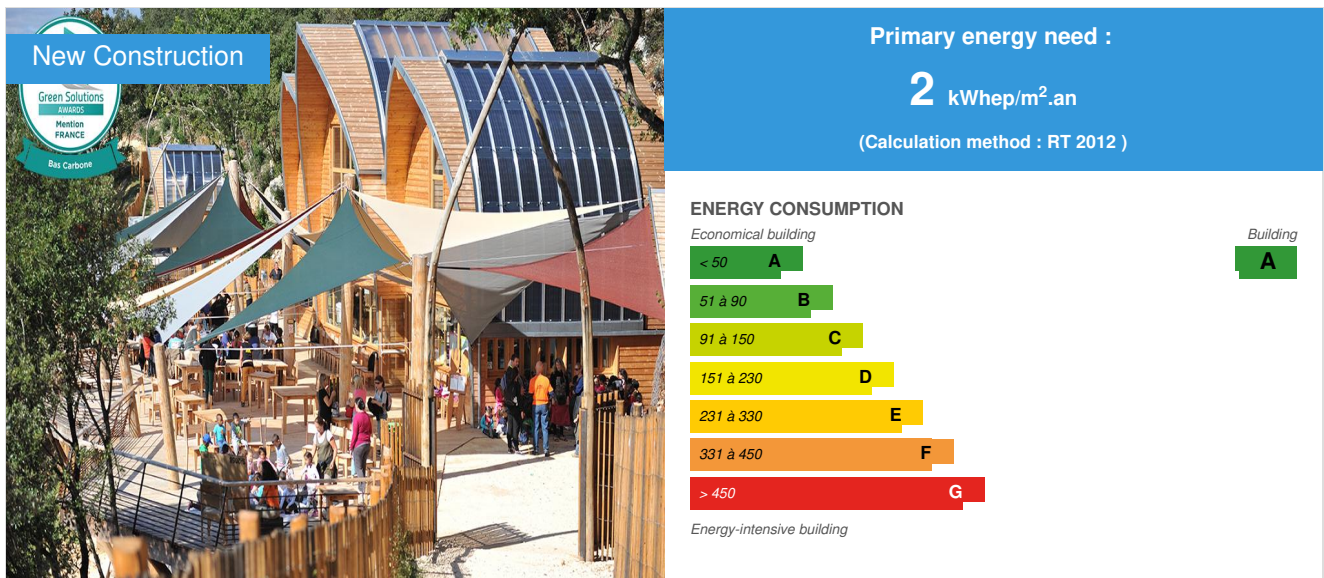


## The 7 pavilions of the cave of Salamandre

by Jean-François Daures / 2018-06-15 10:40:12 / Francia / 9304 / FR



**Building Type** : Other building  
**Construction Year** : 2013  
**Delivery year** : 2013  
**Address 1 - street** : Chemin de la plage du Roy 30430 MéJANNES LE CLAP, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 180 m<sup>2</sup>  
**Construction/refurbishment cost** : 620 000 €  
**Number of none** : 500 none  
**Cost/m2** : 3444.44 €/m<sup>2</sup>

**Certifications :**



### General information

#### A "green box" for the Salamander.

In its descent towards the Rhone, the Cèze crosses the Méjannes-le-clap plateau through cut gorges where are hidden many sources and geological curiosities dug by this gold-bearing river. Caves or tunnels form a complex hydrological network and offer a vast territory of discovery and training to speleologists. The Aven de la Salamandre is known to lead to a circular cavity thirty meters high and whose dimensions are similar to those of a stadium with a diameter of a hundred meters.

Two portals in warheads mark the entrance of the site on the Commune of Saint-Privat de Champclos. Other visitors reach it by taking a botanical path about seven hundred meters long in a slight gradient. While following the profile of a contour line, visitors will be able to discover all the local flora in a green tunnel 700 meters long. Named in dense vegetation, we do not notice the reception pavilions built in local wood, Douglas fir and chestnut.

