

Caotec Brusio: First Building in Switzerland to Comply with New 2017 Minergie Standards

Medienmitteilung

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Integrating a freshly renovated workshop, showroom, office spaces and an apartment, Caotec's new office building in Brusio is the first building in Switzerland to meet dual certification requirements for a modernisation project compliant with building standards Minergie-P and Minergie-A 2017.

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On 25 September, executive councillor Dr Mario Cavigelli formally handed over the two compliance certificates to owner Dario Cao in Brusio. He congratulated the builders for their courage to innovate, especially in the combination of various building technology modules. Councillor Cavigelli also felicitated René Meier and Gian Fanzun for the successful architectural design and implementation of the energy management concept.

In its capacity as general planner, Fanzun converted the 1971-built structure into a modern energy-plus commercial building, which meets functional and representational requirements in every respect. The solar technology that the building integrates ideally represents the owners' area of specialisation viz. sophisticated building technologies based on renewable energy.

Energy footprint redefined

The new 2017 Minergie standards for the first time take the total energy consumption of a building including electricity into consideration. This transforms Caotec's building from an energy consumer into an energy producer. An integrated monitoring system continuously optimises building operation.

Façade and roof double as power plant

Solar panels integrated into the roof are used for hot water supply and to support the heating system. Hybrid modules built into the façade generate thermal energy for heating and preheat water. The heat pump directly draws from the energy source as and when necessary. If there is no immediate need for heating, the generated energy is stored in a so-called latent heat storage. This is a disused 10m³ oil tank which has been rebuilt to store ice. For hot water and room heating, the heat pump can draw the latent heat produced by the phase change from water to ice all year around.

The new, efficient insulation ensures that the heat remains within the building. The original façade is covered with a glass wool layer which is as much as 32cm thick in some places. This layer is covered over by a weatherproof skin made of plaster panels and plastering. A ventilation system circulates fresh air inside the building. Stale air pumped out of the building transfers heat to the incoming fresh air.

Energy autonomy thanks to in-house power generation

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Caotec's photovoltaic unit rated at around 30 Kilowatt-Peak (kWp) produces most of the power needed by the building as well as the company's two electric cars. The 200m² solar panel doubles as the roof of the warehouse building and replaces the typical flat roof, which makes the building look visually more interesting. Hybrid modules integrated into the façade produce around 10 kW of electrical power which charges the lithium-ion batteries of the administrative wing of the building to make it independent from grid power. A wind turbine with a vertical rotor rated for 2kW is installed to maintain the autonomy of this building wing.

Lighthouse project

Caotec's office building is an example of how small and medium-sized enterprises can switch from fossil to renewable energy by implementing technical energy-saving measures and innovative power generation. As an end-to-end solution, it is environment-friendly, sustainable and cost-efficient. The energetic refurbishment of the building is a lighthouse project where the stakeholders demonstrate that the new Minergie standards are achievable. The approach is pioneering and can be adapted to other modernisation projects.