ARCHITECTURAL BRIEF REPORT

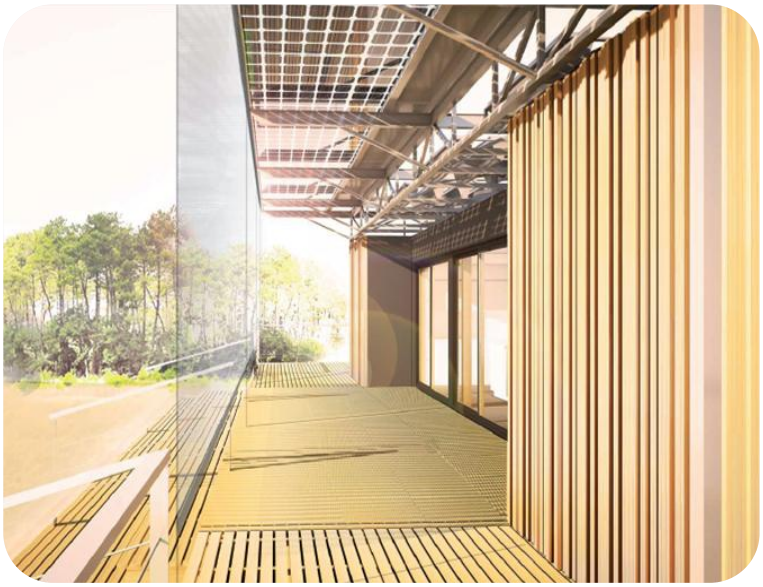
A. DESIGN

Sumbiosi is created from the symbiosis between men and the house, between the house and the environment and between architecture and technology. This is really the main concept of Sumbiosi, from what everything is thought.

In order to create a sustainable house, we focused, during the design process, on bioclimatic concepts, energetic performance, innovative engineering and architectural systems and a great management of resources like energy and water. All these elements have been put together with architectural concepts aiming to create a space as adjustable as possible for the inhabitants. By adjustable we mean, physiologically, functionally and spatially. Indeed, Sumbiosi can adapt itself according to the time of the day or the season so as to create the best living environment for human beings.

For that, every architectural and technical choice was made from the human body for its comfort. Like Le Corbusier compared architecture and human body for the separated functions, we are making the analogy with the human body for all the exchanges made inside it, and more than everything with the skin which is an organ that breathes reacts to wind, cold and heat and that protects the inside. Pores of the skin can retract or dilate themselves to create the best « interior» environment. In SUMBIOSI we used this concept of living organism that changes, reacts and exchanges according to the environment to create the best place to live in. Thus, we had kind of a biological approach of the architecture.

All our design process was oriented by the bioclimatic concepts which are very important elements if we want to get the lowest consumption of energy without any equipment.



The concept is to orientate the house to get the best from the sun and the environment. That's why we gave the house this strong north/south orientation allowing capturing a maximum of calories in winter.

That orientation is also wanted to create a crossed space from south to north. The inhabitants can easily go from the south space, more dynamic and warmer, to the north space, cooler and quieter.

We also chose that strong orientation to allow a great natural ventilation to cool down the house in summer. The air flows through the house entering by the north and south facades and going out by the upper windows. If we had to give one word to describe the space created it would be fluid: fluid for the inhabitants, fluid for the air, fluid for the light and fluid for the energy.

While the north and the south facades are the most open ones with glazing surfaces, we wanted the east and west facades to be much closed. This aims to accentuate the concept of the crossed space but it's also to protect the house from the morning and evening sun, which are the ones giving the most powerful and difficult rays to protect from.

That's why we created two thick walls that protect the interior space. This thickness was given for a few reasons. First, it accentuates the orientation north/south we wished for, and the idea of a crossed space. It also reinforces the idea of protection for the inhabitants. But, if we created these two thick walls it was above all to group the technical elements and to release the middle space from any of them. Thus, in one of those two blocks takes place all the technic the house needs. We placed the Vital Box, the kitchen and the bathroom so we can reduce the pipes length and facilitate the transport and the construction as it is aimed to be a grouped housing. The integration of the technical element is part of the architecture; we use it to give strength to it and to participate to the concept.

Other furniture blocks are placed in the north space from which are deployed several functions. In the parental room the bed can go up in the cupboard while a desk can come out from the same furniture. For a quite small house we wanted to offer the comfort of a large one. That's why we designed a rotary element in the furniture separating the parents' room from the bathroom to create a parental suite by linking the bedroom and the bathroom. In the children room, the bed can go up to the ceiling to liberate the space for any others activities.

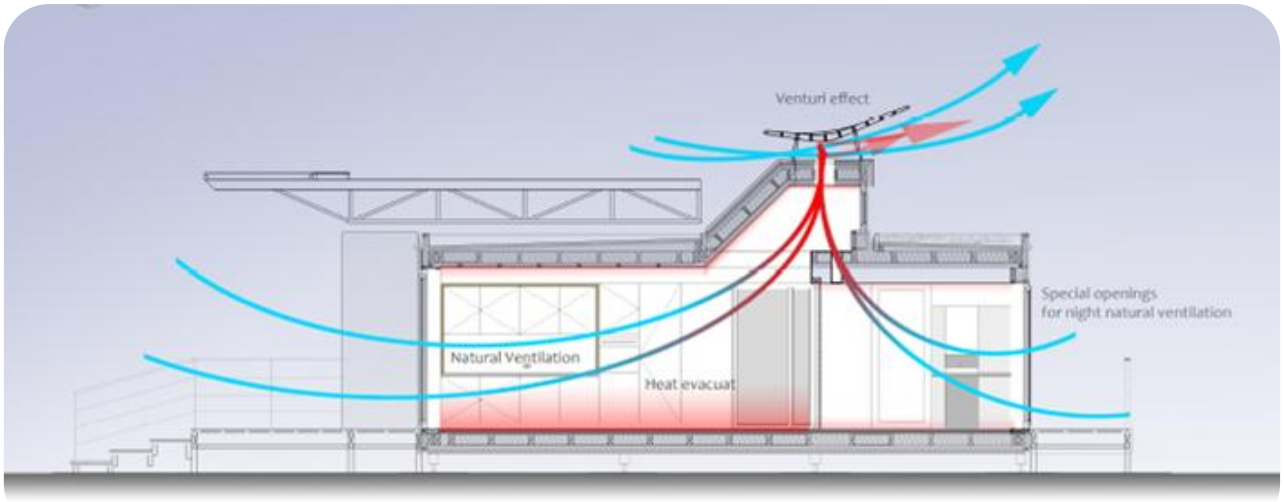
We can say that the « bedrooms » we created are quite small but thanks to the movable elements we can create different uses for these spaces so you kind of get a bigger house with the same space. With Sumbiosi you can get more from less.

