

Project name Umwelt Arena Spreitenbach



Keywords	Architecture, energy storage, TABS, photovoltaics, environmental education
Start of project	2012
End of project	In operation
Contact person or organisation	Umwelt Arena AG, Türliackerstrasse 4, CH-8957 Spreitenbach, info@umweltarena.ch
Short project description / project function	The Umwelt Arena serves as an exhibition centre that helps visitors to experience and understand sustainability and environmental technology. The large hall in the centrepiece forms an open and inviting atmosphere where visitors can experience sustainability on three floors. Moreover, multipurpose rooms are available for occasions ranging from small meetings to large-scale events. An eye-catching architectural feature of the Umwelt Arena is the crystalline roof structure with an integrated photovoltaic system. The photovoltaic system combined with a TABS-distribution network for solar energy, energy storage water tanks and earth collectors attain that the building produces more CO ₂ -free electricity than is needed to run the building.
Water	There are no technologies that address the aspect of water
Energy	The main objective was to construct a building, which can be operated 100 per cent CO ₂ -neutral. The energy is generated in the 750 kWp photovoltaic system integrated in the crystalline roof structure. Solar heat is used for cooling in summer and heating in winter. This is done by a distribution network called TABS, which is embedded into the concrete floors and an earth tube system beneath the base plate of the bottom parking level. Cold water circulates through the network of pipes in summer, hot water in winter. Excess heat is stored primarily in the water tanks and secondarily in the earth collector. These installations allow all services to run on carbon-neutral solar energy.
Biomass	There are no technologies that address the aspect of biomass.

Project benefits	The Umwelt Arena demonstrates vividly what sustainability in today's context stands for. The futuristic design of the building combined with integrated clean technologies contributes to environmental education, which is the main purpose of the Umwelt Arena. The combination of clean technologies demonstrate that a building of this size can operate on 100 per cent zero emission energy.
Project level	Mature technology
Financial scale	Construction costs: 40 Million
Environmental conditions	Climate zone: temperate; Climate type: moderate continental climate; Latitude: 47.42°N, 8.37°O
Altitude	421 meters above sea level
Description of special local conditions	Spreitenbach is located in the Swiss Plateau, which is formed of Molasse strata of the glaciers of last Ice period. The Swiss plateau is the zone where the majority of the population lives. There are River valleys, lakes, plains and small mountains too. Spreitenbach is situated between a line of hills called Heitersberg and the river Limmat.
Context Zero Emission Buildings	The Umwelt Arena is a leading example in terms of zero emission energy use. It implements a set of pioneering technologies, which are interesting to further examination within the context of Zero Emission Buildings. Furthermore, the construction of the buildings has a strong emphasis on both architectural and energetic practical aspects. However, there are no technologies implemented that address the sustainable use of water and nutrients.
Comments	The photo and more information in the text are from http://www.archdaily.com/285637/umwelt-arena-rene-schmid-architekten/