FANZUN



Monolit Scuol: Pilot project to explore future of solar heat

Medienmitteilung

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The redevelopment of Monolit, originally Sotchà, in Scuol/Switzerland includes 9 apartment buildings and 6 single houses built in a modern interpretation of the typical Engadin architectural style. The objective of developers Acla Immobiglias SA and implementers/general planners Fanzun is to transform the former commercial quarter into a traffic-free, premium residential area with energy-autonomous buildings compliant with the Minergie-A standard. The redevelopment, which will be completed in 2020, has served since 2015 also as a stage for a large-scale pilot and demonstration project of Swiss Federal Office of Energy (SFOE). Also involved in the project in addition to Fanzun's own energy experts are the Institute for Solar Technology (SPF) of the University of Applied Sciences Rapperswil as well as three solar equipment suppliers Caotec Solar Brusio, Vassella Energie Poschiavo and Sunage Balerna.

Making geothermal probes more efficient and durable

While the market for photovoltaic power generation is booming, the market for solar heat capture is receding. The idea is therefore to find future application areas for this technology. One promising application is the regeneration of geothermal probes with stored solar heat. Fossil-powered heating systems are increasingly being replaced with heat pumps, of which around a third use geothermal heat. The problem: the more geothermal probes are used in an area, the more the ground in the area cools down, making the probes markedly inefficient. This is the situation that solar heat could remedy.

Three variants tested

The pilot project at the Monolit redevelopment in Scuol aims to identify the characteristics of different solar-powered systems with respect to long-term behaviour and regeneration of geothermal probe arrays.

For the tests, different combinations of geothermal and solar energy plants are installed in three identical Minergie-A apartment buildings. The buildings each have five geothermal probes at a depth of 175 metres arranged in an array. House A has a pure photovoltaic (PV) plant, which produces only energy and no heat to regenerate the geothermal probes. This building provides the reference value for the test. Combined photovoltaic power/thermal hybrid collectors (PVT modules) will be installed on Building B while Building C will have a photovoltaic (PV) power unit in conjunction with glazed solar collectors to capture solar radiation.

Solar radiation captured in Buildings 2 and 3 will be used to pre-heat the utility water as well as to drive the heat pump. Excess heat will be pumped into the ground. The setup will concurrently field-test a newly developed control module which takes into account user-behaviour as well as weather prediction models, the objective being to maximise in-house consumption of the generated power.

Data for the pilot project will be collected until 2019, but initial results already indicate that solar heat can markedly enhance the durability and energy efficiency of geothermal probes.

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Project to be presented at Solar Heat Summit 2017

On 8 November, Swisssolar, Suissetec and SFOE will host the Solar Heat Summit 2017 for the seventh time at the Empa Academy Dübendorf. Initial insights obtained from the Monolit Redevelopment Project in Scuol will be presented at the event for the first time. For more information on the event see http://www.swissolar.ch/solarwaerme-tagung-2017/

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