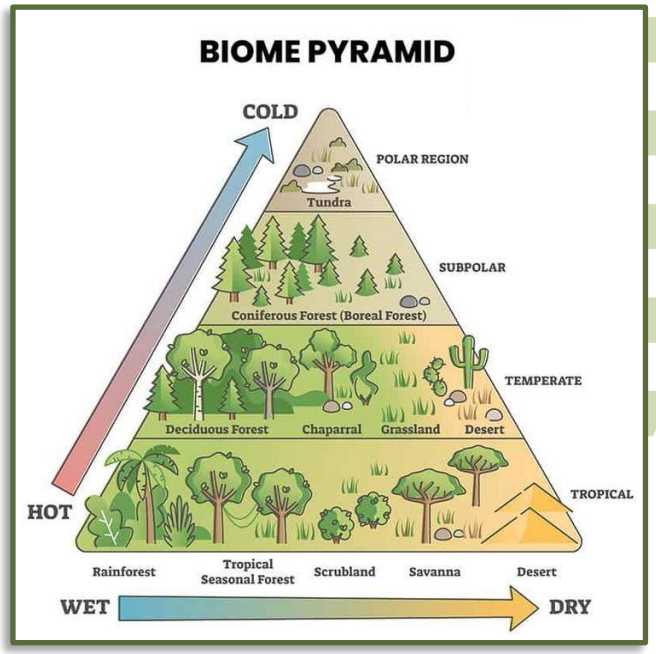
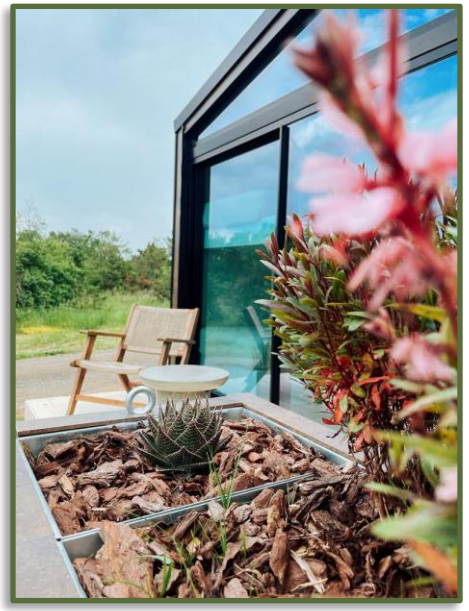

biome
space
natural
way of living
Presentation of Biomespace
Naturetech autonomy housing

Biomespace, naturetech habitat

What is a biome?

A biome is an ecological unit, also known as a biotic area. It refers to a large geographical area that shares a climate, and which represents the habitat of a similar fauna and flora: a set of ecosystems with identical ecological conditions. The climate determines the type of soil, flora and fauna, creating ecosystems with biodiversity that are sometimes very similar, without being geographically connected.





What is a biomespace?

Biomespace is a new generation of housing, made up of modular units
Biomespace is a naturetech home, i.e. using new technologies with the aim of preserving the environment and ecosystems (soil, water and biodiversity).
Self-sufficient in water and energy, independent of networks, without footprint, the Biomespace is the first high-tech housing that is truly respectful of the environment

biome space naturetech habitat

Definitions

Naturetech – technologies that support the implementation, acceleration and growth of biodiversity-related solutions. They encompass a range of actions designed to protect, sustainably manage and restore natural ecosystems by combating habitat destruction, deforestation, land degradation, water pollution, species loss, etc.

Habitat – an area that provides conditions suitable for the life and development of an animal or plant species, as well as humans.

Naturetech habitat – use of "Naturetech" technologies to create a habitat that protects, respects and sustainably manages our natural spaces, fighting against air and water pollution and soil degradation

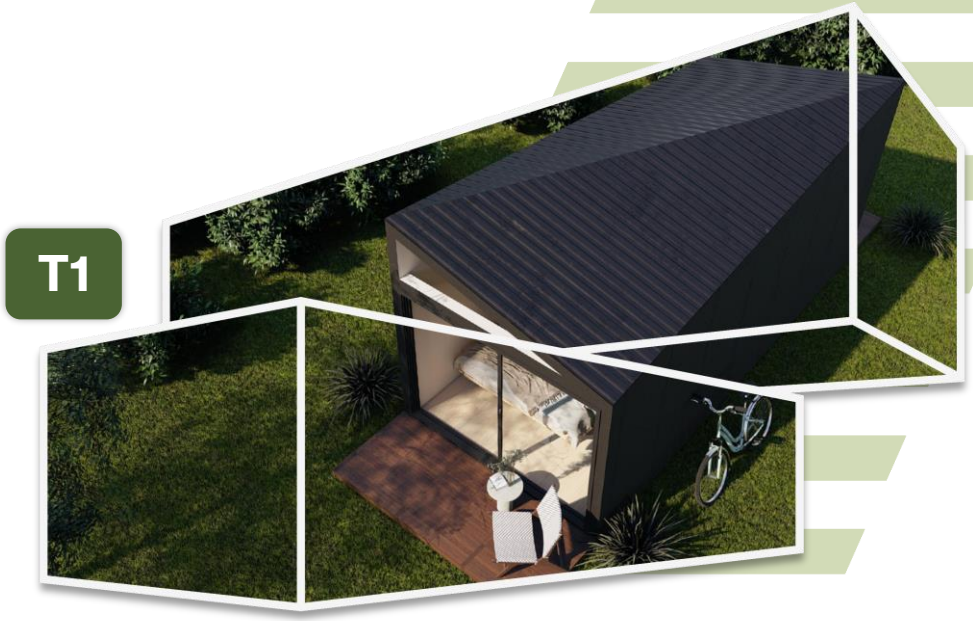
Biomespace is the first home designed around "naturetech", totally autonomous, which respects the environment and provides sustainable solutions to current environmental challenges.

