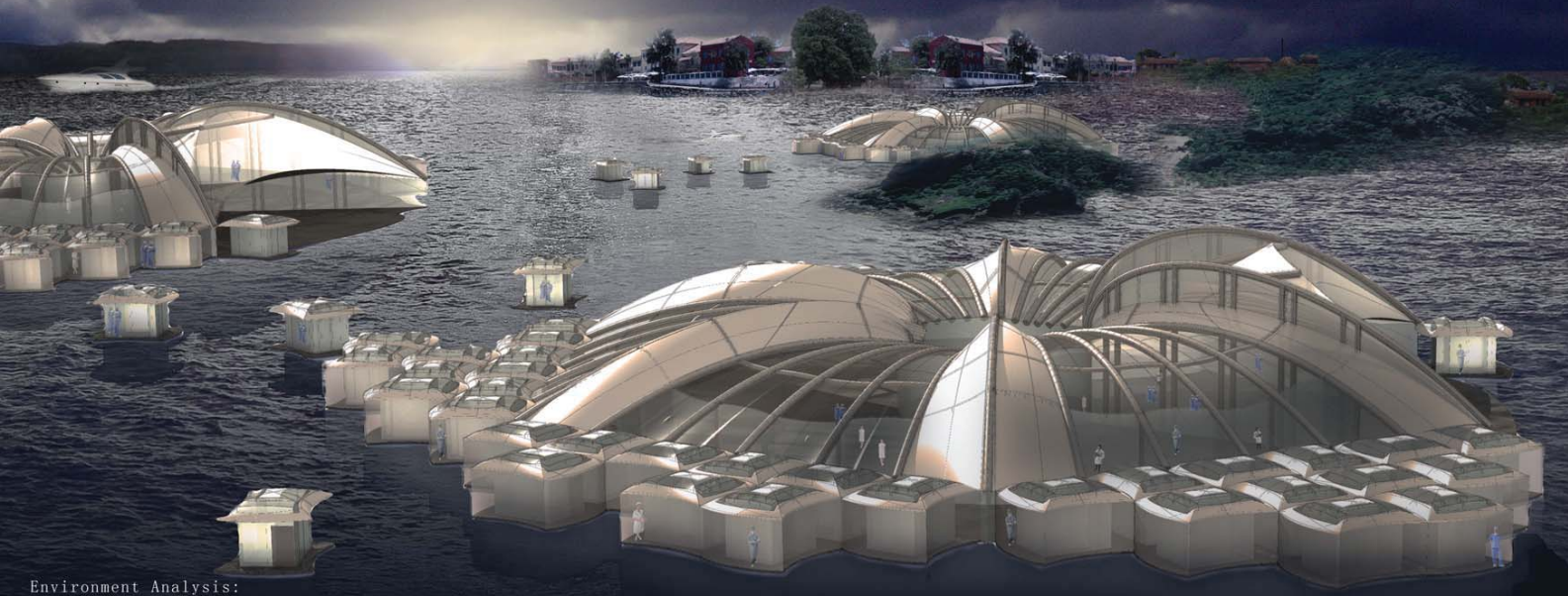


FLOATING—Floating Medical Station for Ebola

Concept:

This project is designed to provide medical assistance to Ebola patients residing along coastal epidemic regions, by the use of floating medical stations. There are two types of stations available: Island and Unit. Unit will serve as marine ambulance and sickrooms; Island will function as operating room, ICU, medical office, supply station and so forth.



Environment Analysis:

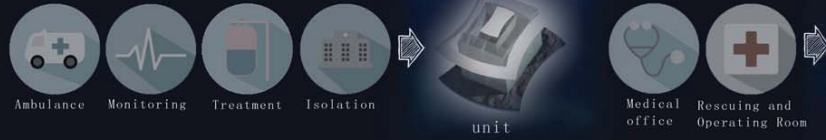


Ebola is widely distributed along coastal regions of Guinea. Of the four major Ebola epidemic nations, Guinea and Nigeria are undergoing civil wars, making it difficult to provide medical services on their land as that would potentially trigger conflicts of international affairs. Islands on the Guinea Bay are also affected by Ebola, which are inaccessible by means of ground transportation. Following is a list of main constraints to consider.

