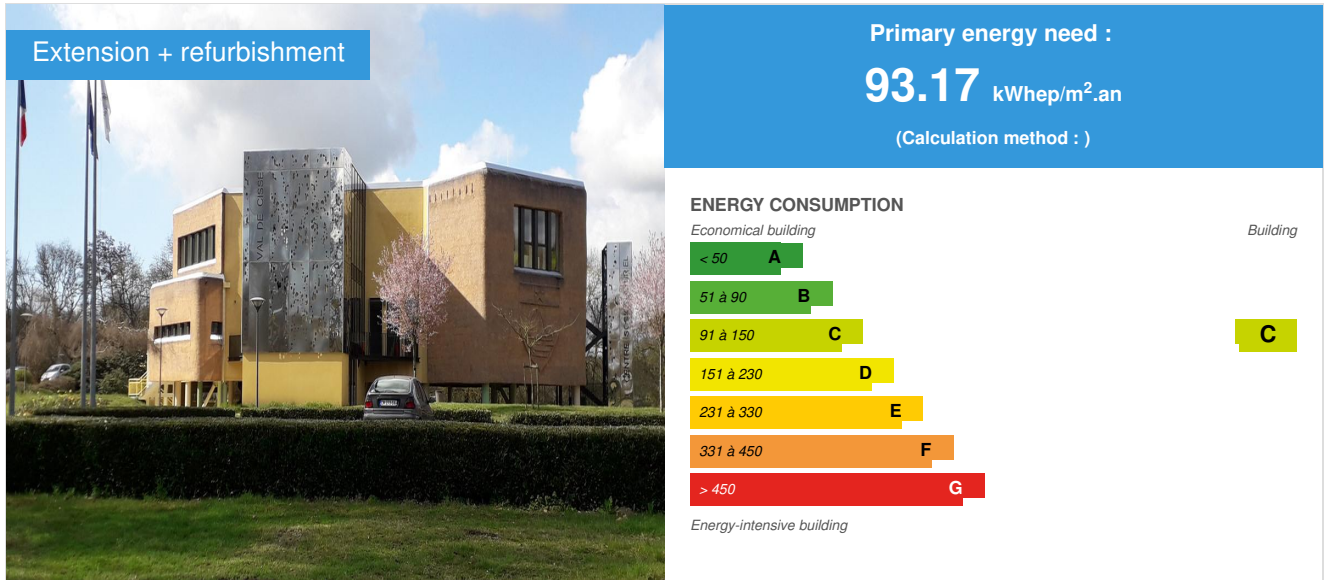


Renovation of the sociocultural center of Val de Cisse

by Emmanuel d'Envirobot Centre / 2019-06-05 14:14:46 / France / 4843 / FR



Building Type : Concert or conference hall, theater
Construction Year : 1985
Delivery year : 2018
Address 1 - street : Avenue des Courvoyeurs 37530 NAZELLES-NEGRON, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 1 389 m²
Construction/refurbishment cost : 2 067 311 €
Number of Seat : 900 Seat
Cost/m2 : 1488.34 €/m²

General information

The Nazelles-Négron town hall has implemented an agenda 21 in which it wishes to work for the energy and ecological transition in response to the challenges of social equity, economic development and preservation of the environment throughout its territory .

Among the shared and sustainable actions to be implemented, such as to work for the energy renovation of the built heritage, the municipality naturally took an interest in its own buildings and sought to improve its energy balance by favoring ecological solutions and natural materials.

The present program consisted of the improvement of the energy performances, the compliance of accessibility, the setting to the electrical and fire safety standards, the acoustic improvement, the expansion of the toilets and the layout of the library.

The intervention on thermal renovation and accessibility should not distort the architectural part of the previous architects and achieve, thanks to a vegetal envelope, to integrate the building in its environment while increasing its readability in the city entrance.

The desired energy performance level BBC Effinergie renovation were achieved by the modification of the gas boiler, radiators, air treatment, the improvement of natural and artificial lighting, but especially by the replacement of the windows and doors. insulation of the facades and the underside.

