



# 360 HABITAT

TOUCH OF THE OLD AND THE NEW



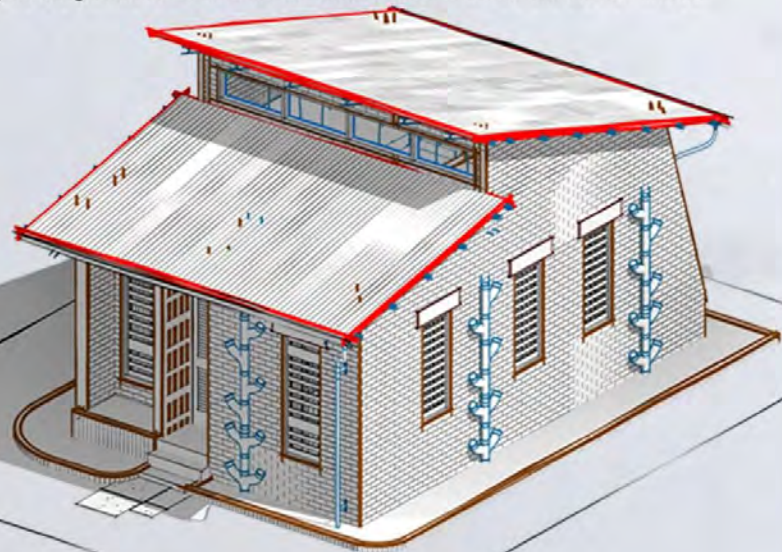


#### PREAMBLE

360 HABITAT focuses on three main tenets:

1. Achieving a highly low-cost prototype not just as a final product but implementing cost effective strategies right from the design stage up to final completion.
2. Incorporating Passive design strategies to reduce the need for artificial means of heating/cooling within the Building.
3. Socio-Economic Benefit to the Nation of Lesotho as the implementation of the prototype will help foster and provide employment opportunities for the citizens as well as provide a ready triving maerket for building materials and construction techniques.

With these in mind the designer, was saddled with the responsibility of representing the above tenets into a physical and tangible design. And so we have it! 360 Habitat... touch of the old and the new indeed.



**360**  
HABITAT  
TOUCH OF THE OLD AND THE NEW



#### PROJECT DESCRIPTION

360 HABITAT is a sustainable and highly affordable design. Each and every material used are locally sourced and only simple skills are required from start to finish. It is designed in such a way that anyone can assemble or demount it at any point in time without using any special tools or techniques.

The walls are made from Hydrafoam interlocking brick (Compacted Earth Block CEB) and Gravel Gabion Wall System. The exterior walls are built with CEB while most of the Interior walls use the Gabion Wall system. This rules out the need for concrete by more than 50% and slashes construction time by a whopping 60%. 360 Habitat as the name implies is designed to be holistic in that it satisfies all sustainability tenets considerably.

Furthermore, Windows and Doors are aluminum with shutters so they can be kept shut during cold weathers and properly opened to allow for ventilation and fenestration during hot seasons. The design is equipped with a water collection facility at the end of the slopes of the roof to collect as much rainfall and store for later use.

Moreso, 360 HABITAT is designed to provide proper warmth during winter and adequate coolness during summer. This is made possible by the use of CEB. CEB is basically earth, compacted together under high pressure to form a block which is cured and then used to building the prototype. CEB's have very high insulating properties and help keep indoor quality at a very comfortable sate regardless of the prevailing weather conditions outside.

The choice of CEB was motivated by the abundance of landforms within the area, hence, steady sources of raw materials for construction.



#### SCALING-UP : HOUSING AFRICA

360 HABITAT is set to be the future of affordable housing in Africa. The ease of construction and the purpose-design nature makes it easily scaleable into social housing prototypes without much alterations.



Using a simple Frame stucture system, 360 Habitat can provide a comfortable accommodation for over 3 million people in less than one year using readily available raw materials we disregard every day.



in loco rise BOND



## Design Concept



The concept is derived from the coming together of multiple rectangles



This rectangles signifies the rich cultural heritage, socio-political prowess, unique climate and cordiality of Lesotho's people



Merges in unity



To form a Single Rectangular Volume

Rectangle

## Design Motivation

The design is motivated by the need to add value to the existing local construction industry through the use of an already existing system within the region - Use of CEB and Gabion Wall System.

Also, the abundance of Landforms and the Altitudinal advantage of Lesotho helped shape the general design aspirations.