B. INTEGRATION OF TECHNICAL SYSTEMS

We worked on an architecture that takes into consideration the integration of the technical elements such as solar systems or ventilation. For us, integrating doesn't mean hiding these elements, but on the contrary, to make with them. They become part of the architecture and important elements of the design.

With our new solar systems, we created an over-roof which serves as a solar protection for the south façade, but it is also an element that captures the sun. Furthermore, this system of over-roof would allow in the future to install different solar systems

As for the solar systems, we wanted to create a new architectural element on the house which is the « Ventec » system. Its goal is to accelerate the natural ventilation by the Venturi effect. Its form has been designed with aerodynamics principles and integrated into the architecture: it creates a strong architectural sign.

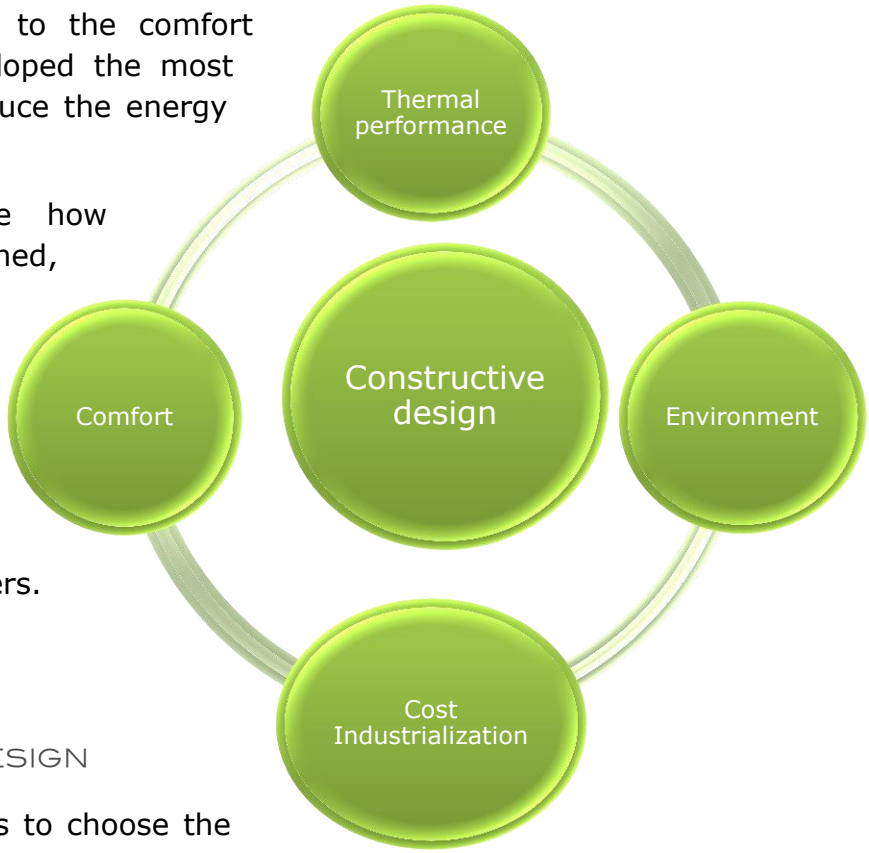


To create a sustainable house with bioclimatic concepts, we worked on the materials. To get the lowest grey energy for the house and to develop the local industry, we mainly used timber for the construction of Sumbiosi. Indeed, we live near the biggest cultivated forest in Europe

Finally, Sumbiosi is a home where the way of life becomes fluid and in interaction with the environment thanks to the architecture. With Sumbiosi you don't live against nature but you live with it, you can feel it: your home becomes alive.

ENGINEERING AND CONSTRUCTION BRIEF REPORT

The engineering design narrative describes and justifies all crucial choices we made to fulfil our primary objectives. It follows the design procedure that led us to the final prototype. This procedure is very simple; we first designed the envelope to limit energy losses then we developed and installed innovative system to answer to the comfort conditions and after we developed the most efficient solar systems to produce the energy needs.



In this report we describe how specifications were defined, according to the competition's brief and team's wishes. Then, technological and architectural solutions were proposed, discussed and validated, following a co-conception process between architects and engineers.

A. STRUCTURAL AND ARCHITECTURE DESIGN

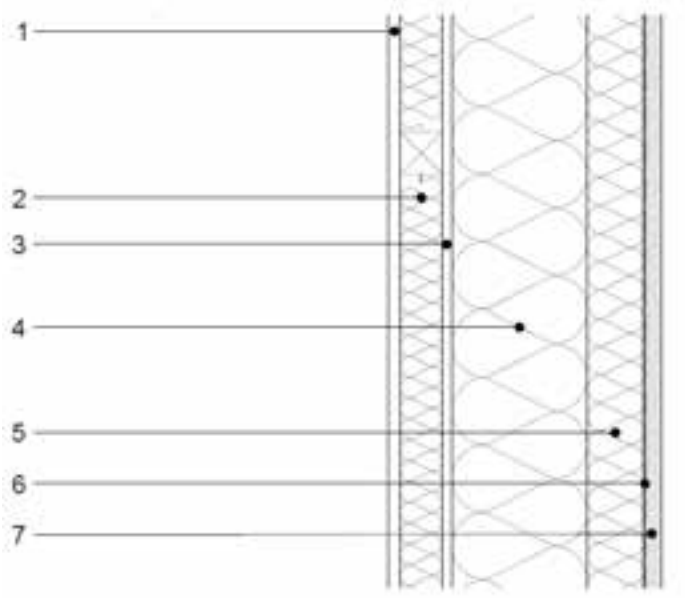
Interesting opportunities led us to choose the main construction materials: timber from the Landes forest. For the project, the use of maritime pine has an important meaning.

First, it demonstrates the mechanical properties of this species, which are more than acceptable for construction, when timber is processed to make glulam beams.

Moreover, the glulam beams used for Sumbiosi are produced via an innovative process, especially developed by the research project ABOVE. This recent project aimed at developing an industrial process to glue and laminate green timber, before dried out. This method not only brings stronger properties to the beam than conventional glulam beams, but also allows saving energy.

Other criteria went in favour of timber construction, particularly with regards to its environmental impacts. Timber is a renewable material when sustainably grown, as it

is in the Landes forest, and acts as a carbon storage, which makes it, at least, carbon neutral.

