Evaluation ENERBUILD-Tool – Building in planning phase

Romarzollo School

1 Basic information about the building

Name of the building	Romarzollo School
Address of the building	Via Carducci, 38062 Romarzollo di Arco (Tn), Italy
Owner/investor	Municipality of Arco
Year of construction	20010-2011
Building type	Massive construction
Building method	Concrete walls with external insulation
Number of buildings	1
Number of levels above earth	3
Number of levels underground	1
Kind of the public use	School
Effective area for public use in m² (net)	1780.1 m^2
Additional private uses	-
Effective area for private use in m ² (net)	-
Total effective area in m²	1780.1 m^2
Source of energy for heating	Natural gas
Heating system	Central-heating boiler powered by natural gas
Water heating system	Central-heating boiler powered by natural gas
Date of the building evaluation	In progress

2 Execution of the building evaluation with the ENERBUILD tool

Responsible Organisation: University of Trento – Department of Civil and Environmental Engineering - Italy

Contact person: Prof. Antonio Frattari

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3 Results

Nr.		Title	Must criteria (M)	max. points	evaluated points
A		Quality of location and facilities		max. 100	88
A	1	Access to public transport network		50	50
A	2	Ecological quality of site		50	38
B		Process and planning quality		max. 200	170
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	40
B	4	Product-management - Use of low-emission products		60	50
B	5	Planning support for energetic optimization		60	35
B	6	Information for users		25	0
C		Energy & Utilities (Passive house)		max. 350	303
C	1	Specific heating demand (PHPP)	M	100	100
C	2	Specific cooling demand (PHPP)	M	100	28
C	3	Primary energy demand (PHPP)	M	125	125
C	4	CO2-emissions (PHPP)		50	50
D		Health and Comfort		max. 250	0
D	1	Thermal comfort in summer		150	0
D	2	Ventilation - non energetic aspects		50	0
D	3	Daylight optimized (+ lightening optimized)		50	0
E		Building materials and construction		max. 200	0
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	0
Sum				max. 1000	561

Evaluation ENERBUILD-Tool – existing buildings

School “I.T.C. Floriani”

1 Basic information about the building

Name of the building	School “I.T.C. Floriani”
Address of the building	Viale Tigli, 38066 Riva del Garda (Tn), Italy
Owner/investor	Autonomous Province of Trento
Year of construction	2008
Building type	Massive construction
Building method	Concrete walls with external insulation
Number of buildings	1
Number of levels above earth	2
Number of levels underground	1
Kind of the public use	School
Effective area for public use in m² (net)	1214.5
Additional private uses	-
Effective area for private use in m ² (net)	-
Total effective area in m²	1214.5
Source of energy for heating	Natural gas
Heating system	Central-heating boiler powered by natural gas
Water heating system	Central-heating boiler powered by natural gas
Date of the building evaluation	2009

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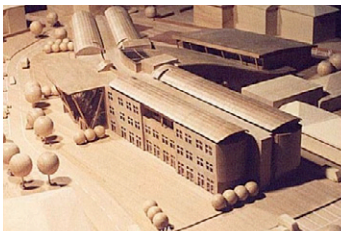
3 Results

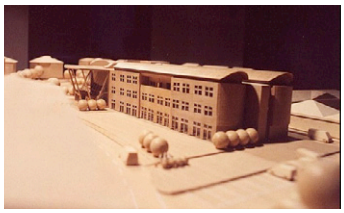
Nr.		Title	Must criteria (M)	max. points	evaluated points
A		Quality of location and facilities		max. 100	60
A	1	Access to public transport network		50	18
A	2	Ecological quality of site		50	42
B		Process and planning quality		max. 200	140
B	1	Decision making and determination of goals		25	25
B	2	Formulation 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	50
B	5	Planning support for energetic optimization		60	45
B	6	Information for users		25	0
C		Energy & Utilities (Passive house)		max. 350	312
C	1	Specific heating demand (PHPP)	M	100	100
C	2	Specific cooling demand (PHPP)	M	100	37
C	3	Primary energy demand (PHPP)	M	125	125
C	4	CO2-emissions (PHPP)		50	50
D		Health and Comfort		max. 250	10
D	1	Thermal comfort in summer		150	0
D	2	Ventilation - non energetic aspects		50	0
D	3	Daylight optimized (+ lightening optimized)		50	10
E		Building materials and construction		max. 200	130
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	130
Sum				max. 1000	652

