

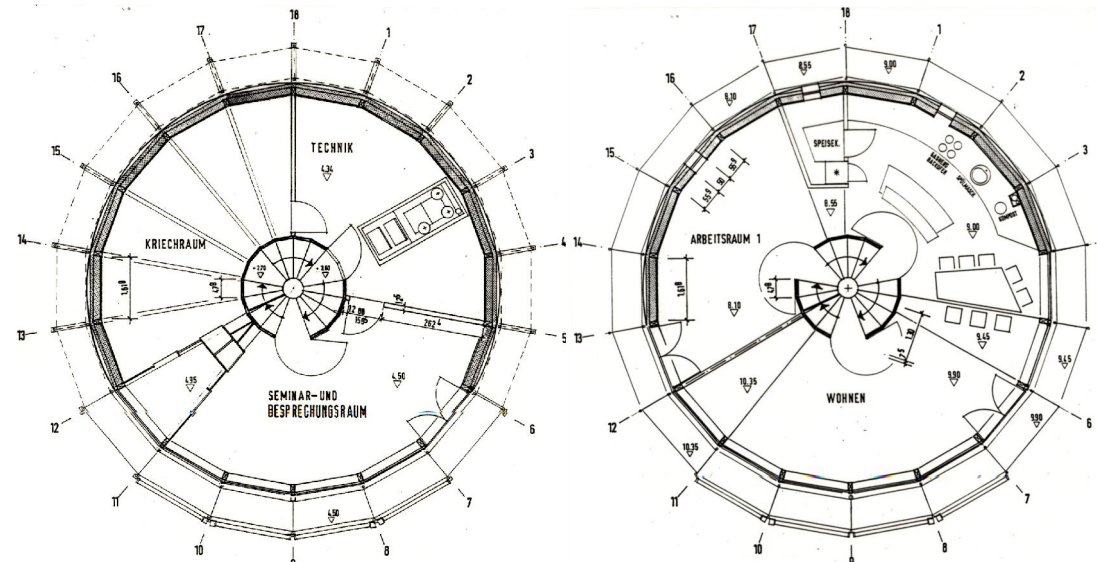
The Heliotrop



Architect: Disch Rolf
Country: Germany
City: Freiburg im Breisgau, Ziegelweg 28
Dwellings: 1
Completion year: 1994

The building is not only perfectly aligned with sunrises for energy use and gain, rather it saves resources, it relinquishes environmentally harmful chemicals and it is integrated in the natural water cycle.

The optimization of ecological technology comes into the works with solar heat, earth-to-air heat exchangers, a mini-cogeneration heat and power (CHP) unit, ventilation with heat recovery, and low temperature radiant ceiling and floor heating. The collected rainwater is automatically filtered and reused. Garbage and feces is decomposed in an odorless dry composting, while the sewage water is clarified in a vegetated cascade pond in the homes' front yard.



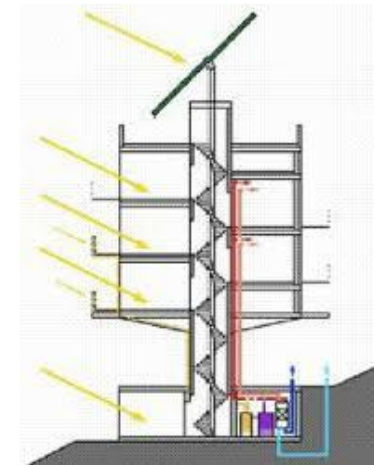
Floorplan 1st floor

Floorplan 3rd floor

How it works

The cylindrical building has on one side triple-paned thermal insulated glass (U-value 0.5) and is on the other side highly thermally insulated (U-value 0.12). Exposed to the sun with the open front's special windows, the maximum possible energy and light is let into the home. Reverse for the hot summer days, the house will turn its insulated backside to the sun, to keep the home comfortably cool.

On the roof of the Heliotrope you will find a large mounted photovoltaic unit. The 'Sun Sail' is made of 60 monocrystalline silicon modules. Additionally affixed as balcony railings are 34.5 m² of vacuum-solar thermal collectors, which yield high energy gains for hot water and heating.



Tatiana Švecová, Universitat Ramon Llull 2010-2011

Energy efficiency collection



The heliotrop

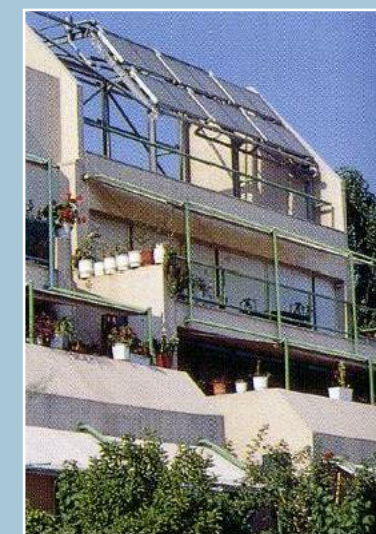
The Heliotrope is an environmentally friendly house designed by the German architect Rolf Disch. The first experimental version have been built in 1994 as the architect's home in Freiburg in Breisgau. The Heliotrope was the first home in the world, that produced more energy than it expends: the energy consumption is emission-free, CO₂-neutral and 100% regenerative. One of the main attractions of the house, apart from its low energy needs is its rotating view. As the building turns according to the sun's position, the view changes creating a special experience for dwellers.



DODO house

This is a modern multi-functional facility, can fulfil dreams about being independent of energy producer and water and sewage system operators.

By using the most innovative pro-ecological technologies Dodo can save and store energy, and even generate it. This is possible thanks to the installation of wind turbines. With its own wastewater treatment system, Dodo does not have to be connected to mains sewage and thank to the water pump system it can extract water from its own water intake.



Solar village

This project is a large research of many different passive and non-passive systems.

Although the used materials were conventional (masonry floors and walls), all the energy systems applied were a technological research. These energy systems cover the full range of passive and active, centralized and decentralized types. Some of these depend on the village Energy Center, some on Energy Center in each building, and others work at the level of individual dwellings. The systems are used not only to heat the individual and common spaces, but for cooling and pre-heating water.