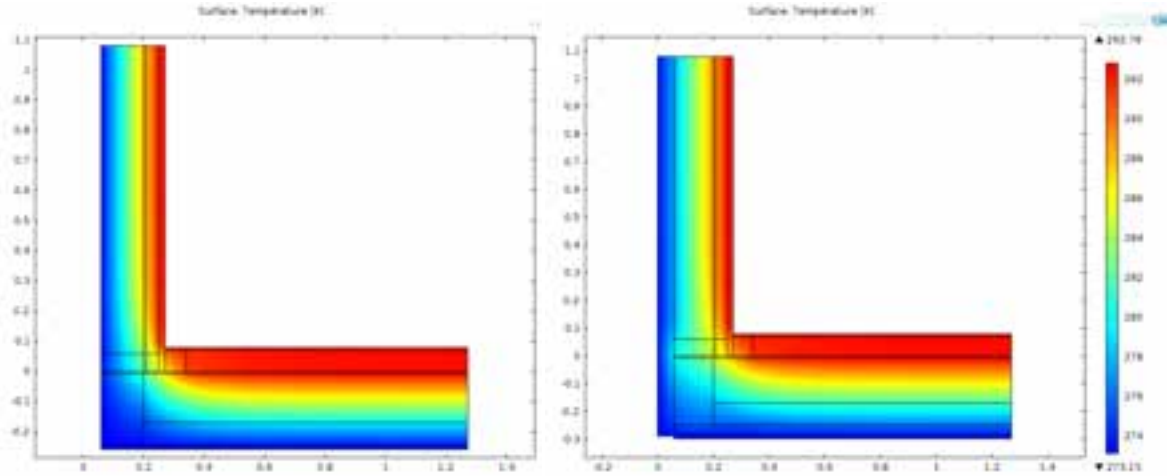


1	Wood coating 13 mm
2	Flexible wood fiber40 mm
3	Wood structural panel 9 mm
4	Flexible wood fiber 140 mm
5	Rigid wood fiber 60 mm
6	Rainscreen
7	External cladding

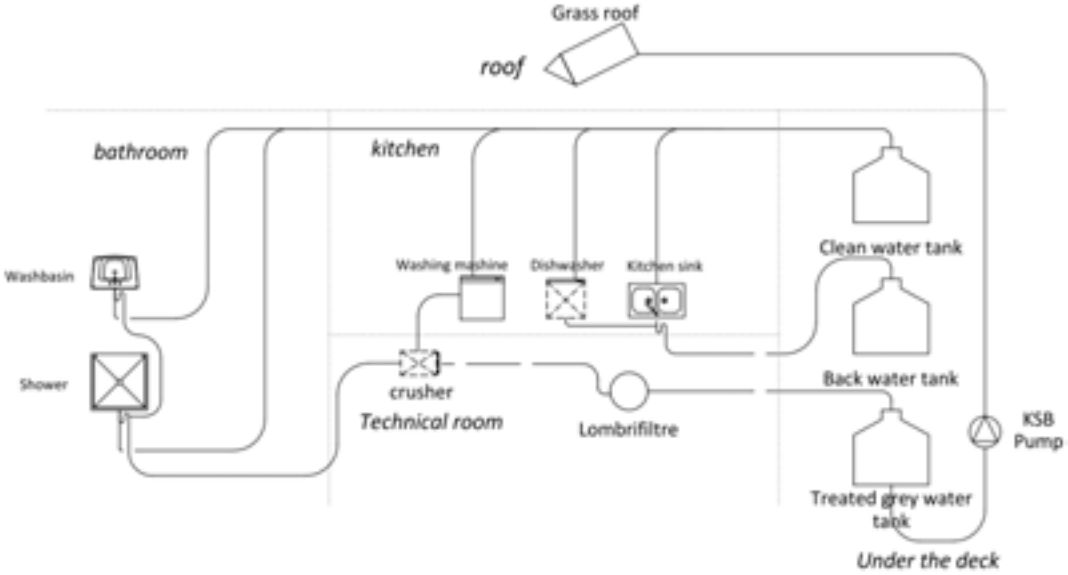
To validate the overall architecture and optimise it by proposing concrete improvements, we used a dynamic thermal simulation tool, the software Pleiades/Comfie.

With this tool, adjustments were tested to improve dimensions of architectural elements:

Thanks to a series of tests we determined the best composition of walls, floor and roof to reach our thermal performance objectives.



B. PLUMBING SYSTEM DESIGN



The lombrifilter has been developed for several years in order to treat waste water. Thanks to the various improvement we are now able to treat all the waters from the house even those from the toilets. It is made of successive layers of worms, woodchips and puzolane. Those layers clean, filter and purify the water. We can use this water to clean or to feed the green roof. We chose to use this technology because of the great ratio space-efficiency. The population of worms is adapting permanently to the quantity of waste, so the lombrifilter doesn't need to be maintained, except one cleaning each ten years.

C. ELECTRICAL AND SOLAR SYSTEMS DESIGN

There two solar systems for the electricity production, PV system and CPV system (concentration). In the following tables you can see the characteristics of each system.

PV system				
Type of modules	Characteristics	Number of modules	Inverter	Batteries
Polycristallin cells	250Wc	20	SMA SB 5000 and SMA SI 5048	Pb

The PV system is installed horizontally on the roof. There is no tracking for this one.

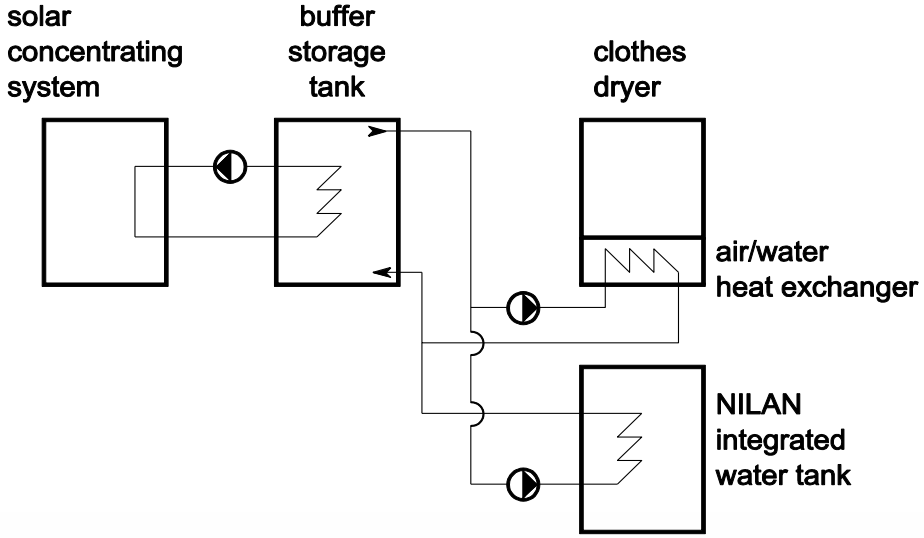
CPV system				
Type of modules	Characteristics	Number of modules	Inverter	Batteries
Triple junction cells	90Wc, Optical concentration (500x)	15	SMA SN 1200	Pb

The CPV system is tracked following 2 axes. It can be in front of the sun when this one is 18° above the horizon.

