



Planning reliability through functional mock-ups

*Installation of a mock-up façade.
(Installation of ISOshade elements
from iconic skin GmbH)
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In large projects, such as those concerning administrative buildings, approx. 15 to 25 percent of the construction costs are invested in the façade. Besides assessing the aesthetics, it thus also makes sense to assess the functional aspects in the planning process using a mock-up, especially in cases where new façades are developed.

Façades play a decisive role in terms of energy consumption and thermal & visual comfort indoors. Accordingly, these must fulfill a wide range of requirements. In addition, various technical disciplines are involved in the planning and construction of the façade. It is therefore essential that the workers concerned collaborate with each other in a targeted and coordinated manner.

Thus, disciplines such as metal construction, mechanical engineering, glass engineering, and building services need to be united with the various functions of a façade, such as weather protection, energy efficiency, indoor comfort, ventilation, daylighting and glare protection.

This poses major challenges for both planners and building contractors. In order to provide sufficient reliability regarding the choice of façade despite this enormous complexity and the high costs of the building, as well as to minimize the financial risks in the project, we can carry out functional model tests for planners and companies on mock-ups. These also facilitate subsequent commissioning and ensure high quality because the interactions between the various components (façade/building services) are evaluated in detail in advance. This eliminates the need for time-consuming and costly adjustments when the building is subsequently in operation.



VERU Modular Test Facility for Energy and Indoor Environment Investigations © Fraunhofer IBP

Top: Evaluation of daylight conditions with DIALux Evo software, Bottom: Test room with DressMAN climate dummy for assessing thermal comfort © Fraunhofer IBP

Services

- Integral assessment of façade solutions as they interact with the technical supply systems in terms of energy efficiency, thermal comfort, visual comfort (daylighting, glare protection) and acoustics (sound insulation, sound sources, sound absorption)
- Design of a suitable experimental set-up
- Selection of suitable measurement methods/concepts
- Performance and supervision of experiments
- Data analysis and evaluation
- Development and validation of models for simulating thermal/energy aspects
- Support in the development of an optimized integral concept
- Documentation and publication of the results

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As leading scientists, we have functional mock-ups at our disposal for planning façades. We minimize risks, ensure quality and facilitate smooth commissioning.



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