## Building Material Selection

Structure 65% of Building Mass



Stone

Roof Truss  
Steel Truss System

Wall Panels



Compacted Earth Block CEB

Floor Finish

10% of Building Mass  
Rammed Earth Floor



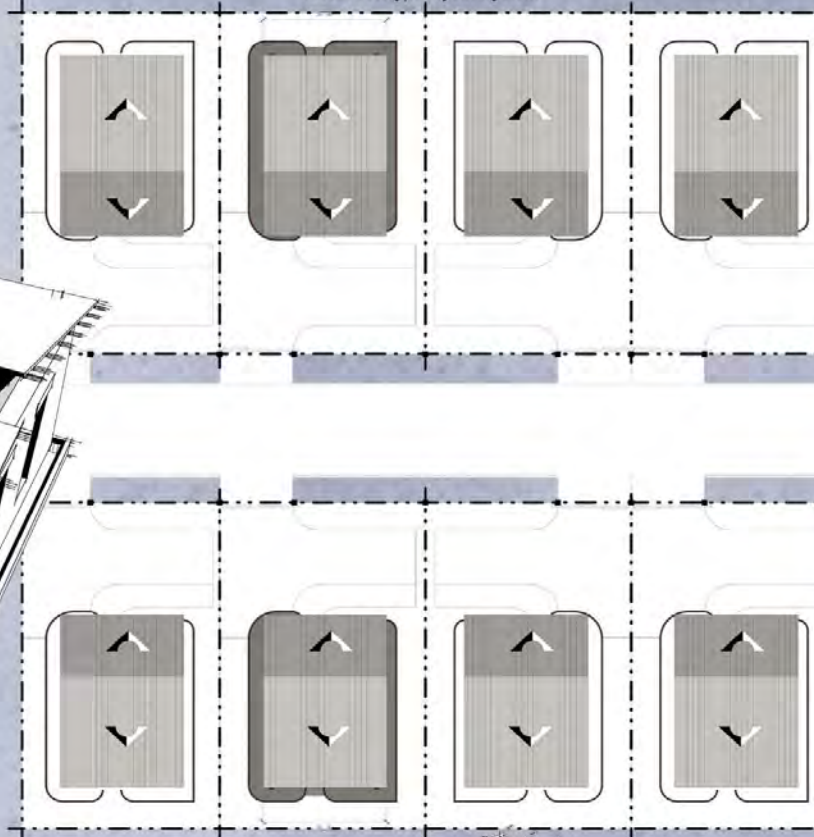
Boulders



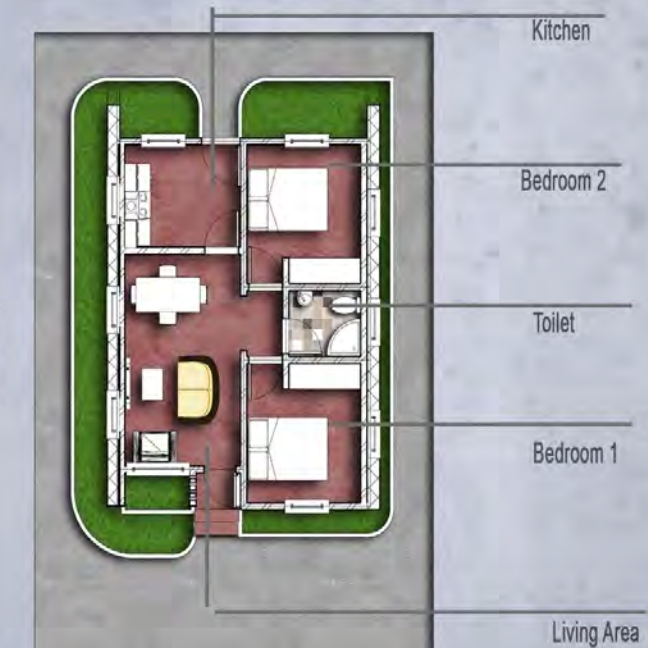
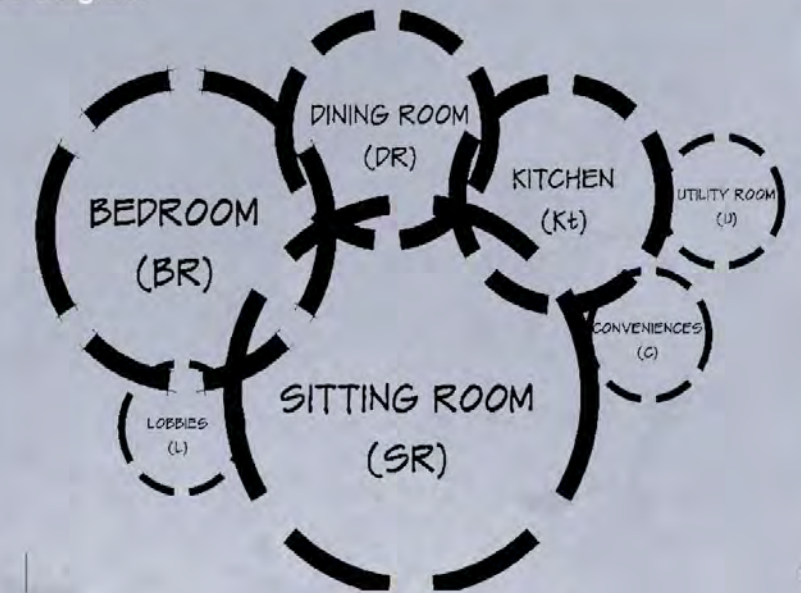
Gravel