Evaluation ENERBUILD-Tool – Building in planning phase

Mezzolombardo School



Maquette picture



Maquette picture

Maquette picture

1 Basic information about the building

Name of the building	Mezzolombardo School
Address of the building	Via Perlasca, 38017 Mezzolombardo (Tn), Italy
Owner/investor	Autonomous Province of Trento – Servizio Edilizia Pubblica
Year of construction	2003
Building type	Massive construction
Building method	Concrete walls with external insulation
Number of buildings	1
Number of levels above earth	3
Number of levels underground	1
Kind of the public use	School
Effective area for public use in m ² (net)	4012 m ²
Additional private uses	-
Effective area for private use in m ² (net)	-
Total effective area in m ²	4012 m ²
Source of energy for heating	Natural gas
Heating system	Central-heating boiler powered by natural gas
Water heating system	Central-heating boiler powered by natural gas+solar
Date of the building evaluation	In progress

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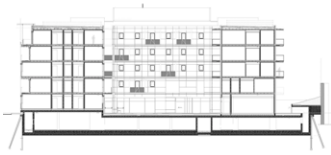
3 Results

Nr.		Title	Must criteria (M)	max. points	evaluated points
A		Quality of location and facilities		max. 100	92
A	1	Access to public transport network		50	50
A	2	Ecological quality of site		50	42
B		Process and planning quality		max. 200	195
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	40
B	4	Product-management - Use of low-emission products		60	50
B	5	Planning support for energetic optimization		60	35
B	6	Information for users		25	25
C		Energy & Utilities (Passive house)		max. 350	235
C	1	Specific heating demand (PHPP)	M	100	40
C	2	Specific cooling demand (PHPP)	M	100	55
C	3	Primary energy demand (PHPP)	M	125	93
C	4	CO2-emissions (PHPP)		50	47
D		Health and Comfort		max. 250	30
D	1	Thermal comfort in summer		150	0
D	2	Ventilation - non energetic aspects		50	0
D	3	Daylight optimized (+ lightening optimized)		50	30
E		Building materials and construction		max. 200	55
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	55
Sum				max. 1000	607

Evaluation ENERBUILD-Tool – Building in planning phase

University Residence “Mayer”



1 Basic information about the building

Name of the building	University Residence “Mayer“
Address of the building	Corso Buonarroti - Via Lampi, 38122 Trento, Italy
Owner/investor	Opera Universitaria - Autonomous Province of Trento
Year of construction	-
Building type	Lightweight construction
Building method	Cross-laminated timber walls (X-Lam System)
Number of buildings	1
Number of levels above earth	4
Number of levels underground	1
Kind of the public use	University residence
Effective area for public use in m² (net)	3.641,57 m^2
Additional private uses	-
Effective area for private use in m² (net)	-
Total effective area in m ²	3.641,57 m^2
Source of energy for heating	Solar and ground source
Heating system	Solar and ground source heat-pump system
Water heating system	Solar and ground source heat-pump system
Date of the building evaluation	In progress

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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	180
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	40
B	4	Product-management - Use of low-emission products		60	50
B	5	Planning support for energetic optimization		60	45
B	6	Information for users		25	0
C		Energy & Utilities (Passive house)		max. 350	246
C	1	Specific heating demand (PHPP)	M	100	100
C	2	Specific cooling demand (PHPP)	M	100	73
C	3	Primary energy demand (PHPP)	M	125	34
C	4	C_O2-emissions (PHPP)		50	39
D		Health and Comfort		max. 250	50
D	1	Thermal comfort in summer		150	0
D	2	Ventilation - non energetic aspects		50	0
D	3	Daylight optimized (+ lightening optimized)		50	50
E		Building materials and construction		max. 200	109
E	1	$OI3_{TGH-Ic}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	109
Sum				max. 1000	685

