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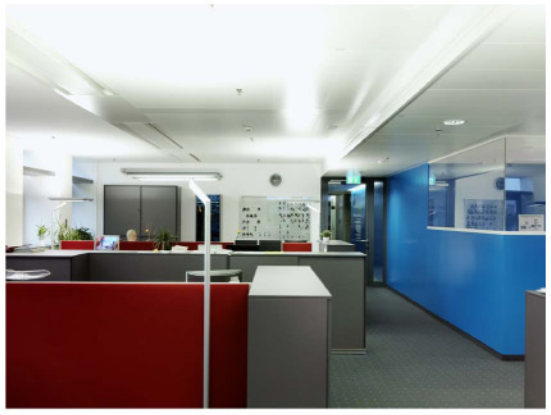
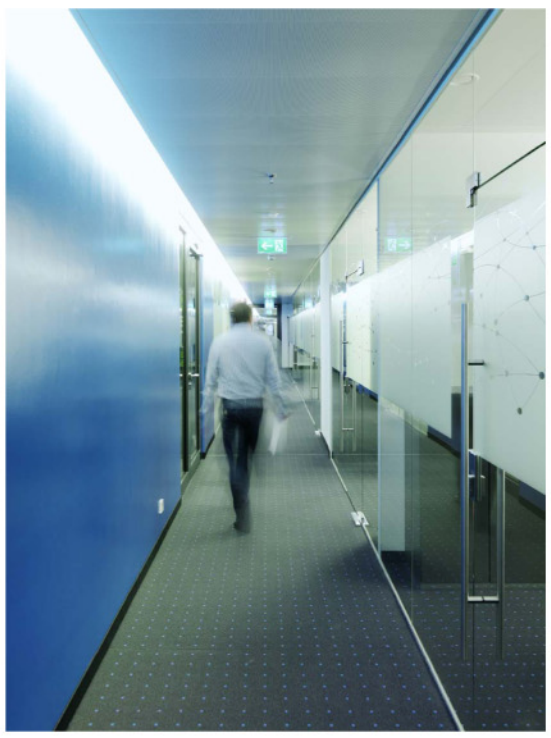
INTERNATIONAL SUSTAINABLE ARCHITECTURE PRIZE 8th EDITION

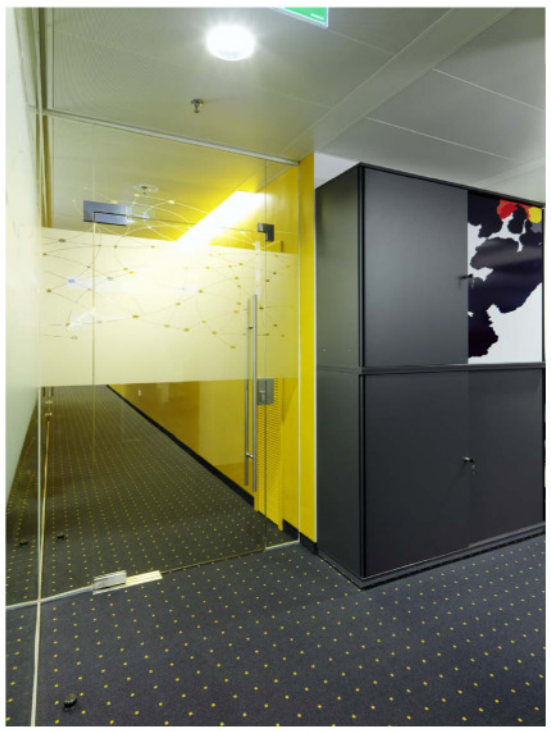
HEADQUARTER ENERGIE STEIERMARK

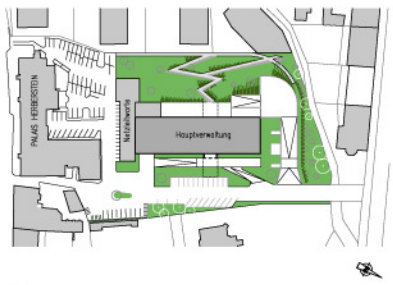
DATA:

Location:	Leonhardgürtel, 8010 Graz, Styria, Austria
Project description:	Headquarter for the Styrian electric power company "Energie Steiermark"
Client:	Energie Steiermark AG
Scope of activities:	Architectural planning, Artistic management
Competition:	September 2006 (1st Prize)
Planning:	Autumn 2006 - Autumn 2009
Construction time:	Spring 2008 - Summer 2010
Technical Data:	Net area: 14.000 m² (NF 10.700 m², FF 1.150 m², VF 2.150 m²) Total Floor Area: 16.900m² Cubage: 58.500m³

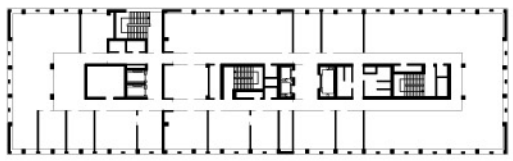




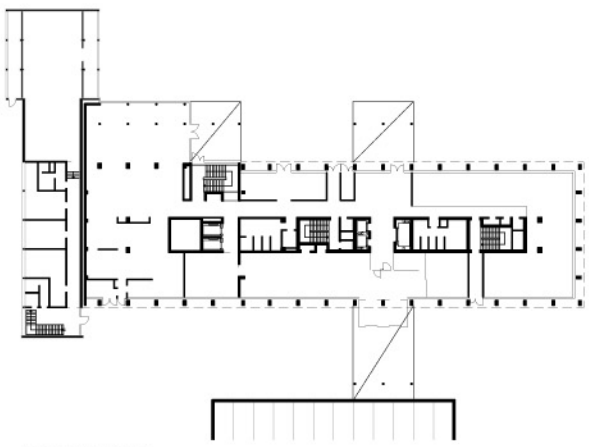




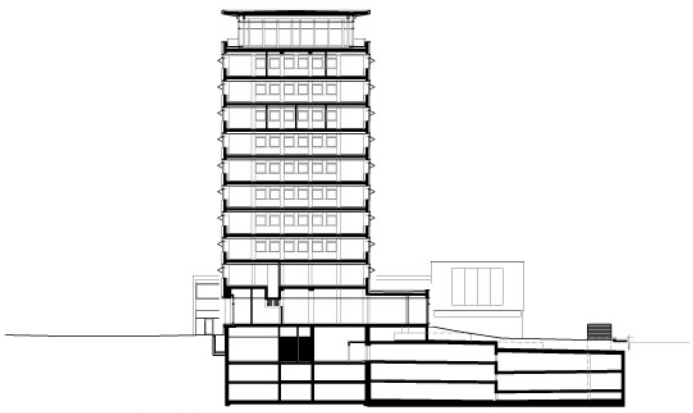
SITE PLAN
0 10 20 30



STANDARD FLOOR
0 3 6 9

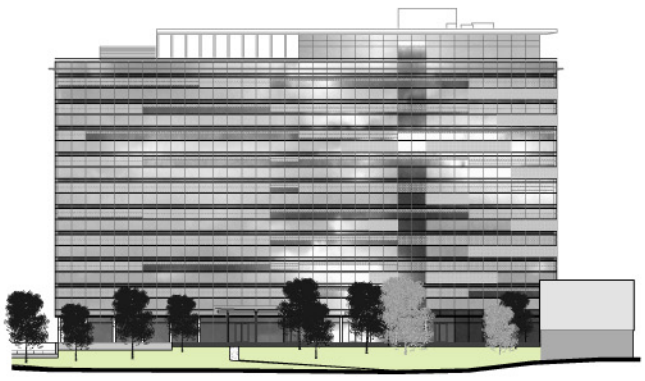


GROUND FLOOR
0 3 6 9



SECTION
0 3 6 9

VIEW NORTH EAST
0 3 6 9



VIEW SOUTH WEST
0 3 6 9

The client:
Energie Steiermark AG is Austria's fourth largest energy group with core businesses covering electricity, natural gas, district heating and non-recyclable waste processing. The majority shareholder of Energie Steiermark is the province of Styria (proportion: 75% minus 1 share). The French energy group Electricité de France (EdF) holds 25% plus one share.
Energie Steiermark sells 8000 GWh of electricity, more than 12,000 GWh of natural gas and 2300 GWh of district heating on national and international markets. The group's turnover is approximately 1.1 billion euro.
Energie Steiermark employs more than 1800 people in Austria and abroad.
Energie Steiermark exercises an operative and strategic control function on behalf of its numerous group affiliates, also bundling together important functions such as controlling, accounting and communication.

