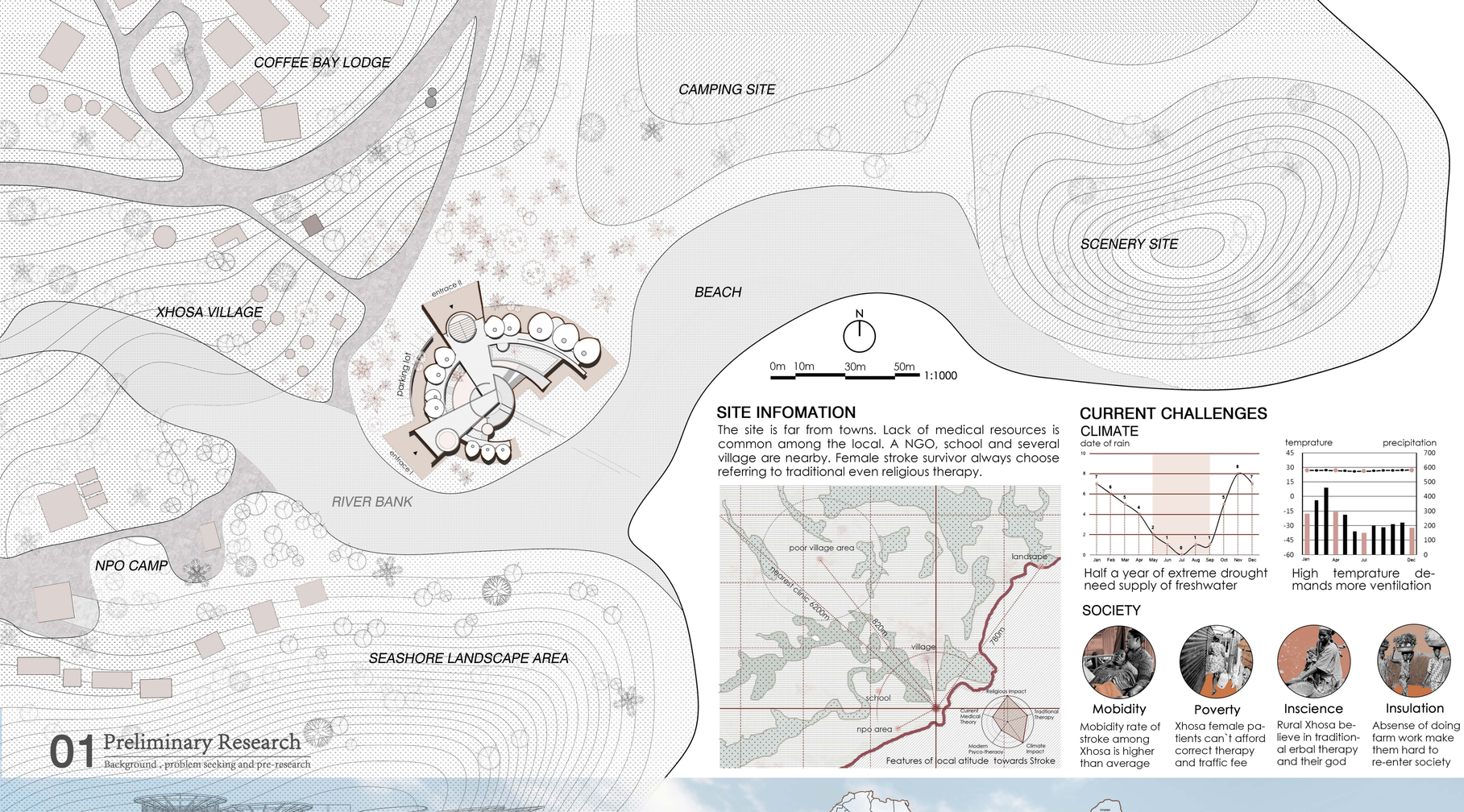


SITE INFOMATION

The site is far from towns. Lack of medical resources is common among the local. A NGO, school and several village are nearby. Female stroke survivor always choose referring to traditional even religious therapy.