The path leads to a large wooden terrace where visitors contemplate a panoramic view of the Gorge of the Cèze. The terrace, shaded in summer, is covered by veils whose colors have been selected from the foliage of the site.

Eleven trees of hand-peeled roundwood poles support this belvedere overhanging the canopy at 11 meters above the ground. The shape of these sails, hung at the top of the reception building, accompanies the profile of the surrounding hills and reinforces the furtive character of this reversible equipment that is a part of nature.

The layout is functional so that all the elements of the program can be found immediately in this alcove repetition. In the center under the main arch is the lobby. In order to make this architecture reversible and to limit the amount of concrete used in this Natura 2000 classified zone, the concrete slabs are replaced by a bed of pebbles of the river below, surmounted by a wood floor with clear lane. Temperate cavity air at 12 ° C constant is brought into the building through the access tunnel forming a huge 75 meter long Canadian well.

The purpose of the development project is to make this cavity accessible to all publics, including the disabled. Two artificial tunnels, whose slight slope accompanies the visitors, are dug on the hillside to join the cavity. The two tunnels, 2.8 meters wide, have an emergency function. They serve as containment areas to shelter the public during an emergency and they must also be welcoming spaces where waiting is comfortable.

A gradient of atmospheres ensures the transition between the plant world from the outside and the mineral world in the cavity. The light of the diodes whose light spectrum has been chosen to stimulate the growth of plants from the plant ceiling and at the entrance of the tunnels is reversed to no longer be conducive to the development of algae or plants in the cavity.

## Sustainable development approach of the project owner

For the construction of the reception pavilions, the natural site being classified in zone Natura 200, it was imperative to think of an ecological construction making use as much as possible with local materials.

Combining the unusual and the ecological, this project must convey the image of a cave open to tourists in a remarkable natural site and not connected to the networks.

## Architectural description

A stealthy architecture for the Salamander

Seven ogives built of local wood are stuck in the cliff and extended by a panoramic terrace cantilevered above the canopy. Eleven tree posts whose inclination imitates that of the surrounding trees support the vast terrace of 450m<sup>2</sup>.

An incredible green ceiling offers visitors the unusual view of this upturned greenery.

The set of furniture integrated or not, as the 7 pavilions are built of local wood by local artisans to measure.

## See more details about this project

<https://www.grottedelasalamandre.com/fr/>

Méditerranée

## Stakeholders

### Contractor

Name : SAS Grande Salamandre

Contact : [daniel.lelievre@grandesalamandre.com](mailto:daniel.lelievre@grandesalamandre.com)

<https://www.grottedelasalamandre.com/fr/>

### Construction Manager

Name : VISION® Jean François Daures Architecte

Contact : [projet@archivision.fr](mailto:projet@archivision.fr)

<http://www.archivision.fr>

### Stakeholders

Function : Structures calculist

Altéaboïs

[contact@alteaboïs.com](mailto:contact@alteaboïs.com)

<http://www.alteaboïs.com>

BET Structure

### Contracting method

Other methods

### Energy consumption

Primary energy need : 2,00 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 2,00 kWhep/m<sup>2</sup>.an

Calculation method : RT 2012

### More information

Not applicable, building unheated and tempered by a Canadian well connected to the cavity at 12 ° Celsius constant. The only electricity consumptions are those of the LED lighting powered by the photovoltaic panels of the pavilions.

## Renewables & systems

### Systems

Heating system :

- Canadian well

Hot water system :

- No domestic hot water system

Cooling system :

- Canadian well

Ventilation system :

- Natural ventilation

Renewable systems :

- Solar photovoltaic

The building is completely autonomous, thanks to the latest generation of high-performance solar panels, which are both dark and matte; flexible, they are placed on the roofs and curved to avoid dazzling birds.

The only illumination of the cave requires the use of two hundred and fifty custom-designed, programmable diode projectors. An automaton creates the first twelve paintings of the luminous scenography. In total, the 140m<sup>2</sup> of solar panels offer a power of more than 30% of needs evaluated at 10 kilowatts of which about 3,000 watts for the building part.

