

1 Concept
 Referring to the Japanese traditional Igune, which is used for mitigating the impact of tsunami and slowing down the wind speed by planting trees around the buildings especially in Northeast Japan. Considering the dangerous in bay area after the Great East Japan Earthquake, a new urban plan is proposed in this project, and the characteristics are shown as follows.
 Four programs

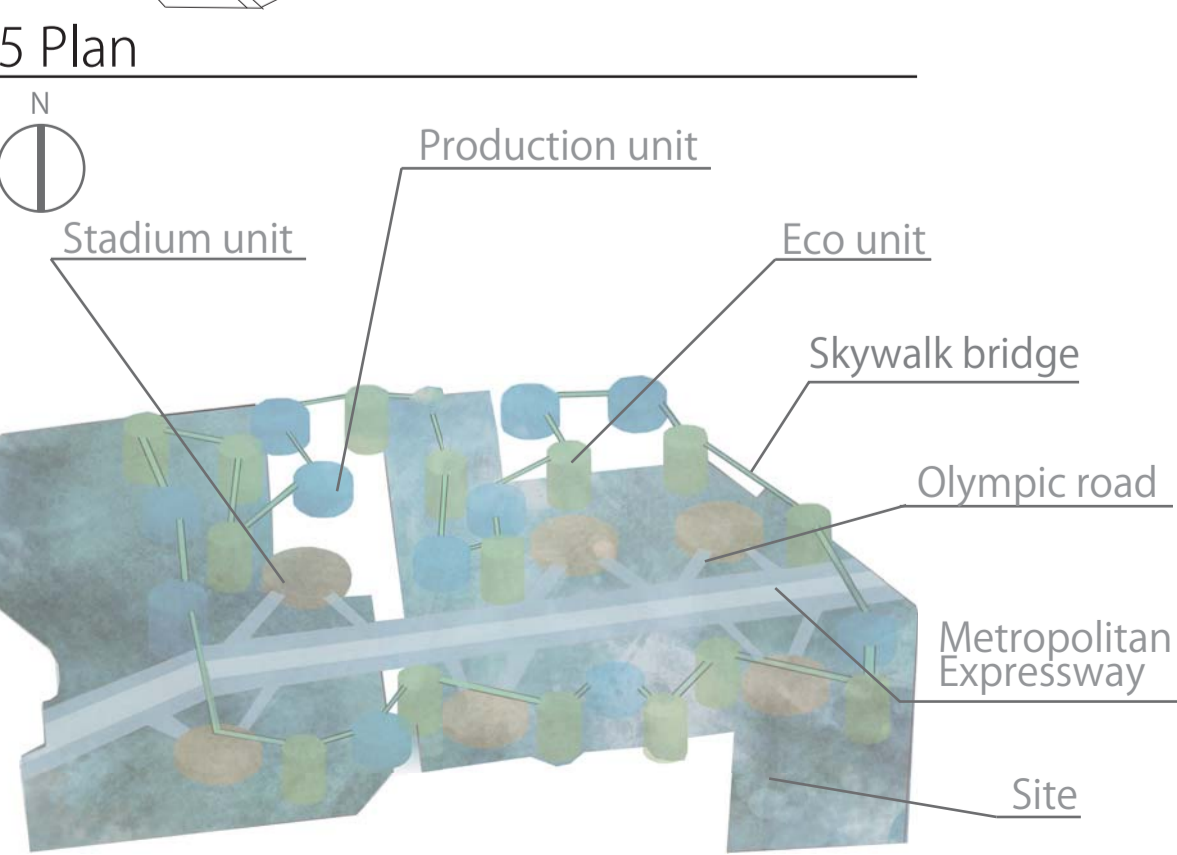
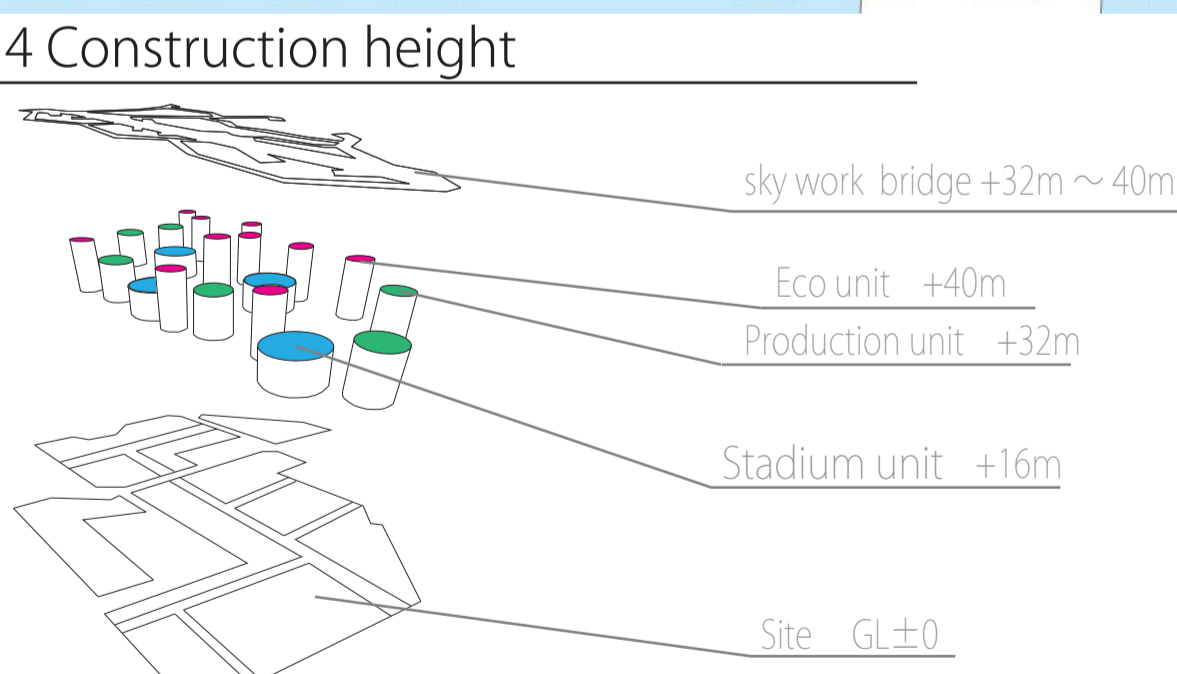
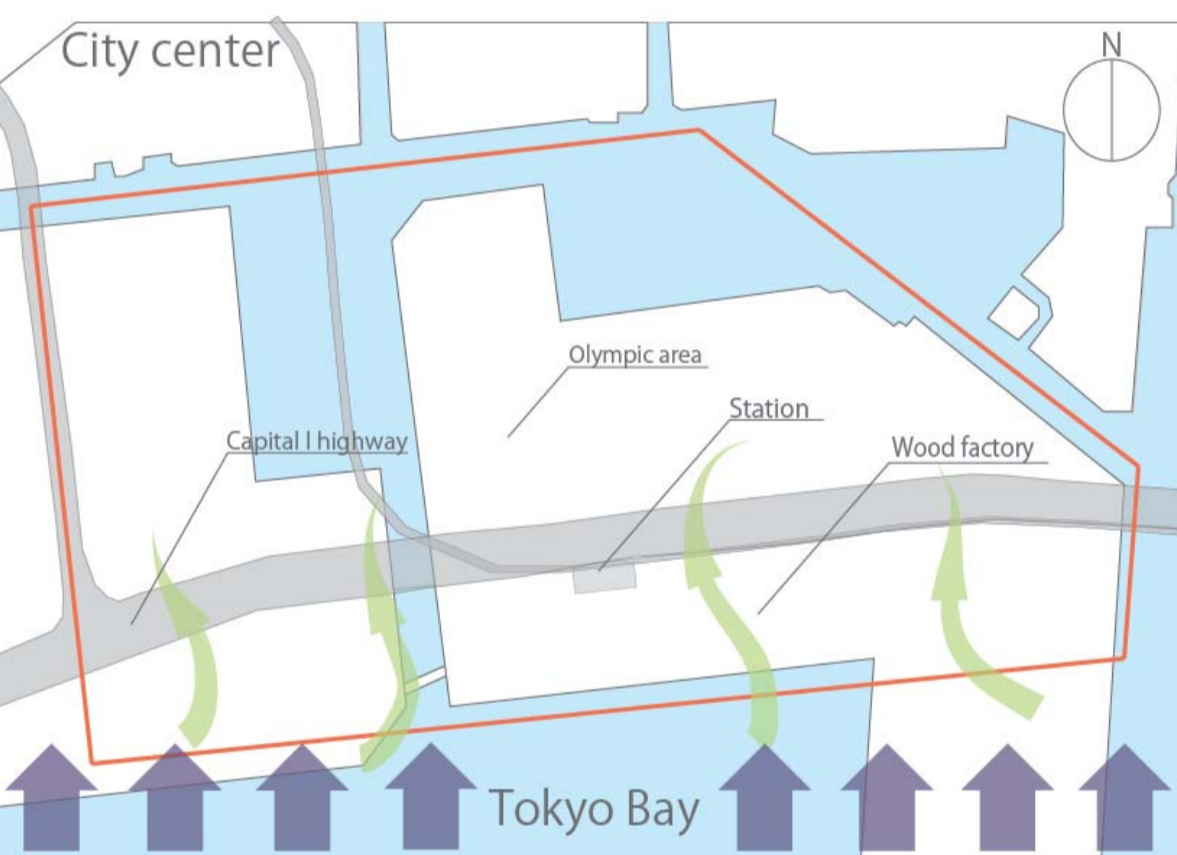
- 1, Concept of placement
- 2, Eco unit, production unit, stadium unit
- 3, Shapes of pillars and stairwell
- 4, The role of bridges