CURRENT CHALLENGES

CLIMATE

Half a year of extreme drought need supply of freshwater

High temprature demands more ventilation

SOCIETY

Mobidity

Mobidity rate of stroke among Xhosa is higher than average

Poverty

Xhosa female patients can`t afford correct therapy and traffic fee

Inscience

Rural Xhosa believe in traditional erbal therapy and their god

Insulation

Absense of doing farm work make them hard to re-enter society

PROBLEM & RESPONSES



Focus on Xhosa women habits, abilities and current adversity

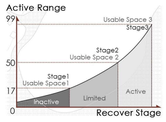


Aquatic spirit UDODOBAWU religion based activity and therapy



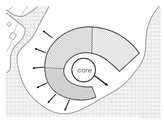
Re-participation training of farm-work and planting

GENERATION PROCESS



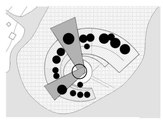
STATISTICS

A gragh generated from the statics of the active range of stroke survivors'3recover stages



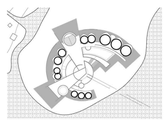
TRENDS

Transform the gragh into a practicle area which fits in the site well and interact with the environment



BLOCKS

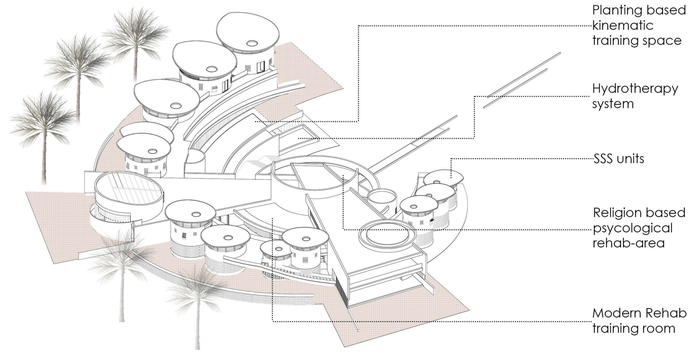
Set different categories of space blocks to contain different functions



ARCHITECTUAL

Take the circumstance,featured space and dwelling units into consideration

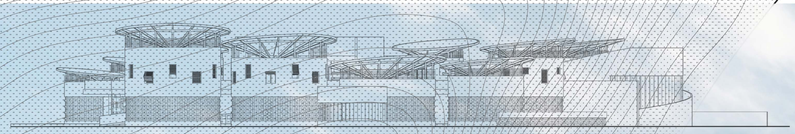
COMPONENTS & FUNCTIONS



XHOSA MIRACLE SPRING

Stroke Survivor Rehabilitation Center For Xhosa Women

INTRO: This stroke survivor center is specially designed for poor Xhosa female sufferers. They do most farm work in tribes before stroke and find it difficult to return normal life after recovery. We take their deep belief in traditional herbal therapy and their religion UDADOBAWU(an aquatic spirit curing patients) in consideration in order to create a religion based local rehab-center to help them regain labour in an acceptable way.



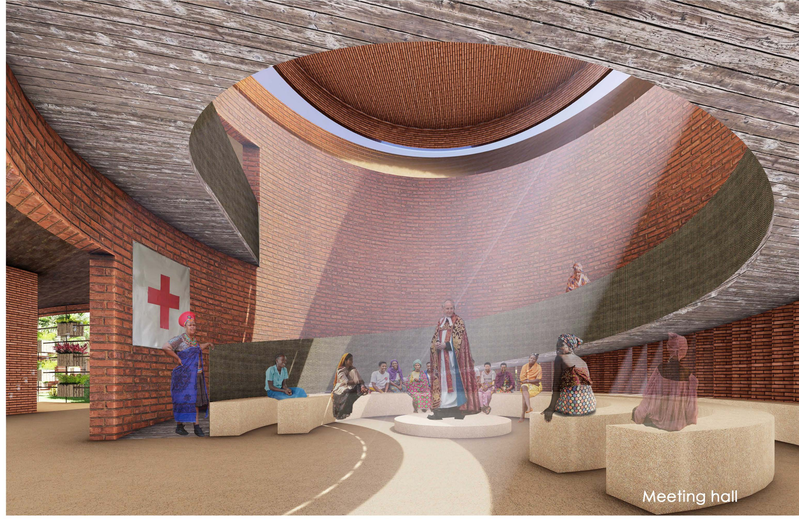
The projecct is designed for Xhosa women stroke survivors, who live in Eastern Cape province of South Africa. We specially chose Coffee Bay of Wild Coast to provide a convenient and innovative local stroke rehabilitation center for them.





