

Evaluation ENERBUILD-Tool – existing buildings

Kindergarten - Mazzé



1 Basic information about the building

| | |
|--|--------------------------------|
| Name of the building | Scuola Materna Comune di Mazzé |
| Address of the building | Via Castone, Mazzé |
| Owner/investor | Municipality of Mazzé |
| Year of construction | 2011 |
| Building type | School |
| Building method | Massive wood structure (XLAM) |
| Number of buildings | 1 |
| Number of levels above earth | 1 |
| Number of levels underground | 0 |
| Kind of the public use | School |
| Effective area for public use in m ² (net) | 994 |
| Additional private uses | - |
| Effective area for private use in m ² (net) | - |
| Total effective area in m ² | 994 |
| Source of energy for heating | Heat pump |
| Heating system | Radiant floor |
| Water heating system | Solar panels |
| Date of the building evaluation | 2011 |

2 Execution of the building evaluation with the ENERBUILD tool

Responsible Organisation: Environment Park

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Temperature for thermal comfort in summertime: 26 °C

Local limits for heating demand: 16,5 kWh/m³

3 Results

| Nr. | | Title | Must criteria (M) | max. points | evaluated points |
|-----|--|-------|-------------------|-------------|------------------|
|-----|--|-------|-------------------|-------------|------------------|

| | | | | | |
|----------|---|---|--|-----------------|-----------|
| A | | Quality of location and facilities | | max. 100 | 48 |
| A | 1 | Access to public transport network | | 50 | 10 |
| A | 2 | Ecological quality of site | | 50 | 38 |

| | | | | | |
|----------|---|--|---|-----------------|------------|
| B | | Process and planning quality | | max. 200 | 190 |
| 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 | 20 |
| B | 4 | Product-management - Use of low-emission products | | 60 | 40 |
| B | 5 | Planning support for energetic optimization | | 60 | 60 |
| B | 6 | Information for users | | 25 | 25 |

| | | | | | |
|----------|---|---|---|-----------------|-----------|
| C | | Energy & Utilities (Passive house) | | max. 350 | 94 |
| C | 1 | Specific heating demand (PHPP) | M | 100 | 30 |
| C | 2 | Specific cooling demand (PHPP) | M | 100 | 0 |
| C | 3 | Primary energy demand (PHPP) | M | 125 | 64 |
| C | 4 | CO ₂ -emissions (PHPP) | | 50 | 0 |

| | | | | | |
|----------|---|---|--|-----------------|------------|
| D | | Health and Comfort | | max. 250 | 135 |
| D | 1 | Thermal comfort in summer | | 150 | 75 |
| D | 2 | Ventilation - non energetic aspects | | 50 | 30 |
| D | 3 | Daylight optimized (+ lightening optimized) | | 50 | 30 |

| | | | | | |
|------------|---|--|--|------------------|------------|
| E | | Building materials and construction | | max. 200 | 180 |
| E | 1 | OI ₃ _{TGH-1c} ecological index of the thermal building envelope (respectively OI ₃ of the total mass of the building) | | 200 | 180 |
| Sum | | | | max. 1000 | 647 |



4 Conclusions from the building evaluation with the ENERBUILD-Tool

a) Generally

The main characteristics of the building are the wide use of wood and presence of a large PV installation on the roof. A particular attention has been paid to indoor quality, considering the users of building (children). The energy performance (heating demand) is not elevated because of the almost standard level insulation of the envelop. An improvement of the energetic performance is achieved by means of PV use.

b) About the planning process

The building has been funded by Regione Piemonte through a specific program for new schools. The funding program was requesting a minimum environmental performance, assessed with the Protocollo ITACA rating system. For this reason in the whole planning process the sustainability issues have been a top issue and the achievement of high performance targets has continuously monitored.

c) About the building itself

The best performance has been reached in the construction materials area. This building is one of the first schools in Regione Piemonte that has been totally constructed in wood.

d) About the evaluation process

The evaluation of the energy criteria has been carried out using a calculation procedure for passive constructions. But because the school has not a “passive” performance, the calculation resulted too much detailed for this kind of construction.

5 Suggestions for improvement of the ENERBUILD-Tool

In the energy criteria and transportation criterion it should be more properly considered the use of the building. For a school the public transportation availability is important only in specific times. The building is not used in summer time and so the cooling energy demand is not fully appropriate.