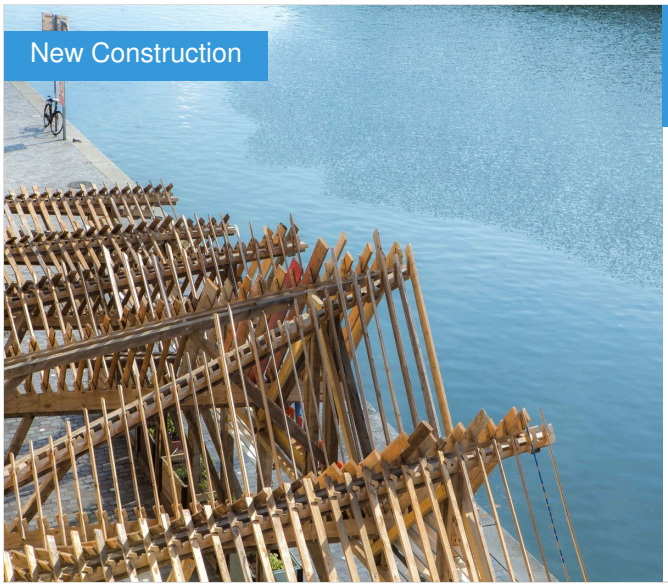
The shade house of Les Canaux

by minh man nguyen / 2021-06-15 00:00:00 / France / 3692 / FR



Primary energy need :
kWhep/m².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 : 2019
Delivery year : 2019
Address 1 - street : 6 quai de la seine 75019 PARIS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 125 m² SHON
Construction/refurbishment cost : 60 000 €
Cost/m2 : 480 €/m²

General information

An architectural and structural manifestation of three successes, this project demonstrates the strength of a collective, the strengths of the circular economy and a practical application of the international Fab City movement. It was created thanks to the support of Icade Promotion, REI Habitat, Quartus and SUEZ. Following a call for projects published by the association Les Canaux: La Maison des Économies Solidaires et Innovantes, the Re-Store collective was selected to create this shade house in reused materials. The team had two months to complete the project, which aimed to animate the wharf during the summer months before being dismantled in September. The structure was delivered on time, 5 minutes before its inauguration, and remained intact until its dismantling. It was a real challenge against the clock.

With around 8.4 tonnes of recovered and reused wood, constituting 90% of the Ombrière, the project was a real success in terms of the use of recovered materials.

Sustainable development approach of the project owner

The challenge offered by the constraint of the Canals goes beyond the simple architectural project of a terrace.
This is a challenge for all those involved in construction, whether they are architects, engineers, companies or project managers: reducing the use of new materials and thus of our limited resources, and increase the reuse of what is considered waste.

The shade house commissioned by Les Canaux was intended to protect the organisation's activities from the summer sun, with notable requirements: the materials used had to be almost exclusively reused or recycled, and the project, from supply to design through manufacturing had 2 months to be set up.

The Re-Store collective took up these challenges by channeling the various expertise of its members, from design with WAO Architecture (coordination), R-Use, Studio Pourquoi Pas and EMA architecture, to production with Super Cube (lead company) and Remake. The project was therefore designed, produced and supplied by different actors. The collective was able to build the structure thanks to the generous space offered by the Orfèvrerie de Saint-Denis, where it was also able to store its materials, prototype and experiment with solutions. This third space was created by three partners: the real estate developer Quartus housed the collective; REI Habitat / REMAKE set up a carpentry workshop there, with machines and tools for traditional crafts, and WoMa managed the space while providing its community and digital skills.