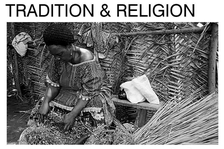






CULTURAL EVIDENCE

TRADITION & RELIGION



Herbal therapy belief

Reffering to local herbal therapy is a unique Xhosa feature



Water spirit worship

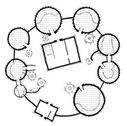
Xhosian believe that praying to UADOBAWU the water spirit can get cured while sick.

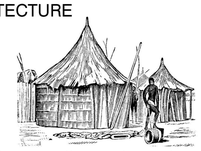


Collective religious activity

Collective religious activities play an important role in Xhosa life

ENDEMIC ARCHITECTURE





Centralized residence with circular units



Clergy core



Contemporary form

The traditional houses in Xhosa tribes have centripetal characteristics. The public central area dominated by the clergy space has high accessibility for all people in a tribe. This feature continues to today and should be applied in design

02 Medical Space Planning

Cultural evidence and treatment activity space arrangement

The medical space is carried out in accordance with the local cultural evidence and progressive theraputic intensity. It includes psychotherapy and communication space with religious space as the core, modern sports rehabilitation space with hydrotherapy as the core, and sports rehabilitation space with planting ability recovery as the core. Meanwhile, income generation and profit are achieved through planting recovery activities.

OPERATION MODE

PATIENT CLASSIFICATION

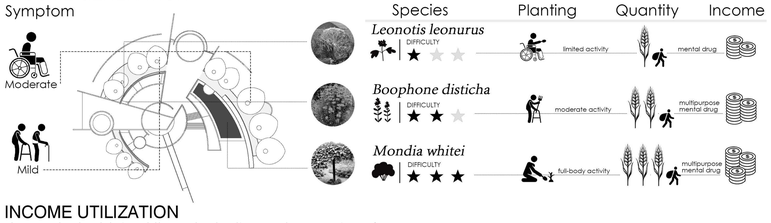


1.Doctor eliminates severe sufferers

INDEX	SCORE
Control upper limb activities independently	1~5
Control lower limb activities independently	1~5
Consciously control your mind	1~5
Willing to generate income	1~5
Ability to move around independently	1~5
Poverty level of your family	1~5
total	

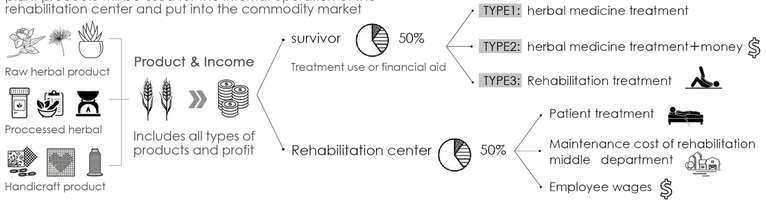
2.Classify income generator candidates by questionare

INCOME GENERATION



INCOME UTILIZATION

The products obtained through planting and processing of plant products will be used for the internal operation of the rehabilitation center and put into the commodity market