2 What's Igune
 Igune is the forest set around the building, it is also called Mansion Forest. The trees in one direction or in multiple directions of the building can slow down the wind, protect the house and mitigate the impact of tsunami.



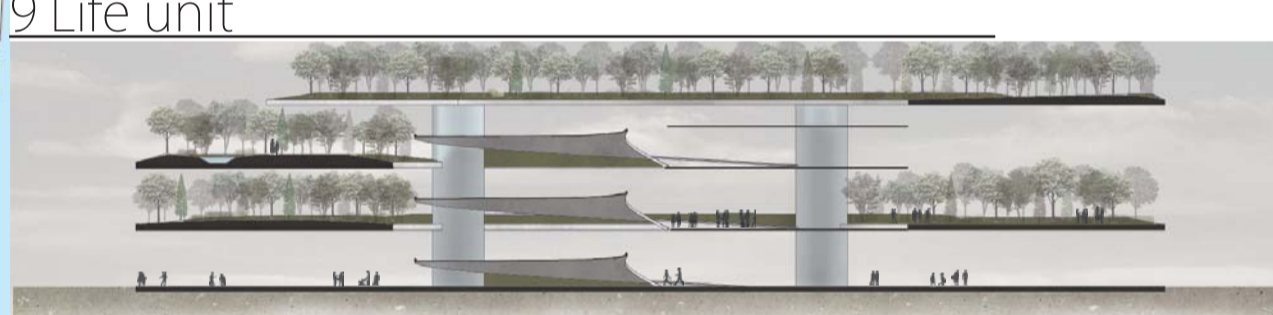
3 The present state of the project site

- The location of this project is Shinkiba Tatsumi at Tokyo Bay where will holds Tokyo Olympic Games in 2020.
- The prevailing wind direction is in the south, and the wind flows from south to north illustrated as the green arrows in below figure with the velocity of 5m/s.
- Tsunami will flows into the site from south to north which is shown as the purple arrow in figure and the possibility of the impact on city is also considered.
- The woody plant in this area will become more and more important with the increasing demand for wood in Japan.
- The area is not recommended for living because of the latet natural disasters although it has the beautiful scenery.