Architectural description

The shape of the structure reflects the undulating movements of the canal with pieces of wood in sinuous shapes. Its roof, designed in reference to the hull of a boat, compliments these movements, and rises in its center to mark the entrance to the house of the Canals. This roof was designed as a wooden plank storage rack with wooden elements cut in the shape of a comb. This makes it possible to vary the inclination of the skylights which will land there, and to adapt to the dimensional heterogeneity of the sun screens. Indeed, the solar study and the parameterization of the model enabled the design of louvers whose orientation takes into account the course of the sun to maximize the shadows cast. The tubs play a double role: that of vegetating the terrace and of ballasting the structure. They were designed from reclaimed wood from the Arts Reserve and the Re-store stock. They were carried out by the collective with the help of Urban Vergers who carried out its revegetation.

See more details about this project

Photo credit

Aurelien Chen

Stakeholders

Contractor

Name : Les canaux
Contact : Elisa Yavchitz, elisa.yavchitz[a]lescanaux.paris
http://www.lescanaux.paris

Construction Manager

Name : WAO
Contact : M. Minh Man NGUYEN, Clément Duroselle, contact[a]wao.paris, 06 68 99 56 65
https://wao.paris/

Stakeholders

Function : Structures calculist

RBS

Eric Pillier, e.pillier[a]betrbs.fr

http://www.betrbs.fr

Function : Company

Super cube

info[a]supercube.xyz

https://supercube.xyz/
Representative

Function : Other consultancy agency

RUSE

Mathieu Paradas, mathie[a]r-use.fr

https://r-use.fr/
Reuse project management

Function : Others

REMAKE

tchedeville[a]remake.paris

http://www.remake.paris

Function : Others

Studio Pourquoi Pas

Renald Prevost, renald.prevost[a]gmail.com

Function : Construction company

Force Pure

Arthur Nouricier, contact[a]frcpr.fr

http://www.frcpr.fr

Assembly

Function : Others

Re-Store

contact[a]re-store.xyz

http://www.re-store.xyz

Type of market

Realization

Renewables & systems

Systems

Heating system :

- No heating system

Hot water system :

- No domestic hot water system

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Double flow

Renewable systems :

- No renewable energy systems

Environment

Urban environment

Land plot area : 125,00 m^2

The house shade is located in front of the facade of the association Les Canaux, at a crossroads of diferent flows, next to the rotunda and the Stalingrad tube station in the 19th district.

Products

Product

Woma

https://woma.fr/

Costs

Construction and exploitation costs

Global cost : 60 000,00 €

Global cost/none : 60000

Circular Economy

Reuse : same function or different function

Batches concerned by reuse :

- Structural framework
- Roofing
- Landscaping

For each batch : Reused Materials / Products / Equipments :

Structure

For the structure, 150 planks were sourced; they were used for a temporary floor for the Mada scaffolder. This represents 9 m3 of wood, which has been almost entirely used.

The dimensions of the planks being of section 10x12cm and of a length of 5 m defined the structural form in order to be able to reconstitute the spans and the heights defined by the specifications of the Canaux.

The shade is made up of 14 gantries of varying heights but with a number of similar parts in order to optimize the flow.

Roofing

The roof was designed as a storage rack for wooden planks.

The Réavie association found a solution by sourcing skeleton cellar doors. We thus recovered about sixty of them that we dismantled and unmounted. The elements were very regular. They constitute ⅔ of the roof having a length between 195 and 198 cm. Upper litters were filled through deposit from Re-Store inventory. Stock which was constituted largely by the falls of the carpenter Méha, supplemented by other sources like that of Actlab / Bellastock.

Sun blocker

The sunshades were designed by the design studio Pourquoi Pas, which is also the winner of the call for projects on the development of the kiosks, and with the participation of R-Use. The design is a reminder of the ripples of the canal.

The sunshades were made from office trays, one of the most recurring waste. Thus Valdelia, an eco-organization, provided the elements that served as the basis. Being made of chipboard, the appearance of the edges makes it difficult to exploit. It is from this observation that the designers transformed the edges with color.

Bins

The tubs play a double role: that of vegetating the terrace and of ballasting the structure. They were designed from reclaimed wood from the Arts Reserve and Re-store stock. They were carried out by the collective with the help of Vergers Urbains who carried out the revegetation.

