St Martí's Primary School, Barcelona

by jordi pagès serra / 2013-05-28 16:22:06 / España / 10972 / ES

Primary energy need :

80.1 kWhpe/m^2.year

(Calculation method : RD: 47/2007)

ENERGY CONSUMPTION

Economical building

< 50	A	
51 à 90	B	
91 à 150	C	
151 à 230	D	
231 à 330	E	
331 à 450	F	
> 450	G	

Energy-intensive building

Building **A**

Building Type : School, college, university
Construction Year : 2013
Delivery year : 2013
Address 1 - street : Rambla del Poblenou 128-130 Barcelona 08018 BARCELONA, España
Climate zone : [BSh] Subtropical Dry Semiarid (Steppe)

Net Floor Area : 3 487 m^2
Construction/refurbishment cost : 4 040 845 €
Number of Pupil : 450 Pupil
Cost/m2 : 1158.83 €/m^2

General information

St Martí's Primary School forms part of a Multi-facility Municipal Building with an Adult Education Centre and a two storey underground public car-park, in the neighbourhood of Poblenou in Barcelona. With three different activities working simultaneously this building has the goal to reactivate the surroundings and provide a long-time desired public building to the area.

The building has the Highest Energy Rating (Class A), and has won the 2013 Endesa Award as the Non-Residential More Sustainable Building of Spain, for its technical solutions in the facades and roofs construction, both ventilated.

The building is situated in highly dense surroundings where Cerdà's Eixample merges with the Poblenou industrial layout. The dense and complex program (indoor and outdoor), the dimension of the plot, the rigid urban planning rules and the unmodifiable underground position of the car-park, forced a re-think of the standard directives of public schools and how to adapt St.Martí's to this specific location. The bulk program of the school is located on the ground floor and all the rooves become school's playgrounds. The proposal alternates with equal importance the voids and constructed areas. Consequently, better use of natural light, ventilation and views over the inner school spaces are made possible.

The construction of two basement floors, dedicated to a public underground car-park, allow us to think of the school as a very big roof, and rethink this as the playground areas of the school. Taking this decision generates a variety of outdoor spaces, such as: patios on street level, porches (transition spaces) connected to these courtyards, vast open spaces on the first floor and a space for an urban allotments on the top terrace of the main building. All these outdoor spaces organise the indoor spaces according to the visual and physical relation with them.

The side street façades are put together in a very heavy and tectonic way, with textured concrete walls and a perforated steel enclosure, forming an abstract

pattern. These façades are aparently the most heavy and closed ones, but at the same time are the facades that allow the straight visual relation in-between the street and the courtyards.

In contrast, the rest of the facades are built with an industrialized, dry mounting and fast execution system. These Ventilated type façades have undisputed advantages of heat insulation and soundproofing because air flows in the intermediate cavity. The Ventilated roof surface, which is walkable on, is perfectly adapted to the Mediterranean climate.

The construction of these type of façades and roofs, the sunscreen protection to the south west and the connection to a District Heating and Cooling Urban System (Districlima) build an urban school with the **Highest Energy Rating Class (A).**

See more details about this project

http://www.sumo-arquitectes.com

Data reliability

Assessor

Stakeholders

Stakeholders

Function : Designer

UTE YOSUMO: Sumo Arquitectes (Jordi Pagès, Marc Camallonga, Pasqual Bendicho) + Yolanda Olmo.

sumo@sumo-arquitectes.com

http://www.sumo-arquitectes.com/

Function : Developer

BIMSA Barcelona infraestructures municipals

http://www.bimsa.es/media/website.html

Function : Contractor

Dragados

Function : Construction company

grupo JG

Function :

Manuel Arguijo y asociados

Contracting method

General Contractor

Owner approach of sustainability

Owners and architects worked together to achieve a high energetic efficiency building

Architectural description

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If you had to do it again?

Management systems of the building facilities are complex. Users would need a simpler interface, or a person responsible for building management

Building users opinion

Building users are very satisfied. The school is airy, comfortable and versatile, all spaces have good natural lighting and ventilation.

Energy

Energy consumption

Primary energy need : 80,10 kWhpe/m^2.year

Primary energy need for standard building : 214,00 kWhpe/m^2.year

Calculation method : RD: 47/2007

Final Energy : 33,80 kWhfe/m^2.year

Envelope performance

Envelope U-Value : 0,29 $W.m^{-2}.K^{-1}$

More information :
Ventilated roof U: 0,37w/m2K
Ventilated façade U:0,29w/m2K

Renewables & systems

Systems

Heating system :

- Urban network
- Water radiator

Hot water system :

- Urban network

Cooling system :

- Urban network

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Energy recovery from waste

Environment

GHG emissions

GHG in use : 19,70 $KgCO_2/m^2$/year

Methodology used :
Spanish rule Real Decreto47/2007. Calener GT

Products

Product

Soliglu (Daliforma)

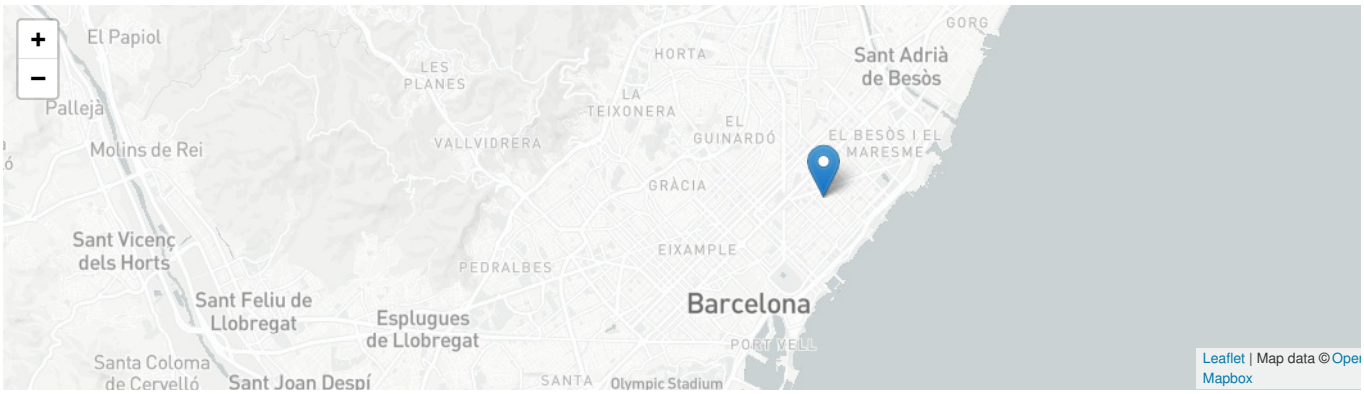
daliforma

http://www.daliforma.com/index.php?s=1&p=soliglu&sec=descripcion

Product category :

Soliglú are modular doms made of recycled polypropylene, UV stable and resistant to atmospheric agents. Soliglu creates a monolithic ventilated foundation or roof

Contest



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