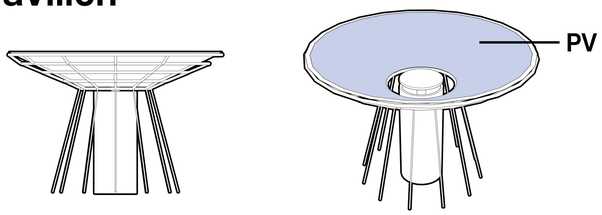
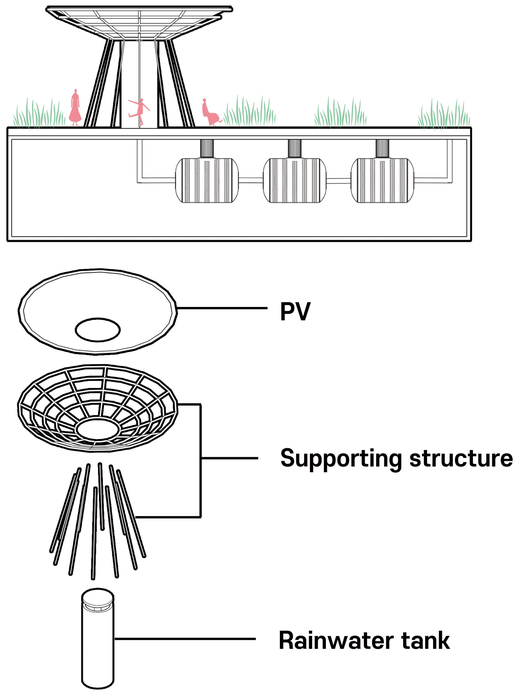
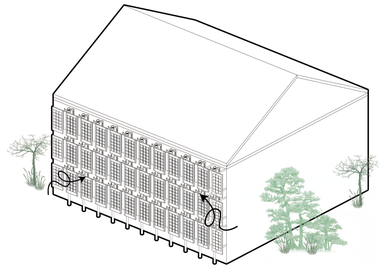
Pavilion



Solar panels are installed on top of the pavilion to supply electricity. They also serve as an aesthetic element, functioning as a sculptural feature. Since residents can rest beneath the pavilion, it naturally becomes a communal gathering space.
The central structure serves as a rainwater storage tank, transferring rainwater to an underground tank. The stored rainwater is purified through a three-stage sedimentation process.

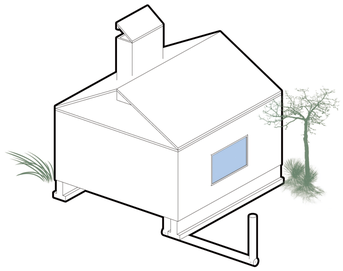


Module



Apply BIPV-BIWP system

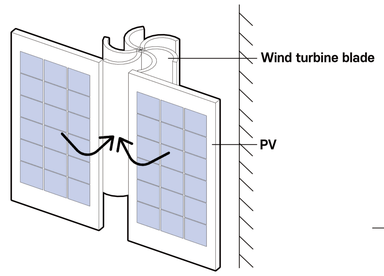
It is a zero-energy building created by combining a building-integrated photovoltaic system (BIPV) and a building-integrated wind power system (BIWP)



Apply solar chimney system

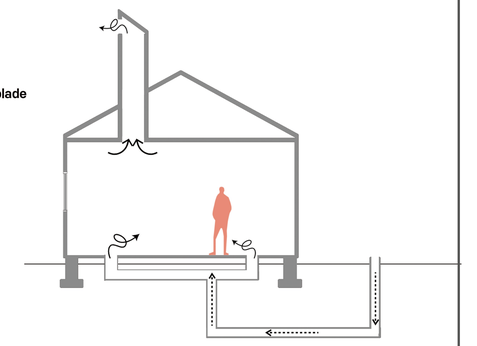
Hot air is directed underground for heat exchange, and the cooled air is then brought into the interior. This allows the indoor temperature to be lowered without the use of air conditioning.

Applied Technology



BIPV-BIWP combination

Create gaps between PV modules to allow wind to pass through quickly. A system is proposed in which small wind turbines are installed behind the PV modules, enabling both building-integrated photovoltaics (BIPV) and building-integrated wind power (BIWP) to operate simultaneously.



Solar chimney

Hot air is directed underground to undergo heat exchange. The cooled air resulting from the heat exchange then enters the interior space, allowing for ventilation without energy consumption.

Ingredient

Sand

It is an island village, located adjacent to the coastline,
making it favorable for sand supply. Modules are constructed using concrete made from sand as a material.
Even if defects occur, residents can easily repair them because the supply of materials is convenient.

Expected power generation

Solar energy

Solar panel tilt angle: 16°
Solar panel efficiency: 21%

The energy generation per pavilion is **40.08 kWh.**

Wind energy

Under the conditions of a 30 cm diameter wind energy motor (15 cm radius), 6 blades, and a wind speed of 30 km/h (8.33 m/s), it generates **9.42 W**.