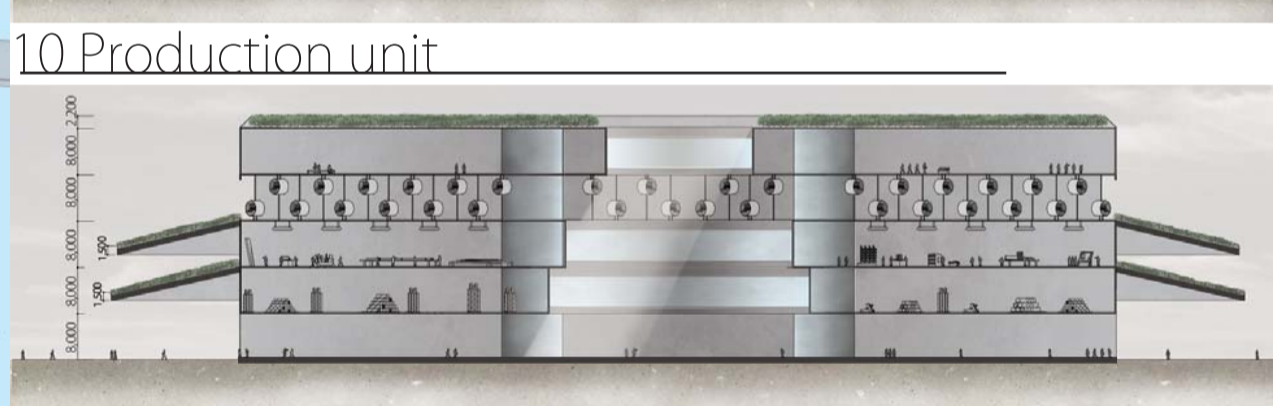


居久根

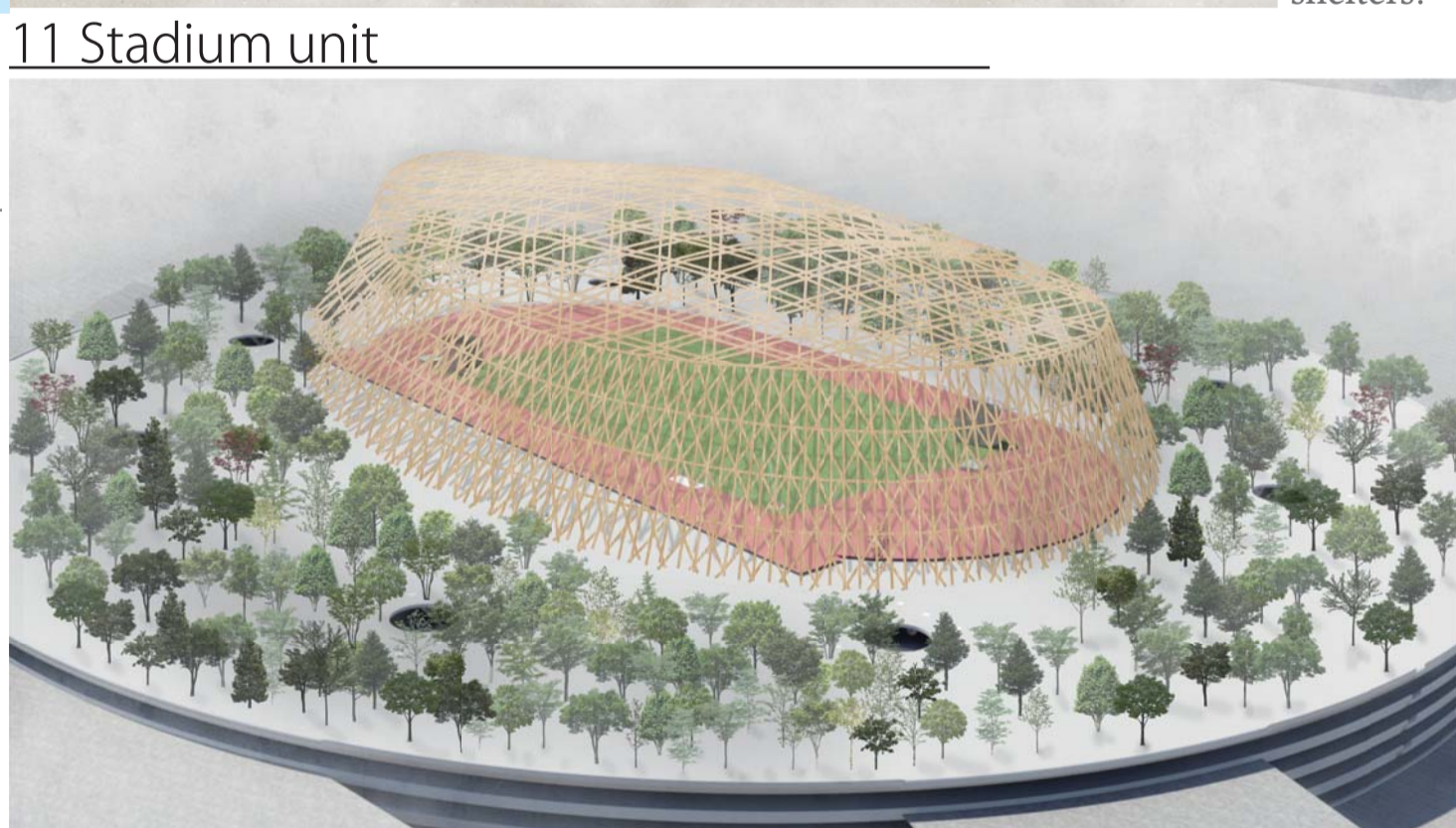
Learned from to Igune



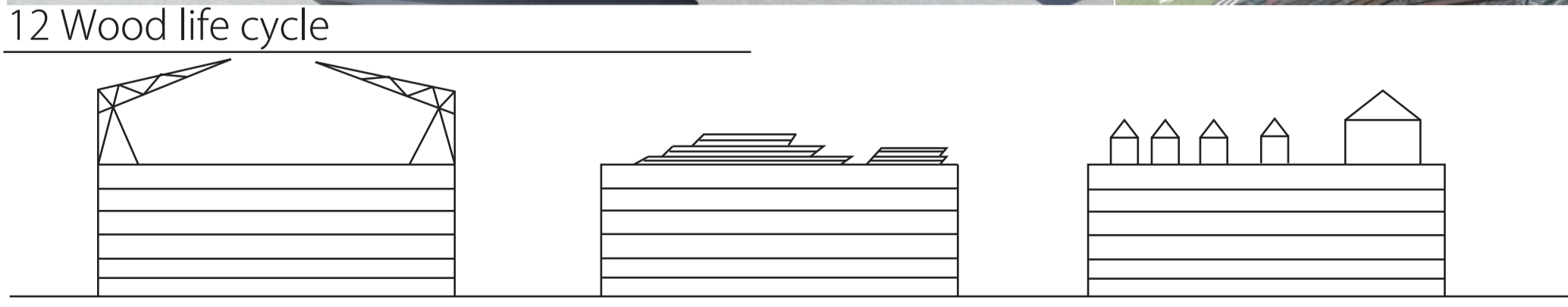
In order to form a diverse ecosystem, expand plants and animals living area, doing the three-dimensional design for the life zone



- Waste wood from the woody plant is as the fuel to generate electricity for nearby buildings
- Built the vegetable plantation beside the woody plant
- The production zone is used as earthquake shelters.

