



SOLAR HOUSING ESTATES

Over the last 15 years, Rolf Disch SolarArchitecture has advanced the Surplus-Energy House to such a point that it can now be adapted to any situation and deployed world-wide. This idea: to make use of cutting-edge technology in housing construction anywhere, and thus contribute effectively to reducing greenhouse gas emissions.

If something is to function anywhere, it must be highly variable. For this reason, we provide a modular Surplus-Energy House system, that on the one hand minimizes costs and planning inputs by standardizing elements, and, on the other, can be individually combined and adapted. The concept can be used for standalone houses and entire solar housing estates – Rolf Disch SolarArchitecture focuses primarily on building housing estates, however, and has a strong tradition of 30 years in ecological urban planning.

Rolf Disch's Solar Settlement in Freiburg is Europe's most modern residential project: Ten rows of 50 Surplus-Energy Houses spread across 11,000 sq. m., not to mention the spacious "Sonnenschiff" (Sun Ship) commercial building, on whose roof there are nine Surplus-Energy penthouses, together total some 8,000 sq. m. of residential and 5,500 sq. m. of office and commercial premises. In this way, 60 families are entirely independent of surging energy prices – their



The Solar Settlement in Freiburg

houses actually provide additional revenue by selling excess solar power into the grid.

Hardly surprisingly, the Solar Settlement, the "Sonnenschiff" (Sun Ship) and Rolf Disch himself have won countless prizes: for the concept underlying the energy technology, for the ecological thrust, for the aesthetic appearance, for the project's cost efficiency and the overall economical success. Originally it was planned to be twice the size, so that the concept





The "Sonnenschiff" (Sun Ship) service center in Freiburg

can be easily applied to far larger solar settlements in terms of the technological and urban planning know-how now gained.

This is enabled first and foremost thanks to the modular variability of the Rolf Disch Surplus-Energy House: The simple basic shape, with the rectangular footprint and shed roof, can be easily replicated and combined with annex modules to form detached, semi-detached, linked houses and terrace houses. Different footprint sizes also allow developers to respond to quite different residential or working needs,

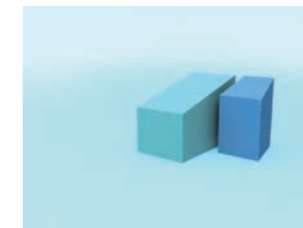
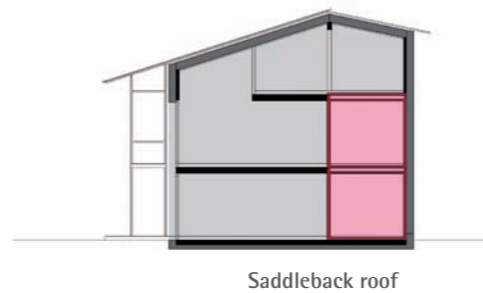
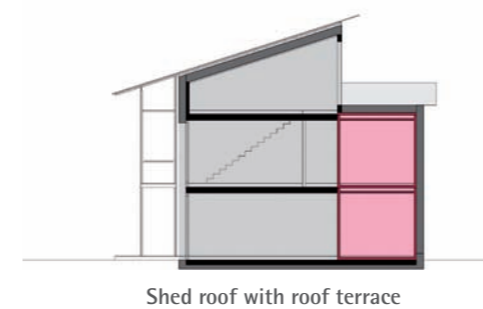
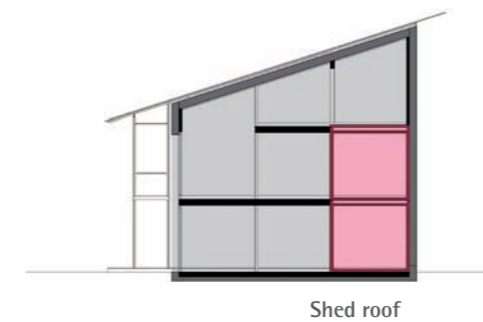
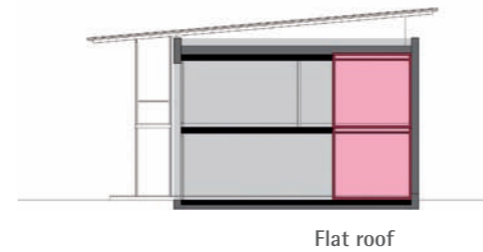
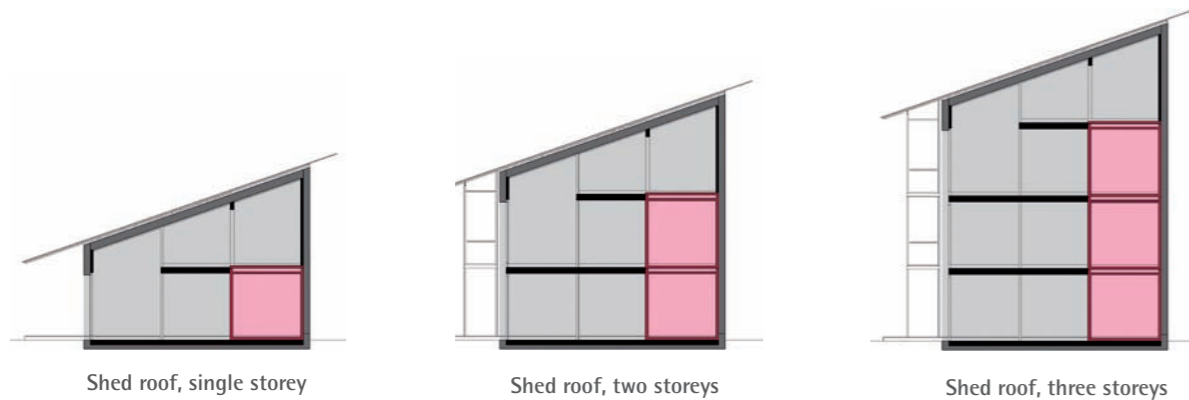
and detailed planning of the footprints is open, anyway. Different sets of storeys can likewise be chosen, as can the roof shape (with or without a roof terrace) – here planners must remember that the solar energy output grows with the size of the roof surface and on the ideal alignment to the sun (angle, direction).