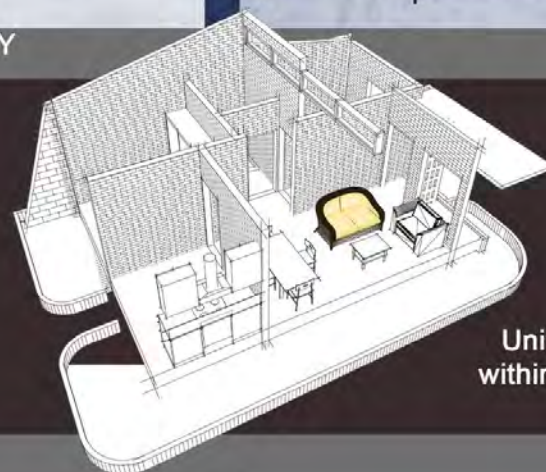
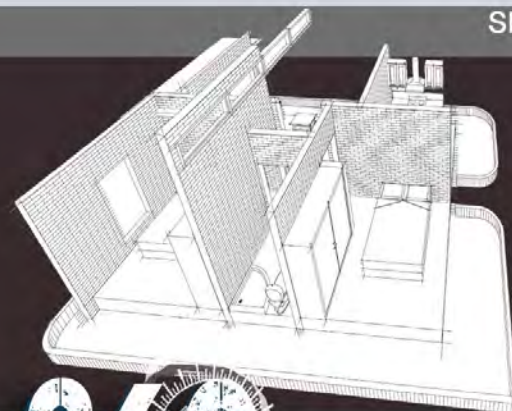
## Ideal Prototype layout System



