Architecture on water-base: Floating & multifunctional building-concept

This proposal contains a concept for connecting floating units with each other to create a symbiosis between several functions in a building. Individual floating buildings on a concrete basement can be prefabricated at a manufacturer elsewhere and shipped to the building location, where they are connected with the other floating basements. By shifting the building process to the manufacturer, the local environment won't be disturbed that much, which will have ecological and also economical benefits and a lot more flexibility; the building can be moved during or after its lifetime.

Floating buildings can be used as a floating home or office. With a span of 6.90m the units can be transported almost everywhere. Also the building can be moved completely to another location in the Grevelingen lake. Mobility and flexibility, also capable to move in vertical plane. For the location in the Grevelingen lake, which will be used in the near future for the storage of river water (in times of heavy rainfall), this movability in vertical plane becomes necessary. Besides of the floating aspect, this proposal contains some important sustainability aspects, which can be distinguished in:

Connectivity:
By creating a glass housing around the actual building blocks, there is arising a public area where people can meet each other in a space with plenty of light and green. This gives a transparent inner/outer sensation in comparison with conventional watervillas, and it also functions as a temperate zone between the inner- and outer climate; in the winter it'll be used as a protected area which gives a outside feeling, and in the winter it'll be used to preheat the ventilation-air. In summer, the glass sliding-panels can be moved completely away to create a imposing deck shaded by ETFE cushions.

CO2-emissions:
By using natural materials (based on the C2C philosophy) the CO2 balanced of the whole project will be positive in comparison with conventional buildings. Sustainable installations and the integration of the passive house-strategies (insulating, air-tightness, use solar income, etc) will lead to a decreasing of CO2 emissions and energy costs. Also the used water will be filtered by a living machine and reused where possible.

Adaptability:
By integrating a smart-facade system with 4 movable panels, the building can adapt on each type of weather. Summer sun can be blocked, or winter sun can be let through, a panel of Aerogel can give some extra insulation capacity in the winter, without blocking the light, a sliding window frame gives the user a possibility to completely open the facade. A pattern on the ETFE-layers at the roof of the transparent space can be moved to block or let in the sun and light.

Flexibility and lifetime:
The simple rectangular layout of the actual building blocks can change easily when the function of the building changes. Also the horizontal window frames in the facade can be transformed as easily as the demountable inner walls. The building can be deconnected after its lifespan, and the individual units can have a second live elsewhere as a floating home or office. With a span of 6.90m the units can be transported almost everywhere. Also the building can be moved completely to another location in the Grevelingen.

Health:
Besides of the presence of a glazed (winter)garden with greenery and a living machine which filters the air and water, this building contains healthy materials (based on C2C), strategies to create a nice and healthy inner climate (natural ventilation, loam finishing, light penetration and magnificent views).

Environment:
Because of the fact that the floating basements are connected with some space between them, light can penetrate through the building and can reach the underlying water. A greenhouse can be placed in the basements, which can be used for growing vegetables and plants. Also the water will be filtered by a living machine and fed into the restaurant situated in the building.

Energy flows:
In the winter, preheated ventilation air from the glass housing can be used in the building blocks, completed with heat recovery from the inside of PV panels and heat recovery from the inside of PV panels and the use of phase changing materials, that can store heat. A solar thermal installation and a heat-pump are integrated in the basement and can be used for heating and cooling the building. Drinking water will be produced by a reverse osmosis installation which will be supported by electricity from the PV panels on the roof of the building.