Sustainable development approach of the project owner

The town hall of Nazelles-Négron has implemented an agenda 21 that it translates including through built projects realized or coming to promote the link and

exchange between the inhabitants and generations. Wishing to work for the energy and ecological transition in response to the challenges of social equity, economic development and preservation of the environment throughout her territory she has, among other things, turned to the energy renovation of her built heritage in the objective of improving the energy balance by focusing on ecological solutions and natural materials.

The municipality is also open to the implementation of natural materials until the experiment. This real and concrete approach was a factor of stimulation for the architect in the creativity and the first proposal of the project which received a very enthusiastic welcome from all the elected representatives.

Architectural description

Given the context of immersion in nature, the architect focused on the use of biosourced materials in the treatment of facades and proposed to offer a building to the plant skin as thermal insulation, acoustic insulation, and coating on large facades. What is more obvious than the use of stubble, emblematic plant of wetlands. His approach was radical, and especially pointed the desire to innovate and affix a resolutely contemporary line despite the use of ancestral material. This living material adorns the adjoining activity rooms such as the new library completely refurbished, the entertainment rooms, the workshop of the old to indicate the dynamism of this center through the associative activities. The activity at the heart of this stubble is reinforced by that of spinning martinets joining their nesting boxes on the north-east facade, a pose made in connection with the local association SOS Martinets. The warm color of the reed will mature to a gray mantle exacerbated by the vivid contrast of the lime framing it. The external thermal insulation made of compressed wood fiber covered with a lime plaster covers all the vertical circulations and the technical rooms. The contemporary touch is brought to the site by a material that complements the balance of earth, water and metal elements. Like the bark of the plane tree protecting the living stream, the main entrance and the fire escape are adorned with a perforated veil of annealed mirror-polished stainless steel. These functional organs identify themselves clearly while offering a reflection of their environment. The perforations reveal the landscape on the staircase of the main entrance through the carpentry dotted with openings so that the spectators can admire the remarkable context of the center. The rehabilitation of the underside by its thermal insulation and acoustic plates made of wood fiber / lime, now offers a protected area, friendly open to residents through a protected area from the weather and hosts shows or petanque competitions. Colorful, illuminated, this space is in communion with the garden, the river and the multi-generational park.

See more details about this project

<http://www.caue-observatoire.fr/ouvrage/rehabilitation-centre-socio-culturel-val-de-cisse/>

Photo credit

180 ° workshop

Stakeholders

Contractor

Name : Commune de Nazelles-Négron

Contact : Jerome.mardon[at]nzn.fr

Construction Manager

Name : 180°

Contact : Evelyne MOREIRA - e.moreira[at]180degres.net

Stakeholders

Function : Company

FCA

F.Blancher - contact[at]fca-touraine.fr / 02 46 65 08 20

Thermal insulation from the outside - Coatings

Function : Company

SARL BOUGEARD

M.BOUGEARD - chamier35730[at]gmail.com / 02 99 88 84 71

Façade thatched

Function : Company

PEYON

G.SEGUIN - contact[at]peyon.fr / 02 47 30 69 69

Exterior woodwork and interior woodwork

Function : Thermal consultancy agency

EFFILIOS

contact[at]effilios.fr / 05 49 03 22 86

Function : Other consultancy agency

DUPIN

bejm[at]orange.fr / 02 47 37 49 50

Building design office

Function : Structures calculist

Impact acoustic

contact[at]impact-accoustic.com / 01 39 62 08 65

Function : Others

Atelier Atlante

atelier.atlante[at]gmail.com / 09 65 20 06 32

Grounds

Energy

Energy consumption

Primary energy need : 93,17 kWhep/m².an

Primary energy need for standard building : 168,96 kWhep/m².an

Calculation method :

Initial consumption : 229,70 kWhep/m².an

Envelope performance

Envelope U-Value : 0,60 W.m⁻².K⁻¹

More information :

Various bio-based materials and techniques of implementation enter into the renovation of this building.

The extension for the creation of the dressing room of the theater has been designed wood frame insulated by wood fiber (Pavaflex).

