

Masterthesis:

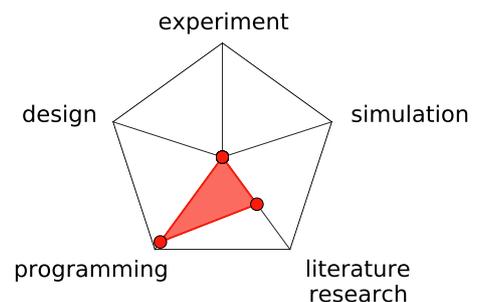
Study of demand models for non-residential buildings

With 37 % existing non-residential buildings (NRB) significantly contribute to the final energy consumption of the building sector in Germany. In order to determine modernization measures and the integration of renewable energy sources in these buildings, knowledge of the hourly heat, cold and electricity demand is essential.

In comparison to residential buildings, the use of NRB is heterogeneous and divided into zones. These range from offices and meeting rooms to special uses (e.g. laboratories) and ancillary areas. Depending on the presence of people and their use of equipment and machinery, each zone has a characteristic share in the building's demand. In addition, the heat transfer at the building envelope and the heat capacity of the building are important. At the Institute for Energy Efficient Buildings and Indoor Climate (EBC), different approaches to model the demand structure in NRB already exist.

Your task:

The aim of this thesis is a study to evaluate approaches for demand modelling of NRB. The research of relevant literature forms the basis and is followed by the development of a method to evaluate the identified central modelling approaches. Existing calculation models of the institute can be used for this purpose. As they are written in Python, basic knowledge is helpful but not mandatory. The application of the method to different NRB will allow the comparison and evaluation of the considered modelling approaches. The discussion of the results and documentation of the approach complete this work.



Our profile:

The E.ON Energy Research Center at RWTH Aachen University (ERC) is concerned with sustainable energy supply concepts that take into account technical feasibility as well as social and economic aspects. Among others, the reduction of the primary energy consumption of buildings and an increase of the interior quality in buildings are research tasks.

If you are interested, please contact us by phone or mail with your curriculum vitae and grades.

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