



# Sumu

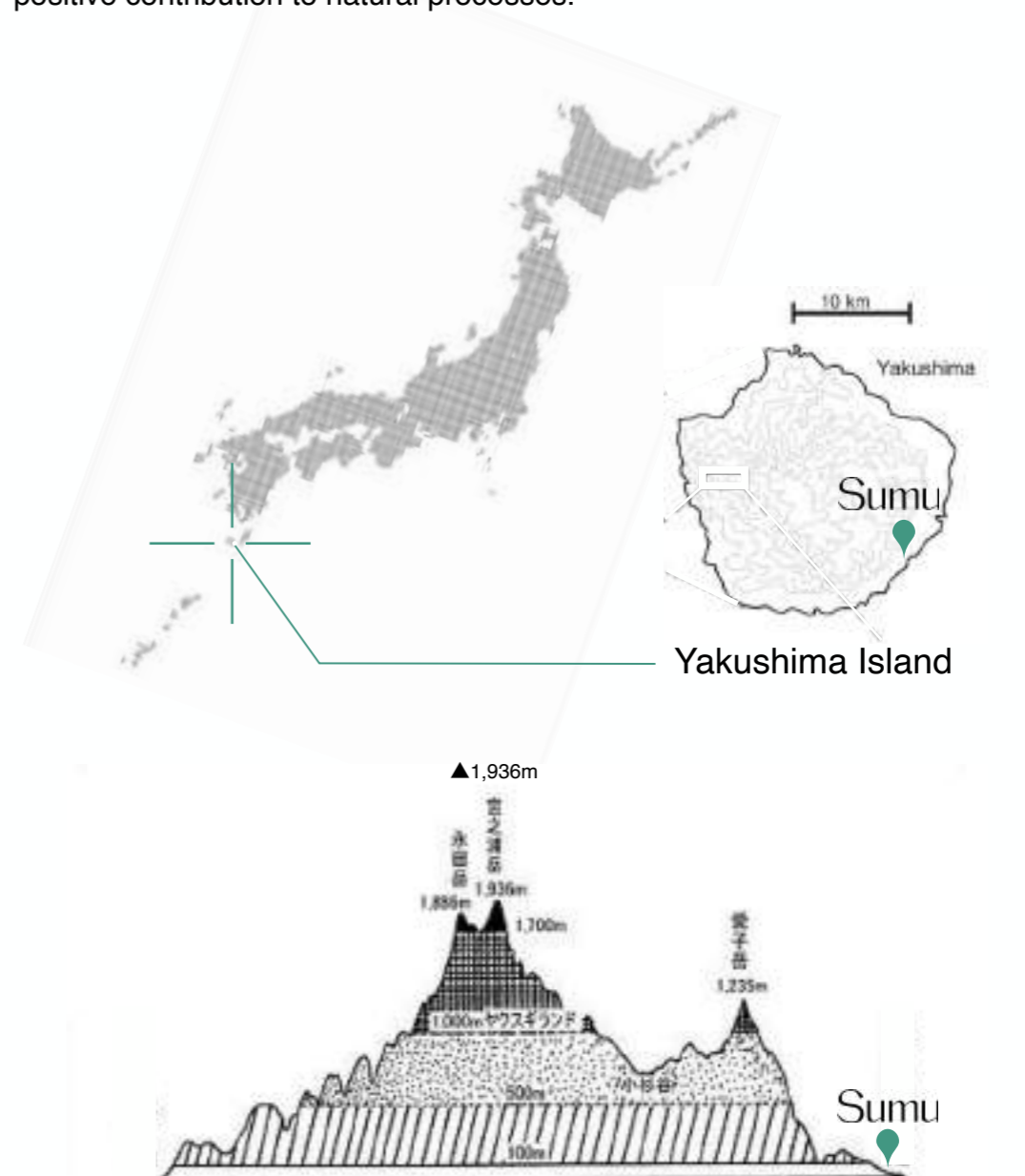
## Concept

### Regenerative Architecture & Life Style

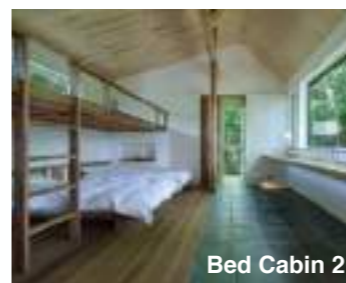
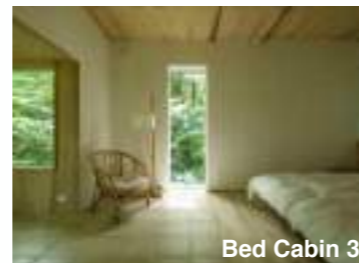
