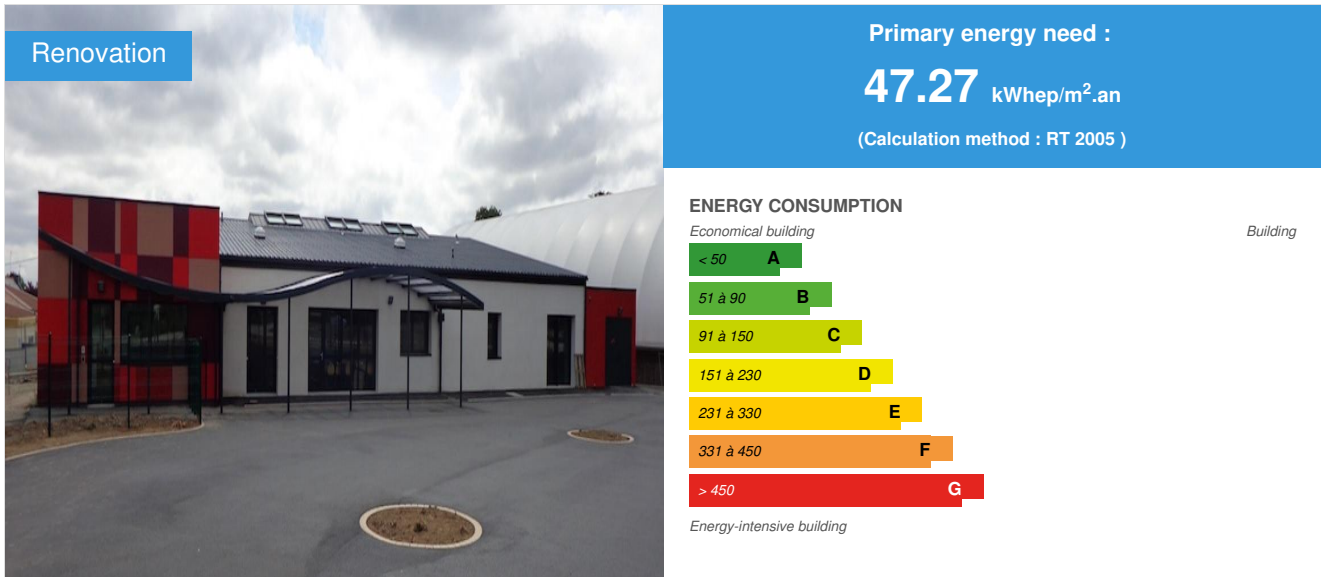


ALSH – Questembert

by Rémi Boscher / 2017-04-11 16:56:34 / France / 2647 / FR



Building Type : Preschool, kindergarten, nursery
Construction Year : 2013
Delivery year : 2014
Address 1 - street : Chemin de beausoleil 56230 QUESTEMBERT, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 709 m²
Construction/refurbishment cost : 879 106 €
Number of Children : 1 Children
Cost/m² : 1239.92 €/m²

Certifications :



Proposed by :



BATY.LVB

General information

The municipality of Questembert lacked equipment for the reception of children in extracurricular period. The reception was carried out in the elementary schools, in classrooms not adapted to the activities of a leisure center. Since the reform of school rhythms, the reception of children during extra-curricular periods has become more pronounced, it has become necessary to consider equipment to meet this need.

At the same time, since the commissioning of the intercommunal swimming pool, the old swimming pool was unaffected. The municipality decided after several studies, the transformation of the building and its surroundings in order to adapt the whole to the Home of Leisure Without Accommodation (ALSH).

Sustainable development approach of the project owner

- Getting a high-performance building - Integrate the project in its immediate environment - Take into account the Agenda 21 set up within the commune

Architectural description

After the diagnosis of the existing structure, the choice was made for the conservation of the peripheral walls, the load-bearing walls and the framework. The lobby is the only new part to give a new identity to the building. The angle of the old building was broken to create this new volume and identity. The rehabilitated part is therefore composed of the initial walls in heavy masonry insulated by the interior and of the reinforced wooden structure reinforced, insulated from the top with a complex steel tank double skin. On the new part (hall), a wooden framework has been implemented insulated glass wool between the framing posts and wooden wool supplemental inside. The former swimming pool has been conserved and hosts the technical room as well as the double flow. A set of joists and slabs forms the floor of the ground floor.

