Bike shelter

by Jérémie Koempgen / 2022-05-23 00:00:00 / France / 2397 / FR

Primary energy need :
kWhep/m^2.an
(Calculation method :)

ENERGY CONSUMPTION

Economical building *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 Type : Other building
Construction Year : 2022
Delivery year :
Address 1 - street : 8 Rue de la Rabotière 44800 SAINT-HERBLAIN, France
Climate zone : [Cbc] Mild, dry winter, warm and wet summer.

Net Floor Area : 20 m^2 Autre type de surface nette
Construction/refurbishment cost : 18 000 €
Cost/m2 : 900 €/m^2

Proposed by :

General information

Brief presentation of the company 100 Detours, upcycling

The company 100 Détours **specializes in the design and manufacture of furniture and architectural devices for interiors and exteriors in wood exclusively from old exterior joinery** . Born from the meeting of Benjamin Verger, carpenter, and Jérémie Koempgen, architect-designer, it now integrates Pierrick Soulard, eternal jack of all trades in mechanical production training. The solutions offered range from interior and exterior furniture (constitution of a range of products), glued-laminated trays, acoustic panels, trellises and sunshades, to micro-architecture: garden sheds, bicycles, playground.
100 Détours responds to individuals, businesses, prescribers and public orders.

Our means, our ambition

We seek to find a second life for the wood of old exterior joinery (doors and windows) which, once deposited, are mostly incinerated or buried in France. These woods, with excellent qualities of durability, resistance and aesthetics, actually allow many reuses. We are the second link in a chain following ESIAM, an association for the purpose of employment, which deals with the collection and dismantling of windows in the agglomeration of Bocage Bressuirais in Deux-Sèvres and we offer an outlet for this resource. Our current mission is to invent qualitative works, aesthetically and technically, then our ambition is to participate in the spread of this practice in France by localities and deposits. Indeed, for this project to make sense, many production units of reasonable size must be created in

France as close as possible to the deposit which is present throughout the territory.

Honors received :

- Regional award for wood construction 2021 - Pays de la Loire - outdoor development section.
- Regional favorite prize at the Canopée challenge 2022 Nouvelle-Aquitaine.
- Stars and Professions Prize, Responsible category, CMA des Deux Sèvres.

Architectural note

The bike shelter is **designed as a space that rhymes with nature** . Its frame is made of upcycled glued laminated. The perforated cladding, as well as the bike racks are also made of wood from old exterior carpentry. We worked on the framework as a 3D assembly of small section parts. The optimization of the sections of the pieces, with the help of Vivier Structure Bois, allowed us to obtain this light design, slightly reminiscent of art nouveau and the structures of Hector Guimard's canopies.

Environmental approach

What better program than a bike shelter, the frugal mode of travel par excellence, to push our intervention limits a little further. Reuse and re-use are starting to make headlines on clothing, cladding, decking or interior linings. **We wanted to go further** and get down to the manufacture of outdoor glued-laminated wooden beams, **using our resource of wood from outdoor joinery, and constitute the frame of this bicycle shelter** .

Technical description of the layout

It is a bicycle shelter 6.50 m long by 2.91 m wide by 2.54 m high, capable of accommodating 6 bicycle racks (12 bicycles). It is **modular**, extendable by modules of 3 m. It consists of three porticoes supporting the half cantilevered roof. The posts are made up of 4 pieces of 40x40 mm, the webs of the lattice girders have sections varying between 40x80 mm to 40x140 mm. The bike racks are 70x200 mm in section. Everything is placed on custom-made galvanized steel plates. The cover is made of alveolar polycarbonate and an overlay of wooden slats.

Building users opinion

Customers have repeatedly expressed their satisfaction with the bike shelter. Below is the comment sent by the president of the company:

Post Anne Brochard:
Beautiful as a bike shelter
Exactly a year after we moved in, we finally have our bike shelter. Well deserved and hard sourced. Really.