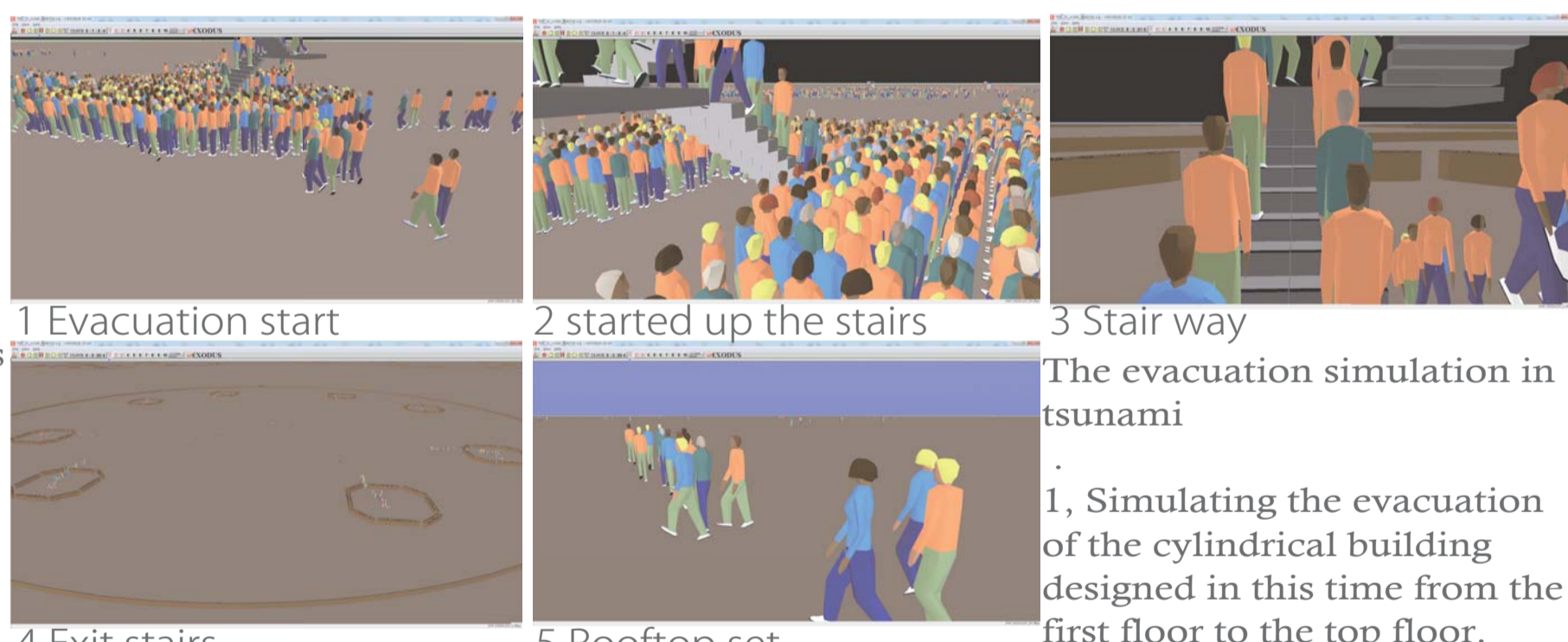


- The roof of the arena is made of the wood which is from the woody plant
- The arena zone will be used as natural park after Olympic Games
- The arena zone is designed to be the communication center of all zones continuously



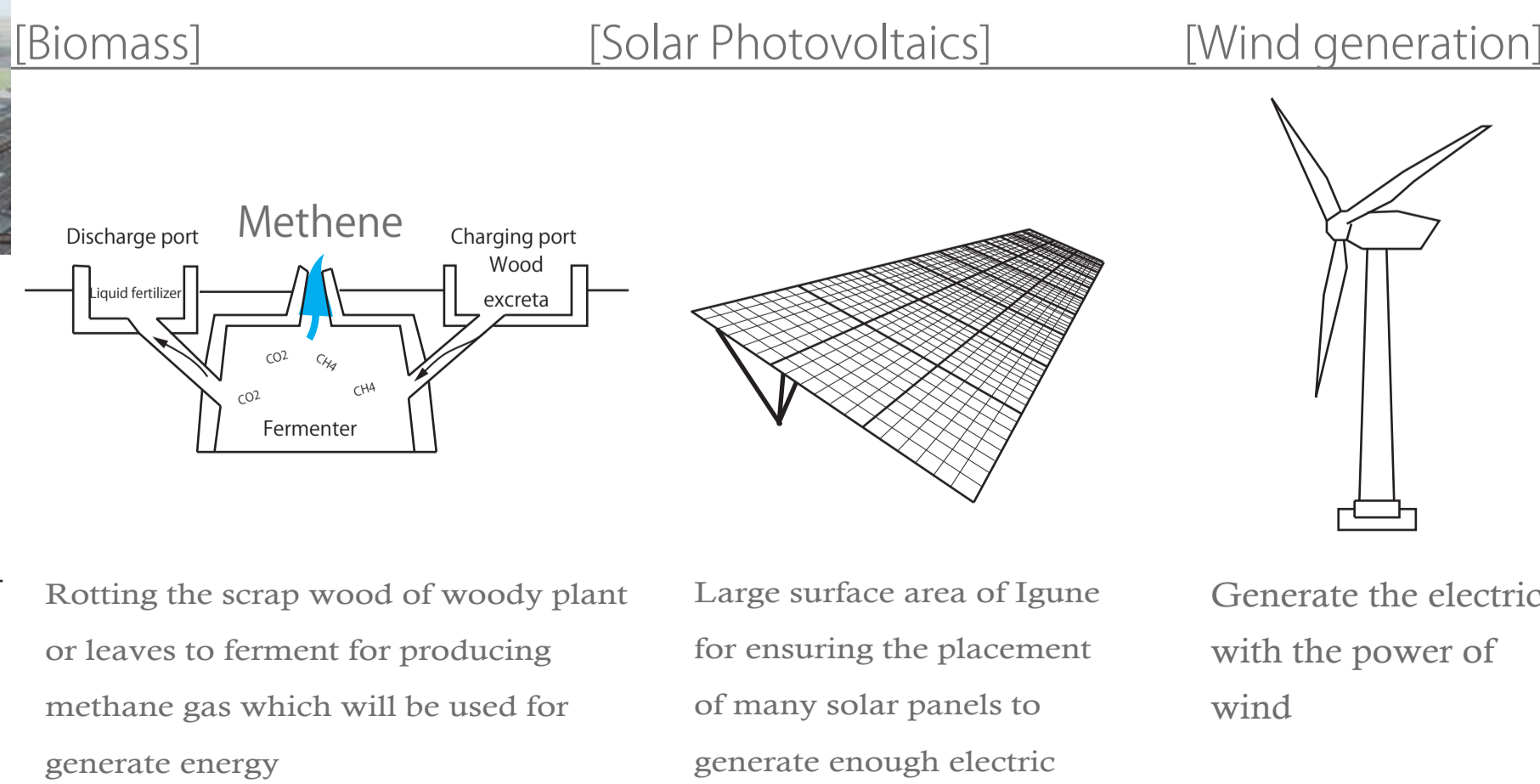
1. Configuring the stadium for the Olympic Games with the wood from the woody plant.
2. Demolishing the idle stadium for reusing the wood after Olympic Games.
3. Building the new public houses which are made of recycling wood in the site of stadium.

