

The Lake Cottages

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Building Type : Terraced Individual housing
Construction Year : 1990
Delivery year : 2022
Address 1 - street : Impasse des Châlets 32160 PLAISANCE, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 30 m² SHON
Construction/refurbishment cost : 3 000 €
Number of Dwelling : 1 Dwelling
Cost/m2 : 100 €/m²

General information

The Arros campsite is a **tourist accommodation** located in Plaisance, in the Gers department. It is a place to which the mayor is attached, because it is the only attractive place to bring French and foreign tourists, and thus to promote the village and its region (Marciac festival, vineyards, Pyrenees, etc.). Plaisance celebrates its 700th anniversary in 2022.

The campsite is located on the banks of the Arros, a river whose name means "to flow". This river flows calmly and peacefully most of the time, allowing vacationers to enjoy its wooded meanders. But the Arros is capricious: located near the Pyrenees, floods can happen. And in these cases, the campsite and its year-round residents are faced with this hazard. In addition, most year-round residents are elderly, not necessarily having time to prepare for unexpected floods.

The owner of Cottages du Lac has experienced **many floods** since 2011, about twenty. In 2021, an article appears in the local press, indicating that he will no longer have Civil Liability insurance very soon. He hasn't had comprehensive insurance for a long time. It was then that contact was established between FloodFrame and the campsite, which was looking for solutions to protect itself.

The alternatives for the owner are:

- move house (1.5 million euros, a too expensive project, spread over 3 years);
- wait about 10 years for a dyke to be built (8 to 10 million euros of public money);
- protect themselves individually (~ €300,000, project over 3 months).

FloodFrame and the owner of the campsite therefore imagine a new product, taking into account all the specificities of outdoor accommodation. This project was even **rewarded with a SETT D'OR**, at the largest European trade show. The 1st version is deployed on a mobile home in October 2021, and the campsite maintains its Civil Liability insurance. The 2nd version, developed subsequently and with a new design, is deployed on the Cottages du Lac in May 2022. Thanks to this solution, the campsite has received a multi-risk insurance offer.

The 2nd version of the product, deployed at the Cottages du Lac and installed on the outskirts, provides **automatic, permanent and invisible** protection.

Building users opinion

The owner of Cottages du Lac is very positive about the process and the results. He can be contacted: Yan LEPINEUX, Arros campsite in Plaisance (32).
He took charge of his own safety, not waiting for the community to do it for him. He sought to innovate. His awareness of risk is very interesting. The public authorities are pushing for this, so that people at risk are actors of their own safety.
He is very satisfied with the project. We have innovated, in a short time. We successfully deployed a new technology. This can be duplicated in many other scenarios (companies, critical infrastructures, heritage buildings).
Finally, the occupant is an elderly and fragile person, who required a lot of attention. This cottage is the first flooded, less than 5 meters from the water. The campsite knows that it will no longer have to bear the material costs in the event of a flood. He is now looking to protect the entire complex (13 chalets), allowing him to work on longer-term solutions (moving for example), which will take 10 years, and are only possible if the company manages to survive and secure their income.
His protection will save him the cost of repairing a flood, for which he is not insured.
Recently he has just received an insurance proposal, still expensive but for years the insurance companies refused it.

If you had to do it again?

We would do it differently. We encountered several unexpected elements, in particular the evacuations and the electrical networks (grounding). We have adapted the distances to avoid them. Lastly, it took us 7 days to install, which is too long for the locals. We have already identified another construction process to reduce it to 5 days.

See more details about this project

https://floodframe.com/wp-content/uploads/2020/11/FLOODFRAME_FR-2.mp4

Photo credit

Yan LEPINEUX and FloodFrame.

Stakeholders

Contractor

Name : CAMPING DE L'ARROS
Contact : Yan LÉPINEUX
<https://www.campingdelarros.com/les-cottages-du-lac/>

Construction Manager

Name : FLOODFRAME
Contact : Rémi ALQUIER
<https://floodframe.com/fr/>

Stakeholders

Function : Investor
REGION OCCITANIE

Marie-Pierre CIRYCI LAVERNI
<https://www.laregion.fr>
Supports FloodFrame innovation with an Innovation Contract.

Function : Company
GAROUSSIA

Nicolas GAROUSSIA

Contracting method

Public Private Partnership

Energy

More information

As the renovation is centered on solving problems related to flooding, there was no energy audit.

Renewables & systems

Systems

Heating system :

- Electric heater

Hot water system :

- Individual electric boiler

Cooling system :

- No cooling system

Ventilation system :

- Single flow

Renewable systems :

- No renewable energy systems

Environment

Risks

Hazards to which the building is exposed :

- Flooding/Runoff
- Flooding/Slow flood
- Flooding/Fast Recession

Risks measures put in place :

The FloodFrame system is designed to resist surface flooding (runoff, overflow, submersion) and underground infiltration by capillarity (it protects the foundations with a second underground waterproof membrane, connected to the above-ground waterproof membrane).

It completely surrounds the chalet, to protect it completely. Additional measures (non-return valve, work on rainwater drains, networks) make it possible to protect the property completely, and to prevent water from entering.

Urban environment

Land plot area : 300,00 m²

Built-up area : 10,00 %

Green space : 2 000,00

The "Cottages du Lac" area is on the immediate outskirts of the village.

