

MODULAR HOSPITAL

PROJECT LOCATION:

Western Africa, (5+ sites)

PROJECT CATEGORY:

Unbuilt Architecture

PROJECT TOTAL SQ FT:

40,700 square meters (typ.)

COMPLETION DATE:

Est. Spring 2017



Project Synopsis

The project goal is to provide affordable “patient-ready” healthcare facilities that adopt the principles of local and community healthcare needs while emphasizing sustainable best practices. By focusing on natural resources, conservation strategies and maintainability, this new model for healthcare is required to be adaptable to various health needs and sites throughout Africa.

The design promotes the following features:

- **SUSTAINABLE / OFF-GRID SOLUTIONS**
- **MODULAR CONSTRUCTION**
- **GLOBALLY ADAPTABLE**
- **NEW MODEL FOR HEALTHCARE**

The concept utilizes a modular system strategy that assimilates to local programmatic needs, accelerates the construction process and acts as a response to site specific climate and infrastructure challenges. Additionally, the team was tasked by the client to provide modern medical facilities and services with minimal reliance on mechanical cooling systems while utilizing an insulated sandwich panel system.

The outer and inner courtyards, set by the module, are the unifying elements between programmed structures containing various medical and infrastructure services. Connections through the exterior walkways from the outer courtyards to the inner courtyards are choreographed for the modules to connect the medical spaces to the larger community.

The project concept is presented in four primary components:

- COURTYARD**
- MODULAR CONCEPT**
- SUSTAINABILITY / OFF-GRID**
- ADAPTABLE SITE**



HOSPITAL CAMPUS ENTRY

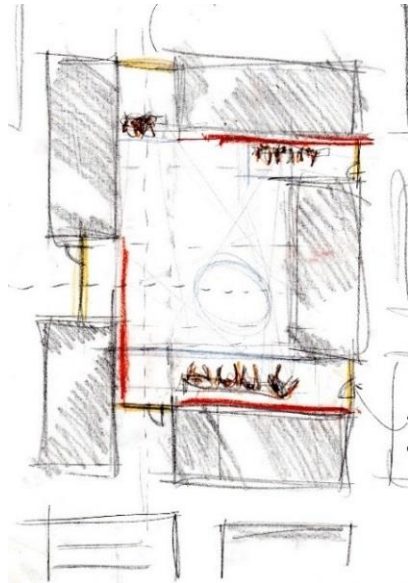
HOSPITAL CAMPUS AERIAL

MODULAR HOSPITAL

COURTYARD

The courtyard has been both a cultural gathering space and a necessary passive climate control element.

The formation of the courtyard becomes the organizing force for the module and the site. It is formed by the relationships of programmed spaces and covered walkway circulation.



HISTORICALLY, THE **COURTYARD** HAS BEEN A DEFINING AND NECESSARY ARCHITECTURAL COMPONENT ADVANCED BY DIVERSE CULTURES ACROSS THE GLOBE

MODULAR CONCEPT

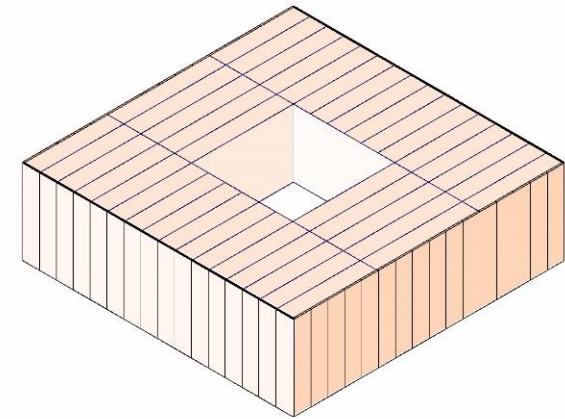
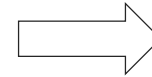
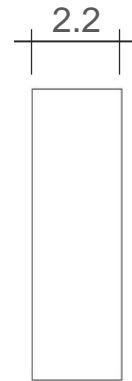
MODULAR SYSTEM

The modular system originates from the panel size, which is manufactured in an easily transportable/deployable dimension.