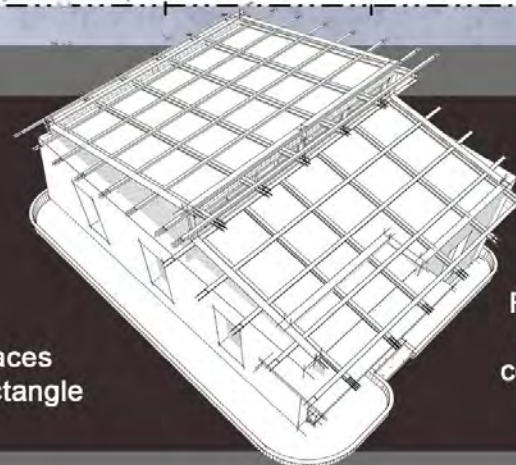
## Bubble Diagram



## SPATIALQUALITY



Unity of spaces within the rectangle



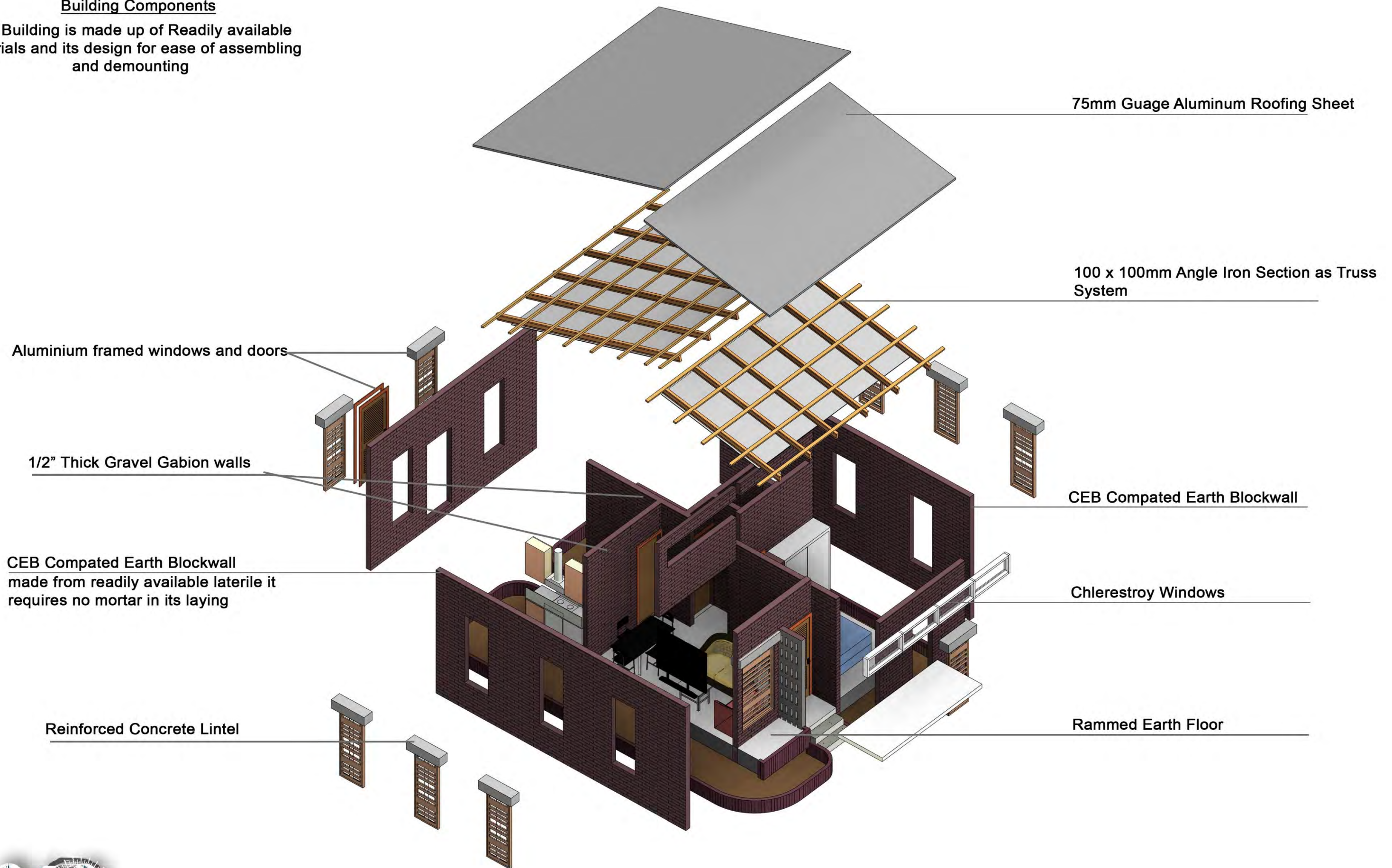
Overall Concept for Final Prototype is a comfy space which promotes commuiality and happiness





### Building Components

The Building is made up of Readily available materials and its design for ease of assembling and demounting





"360 HABITAT can house 3 million people in less than a year"



Using Simple Frame Structure System



Over head view



Elevation veiw







360 HABITAT doors are equipped to withstand wear and tear over time and also to help shield from extreme weather conditions.





## DESIGN SUMMARY

360 HABITAT is an affordable design built using Compacted Earth Blocks CEB and Gabion Wall system. This rules out the need for concrete by more than 50% and slashes construction time by a whopping 60%. 360 HABITAT is set to be the future of affordable housing in Africa. The ease of construction and purpose-made materials makes it easily scalable into social housing prototypes without much alterations. Using a simple Frame structure system, 360 Habitat can provide a comfortable accommodation for over three million people in less than one year using readily available raw materials we disregard every day.