PLANTING BASED EXERCISE

PLANTING RECOVERY

active range
50-90cm



Stage1.Limb Recovery

active range
40-150cm

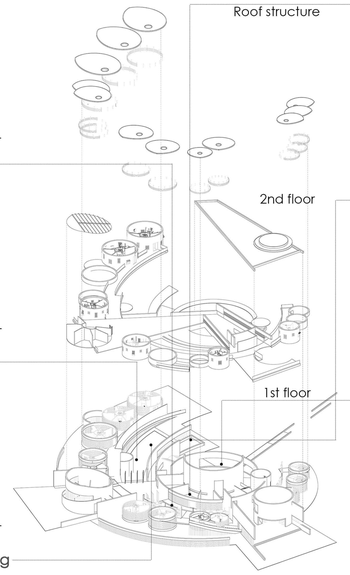


Stage2.Full-body Training

active range
Interpersonal range



Stage3.Social Work Training



THERAPUTIC COMPONENTS

- EXERCISE RECOVERY



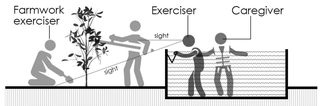


Space divided by recovery stages

Rehabilitation gymnasium is divided into three blocks according to the stages of rehabilitation

- HYDROTHERAPY SPACE





Sight design by section

Hydrotherapy pool allows patients to observe and imitate the implant practitioner

- PSYCOLOGICAL THERAPY

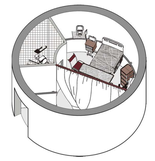




Religious intervention

Religious elements intervene in medical inquiry and group healing to increase acceptance

SSS UNITS



Single Room



Double Room

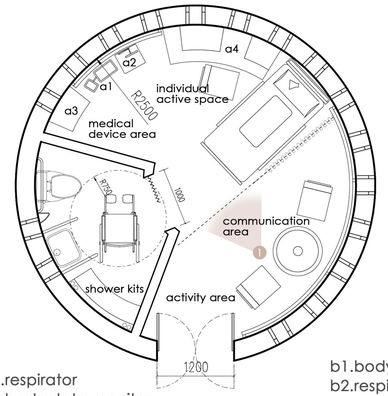


Triple Room



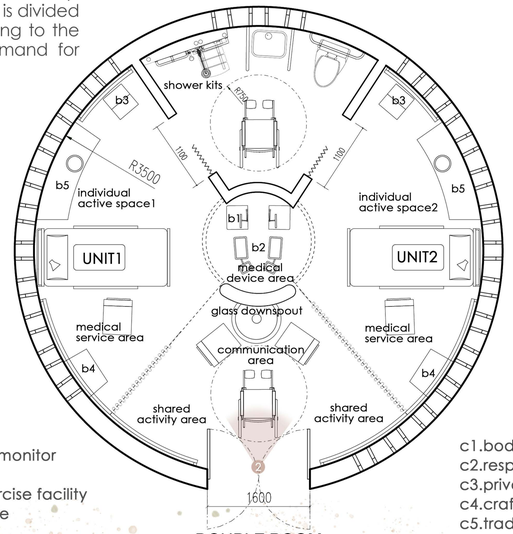
DETAILED SSS UNITS PLAN 1:50

Stroke Survivor`s Spaces are divided into three levels, serving patients with different activity abilities and needs in the early, middle and late stages of treatment. The room capacity is divided into single room, double room and triple room according to the equipment used by patients in each period, the demand for medical service space and social ability.



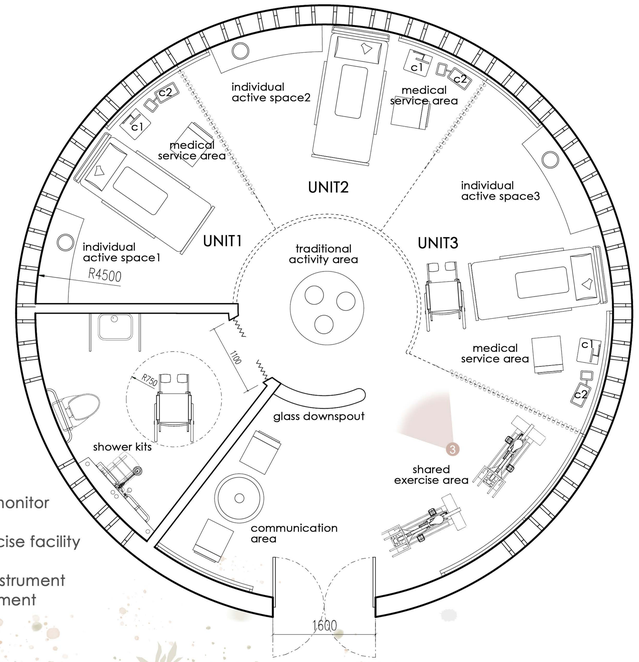
a1.respirator
a2.body data monitor
a3.nursing table
a4.storage table