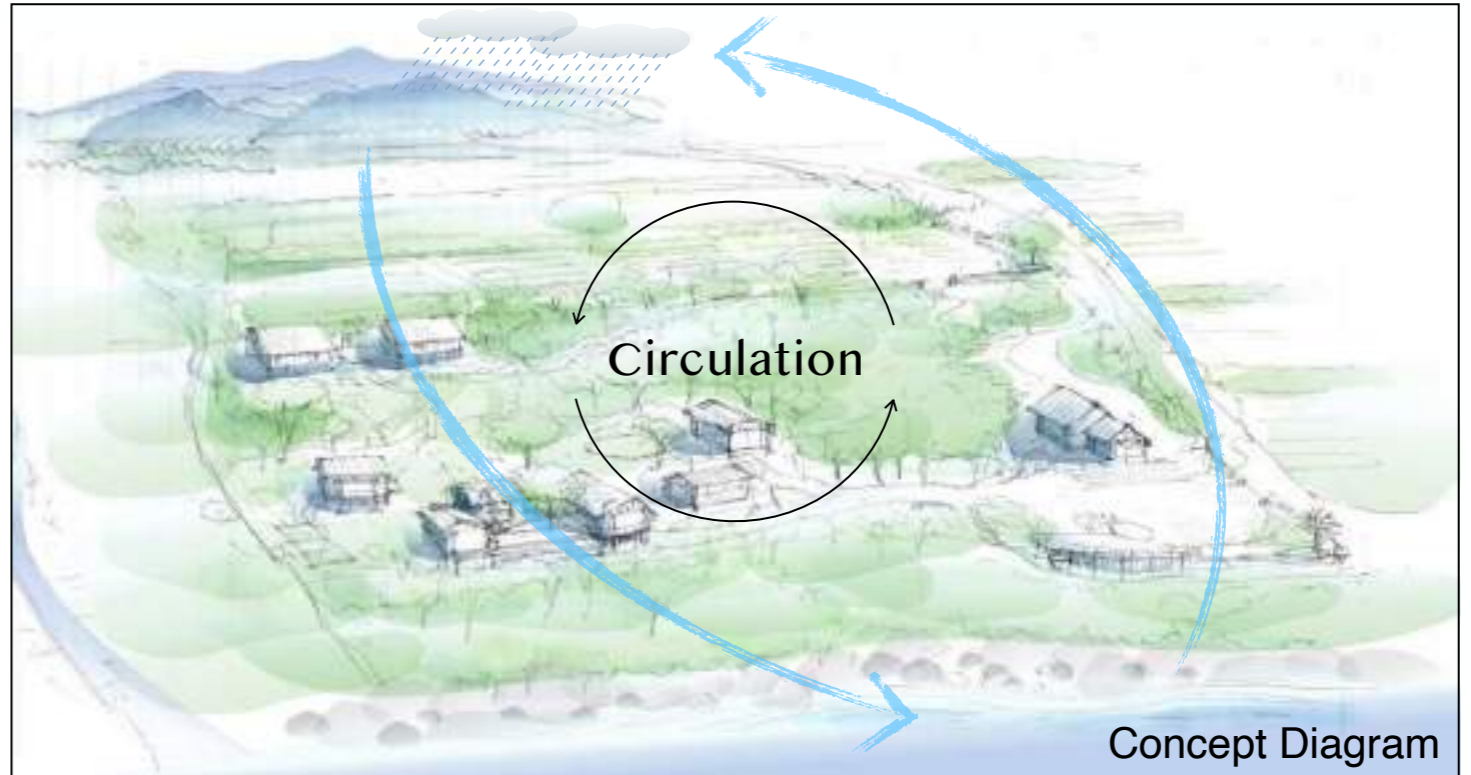
Yakushima Island is a natural paradise in southern Japan where abundant rainfall onto 2,000-meter peaks nurtures dense forests home to millennium-old Japanese cedar.

