AIDA AFFIRMATIVE INTEGRATED ENERGY DESIGN ACTION

Co-funded by the Intelligent Energy Europe Programme of the European Union

EURAC research

Operational success story

Salewa

New building 2011, Bolzano (IT)

GENERAL INFORMATIONS

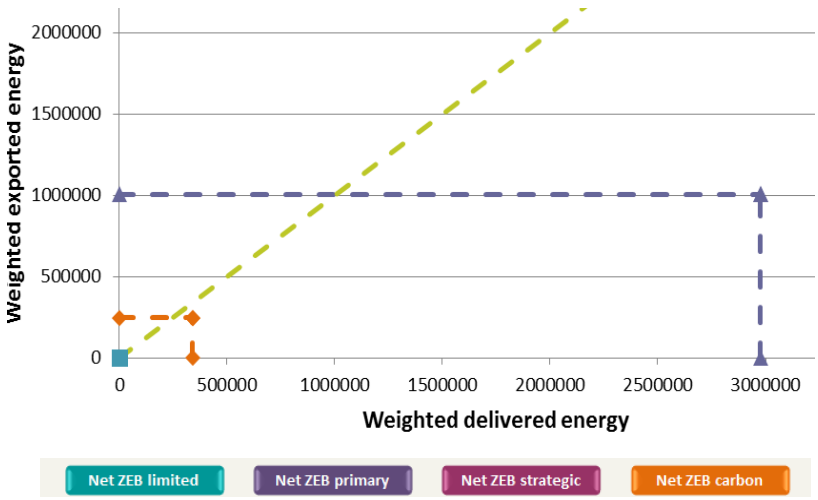
Owner:	Salewa SpA, Oberrauch group, Bolzano
Architect:	Cino Zucchi Architetti e Park Associati (Filippo Pagliani,Michele Rossi)
Design office:	Cino Zucchi Architetti e Park Associati (Filippo Pagliani,Michele Rossi)
Engineer:	Georg Felderer di Energytech
Use:	Office building, climbing gym, automatic warehouse.
Heated surface:	4940 m^2
Gross volume:	160.000 m^3
Built in:	July 2009 - October 2011
Cost:	40 millions of EURO
Method of financing:	-

ENERGY PERFORMANCE

Primary energy demand: 85,20 kWh/m^2year for heating, cooling, DHW and electric demand (lighting, auxiliaries, plug loads).

Type of certification: CasaClima certification:
- ´Work&Life´ certification
- ´CasaClima B`<50 kWh/m^2y for heating energy demand.

Saving of CO2: 335 t/y (by the PV generation)



Graphic1: Monitored Import/Export calculated by Net ZEB Evaluation Tool*.
Elaboration made by calculation data without electric energy demand of the automatic warehouse.
*Developed within the IEA - SHC Task 40/ECBCS Annex 52 - "Towards Net Zero Energy solar Buildings".
Created by: Eurac Research within STA. Draft: V4.3. Results calculated with monitoring data and without the heated square meters. So the results are:

- NET ZEB PRIMARY: -1970205 kWhpe/y
- NET ZEB CARBON: -94954 kgCO_2eq/y

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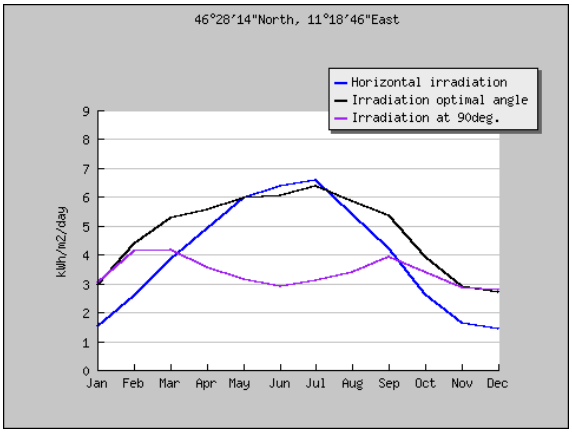
DESCRIPTION OF THE CLIMATE:

Address:	Via Waltraud Gebert Deeg, Bolzano, Italy.
GPS:	Latitude = 46.4699, Longitude = 11.3147
Altitude:	262m
Yearly solar radiation: (graphic)	3,94 kWh/m²*day (Average sum of horizontal global irradiation per square meter received) 1440 kWh/m² (Average sum of horizontal global irradiation per square meter received) (http://re.jrc.ec.europa.eu/pvgis/apps4/pvest.php)
HDD20 (http://www.degreedays.net/):	HDD_{20}= 3131 Bolzano, IT (11.33E,46.46N)
CDD26 (http://www.degreedays.net/):	CDD_{26}= 106 Bolzano, IT (11.33E,46.46N)
HDD20, Italian Classification: (italian law: n. 412 26/august/1993)	HDD20= 2791 Bolzano, IT (11.33E,46.46N)



SPECIFICATIONS OF THE BUILDING

1) Building envelope

Surface to volume ratio (S/V) 0,29 (1/m)