D. ENERGY BALANCE

	Electricity consumption (kWh)	Electricity production (kWh)
1 day during SDE period	15.95	18
1 week during SDE period	110	126
1 year	5720	6550

One of the 6 concentrating systems is dedicated to solar thermal power generation. The photovoltaic cells are replaced by a tubular absorber exposed to concentrated sunbeam. The solar thermal power is used to heat the inlet airflow of custom-built clothes dryer.



ENERGY EFFICIENCY BRIEF REPORT

A. ENERGY ANALYSIS OBJECTIVES AND METHODOLOGY

Sumbiosi is on the Solar Decathlon Europe 2012 background. Then the house has to respect requirements. The objective is to build a durable house in ten days which will be test in ten different sectors. Comfort and energy efficiency will be test in Madrid on September 2012. So the house's objective is to respect the requirements.

But Sumbiosi isn't ending after the Solar Decathlon 2012. The project is to build a house adapted to the Aquitain climate (South-West of France) for three or four residents. The team has the following energetic aims:

- Use a bioclimatic architecture to reduce the energetic consummation
- Ensure hygrothermal comfort in all season
- Adapt the thermal outer shell to the architectural concept and vice versa
- Respect the French thermal restriction: RT2012

To meet the restriction in each background we define some energetic performance criteria for the outer shell

- For the Bordeaux background :

- Limit the heating needs to 15kWh/(m^2_{hab}.an) with a 19°C setting point for occupation time.
- Limit a temperature higher than 28°C in the house to 70 hours in occupation time (1% of the time) in order to don't use an active cooling system
- Limit the percentage couple for inside/outside temperature outside the Bragger area to 8%
- The overall consumption for heating, cooling, lighting, domestic hot water production and pumping has to be less than 45 kWh/m².yr of primary energy. It does not take into account electronic devices (RT2012)
- Air tightness: the air leak has to be less than 0.6m3/h.m² (RT2012)
- A part of the energy used has to be renewable and produced in situ (RT2012)
  - For the solar decathlon Europe 2012 background :
- Respect the temperature restriction during the measurement period (23-25°C°).
- Adapt the house use in order to reduce the cooling energetic consummation: the objectives are to keep a setting temperature with the lower energetic consumption.

We use bioclimatic architecture concept at the beginning of the project. Next we used simulation software to make energetic analysis. We see the influence of some configuration on the summer comfort for the Bordeaux climate. We studied the following parameters:

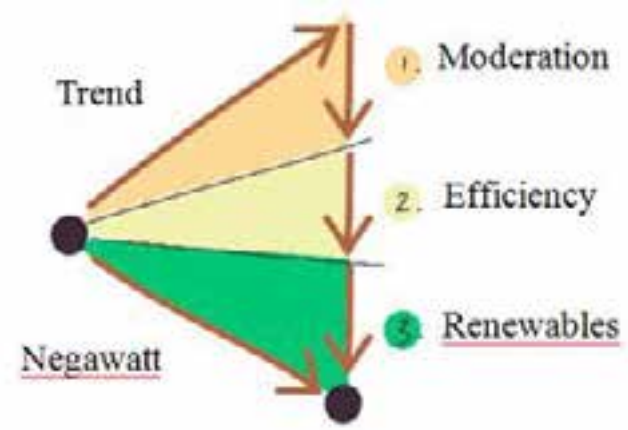
- Constructive system (see **Erreur ! Source du renvoi introuvable.** p**Erreur ! Signet non défini.**)

- Insulation thickness
- Insulation choice
- Skin choice (inertia)
- Thermal bridges
  - Glasse rate
  - House orientation
  - Solar protection
  - Natural overcooling ventilation during summer nights
  - Energy recovery device(double flow HVAC) and half passive

Some iteration was necessary to answer the industrialization and environmental impact criteria. Sumbiosi's outer shell has been built to minimize the energetic need and keep a good comfort. Some passive systems like the natural ventilation combined to concrete thermal inertia has been developed. The energetic system choice has been made in a second time. We choose the most efficient device. Others simulation has been done to confirm the HVAC choice. (Figure 7).