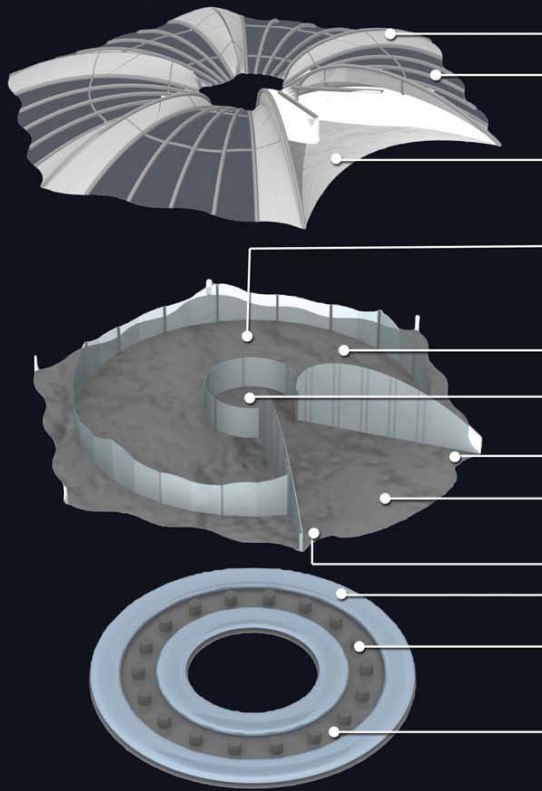


Based on all above considerations, we proposed the design of floating medical stations.

Key Functions:



Island Segregation Analysis



Road visor:

Opaque film is used for visor and battery storage to ensure station has constant sufficient energy supply.

Thin-film Solar battery::

Since 2008, the technology of this newly developed type of solar energy material is becoming mature. Eva is used instead of the traditional silicon. The battery is installed on rooftop to supply energy for daily activities carry out inside the stations. Translucent film allows natural lighting, while shields IR and UV light.

Control panel:

Medical stations are mobile; they can travel short distances with equipped propeller, and can travel longer distances by being pulled by larger ships.

Island bottom:

Use carbon fibre as bottom, reducing weight, increasing the weight of huge medical equipment, supplies, medicine, and etc.

Interior:

Flexible free space to act accordingly as operating room, staff restroom (lounge), cafeteria, lab and etc. functional modules to provide resting space for medical staff, and as daily medical supply for the Units.

Freshwater treatment:

Ensuring freshwater supply in the sea.

Porting center for Units:

Units can port at the Islands to be sterilized, refill supplies, reassembled and etc.

Floating harbor:

A centralized harbor for collecting supplies from mainland and redistribute the supplies.

Porting center for Units

Floating rings:

Hollowed rings like lifesavers, these concentric ring are evenly arranged beneath Island to provide buoyancy and structural support.

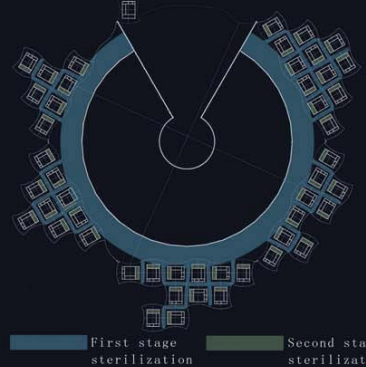
Hydraulic column:

Total of 18 columns are distributed at the bottom to stay underwater. The columns act as buffer, reducing Island's swing amplitudes against wave and wind force impacts.

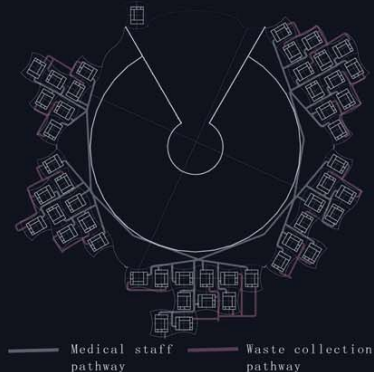
Hydraulic bottom:

Light density carbon fibre is used for high strength and lightweight. It is connected to the floating rings and columns at balanced level to ensure Island float flat on the sea.