The relationship between architect and client:
The client tendered a competition in order to achieve the highest possible quality also in terms of architecture. To this end a feasibility study was carried out in advance and the quality of architecture defined for the jury's decision.
In addition, the project was to serve as an example of how effective energy can be as a design criterion in all aspects. The dynamic façade acts as an interface for the employees' needs and presents a continuously changing design.
This makes the building an urban landmark in the centre of the city.
Collaboration with the client leads both to outstanding architectural results and optimum working conditions for the employees.

Work and context:
To renovate or to demolish? The question as to how to handle buildings from the 1950s and 1960s that no longer fulfil even the most basic requirements of modern energy-economical structures is becoming increasingly pressing - particularly for an energy company that should, after all, also function as a role model in this field. The project "Energie Steiermark - Neu" is based on the results of a study that showed that it would be more advantageous to extend the existing administrative building - an elongated plate construction with nine storeys - than to construct additional buildings.
Due to legal safety requirements, an annex could only have a maximum of five storeys, while a continuation of the building on both sides could keep up the level of the existing structure. Another advantage is that a new whole will be created and internal differentiations between the old and the new building substance be avoided. Short, clearly structured routes are another benefit of such a construction concept. By extending the building on its two narrow sides, synergies in the context of safety technology can also be utilised and the escape routes of the old building be significantly improved. Last but not least, the green spaces on the facility will not be truncated, as existing annexes will be removed, thus freeing up more space and allowing the green areas to be integrated into one coherent park.
The compact enlarged volume has excellent prerequisites for fulfilling the Passivhaus energy standards in the new future. All façades will be equipped with an additional insulation layer and special glass panels as well as a photovoltaic power generation facility and a solar water heating installation. The enormous façade will be visible for miles, not only as the flagship of this particular energy provider, but also as its media carrier and corporate identity reflection, underlining its economic and ecological competence with a design that relies on state-of-the-art technology.

Technical specialties:
- High interior heat load due to large number of people, many devices (PCs, screens etc.) lead to a considerable demand for cooling, heating demand rather low (total heat output incl. ventilation 800kW; low cooling power since folding shutters serve as sun protection - total 650kW)
- Photovoltaic 556m² installed in the façade, on the roof and in the canopy of the entrance, with a total output of 78kWp, annual output of approx 70,000kWh
- Geothermal - energy via geothermal boreholes for heating and cooling, 1200m deep boreholes, delivers under-floor heating and pre-cooling of ground floor and 10th floor
- Use of rainwater for toilets, saving 1,800,000 litres of drinking water/year of flushing. Storage of rain water is in three tanks on the 3rd basement floor of the new building with a capacity of 350m³, with toilet supply via the sprinkler system pipework
- Solar plant with approx. 56m² delivers warm tap water for 1st floor, ground floor and assistance to under-floor heating on ground floor and 10th floor, annual solar yield is approx 21,500kWh
- Façade - very well insulated façade, insulation thickness 18cm of rock wool (22.8kWh/m²a heating requirement = energy class A)
- Shading system - folding shutters prevent sun's rays from hitting the glass - heat input in the summer is reduced considerably
- Redirection of light - specially shaped ceiling light, which reflects daylight to the ceiling thereby redirecting it deep into the offices
- Workplace lighting by means of standing lamps - light intensity is automatically controlled by level of room light; on/off switch by means of sensor also automatic - no need for staff to switch light off. This saves around 45% percent of energy in comparison with conventional lighting
- Heat recovery in ventilation - 12 ventilation centres with an overall fresh airflow of approx. 86,000m³/h for the entire E-office, are equipped with a cross-flow heat exchanger having a heat recovery of approx. 80%, thus reducing additional energy requirement to a minimum. Office ventilation was laid out for hygienic change of air at approx. 35m³/h per employee; employees have the facility to make minor adjustments to room temperature (+-2°C).
- Window contacts - windows can be opened but, if a window is open, the air conditioning (heating/cooling) is automatically suspended in that room

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HEADQUARTER ENERGIE STEIERMARK

ERNST GISELBRECHT
BIOGRAPHY:

1951 Born in Dornbirn, Vorarlberg, Austria
1972-1979 Studied architecture at Graz Technical University
Since 1985 Office in Graz and Bregenz, Austria
2004 Founding of Ernst Giselbrecht + Partner Architektur ZT GmbH

Lectures:

