Evaluation ENERBUILD-Tool – existing buildings

School Centre Neumarkt

1 Basic information about the building

Name of the building	Schulzentrum Naturpark Zirbitzkogel-Grebenzen
Address of the building	Europaplatz 1, A-8820 Neumarkt
Owner/investor	Marktgemeinde Neumarkt in Steiermark Schulerrichtungs- u. Sanierungs KG
Year of construction	Construction: 1970's , reconstruction: 2010
Building type	Secondary School
Building method	Stock: Skeleton Structure, Reconstruction: Wood, light
Number of buildings	4 total, 2 are reconstructed, C: secondary school 2, D: gym floor /multipurpose hall
Number of levels above earth	C: 3, D: 2
Number of levels underground	C: 1, D 1
Kind of the public use	Education
Effective area for public use in m ² (net)	2422,5 (BGF 2850)
Additional private uses	no
Effective area for private use in m ² (net)	0
Total effective area in m ²	2422,5
Source of energy for heating	Biomass
Heating system	Biomass district heating, Ventilation system with heat recovery
Water heating system	Decentral Electric Water Heating
Date of the building evaluation	01.12.2011

2 Execution of the building evaluation with the ENERBBUILD tool

Responsible Organisation: Energieagentur Obersteiermark

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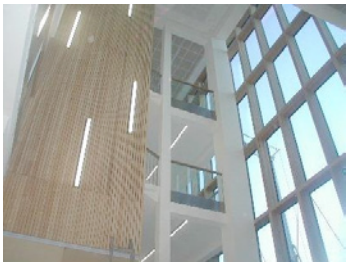
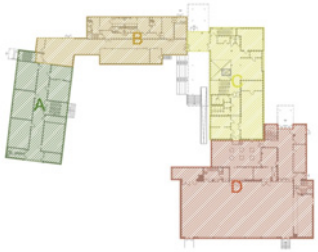
Temperature for thermal comfort in summertime: 26°C

Local limits for heating demand: 65 kWh/m^2 (at the year of construction)

3 Results

Nr.		Title	Must criteria (M)	max. points	evaluated points
A		Quality of location and facilities		max. 100	100
A	1	Access to public transport network		50	50
A	2	Ecological quality of site		50	50
B		Process and planning quality		max. 200	160
B	1	Decision making and determination of goals		25	25
B	2	Formulation of verifiable objectives for energetic and ecological measures	M	20	20
B	3	Standardized calculation of the economic efficiency	M	40	0
B	4	Product-management - Use of low-emission products		60	30
B	5	Planning support for energetic optimization		60	60
B	6	Information for users		25	25
C		Energy & Utilities (Passive house)		max. 350	314
C	1	Specific heating demand (PHPP)	M	100	100
C	2	Specific cooling demand (PHPP)	M	100	55
C	3	Primary energy demand (PHPP)	M	125	125
C	4	CO2-emissions (PHPP)		50	34
D		Health and Comfort		max. 250	250
D	1	Thermal comfort in summer		150	150
D	2	Ventilation - non energetic aspects		50	50
D	3	Daylight optimized (+ lightening optimized)		50	50
E		Building materials and construction		max. 200	175
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	175
Sum				max. 1000	999





4 Conclusions from the building evaluation with the ENERBUILD-Tool

a) Generally

The secondary modern school was already analysed by the EAO in the year 2000 for thermal reconstruction. Based on these results, the municipality planned an extensive reconstruction and founded 2008 a limited partnership with various building experts for implementation.

b) About the planning process

The planning was done by a team of experts (ARCH+MORE ZT GmbH, Arch. DI Gerhard Kopeinig), specialised respectively in passiv haus planning, building management, building physics, statics, electrical engineering, HVAC and building coordination. All building plans and structural views have been published since the beginning of the project on the website:
http://www.schule-im-naturpark.at/praesentation/praesentation.htm

c) About the building itself

The school centre consists of 4 buildings from the years 1975 and 1976. In the buildings A and B, only moisture damages have been repaired, as well as some slight, safety-related reconstruction. However, the buildings B and D have been completely remodelled according to passive house standards, making the first passive house school in Styria.

d) About the evaluation process

The reconstructed school in Neumarkt is the building most fitting for the requirements of the ENERBUILD-Tool in our region. The efforts in meticulous planning and construction produced great results in the evaluation. The project deserves to be recognized as best practice example for public buildings in Murtal.

5 Suggestions for improvement of the ENERBUILD-Tool

With regard to successful projects like the reconstruction of the school centre in Neumarkt, it would be good to be able to refer to such best practice examples as a way to promote the further use of the ENERBUILD-Tool. A representation of different public buildings could be incorporated in training materials for the use of the ENERBUILD-Tool in order to:

1) Demonstrate the feasibility of the tool in practice

2) Show the function of the tool in real-life examples as introductory exercise