## Environment

### Urban environment

Land plot area : 7 200,00 m<sup>2</sup>

Green space : 7 000,00

The site of the Grotte de la Salamandre is hung on the cliff side in the heart of nature in the heart of a Natura 2000 area and two ZNIEFF area. It is attached to the pretty little town of Saint-Privat-de-Champclos, above gorges of the Cèze

## Products

### Product

Vegetable ceiling

Chante paysages , Coté SUD et verti-cal Nord

<https://www.facebook.com/ArchitectureVegetale/>

<http://www.archivision.fr>

Product category : Table 'c21\_italy.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '13'

At the end of a monumental hall, the ceiling so densely adorned with mineral splendor, could not succeed the low Always to accompany the visitor in its crossing of the vegetable world to the mineral world: the vegetated vault, is also wanted to absorb the sound in this frequented reception hall.

It is home to hundreds of plants accustomed to live upside down and the root system turned to the sky. A collection of ferns, among which the capillary of Montpellier, and Soleirol Soleirola, who are tightrope walkers already observed, living upside down in the entrances of the caves. They are here joined by euphorbia, with almost continuous blooming, bright white, a collection of begonias, chlorophytums or other exotic plants ...

Design: VISION EURL, Jean -Francois Daures, Architect

Laying and assembly and maintenance: SARL Chante Landscapes - <https://www.societe.com/societe/chante-522217876.html>

Preculture, supply of plants: GAEC Coté Sud - <https://www.pepinierecotesud.fr/>

Production of steel cassettes: SARL Verti-cal Nord -<https://www.verti-cal.fr/>

Innovative product, pilot realization

<https://www.eyrolles.com/BTP/Livre/architecture-vegetale-9782212126747>



Flexible and printable Photovoltaic Panels

Dissa Solar



**Product category :** Table 'c21\_italy.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '29'

They produce all the energy that is necessary for the proper functioning of the buildings but also the lighting of the entire cavity that will discover the spectators. At the same time dark and matt, flexible, they are posed on the roofs and curved to avoid dazzling the birds.

Innovative product, pilot realization



## Costs

### Construction and exploitation costs

Global cost : 2 500 000,00 €

Renewable energy systems cost : 50,00 €

Global cost/none : 5000

Cost of studies : 62 000 €

Total cost of the building : 62 000 €

## Health and comfort

### Comfort

**Acoustic comfort :**

The vegetated vault functions as a sound absorber in a busy hall. Its décor visually meets the beauty of the ceiling of the cavity. The visitor is thus accompanied throughout the course of the plant world to the mineral world by a gradient of moods and a luminous scenography.

## Carbon

### Life Cycle Analysis

**Eco-design material :**

The plant material is declined from its inert form of structural wood to its living form. Concrete is only used for the foundations of the ten or so local Douglas-fir tree structures and to stabilize the entrances of the two access tunnels.

The building is placed on a bed of pebbles of the river Cèze rather than a concrete slab . Materials and labor come to a maximum of 50 kilometers from the site. The douglas pine and chestnut woods are treated by thermo-oiling, according to a CIRAD patent, with natural oils of flax and rapeseed to make them rot- resistant and increase the mechanical resistance. These woods all come from short and local sectors, in the Cevennes.

Another "first", the project is completely removable and recyclable! If this architecture dedicated to sustainable tourism "is no longer useful within twenty years, we must adapt our constructions to their life cycle".

## Contest

### Reasons for participating in the competition(s)

- Construction and furniture 100% local wood
- Autonomous energy building (1st cave lit by solar energy)
- Building and cave 100% accessible to all types of handicap
- Green ceiling
- Construction in Protected Natura 2000 Zone
- 1st prize Arfobois 2013 competition
- Finalist of the Grand Prix of the Order of Architects - region Occitanie

### Building candidate in the category



**Bas Carbone**



**Coup de Cœur des Internautes**



**Prix des Etudiants**