In the immediate vicinity there is a lake, sports fields, a forest, a restaurant, a mini golf course, a swimming pool, shops, and the village square with all its local services.

The Les Cottages du Lac complex is located below the main access road to the village. It is bordered by a ditch which brings rainwater to the Arros river, and it is also by this route that flood waters rise.

The area is harmoniously fenced, with plant hedges, of mature local species. It is planted with old trees providing shade, allowing light to pass through. In front of each cottage, a hedge creates privacy for each neighbour, and there are palm trees, gravelled areas, which create a warm, simple and neat atmosphere.

The 10th chalet, which is the subject of the project, is at the end of the plot, with an access path made of small white pebbles, a beautiful hedge at the height of a man, a palm tree, the trees of the forest for neighbours. ... and the ditch too. He is therefore the first to be affected by the rising waters.

Products

Product

FLOODFRAME

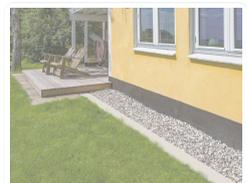
FLOODFRAME

RÉMI ALQUIER

<https://floodframe.com/fr/>

Product category : Gros œuvre / Système passif

FLOODFRAME is a flood protection system. Intended for any type of building, it creates buried peripheral protection, ensuring sealing below and above ground (foundations and walls) and of the entire building.



FloodFrame is invisible. It fits perfectly into its environment. There are several finishes. The one implemented at the Cottage du Lac is made of PVC matching the other construction elements (gutters for example). There are wood finishes, tiles, etc.

The client is very satisfied to have this type of solution at his disposal. The building would not be well protected by a cofferdam. The tenant, an elderly person who lives year-round, was distressed at every flood condition. He is reassured for these goods and personal effects.

Costs

Construction and exploitation costs

Cost of studies : 300 €

Total cost of the building : 3 000 €

Subsidies : 2 500 €

Additional information on costs :

FLOODFRAME is invoiced per linear meter (500 € / lm on average, i.e. approximately 100-200 € / m² of protected living space on average), supplied, installed and guaranteed for 10 years. An annual inspection ensures this guarantee. Equivalent to those of other technical installations (eg boiler), it allows the tightness to be checked every year.

Carbon

Life Cycle Analysis

Eco-design material :

As part of GreenTech, we have made an initial analysis. We only use recyclable materials. And we are studying with a manufacturer the possibility of working with recycled materials.

EPDM (Underground sealing component, all products)

EPDM (Ethylene-Propylene-Diene Monomer) is an inert and fully recyclable material with a low environmental impact. It contains no heavy metals, chlorine or hydrocarbons.

It has a lifespan of over 50 years and is 100% recyclable.

GreenPeace and Nibe (Dutch Institute for Sustainable Construction) rank it as the number one eco-material for waterproofing.

TYVEK (Component for above ground waterproofing, all products)

Tyvek is a non-woven textile, based on polyethylene fibres. No hazardous substances in the sense of RoHS, REACH & SVHC are used in its composition or in its manufacturing process.

It has a lifespan of 20-30 years and is 100% recyclable.

Its carbon footprint is very low, according to the ADEME website.

CONTAINER (ENTERTAINED system component only)

Our HDPE (High Density Poly Ethylene) container has the same properties as Tyvek (100% recyclable).

However, it is the element that has the highest environmental cost in our business today, due to its transportation. It is therefore our priority to improve our footprint.

Today it is comparable to a PVC window. We are trying to do better, with local manufacturing (action with the Occitanie Region and Polyvia) and the use of biosourced materials.

TRAVEL

Our travel is offset at the end of the year by planting trees (for approximately 200 tonnes of CO₂ this year). Our 2021 travel has been estimated at a carbon cost of 4 tonnes of CO₂ (calculated on the ADEME website).

DIGITAL

At the moment we are offsetting our emissions at the end of the year.

INFRASTRUCTURE

For our future sites, offices and test centre, we will do the assessment with a specialised consultancy firm.

For the test centre, we have chosen a site that was abandoned during a recent relocation and is a true symbol of French industry: Zodiac.

ASSESSMENT AND CONCLUSION

Our overall carbon footprint is estimated at 80 kgCO₂eq per metre of product sold, including products and all support activities.

In 2022, we will therefore offset 80 tonnes of CO2 by planting trees with a company like EcoTree, for example.

The Life Cycle Assessment of our activities will enable us to seek to improve our footprint. This is more than a need for us, it is the culture of the group's Danish origins.

Contest

Reasons for participating in the competition(s)

The Cottages du Lac are regularly subject to overflow **flooding** , around 20 times between 2011 and 2022 according to the owner.

Everything has been tried: rebuilt, bought, renovated, ditches have been raised. Despite this, the water still finds its way to the building, most recently in 2018. The heights are from a few centimeters to 30 cm.

After having tested FloodFrame on the mobile home part in 2021, the owner wished to acquire a fixed and buried system for the Cottages du Lac, in order to **eliminate the material consequences of water on this building inhabited all year round**.

It is the first deployment of the new FloodFrame technology in France. This solution aims to prevent water from entering the cottage, to avoid the deterioration of the building and materials, to eliminate renovation costs after flooding, to cleaning the interior and the terrace.

Building candidate in the category



Prix du public



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