This innovative housing co-op applies "**regenerative architecture**" to reconceptualize the relationship between human habitation and this nature. The name Sumu means both "**to live**" and "**to become clear,**" expressing its core concept of living in a way that positively impacts the landscape.

Rather than being a discrete site, the design takes a **holistic view of the entire river basin, from the mountains to the sea**, making a positive contribution to natural processes.



# Overview



# Idea

## Experimental Housing with a Sense of Community

Sumu is an experimental housing co-op jointly created by eight owners. Made for use by the owners and trusted friends, it is a place for tending to nature while reflecting on values.



## Regenerative Architecture

Sumu applies "regenerative architecture," a new approach developed by the designers that combines traditional Japanese civil engineering with contemporary technology. Going beyond simply preserving nature as it is today, key considerations in the design are:

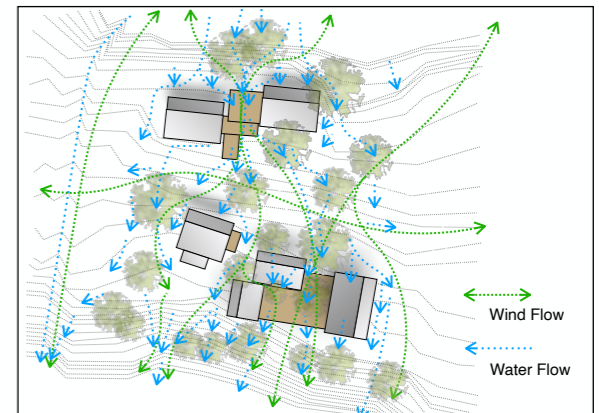
### 1. Underground design

Designing the underground environment and engaging the buildings in a constructed mycelial network promotes biodiversity in the soil.



### 2. Promoting the flow of air and water

The buildings are oriented based on an in-depth understanding of how water and air flow through the landscape. It is important to design the part considering the flow of the entire basin.



### 3. Dialogue with nature

The deterioration of buildings is a function of nature. As such, we regard maintenance as a dialogue with nature through architecture.



### Revitalized tree

A camphor tree (an evergreen tree) that had grown weak and lost its leaves was revitalized through this regenerative architecture.



2021/3/5



2022/3/27

# Form

## Architecture that bonds with nature

Sumu comprises several separate buildings to enable a layout that respects the original natural landscape. The buildings protect the tree roots and reduce the impact of the wind, while stones supply minerals to the surrounding soil and foster tree growth. Tree roots passing under the buildings support the soil, an act of symbiosis between nature and architecture.



Separate buildings are connected by outdoor paths, incorporating walks through the forest into daily activities to constantly evoke the sensation of life in harmony with nature.

## Buildings that help the forest breathe

The buildings and decks are raised, dispersing wind flowing between the mountains and the sea without blocking it. This allows the forest to breathe, promoting healthy air and water circulation. Despite the humid climate, this ventilation prevents moisture accumulation that may damage the buildings. Naturally-derived persimmon tannin is applied to the wooden structures near the soil to prevent erosion by insects. The result is a space that breathes together with the surrounding forest.



