

GOAL

Development of a Building Tracker integrated in a Building Energy Management System to be able to optimize HVAC of buildings

Challenge

The energy demand of buildings is calculated during the planning phase using assumptions for the weather and usage of the building. Ideally, a dynamic building and system simulation program is used.

This way, different options for heating, ventilating and air-conditioning systems (HVAC) including control strategies can be compared. However, the simulated energy demand doesn't match the measured values during operation in most cases.

The reason for this "building performance gap" are (a) approximations in the model, (b) model parameters that cannot be reached in the real building or (c) differences between assumed and real boundary conditions (such as weather or occupancy behaviour).

EQUA aims to close this gap by applying the simulation model during the operation of the building.





Engineering Phases



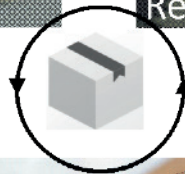
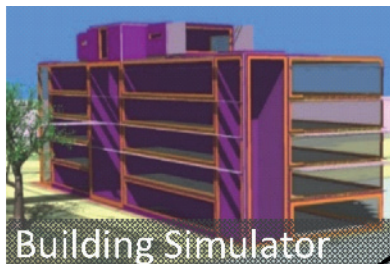
Results

The building tracker developed by EQUA can receive sensed signals of the monitoring system and feed them into the building simulator. The simulator will then create so called "adjustment signals" that continuously brings the simulator in the same state as the real building.

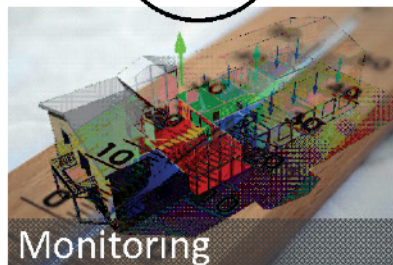
With help of the real-time adjusted building simulator, the tracker can support the Building Energy Management System

(BEMS) with more detailed and accurate information about the state of the building and with predictive control parameter optimization.

EQUA plans to license the Building Tracker technology on a subscription basis to installation companies that make the necessary hardware installations in individual buildings.



Building Tracker



Partner Data



EQCH is a privately held company that provides central European engineers as well as over 100 universities working on energy efficient solutions for buildings with state-of-the-art simulation software that is developed by its mother company EQUA Simulation AB in Sweden.

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