Associative site of Lesperon

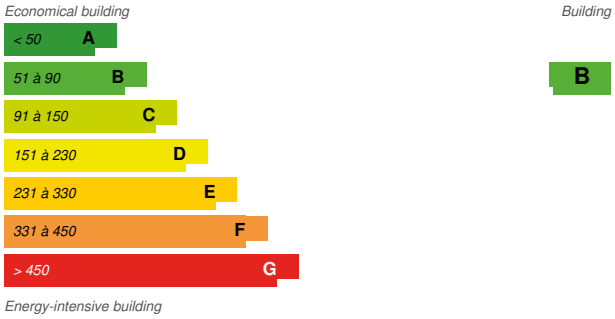
by Clémence besson / 2022-05-31 00:00:00 / France / 4062 / FR

Primary energy need :

79 kWhep/m^2.an

(Calculation method : RT 2012)

ENERGY CONSUMPTION



Building Type : Other building
Construction Year : 2019
Delivery year : 2019
Address 1 - street : route des associations 40260 LESPERON , France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 200 m^2
Construction/refurbishment cost : 385 000 €
Number of none : 3 none
Cost/m2 : 1925 €/m^2

General information

It is a simple volume entirely covered with burnt wood, located on a free parcel, with maritime pines. The covered outdoor spaces are like hollowed out. The openings in natural wood contrast with the black wood, reminiscent of the old blackened barns of the village. The slanted walls of the porch invite the visitor to enter. It leads to a bright hall, serving all areas. To the south, we find the activity room and the office, with direct access to the multipurpose room. It opens with a large bay onto the covered terrace and offers a view towards nature. The plan is thought out according to the orientations. To the north, the computer room is protected from dazzling light and from overheating in summer. The multipurpose room, to the southwest, lit by a large opening, opens onto the covered terrace. This allows maximum illumination in winter and to avoid summer overheating. Inside, the floor is quartz concrete, providing good inertia to the frame. The night ventilation system consists of openings of low width, any height, on all bays, thus cooling the building at night, in summer.

Architectural description

Compact, chiseled like an origami, and dressed in burnt wood, the construction creates a crossfade with the dark mass of the pine forest in the background.

The simplicity of the plan, a hall centralizing all the functions, in no way prevents a great plasticity of the volume: the entrance and the terrace are hollowed out in the mass according to biases and visually stand out from the built block by their maritime pine covering. clear as sand. Likewise in the large multipurpose room, the ceiling has inclinations like the facets of a crystal.

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The timber and cladding are French, the hemp / linen and recycled cotton insulation is biobased and French (Vendée). This has a strong phase shift and a good lambda, allowing good summer comfort coupled with night ventilation.

During the shooting of our film with the association of the elders of Lesperon on September 4, 2020, we were able to practice the building in a strong heat and appreciate the comfort (it was 35 degrees outside and only 26 degrees inside).

See more details about this project

http://www.bessonbolze.com

Photo credit

Agnes Clotis (bblesperon)
Lucas Bacle (lesperon)

Stakeholders

Contractor

Name : Commune de Lesperon
Contact : 05 58 89 60 08
https://www.lesperon.fr/

Construction Manager

Name : Atelier d'architecture Besson Bolze
Contact : contact[at]bessonbolze.com
http://www.bessonbolze.com

Stakeholders

Function :

INTECH

Vincent Brajot - 05 53 54 57 09

Function : Environmental consultancy

180 degrés - ingénierie environnementale

Julien Coeurdevey - 05 40 71 82 50

http://www.180ingenierie.com

Function : Company

Dubernet Charpente

Bastien Dubernet - 05 58 57 18 44

Function : Company

SAS Guelin

David GUELIN - 05 58 55 51 79

http://www.guelin-chauffage.fr

Contracting method

Separate batches

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 79,00 kWhep/m^2.an

Primary energy need for standard building : 84,00 kWhep/m^2.an

Calculation method : RT 2012

Renewables & systems

Systems

Heating system :

- Water radiator
- Wood boiler

Hot water system :

- Individual electric boiler

Cooling system :

- No cooling system

Ventilation system :

- Free-cooling
- Double flow heat exchanger

Renewable systems :

- Wood boiler

Environment

Risks

Hazards to which the building is exposed :

- Urban heat island

Risks measures put in place :

In order to fight effectively against the increasingly frequent and long summer overheating, we opted for an insulator with a good phase shift: a mixture of hemp flax and cotton in the filling of the wood frame and roof.

This performance is coupled with :

- good solar protection: covering of the south terrace in the overall volume; entrance door also set back to the east, protected by a sculpted recess in the overall volume; vertical external blinds ;
- a passive night-time cooling system with narrow openings integrated into the composite bays and protected from intrusion by openwork cladding. These devices are installed on all the facades and with the roof windows allowing to discharge the building of the heat accumulated throughout the day and to make return the night freshness. Thus, in the morning, the building is cool again.

We avoid the addition of energy consuming devices for cooling.

Urban environment

The plot is composed of maritime pines, the road leading to it is new, a future subdivision will be built further south.

The covered outdoor spaces are like hollowed out. The natural wood openings contrast with the black wood, reminiscent of the old blackened barns of the village and the surrounding pines. The slanted walls of the porch invite the visitor to enter.

A city stadium was installed in 2020 between the venue and the rugby stadium. The car park we have created (40 spaces) allows users of the city stadium to park.

