

INNOVATION DESIGN FOR FLOODING

Smith Obayawat, ASA President 2012-2014

ACSR Half-day Symposium on Architecture and Social Responsibility

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Radisson Hotel,
Kathmandu, Nepal



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รอมน้ำใจคนไทย

ช่วยภัยน้ำท่วม

แผนที่แสดงระดับพื้นที่สูง-ต่ำในกทม.

จากระดับน้ำทะเลปานกลาง

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|----------------|------------|
| ■ ต่ำกว่า 0 ม. | ■ 1-1.5 ม. |
| ■ 0-0.5 ม. | ■ 1.5-2 ม. |
| ■ 0.5-1 ม. | ■ 2-2.5 ม. |
| ■ 2.5-3 ม. | ■ 3.5 ม. |
| ■ 3-3.5 ม. | ■ ขึ้นไป |



พื้นที่สูงต่ำจากระดับน้ำเจ้าพระยาฝั่งธนบุรีและฝั่งพระนคร





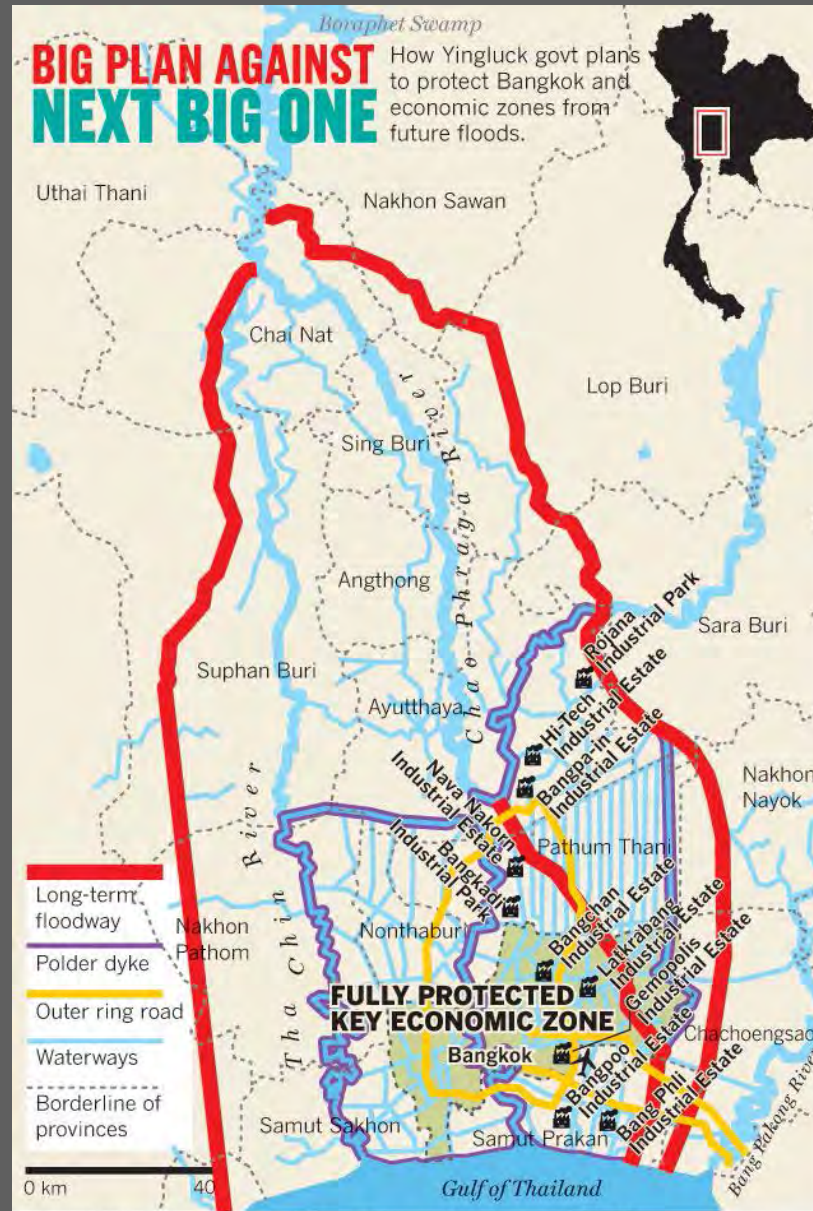


Chulalongkorn University students helping **ASA** and University to build temporary narrow board walk for the neighborhood to access to the main Public Transportation



