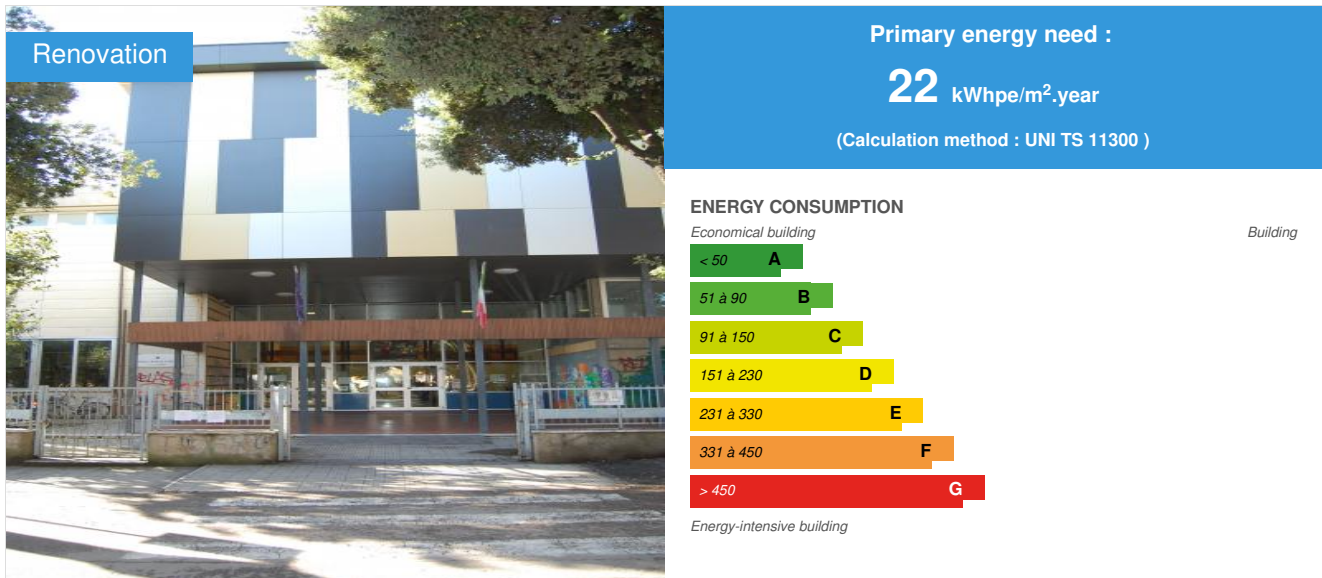


RENOVATION OF THE SCHOOL GYM – MIDDLE SCHOOL “DANTE ALIGHIERI”

by [Margherita Finamore](#) / 2014-05-26 13:49:03 / International / 5526 / EN



Building Type : School, college, university
Construction Year : 2010
Delivery year : 2013
Address 1 - street : Gattoni, 13 61122 PESARO, Italy
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 634 m² Useful area (It)
Construction/refurbishment cost : 721 533 €
Number of Pupil : 560 Pupil
Cost/m² : 1138.06 €/m²

General information

In the Mediterranean climate, through careful design based on sustainable bioclimatic study of the site, marked by the simple construction of the dry assembly, the project of renovation of an existing gymnasium obtains high performance in terms of the use of renewable energy and a lower production of CO₂.

See more details about this project

[http://www.comune.pesaro.pu.it/index.php?id=11634&tx_wfgbe_pi1\[UID\]=18](http://www.comune.pesaro.pu.it/index.php?id=11634&tx_wfgbe_pi1[UID]=18)
<http://www.archilovers.com/p124633/RECUPERO-ENERGETICO>

Stakeholders

Stakeholders

Function : Contractor representative

Morselli Ugo

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<http://www.comune.pesaro.pu.it>

Function : Thermal consultancy agency

Antonio Vitale

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Function : Designer

Margherita Finamore

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Contracting method

Other methods

If you had to do it again?

Yes, I do. I hope to do better than this, in another project.

Building users opinion

They feel good and very comfortable.