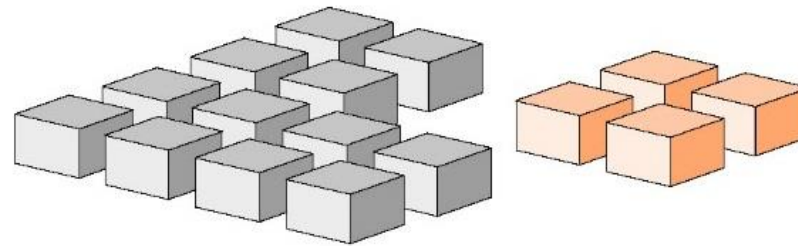
The insulated panel material shall be utilized for the floor, wall, roof and shading devices.

As the module scales to the site, the panel proportion is continually present in the relationships between spaces.

PANEL MODULE

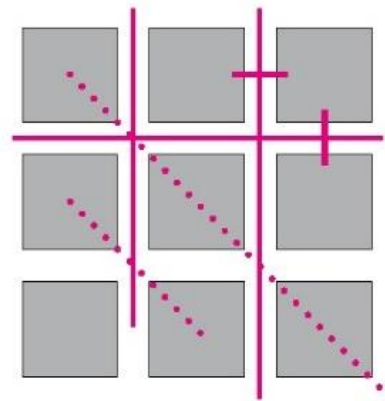


MODULE (PROGRAMMED SPACES)



- Simplified construction technique
- Multi-functional
- Low cost concept, two floor height limit
- Rapid construction time using panel technology
- Customizable and expandable

CONNECTIVITY



- Straight forward orientation
- Repeatable
- Flexible
- Ease of maintenance

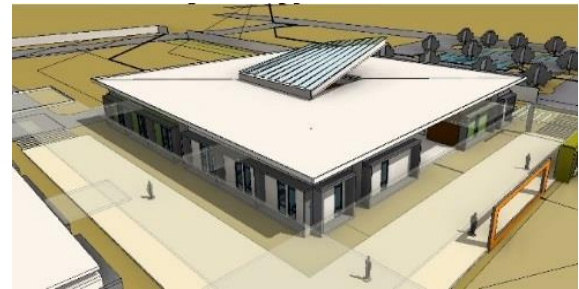
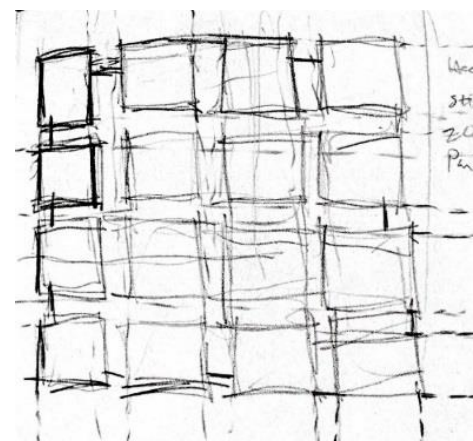
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MODULAR CONCEPT

MODULE

The modular unit is based on the 2.2 meter grid. This grid allows for increased flexibility for multiple program types.

Three primary types of modules are used throughout the site depending on the function and climatic needs.