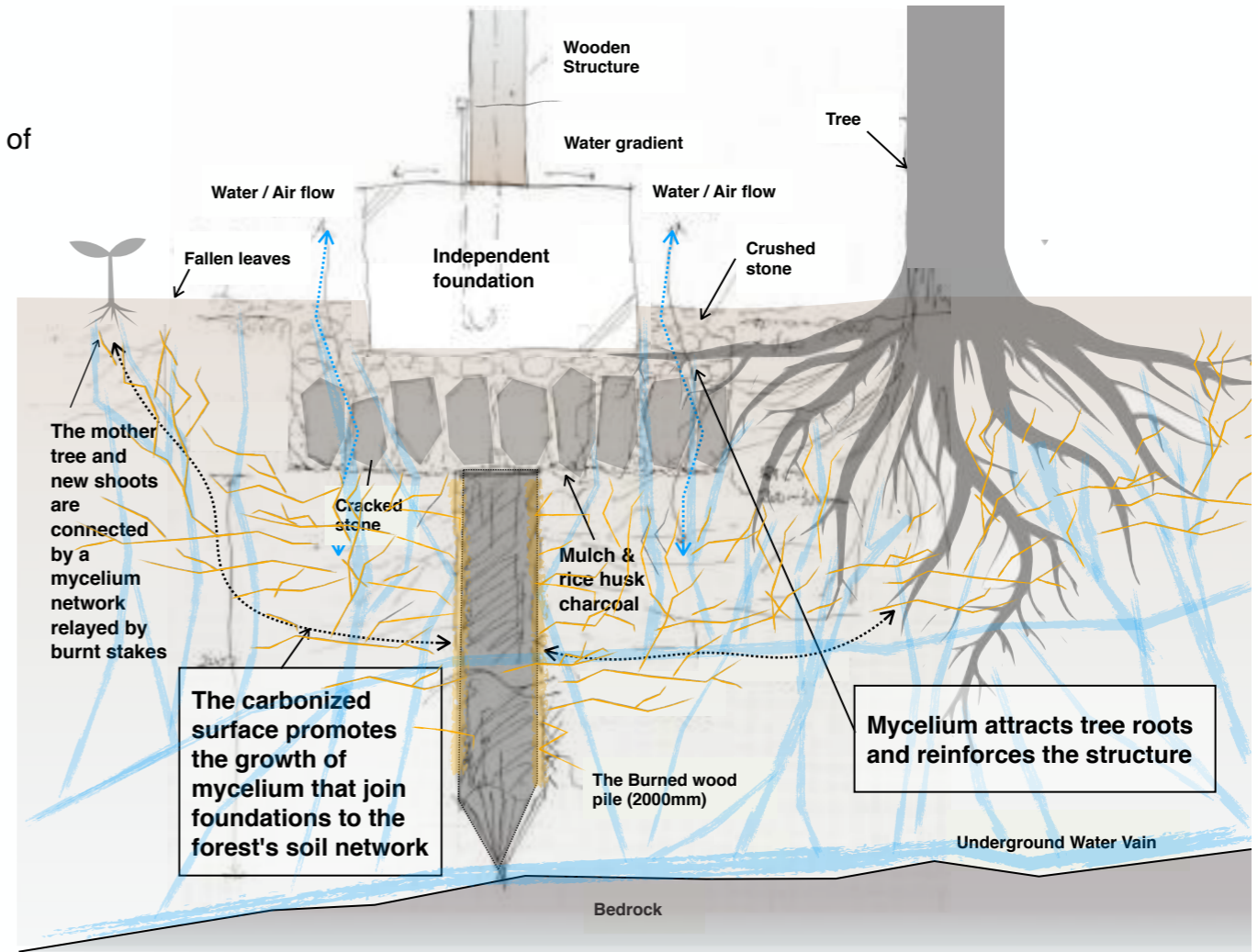
# Function

## Encouraging tree root growth to support the soil near the foundations

The design also extends underground. Burned wood is placed under the foundations of each building, and the carbonized surface promotes the growth of **mycelium (fungal threads)** that **join them to the forest's soil network**. The mycelium encourage tree root growth under buildings, strengthening the soil.



Mycelium network in the soil



## Off-grid kitchen



The off-grid kitchen made with local cedar features a solar-powered radiant heat cooker, while water is drawn from the river basin, then purified by microorganisms and returned to nature after use. The island layout of the kitchen encourages social gathering and communication.