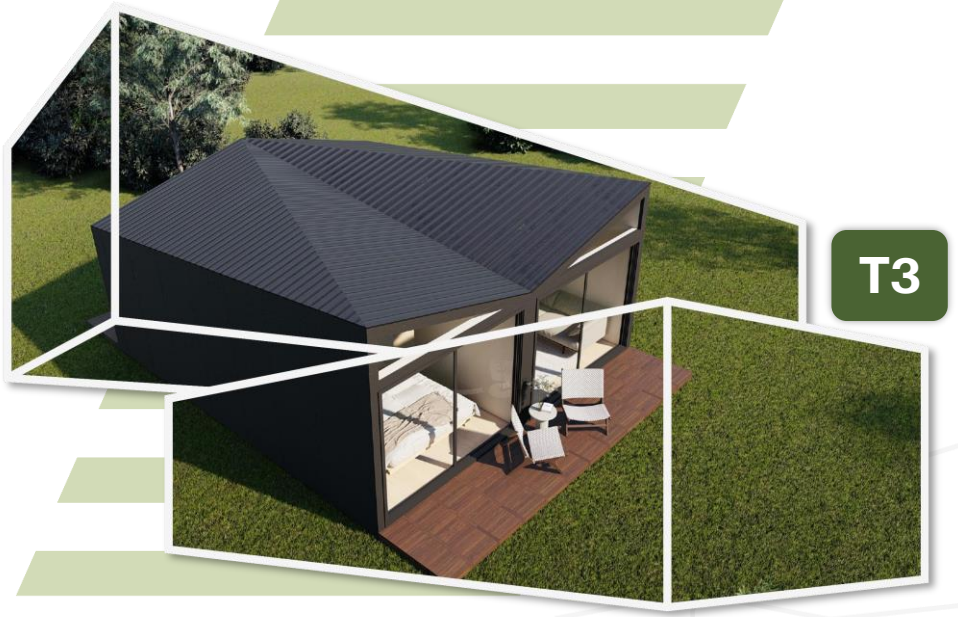
biome space naturetech habitat

The biomespace concept

An autonomous, eco-responsible, sustainable and completely independent construction.
Biomespace is a new generation housing, totally autonomous, without any connection to the networks or footprint, built off-site.

Biomespace is a modular solution. We work on mass productions. All our biomspaces are composed of a 20m² module, whose interior layout adapts to your needs. A 10 or 20 m² extension module allows you to reach 30 or 40 m²... and several can be added, in order to achieve the desired surface.



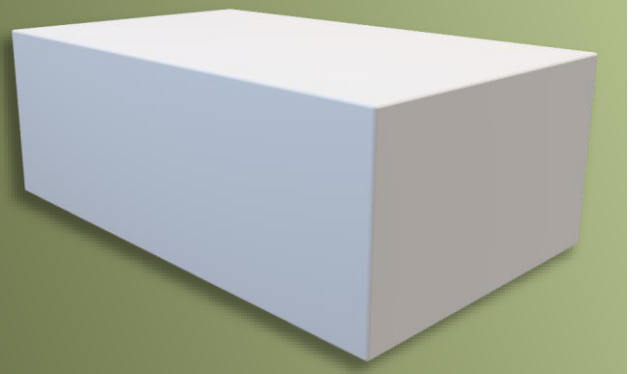


biome space naturetech habitat

The biomespace concept

Habitat of 20m²

Fully equipped, built off-site



- Dismountable and transportable
- No footprint
- Modular interior design
- Possible extension by module (20m²) or half module (10m²)
- Ten-year warranty (including battery life)

Naturetech

Triple Autonomy

Electric autonomy

+ Water autonomy

+ Sanitary autonomy

biome space

Problems and Solution

Housing Problems

- Energy crisis
- Droughts
- Pollution
- Artificialization of soils
- Carbon Footprint

Focus on the problems in the appendix of the document

Our Solution to the Housing Crisis

biome space

- Electric autonomy
- Water autonomy
- Sanitary autonomy

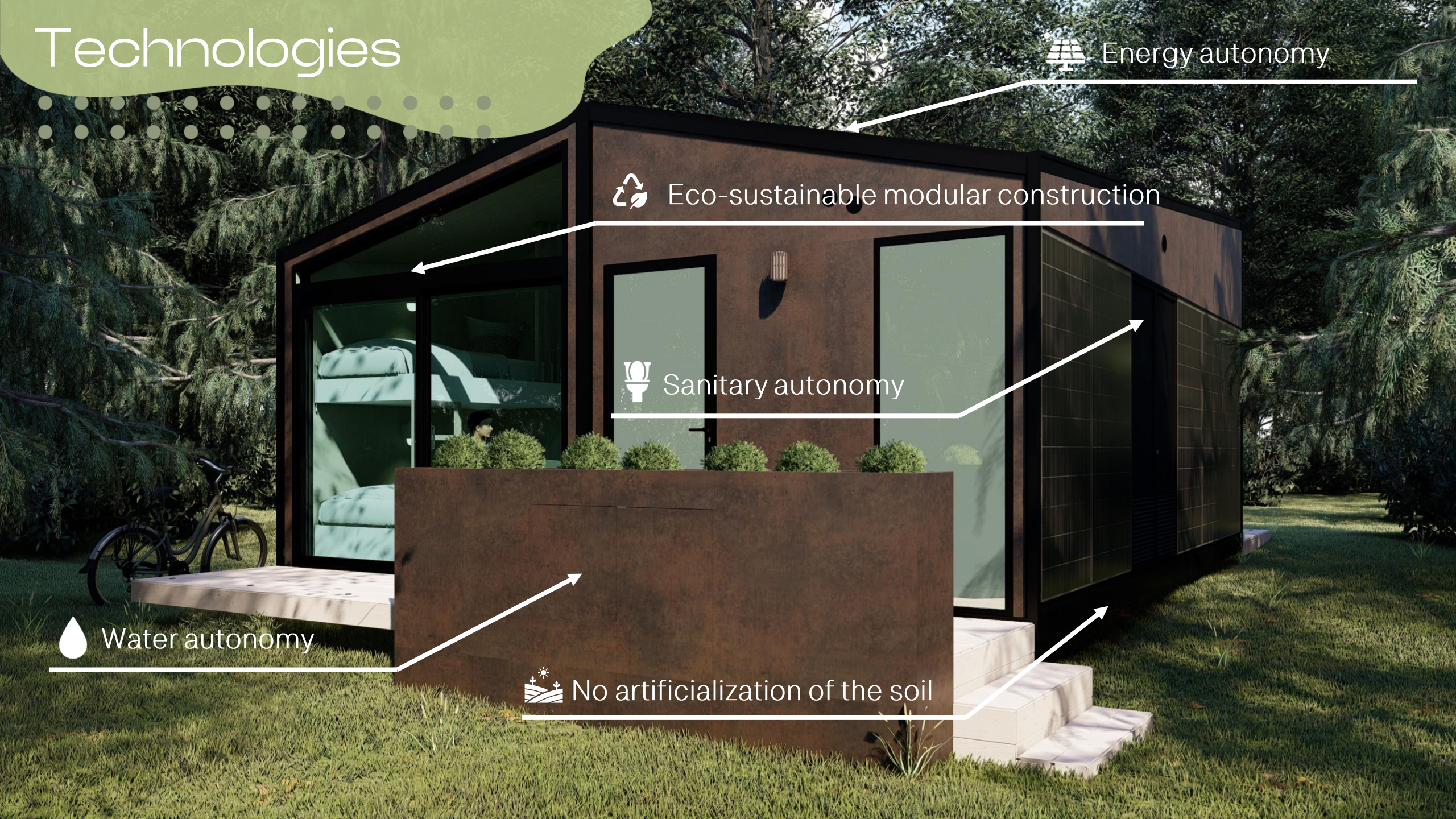
Naturetech
Triple autonomy

- Non-artificialization of soils
- Off-site production

Off-site modular housing

biome space naturetech habitat

Technologies



Technologies – Focus on electricity

Energy autonomy

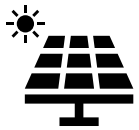
All our biomspaces are equipped with solar panels on the walls and roofs and high-capacity batteries, ensuring total energy independence, with no grid connection required.