13 Evacuation planning and analysis



- 1, Simulating the evacuation of the cylindrical building designed in this time from the first floor to the top floor.
- 2, the evacuation time is about 11 minutes in the building which has the diameter of 150m, 1700 asylum seekers and 4 refuge floors.
- 3, the evacuation time is about 19 minutes in the building which has the diameter of 300m, e building becomes twice and the number of asylum seekers is six times, then the evacuation time will becomes 2 times.
- 5, it is important to increase the number of the refuge floors to reduce the evacuation time.

14 Natural energy



Rotting the scrap wood of woody plant or leaves to ferment for producing methane gas which will be used for generate energy

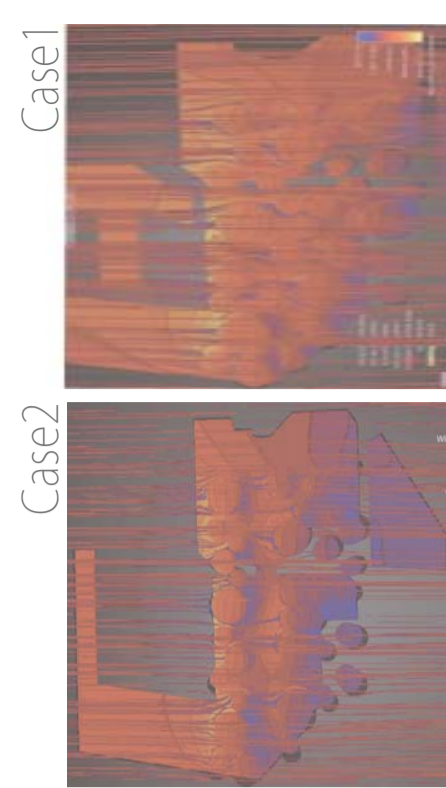
Large surface area of Igune for ensuring the placement of many solar panels to generate enough electric