Products

Product

TRIO

BIOFIB

http://www.biofib.com

Product category : Finishing work / Partitions, insulation

Excellent summer and winter comfort: very good phase shift
Natural, ecological and healthy insulation (no VOC emissions)
Natural humidity regulation
Excellent resilience: adapts to all uprights λ 0.038 (ACERMI) The panels and rollers have been designed according to an innovative industrial process to offer a "spring effect" on the side and thus guarantee lasting mechanical strength. This elasticity contributes to their ease of installation and guarantees longevity of performance.
Cutting and installation are simplified, even in the case of irregular supports (especially during renovation): cut the insulation by increasing the space between the uprights by approximately 2 cm in order to install the panel in slight compression. The insulation "conforms" to the shape of the uprights, which reduces thermal bridges.

Costs

Construction and exploitation costs

Cost of studies : 49 945 €

Total cost of the building : 434 000 €

Contest

Reasons for participating in the competition(s)

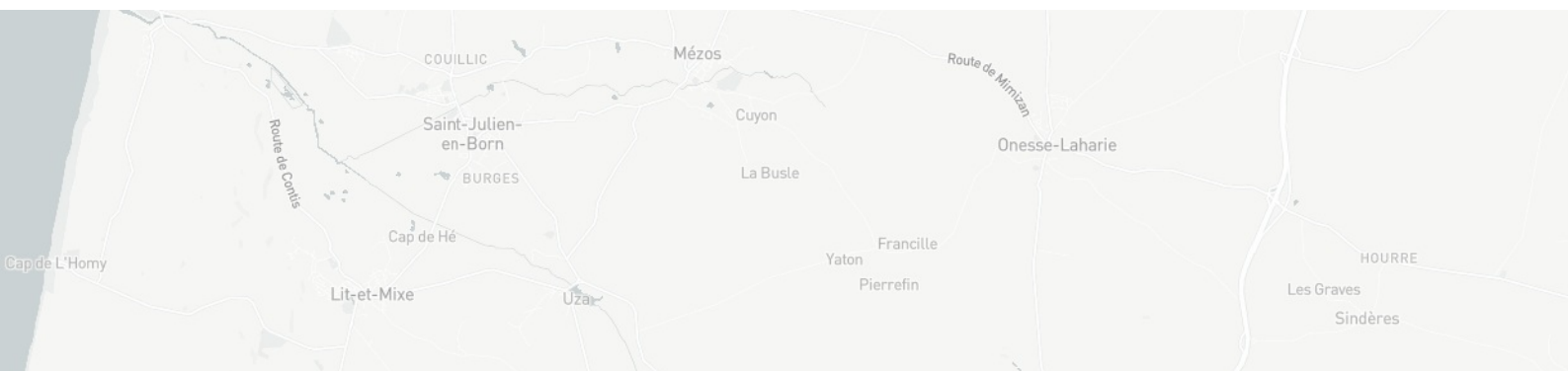
Nous avons conçu ce projet afin qu'il puisse faire face aux aléas auxquels il est soumis avec une certaine résilience.

En effet, **sa conception bioclimatique lui permet de bénéficier des apports solaires gratuits l'hiver et de se protéger de la surchauffe estivale** . L'utilisation d'un isolant dense (et biosourcé) permet également de retrouver de l'inertie et d'avoir un bon déphasage, couplé à l'inertie de la chape quartzée, la **chaleur accumulée en journée dans les parois ne se décharge qu'en fin de journée**; voire dans la nuit. Les ouvertures et protections solaires sont pensées en fonction de leurs orientations et celles-ci sont couplées à un système de rafraichissement nocturne passif (via des fenêtres de toit et des ouvrants de faible largeurs intégrés dans les baies composées). Le batiment intègre ainsi des dispositifs lui permettant, avec quelques manipulations humaines, de **rester agréable en toute saison** et ce sans consommer de l'énergie superflue. L'action humaine est par ailleurs essentielle dans ce type de projet c'est pourquoi nous entamons systématiquement la conception en concertation avec les usagers (ou a minima la maitrise d'ouvrage) afin que les dispositifs mis en place soient utilisés à bon escient. En effet, si ceux ci ne sont pas actionnés, le batiment ne sera pas jugé confortable. Il est important pour nous de remettre l'usager au coeur de la conception, qu'il soit acteur de son propre confort, qu'il en comprenne les enjeux pour mieux agir. Nous pensons qu'un batiment seul n'est pas performant ou résilient ; il l'est si ses usagers agissent en ce sens.

Nous avons également porté notre attention sur la **provenance des matériaux** composant ce batiment, nous les avons souhaités un maximum **locaux et biosourcés.** La charpente bois, le bardage et les terrasses sont en bois français (voir régional). L'isolant des murs et plafonds est un mélange de chanvre, lin et coton recyclé provenant de Vendée. Les entreprises retenues pour réaliser les travaux sont également locales. Nous pensons que **favoriser les ressources locales renforce la résilience** d'une construction car cela permet de **diminuer son impact environnemental**, d'autant plus quand celles ci sont bio ou géosourcées et donc recyclables et faiblement émettrices de gaz à effet de serre. L'environnement au sens global est moins impacté et donc le besoin de pallier aux futurs aléas est amoindri.

Le coût de ce batiment est d'environ 2200 € ht/ m² ce qui est un peu au dessus des prix moyens pour ce type de batiment, en revanche son cout d'exploitation est moindre puisqu'il est conçu pour consommer au plus juste. Cette notion de coût global est abordée lors de nos échanges avec les maitrises d'ouvrage afin que le cout de travaux ne soit pas le seul mis en avant mais bien avec les couts d'entretien et d'exploitation que nous tentons de minimiser systématiquement.

La reproductibilité des dispositifs intégrés au batiment est tout à fait possible puisqu'elle intègre les atouts et contraintes du site dans une conception bioclimatique frugale et que ceux ci ne nécessitent pas de technologie ou de savoir faire particuliers.



Batiments resilients

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