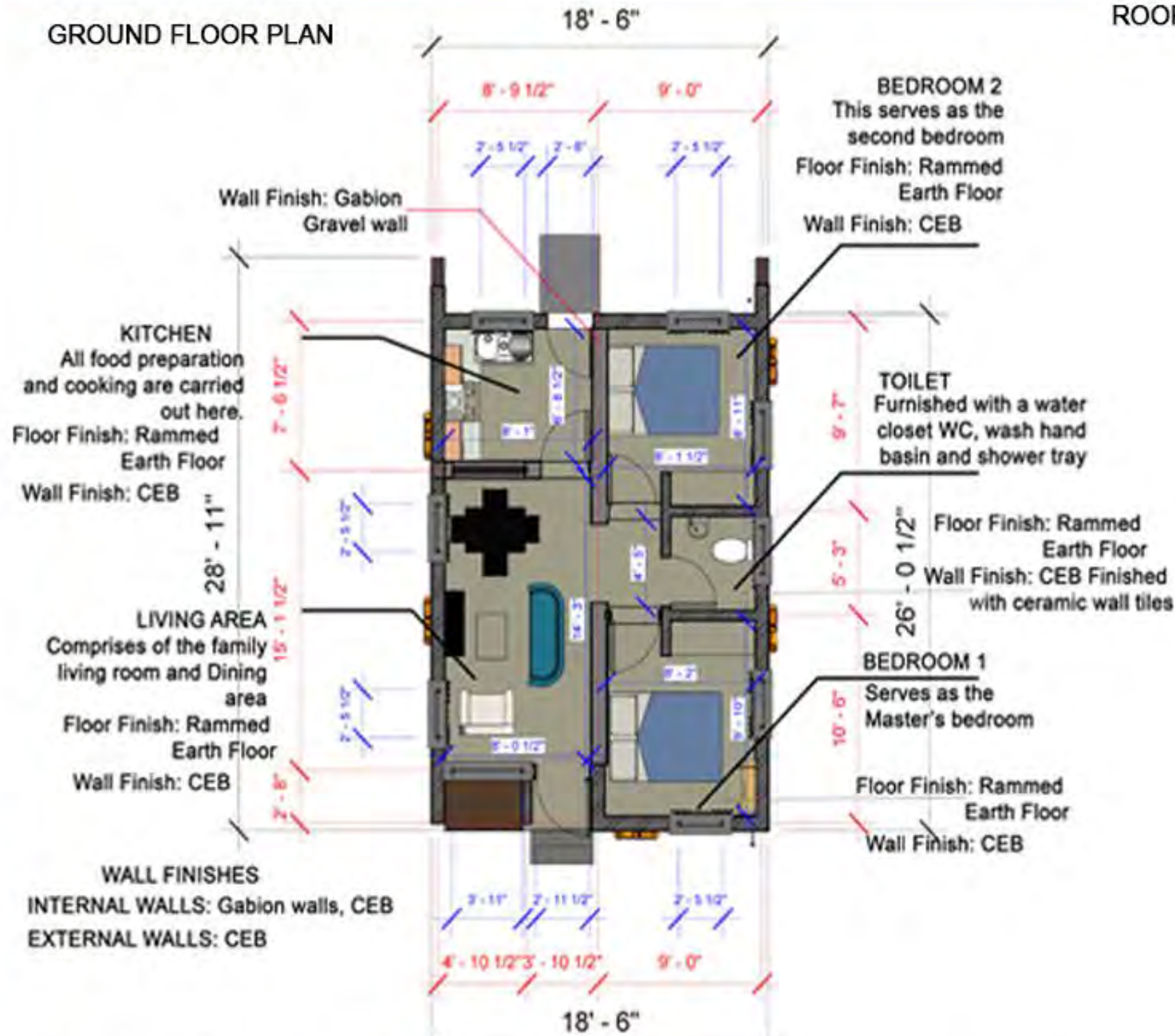
### PROJECT BUDGET BREAK DOWN

Total number of Compacted Earth Blocks required = 5000

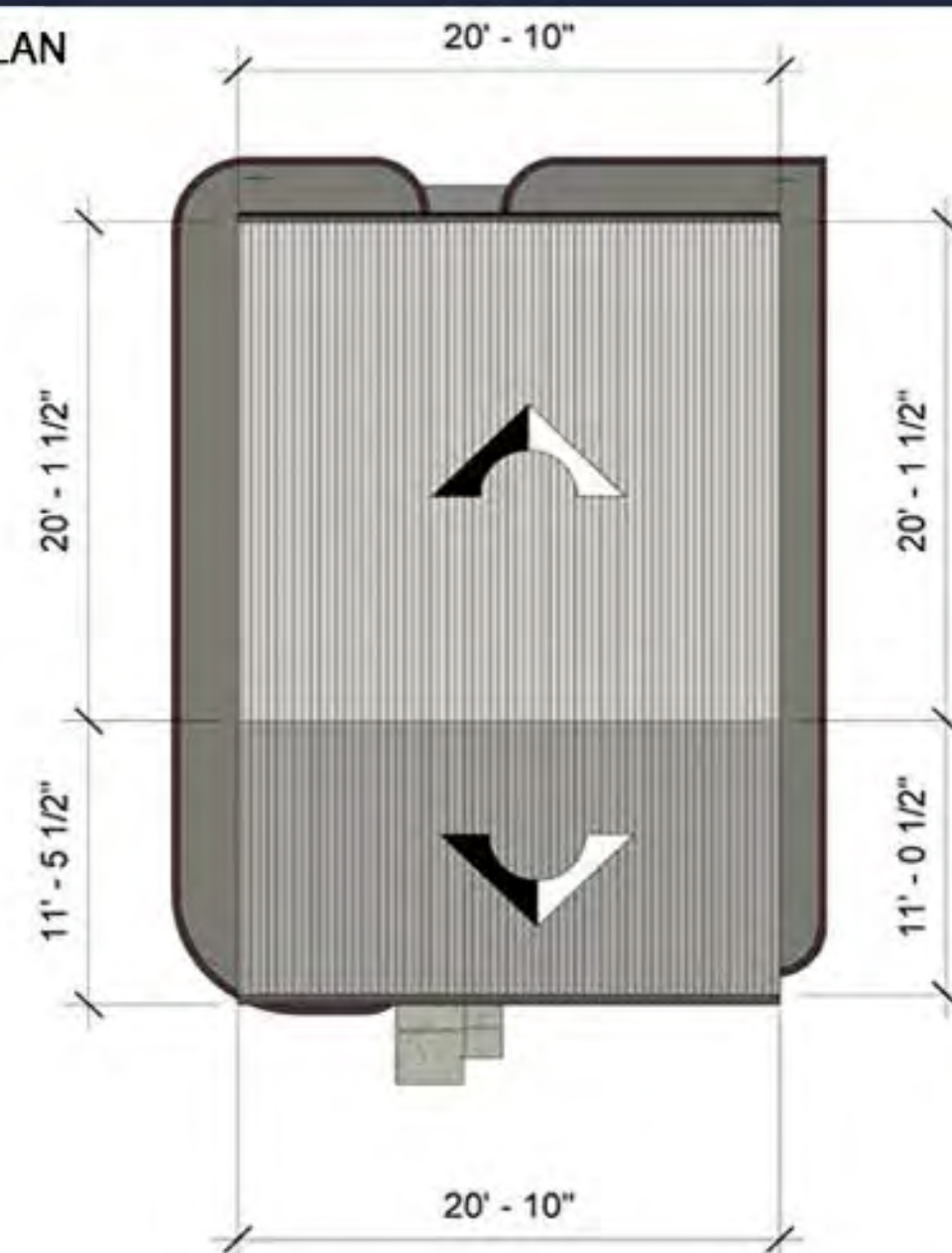
S/N	MATERIAL	NO.	PRICE (LSL)
1	Laterite		7000
2	Cement	70	2500
3	Stones		6500
4	Labor (Excavation, and workmanship)	6	2414
5	Equipment		2000
6	Mechanical and electrical		5400
7	Finishes		6000
8	Metal Work (Steel truss system and roofing sheet)	20	12000
9	Miscellaneous		5000
	GRAND TOTAL		48814