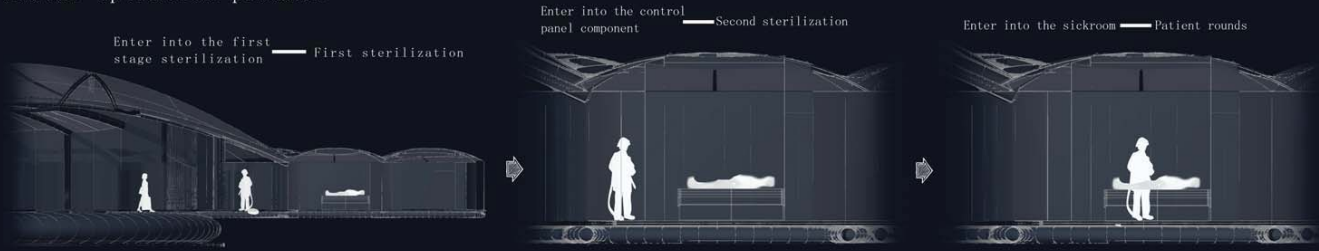
Sterilization regions



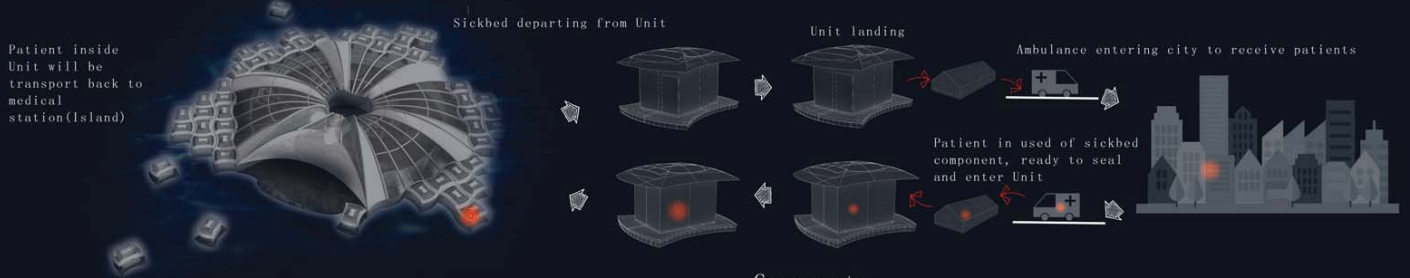
Transportation flow path



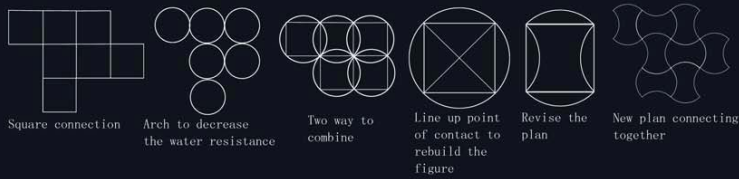
The doctor operation process



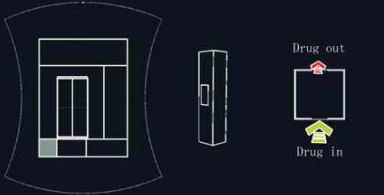
Medical station operation illustrated guide :



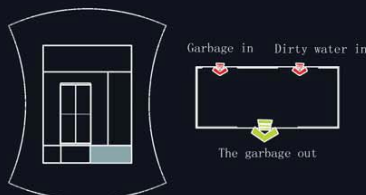
Shaping of Unit plan



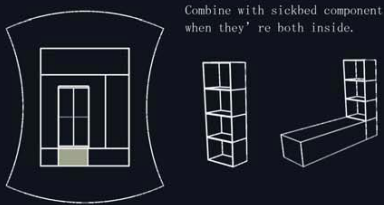
Supply component :