THAILAND GOVERNMENT POLICY ON FLOOD PREVENTION

Floodway



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GOVERNMENT POLICY ON FLOOD PREVENTION



Mae Wong Damn



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NAWANAKORN INDUSTRIAL ESTATE FLOOD PROTECTION



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INNOVATION DESIGN FOR FLOODING

The flooding crisis that occurred last two years incurred huge damages to the houses and properties of a vast number of people, even as the level of damage differed widely. The Association of Siamese Architects (ASA) under Royal Patronage sought to involve the profession in a project for the benefit of the public. The project was to create an 'Aquatic House' with a floor area of no more than 150 sq.m. on a site measuring between 200-800 sq.m., each in a different context. We expect that these designs will be useful towards the building sustainable settlements in flood-prone areas. There were nine architecture firms in Thailand who participated in the project.



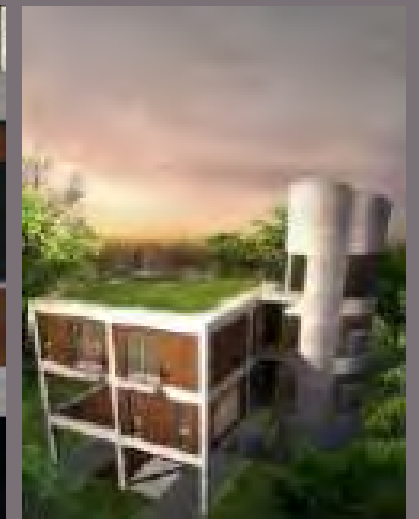
[Thai Flood 2011](#)



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Dhevanand

The scheme focuses on providing special features to solve problems that comes with a flood, such as green space on the roof for a vegetable garden and wooden lattices for vines, vertical water storage tank incorporated into the stairway core and solar panels on the roof. All these features provide living necessities for everyday life.