## Illuminating spaces with the color of the earth



Lights made by local potters using clay from under the buildings reflected illumination from the mirror bulb, whose light source cannot be seen, and fill the space with the color of the soil itself.



## Local & fermented materials



Plaster made from a mix of charcoal and effective microorganism (EM) bacteria provides a healthy, comfortable space by preventing mold and other putrefactive bacteria.



Plaster + Hemp charcoal + EM bacteria

# Differentiation

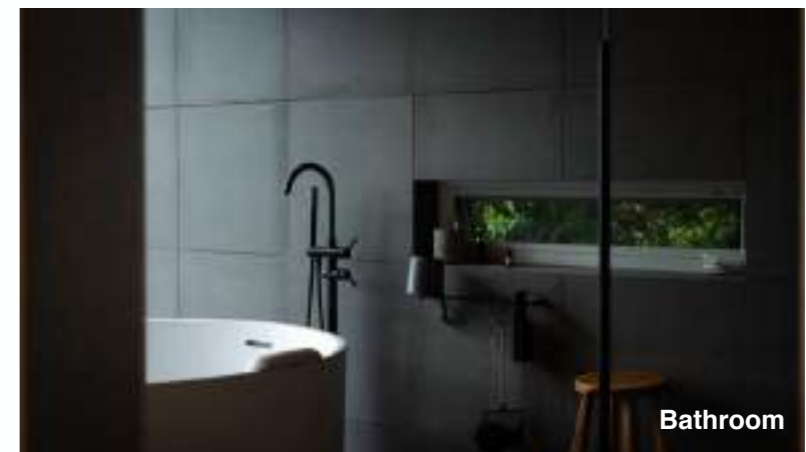
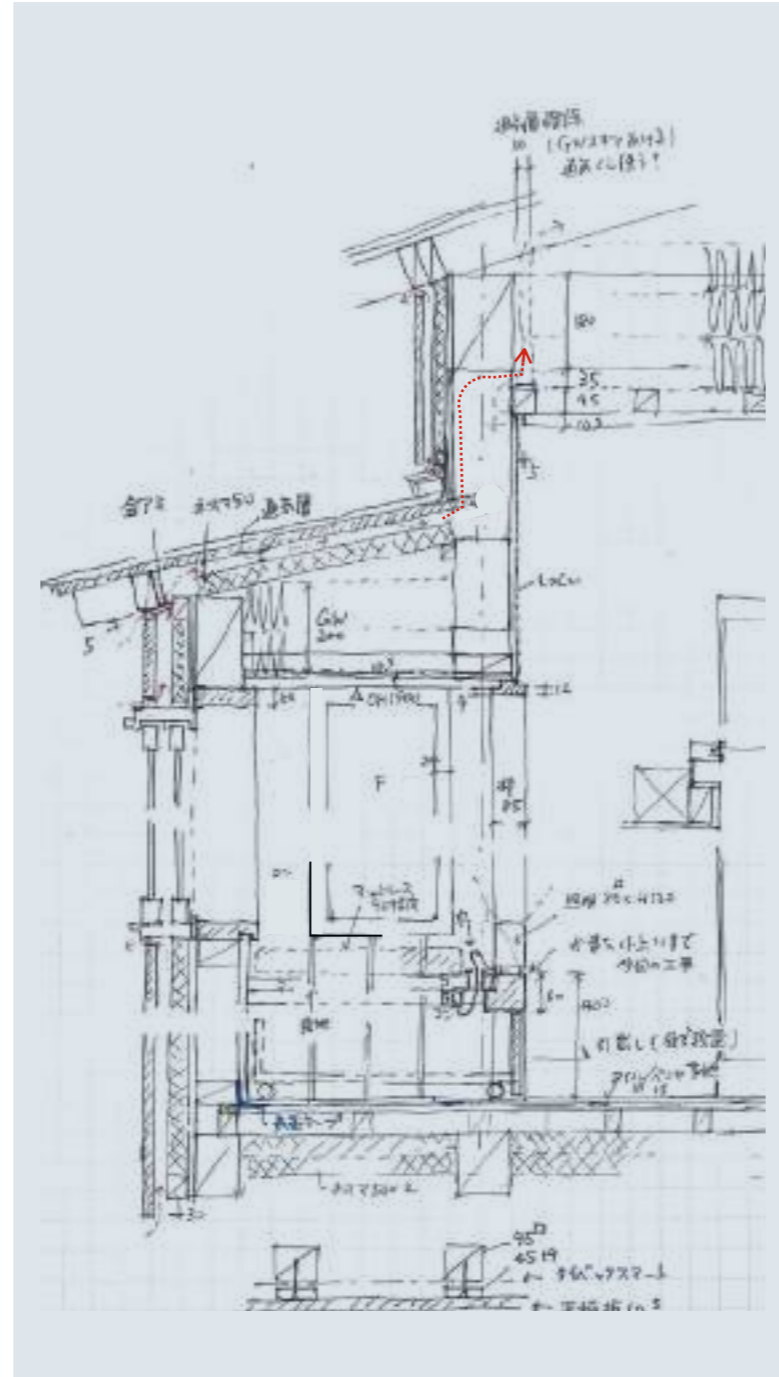
Sumu has developed a new methodology called “regenerative architecture,” whereby the buildings enrich nature. In addition to exploring modern applications of traditional Japanese wisdom, its features include:

- ①100% off-grid energy from solar power, storage batteries and local firewood
- ②Comfortable living spaces that leverage architectural expertise to achieve effective airtightness and insulation unlike camp-style accommodation
- ③Modern spaces with stylish design

A major departure from conventional nature experience facilities, Sumu encourages a wider section of society to engage in learning with the aim of bettering our planet’s future.



+



①Energy from Nature

②Effective Airtightness & Insulation


③Stylish Living Spaces

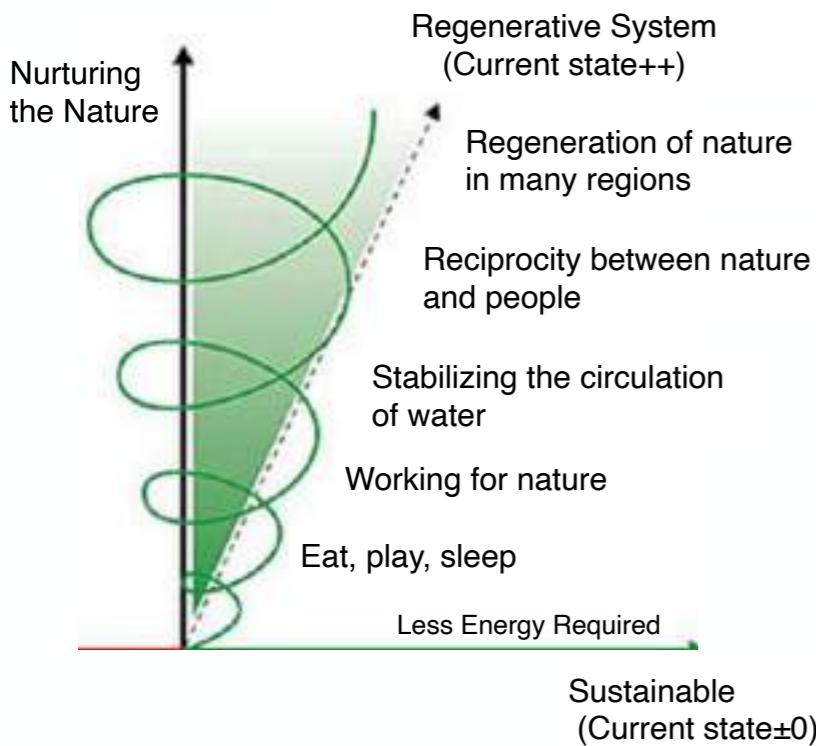
# Impact

## Regenerative Lifestyle

True to its concept of making a positive impact by living among nature, Sumu residents adopt a **“regenerative lifestyle” that enhances the environment through everyday activities**, from collecting driftwood for use as firewood to clearing grass to allow cool air to flow through in a way that benefits the landscape.