B. TEAM ENERGY STRATEGY

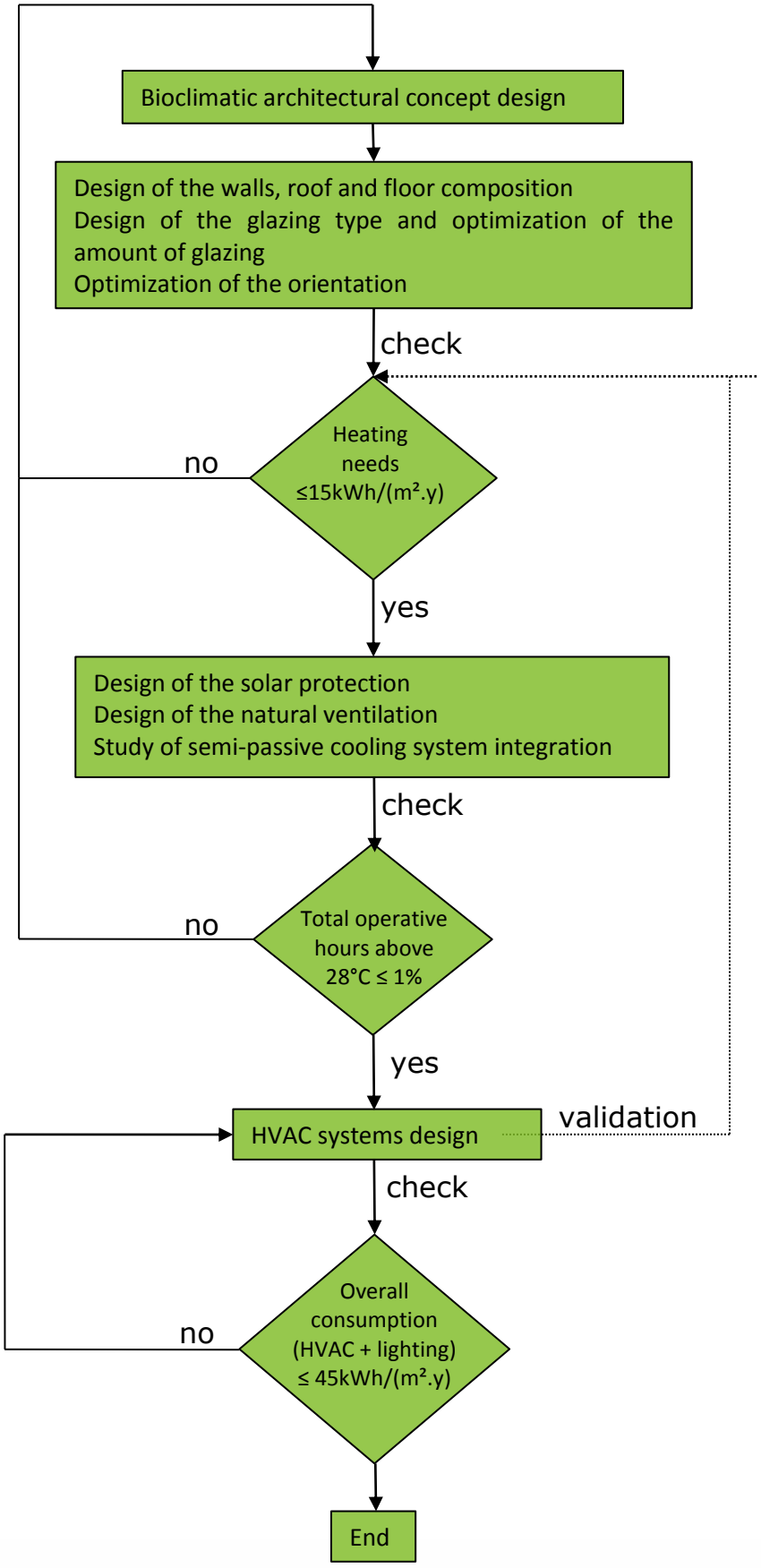
The energy strategy was inspired by the Negawatt approach, which is promoted in France by the Negawatt Association.



It consists in 3 steps, which has to be taken in the right order. In the first place, it is important to concentrate on moderation while using all energy-consuming devices and avoiding all unnecessary needs and wastes. Once this is done, we can focus on energy efficiency, which consists in reducing the energy consumption for a determined task. Finally, we can consider producing our own energy with renewables.

This approach implies reducing firstly energy consumption for the household to maximum, and only when this is done we can think about producing clean energy to "payback" what has been used, and thus having an energy positive house. Our philosophy does not consist in producing as much energy as possible, but rather use the less energy possible, and then produce just the right amount of photovoltaic electricity go positive.

The project thus aims at building a home with the weakest impact on the environment, but also on our bank account, because the cheapest energy available is the one it is not using.


Bioclimatic architectural concept design
Design of the walls, roof and floor composition
Design of the glazing type and optimization of the amount of glazing
Optimization of the orientation
check
Heating needs ≤15kWh/(m².y)
no
yes
Design of the solar protection
Design of the natural ventilation
Study of semi-passive cooling system integration
check
Total operative hours above 28°C ≤ 1%
no
yes
HVAC systems design
validation
check
Overall consumption (HVAC + lighting) ≤ 45kWh/(m².y)
no
End

B. RESULTS

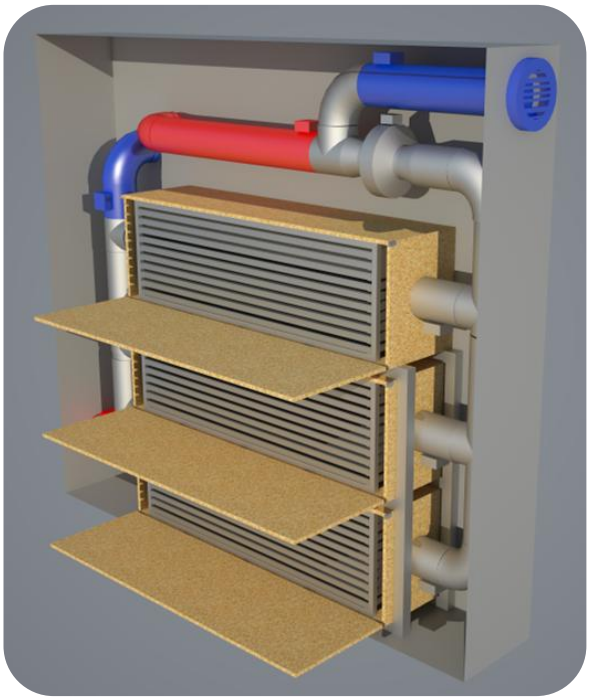
Thanks to several iterations of the methodology described above to analyse the energy performance of the envelope, we reach the aims announced in the introduction:

- Both heating and cooling needs are minimised thanks to the bioclimatic architecture, the house orientation, the shutters use and the glasses surface optimization.
- The passive analysis is encouraging; the phase change material device reduces the cooling consummation from 40%.
- HVAC system can be chosen and optimised

C. HVAC SYSTEMS

Thanks to the results of the Napevomo House and current improvement, we knew that the Phase Change Materials heat exchanger could have a power of 2.2kW for cooling. As we wanted to use only this passive and innovative system, we tried to meet its capacity concerning cooling needs by playing on coverings and glazing, and we reached this aim.

Concerning heating systems, the heat recovery ventilation system can't meet alone the needs. It just helps to minimize them. The several iterations realised were done to optimise the choice of the heating system (a heating pump). We use simulation to compare the simple and double flow solution. It appears that with a HVAC combined to a double flow device the heating needs were reduced by two. That's why we choose to use a double flow device like the Nilan. We use the Bordeaux weather data to size the Sumbiosi's heat pump . It appears that the house heating needs is 1.4kWWe previously see that we need a heat pomp with a 1.1kW cooling power to meet the air conditioned needs coupled with our phase change material system. The Nilan VP 18 C includes a 2.1kW heat pump and 1kWcooling power. So we choose to use this HVAC in Sumbiosi because it meets almost perfectly our need.



SUSTAINABILITY BRIEF REPORT

A. SUSTAINABILITY CONCEPT APPLIED

Sumbiosi's philosophy is about energy sobriety, that we can sum up with « consume less to produce less ». With the bioclimatic conception, we searched to reduce the consumption of the house. Equipment and energy systems have been designed and selected to suit the low needs of Sumbiosi.