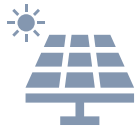
Our biomespaces are equipped with all modern appliances (fridge, washing machine, dishwasher), managed by an integrated home automation system.
Our hybrid solar panels (thermal and photovoltaic) make it possible to manage electricity but also the thermal regulation of the home and the heating of water.

Technologies – Focus on electricity

Electric Autonomy – Production

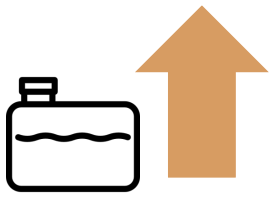
Clean, renewable electricity generation
Overproduction in relation to needs






Photovoltaic panel + Wind turbine + Hybrid Panel

Hot water + temperature control from the inside

Energy stored in batteries. An inverter converts the energy into alternating current, which is then used by the Biomespace

Hot water storage tank + preheating sanitary treatment unit

Energy autonomy is ensured by a set of electrical panels.

The photovoltaic panels, positioned on each side and the roof, generate energy from morning to night.

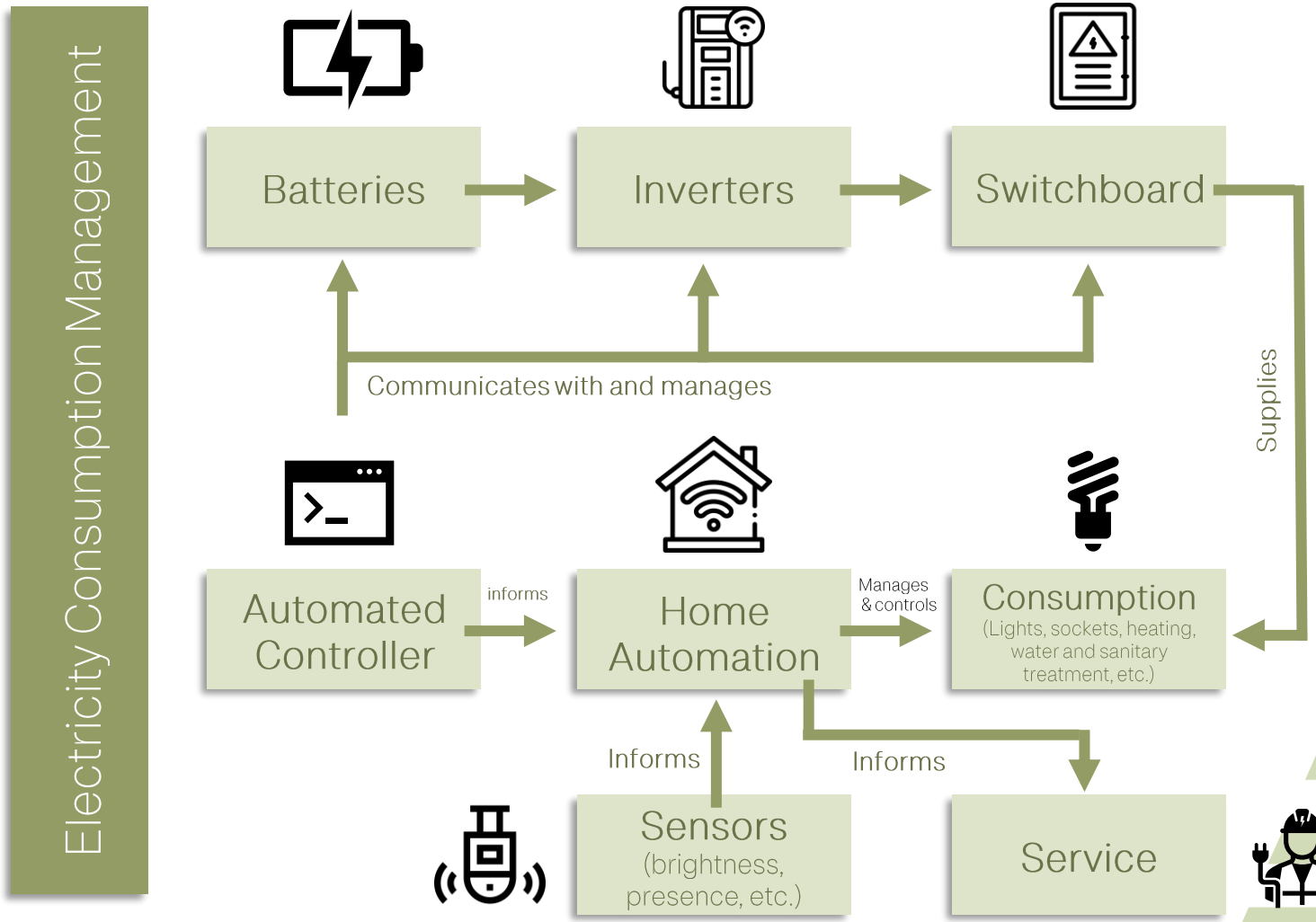
Hybrid panels generate electricity and help heat water and air through heat exchange.

In case of bad weather, a wind turbine and batteries provide additional energy.

biome space naturetech habitat

Technologies – Focus on electricity

Electric Autonomy – Management



A PLC communicates with the entire electrical circuit in order to monitor production and inform of any risk of failure.

A home automation system manages the home, energy and water.

This system manages the use of electrical appliances, especially energy-hungry ones, depending on the time of day and production level, as well as thermal regulation.

It communicates with the user to guide him towards a reasoned consumption and with the operator to compensate for any possible failures.