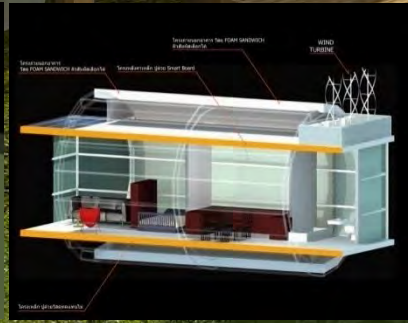


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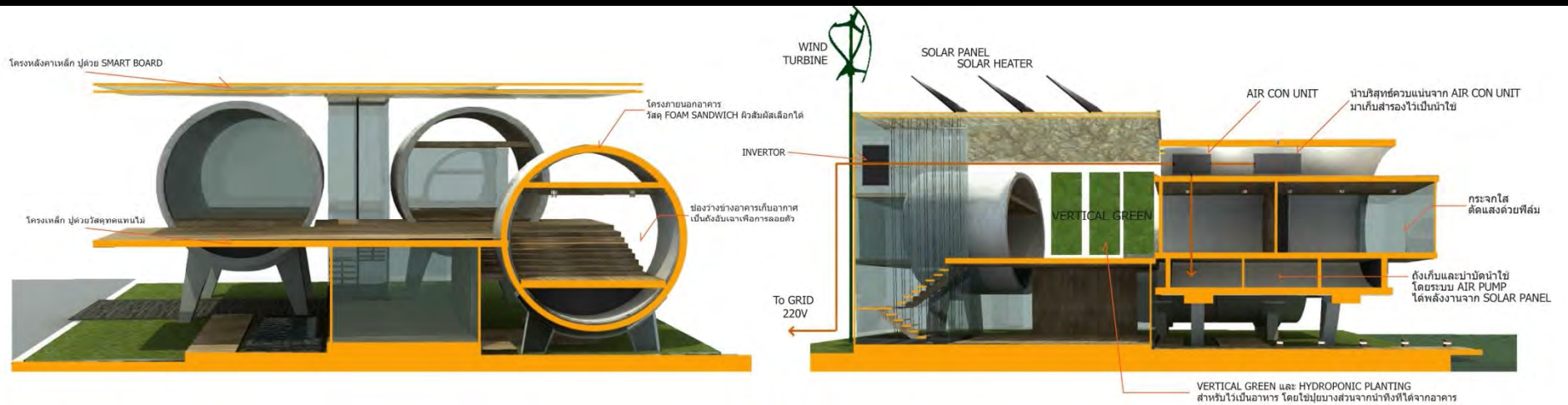
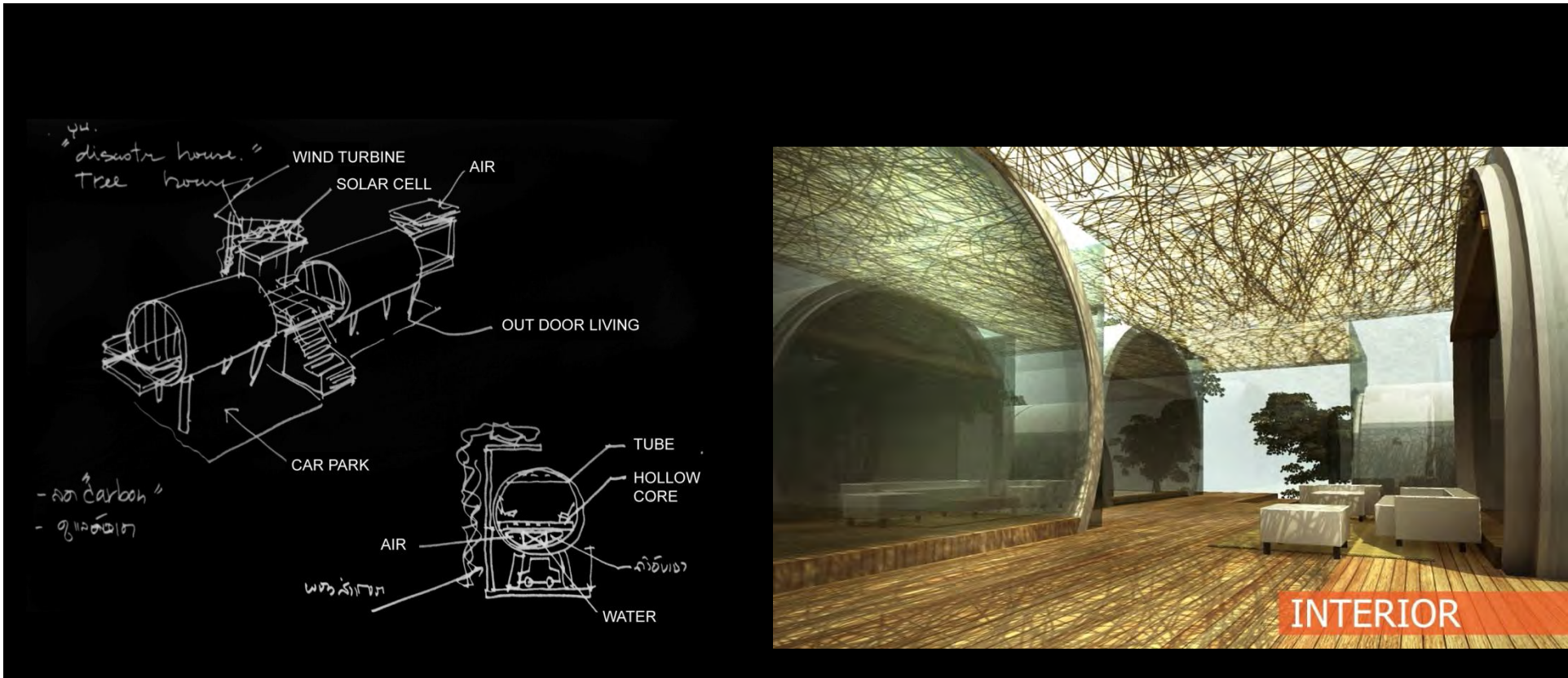
Aesthetics Architects

