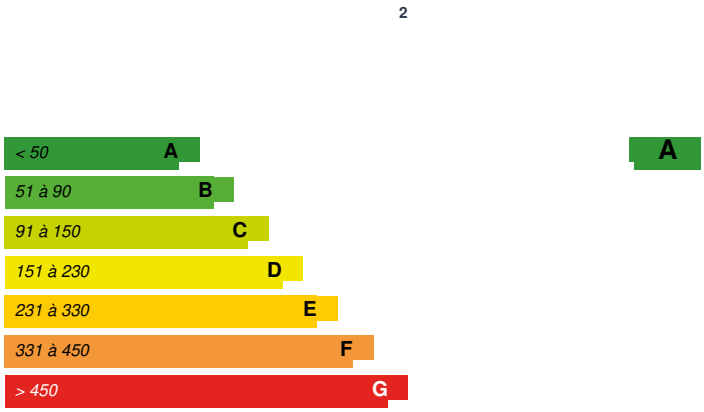
The House for All , Four City



Building Type : Concert or conference hall, theater
Construction Year : 2018
Delivery year : 2019
Address 1 - street : Rue de la Luminière, Les Souillères 38080 FOUR , France
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 145 m^2
Construction/refurbishment cost : 575 060 €
Number of Seat : 107 Seat
Cost/m2 : 3965.93 €/m^2

General information

Engaged in an ambitious policy of innovation and sustainable development, the Municipality of Four (38) asked the help of the designbuildLAB AE & CC ENSA Grenoble and the Community of Agglomeration Porte de l'Isere, to accompany it in the realization of an **ecoresponsible architecture demonstrator** .

This project has an exceptional dimension because it is part of the National Strategy for Architecture to "transform the act of building of tomorrow". It allowed students in architectural mastery of LabEx AE & CC of the National School of Architecture of Grenoble (ENSAG), in collaboration with local construction experts and companies, to realize for the first time in France **a project of architecture resulting in a real construction useful to a community rather than an ephemeral experiment** . Another particularity, the user population of this kind of equipment was integrated throughout the process, from conception to realization.

The town of Four has embarked on a project to build a multipurpose local equipment that will serve the associations of the town, its citizens and those of surrounding villages. She wanted to involve architectural students in this project to create a strong social link between these future professionals of the act of building and the concrete concerns of its inhabitants and its elected officials. The realization of this project has allowed to initiate a unique educational project in France around training and research, to train the architects of tomorrow. The second challenge of this project is to include it in **a sustainable development approach by proposing an ecoresponsible public building**.

The House for All is composed **of three building blocks** : a meeting room, a toilet block and a storage room. There are three landscaped areas: a mineral square in the north, a patio in the west, and a promenade bounded by a hillock to the south.

Architecture integrates harmoniously into its context, both in the techniques and materials used and in the proposed uses. This respectful relationship with the environment **is manifested by thoughtful solutions in the interest of efficiency and sustainability for a building that consumes less energy** . The materials used in the realization of project are the concrete, the earth, the wood, the glass and the metal favoring as much as possible the use of local natural materials in a process of contemporary industrialized construction, **thus taking advantage of the virtues of these two approaches to the act of building: ecology and economics** . The project was made of clay, with a rammed earth wall (traditional local know-how), a double insulating wood wool and a facing adobe inside. It also gives pride of place to the wood material with a prefabricated wooden roofing complex and a burnt wood cladding on the ancillary buildings. Heated and ventilated thanks to a double flow ventilation connected to a heat pump, it is designed to provide a natural comfort to the users and to reduce as much as possible the energy consumptions and the carbon impact. Photovoltaic panels offset this low energy consumption to make it **a positive energy building**.

Sustainable development approach of the project owner

The Commune de Four is engaged in an ambitious and proactive policy of innovation and sustainable development. It is willing to opt for an exemplary approach in the construction / management of the municipal heritage. Already accompanied by a Shared Energy Council, she was able to optimize her energy bill. It has also just completed the exemplary renovation of its school group, particularly through the use of the digital model, a very proactive approach for a small town of less than 1,500 inhabitants.

Architectural description

The House For All is an associative room in Nord Isère. For centuries, people in this region have understood that their land is perfectly suited to adobe construction. Their vernacular construction cultures led to the (re) invention of contemporary concrete. After more than 100 years of ubiquitous concrete production, the Maison Pour Tous reintroduces and reinvents the inherent sustainability of the earth as a raw material, little transformed, for a contemporary implementation.