Digital technology to optimize the project, its production and facilitate the circular approach

The project was parametrically designed to optimize the orientation of the slats and maximize the shadows. Thus a solar study was made so that the orientations of the blades follow the course of the sun.

The parameterization of the project provided by Jim Rhoné also allowed flexibility in the elements used, so they could be modified until the last moment. Indeed, the wood for the roof arrived 4 days before the opening, it was then possible to integrate their dimensions into the model instantly.

The *workflow* was determined to allow the output of the manufacturing plans for the interface between the structure and the wood elements, called “Combs”. They make it possible to use the geometry of the pieces of wood, the angles to optimize the shadow surface and also the singular positioning in space of each element being the discretization of a ruled surface.

They are all different and solve the geometric complexity of the project.

Field of use and material origin :

Sources for the different deposits:

- Valdelia for office trays
- Actlab / Bellastock for wooden planks
- Mada for planks
- La Réserve des Arts for items that served as the basis for the bins
- Réavie for roof elements
- Re-store and more particularly remake to complete the needs
- The right place for occasional contributions

Environmental assessment

Impacts avoided : water, waste, CO2 :

On this project, the reuse of materials made it possible to avoid:

- The emission of 8.5 tonnes eqCO2

- The use of 6443 m3 of water

- The production of 10 tonnes of waste

The impact calculation was carried out using environmental data from the INIES database.

Contest

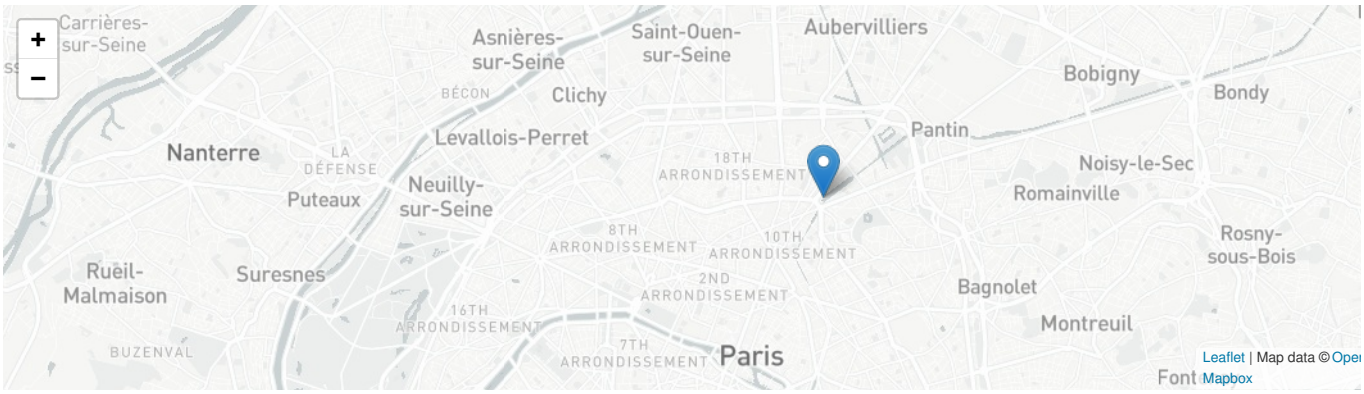
Reasons for participating in the competition(s)

The project being ephemeral, it was completely dismantled.
Some of the elements are used for other projects such as certain bins which are now on the kiosks set up by the canals. The elements of Re-Store were returned to replenish the stocks of the collective at the Orfevrerie. The other roofing elements will be used for another project that Réavie will implement, thus offering a third life to these materials.

The structure is to be reassembled in the spring for a REI Habitat project to serve as the project house for the renovation of the Freedom Museum. None of the elements of the project were discarded.

Building candidate in the category

Prix du public



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