**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. This will serve as nurse-station and sickrooms. [Island will function as operating room, ICU, medical office, supply station, and etc.]

**Environment Analysis:**
Ebola is widely distributed along coastal regions of Guinea. Of the four major Ebola epidemic nations, Guinea and Nigeria are sub-regional civil war, making it difficult to provide medical assistance on their land as this would potentially trigger conflicts of inter-ethnic affairs. Islands on the Guinean Bay are also affected by Ebola, which are accessible by means of ground transportation. Following is a list of main constraints to consider:

**Key Functions:**
- Ambulance
- Monitoring
- Treatment
- Isolation
- Unit
- Medical office
- Sterilization and operating room

**Island Segregation Analysis**
- **Roadways:** A single line is used for road and battery storage to ensure station has constant efficient energy supply.
- **Thin-film Solar battery:** Since 2008, the technology of thin-film solar panels has been made from the traditional silicon. The battery is installed on rooftops to supply energy for all appliances. This film allows natural light, while shielding IR and UV light.
- **Control panel:** Medical stations are modules; they can travel short distances with equipped propeller, and can travel longer distances by being pulled by inner ships.
- **Island bottom:** Use carbon fibre as bottom, reducing weight, increasing the weight of large medical equipment, supplies, medicine, and etc.
- **Interior:** Flexible flow space to suit accordingly on operating room, staff rest room (bathroom), conference, 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 island to be sterilized, refill supplies, reassemble, and etc.
- **Floating harbor:** Centralized harbor for collecting supplies from mainland and redistribute the supplies.

**Roadways:**
- **Porting center for units:** Floating rings: The island rings, like lifebuoys, these concentric rings 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 buffers, reducing Island's sway against ocean wave of 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.
The doctor operation process:

Enter into the first stage sterilisation: First sterilisation.
Enter into the control panel component: Second sterilisation.
Enter into the sickbed: Patient moves into.

Medical station operation illustrated guide:

Patient inside: Exit will be transport back to medical station (Island).
Sickbed departing from Unit: Unit loading.
Ambulance entering city to receive patients.
Patient in used of sickbed component: ready to real and enter unit.

Components:

Supply component: Toilet component: Clean wash and toilet equipped.
Waste disposal component: Waste disposal component: Connected to sickbed and toilet components can be disconnected to dispose waste away from the system.
Medical equipment component: Sickbed component: connected with Medical equipment component can live separate from sickbed, easy to transport, and patient vehicle can take care of it is close.

Units Segregation Analysis:

Air pressure regulators and air flow control valves: Devices are installed on the roof of Units to simulate an internal atmosphere pressure 25 lower than surrounding, avoid the spread of viruses to a widespread to the interior, and sterilize the air with HEPA thin-film Solar battery:

Road visors: Road clear evacuation pathways in connect units, units are completely sealed to provide first step of sterilization. Roof is clear the sunlight. One concern is the medication.

Puzzle Modules: Unit's exterior is constructed by mobile phases bonded together while each module is interconnected through door passages. The modules are interconnected at once.

Unit passage: Units are being bonded with one of rings and will form an isolated independent passage. Carbon fiber is used for having to reduce weight.

Float rings: To provide buoyancy for the units.

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