Sumu's design changes our relationship with nature. It enables residents to discover new possibilities for interacting with nature and adapt the way they think and act, building relationships with nature that transcend generations. Its unique approach has the potential to **accelerate environmental initiatives if more widely applied**.

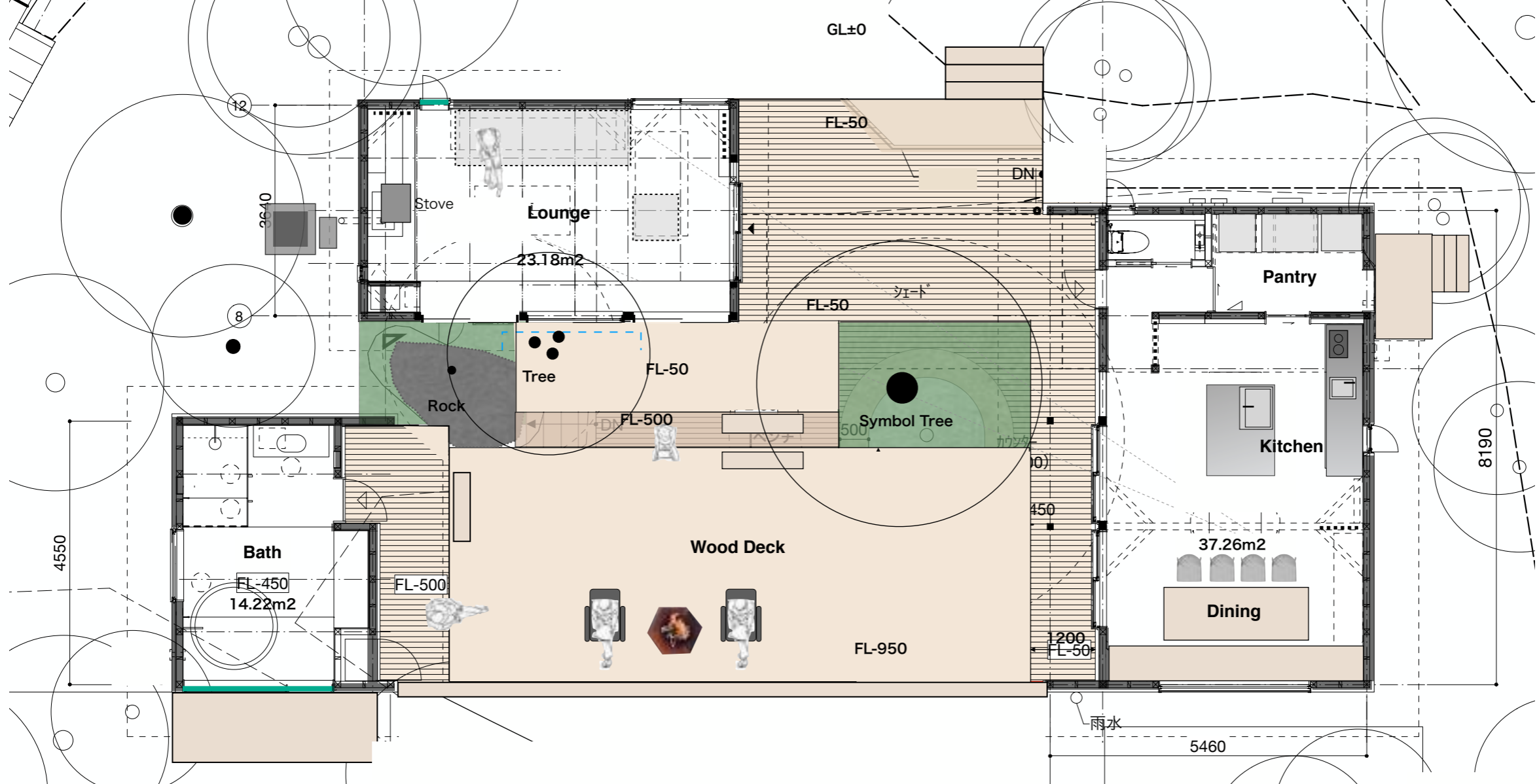
Living at Sumu = Nature Positive 



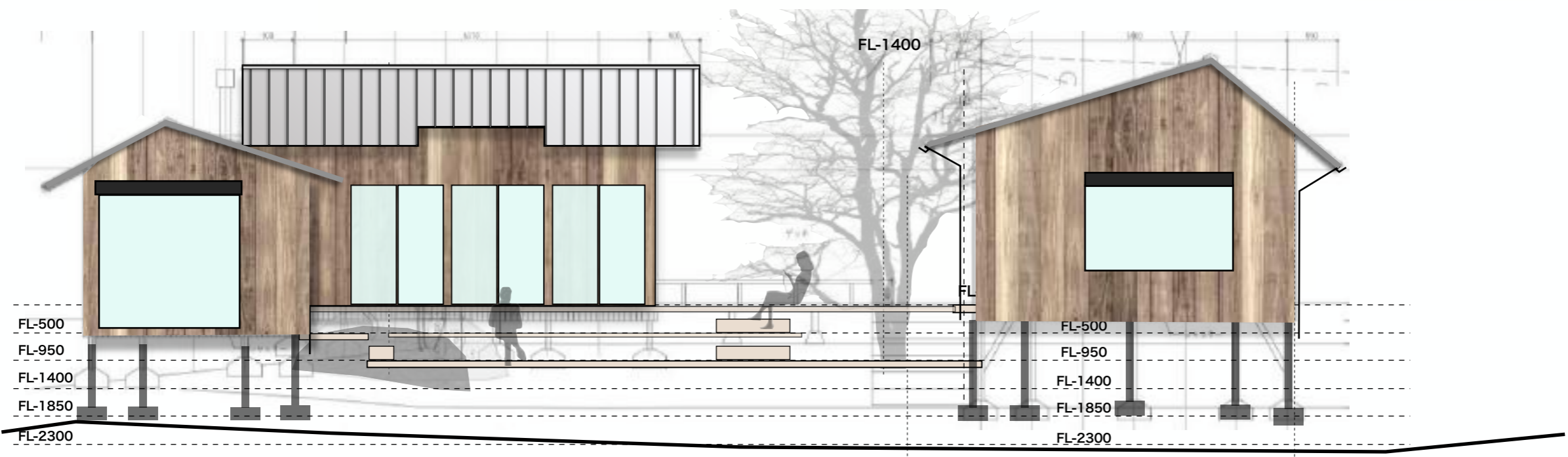
## Carbon positive cycle

The local lumber industry on Yakushima struggles to compete with cheaper wood from outside the island, and there is an abandoned plantation located upstream from Sumu. Sumu's owners perform maintenance on this area, and use wood obtained from forest thinning for upkeep of its buildings. By going beyond simply using wood to also foster the forest at the same time, this creates a carbon-positive cycle.





Living Area Plan



Living Area Elevation





Living Deck



Living Deck



Living Deck



Dining



Dining/Lounge



Bed Room Deck



Bed Room Deck



Bed Room Deck



Kitchen



Dining



Lounge



Lounge



Bath room



Bath room



Lounge



Lounge

Living Area



Bed Room (Ocean)



Bed Room (Ocean)



Bed Room (Ocean)



Bed Room (Moss)



Bed Room (Moss)



Bed Room (Ocean)



Bed Room (OM)



Bed Room (OM)



Bed Room (OM)

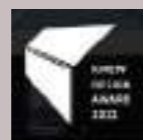
## Bed cabins

Balancing people & nature,  
Sumu breathes like a forest.

# Sumu

Yakushima

## 受賞 Awards



Architizer  
A+ Awards

公式サイト Website

<https://sumu-life.net/>

インスタグラム Instagram

[https://www.instagram.com/sumu\\_yakushima/](https://www.instagram.com/sumu_yakushima/)

コンセプトムービー(日本語)

<https://youtu.be/OQjXxLO-jUI>

Concept Movie(English)

<https://youtu.be/bm7JYGBWLI>