The project consists of a set of three buildings: an associative room, a technical room and a storage room, gathered in the heart of a landscaped landscaped area. To the north, a mineral square can accommodate large outdoor events. To the east, a slightly elevated base provides an overhanging view of football matches. To the south, the excavated soil for building foundations is piled up to create bleachers for a small amphitheater on a terrace and a winding walk. Nestled between the three buildings, a patio open to the west, with a bench and planted with a deciduous tree, provides a quiet space to enjoy the sunset.

In the rammed earth, an open plan, modular storage and rolling bars invite a variety of uses. A ceiling made of spruce acoustic baffles reduces the audible reverberation during large gatherings. Large roof ledges allow for the sun's path to passively heat the room in the winter or create shade to maintain freshness in the summer. Large openings with larch glazed accordion doors connect this space to each of the surrounding outdoor environments.

Building users opinion

The municipality and the inhabitants are particularly satisfied with the project but also with the participatory approach. The result is well beyond their expectations and they are very proud to benefit from an architectural demonstrator that enhances the technique of building adobe and will meet multiple needs associative, sporting, cultural with this equipment very versatile.

If you had to do it again?

This process of realization and innovative collective reflection is already reused with another class of students, in another municipality.

See more details about this project

https://capi-agglo.fr/wp-content/uploads/2018/07/2018-02-08_ProjetFour_M1AECC_DBLAB2.pdf
http://www.grenoble.archi.fr/manifestations/travaux-maison-pour-tous.php
http://www.designbuildlab.org

Photo credit

Ludmilla Cerveny

Stakeholders

Contractor

Name : COMMUNE DE FOUR
Contact : Jean PAPADOPULO (maire) - Anne-Laure SITTERLIN , 04 74 92 72 73, alsitterlin[at]four38.fr
http://www.four38.fr/

Construction Manager

Name : designbuildLAB AE&CC, Ecole nationale supérieure d'architecture de Grenoble
Contact : Marie ZAWISTOWSKI, zawistowski.m[at]grenoble.archi.fr
http://www.grenoble.archi.fr/manifestations/travaux-maison-pour-tous.php | http://www.designbuildlab.org

Stakeholders

Function : Assistance to the Contracting Authority
COMMUNAUTE D'AGGLOMERATION PORTE DE L'ISERE

Sébastien DELMAS, Directeur Construction Durable, sdelmas[at]capi38.fr

https://capi-agglo.fr/
Accompanying the municipality in the realization of an innovative project and demonstrator

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Function : Other consultancy agency
Be Vessière

Bernard SCHMITT, bernard.schmitt[at]vessiere.com

https://www.vessiere.com/fr/
Office of study structure

Function : Thermal consultancy agency

Techniques Energétiques du Bâtiment (TEB)

LESPINASSE Richard 04.76.35.36.55 contact[at]teb-betfluides.fr

Thermal and energy study

Function : Environmental consultancy

Takt Paysage

147 bis cours Berriat - 38000 GRENOBLE

https://www.takt-paysagiste-38.com/
Grounds

Function : Other consultancy agency

Bureau d'étude Hage

Gwenola Hage

http://www.besbhage.fr/
Wood structure design office

Function : Others

Alpes Contrôles

Jean-Pierre SCHWARZ jschwarz[at]alpes-controles.fr

https://www.alpes-controles.fr/
Control office

Function : Company

Chanut

Thierry Delmas 04.74.28.28.22 chanut[at]chanut.fr

https://www.chanut.fr/
Structural work, realization of foundations and foundations. Patron of the operation

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Function : Company

Raw Forms

Joseph Peisley

https://www.rawforms.com
Manufacture of custom bfuhp elements (worktops, sinks)

Function : Company

Arbosphère

Pierre-Louis Maxit arbosphere[at]arbosphere.com 04 50 35 49 35

https://www.arbosphere.com/
Prefabricated roof construction

Function : Company

Atelier Kara

Timur Ersen timur.ersen[at]hotmail.fr

https://www.timurersen.com/
Realization of adobe walls and prefabricated rammed castings

Function : Others

Grands Ateliers Innovation Architecture

Maxime BONNEVIE 04 74 96 88 70

http://www.lesgrandsateliers.org/ | http://www.amaco.org/
Reception and accompaniment of prefabrication and prototyping of rammed panels

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Function : Company

Cemate

Matthieu Joly

Installation of heating / ventilation / plumbing systems

Function : Company

Chanut Espace Libre

Damien Garnier

https://www.chanut-espacelibre.fr/
Installation of exterior joinery and realization of custom interior furniture

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Function : Manufacturer
Migma

Mathieu Bohorel mbohorel[at]migma26.fr

https://www.migma26-beton.fr
Realization of exterior decorative concrete slabs and interior screed

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Function : Company
Jocteur TP