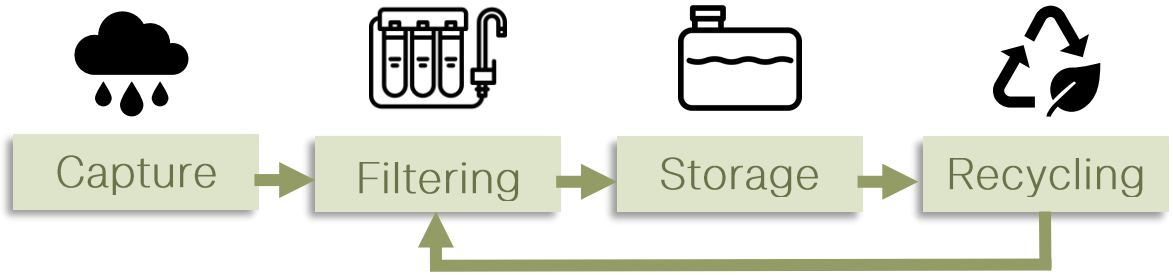
biome space naturetech habitat

Technologies – Focus on water

General principle of water autonomy

All our biomspaces are equipped with water tanks fed by rainwater recovery and a condensation system to capture moisture from the air. The network operates in a closed cycle: the water collected is filtered and treated (water purification treatment) by different types of filters.

Once the water has been treated, it is analysed and stored in our tanks, before being used and then recovered by the system, after having gone through the drinking water treatment process again, which allows it to be used in a loop without any connection.



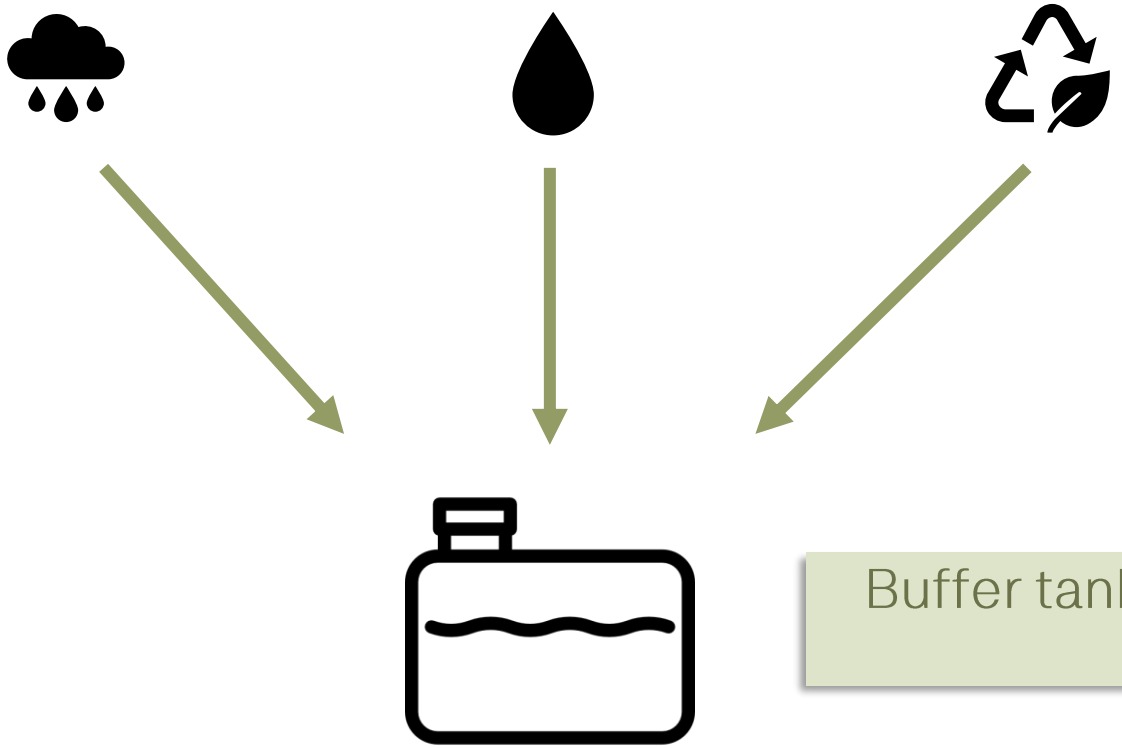
Technologies – Focus on water

Water recovery

Rainwater

Condensation

Greywater recycling



Buffer tank

Water autonomy is ensured by the recycling and treatment of grey water, which allows the same water to be used in a loop.

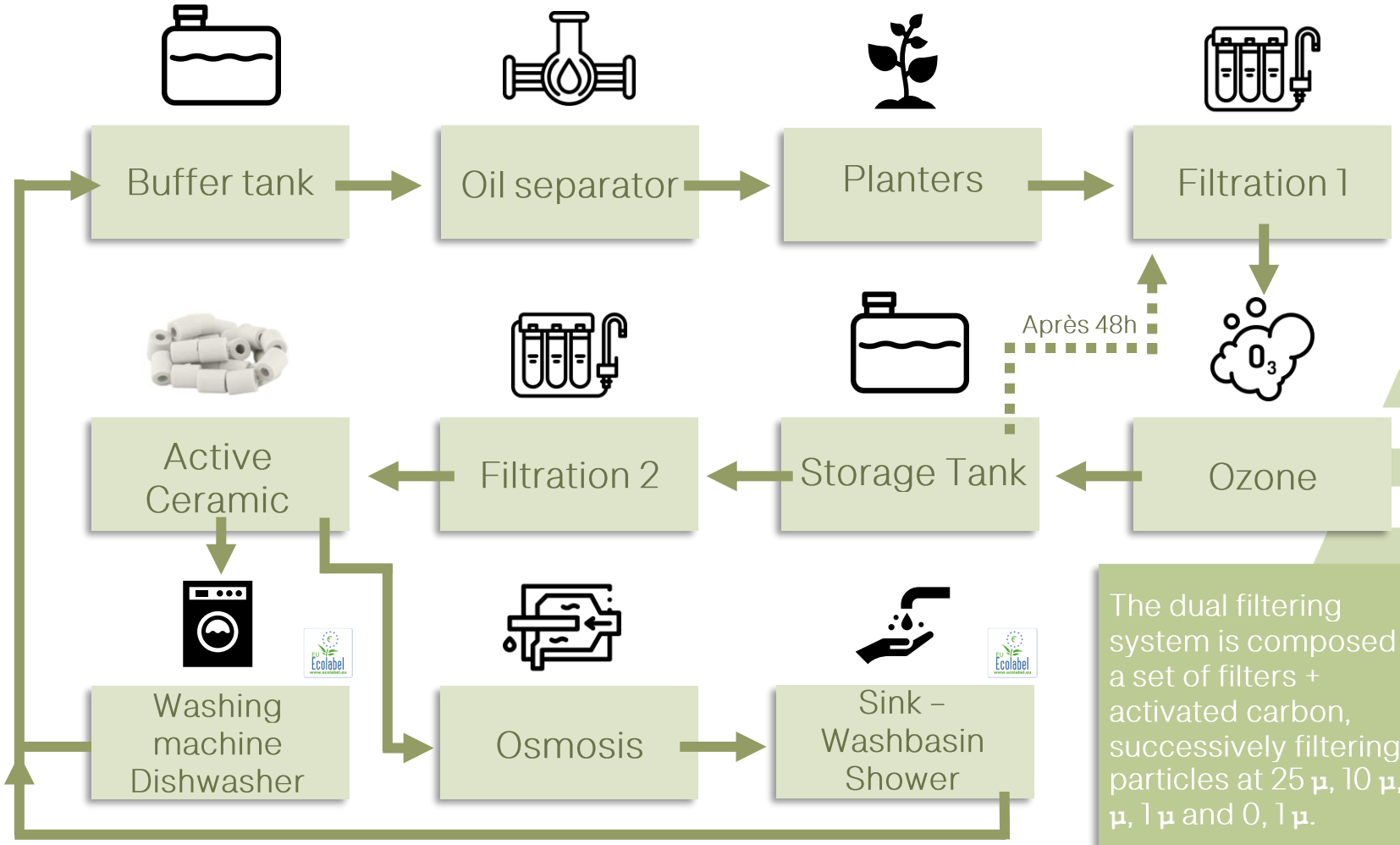
The loss is compensated by the recovery and treatment of rainwater.

