



Low energy buildings - Case Study: Dorfwiesenstr. Friedrichshafen



Category / year

Renovation - Large residential (multi-family houses) / 2014-2015



Address

Dorfwiesenstr. 25, 88045 Friedrichshafen (Germany)



Contact details

Architect: Albrecht Weber, Büro für Baudenkmale, neuzeitlicher HolzlehmBau, Langenargen at Lake Constance, www.albrecht-weber.com

Property owner: private

TICS: Pfeiffer GbR - Stuckateurbetrieb (stucco plasterer), Tettngang, www.pfeiffer-tettngang.de

HVP planning: Planungsbüro Burr GmbH, Leutkirch, www.pb-burr.de

Heating (servers): Cloud & Heat, www.cloudandheat.com

HVP work: Franz Lohr GmbH, Ravensburg, www.franz-lohr.de

Consultants for pitched and flat roof insulation: Siegfried Hanßler, Area Manager puren gmbh

Consultants for heat insulation TICS: Alois Bärtle, Sales Manager ETICS puren gmbh

For further questions:

puren gmbh
Rengoldshauser Str. 4, 88662 Überlingen (Germany)
Alois Bärtle, Sales Manager ETICS
Tel.: +49 (0) 7551 8099-147
Mobile: +49 (0) 175 468 72 26
alois.baertle@puren.com



Pictures





Description of the building

Detailed description:

Built in 1968, the apartment building was transformed into a KfW "energy-efficient building 55". This was achieved mainly through the consistent use of PU insulation. Heating is provided via "Cloud & Heat" technology. Students are the main target group for this completely renovated and extended property in Friedrichshafen on Lake Constance. In the course of the renovation, the balconies were sawn off, new windows with triple glazing ($U_a=0.5 \text{ W/m}^2\cdot\text{K}$) were installed, the building was extended to the south in compliance with building regulations, new balconies were installed and a penthouse was built on the flat roof. As a result, the floor space was increased from 360 to 483 m². Instead of three tenants, the building now houses up to 16 people in five studio apartments, two flats and two shared flats.

In order to minimise the energy consumption, the owner installed high performance PU insulation and energy-efficient LED lamps throughout the building, as well as so-called "dead man's controls" in each flat. If residents leave their flats for a prolonged period, almost all power consumers are switched off (except refrigerators and PC sockets). When the flat is unoccupied, the ventilation and heating are turned down using a heat recovery system.

Building envelope:

The entire external walls are insulated with PU ETICS (External Thermal Insulation Composite System) using 16-cm-thick pure PU boards and a mineral render system of about 1 cm thickness from Schwenk Putztechnik. The basement is insulated with 16-cm-thick fleece-coated pure PD perimeter insulation. This insulation system runs seamlessly up to the flat roof, where it is connected to purenit (pressed board made of recycled PU foam) parapet elements. They have a Psi value of 0.005 W/m²·K and are rated as thermal-bridge-free according to a check by the Passive House Institute.

With a lambda value of 0.026 W/m·K, pure PU insulation offers very good insulation properties allowing for streamlined insulated details. U-values of 0.1 W/m²·K were achieved on walls and roofs.

Renewables:

The building is heated using the waste heat from computer servers of a decentralised data centre ("Cloud & Heat").



Energy consumption

Energy values:

Apartment building's primary energy consumption:

- *Before renovation:* 400 kWh/m²/year
- *After renovation:* 12 kWh/m²/year (-97 %)

Use of renewables:

- Waste heat from computer servers of a decentralised data centre ("Cloud & Heat")



Awards won

- EnEv-Award 2015 (Forumverlag) Builder & Engineer Awards - Energy Efficient Project of Year



Links

Websites illustrating the building:

- <http://www.heinze.de/architekturobjekt/revitalisierung-wohnhaus-von-1968/12635625,1?q=friedrichshafen&f=601383034&s=7201&d=il&p=1&c=ao>