Clement Jocteur clement.jocteur[at]orange.fr

Earthworks, VRD and landscaping

Function : Company
Pépinières Cholat

Philippe Cécillon philippe.cecillon[at]cholat-pepinieres.com

http://www.cholat-pepinieres.com/
Plant supplies for green spaces

Function : Company
Jean Jean

Richard Cretinon richard.cretinon[at]jeanjean-electricite.com

Realization of electrical installations and installation of luminaires

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Function : Company
SAS Franco

Denis Franco franco-denis[at]wanadoo.fr 04 74 43 25 79

Achieving zinc cover with standing joints

Function : Environmental consultancy
programme Tissage d'Initiatives de la Fondation de France | programme sensibilisation à l'architecture du groupe Caisse des Dépôts

https://www.fondationdefrance.org/fr/tissages-dinitiatives | https://www.caissedesdepots.fr/architecture-et-paysage
patrons

Function : Designer
onSITE architecture

http://www.onsitearchitecture.com
Project management and OPC

Contracting method

Other methods

Energy

Energy consumption

Primary energy need : -8,20 kWhep/m^2.an
Primary energy need for standard building :50,00 kWhep/m^2.an
Calculation method : Other
CEEB : 0.0001

Real final energy consumption

Final Energy : -8,20 kWhef/m^2.an

Envelope performance

More information :

Insulation of the roof: Up <0.2
Wall insulation: Up <0.15
Low floor insulation: Up <0.3

Indicator :
Air Tightness Value : 0,10

More information

The multipurpose rooms are not subject to thermal regulation, the thermal study was carried out via a dynamic thermal simulation with an objective of an envelope close to a passive level with the least possible heating need, a heating production via a heat pump and photovoltaic installation to make the equipment positive energy

Renewables & systems

Systems

Heating system :
- Heat pump
- VAV System

Hot water system :
- Individual electric boiler

Cooling system :
- No cooling system

Ventilation system :
- Natural ventilation
- Double flow heat exchanger

Renewable systems :
- Solar photovoltaic

Renewable energy production : 100,00 %
business:
South Cape https://www.groupe-capsud.com

Solutions enhancing nature free gains :
Conception bioclimatique du bâtiment, apports solaires très importants via de grandes surfaces vitrées et forte inertie via le pisé et isolation

Environment

Urban environment

Land plot area : 24 634,00 m^2
Built-up area : 5,00 %
Green space : 600,00
The site of the project is located on the site of the Luminière stadium and the multipurpose room of Four. It is located northwest of the city center of the town - town hall and school - to which it is connected by a footpath, crossing the Parc du Galoubier. The land is bordered on its western and northern limits by the Rue de la Luminière serving the ZAC de Four.

The plot is accessible by car from three entrances located on rue de la Luminière: two in the west, at the multipurpose room and the city stadium, a very occasionally open to the northeast, near the rue du Grand Curtil.

In the North, the existing stabilized space has been redeveloped into a mineral space, to offer a large space that can accommodate large-scale events - flea market, vogue - while offering easy access for deliveries.

Between the three built blocks, the pre-existing concrete slab of the former cloakroom has been redeveloped into a landscaped patio. It offers a privileged space in the West, with a draining planted surface allowing the recovery of rainwater roofing.

To the south of the buildings, a landscaped mound, up to 2.00 m high and built with the foundation excavation lands, was carved to form a gentle slope facing the stadium in the east and a green theater in the north. turned towards the room. It isolates a quiet garden space in the West.

Finally, a hedge planted on the western edge allows to isolate the site of the road.

Products

Product

biobased materials: wood fiber insulation

STEICO

Olivier Mognon o.mognon@steico.com 06 76 27 13 89

https://www.steico.fr
Product category :
Wood fiber insulation has been chosen for its low environmental impact, and to promote the use of healthy materials for health

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geosourced materials: rammed earth and aggregates

CEMEX

Julien Simon julien.simon@cemex.com 06 22 58 76 45

https://www.cemex.fr
Product category : Gros œuvre / Structure, maçonnerie, façade
The use of geosourced materials from a quarry less than 10km from the site helped to develop this local resource and contribute to the low carbon impact of the project.

LED lights

Delta Light

Céline Bron celine.bron@delta-light.fr 06 76 99 54 35

https://www.deltalight.com/fr
Product category : Génie climatique, électricité / Eclairage
Crédit photo: Ludmilla Cerveny

The use of high quality LED luminaires for manufacturing and aesthetics contributes to the low energy consumption of the building.