In the absence of rain, a condenser allows the supplement to be recovered directly from the humidity in the air

biome space naturetech habitat

Technologies – Focus on water

Water Treatment – General Diagram



No pollution No water is discharged into the networks

Consistent use of non-polluting eco-label products

The occupant of the dwelling uses the water for washing or cooking. The water then flows into the drain pipes and is fed into the treatment unit.

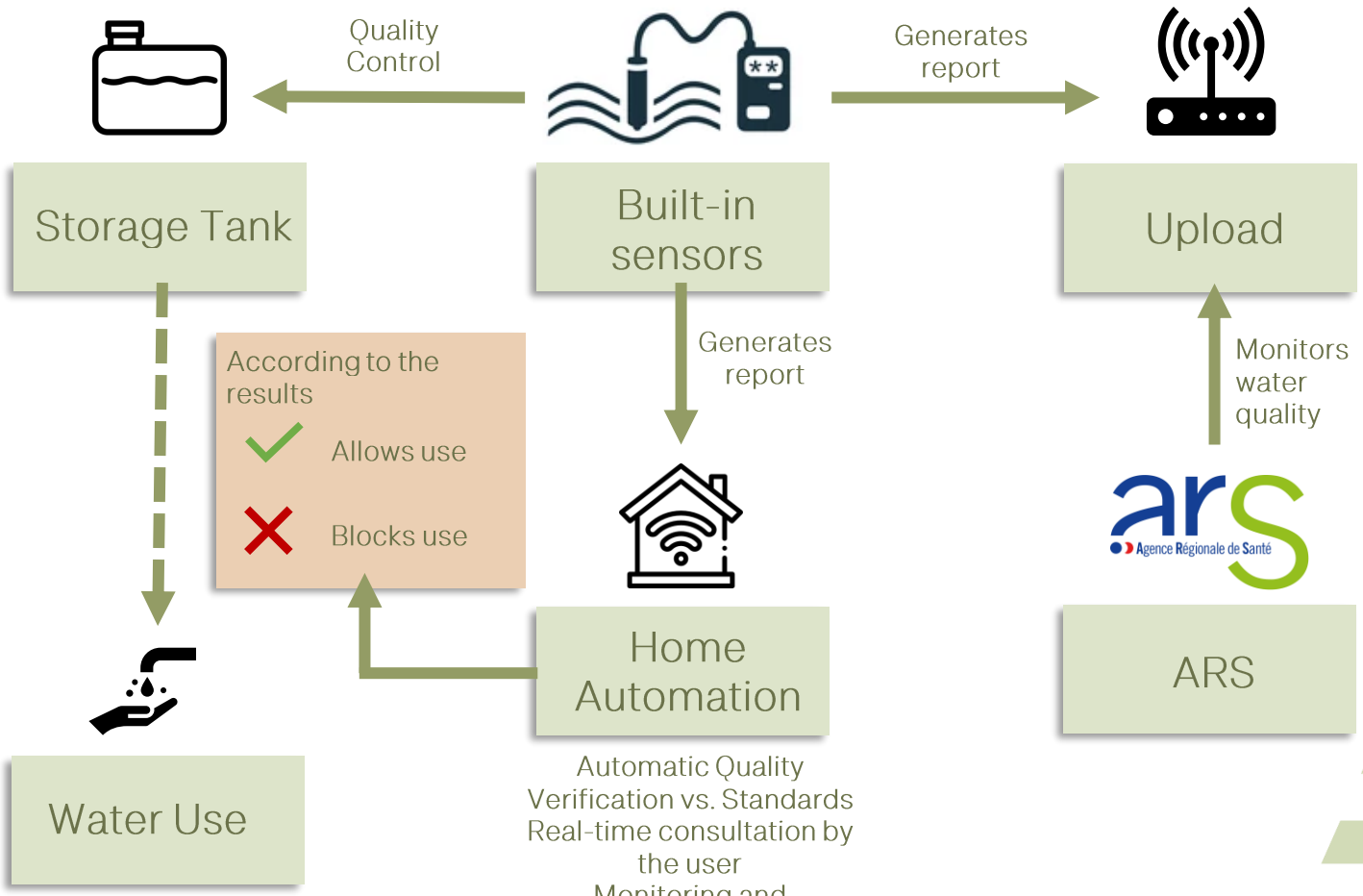
The water will go through different stages of treatment to become consumable and usable again.

For safety reasons, the water does not remain stagnant in the tank for more than 48 hours.

The dual filtering system is composed of a set of filters + activated carbon, successively filtering particles at 25 µ, 10 µ, 5 µ, 1 µ and 0, 1 µ.

Technologies – Focus on water

Control & Transmission– Schematic diagram



Water quality and safety are the main issues

The water is treated by a multitude of filters, which allows it to be of better quality than the water in the network (higher standards)

The water is tested continuously. The test results are automatically forwarded to the supervisory authorities.

