

Zukunft Bau

report

title

benefit E, building integrated solar active systems – strategies to overcome technical, economic, planning and legal consumed barriers of building related integration

starting point

To implement the energy transition, it is necessary to advance the expansion of renewable energy, however, that is considered critically. The focus of criticism is the lack of optical integration solaraktiver systems into the building envelope, the high energetic and technical requirements and the associated costs. The aim of the project is to identify barriers in order to derive strategies for overcoming.

Subject of the research project

The research project "benefit E, building-integrated solar active systems" sponsored by the Federal Ministry for environment, Nature Conservation, and Nuclear Safety construction has been chaired by the Energy Efficient Building Design unit, Prof. Manfred Hegger of the Department of Architecture at the Technical University of Darmstadt. It dealt in the last two years with the question of what aspects inhibit the expansion, in order to develop appropriate strategies that will overcome these barriers.

The previous comments on the use of active solar systems have shown that they are not yet become a natural part of the architecture. Systems are used primarily in an additive way and not designed as a natural components of a building (eg roof, facade, etc.). This resulted for different stakeholders in obstacles of using these components in building contexts. Often resentments result from various reasons like the design expression, the technical integration, or simply the resulting additional costs. However, the mentioned systems aren't generally rejected by the building parties. The reasons for rejecting are complex and evaluated differently between the interviewed persons.

This study wants to find out existing barriers which prevent the dissemination of building integrated solar active systems. The aim is to formulate a comprehensive obstacle catalog. This is to categorize, to prioritize and evaluate identified barriers. The catalog is used in a further step as a basis to develop strategies to overcome these barriers.

Identifying the barriers will be based on the method of a "qualitative interview research". The extracted method from the reconstructive social research has proven itself over the quantitative research in many aspects. The planned interview research provides for the survey of all the major stakeholders in the field of architecture and solar energy to extract a detailed understanding of mechanisms and patterns of thinking.

A total of 32 experts were interviewed from eight different groups of stakeholders (industry and manufacturers, construction, architects, engineers, politicians, building owners and users, energy providers and provider and associations). The questions related to the five categories: design, planning, construction and technology,

economy, society and law. These categories have been developed along typical tasks and fields of work in the handling of active solar systems.

After releasing the textualization by the interviewee, the statements of each respondent are analyzed according to the mentioned obstacles and possible solutions. Hereby, all potential obstacles are assigned to the different self-defined categories.

The barriers identified were collected without evaluation in a first step. Afterwards all identified barriers had been categorised and summarised in group-specific selections. Each obstacle has been accompanied by the frequency of its notation nomination. This quantification has been considered to be a useful tool for prioritization the mentioned barriers. Frequently mentioned barriers allow the inference to have high relevance.

conclusion

The description of the categorized barriers and strategy for possible solutions to solve these obstacles illustrate that each of the surveyed groups will have to participate to help increasing the acceptance of building integrated solar active systems in society.

Solar Active benefits should generally be accepted component of architectural concepts and no longer be regarded as a technical additive element. It is a major challenge to mediate the active use of solar energy in a building shell as an everyday part of architecture and to support further developments to increase the optical variety of using solar active components.

All mentioned aspects above lead to the central requirement that sustainability in using energy-gaining systems in building envelopes can only be achieved by reaching a self-evident expression in architecture.

basic information

brief title: benefit E

Researcher / project management: Prof. Manfred Hegger, Dipl.-Ing. Christoph Drebes M.Sc., Dipl.-Ing. Caroline Fafflok M.A., Dipl.-Ing. Michael Keller, Dipl.-Ing Steffen Wurzbacher M.Sc.

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