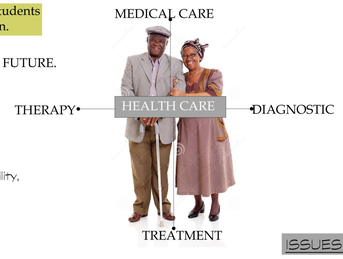
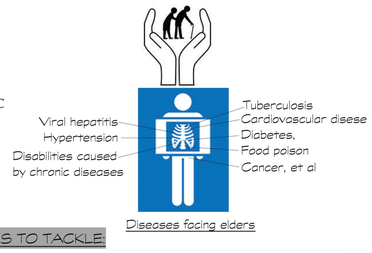
A165

TOWARDS SMART & AFFORDABLE ELDERLY PRIMARY HEALTH CARE FACILITY OF FUTURE

2017 UIA-PHG International students & young Architect Competition.

SMART, GREEN & BEYOND
HEALTH CARE FACILITY OF FUTURE.





Diseases facing elders

PROJECT DESCRIPTION.

Elderly health care facility provides primary health care to the elders which in turn improves their self-care ability, encourages health living and strengthens support so as to minimize illness and disability.

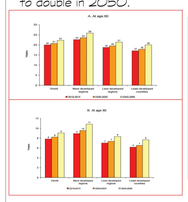
TYPE OF FACILITY A PROPOSED ELDERLY HEALTH CARE FACILITY OF FUTURE.

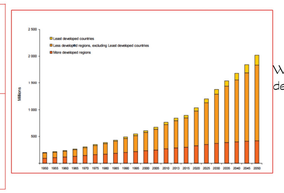
SITE: A PROJECT IS PROJECTED TO BE CONSTRUCTED IN TROPICAL AFRICA RURAL AREAS.

TARGETED TIME: 2050

AEGING POPULATION

- Population of elders with 65+ years in developed countries was expected to increase from 249mil to 690mil between 2000 and 2030
- Because elders are at high risk for diseases and disability, this population aeging will place urgent demand on developing-country health care systems, most of which are ill prepared for such demand.
- World health organization(WHO) project that Africa, Asia and latin america will have more than 55millions people with senile dimentia in 2020
- The challenge for developing countries is to reorient health sector towards managing chronic disease prevention approach
- In developing countries the population is expected to double in 2050.

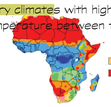




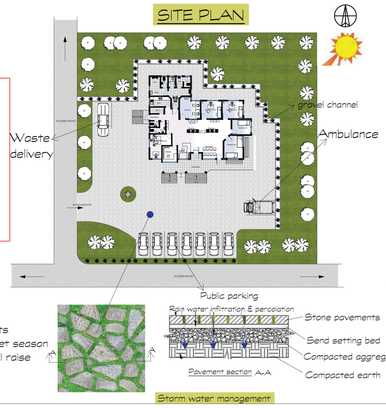
- The population ageing is taking place in nearly all countries over the world The global share of older people(aged 60yeas and above) increased from 9.2% in 1990 to 11.7% in 2013. Projected to reach 21.1% by 2050.

SITE CONDITIONS.

The project is projected to be built within the areas that experience hot-dry climates with high difference in temperature between the day and night.



SITE PLAN



- Strone and grass pavements to allow infiltration during wet season and the stored moisture will raise through capillary action during the dry season.

ISSUES TO TACKLE.

TOWARDS SMART, GREEN AND SUSTAINABLE FACILITY

Materials conservation

Using local materials: shortens transport distances, thus reduce air poluution produced by vehicles.
Local materials are better suited to climatic conditions.

Water conservation:

Gray water from cooking or hand-washing shall be chanelled to flush toilets.

Rain water collected from a roof or paved parking lots shall be used for flushing toilets and landscape irrigation.

Garden
Underground water tank

Waste management.

Eco-friendly toilets.

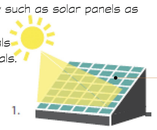
The bulding shall involve vacuum or composting toilets that use very little water and there fore produce less waste and the resulting compost can be used as a fertilizer.

1. Eco toilets are provided. Solid waste is covered with sod and liquid waste is separated
2. Remove bucket and sod every week.
3. Truck picks up containers and transports them to soil waste facility
4. Soil waste facility processes waste & turns it into diseses free fertilized over 5 months.
5. Fertilizer is then used to improve soil for growing food crops

Energy conservation.

Using alternative sources of energy such as solar panels as on-site power production.

Using low embodied-energy materials especially locally eco friendly materials.



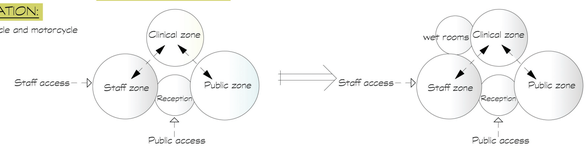
Solar panels

DESIGN SOLUTION.

SCHEDULE OF ACCOMODATION:

- Parking spaces i.e ambulance, cars, bycycle and motorcycle
- Main entrance
- Reception area
- Record storage
- Administration office
- Waiting areas
- Consulting/Examination rooms
- Treatment rooms
- Multi purpose room
- Pharmacy
- Storage.
- Wc(s) for patients.
- Wc(s) for staffs.

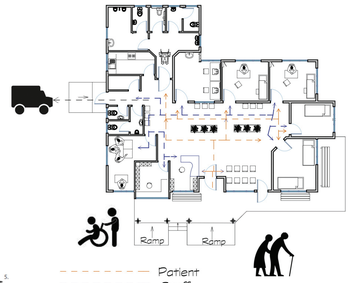
SPARTIAL ZONING:



DESIGN APPROACH

Using local materials so as to intergrate people you build for, making them feel it is their project.