The construction of Freiburg's Solar Settlement relies on wood, as the materials concerned are first healthy (they are free of toxic elements and emission-free), secondly deliver a good eco-balance, and third ensure a pleasant and bright living atmosphere

inside, something enhanced by the large special glazing used on the south-side façade. Essentially, the Surplus-Energy House can also be built as a solid structure. Construction-type issues and the materials to be used should of course be finally decided in light of local conditions and opportunities.

In other words, there is great scope for developers to respond when planning their Solar Settlement to different possible usages. Indeed, thanks to the modular system, planning and realization of larger sets of houses in one or several housing estates is both facilitated and faster.

The Surplus-Energy House boasts a core module: the Powerbox. It is the building's heart, brain and lungs. The roof generates energy, the intelligent building skin brings the power into the house and the Power-



Modular elements



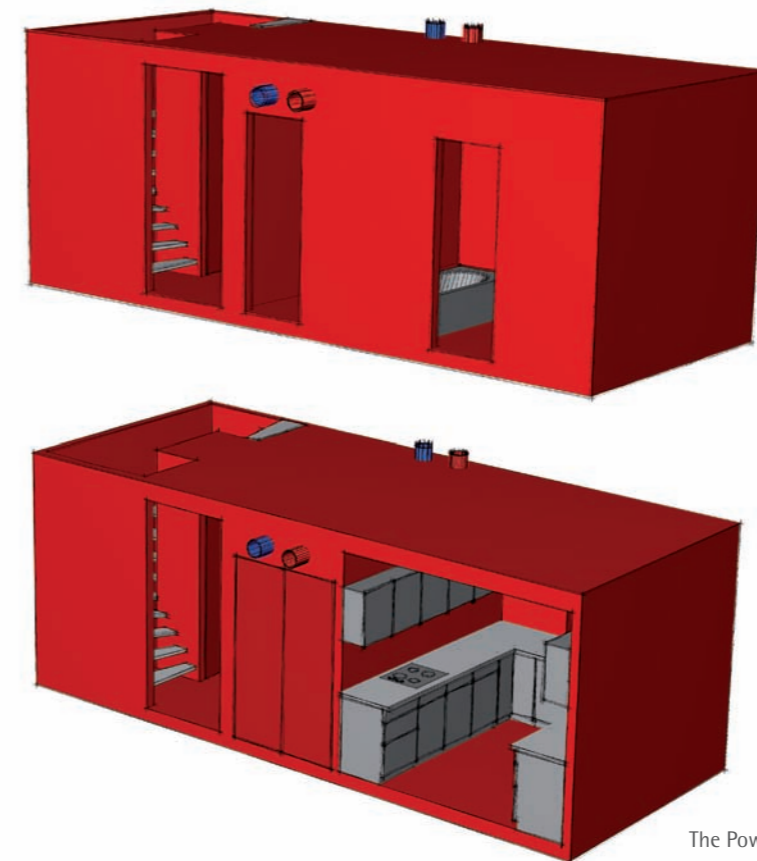
box is the distribution hub. Here the elementary power, water, heat and ventilation cycles are regulated and optimized. The power-cell inside the box contains a solar station and heat storage tank, the electrical distributor, the meter and all the controls.