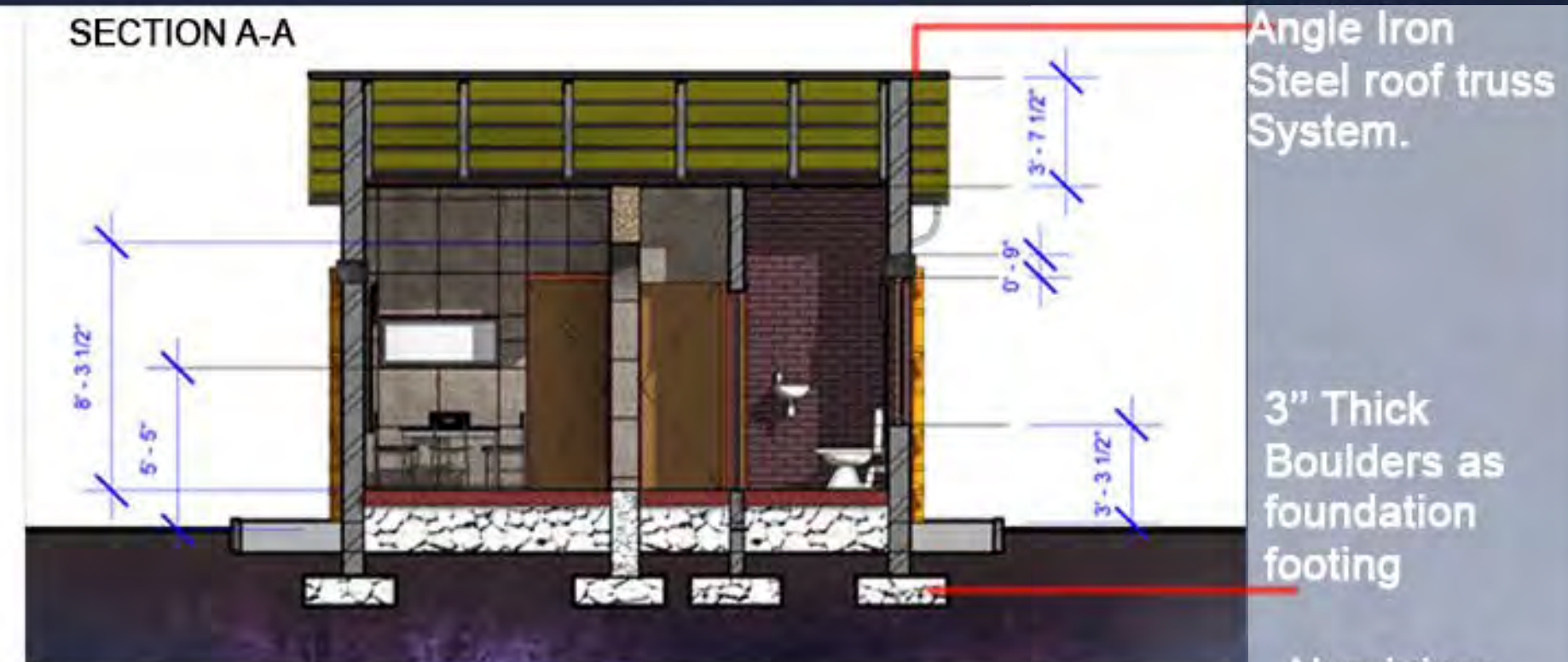
GROUND FLOOR PLAN



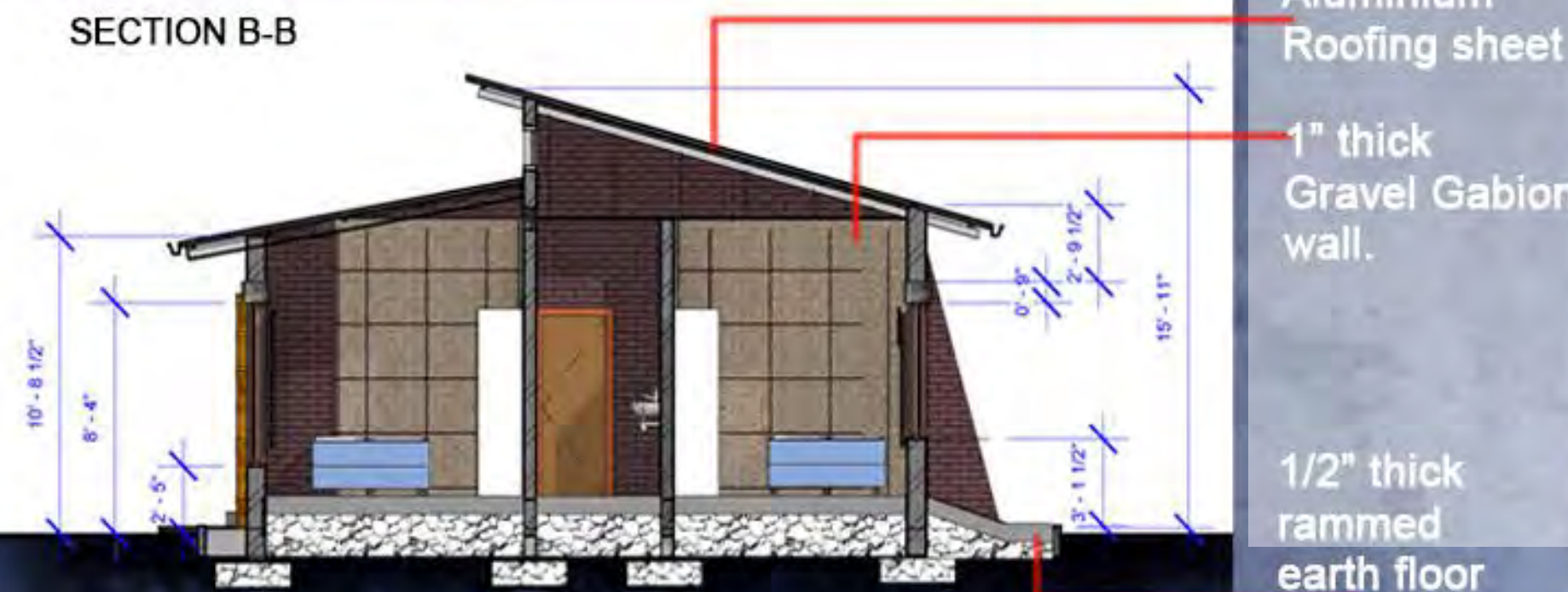