Nowadays, housing is one of the largest contributors to primary energy use, which makes it a key element for a sustainable way of living and in the edification of sustainable societies. Architects and engineers must design environmentally responsible houses which will meet the people's needs.

Sumbiosi has been designed to reach an overall low environmental impact. It also helps people to reduce their own environmental footprint, in a house that fulfils their demands in terms of comfort and well-being.

Industrialization is one of our goals; therefore costs of the house are controlled as accurately as possible. This leads to design a passive house, which could be affordable to most people.

Energy savings are widely depending on the user's behaviour so we set up a ludic advice system, using house automation, to help changing in the long term the occupant's consumption habits by explaining the consequences of certain acts in the house.

We applied the bioclimatic principles in a new vision. The solar villa is a living house, changing and transforming itself regarding the exterior environment, to offer the best living conditions to the inhabitants. Its ability to group in order to create an eco-neighbourhood allows us to meet the social challenges of sustainability.

Eventually, Sumbiosi is also a regional project. We chose to work with local industries developed in Aquitaine which allows for their economic rise (for instance for the solar systems, or the wood insulation), and to use local materials (as the maritime pine) in order to reduce the impact of the environment, and the grey energy consumption.

Created through the symbiosis between man and environment, this project perfectly fits in a sustainable development approach thanks to its low environmental footprint, its awareness of social demands and its support of local skills.

B. BIOCLIMATIC STRATEGIES: PASSIVE DESIGN STRATEGIES

House envelope

Thermal insulation

We have therefore chosen as insulation material wood fibre for walls, which are among the insulation materials with the best compromise between summer and winter performance. Moreover, these materials are natural and have a low embodied energy.

Thermal mass

As a wooden house structure is "light", in Sumbiosi inertia is achieved using concrete with high inertia stored in the floor.

Air tightness

The air tightness in Sumbiosi is achieved through bracing panels that are placed inside and provide the seal. These panels are large, the couplings are minimized, and particular attention is paid to the connections of modules walls.

Glazing

The size of glazing depends on both architecture and bioclimatic strategies. Designed as a large transversal space, Sumbiosi opens along the axe North-South. The opened or closed proportions of glazing are directly link to their orientation.
Finally, a north window is located at the top, and allows to get a diffuse indirect light inside the house. The central space then takes advantage of this constant light and can be well lit although it is far away from the south façade.

Distribution of the interior space

The strategy for our house was to place every function at the right place so as to optimize the relation between the inhabitant’s comfort and the space created according to the environment and the sun directions in every season.

Passive heating strategies

This part is directly linked to the size of glazing. Its large amount located on the south wall allows sunrays to flow inside and reach a layer of inertial mass which stores thermal energy during the day and spreads it out during the night. The good insulation allows keeping this thermal energy in the heated space.

Passive cooling strategies

The inertial mass used in winter to heat the room is also used in summer. Covering the whole floor, it can store thermal energy during the day, and spread it out at night thanks to the natural ventilation. Indeed, it has been thought to chill the inertial mass: the fresh air enters the house down the south and north walls, and leaves the house through an aeration exit located on the roof. Special openings have been made in these two walls so you can open your home during the night for the ventilation but

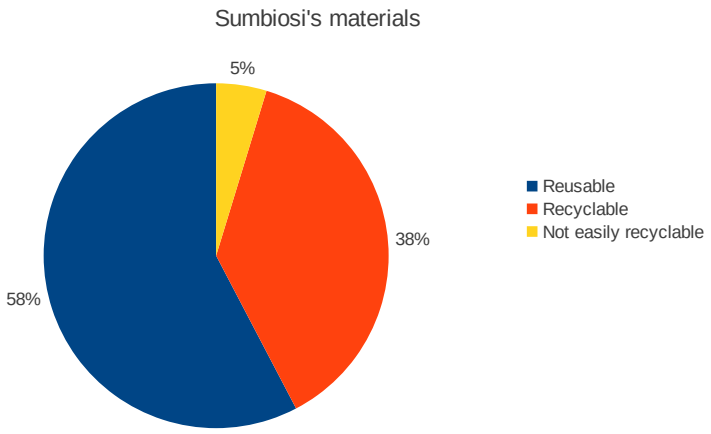
stay in a safe place. We use the Venturi effect to improve the action of the wind during night ventilation.

To get the lowest energy intakes in the house we designed an over-roof to create a shading for the south glazed facade. An awning is also deployed vertically to create an outdoor space but also to decrease the intakes from the diffuse energy.

Semi-passive systems

The main semi-passive system concerns the cooling. Combined with natural ventilation, a PCM heat exchanger helps to obtain a best comfort by cooling down the incoming air in summer. It is made of inertial mass, whose phase changing conditions match the highest value of the comfort temperature. While changing phase, the materials consume energy, and thus give back a cooler air. It only needs a fan (50W).

C. SOLID WASTE



D. MATERIALS SELECTION

Every choice for the materials has been made in agreement with the LCA. The philosophy of our project is to develop the local industry.

That's why we worked with companies mainly located around Bordeaux so as to get lowest grey energy for the transport of the materials until the building site.

E. EQUIPMENT

HVAC

The HVAC combined double flow system with high yield with a heat pump and hot water tank. The system pumps the humid air from the kitchen, bathroom and toilet in order to eliminate smell, humidity and particle in the house. Moreover the Nilan use the energy from this air in order to heat the house and the sanitary water.

Phase Change Materials system

We use PCM system in passive thermal regulation of the house. These materials enhance the thermal inertia of the building.

Lighting

We will achieve the basic lighting system with high-performance lamp LED. LED technology has a very good ratio between electrical power consumption and light efficiency with a suitable life time. Moreover, lighting is fully controllable by home automation system (KNX). The home automation system allows to dimming the light intensity according to natural light.

After that, we also have more direct lightning system, with others technologies, to be certain of having the correct levels in some places.

Electronics devices

All audio-visual equipment is selected to provide a desirable comfort in entertainment with limited electrical power consumption.
The chosen TV use LED technology. This technology reduces power consumption compared to LCD and plasma technologies while it provides a superior image quality.
We will have a laptop as computer. Nowadays, we see these devices are the development leaders, not only increasing its performances but also saving the maximum of energy.

A router placed in the electrical cabinet is used to distribute the internet in the whole house. The use of standard Ethernet plugs is compulsory in France for new construction. At the same time, this device makes the communication between home automation supervisor and its control devices possible.

An Ethernet Switch placed in the electrical cabinet is used to distribute the internet in the whole house. The use of standard Ethernet plugs is compulsory in France for new construction. This system limits significantly the use of WIFI.