If you had to do it again?

The main difficulty encountered for this project concerns the Technical Management of the Building (GTB). Indeed, the evolution of the project, especially for the choice of heating, and the interoperability of the equipment have been complicated. As a first step, the Building Management System (GTB), proposed by the selected company, did not correspond to the mark recommended in the contract. So all the equipment did not work under the same protocol. At the same time, the connection to the heating network was decided during the project. This heat network, powered by the boiler room of the new swimming pool, is under the control of the community of municipalities and already worked with its own GTC. Finally, the solution was to place itself under the same protocol as the heat network. Companies had to adapt and change equipment or use gateways to ensure communication between the various equipment. One and a half years after the delivery of the building, reservations have not yet been lifted regarding this implementation, in particular concerning the interoperability of double-flow VMC.

See more details about this project

http://www.reseau-breton-batiment-durable.fr/retour_experience/alsh-de-questembert

Stakeholders

Stakeholders

Function : Contractor

Ville de Questembert

02 97 26 11 38

<http://www.mairie-questembert.fr/>

Owner

Function : Construction Manager

Ville de Questembert

02 97 26 11 38

<http://www.mairie-questembert.fr/>

Project manager

Function : Thermal consultancy agency

BECOME

02 97 63 45 31

<http://www.xoconseil.fr/>

Thermal study

Function : Construction company

LECADRE

02 97 26 05 53

Timber framing - laminate cladding

Energy

Energy consumption

Primary energy need : 47,27 kWhep/m².an

Primary energy need for standard building : 143,89 kWhep/m².an

Calculation method : RT 2005

CEEB : 0.0001

Breakdown for energy consumption : - Final energy: 29.3 kWhEF / m² SHON / year of district heating (32.5 with correction DJU base 18), 23.5 kWhEF / m² SHON / year of electricity - In primary energy: no change for district heating, 60.6 kWhEP / m² / year of electricity

Initial consumption : 197,91 kWhEP/m².an

Real final energy consumption

Final Energy : 56,00 kWhEP/m².an

Envelope performance

Envelope U-Value : 0,29 W.m⁻².K⁻¹

More information :

- Exterior walls: (cement / cinder block / glass wool / plasterboard) thickness 2cm / 20cm / 16cm / cm1,3, U = 0,189 W / m2.K
- Roof: (insulation in two thicknesses), thickness 48cm / 6cm, U = 0,058 W / m2.K
- Floor on old basin: (concrete / polyurethane / screed), thickness 6cm, U = 0,221 W / m2.K
- Floor on ground: (full polyurethane under screed), thickness 6cm, U = 0,234 W / m2.K
- Exterior joinery: (aluminum with break of thermal bridge - double glazing), Uw = 1.50 W / m2.K
- Exterior walls: (cladding / rain cover / wood frame + glass wool / steam brake / wood wool / drywall), thickness 2cm / 20cm / 8cm / 1,3cm, U = 0,112 W / m2.K
- Roof: (insulation in two thicknesses), thickness 48cm / 6cm, U = 0,058 W / m2.K
- Floor on solid ground: (polyurethane under screed), thickness 6cm, U = 0,240 W / m2.K
- Exterior joinery: (aluminum with break of thermal bridge - double glazing), Uw = 1,50 W / m2.K

More information

- Heating: 14.12 kWhEP / m² - Lighting: 18.84 kWhEP / m² - Auxiliaries: 14.11 kWhEP / m² In addition, the study showed a heating consumption of 14.12 kWhEP / m² / year, which is half the current consumption for electricity, the analysis is more difficult but again the building has more real consumption Than those "foreseen" in the thermal study.