1 STORY MODULE NATURALLY VENTILATED

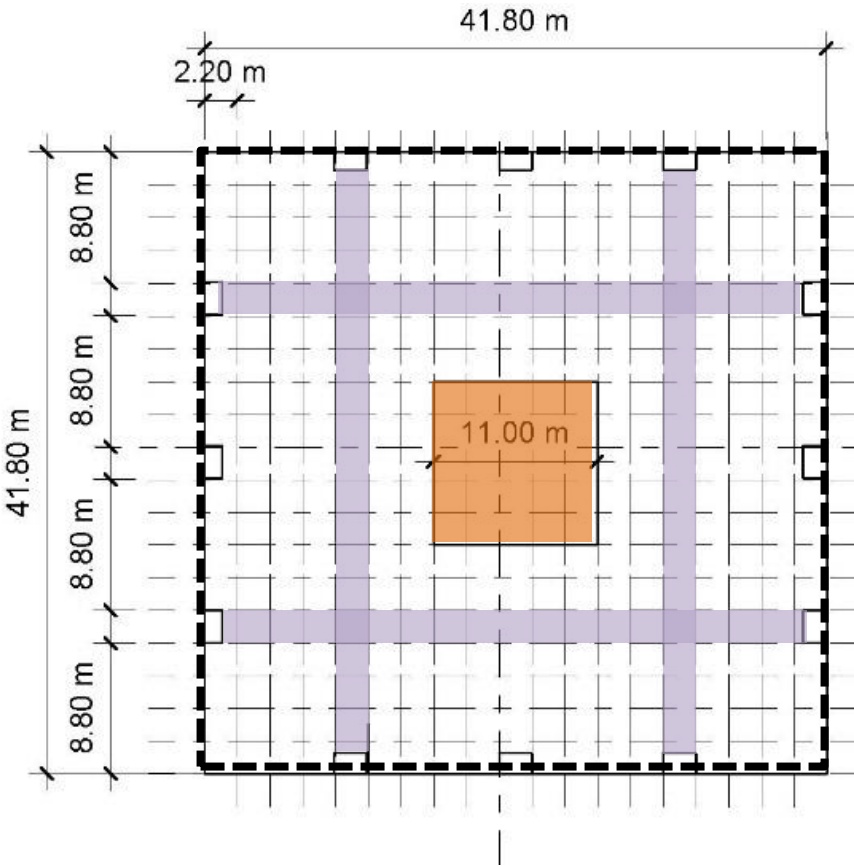


2 STORY MODULE NATURALLY VENTILATED



1 STORY MODULE AIR CONDITIONED

TYPICAL MODULE DIAGRAM



PRIMARY CIRCULATION

COURTYARD

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MODULAR CONCEPT

COURTYARD

The “Healing Courtyard” has a large canopy roof allowing for patient privacy, daylight and thermal comfort.

Color is utilized for way finding and visual links from the module to the site.