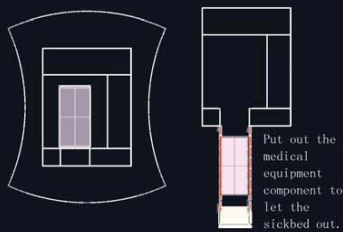
Waste disposal component :



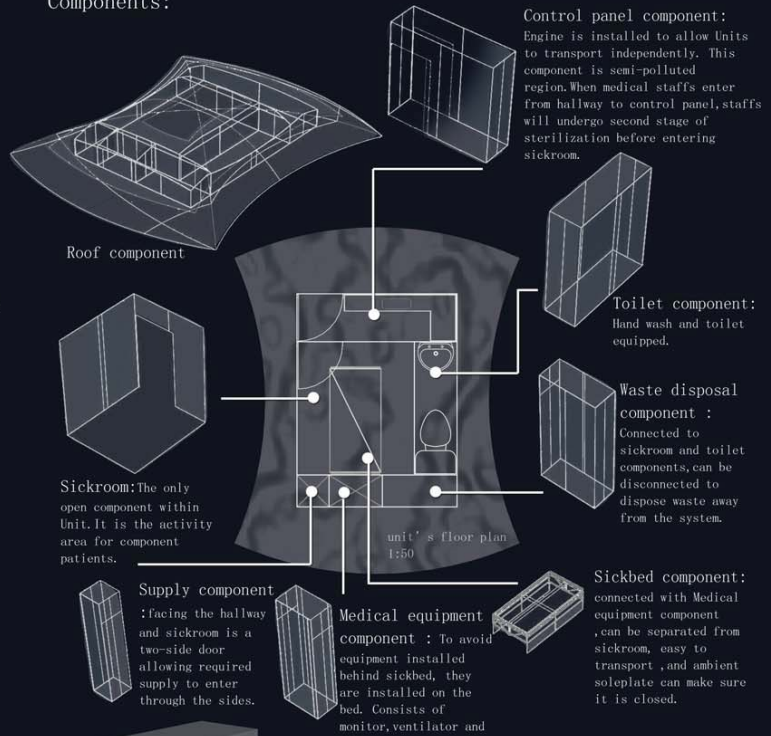
Medical equipment component :



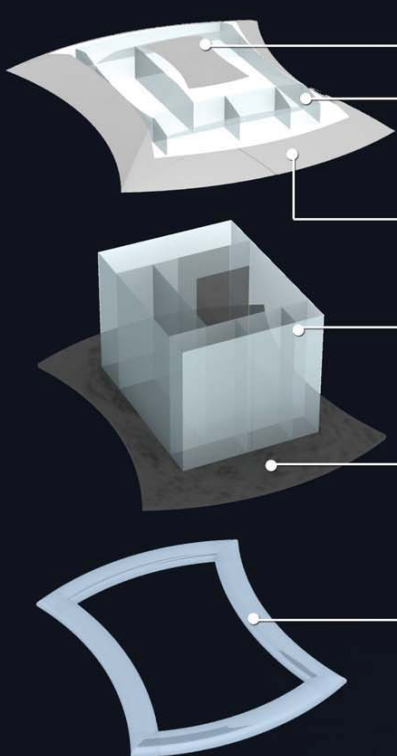
Sickbed component:



Components:



Units Segregation Analysis



Air pressure regulators and air flow control valves:
Devices are installed on the roof of Units to maintain internal atmosphere pressure 3% lower than surrounding, avoid the spread of saliva to widespread to the exterior, and sterilize the air with IR.

Thin-film Solar battery:

Road visor:

Road visor establish pathways to connect Units. visors are completely seal to provide first step of sterilization. Roof top bans the sunlight from connect to the medicines.

Puzzle Modules:

Unit's exterior is constructed by module pieces bonded together; while each module is independently sealed, they are interconnected through door passages. The modules are interchangeable at ease.

Unit passage:

Units are being bonded with use of hinges, and will form an isolated independent passage. Carbon fibre is used for having to reduce weight.

Float rings:

To provide buoyancy for the Units

Sickbeds open—sealed

—FLOATING

