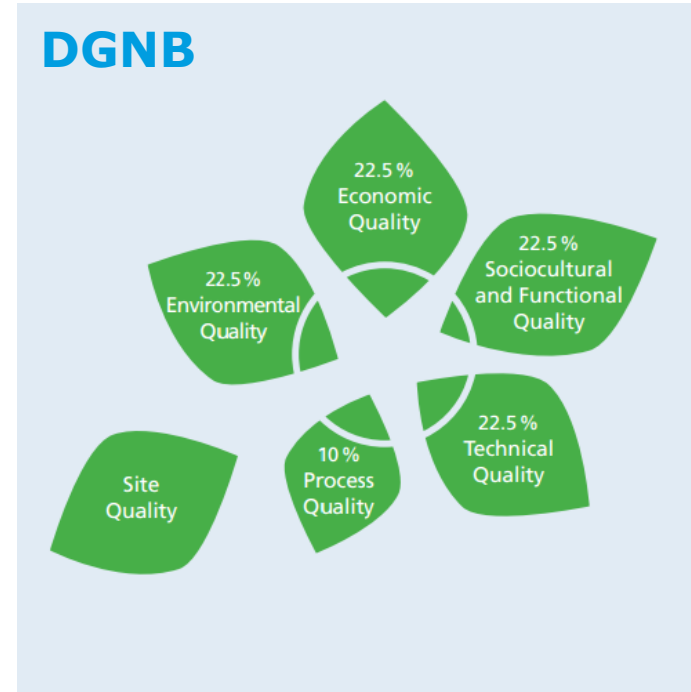
BUILDING FACTS

- Net area: approx. 5.000 m²
- Gross area: approx. 9.000 m²
- Floors: 4
- Facilities for research, teaching, studying and administration
- Keywords: Flexibility, changeability



FOCUS ON SUSTAINABILITY

- DGNB (deutsches gütesiegel nachhaltiges bauen)
- Certification system for buildings
- Key points in the new building:
 - Nature
 - Resources
 - Social quality
 - Indoor climate
 - Building as laboratory
 - Process quality



IMPLEMENTATION OF 4DH TECHNOLOGIES

- Focus points
 - Heat supply and heating
 - Hot water – without legionella
 - The building - A living laboratory
- Collaboration between Bygningsstyrelsen (client), 4DH and its industrial partners, and Rambøll

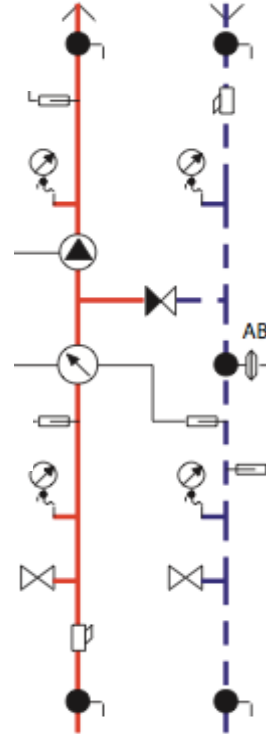


4DH

4th Generation District Heating
Technologies and Systems

HEAT SUPPLY AND HEATING

- Low temperature district heating simulated by mixing supply and return flows
- Supply/return: 50/30 °C
- Floor heating for base load (to approx. 18 °C)
- Heating by radiators for peak loads



HOT WATER – WITHOUT LEGIONELLA

- Parallel demonstration of technologies to avoid Legionella in domestic hot water
- Boost of temperature by el-tracing or immersion heater
- Heat pump unit
- UV-radiation
- Decentralised heat exchangers



A LIVING LABORATORY

- The building – a living laboratory
- Special technical features of the building showcased
- Screens visualising measured data for energy consumption
- Involving users and visitors

Measurements

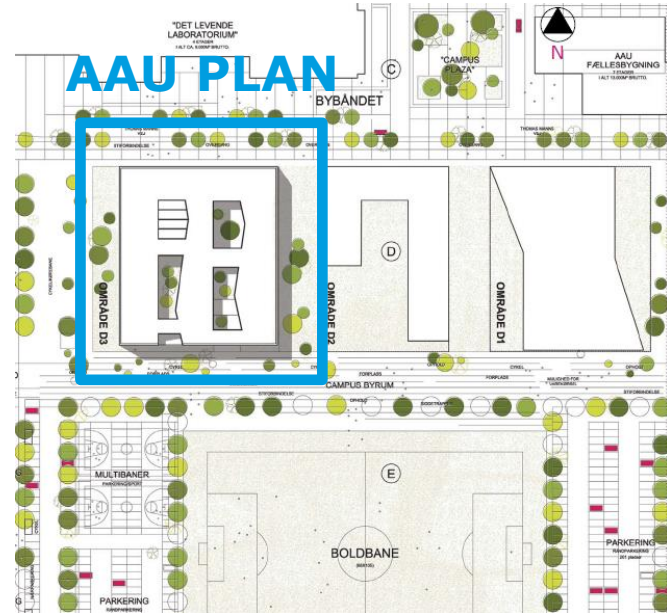
- Flow in DH pipes and flow of domestic hot water
- Supply and return temperatures

Data for visualisation

- Total energy consumption – current and over time
- Distribution of energy consumption
- Price of district heating

THE PROCESS

- The project awaits final approval by the client
- After final approval, industrial partners will be contacted for collaboration and inputs to the project
- Building supplied by low temperature district heating ready by summer 2016



THANK YOU