INDUSTRIALIZATION AND MARKET VIABILITY BRIEF REPORT

During the Solar Decathlon spectacular houses with advanced architecture and technology are exposed. It is like two weeks immersed in the future. Most of the time during competitions or expositions on innovative technology, one concept is fully overlooked: the transition to reality. We have to be aware that at the end, all the knowledge exposed at Villa Solar today has to be on the market tomorrow. Here is the aim of the present report.

The fact is that on the French houses market, industrialization is often perceived as synonym of uniqueness.. But contrary to popular belief, industrialization means something totally different. When you industrialize a product, the objective is to optimize the manufacture, in order to be efficient around five elements: Quality – Cost – Delivery – Safety – Environmental Impact.

In order to be in concordance with this idea, we tried to include industrialization notions in Sumbiosi's conception. It is important to notice that Villar Solar is a significant step in the house's development but this is not an end in itself.. At the end of the contest, a concrete development will start with our partner Meison Innovation, and maybe industrialization will turn into reality.

A. MARKET

Sumbiosi has been designed for the French market. Its great thermal envelop quality associated to multiple ventilation scenarios and to the innovative systems designed to reduce the energy consumption allow Sumbiosi to be efficient anywhere in France.

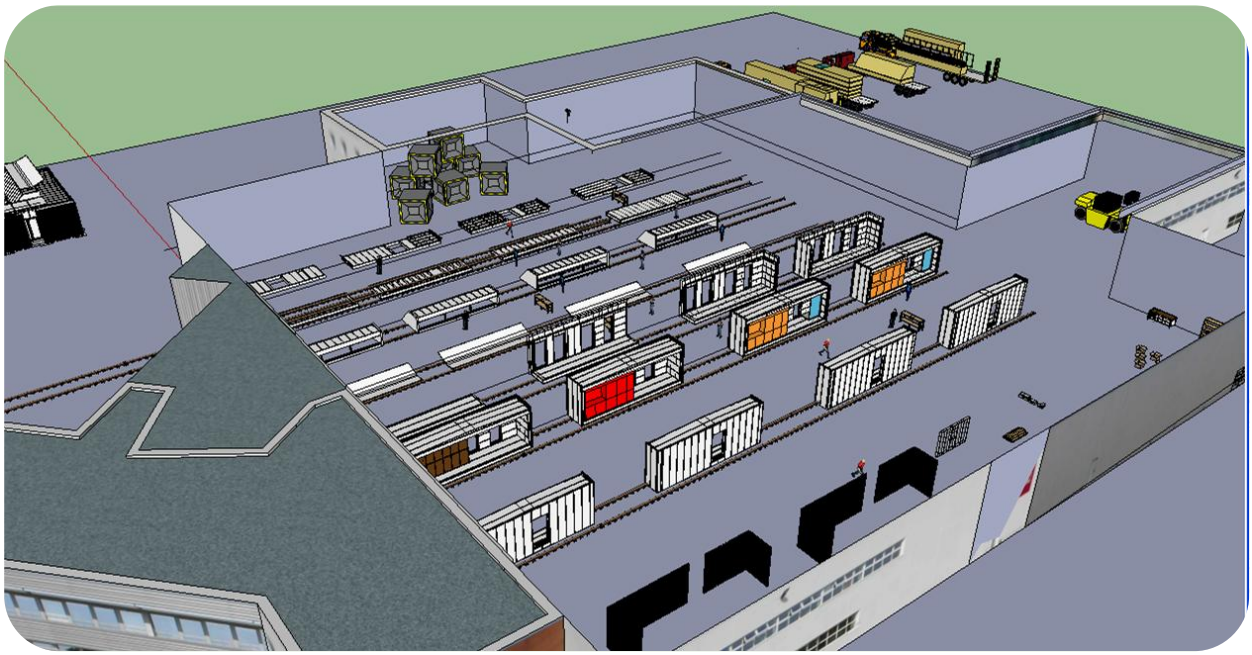
The problem with houses based on Sumbiosi concept is the price. They are much more expensive than the traditional French house. One of our main objectives is then to make it as much affordable as we can, and make people aware that this investment will be paid off in the long run

Indeed, we want to attract them using a contemporary design and a great flexibility which will make their house unique. We will also be focused on the development of easy use moving modules.

B. ECONOMIC VIABILITY

The economic viability study is on the one hand a necessity on every project and a requirement for the present report but on the other hand it is a logical step on Sumbiosi project. As we said before, Sumbiosi is not only a prototype for Villa Solar.

The aim of our work with our partner Meison Innovations is to commercialize an optimized version of Sumbiosi in France.



C. INDUSTRIALIZATION

The main objective of industrialization is to see building not as unique models but as a product which is going to be built by assembling prefabricated modules. The construction of buildings according to an industrial plan is a good way to decrease the cost of buildings while increasing the quality.

Sumbiosi is a highly optimised prototype with a lot of innovative systems. All these concepts are very expensive and procure exceptional performances. Besides, some of them as solar systems come from research and cannot be industrialized yet. In order to sell our product on the market, we have to adapt our prototype. Nevertheless, we worked on several concepts to adapt Sumbiosi:

- Wooden framework
- 3D Pre-equipped modules and 2D roof / floor modules
- Concrete slab (for thermal inertia)
- Vital Box
- Steel over roof

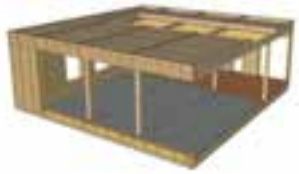
We have divided our house in modules which can be transported with conventional trucks.

