

Twin rooms for energy assessments

Exterior view of the twin rooms on the 2nd floor of VERU © Fraunhofer IBP

The purpose of the twin rooms is to evaluate by means of comparative measurements the thermal properties and energy efficiency of façade technologies designed for office buildings, as well as the impact of such façades on the indoor climate and building services.

To this end, two identical test rooms are used, which are both located on the south-facing side and on the second floor of VERU (modular test facility for energy and indoor environment investigations) on the Fraunhofer IBP field test site in Holzkirchen.

The test rooms are enclosed by highly-insulated and temperature-controlled enveloping surfaces. As a result, heat flows via interior components that are not relevant to the experiments can be kept to a minimum. Thanks to this adiabatic concept, the thermal properties and energy efficiency of both rooms are almost identical.

The rooms are each 3.6 meters wide, 5.5 meters long and 2.8 meters high. The two test rooms are equipped with heating, cooling, ventilation and sun-shading systems, as well as dimmable lighting and extensive basic measurement and control equipment. Furthermore, the test rooms can be adapted to the respective research task in terms of structural and system components or control strategies. One of the two test rooms usually serves as a reference standard.



VERU Modular Test Facility for Energy and Indoor environment investigations © Fraunhofer IBP



Interior view of a twin room © Fraunhofer IBP

Services

(Comparative) evaluation and optimization of

- Concepts for energy-efficient façades
- Sun-shading systems and optimized control concepts
- Daylight control systems, visual comfort, glare
- Glass double-skin façades/Closed Cavity Façade/ventilated façades
- Wall and window constructions
- Façade-integrated photovoltaics or solar thermal energy
- Façade-integrated ventilation concepts
- Switchable glazing
- Translucent façade solutions
- Insulation systems for façades
- Component and control concepts
- Artificial lighting control systems and associated control and regulation concepts
- Various building services concepts for room conditioning
- Passive solar energy use

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With our expertise and experience, we can evaluate façade technologies precisely through comparative measurements in our twin rooms for studying energy efficiency.



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