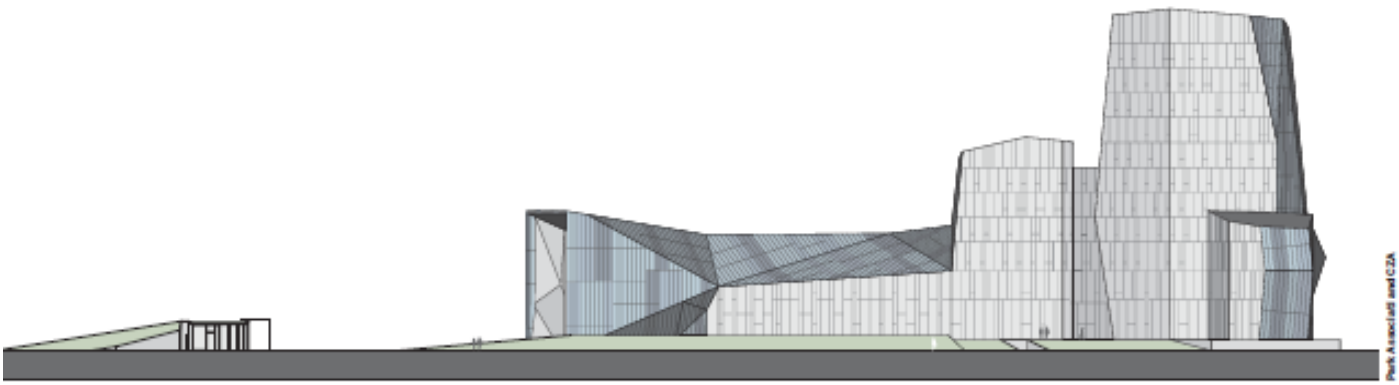
- Double facade: great transparency on the north, obtained through the use of a continuous transparent facade. Stands in contrast to strong protection of the east, south and west facades, which are entirely covered with a bright aluminium skin
- Exterior cladding revokes free solar gains in winter, but allows to protect the internal environment in summer against solar radiation (by providing shading and ventilation).

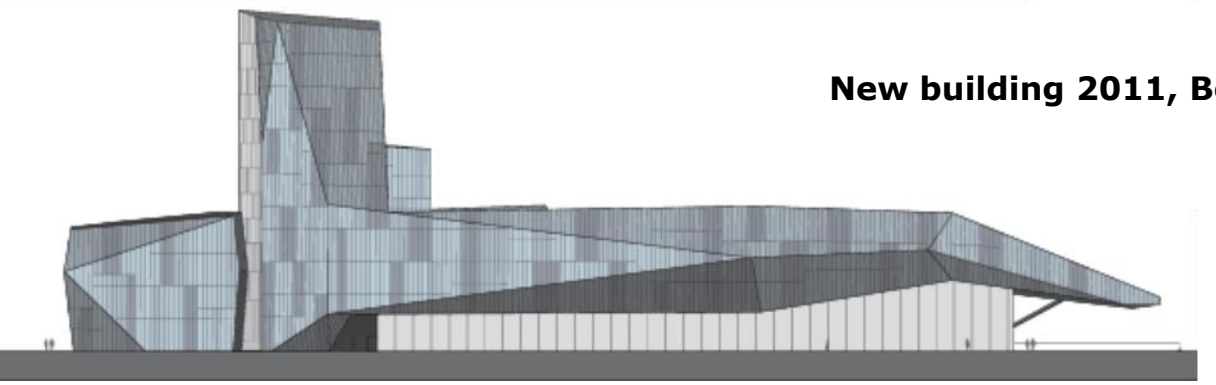
This on one side determines a projection of the internal view towards north over the mountains and the city (emphasised by the slabs which become thinner in correspondence of the glazed facade), on the other is in contrast with the consolidated processes from the service point of view. Infact the external cladding cancels the free winter solar gains but allows to protect the internal environmental comfort from the summer solar radiation (providing shading and ventilation) leading towards the direction of a maximum natural control.

2) Building system

Heating system

- district heating
- cooling tower
- high thermal mass
- thermal mass activation (automatic regulation)
- ventilation system
- installed PV panels: 450 kWp_{el}, about an electric generation of 520‘000 kWh/year





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CONTEXT AND HISTORY OF THE BUILDING

April 2006 Private restricted design competition for the new office building and climbing gym.
Architects invited to participate:

- Cino Zucchi di Milano
- Artec (Manahl e Götz) di Vienna
- Köberl, Giner e Wucherer di Innsbruck
- Dominique Perrault di Parigi
- Bearti & Deplazes di Chur
- Walter Pichler di Bolzano,
- Mahlknecht e Mutschlechner di Brunico, Tscholl di Morter.

February 2007 The Winner of the design competition is Cino Zucchi Architects and Park Associati.

January 2009 Commitment of the task design to Cino Zucchi Architects and Park Associated
The project was new headquarters building composed of three volumes for each different use:

- Office area, located in the high tower (about 50 meters);
- Climbing gym volume characterized by an open large façade open outward
- An automatic warehouse
- A Salewa shop.

The envelope is been realized in double facades in aluminium cladding with different performed textures that produce a game of grey colours reflection. These panels aim to protect the building from the directly solar light., while the north side façade is transparent.
The mechanical engineer has proposed to use an heating and cooling system based on mass activation using pipe placed within the concrete structure of the slabs.
To cover the high electricity demand of the office building and the automatic warehouse, a big part of the green roof is been covered by photovoltaic panels, with an energy production of 520'000kWh per year.

2010 Construction building.

October 2011 Inauguration of the office building and climbing gym.

PHOTOS CINO ZUCCHI, ALBERTO SINIGAGLIA, PAOLO VIGANÒ