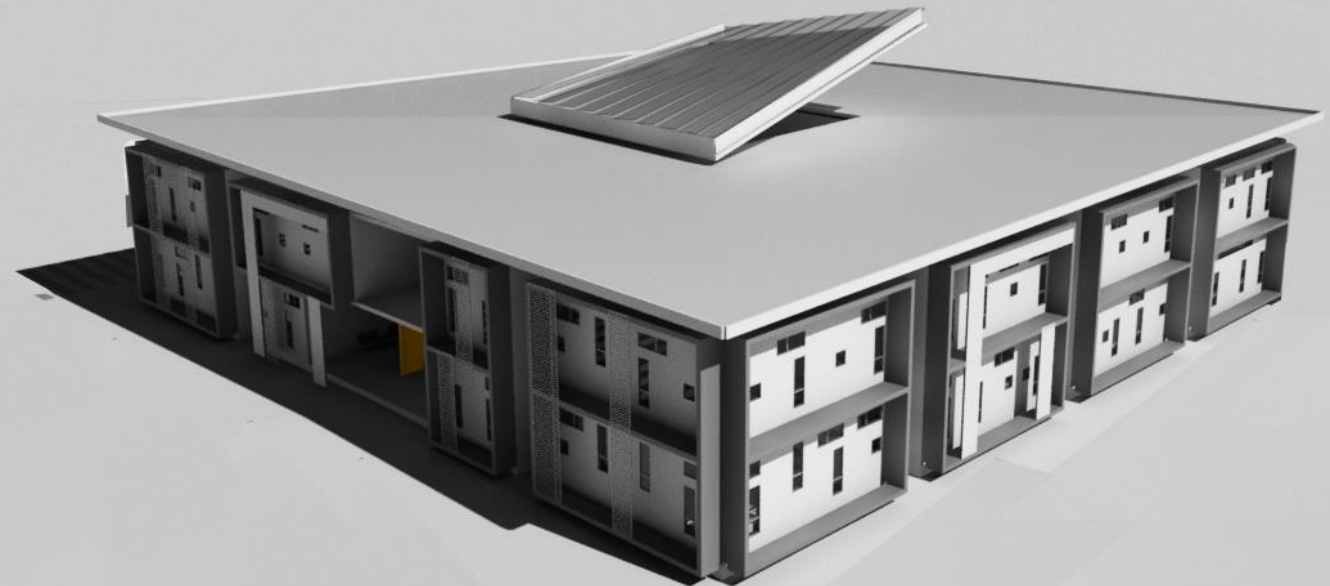
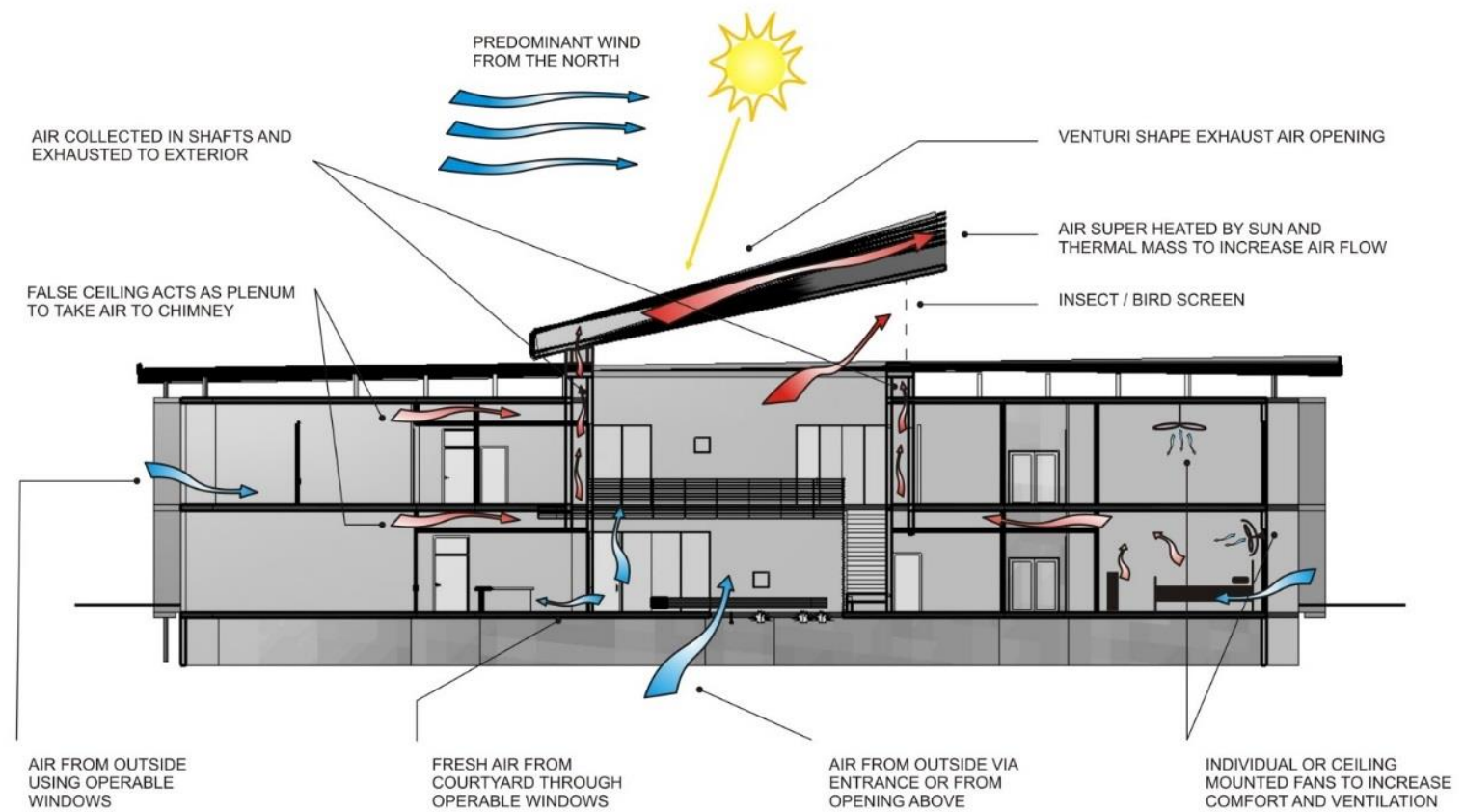


SUSTAINABILITY /OFF-GRID

TYPICAL SECTION

Each module relies on the courtyard for both spatial strength and thermal comfort.

A horizontal thermal chimney using the Venturi effect creates negative pressure to draw air from the perimeter spaces through chase/vents that are located in the perimeter walls of the courtyard.