At the same time, the Box provides access to the building: in the form of the front door, a small hallway and staircase, preferably from the highly insulated northern side. And it houses the crucial living elements, meaning the bathroom and toilet, and the kitchen – given a larger footprint the latter can be positioned adjacent to the Box. The concentration of many functions in this core module spells greater flexibility when subdividing and zoning the living areas and bedrooms.

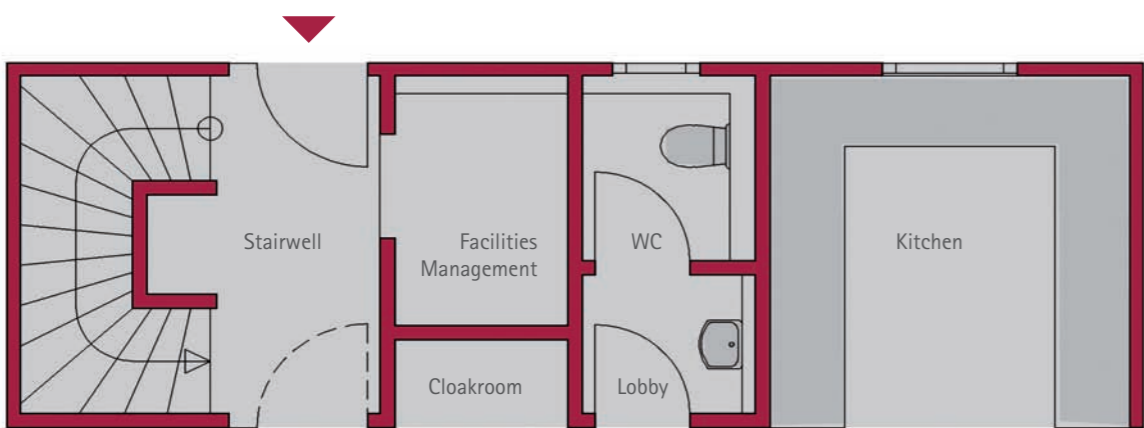
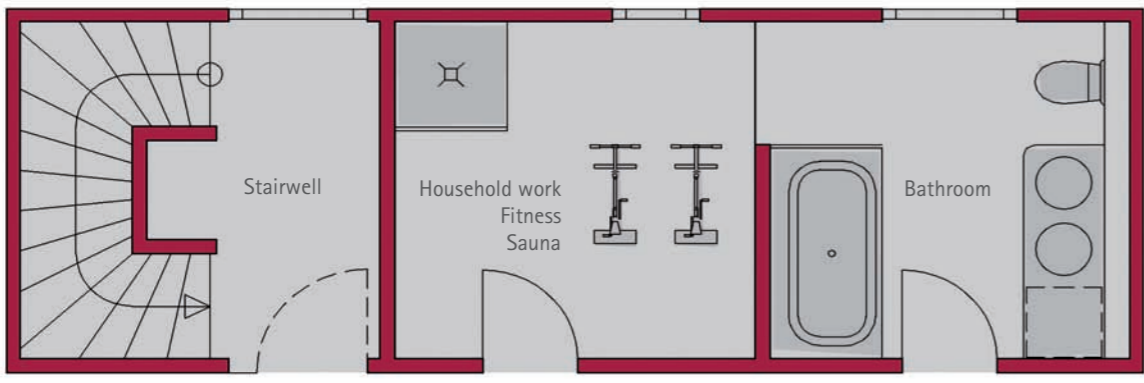
The advantages of the Powerbox: It can be supplied prefabricated. If a larger number of Surplus-Energy Houses are being built, all the crafts involved in the installation work can thus be coordinated very efficiently, time saved, but consistently high quality achieved. This means for the actual construction process, and it is far faster: as soon as the Powerbox is in place, the house as a whole soon follows.