1: West 3D module

2: Floor 2D modules

3: North 2D module

4: Roof 2D modules

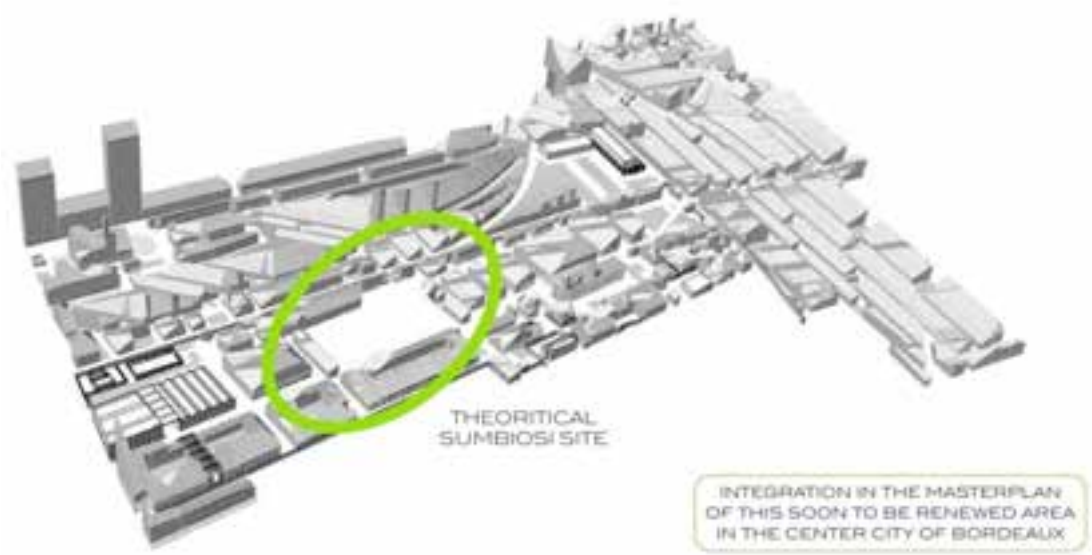


5 : East 3D module

6 : Skylight 3D module

D. COLLECTIVE HOUSING

Since 2007, more than half world's population lives in urban areas. It will probably reach more than 60% in 2030. It is so a necessity to develop sustainable areas and not only individual homes as in the competition. Moreover, collective housing is an unavoidable way to allow a significant reduction of energy consumption and when technical systems and materials are regrouped and shared between several families, it is possible to reduce running costs.



We adapted the concept developed in the prototype Sumbiosi to an urban scale. To work on this, we decided to theoretically integrate our project on the site *Caserne Niel* in Bordeaux, as it currently is an urban renewal area. We begin with the support of the urban renewal master plan requested by the CUB (Bordeaux Urban Community) and designed by MVRDV agency.

In this complex, the buildings are in pairs : two buildings of three or four stories are linked by a common glazed access. Located at the east and west extremities of the dwellings, a column (2.40m section) regrouping all the technics needed allows the networks concentration and the juxtaposition on several stories.
The presence of a ventilated roof becomes the support of the solar systems (photovoltaic and hot water production panels). It also protects the house in summer, and on some buildings it is the anchor of the terraces' structure.
We designed an exterior terrace on a different structure in metal which leads to the juxtaposition of efficient solar protections, and this space becomes in summer an extension of the living room.
The exterior space in between the buildings at the center of the lot is made of vegetation. It fits in the Bordeaux's tradition of the "échoppes", small stone houses located in the center city: being aligned on the street they create a protective façade, and behind it, a green area is developed. The creation of pedestrian pathways between each dwelling blocks leads to many possibilities of passages and crossings. The ensemble then becomes a space where the urban course keeps going.

COMMUNICATION AND PUBLIC AWARENESS BRIEF REPORT

Sumbiosi's communication was made to reflect our prototype image.

We would like to thanks the students and also our industrial partners for their every day's hard work and support on the development of innovative energy solutions for the future.

More than just a simple communication about our prototype's abilities, we would like to increase public awareness of an issue of the future environmental problems. We want to show to the public that we are working on solutions for the environmental problems. But foremost, we recognize our innovative technologies are nothing if it's not associated with a good education of people who will inhabit.

From this, logically, three elements are stake in this project: the Man, the Environment and the Home like setting technological innovations and bioclimatic architecture. These three elements are interdependent. For the good functioning of each part adaptation and intelligent coexistence among all is essential.
The name Sumbiosi has its origin from his observation. We wanted our name to be an extension of our philosophy.
From ancient greek "sumbiôsis" refers to an intimate and sustainable relationship between organisms. It reflects the mood of our house, which aims symbiosis between the resident and the house; between the house and its environment; the resident and its environment for a better life together. Our project comes from a symbiotic relationship with its environment and nature in general.

A. DEFINITION OF THE COMMUNICATION POSITION

The purpose is to reflect the spirit of the project, values we wish to highlight. Sumbiosi's priorities are a mix between objective and subjective values. Three main points are at stake:

- Sustainable development
- Innovation
- Man at the heart of the project

B. DEFINITION OF THE COMMUNICATION OBJECTIVES

Three objectives guide our entire communication project

- **Notoriety Objective:**

- Raise the visibility of the project: architectural concepts and innovative technologies
- Expose project's actors and project's supports
- Demonstrate about the Solar Decathlon Europe and emphasize about team ABC's participation

- **Image Objective:**

- To give a differentiating image:

The Green Triangle: a new house model With an interplay between
Human/ Bioclimatic Architecture / Technologies

Three elements linked together and which interact in symbiosis They are the cornerstone of a Human/Nature/Habitat perfectly balanced which respect the earth.

- Sumbiosi should appear as an innovative home which respects both environment and residents.

Develop the project, keeping in mind that a mission the industrialization of the house after the competition.

- **Behavioural Objective:**

- Raise curiosity, give information about the project.
- Explain about wood construction, giving decisive arguments about this kind of construction.
- Raise awareness about eco-conception.

C. TARGET GROUPS

We have three specific target groups and, in each of them, we have a target core.

- General public / Kids & Young Public
- Visitors of Solar Decathlon Europe & the other Teams/ Jury
- Professionals/ Partners
- Press

Raise public attention is one of our primary objectives and mostly the youth, they are the future generation. It is easier to be understood by them because they are more receptive to this message. Respect the ecosystem should become an habit for them.

D. ACTIONS' DESCRIPTION

Our communication project helps us organize our communication. For this, we have decided to distinguish it into several sub-parts that allow us to treat each target group, each media, and each message with ease. Since this is a two year long project with lots of opportunities and we want to make sure we make the most of it, we consider this is the best way to develop our communication.

First of all, we decided to divide our communication project in five phases, to guarantee our communication would evolve alongside with the project.

- "Meet Our Team" Phase
- "Meet Our Project" Phase
- "Meet Our Building Process" Phase
- "Meet Our Competition Live" Phase
- "Meet Our Prototype" Phase

The main thing to retain from the structure of our communication project is that we want to advance step by step, and selecting a specific message for each phase allows us to emphasize on a main topic while being able to touch all of our target groups.

Besides structuring our communication plan around our message, we chose our main objectives and how are we going to accomplish them. As for every main part of our project, we decided to organize our main objectives in a chronological way. This should allow us to visualize a specific strategy for each of them.

We have decided to make the Internet, and most specifically our webpage, Facebook and Twitter, our main supports for our communication. After all, we're talking about an international competition and Internet is an open door to the world.

In all, the organization of our communication plan is our strength. Dividing every big factor into a small one make things easier to manage , gives us freedom in our creativity process and allows us to reach our different target groups in special ways ensuring this way a better success.