Home automation makes it possible to control water quality in real time, manage maintenance and block the system in the event of a fault.

biome space naturetech habitat

Technologies – Focus on sanitary facilities

General principle of health autonomy

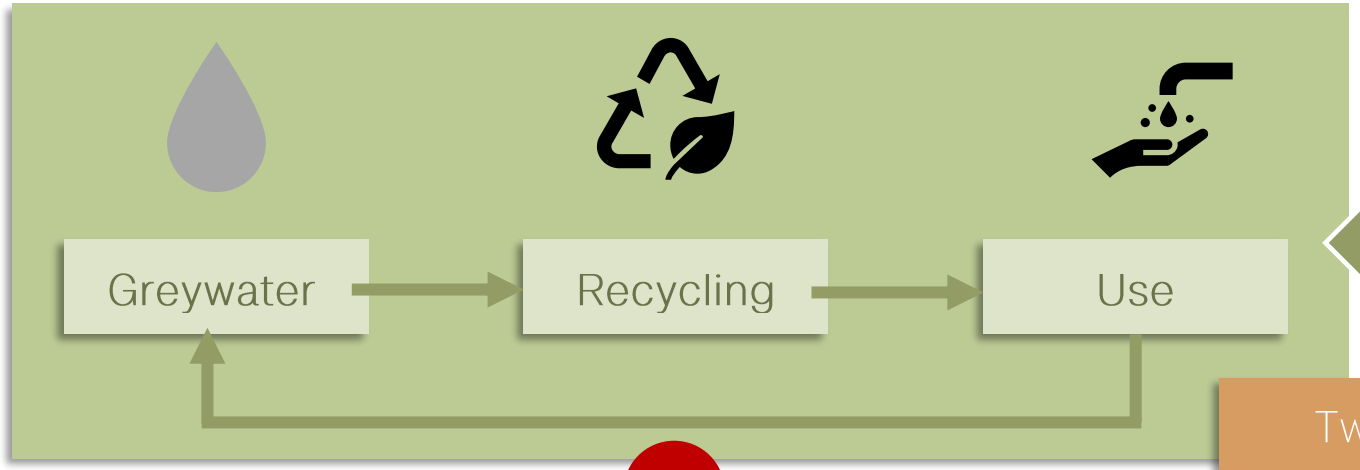
Greywater (domestic water) is collected and injected into the treatment system. No water is discharged into the network or nature.

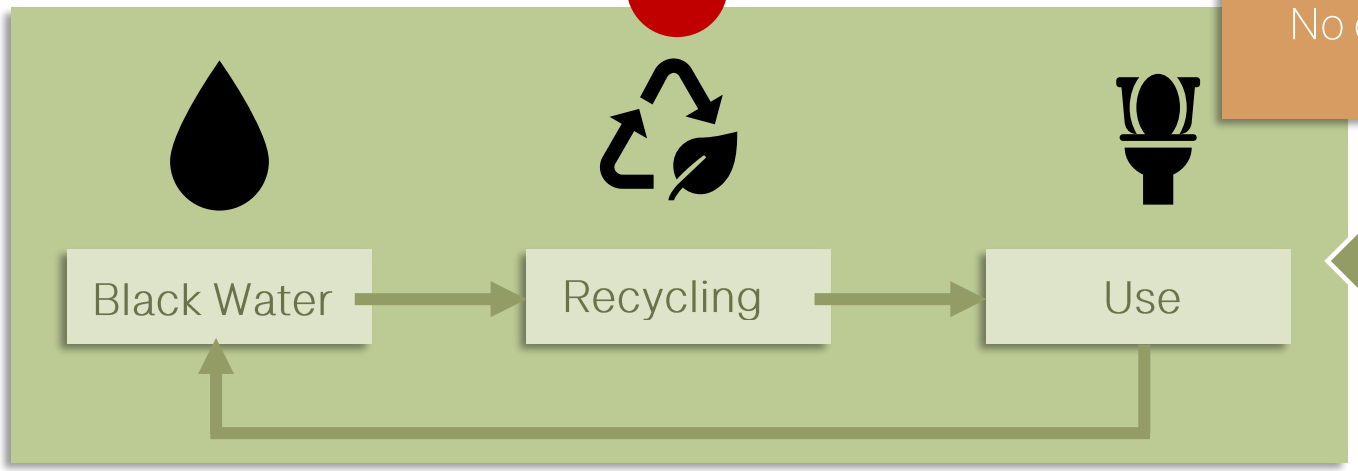
The black water (toilets) is collected in an independent and autonomous system, totally separate from that of the grey water. All our biomespaces are equipped with dehydration toilets ensuring the greatest modern comfort.

Our hydrothermal carbonization technology has been developed in partnership with the University of Porto. The solid parts are separated from the wet parts before passing through the core of a high-temperature, high-pressure reactor. The wet parts are treated, filtered and reused to supply the toilets.
No sewer connection or septic tank is required.