After having studied more than a dozen solutions (how many bicycles, supplied with electricity or not, metal, plastic or metal .. metal ????????, types of attachment, etc.),
Adjusted the budget twice by complaining about the (sometimes crazy) amounts announced,
I came across 100 Détours… which didn't have a bike shelter.
100 Détours is co-directed by Benjamin Verger and Jérémie Koempgen
Their thing? Design and manufacture indoor and outdoor furniture in upcycled wood (understand "from the recovery of outdoor joinery"), manufactured in their workshop in Deux-Sèvres.
And therefore the possibility of designing a bike shelter entirely in wood made locally by such good people.
Our beautiful bike shelter is their first bike shelter.
The first shelter in a long series, I can feel it!
Yes really it is very integrated into the space. Can't wait to see it every morning!

If you had to do it again?

Following this first copy of the bicycle shelter, a report sheet was drawn up, among the points mentioned, to be improved later: - The polycarbonate plates will be replaced by stadip glass plates. A search for partnership is being studied with Articonnex on this subject, in order to use reusable lenses. A second thin green roof alternative is also being studied. - Subsequently, the entire structure as well as the laths will be prefabricated so that they can be shipped, then installed by a moderately competent team.

See more details about this project

https://www.100detours.com/abri-a-velos-et-ranges-velos/
https://www.panoramabois.fr/projets/7150?participations%5B0%5D=14
https://drive.google.com/open?id=19wJjbXfORor580EXJSfc_hfGUFG2XWMV&authuser=jkoempgen%40gmail.com&usp=drive_fs
https://www.construction21.org/france/articles/h/green-solutions-un-abri-a-velo-surcycle-dans-les-pays-de-la-loire.html?n=20230510085014

Photo credit

Photos 100 Detours

Stakeholders

Contractor

Name : L'étincelle RH
Contact : Anne Brochard - anne.b[a]letincelle-rh.fr - 06 13 04 31 29
http://www.letincelle-rh.fr/

Construction Manager

Name : 100 Détours
Contact : Jérémie Koempgen - jeremie[a]100detours.com - 06 76 73 36 42
https://www.100detours.com

Stakeholders

Function : Company

100 Détours

Benjamin Verger - benjamin[a]100detours.com

https://www.100detours.com
Carpentry - Joinery

Function : Structures calculist

Vivier Structures Bois

Maxime Vivier - mvivier[a]vsbois.com - 06.71.38.86.16

https://vsbois.com/
Wooden structure design office

Contracting method

Lump-sum turnkey

Energy

Energy consumption

Breakdown for energy consumption : None / Outdoor shelter without consumption.

More information

None / Outdoor shelter without consumption.

Renewables & systems

Systems

Heating system :
- No heating system

Hot water system :
- No domestic hot water system

Cooling system :
- No cooling system

Ventilation system :
- Double flow

Renewable systems :
- No renewable energy systems

Environment

Urban environment

Land plot area : 2 620,00 m^2

Built-up area : 19,50 %

The bike shelter, overlooking a landscaped parking space of the Etincelle RH company, is also located on the edge of a tree-lined green corridor.
The proximity of the shelter to these walking spaces requires the construction to use natural materials. The mixed wood cladding, in openwork facades but also in the over-roof establish a dialogue, a link, with the adjoining park.
The frame also participates in the play of shadows and light, from morning to evening.
Finally, an association: "les amis du Bois-Jo", educate children and adults about the local nature, just behind in St Herblain.
It is interesting that Paul Corbineau, who is the French expert in the recognition of wood species, who from time to time gives us advice on the recognition of wood species, is a facilitator.

Products

Product

100 Détours

info[a]100detours.com

http://www.100detours.com/

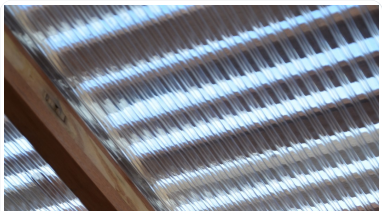
Product category : Gros œuvre / Charpente, couverture, étanchéité

100 Détours

info[a]100detours.com

http://www.100detours.com

Product category : Génie climatique, électricité / Chauffage, eau chaude



Costs

Construction and exploitation costs

Total cost of the building : 18 000 €

Additional information on costs :

The price of the bicycle shelter, fixed price, includes the price of the studies.