TYPICAL MODULE



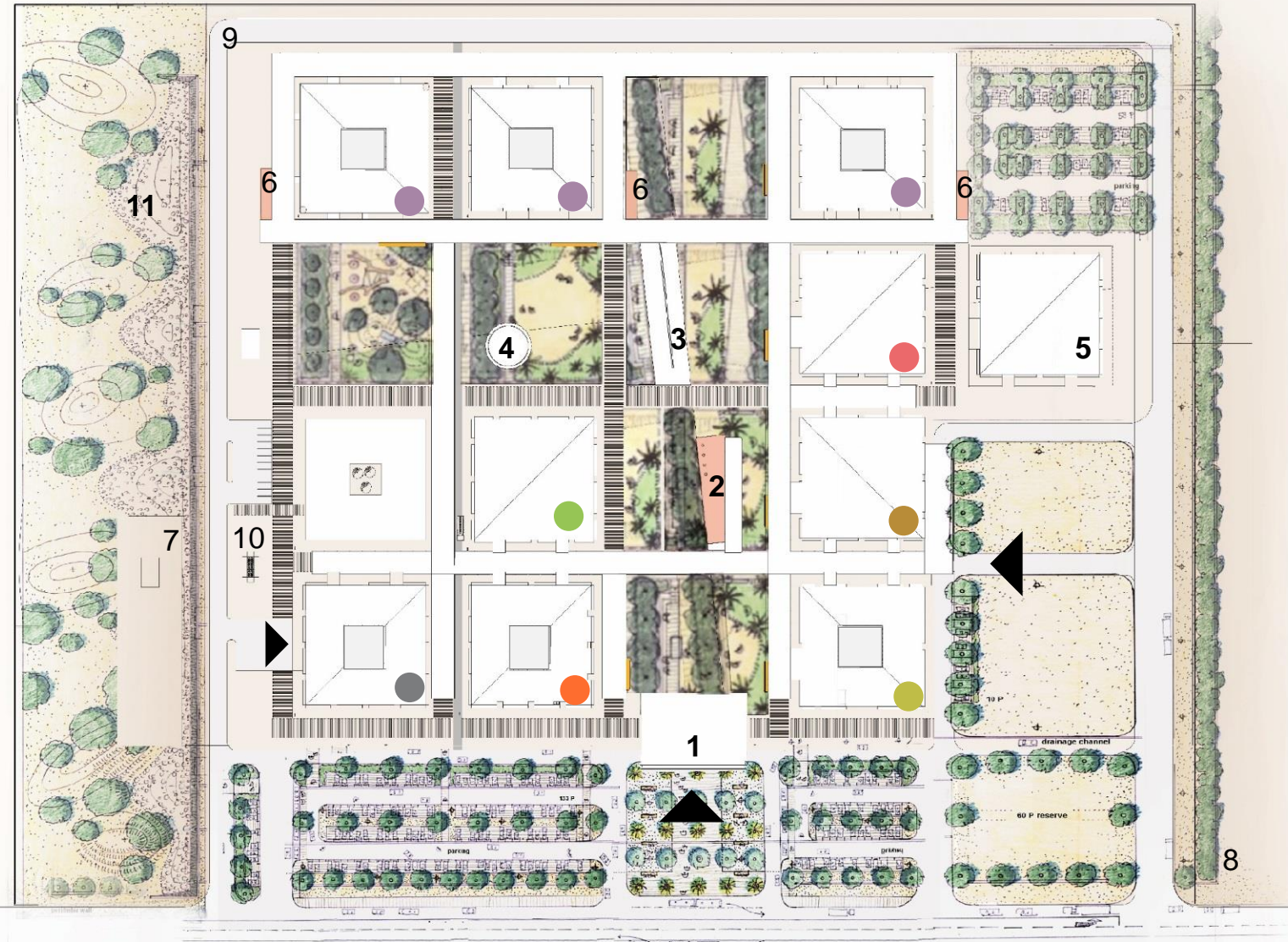
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ADAPTABLE SITE

SITE PLAN

DEPARTMENTS

- INPATIENT NURSING UNITS
- WOMEN & INFANTS
- GUEST SERVICES
- OUTPATIENT CLINICS
- EMERGENCY & IMAGING
- SURGICAL
- BUILDING SUPPORT
- LAB | BLOOD BANK | PHARMACY
- AIR CONDITIONED



LEGEND

- 1 ENTRY
- 2 COOKING PAVILION
- 3 RAMP
- 4 WATER TOWER
- 5 SOLAR PANEL BATTERY MODULE
- 6 STAIR
- 7 PRIMARY SEWER & TREATMENT
- 8 PERIMETER WALL
- 9 SERVICE ROAD
- 10 CENTRAL PLANT
- 11 NON-POTABLE WATER CATCHMENT / UNDERGROUND CISTERN



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ADAPTABLE SITE

WAITING / COURTYARD /
CIRCULATION

THE WALKWAYS BECOME THE
CONNECTING ELEMENT
CREATING
COMMUNITY INTERACTION
WITHIN THE WAITING AND
COURTYARD AREAS