SINGLE ROOM



b1.body data monitor
b2.respirator
b3.private exercise facility
b4.nursing table
b5.craft table

DOUBLE ROOM



c1.body data monitor
c2.respirator
c3.private exercise facility
c4.craft table
c5.traditional instrument
c6.sports equipment

TRIPLE ROOM

03 Architectural Approach

Overall plan and detailed partial plan for medical target

The plan presents a centripetal layout. According to Xhosa tradition, religious space is the core of the building, the living units of patients and staff are spread outside, various professional medical and rehabilitation spaces are arranged between them. All types of patients and their corresponding medical service spaces have the most efficient and reasonable traffic flow lines.

1st FLOOR PLAN 1:200

a. Single SSS unit
b.Double SSS unit
c. Triple SSS unit
01.Entrance hall
02.Meeting hall
03.Reception area
04.Hand training area



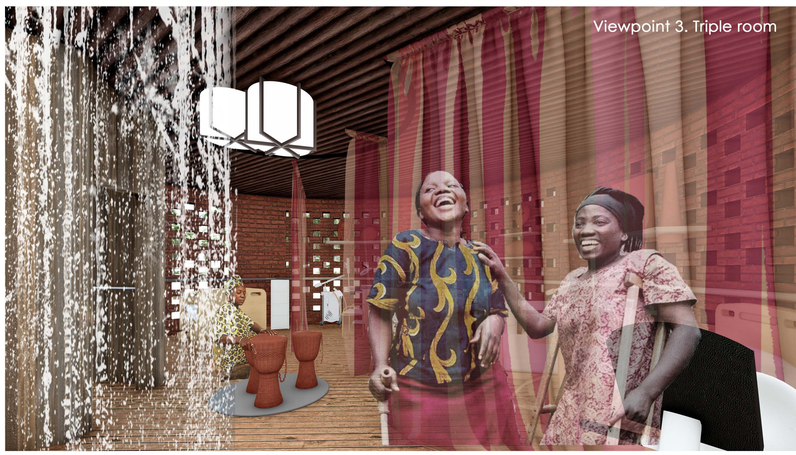
05.Electrotherapy room
06.Sense recovery room
07.Integrated training room
7a.Passive training area
7b.Assisted training area
7c.Active training area
08.Religious activity center
09.Planting training area
10.Medical observation room
11.Hydrotherapy preparation room
12.Hydrotherapy pool
13.Multi-function canteen
14.Active training area
15.Nursing station

16.Male staff locker
17.Female staff locker
18.Storehouse
19.Diet preparation room
20.Kitchen
21.Staff active area
22.Medical research area
23.Storehouse
24.Office
25.Staff canteen
26.Toilet
27.Utility room
28.Footpath
29.Staff active area
30.Staff bedroom
31.Communication area
32.Consultation room
33.Integrated medical room
34.Family resting area
35.Collum training space
36.Resting area

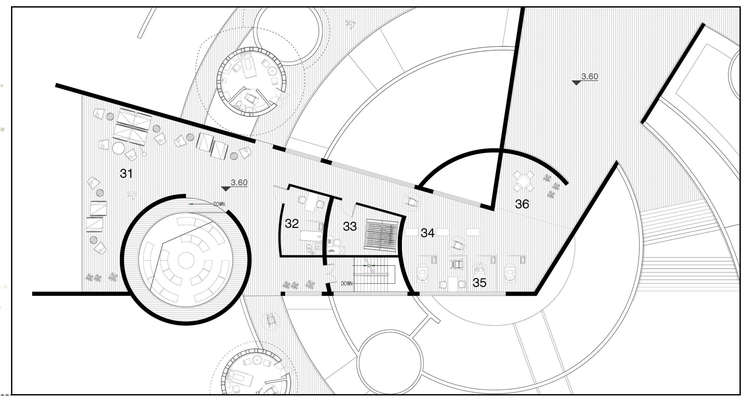
PARTIAL PLAN 2F


Viewpoint 1. Single room


Viewpoint 2. Double room


Viewpoint 3. Triple room

PARTIAL 2nd FLOOR PLAN 1:200



OVERALL REPORT:

Xhosa Miracle Spring is a stroke rehabilitation center for Xhosa women stroke survivors in Eastern Cape, South Africa. It is characterized by an evidence-based design to create a local program that is appropriate to the local ecological and human conditions. The project has two main targets: 1. To enable rehabilitation and communication activities for stroke survivors at different recovery stages with different therapy and space typologies. 2. To restore social role of survivors by intergrating their farming abilities into therapeutic activities, thus finally helping them achieving social reintegration after rehabilitation.

The following innovation points in the design concept are presented: 1. The integration of religious elements into the characterized rehabilitation space through evidence-based design. The scheme captures Xhosa people's worship of the sea and water spirits to shape the space for psychological recovery and shared collective religious activities. It also contains a hydrotherapy space with a line of sight to the sea to complement physiological rehabilitation and improve patients' acceptance of modern stroke rehabilitation therapies; 2. Through planting activities to generate income while conducting physical rehabilitation training, to reduce the economic burden on patients' families and to lower hospital operating costs.

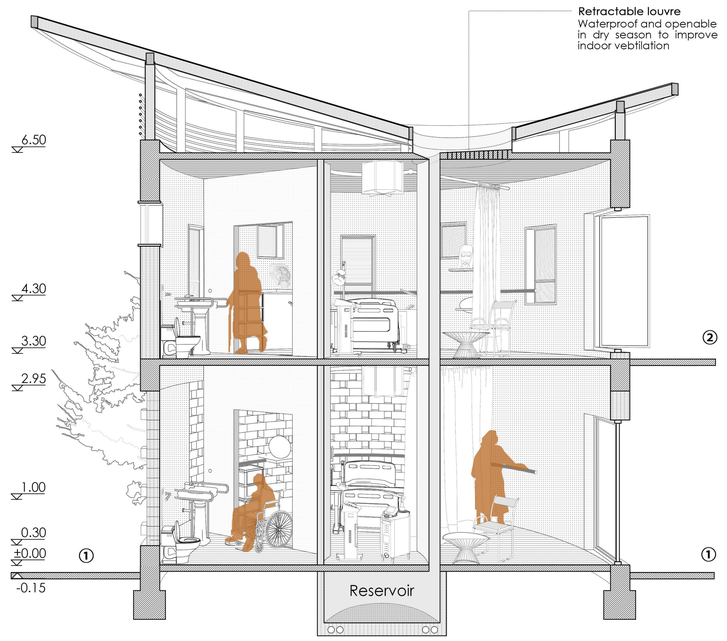
From the perspective of architectural design, the centripetal layout replays the traditional residential construction of Xhosa, and the circular SSS units with local characteristics that can carry different numbers of people have discrete features based on mathematical logic with the central medical rehabilitation space in order to obtain an appropriate area of rehabilitation space. The use of sintered bricks made of local materials to shape the preparation of the façade facilitates the exchange of information. In terms of architectural performance, the scheme is also characterized by green energy efficiency, in line with the local climate, organizing rainwater and internal water in a water circulation system. Through specific masonry methods to improve the air quality of the internal environment, optimize the light conditions, improve the weather resistance of the building, and truly achieve the integration of the building into the local ecological and humanistic environment.

In summary, this project not only responds to the therapy, communication and information provision target mentioned in Novell aspects by optimizing the layout and functional hierarchy, but also takes into account religious and cultural factors to help patients achieve recovery in a sociological sense, thus truly helping Xhosa women stroke survivors to recover in both physical and psychological terms.