Ann Arbor-USA, Beijing-China, Berlin-Germany, Bregenz-Austria, Brisbane-Australia, Bologna-Italy, Darmstadt-Germany, Edinburgh-Scotland, Florence-Italy, Graz-Austria, Hagen-Germany, Hamburg-Germany, Klagenfurt-Austria, Linz-Austria, Ljubljana-Slovenia, Melbourne-Australia, Piran-Slovenia, Perth-Australia, Prague-Czech Republic, Stuttgart-Germany, Sydney-Australia, Trier-Germany, Trieste-Italy, Vienna-Austria, Warsaw-Poland, Waterloo-Canada, Wurzburg-Germany and others

Personal Exhibitions:

Graz-Austria, Wien-Austria, Klagenfurt-Austria, Fußach-Austria, Ljubljana-Slovenia, Trier-Germany, Berlin-Germany, Prague-Czech Republic, Edinburgh-Scotland

Awards:

1978 Prize winner at the International UIA Competition in Mexico City
1978 Karl-Scheffel-Memorial Award
1989 Piranesi Award, Piran
1992 Silver National Prize for Commercial and Industrial Architecture for the "RSB Offices"
1994 Austrian Building Prize "Metall in der Architektur" for the "Higher Technical Federal School Kaindorf"
Geramb-Rose Architectural Award for the "Higher Technical Federal School Kaindorf"
1995 Austrian Concrete and Cement Industries Prize for the "Higher Technical Federal School Kaindorf"
National Prize for Commercial and Industrial Architecture, Special Prize for Teaching Institutions for the "Higher Technical Federal School Kaindorf"
National Prize for Commercial and Industrial Architecture, Special Prize for Teaching Institutions for the "Tie Beam Hall Murau"
1996 Geramb-Rose Architectural Award for "Cabinet-maker Leitner"
2001 Geramb-Rose Architectural Award for "Papst House"
2003 Europa Nostra Award and European Union Prize for Cultural Heritage for the "ENT-Clinic, University Hospital of Graz"
2004 Austrian Aluminium Architectural Prize for "Biocatalysis TU Graz"
2005 Special Compliment "Premio Biennale Internazionale di Architettura Barbara Cappochin" for "Biocatalysis TU Graz"
2006 Best architects 07 Award for "Biocatalysis TU Graz"
2007 Third Prize in the international Award "Colour - a material for architecture" for "Biocatalysis TU Graz"
2007 Second Prize Award "Mehr Farbe wagen" for "Biocatalysis TU Graz"
2008 Special Compliment "Austrian Architecture Award" for "Kiefer technic showroom"
2008 International Architecture Award 2008 for "Kiefer technic showroom"
2009 Nomination "DETAIL-Preis 2009 Ästhetik und Konstruktion" for "Kiefer technic showroom"
2009 ZT.Award "Most innovative Design" for "Kiefer technic showroom"
2010 Geramb-Rose Architectural Award for "Asfinag-Rastplatz Gaishorn"
2010 Nomination Innovationspreis Energiespeicher Beton for "Headquarters of the Vorarlberger Nachrichten newspaper "

Competitions (first prizes):

1988 "Tie Beam Hall, Murau" competition
"Design of the Regional Exhibition 1989, Judenburg" competition
"Higher Technical Federal School, Kaindorf" competition
1989 "Multifunctional Centre, Köflach" competition
"Primary School Extension and Gymnasium, St.Peter / Judenburg" competition
1990 "Primary School, Straß" competition
"Kärnten Health Center, Klagenfurt" competition
1994 "ENT-Clinic, University Hospital of Graz" consultant´s competition
1995 "NOHAU Offices, Frohnleiten" competition
"Border Station, Nickelsdorf" competition
1996 "Border Station, Drasenhofen" competition
1997 "Megamarkt BAUMAX, Graz" (shopping center) consultant´s competition
"Educational Centre Seggau Castle" consultant´s competition
1999 "Office Building Schubertstrasse, Graz" consultant´s competition
2002 "Biocatalysis Lab Building at Technical University, Graz" competition
"Ausseerland Health Park" competition
2004 "Regional Hospital, Leoben" consultant´s competition
"Raiffeisenbank, Voitsberg" consultant´s competition
2006 "Residential and Office Building Augarten-Nord, Graz" competition
"Administrative Building of Energie Steiermark, Graz" consultant´s competition
2007 "Odontology Clinic, University Hospital of Graz" competition
"Office Building ÖWG Moserhofgasse, Graz" consultant´s competition