The insulation of the existing facades (3.7 K.m² / W ≤ R) was achieved through two different and innovative techniques:

- Insulation Stubble on cleats wood and OSB fixed on concrete facade
- Insulation Fiber of wood on wooden frame fixed on frontage concrete + Coated lime (Pavaflex + Pavawall)

Low floor:

Insulation (3.0 K.m² / W ≤ R): Wood Framing and Woolen Glass Insulators and Woodwool Acoustic Floors (knauf organic)

Reinforcement of the horizontal metallic support structure by beams of wood support of a grid of wooden cleats. The glass wool is placed above the wooden cleats and the underside is covered with panels of acoustic wood wool and lime panels forming a colored checkerboard.

Joinery wood / aluminum (U_w ≤ 1.3 W / m².K and 0.36

The treatment of acroteria was a particular point.

In anodized aluminum, the width and fallout have led to the manufacture of custom pieces to cover sometimes stubble, sometimes wood fiber. The width could reach 700mm and the fall 300mm on the stubble. Rigidizing legs have been implemented to prevent wind resistance.

Renewables & systems

Systems

Heating system :

- Condensing gas boiler
- Water radiator

Hot water system :

- Other hot water system

Cooling system :

- No cooling system

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- No renewable energy systems

Environment

Urban environment

The sociocultural center of Val de Cisse is located at the exit south of market town of Nazelles-Négron in the heart of a park of 10 hectares crossed by Cisse with many natural water points. It is located in a perimeter of protected sites under the UNESCO heritage and in the perimeter of protection of the historic monuments of the castle of Nazelles and the parish church of St. Pierre de Nazelles both registered MH. As such, the project was submitted to the architect of the buildings of France. Originally, this building was identifiable by its sharp contrast with its environment. Like the previous architects, the design team wanted to make it recognizable by its exceptional side and architectural curiosity, but especially reflecting the image of this town whose beliefs of respect for the environment marked the mandate in a determined way the mayor and his elected officials. The plot is part of a deep landscape environment, combining plain bocage, wood and many water points and more broadly along the Loire. The socio-cultural center is sandwiched between a water reservoir, a pond and a la Cisse river.

The project has also integrated the reconstruction of the ground under the building in compressed sand (outside the MOE market), repair of limestone slopes - regional stone - around the main entrance, renovation of the forecourt and the lighting (off-street lighting). MOE). Creation of a protected access of bad weather in under face.

Products

Product

Product category : Second œuvre / Cloisons, isolation

Various bio-based materials and techniques of implementation enter into the renovation of this building. The extension for the creation of the dressing room of the theater has been designed wood frame insulated by wood fiber (Pavaflex). The insulation of existing facades has been achieved through two different and innovative techniques:

- Insulation Stubble on wooden and OSB cleats fixed on concrete façade: The peripheral activity rooms have been requalified using vertical thatch. Concurrently assuming the roles of insulation and finishing, this unprocessed natural product has been implemented for the first time in France in renovation applied on concrete facade. It offers a thermal mantle and assumes its share of acoustics.

We adopted the establishment of a wood frame between the outgrowths of the cells to fix the stubble support OSB25mm. Camargue reed boots are fixed using stainless steel cables, screws and rods thanks to the ingenious tools manufactured by the thatched cottage. The air space was blocked at the top and bottom of the façade as well as around the joinery by wooden battens reinforced by the application of the acrylic foam BB flex. The singular points such as the rounding of the columns, the connection with the acroterium, connection with the ITE, connection with the wood fiber plates / lime of the underside have been treated meticulously.

- Insulation Fiber wood on wood frame fixed on concrete facade: The distribution areas and technical rooms are identified by a different technique, compressed wood fiber with a lime plaster finish done with great professionalism by the company FCA Touraine which had to face many singular points.

Usually applied on wood structure these two materials (stubble and wood fiber) were to be placed on a facade prefabricated concrete with alveolar pattern with differences in thicknesses of more than 240mm.

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The M3 stubble classification required fire tests. Models were made by the thatch house and submitted to CSTB. Despite the positive tests, the technical controller did not follow.

Fiber: The biggest challenge the team had to face was the installation of the wood fiber insulation. The fixing on masonry being the subject of a technical opinion the implementation recommended has been respected. But the particular configuration of the existing honeycomb façade led to point thicknesses of insulation of more than 540 mm that can not be screwed.