Circular Economy

Reuse : same function or different function

Batches concerned by reuse :

- Structural framework
- Roofing
- Facades
- Landscaping

For each batch : Reused Materials / Products / Equipments :

Exterior layout :

The bicycle shelter as a whole can be considered as an outdoor arrangement, it is in very large part made from reuse. The quantities used are the masses in kg. For a better detail, the detail has been given in Frame / Cover / Facade / the bicycle racks are detailed in Exterior fittings. The concrete slab was existing, it was not accounted for in the balance sheet.

=> Total wood weight [Shelter + bike racks]: 789.97 kg
=> Total metal weight [Shelter + bike racks]: 507.35 kg

The wooden frames are 100% made of wood from old wooden joinery. The plates allowing water protection are made of galvanized steel.

=> Structural timber from reuse: 394.06 kg
=> NEW galvanized steel plates: 130.29 kg
The weight of the screws has been neglected.

The cover is made up of alveolar polycarbonate plates, and an upcycled wooden roof.

=> NEW polycarbonate honeycomb sheets: 40.95 kg
=> Reused wooden roof: 141.97 kg

Facades :

=> Openwork racks 100% in reused wood:
Reuse wood weight: 201.66 kg

Exterior layout :

The bike bollards are made of a piece of upcycled laminated wood, and a galvanized steel metal plate.

=> 6 wooden bollards from reuse: 52.28 kg
=> NEW galvanized steel plate: 377.35 kg

Field of use and material origin :

- The timber of timber frames
- The wooden overlay of the cover
- The facade
- The wood of the bike terminals

Origin of doors and windows making up the deposit :

Doors and windows: deposited by carpentry companies, collected on backsplash pallets in the Deux-Sèvres waste collection centers, then dismantled by ESIAM, an employment association located in Mauléon (Deux-Sèvres).

The wood is delivered to the company 100 Détours (50T/year), it is this resource that is reused here. The metal goes through the traditional recycling channel, the glass is recycled in Float at Saint-Gobain).

Species of wood used on the operation :

Among the tiled woods delivered by ESIAM, choice of Hardwoods and tropical woods classes 3 and 4: Oak, Chestnut, Sipo, Bossé, Moabi etc. by species recognition.

The woods are then edged, curried .

=> In the case of laminated-glued, finger-jointed then glued to the hydraulic press with vinyl glue with hardener. The parts are then sanded with a wide band.
=> In the case of the facades and the over-roof, they are chamfered.

Environmental assessment

Impacts avoided : water, waste, CO2 :

Matériaux	Catégories	Quantités	Unités fonctionnelles	CO2 évité (kg)	Consommation Eau évité (kg)	Déchets évités (kg)
Charpente Bois	Charpente		70 ml	192,7333333333333	3,0821	167,2591216333333
Bardage bois	Façades		38 m²	376,3244414657 64	107,8832846854 15	331,2826820864 97
Racks à vélo	Aménagements extérieurs / Serrurerie		6 U	60,4642964042308	0,2981913459033 46	57,3279792663462

The reuse operation saved the equivalent of 5036 kilometers traveled by a small car, ie 6 Paris-Nice journeys, 742 rectangular bathtubs filled with water and 1 year of household waste for a Frenchman.

Catégories	CO2 évité (kg)	Consommation Eau évité (m3)	Déchets évités (kg)
Aménagements extérieurs	0	0	0
Aménagements extérieurs / Serrurerie - Métallerie	60,4642964042308	0,298191345903346	57,3279792663462
Charpente	192,733333333333	3,0821	167,259121633333
Cloisons	0	0	0
Couverture	0	0	0
Couverture / Aménagements extérieurs	0	0	0
Eclairages	0	0	0
Eclairages sécurité	0	0	0
Equipements de génie climatique	0	0	0
Equipements électriques	0	0	0
Façades	376,324441465764	107,883284685415	331,282682086497
Faux plafonds	0	0	0
Faux planchers	0	0	0
Faux-plafonds	0	0	0
Gros-œuvre	0	0	0
Installations sanitaires	0	0	0
Isolation	0	0	0
Menuiserie ext	0	0	0
Menuiseries intérieures	0	0	0
Mobilier	0	0	0
Peinture	0	0	0
Plomberie	0	0	0
Revêtements de sols	0	0	0
Revêtements de sols ou muraux	0	0	0
Revêtements muraux	0	0	0
Sécurité du bâtiment	0	0	0
Serrurerie - métallerie	0	0	0
VRD	0	0	0

