

## Project / Bachelor or Master Thesis:

### Integration of an ultrasonic humidifier into the ventilation system of the Aachen Comfort Cube (ACCu)

For the determination of thermal comfort in interiors, a highly modular comfort cube, the [Aachener Comfort Cube \(ACCu\)](#), was developed at the Institute for Energy Efficient Buildings and Indoor Climate. The ventilation system of the ACCu is now to be extended by an ultrasonic humidifier. However, the design volume flows of the ultrasonic humidifiers available on the market exceed the volume flows to be set at the ACCu by far, so that reliable humidification cannot be ensured. As an alternative, the possibility of integrating a room humidifier into the ventilation system is to be investigated.

#### Your tasks:

In an experimental setup, a room ultrasonic humidifier is to be measured with regard to the achievable humidification performance and the humidification distance required for this under various boundary conditions. Subsequently, the ultrasonic humidifier is to be integrated into the ventilation system of the ACCu. Depending on the type and scope, the work can also be extended by implementing a control system for the ultrasonic humidifier in the control system of the ACCu.

- ▷ construction of a test channel for the measurement of the ultrasonic humidifier incl. suitable measurement technology
- ▷ execution and evaluation of the test series
- ▷ integration of the ultrasonic humidifier into the ventilation system of the ACCu
- ▷ if necessary, implementation of an algorithm for controlling the ultrasonic humidifier

#### Our profile:

The E.ON Energy Research Center at RWTH Aachen University deals with sustainable energy supply concepts that take account of technical feasibility as well as social and economic aspects. The reduction of primary energy consumption in buildings and an increase of indoor comfort are among the research tasks of the institute.

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