The Tube House

The Tube house focuses on reducing its carbon footprint by using renewable energies. The concept is derived from tree houses, which are layered vertically in order to increase the house's multifunctional green area. The living area is designed to be a self-sustaining module, in the form of a disaster house, which incorporates solar cells, wind turbines and air tanks, so that it can float. There is also a water storage collecting water from air conditioners.



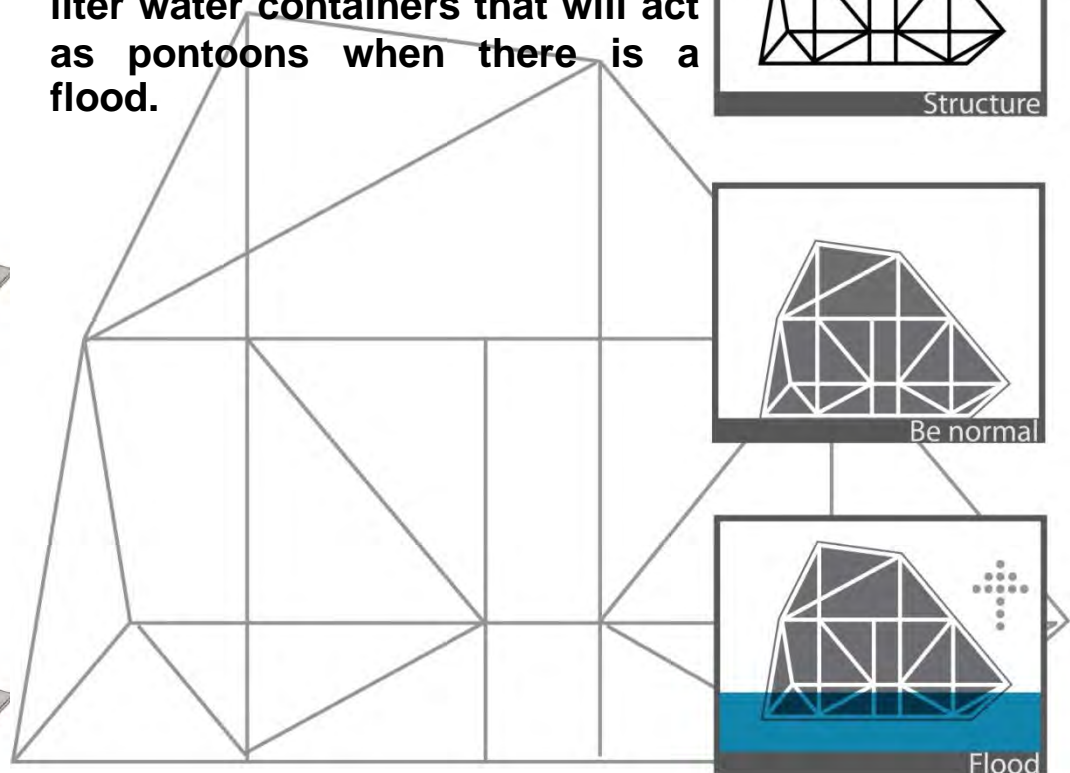
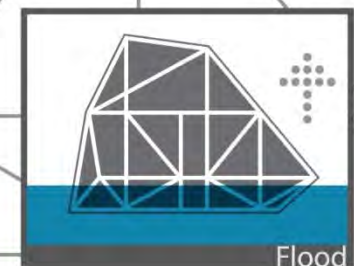
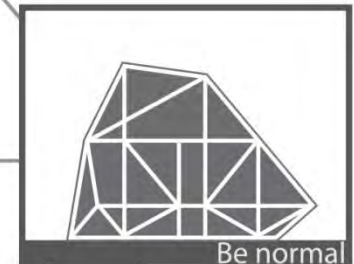
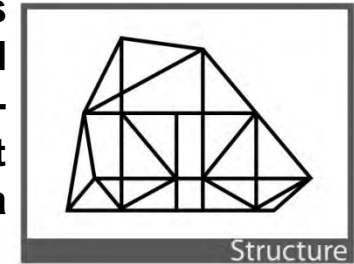
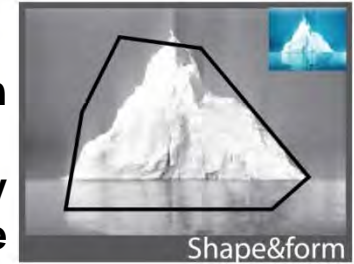
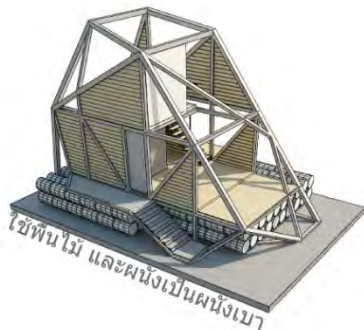
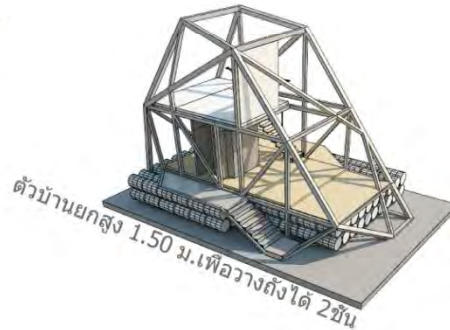
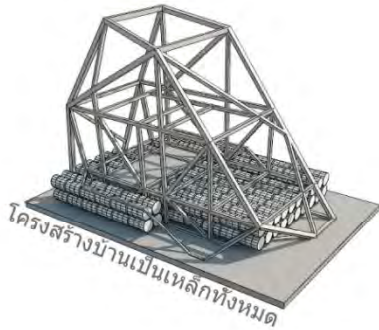
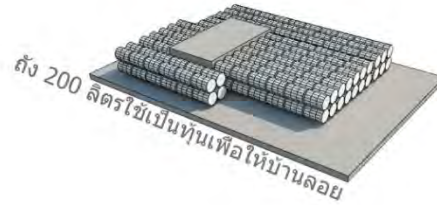
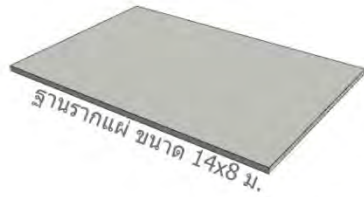
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dbby_order