Energy

Energy consumption

Primary energy need : 22,00 kWhpe/m².year

Primary energy need for standard building : 88,00 kWhpe/m².year

Calculation method : UNI TS 11300

CEEB : 0.0001

Breakdown for energy consumption : 46% consumption for heating in winter

Initial consumption : 117,00 kWhpe/m².year

Envelope performance

Envelope U-Value : 0,30 W.m⁻².K⁻¹

More information :

KIND OF STRUCTURE U W/mq K EXISTING STRUCTURE U W/mq K STRUCTURE OF PROJECT

OPAQUE ELEMENT 1,747 0,163

TRANSPARENT ELEMENT 2,80 1,80

EXTERNAL ATTIC 1,103 0,277

ATTIC OF COVERAGE 2,112 0,312

Building Compactness Coefficient : 0,35

More information

REQUIREMENT OF ANNUAL PRIMARY ENERGY Kwh/YEAR 14.018,00

ELECTRIC ENERGY CONSUMPTION Kwh/year 6.448,00

ANNUAL REQUIREMENT OF THERMAL ENERGY Kwh/year 26.619,00

ENERGY RENEWABLE PRODUCED Kwh/year 15.884,00

Factor of output seasonal pomp of heat SBF 3,76

Epg 3,05 Kwh/ m3 year

ENERGETIC CLASS A+

Real final energy consumption

Final Energy : 8,05 kWhfe/m².year

Real final energy consumption/m² : 8,09 kWhfe/m².year

Renewables & systems

Systems

Heating system :

- Heat pump
- Fan coil

Hot water system :

- Individual electric boiler

Cooling system :

- Reversible heat pump
- VRV Syst. (Variable refrigerant Volume)

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Heat pump

Renewable energy production : 59,67 %

Environment

Urban environment

The gym is housed in a large building which also has a school auditorium.

The gym is also used by amateur sporting groups as well as by the pupils of the school.

The school is placed in front of an urban park, next to a kindergarten. Not far away there are a nursery school, a community center for the elderly and the church.

The school has its own car park.

Land plot area : 650,00 m²

Built-up area : 100,00 %

Green space : 6 200,00

Products

Product

eraclit-LM

ERACLIT-VENIER SPA

eraclit@eraclit.it

<http://eraclit.biz>

Product category : Structural work / Passive system

Description Identification:

Panel ERACLIT LM-grained acoustic termofonisolante and sound absorbing, wood wool mineralized with magnesite, with a thin fiber surface exposed "grain noise" in accordance with UNI EN 13168 - Type "panel magnesite bonded wood wool" thickness ... mm, 600 x ... mm, responding also to UNI 9714, fire B-s1, d0.

Features:

The panels ERACLIT LM-grained acoustic, fiber thin, are particularly suited to the treatment of environmental and architectural acoustics thanks to their acoustic properties, allow for maximum sound absorption and high resistance against balloon and wind. The composition of all natural materials (wood and magnesite) and the total absence of harmful substances make these panels particularly suitable for human well-being. They are flexible and robust, they are easily handled and transported, and can be processed with the tools and utensils used for woodworking. They do not require any special maintenance. They are also resistant to compression, vapor permeable, flame resistant and accidental impact. The painted panels, when necessary, can be repainted with ease. Panels especially suitable for the construction of ceilings and walls of particular aesthetic and acoustic characteristics.



Cembrit

Cembrit

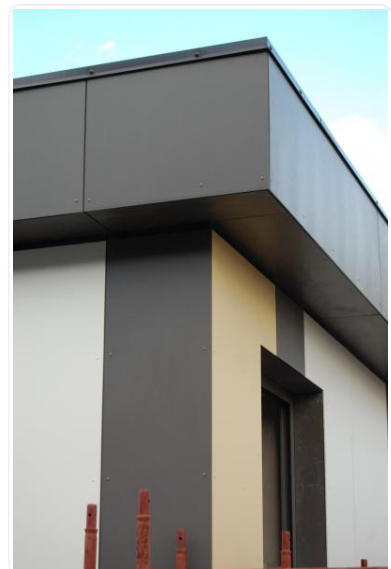
info@cembrit.com

<http://www.cembrit.com>

Product category : Structural work / Passive system

Pannel made With fibre cement as the basic material and also Fibre-cement flat boards for exterior and interior cladding

A strong, weather-proof cladding board characterised by its muted, matt finish. During manufacturing, the through-coloured board receives a unique surface treatment which makes it powerfully resistant towards water staining and dirt, ensuring a long-lasting and durable facade. Cembrit Cembonit comes in 11 subtle colours. The natural authenticity of the Cembrit Cembonit board is expressed through the slight colour variations in the surface, imbuing your facade with the play of light and nuances you associate with any natural building material. Over time, these natural variations may develop further as the surface patinates.