Evaluation ENERBUILD-Tool – Building in planning phase

Vigo Rendena town hall

1 Basic information about the building

Name of the building	Town hall
Address of the building	via IV Novembre, 38080 Vigo Rendena (Tn) Italy
Owner/investor	Municipality of Vigo Rendena
Year of construction	2009-2010
Building type	Lightweight construction
Building method	Platform frame
Number of buildings	1
Number of levels above earth	3
Number of levels underground	1
Kind of the public use	Public use: offices with multifunctional rooms.
Effective area for public use in m ² (net)	505,96 m^2
Additional private uses	-
Total effective area in m ²	505,96 m^2
Source of energy for heating	Natural gas
Heating system	Central-heating boiler powered by natural gas.
Water heating system	Hot water generator powered by biomass (wood chips and pellets), heat pump with puffer store.
Date of the building evaluation	In progress.

2 Execution of the building evaluation with the ENERBUILD tool

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3 Results

Nr.		Title	Must criteria (M)	max. points	evaluated points
A		Quality of location and facilities		max. 100	50
A	1	Access to public transport network		50	0
A	2	Ecological quality of site		50	50
B		Process and planning quality		max. 200	170
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	40
B	4	Product-management - Use of low-emission products		60	50
B	5	Planning support for energetic optimization		60	35
B	6	Information for users		25	0
C		Energy & Utilities (Passive house)		max. 350	330
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	50
D		Health and Comfort		max. 250	50
D	1	Thermal comfort in summer		150	0
D	2	Ventilation - non energetic aspects		50	0
D	3	Daylight optimized (+ lightening optimized)		50	50
E		Building materials and construction		max. 200	75
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	75
Sum				max. 1000	675

Evaluation ENERBUILD-Tool – Building in planning phase

Vigo Rendena Parsonage

Picture outside

Picture outside

Picture outside

1 Basic information about the building

Name of the building	Parsonage
Address of the building	via IV Novembre, 38080 Vigo Rendena (Tn) Italy
Owner/investor	Municipality of Vigo Rendena
Year of construction	2009-2010
Building type	Lightweight construction
Building method	Platform frame
Number of buildings	1
Number of levels above earth	2.5
Number of levels underground	1
Kind of the public use	Public use: parsonage and assembly hall.
Effective area for public use in m ² (net)	207.10 m^2
Additional private uses	-
Effective area for private use in m ² (net)	207.10 m^2
Total effective area in m ²	Natural gas
Source of energy for heating	Central-heating boiler powered by natural gas
Heating system	Hot water generator powered by biomass (wood chips and pellets), heat pump with puffer store.
Water heating system	In progress

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3 Results

Nr.		Title	Must criteria (M)	max. points	evaluated points
A		Quality of location and facilities		max. 100	50
A	1	Access to public transport network		50	0
A	2	Ecological quality of site		50	50
B		Process and planning quality		max. 200	135
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	40
B	4	Product-management - Use of low-emission products		60	50
B	5	Planning support for energetic optimization		60	0
B	6	Information for users		25	0
C		Energy & Utilities (Passive house)		max. 350	285
C	1	Specific heating demand (PHPP)	M	100	64
C	2	Specific cooling demand (PHPP)	M	100	46
C	3	Primary energy demand (PHPP)	M	125	125
C	4	CO2-emissions (PHPP)		50	50
D		Health and Comfort		max. 250	50
D	1	Thermal comfort in summer		150	0
D	2	Ventilation - non energetic aspects		50	0
D	3	Daylight optimized (+ lightening optimized)		50	50
E		Building materials and construction		max. 200	75
E	1	$OI3_{TGH-lc}$ ecological index of the thermal building envelope (respectively OI3 of the total mass of the building)		200	75
Sum				max. 1000	595