Renewables & systems

Systems

Heating system :

- o Individual gas boiler
- o Water radiator
- o Wood boiler

Hot water system :

- o Individual electric boiler

Cooling system :

- o No cooling system

Ventilation system :

- o Double flow heat exchanger

Renewable systems :

- o No renewable energy systems

A preliminary study for the installation of photovoltaic panels was carried out. Given the constraints of the project, the study concerns the installation of modules with crystalline technology with safety glass. These integrated roof modules represent a total power of 27.75 kWp. The total amount of the work was estimated at 70 000 € excluding tax (extension of the guarantee to 20 years for the inverter included). The annual electricity production is estimated at 23 000 kWh, ie an annual revenue of 5 170 € / year (at the current purchase price "Simplified integration other buildings" = 22.49 c € / kWh) to be deducted The annual maintenance amount of the electrical connection / inverter part (excluding annual cleaning of the sensors of 500,00 € / year), ie a net revenue of 4,670 € / year. The gross return on investment is therefore 15 years. This "photovoltaic" option was not chosen by the contracting authority.

Solutions enhancing nature free gains :

Une récupération d'eau de pluie à visée pédagogique a été mise en oeuvre par les enfants de l'ALSH. Des robinets à détection et des mousseurs permettent de contrôler et limiter les consommations d'eau.

Smart Building

BMS :

The GTC set-up allows programming of the equipment according to the occupation. In the long term, it must also be able to monitor consumption.

Environment

Urban environment

Land plot area : 709,00 m²

Built-up area : 87,20 %

The ALSH is close to the Beau Soleil elementary school, the school restaurant, the childhood house, the stadium, the swimming pool, the new "Pré des Garçailles" playground and existing car parks. The travel generated by the children's activities is simplified and secured by the proximity of the many facilities.

Products

Product

Conservation / rehabilitation of the former municipal swimming pool

EVAIN

btp.evain-sa@wanadoo.fr

<http://www.evain-maconnerie-questembert.fr/>

Product category : Structural work / Structure - Masonry - Facade

The former swimming pool has been conserved and hosts the technical room as well as the double flow. A set of joists and slabs forms the floor of the ground floor.



Costs

Construction and exploitation costs

Cost of studies : 25 405 €

Total cost of the building : 879 106 €

Subsidies : 436 477 €

Health and comfort

Indoor Air quality

The cupboard dedicated to the storage of the equipment of the motor room is equipped with door fire. Carpets and foams that make up this equipment produce toxic fumes when they burn. In general, the fire services require that the storage places be equipped with fire doors. The choice of paints, flooring and wall coverings was made in line with the desire to deliver a healthy building.

Comfort

Health & comfort : The ergonomics and the access to the reception of leisure is very regulated for reasons of security. An intercom was placed in the multipurpose room, the most frequented place, enabling the supervising team to have access to the opening / closing of the entrance without leaving the place of activity. The opening of the door is controlled by this intercom as well as another one arranged in the office near the reception. All storage spaces are locked. Special protections for child-friendly conditions have been added (rubber corners on the platforms) or originally designed for the design (finger grip seals on all doors). A viewing window also equips all the doors. First for the comfort of the child against the sensation of confinement and then to avoid opening the door on a child who would be behind. A work on signage in the building was carried out in partnership with a local artist, Hélène Gerbert. This signage is playful and colorful, in keeping with the public "child". Each activity room has its color code and special treatment has been given to the rest rooms giving them a cocooning atmosphere.

Acoustic comfort : Several typologies of walls treat acoustics. For the ceilings, there are light wood slats in the entrance hall with a felt in the bottom, perforated walls for crawlers and ceiling tiles removable in traffic areas. The soft, natural linoleum floor also provides acoustic absorption of impact noise. A public address system has been set up in the multipurpose room. It is enhanced with an amplifying electromagnetic loop for people who are paired (compulsory for accessibility for disabled people).



Life Cycle Analysis

Eco-design material : The terrace was made of plastic entirely from recycling. A particularity to remember for the installation, is its high dilatation during hot period. It is necessary to provide sufficient space between the slats to allow this expansion without deforming the terrace. The choice of the renovation makes it possible to save some of the materials of the structural work since the load-bearing walls and the original framework have been preserved. This choice also limits the production of waste. A charter of good behavior of the site was written. A sorting of the waste was carried out during the demolition. However, there were no other reuse of materials from the old building.



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