The decisive advantage of the Powerbox is likewise the key thrust of the Rolf Disch Surplus-Energy

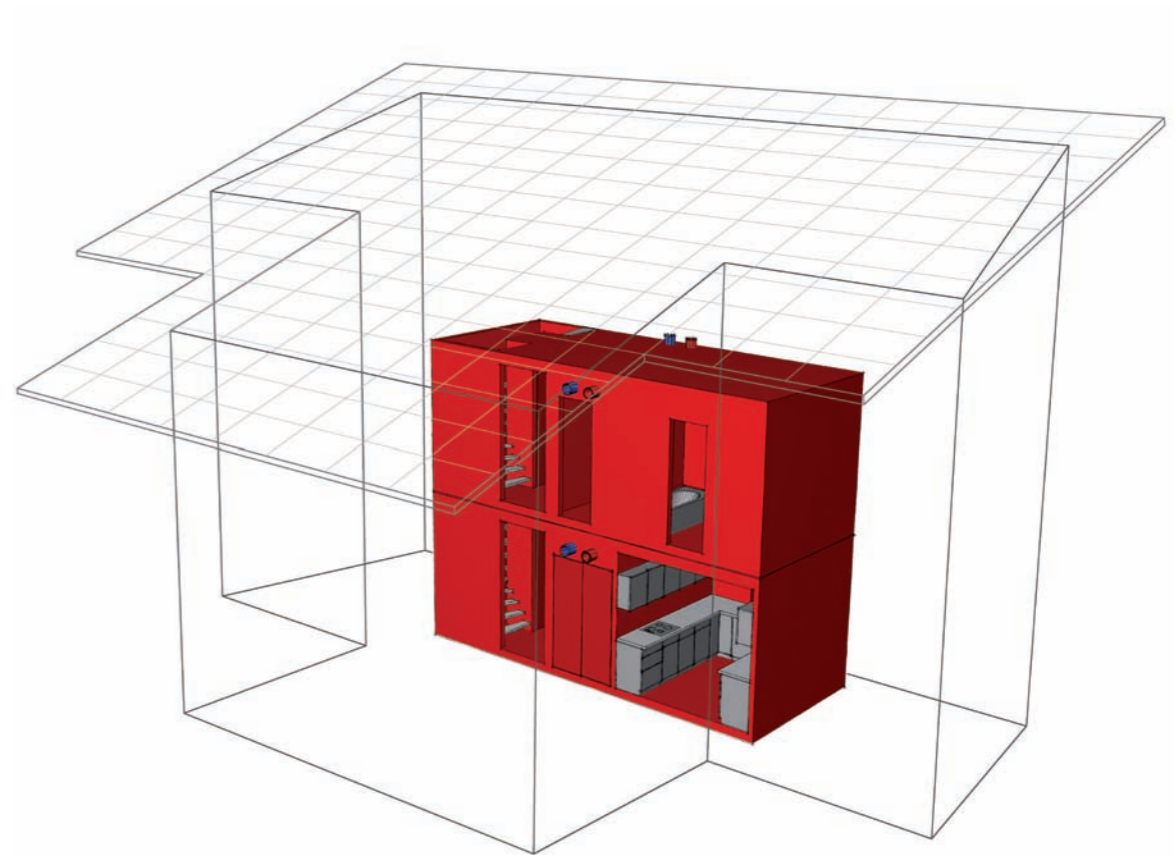
House. For the ecologically optimized Surplus-Energy concept – with its energy balance, unsurpassed globally – is also economically so optimal that there is nothing to stop solar settlements taking the world by storm.



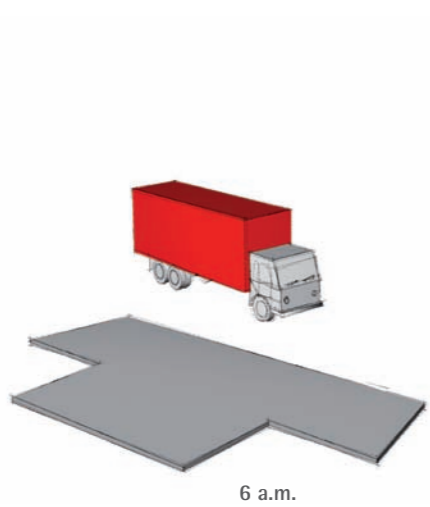
The Powerbox



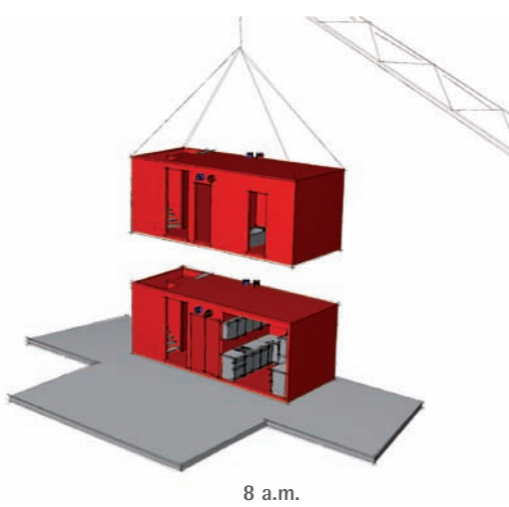
Powerbox • Possible footprints for a two-storey house