A wood frame lined with soft wood fiber and rigid compressed wood fiber plates screwed to the frame were put in place. The company has conducted numerous tear-off tests to confirm the strength of the system. Considered as a non-routine technique, the system was not insurable. The client has confirmed the installation technique despite the negative opinion of the technical controller and subscribes a particular damage insurance. The 6 months long administrative procedures led to construction delays that the town hall assumed.

Product category :



Paints: vegetable type (Algo-Pro);
The floors: oak treated with oil;
Soft floors in linseed oil based materials, wood floor on jute frame (Marmoleum);
Fermacell gypsum partitions.

In perfect correspondence with the guidelines given by the contracting authority and the state of mind of the 180 ° agency

Costs

Construction and exploitation costs

Additional information on costs :

Renovation fee: 2 003 047 € HT
of which extensions: 474 737 € HT
library layout: 64 263 € net

Health and comfort

Indoor Air quality

The renovation based on biobased products has made it possible to minimize the emission of VOCs. A first sanitation project was undertaken. The building was undergoing severe water infiltration, accumulating many points of mushroom proliferation. All dubbing has been cleaned up by fungicide application and after ventilation of the premises, application of organic paints (Algoopro).

Comfort

Health & comfort :

Actions were carried out on the entire building for **accessibility** (main entrance with elevator, modification of door widths, creation of a PM sanitary facility, accessibility of the stage and the library with height of shelves and adapted reception desks, etc.), a guide line was created on the forecourt and the access slopes to the main entrance were adapted.

The luminous surface was maintained except in the library where the technique of laying the chaumen required the concealment of two openings. On the other hand, the mullions being suppressed, and the quality of transmission of the acoustic glasses allowed us to increase the penetration of the natural light in all the premises. In the west windbreaks have been installed to minimize overheating.

The luminaires were all replaced by LEDs whose color was defined according to the searched ambiances, 2000 in the rest area of the library and 3000 in the activity areas. A maximum of occupancy sensors managed according to the external brightness have been programmed as well as progressive intensity reducers in the theater to manage the need for artificial illuminance.

A programmer controls the lighting of the edges of the stainless steel front so as not to function without need.

The lighting of the underface allowed to move away the squatters and thus to secure the center socioculturella night.

Acoustic comfort :

The internal **acoustic treatment** (weakening partitions: RA, $\text{tr} \geq 69\text{dB}$) and external (Weakening Joineries: RA, $\text{tr} \geq 32\text{dB}$) was part of the goal to reduce nuisance to the neighborhood, improve the working conditions of the librarian and the use of the auxiliary rooms more serene.

Daylight factor : Amélioration de l'éclairage naturel et artificiel et remplacement des menuiseries ($U_w \leq 1,3 \text{ W/m}^2 \cdot \text{K}$ et 0,36

Carbon

GHG emissions

GHG in use : 10,00 $\text{KgCO}_2/\text{m}^2/\text{an}$

Methodology used :

Regulatory calculation

GHG before use : 34,00 KgCO_2/m^2

, ie xx in use years : 3.4

Life Cycle Analysis

Eco-design material :

Façade : Wood frame, wood fiber, thatch. **The interior and exterior joinery** is made of **wood** with labelMenuiserie 21 . **The floors** are made of **PEFC certified oak** parquet and **natural linoleum** based on wood and linen (Marmoleum Forbos). The **partitions and doublings** are in gypsum or Pavapan for the cloakroom. The **insulation** at the heart of the **partitions** unites the thermal and acoustic properties, consists of a complex of fiber blending hemp, cotton and linen (Biofib). The **paintings** are **vegetable** (Algo-Pro). By our environmental approach, we go well beyond level 3 in weight of bio-based with 3 families of materials.

Contest

Reasons for participating in the competition(s)

The choice of building renovation limiting demolitions (waste) and the use of materials resources is in itself a first act of reducing the carbon impact. Beyond this, it is through the search for the use of renewable and biobased materials at all stages of the project, as well as the mobilization of local stakeholders to respond to this market that this building is part of a low carbon approach.

Building candidate in the category



Bas Carbone



Prix du public



Prix des Etudiants