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larch accordion windows

Solarlux

Ludovic Wanner l.wanner@solarlux.fr 07 76 05 97 15

https://www.solarlux.fr
Product category : Second œuvre / Menuiseries extérieures
Crédit photo: Ludmilla Cerveny

The use of joinery accordion allows a great flexibility of use for the project.

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recycled glass insulation

Foamglas

Frédéric Joliot frederic.joliot@foamglas.fr

https://fr.foamglas.com
Product category :
The use of recycled glass screed insulation has been favored as a replacement for conventional synthetic screed insulation.

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high performance screws

SFS Intec

François Varacca francois.varacca@sfs.bis 04 75 75 44 76

https://www.sfsintec.biz
Product category :
The use of high quality screws from a manufacturer and know-how of the region allowed specific support in the field during the realization.

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prepatinated zinc sheets

VM Zinc

Pierre-Jean Gauthier pierrejean.gauthier@vmzinc.com 06 09 48 91 55

https://www.vmzinc.fr
Product category : Gros œuvre / Charpente, couverture, étanchéité
The implementation of a standing seam cover made of preweathered zinc sheets was chosen for its durability.

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biobased materials: spruce lumber, 3-ply spruce panels

coopérative ABR

Franck Lachenal f.lachenal@abr.coop 07 71 86 40 04

https://www.abr.coop

Product category : Gros œuvre / Charpente, couverture, étanchéité

The use of locally sourced lumber, provided in a cooperative model involving many sawmills and small local businesses, has allowed the yard to highlight the interest of short cycles in construction.

Costs

Construction and exploitation costs

Global cost : 652 710,00 €

Reference global cost : 1 109 170,00 €

Renewable energy systems cost : 10 000,00 €

Global cost/Seat : 6100.09

Reference global cost/Seat : 1109170

Cost of studies : 46 887 €

Total cost of the building : 575 060 €

Subsidies : 379 620 €

Additional information on costs :

The particular context of the project setup is to be taken into account in the cost evaluation. Indeed, this demonstrator project of general interest was implemented within the framework of a public-public cooperation, between a higher education institution of public interest and a commune.

Health and comfort

Indoor Air quality

The infiltrations taken into account for the STD calculation will be equal to 0.10 vol /h. This level of infiltration will be achieved by the careful implementation of construction equipment.

Carbon

GHG emissions

Contest

Reasons for participating in the competition(s)

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Heated and ventilated thanks to a double flow ventilation connected to a heat pump, it is designed to provide a natural comfort to the users and to reduce as much as possible the energy consumptions and the carbon impact. **Photovoltaic panels offset this low energy consumption to make it a positive energy building** .

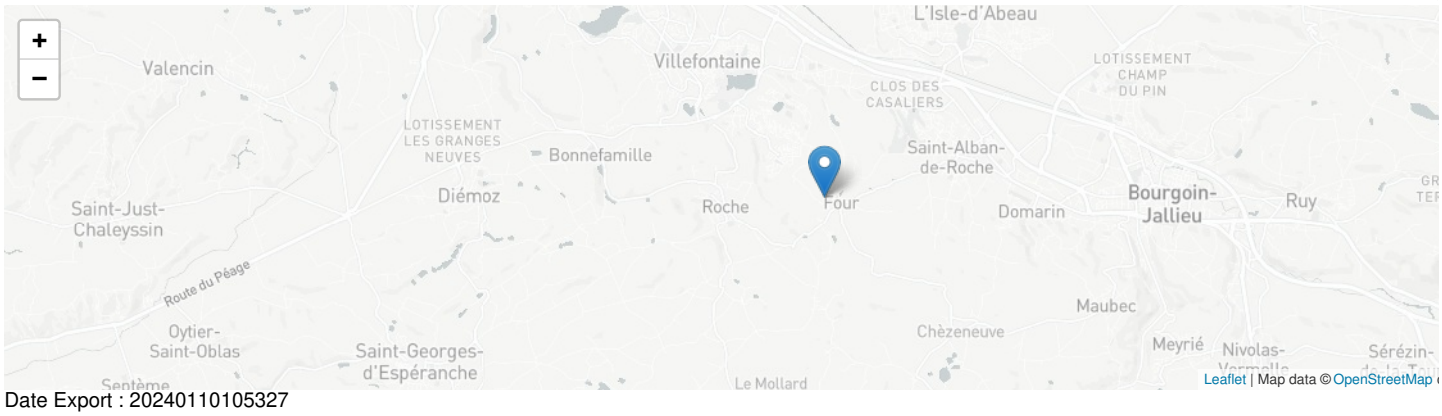
Building candidate in the category

Bas Carbone

Green Solutions AWARDS powered by Construction21.org

Prix du public

Prix des Etudiants



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