PEOPLE & CIRCULATION



LEGEND.

1. PUBLIC ENTRANCE
2. RECEPTION DESK
3. WAITING AREA
4. TREATMENT ROOMS
5. CONSULTATION ROOM
6. LAB
7. COURTYARD
8. PHARMACY
9. OFFICE
10. STAFF TOILETS
11. STORE
12. PANTRY
13. TOILETS
14. STAFF ENTRANCE

DAY LIGHTING

Enhancing enough day lighting increases luminous quality of indoor environments, enhancing the psychological well being and productivity of indoor occupants.

Sky light for admitting light to the interior part of a building.

Courtyard to allow efficient movement of people towards the service rooms.

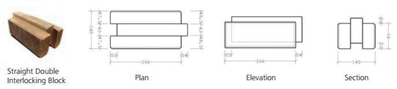
VENTILATION

- Using natural ventilation systems
  Cross ventilation
  Stack effect

Escaping hot air through perforated clay ceiling

Incoming fresh air

CONSTRUCTION MATERIALS USE OF INTERLOCKING MUD BLOCKS.



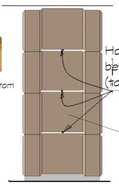
Use of interlocking stabilized soil blocks (ISSB) offers the following benefits:

- Soil is easily available in virtually every community
- Easy to use and construct with
- Green and sustainable
- Highly available especially in poor countries and easy to transport.
- Proven durability
- Easy to re-use and
- Fire resistant.
- Saves time in construction.

Cost effective
Simplicity in construction
Structural stability

Clay has good thermal insulator
Keeps heat outside the building
and stabilises the temperature outside

- When interlocked makes a tongue and grooved joint at the sides, top and bottom no mortar is requared.



Horizontal clearence between courses (tongue and grooves)

- Steel reinforcing bars for preparation of trusses can be easily produced from recycled steel.

STEPS:

1. Preparation of soil.
2. Preparation of mix
3. Compression of mix
4. Stacking and curing of blocks.

- A production is made on the site itself or in the nearby areas with Manual operated interlocking block machine. Its simple technology that can be done with unskilled labour.

SIDE VIEW

SOLAR PANELS

SKY LIGHT

Corrugated metal sheets gauge 28

Bamboo pergola treated with sodium borate

AERIAL VIEW

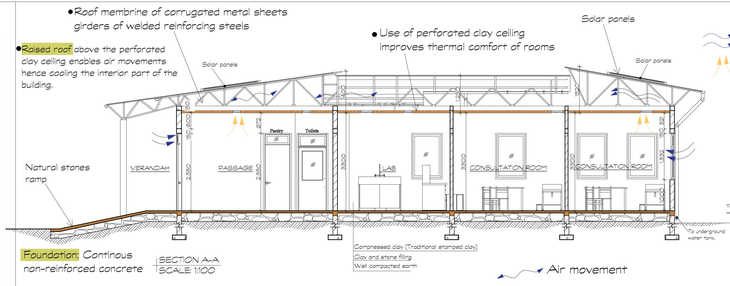
3D ILLUSTRATIONS

A FRONT VIEW

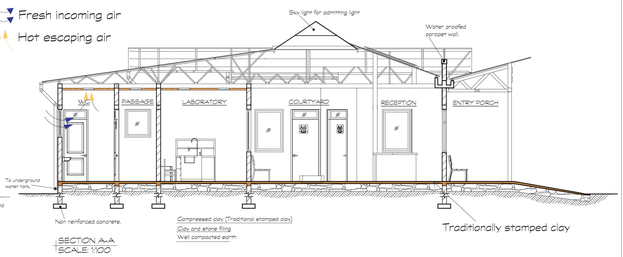
REAR-LEFT VIEW

FRONT-RIGHT VIEW

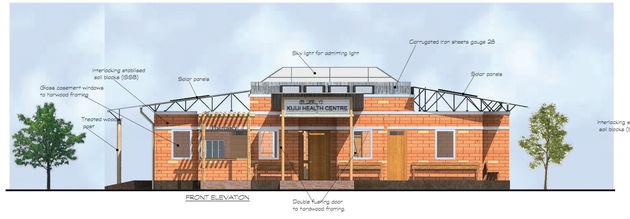
- Roof membrine of corrugated metal sheets girders of welded reinforcing steels
- Raised roof above the perforated clay ceiling enables air movements hence cooling the interior part of the building.
- Use of perforated clay ceiling improves thermal comfort of rooms

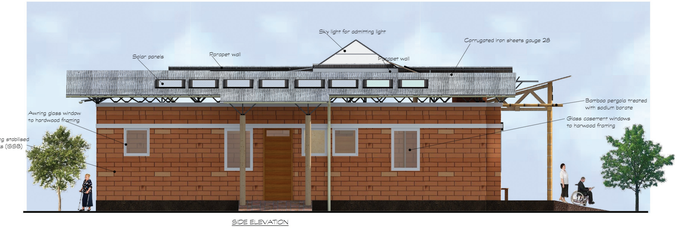


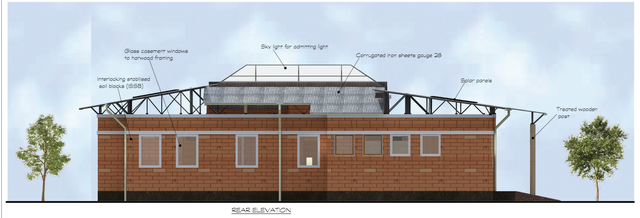
Fresh incoming air
Hot escaping air



BUILDING SECTIONS & ELEVATIONS







Sources:
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