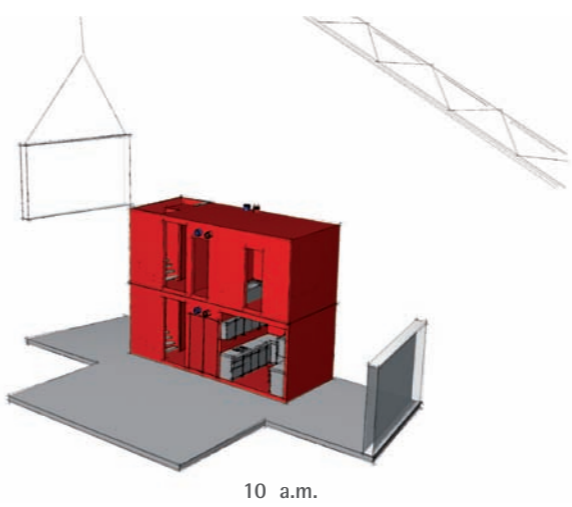
Powerbox



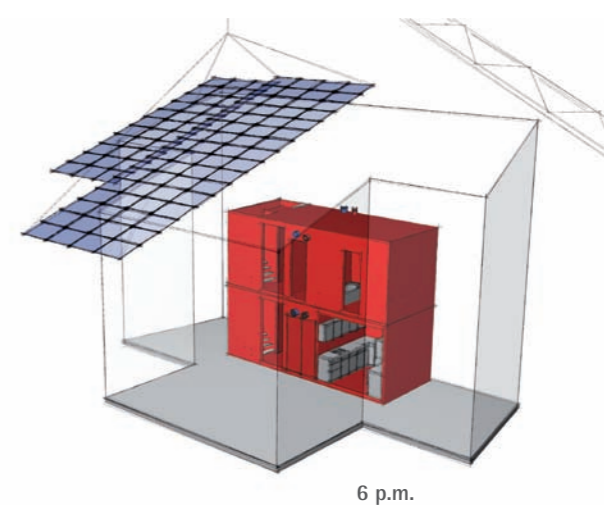
6 a.m.



8 a.m.



10 a.m.



6 p.m.

Construction sequence





With his architecture, Rolf Disch blazes the trail for a new solar age.

*Hermann Scheer, Member of German Parliament,
President of Eurosolar, Winner of the Alternative
Nobel Prize*



2008

Special prize "Energie + Architektur, Gebäude- und Energietechnik" („Energy + Architecture, Building and Energy Technology“) Germany

2007 / 2008

Creative Award 2007 – 2008 by Japan's PEN magazine

2006

Prize awarded by Deutsches Lackinstitut (German Lacquer Institute), for "Germany's most beautiful housing estate"

2005

Wuppertal's Energy and Ecology Prize for the "Sonnenschiff" (Sun Ship)

2003

World Energy Globe

2002

European Solar Prize

2002

State of Baden-Württemberg Innovation Prize, the Dr. Rudolf Eberle Prize 2002

2002

"House of the Year 2002" bestowed by the magazine Häuser together with Reiners Stiftung and Deutsche Verlags Anstalt

2002

Special Prize for Photovoltaics as an integrated element of detached homes, bestowed by BP Germany

2002

1st Prize, German nationwide competition "Who's building for the future?" held by Dresdner Bauspar AG and the magazine CAPITAL

2001

State of Baden-Württemberg Prize for Photovoltaics in Architecture

2000

BUND's creative wood prize for the Schlierberg Solar Settlement in Freiburg

1998

Critics Prize for Architecture, National Federation of German Critics

1997

International Design Prize Baden-Württemberg for the "Weberhaus Övolution" prefabricated house concept.