Generate the electric with the power of wind

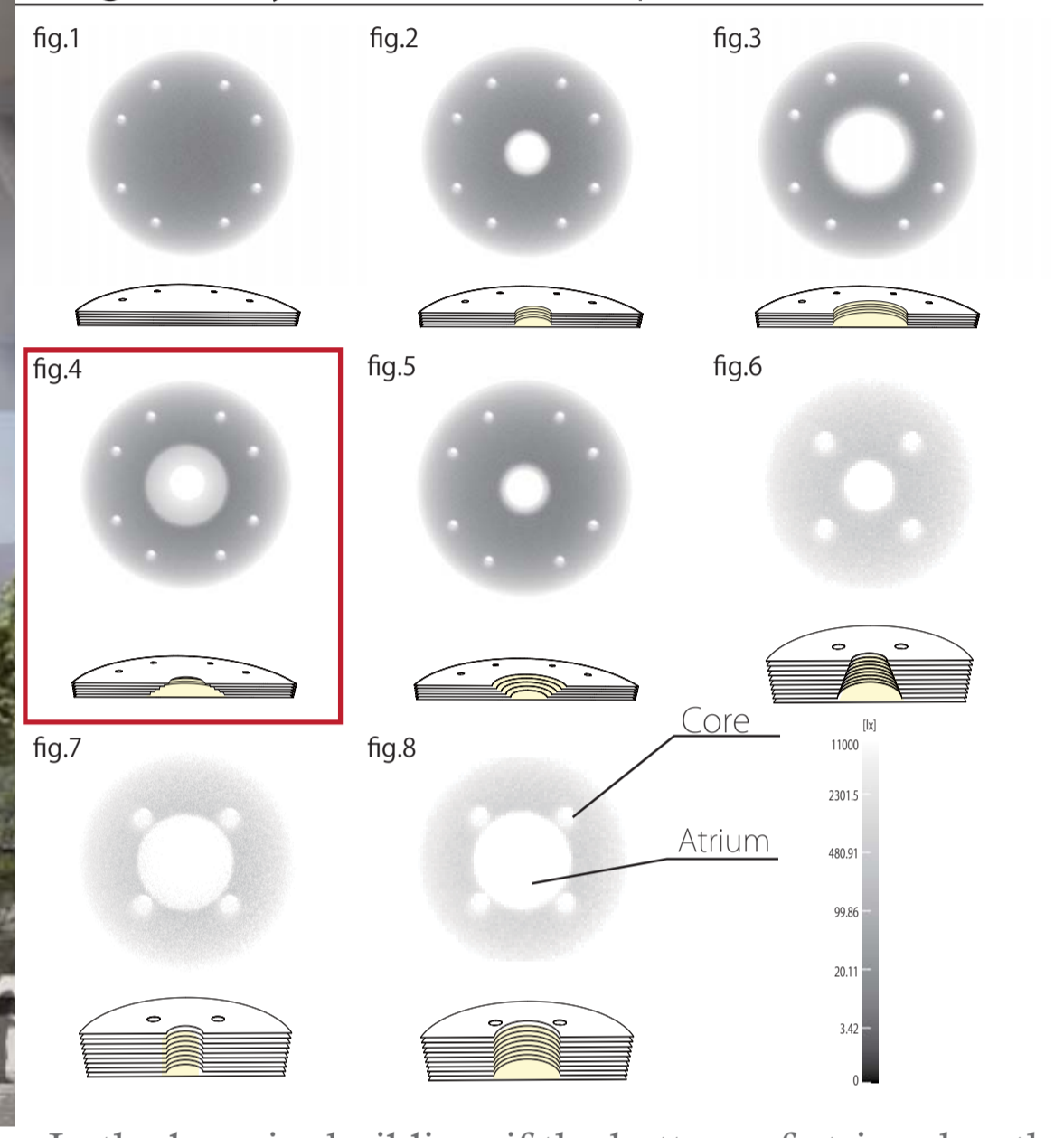
6 Wind analysis of the arrangement study

In configuration plan, doing the plan by watching the fluid flows

The analysis of tsunami-resistant and wind flows→repeating the configuration to achieve the suitable result.



7 Light analysis of atrium shape



- In the low-rise building, if the bottom of atrium has the same floor area, no matter what kind of shape at the upper of atrium, it can get the same daylight effect after comparing
- The same analysis result can be got in high-rise building.
- For better daylight effect, the atrium bottom is designed to be as bigger as possible.

8 Columnar shape analysis study