Floating House

The design of the house took an inspiration from a drifting iceberg. The two-story house has a foundation plate chained to its structure so that it will not float away. The house is raised 1.5 meters above ground level to provide a space for 200-liter water containers that will act as pontoons when there is a flood.





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IDIN Architects

Aow-yoo ('In control')



The house allows water to flow through, so that no matter what the water height, the occupants can climb up the exterior stairway to live in the next higher box. The roof of each box also act as living area during flood.



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Tandem Architects

Living with water

The concept is to design a house that encourages people to live with water. Each floor plate is quite thin in order to allow for maximum natural light to penetrate into the interior. The house is U-shaped with a central courtyard to connect all the spaces together and to provide natural ventilation. On top of this, the house has a water tank on the roof deck, a generator for lighting and electrical appliances, and a sump pump.



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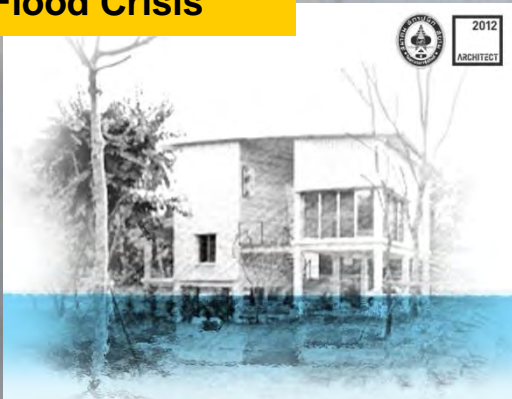
Ongsa Architects Co., Ltd

Liquid Perception

No Flood Crisis



Flood Crisis



The design follows the traditional Thai architecture, or in academic term called 'Liquid Perception' – a simple way of life that adapts to the changing environment that accompany each change of season. During the normal periods, the space underneath the house can be used for various activities; when the water comes, the height level of the floor on the first floor can be adjusted according to the water level.



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SQ Architect & Planners

The design plays with different levels to create multi-functional spaces on each floor in order to facilitate easy movement of belongings and amenities as the level of the flood dictates. The main concept comes from the principles in building a house, which is to consider our humid climate, contemporary needs and lifestyles, provide a lot of flexibility by adapting features from traditional Thai houses to create a design that can be easily adjusted for use both in normal or flooding condition.



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No Flood Crisis



Flood Crisis



SOOK Architects

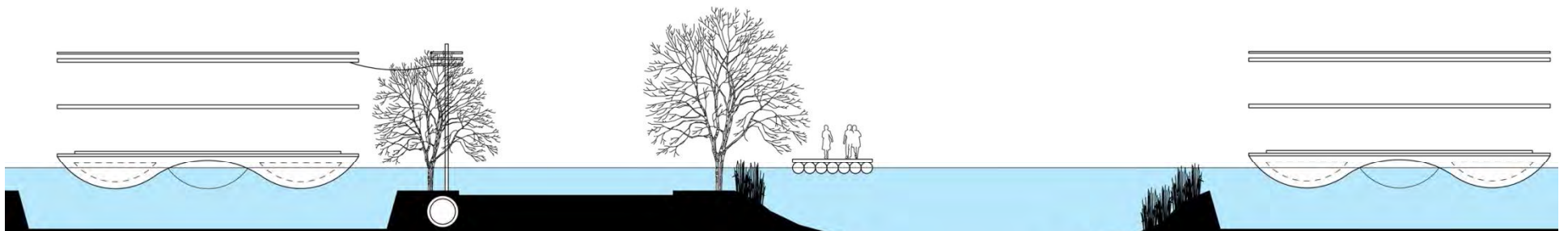
Real So Ok



The design comes in a form of a two-story house with a lightweight structure and a base that acts as a water tank that allows the house to float when the water level is higher than usual. There are also solar cells on the roof for generating electricity, as well as landscaping on the site, which helps to manage resources and prevent flooding.



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FUTURE
FLOOD

SELF SUFFICIENT ARCHITECTURE
FLOATING

SOOK ARCHITECTS : HOUSE WITH WATER : ASA 2012



SOOK ARCHITECTS : HOUSE WITH WATER : ASA 2012

The Office of Bangkok Architects., OBA

The firm took the flood statistics in Bangkok as the determining factor for the height of each story, resulting in a play of levels, which can adapt functionally to changing water levels. The design focuses on creating lots of open spaces, raising up the house has the effect of allowing for natural ventilation as well as providing spaces for vegetation both within the house itself and on the site.

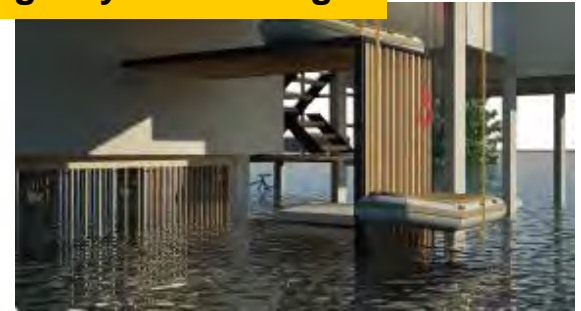


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Emergency boat storage



Vertical Garden



Living room



Flood Section