	CO2 évité (kg)	Consommation Eau évité (m3)	Déchets évités (kg)
TOTAL	629,522071203328	111,263576031319	555,869782986177

	Km en petite voiture	Nb de Baignoires rectangulaires	nb d'années de déchets ménagers d'un français
Equivalent	5036	742	1

Equivalent trajet Paris- Nice	6,0

Economic assessment

Total cost of reuse : 17 203 €

Cost of reuse in percentage of the operation : 96 %

Social economy

Social economy and professional integration :

The work of 100 Détours is in continuity with the work of the association ESIAM, a company that helps people return to work within the framework of the zero unemployed territory.

Excerpts from the description on the website .

"The ESIAM "Solidarity Company of initiative and action of the Mauléonais" is an EBE (Company with Employment Purpose). Launched on January 3, 2017 with 17 employees today more than 77 unemployed people from the territory have signed a CDI within our company.

In France, 10 territories benefit from the Zero Long-Term Unemployed Territory experiment, initiated by Patrick Valentin
and ATD Fourth World in 2014.

Objective of ESIAM :

Obtain the right to employment for those who are deprived of it.
The success of the ESIAM encourages discouraged applicants to come forward to access the job they had removed from their prospects.

It is responsible for finding activities for people who have been out of work for more than a year, in the given territory.
A job adapted to their skills and at the chosen time, subject to non-competition with the companies present in the Mauléonais (79).
ESIAM provides assistance to the population (individuals and local authorities) as well as to local businesses.

Carbon

GHG emissions

Methodology used :
None / Outdoor shelter without consumption.

Contest

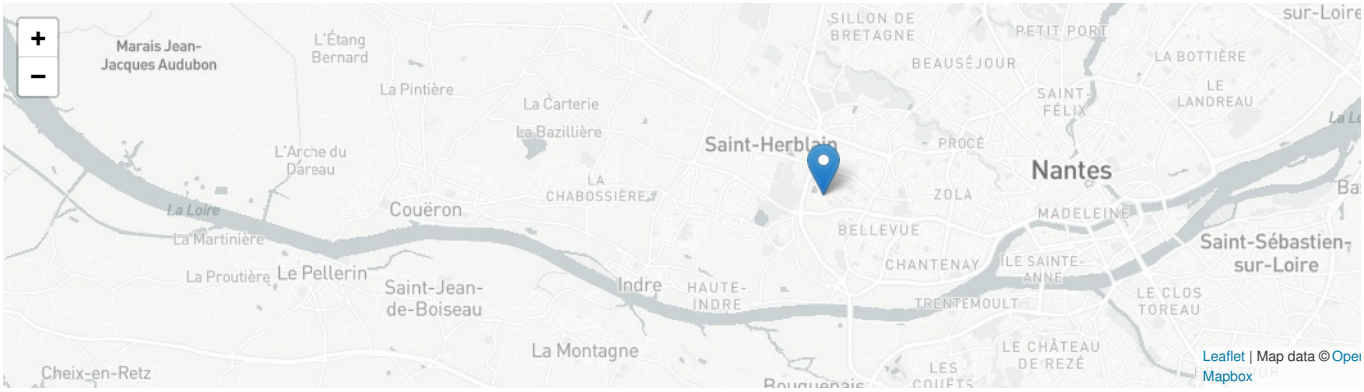
Reasons for participating in the competition(s)

What better program than a bike shelter, the **frugal mode of travel par excellence**, to push our intervention limits a little further. Reuse and re-use are starting to make headlines on clothing, cladding, decking or interior linings. We wanted to go further and tackle the manufacture of **outdoor glued-laminated wooden** beams, using our resource of wood from outdoor joinery, and constitute the frame of this bicycle shelter.

The candidacy for the Circular Buildings Trophies 2022 is an opportunity for us to **highlight the interest of reusing wood** from exterior joinery, in terms of carbon footprint, but also to show the mixed aesthetics as well as the quality of the atmosphere. and use, which is induced by the specific constraints of the material. Finally, **the shelter is designed in a modular way**, in sections of 3 m, it can be duplicated industrially.

Building candidate in the category

Prix du public



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