Technologies – Focus on sanitary facilities

General principle of sanitary autonomy





Two Standalone Networks
No communication possible

Grey water system

On-site water recycling and reuse

No pollution and contamination of networks

Black Water System

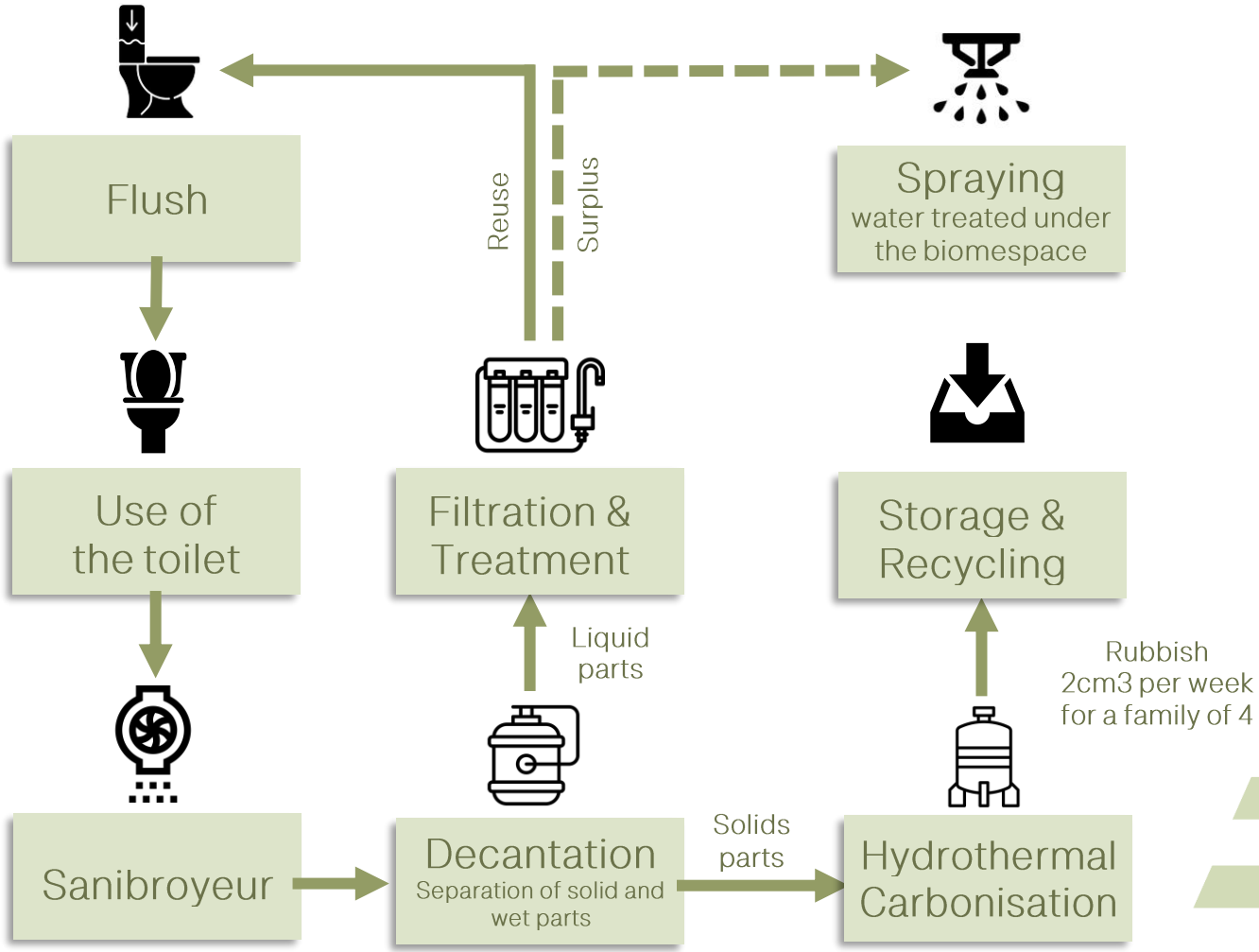
On-site water recycling and reuse, only in the toilet (flush)

Water is not reused in the drinking water network

Technologies – Focus on sanitary facilities

With U.PORTO

Health Autonomy – General Scheme



The black water is separated into solid and liquid parts by settling

The liquid parts are injected into a filtration system and then reused directly in the toilet

The excess water, after filtration and treatment, is sprayed under the biospace

The solid parts are compacted at high temperature and pressure, which destroys 100% of viruses and bacteria

biome space naturetech habitat

Technologies

No artificialization of the soil

Our biomspaces do not require any foundation or concreting of the floors. They are installed and fixed on simple foundation screws, which can be removed without leaving a trace on the ground.

Our biomspaces can be dismantled, moved and transported. They can be installed permanently or temporarily in order to adapt to needs and projects. They are infinitely reusable.

biome space naturetech habitat

Technologies – Focus on non artificialization

Modular construction

Zero artificialisation of the soil
Zero concreting

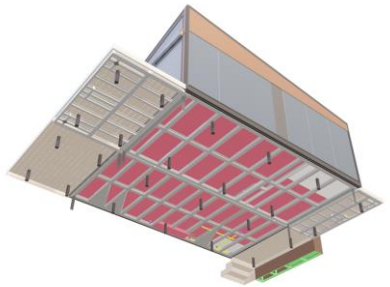
No concrete slab + No foundation + foundation screws

No artificialisation of the soil + Dismountable, movable and transportable + Naturetech Triple Autonomy

The Biomespace solution avoids any artificialisation of the soil and avoids the use of concrete.

Easily dismantled, moved and transported, all in less than a day, Biomespace can be used and reused according to the needs of local authorities.

Representing an asset with regard to the Resilience Law, and not requiring servicing work or access to the networks, Biomespace can be deployed, at the level of the urbanization plan, in naturals zone



biome space naturetech habitat

Technologies

Eco-Sustainable Modular Construction – Off-Site

Our biomspaces are assembled in our factory in Portugal, a production method that reduces time, complexity and carbon footprint, without reservation upon delivery. Complying with RE2020 standards and beyond, our biomspaces are built from sustainable materials, which limits the impact of construction and recycling on the environment.

Industrialization of construction on the model of the automobile industry. Our biomspaces are modular. The basic module has a surface area of 20m² and can be expanded by other modules of 10m² or 20m². The internal fittings are then installed in the form of blocks (bedroom, living room, bathroom, office, kitchen, etc.).

Technologies – Focus on construction

Benefits Ecological

Off-site production
Eco-sustainable modular construction in the factory

Benefits Economic

Sustainable materials
Less impact on the environment

Recycling
Waste treated directly in the factory

Carbon footprint
Less transport of goods and workers

Soil preservation
No discharge into nature

RE 2020
Meets standards and beyond

Modularity
Optimizes construction and enables modularity

Duration
Reduces the duration and complexity of construction sites

No reservations on delivery
Systematic control

The Biomespace Factory is equipped with Naturetech technology for water and electricity

biome space naturetech habitat

Utilisations

Collectives Uses

•Multiples
Retirement homes, student residences, etc
•Social Housing
•Temporary Housing
Seasonal workers, construction sites, etc
•Tourist accommodation
Tourist residences, hotels, PRLs, campsites, etc.

Individuals uses

• Primary and secondary residences
• Extensions
Rooms, offices, studios, etc.
•Business premises

biome space naturetech habitat

Modularity

5 controlled customization axes, inspired by the LEGO© system (assemblies of predetermined elements)

1

Technological

+ or – of technology as needed

(panel power and battery, wind turbine, etc.)

2

Extensions

Extension of the basic module by the addition of other modules of 10m² or 20m², possible at a later date with minimal modifications to the modules already in place.

Multiple Layouts
(side-by-side, offset, high, etc.)

3

Interiors

Basic housing built from different blocks (bedroom, living room, kitchen, bathroom, office, empty room, etc.)

Allows you to build hotel rooms, studios, apartments, etc.