Omnisport Tarkett

Product category :

Heterogeneous and homogeneous vinyl, laminate, wood, carpet rolls and tiles, linoleum, artificial grass and tracks: this broad scope enables us to recommend to each customer the perfectly adapted product as part of a fully integrated flooring solution. Our objective is to anticipate future customer needs and to respond with tomorrow's innovative flooring products.

Tarkett creates durable and people-friendly flooring solutions:

- Our slip-resistant and static control products raise levels of building safety
- Tarkett solutions offer outstanding cleaning and maintenance properties, thanks to unique surface treatments
- The low VOC emissions of our products contribute to better indoor air quality
- We continually look for new ways to increase the content of recycled materials in our flooring solutions and to recycle more and more
- We also design our products for the lowest possible use of water, detergents and energy for cleaning, thus reducing their environmental footprint.

Tarkett's flooring solutions appeal to all senses, and create environments that put quality of life at the top of the agenda. The diverse range of designs, colors and patterns always ensures the perfect choice, while excellent acoustics and underfoot cushioning provide comfort and wellbeing.

Costs

Construction and exploitation costs

Reference global cost : 888 384,00 €

Renewable energy systems cost : 341 202,00 €

Reference global cost/Pupil : 888384

Total cost of the building : 721 533 €

Health and comfort

Life Cycle Analysis

Eco-design material : The project uses a method of dry construction that meets the criteria of sustainability: use of natural materials that create healthy environments in which to live, fast construction and yard clean.

The composition of the wall eliminates heat loss and thus save energy required for heating during the winter and simultaneously also thanks to a ventilated wall allows the phase shift of 10 hours avoiding overheating during the summer.

The composition of the wall composed of many different layers: the use of rock wool of different densities, the ventilated wall panels and fiber cement allow to adapt the system to all situations in which the structure of the building is composed of beams and columns.

For this you can retrieve existing buildings using this system fast and clean.

Instead of fiber cement panels may be used external elements of cooked or even ceramic according to the type of building to be recovered.

Inside the fiber cement panels may be treated like any type of brick wall.

This project demonstrates how public buildings to target public can be retrained to be destroyed without obtaining an excellent result of energy efficiency and sustainability.

The system can be duplicated and adapted without losing efficiency.

Carbon

GHG emissions

GHG in use : 7,00 KgCO₂/m²/year

GHG before use : 23,00 KgCO₂ /m²

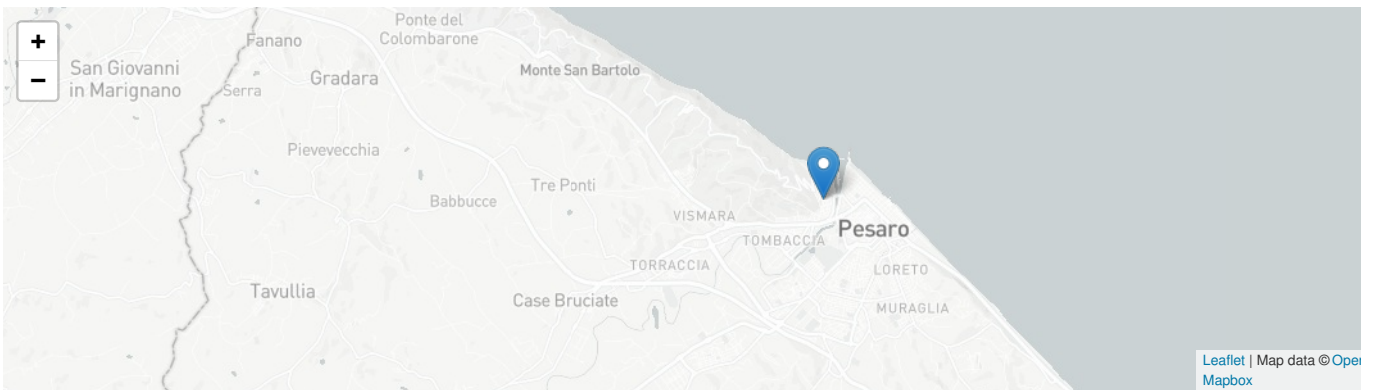
Building lifetime : 50,00 year(s)

, ie xx in use years : 3.29

GHG Cradle to Grave : 8,55 KgCO₂ /m²

UNI 11300-1-2-4

Contest



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