



MountEE - mountEE: Energy efficient and sustainable building
in European municipalities in mountain regions
IEE/11/007/SI2.615937

GOOD PRACTICE SUSTAINABLE BUILDINGS

SCHOOL CONSTRUCTION - SCUOLA DI POLCENIGO

Region / local area considered: FRIULI VENEZIA GIULIA ITALIA	Good practice submitted by ARES AGENZIA REGIONALE PER L'EDILIZIA SOSTENIBILE
1) Short description of the project Scuola di Polcenigo The project involves the construction of 12 new classrooms for the primary and secondary levels 	
2) Background/targets The City of Polcenigo wanted to build a new wing of the school that had the characteristics of earthquake resistance, energy conservation, rainwater harvesting ... The building was to approach the type "to nearly zero energy building." 12 classrooms were needed: 5 for primary school, 5 for secondary school and 1 for plural classroom activities.	
3) Detailed project/program description 	

The school was built with an integrated contract: the town council has approved the preliminary project and made the race for the execution of the work, including the definitive and and executive project.

This allowed them to reduce significantly the time required for execution, and to choose the best project.

The project was carried out by a team of professionals: arch. Alberto Del Maschio, ing. Santarossa Stefano, arch. Burigana Mark arch. Almondo Daniel.

The manufacturer is Lavina buildings in Tambre (BL)



The "type" section of the building is with two slopes, never equal to itself, covers the two parts to intersect at the highest point in the atrium that corresponds to the space able to "capture" the natural light and distribute it along two corridors. A large skylight attenuates the sunlight of summer and welcomes the lowest winter.

The lobby welcomes children, place for free activities and environment for special occasions (small parties, meetings with parents, entertainment, recreation in the bad days) being able to accommodate a large number of people.



A main attention has been paid to the design for the purpose of reducing energy consumption.

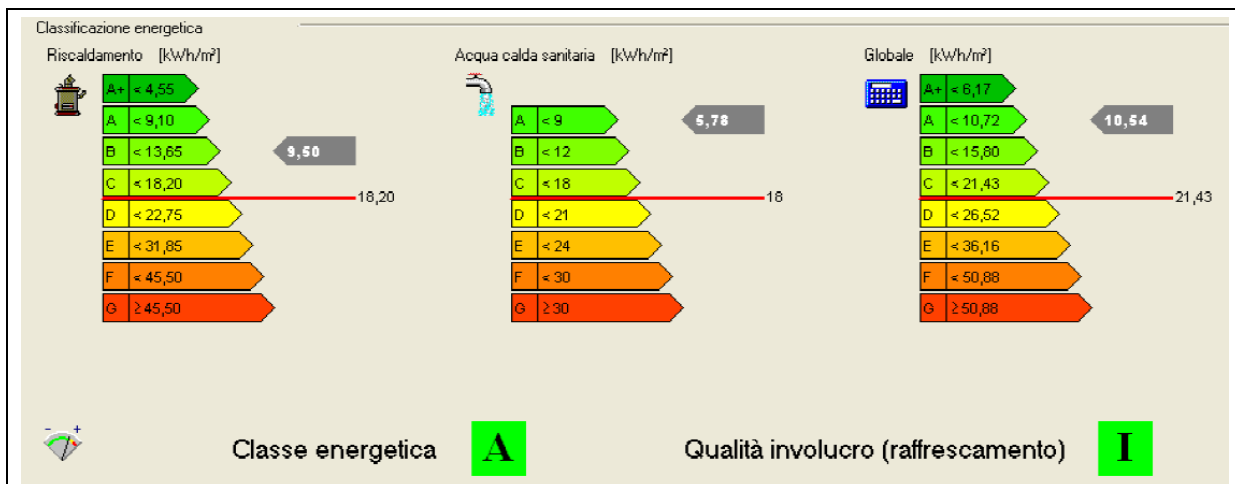
In this regard, the project provides a prefabricated wooden structure consists of vertical and horizontal perimeter with natural materials, such as rigid panels (OSB, DWD) consisting mainly derived from the processing of wood and insulating bio-soluble mineral wool, with high density .

In perimeter walls it is also provided an insulation "overcoat" that allows the reduction of thermal bridges and the exploitation of the thermal inertia of the wall.

In order to avoid waste in terms of energy the design has also tried to limit the heat losses in winter through the exterior: the use of two glass plates separated by a cavity filled with Argon gas and with low emissivity coating allows rag-reach very high values of thermal insulation.

There is a solar thermal plant for the production of hot water with a net absorber surface of 8 square meters positioned on the pitch of the roof facing south.

Due to the design choices described above, the building project was calculated to provide an energy saving corresponding to the class A.



The systems are structured as follows:

- The rooms are heated with radiant distribution from the plant floor;
- There are two air handling units with heat recovery unit, positioned in the ceiling and ducted to ensure that local exhaust ventilation to ensure adequate air exchange rate.

Particular attention has also been paid in the design for saving water: it involves the use of hydro-sanitary devices for saving flushing water which in double selection, taps flow mixed with air to reduce the amount of water emitted in equal power washing, use of faucets with photocell to activate the flow only in the case of physical presence ...

It 'also provided a system for the collection, recovery and reuse rainwater for external uses such as:

- Washing paved areas
- Feeding the fire prevention
- Discharges of power cassette toilet.

main objectives and concrete targets

Beyond the objective of building a efficient school, another goal was to involve students and teachers in a training course on sustainable construction.

Lectures and study visits will be carried out to understand the principles of sustainable building and construction in wood.

target group(s) the project is directed toward

- Students of Polcenigo school
- school's teachers;
- Indirectly: building companies;
- Indirectly: buyers or lenders of buildings;
- Indirectly: Polcenigo municipality.

Geographical level of implementation of the project

- Local level (1-2 municipalities)

4) Funding/financing/costs

The total cost of the project is € 1,070,000.00.

The work was financed by funds of the City and through regional and provincial government grants.

5) Main results

- a school built in class A, with a reduction in fuel consumption by about 50% compared to the national legislation with a consequent reduction in CO₂ emissions
- energy certification for buildings;
- awareness raising on energy and sustainable buildings
- improved knowledge for Polcenigo school's teachers

6) Analysis – lessons learnt and success factors

It has been a positive experience because the build time was very short (integrated contract and prefabricated wooden structure), and the results are excellent.

It would be interesting to monitor the real consumptions of the building when it comes into operation.

Very nice was the idea of involving students and teachers in the construction of the new school.

The experience can be effectively transferred to the construction of other schools.

7) Time frame

Start date: Start of planning in January 2012

Start of first construction phase in July 2012

End of construction 25 January 2013

8) Contact project owner

Organisation: Comune di Polcenigo

Name contact person: geom.. Bernardis Luciana

Address: Piazza Plebiscito, 1 – Polcenigo (PN)

Phone: 0039 0434 74001

Email: protocollo@com-polcenigo.regione.fvg.it

Web site: www.comune.polcenigo.pn.it

Other informations:

<http://comune.polcenigo.pn.it/it/pagine/index.php?id=97>