1997

Eco-manager of the year, bestowed by the magazine CAPITAL and the WWF

1996

European Solar Prize bestowed by EURO-SOLAR for the "Weberhaus Övolution"

1996

1st Prize, Innovation Competition, Immobilien Manager magazine, for the Schlierberg Solar Settlement in Freiburg

1996

Special Prize in the "Das goldene Haus" competition for the HELIOTROPE

1995

German Architecture Prize for HELIOTROPE

1994

European Solar Prize for "Solargarten Munzingen", bestowed by EURO-SOLAR

1991

1st Prize in the German architectural competition for the Solargarten Munzingen, bestowed by Bausparkasse Schwäbisch Hall.

1991

Fritz Winter Prize for technical and artistic commitment

1987

Won the World Championships in the Tour de Sol solar-power car race

1986

Award for cost-effective detached homes in dense settings bestowed by the Federal German Ministry of Spatial Order, Construction and Urban Planning – for the Lindenwäldle housing estate

1984

Gold Medal for the housing estate "Wohnen am Speyerbach" in Speyer bestowed by the Minister of Residential Construction

1984

Gold Medal for the "Wohnhof Ziegelei" bestowed by the Minister of Residential Construction

1984

Medal and Certificate by the Federal German Ministry of Spatial Order, Construction and Urban Planning in the nationwide competition for the "Lindenwäldle" housing estate

1983

Deubau Special Prize in Essen for "Wohnhof Ziegelei"

1983

International Architecture Prize, Brussels:
1st Prize for residential construction, Rabenkopfstrasse
2nd Prize for "Wohnhof Ziegelei"

1979

Baden-Württemberg Wood Construction Prize for "Jugendbegegnungsstätte Freiburg"

With his Solar Settlement and the Sonnenschiff, Freiburg-based solar architect Rolf Disch has created an internationally recognized masterpiece, blending heavenly colors and shapes.

Kommunal Intern, 6/06

Heliotrope is, in a sense, a temple - a place for the worship of both ancient sunlight and groundbreaking design.

Azure, May 2007

Germany's most beautiful housing estate is in Freiburg.

Bauidee, 6/06

*Disch is without doubt
Germany's best-known
solar pioneer. DIE ZEIT*

The linkage of solar energy and the financial sector unleashes new potential. The future belongs to the renewables. And the present? Solar technology is already making a pioneering and stimulating contribution with cross-sector projects. Freiburg's Solar Settlement proves this clearly: The combination of innovative financial experts, the property industry, and solar technology made the housing estate possible in the first place.

Die Welt, 4/04

Trendsetter for sun joy: the Schlierberg Solar Settlement in Freiburg, one of the most modern solar housing construction projects in Europe.

Hannoversche Allgemeine Zeitung, 2/06

The Solar Settlement in Freiburg shows that today financially attractive products that also appeal to the ideals are possible. Solarfunds as a real-estate fund already champions all the advantages that such an investment in an attractive region such as Freiburg offers, with the high level of rent prices, the strong increases in property values and the growing population there. Its particular appeal: it is a sustainable investment, offering earnings that go well beyond the customary good ROI.

Die Welt, 4/04

Making possible today what was impossible yesterday. Houses that produce more energy than their inhabitants can consume. A high quality of life thanks to healthy construction materials. Solar energy as the driving force in society. That is Rolf Disch's vision. And this vision is no utopia but a reality, as he and his team have proved. A large number of widely different construction projects already attest to this committed pioneer's design talent. Solar technology, cost/benefits, and architecture blend in Rolf Disch's oeuvre to offer a convincing alternative to conventional ways of building and living.

Badische Zeitung, 7/05

With the Schlierberg Solar Settlement, the company has set new standards for solar construction and residences in the 21st century. The Schlierberg Solar Settlement means that the future of solar construction and residence in harmony with nature is already a reality today.

Der Monat, 3/06

Disch's energy savings principles impact on the architectural forms chosen, because while the form is supposed to follow the building's function, the criterion of "form follows energy" is given an equal status here.

Family Home, 3/05



Solar
architecture
is not
about
fashion -
it is
about
survival.

Lord
Norman
Foster
Architect

Rolf Disch

Surplus-Energy House

**Variable solar settlement concepts –
economic and ecological**

The advantages

- Highly variable thanks to modular structure
- Integrated facilities management in the form of the Powerbox
- Surplus-Energy solves the energy problem for entire housing estates

- 30 years' experience in ecological town planning
- Swiftly realized

- Economically meaningful thanks to the modular structure and energy gains
- Ecologically meaningful thanks to the highest sustainability standards

Rolf Disch

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