INDOOR CIRCUMSTANCE OPTIMIZATION

SSS SECTION 1:50 (Double room)



PERSPECTIVE SECTION

OUTDOOR FIELD

The outdoor field includes the non-planting area and the second-floor platform, providing flexible sports space and sufficient communication space





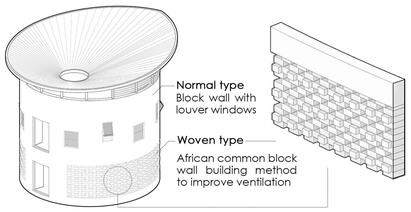
04 Local Adaptation Design

Resource utilization and indoor performance improvement

Through scientific demonstration, energy conservation is carried out on all parts of the architecture, and the generated water and power resources are applied to the special medical space, which will help the building achieve self-sustainment in the East Cape Province of South Africa with special climate conditions

ENCLOSURE STRUCTURE

WALL DESIGN



Normal type
Block wall with louver windows

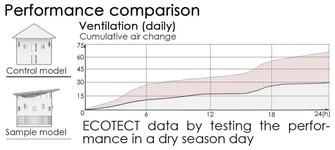
Woven type
African common block wall building method to improve ventilation

Material & construction

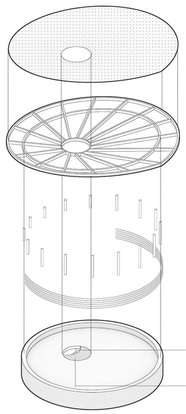


Make mud bricks | Weave pattern | Complete wall

Performance comparison



ECOTECT data by testing the performance in a dry season day



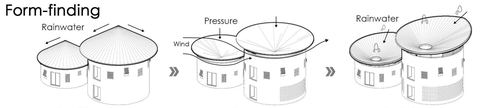
ROOF DESIGN

- 1.Membrane surface
  Membrane surface coated with waterproof paint waterproof the summer rainfall
- 2.Spoke truss
  Vertical and horizontal frames are set under the membrane



- 3.Vertical support
  Short columns arranged evenly to support the roof
- 4.Horizontal stiffener
  Round fences support the small columns
- 5.Horizontal stiffener
  300mm wide glass downpipe for guiding rainwater
  Roof louver for ventilation

Form-finding

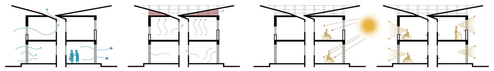


Preserve the drainage function of Xhosa roof

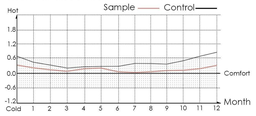
Reverse the roof to prevent wind pressure

Optimize the shape to improve rain-collection and ventilation ability

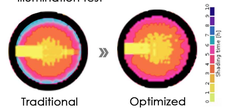
Performance analysis



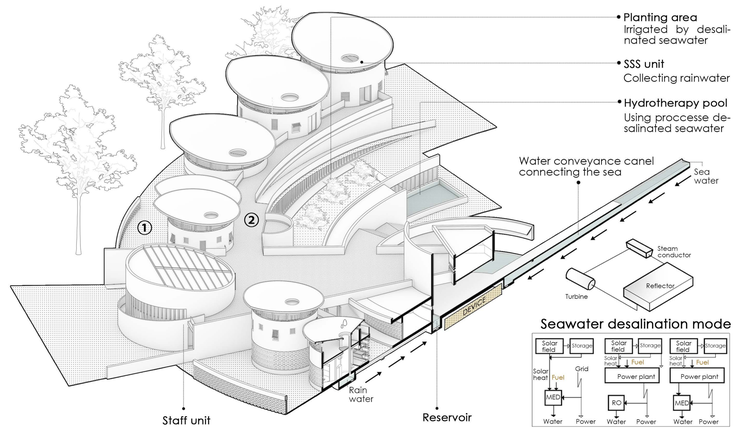
Thermal discomfort test (kDegHr)



Illumination test



WATER UTILIZATION & CIRCULATON



Seawater desalination mode

SECTION 1-1 1:150