4

External

Addition of awnings, terraces or an individual swimming pool

Choice of roofing customization among 3 types

5

Decoration

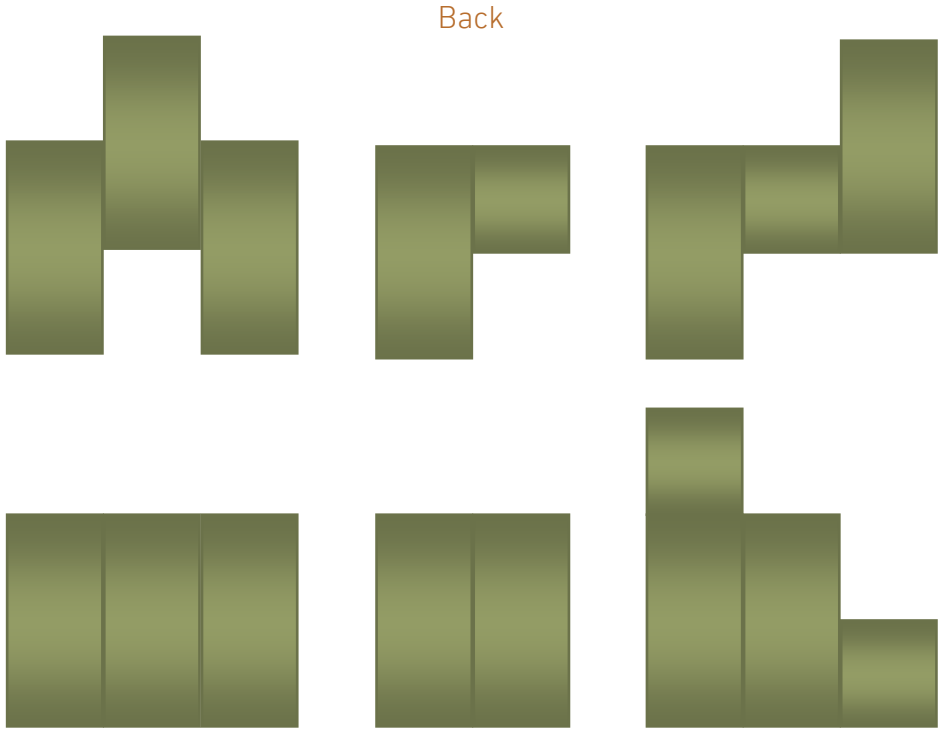
Different customization choices for decoration and equipment

(Colours of cladding and interior panels, furniture, appliances)

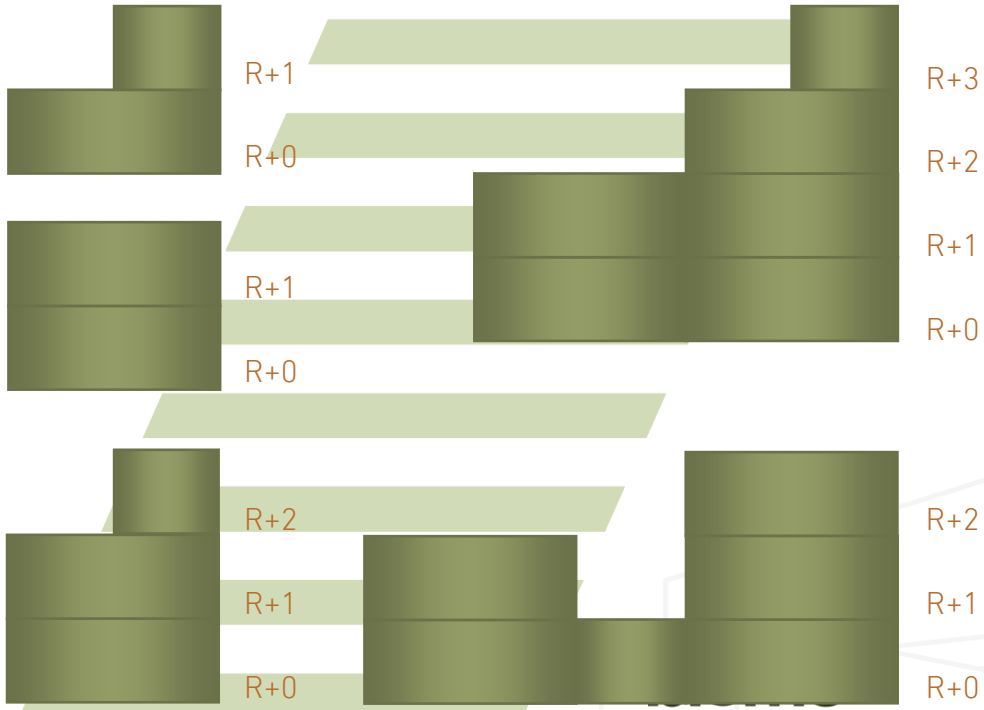
Arrangements

The modules can be arranged together in different ways to create larger dwellings or multi-family housing.

Example of a horizontal layout
(top view)



Example of a vertical layout
(side view)



space naturetech habitat

Fixtures – Collective Housing

The biomespace modules can also be adapted to the requirements of collective housing:

- Speed of job execution
- Cleanliness of the construction site
- Possibility of raising concrete buildings due to the low weight of the structures. No impact on foundations

Our technologies (solar panels, batteries, water treatment, toilets) present in the 20m² basic module can be shared between different modules, connected or adjoined, in order to form collective units. The off-site fabrication of the modules makes it possible to imagine many different layouts.

Conceptual proposals that illustrate the possibilities of combining our modules, generating several typologies of buildings in order to respond and adapt to different urban challenges.

For the sake of readability, we have not included biospace technologies in these images.

space habitat

Prototypes

biome space

A functional solution already being tested

Rodez - Aveyron

Functional T3 – Prototype v1
On display since June 2023

Château-Thierry - Aisne

Functional T1 – Prototype v2
From May 2024

biome space naturetech habitat

Projects

biome space Advanced projects in France and Portugal

Château-Thierry

Château thierry
CITÉ POÉTIQUE

Causse Comtal
Rodez

CAUSSE COMTAL
HÔTEL-RESTAURANT-SPA

ECOVILA
SÃO MIGUEL DE ACHA

São Miguel de Acha

biome space naturetech habitat

Conclusion

"There is no human problem that cannot find its solution, since that solution is within us."

Alfred Sauvy
French economist and sociologist

The problems of housing, and more specifically those of water (pollution, droughts, etc.) require a change of vision and an awareness of the issues and solutions.

It is necessary to enable and encourage change through innovation, under the control and in partnership with the authorities.

The devices (France Experimentation) allow it.

The public interest dictates it.

Political accomplishes it.

biome space naturetech habitat

YOUR CONTACTS

www.biomespace.fr
www.biomespace.pt
www.biomespace.fr/en

Website

biome space natural way of living
France

12 Rue du Meunier, 95700
Roissy-en-France
Alain Legout
alain.legout@biomespace.fr
+33 (0)6.13.22.51.40

biome space natural way of living
Portugal

Rua do Pinhal Careca nº7
4740-254 Esposende
Joaquim Rodrigues
joaquim@biomespace.pt
+351 961 125 082