

The solar houses of Konrad Frey

October 16 2017

Konrad Frey was a pioneer who designed and built solar houses based on data and scientific insights. Yet Frey and his work are largely unknown. A project by the architectural theoretician Anselm Wagner aims to change that with the support of the Austrian Science Fund FWF.

"The architectural designs of Konrad Frey are characterised by the fact that their form is a consequence of function," says the Graz-based art historian and architectural theoretician Anselm Wagner. But there is more to the designs of this architect who was born in Vienna in 1934 and later worked in Graz and London – they represent solar-house architecture in the best sense of the term. As early as 1972, Konrad Frey designed Austria's first solar house together with Florian Beigel. The design was based on his scientific research into the use of [solar energy](#) as of the late 1960s.

There can be no doubt that Frey was a pioneer, but he is largely unknown. "Graz is known for the 'Graz School' of architecture, as Friedrich Achleitner called it, and for deconstructivist architects such as Günther Domenig," explains Wagner, currently the principal investigator of the FWF-funded research project "The Sun Houses of Konrad Frey: Environmental Research and Solar Design Knowledge' at the Graz University of Technology (TU Graz). Konrad Frey is not a deconstructivist. Nor is he an architect who prioritizes drawings. He was a man of research, as Wagner emphasises.

Overlooked as an architect

A researcher who did little in the way of building, and then mostly in peripheral locations, far from big cities or main traffic routes. "Had he worked in Vienna, had his activities started in the urban context, his architecture would have become a topic of research long ago," Wagner says with conviction.

In recent years, the issue of sustainability has come increasingly to the fore in public debate. This focuses mainly on economy and ecology and not on architecture. "This has consequences for the countryside in the form of uninspired zero-energy buildings. Aesthetics are left by the wayside," Wagner says with regret. Actually, scientific insights, a sense of style and ecological requirements are not mutually exclusive, as is obvious in the work of Frey, who set up the energy consultancy unit at Joanneum Research in Graz in the 1970s.

A test station of energy generation

As of 1976, Frey made the plans for a house of the former CERN physicist Karl Zankel. The "Haus Zankel," not far from Geneva but just over the border in France, in Prévessin, is remarkable in every respect. It is an expressive sculptural structure, a solar laboratory, a test station. It combines the active and passive harnessing of solar energy and functional technological enthusiasm with postmodern wit. "As I've said, Frey developed his forms on the basis of function. He would not have been able to establish a school. There is no line, no design he invented," explains Wagner. The aesthetics of this energy consultant's structures were unintentional. A central notion when speaking about Frey is the 'environment,' notes principal investigator Wagner. "In the sense that, for Frey, a house was not only a machine for living in, but had to cater to the physical and psychological needs of its inhabitants just as it had to fit into its surroundings."

The project intends to record the detailed work of the architect, describe

his approach and elucidate how he translated insights into spatial design. "Frey has a highly scientific approach to his architecture," stresses Wagner. In this way he differed from his colleagues and contemporaries in Graz.

What he does share with them is a consistent thinking-outside-the-box approach. In his most recent structure, his own private home, Konrad Frey used only standard building elements from DIY chains. "In this way," explains Wagner, "he wanted to demonstrate and prove that it is possible to build a solar house at low cost and with standard elements. And a high-end solar house, at that."

Drawing on the architectural estate of Frey, already placed in advance in the archives of TU Graz, the current project, running until 2019, will produce an online catalogue raisonné and a monograph. The publications will incorporate previously unpublished sources, new data, measurements conducted by the Department of Building Physics and Building Ecology of TU Wien and new concepts of energy efficiency. The catalogue raisonné is scheduled for online publication as of late 2017. In this way, Frey is to be acknowledged as also having been part of the Graz School, albeit a highly idiosyncratic part.

More information: Simulation-assisted monitoring-based performance evaluation of a historically relevant architectural design. *Building Simulation Applications Proceedings 3* (2017), Hg. v. M. Baratieri, V. Corrado, A. Gasparella, F. Patuzzi, ISSN: 2531-6702, Paper-Nr. 78

Provided by Austrian Science Fund (FWF)

Citation: The solar houses of Konrad Frey (2017, October 16) retrieved 16 July 2024 from

<https://phys.org/news/2017-10-solar-houses-konrad-frey.html>

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