PREFABRICATION & MODULARITY

The repetitive module, which can be arranged in a multitude of configurations, is comprised of a steel structure [KIT OF PARTS], a series of prefabricated panelized systems [2D PANELS], and container module(s) [3D MODULE].

The key design goals of this design are to be adaptable, modular and sustainable while being culturally sensitive and user-centered. The design is able to adapt to multiple sites in a range of topographies, site proportions, and climatic conditions by allowing a kit of 10 meter modules that can be arranged in various styles and configurations.

This project utilizes three types of prefabricated components: (1) a kit of parts for the overall structure, (2) prefabricated panels for wall and window systems, and (3) 3D container modules for "wet" areas such as toilets and kitchens. The modularity allows for the construction and assembly process through prefabrication, prefabricated panels for wall and window systems, and container modules for "wet" areas. These modules are designed to be self-sustaining and passive building systems through the use of solar panels, water collection, and natural ventilation strategies.

The module also maximizes the use of self-sustaining and passive building systems through the use of solar panels, water collection, and natural ventilation strategies. Narrow floor plates optimize cross-flow ventilation, the independent roof structure provides a surface for solar panels and water catchment in addition to minimizing heat gain, and the pavilion arrangement creates outdoor corridors for waiting and circulation.

In addition to the modular and sustainable components, the building also needs to respond to the specific needs of the users and the site it is located in. While the project is demonstrated on a site in Liberia, it is capable of adapting culturally to any site. This design allows for the over-arching canopy structure to vary at each site while the occupiable space below and grid remains constant. The outdoor courtyards formed by the bars of modules also create outdoor spaces that can be programmed to engage the specific community it serves. These open spaces also allow for separation of areas for maternity, inpatient, outpatient, and staff for a level of privacy within a larger communal space.

SITE SELECTION | GREATER MONROVIA, LIBERIA, AFRICA

1. Maternity Waiting and Walking Path
2. Inpatient Courtyard with Outdoor Cooking Area
3. Outpatient Waiting
4. Water Tower & Well
5. Solar Panel Canopy (supporting well/water tower)
6. Service/Delivery Area
7. Community Garden
8. Staff Housing
9. Wetland

PUBLIC PARKING

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MODULE ARRANGEMENTS

OPTION 1: Modules connected on the short side allows for a continuous interior space and ability to maintain narrow floor plate. Example: Administrative Department

OPTION 2: Modules connected in the same manner as Option 1, but with containers contained within the module. Example: Outpatient Clinics

OPTION 3: Modules connected on the short side with containers on the exterior end of each module. Example: Inpatient Wards

OPTION 3: Modules connected on the long side with an additional 16' bay accommodates department demanding a deeper floor plate. Example: Surgery Suite