ROOF PLAN



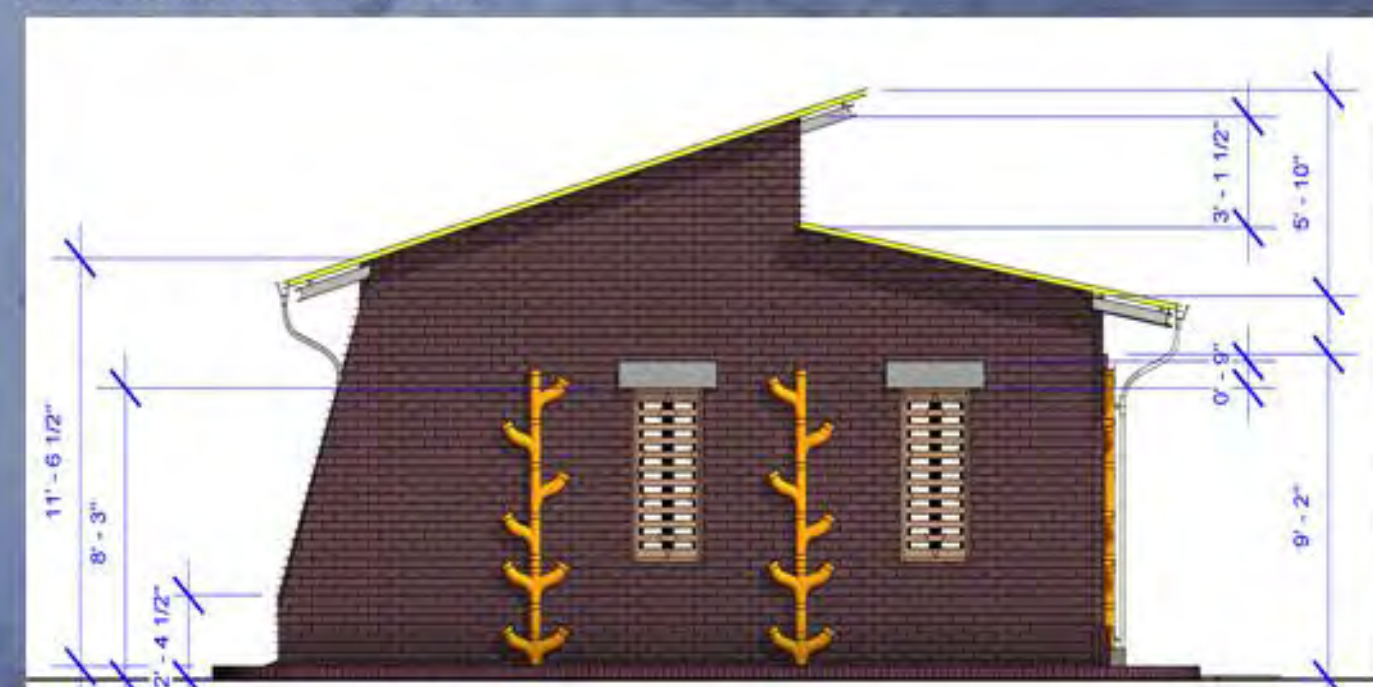
SECTION A-A



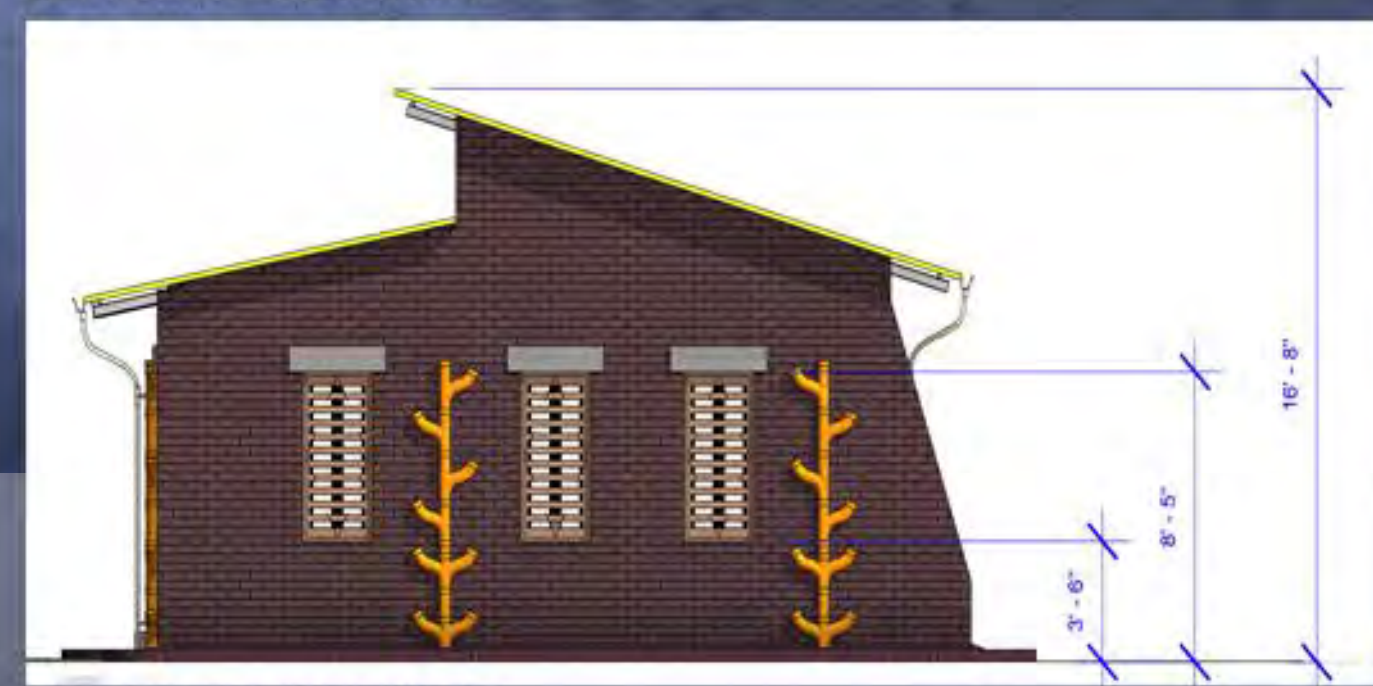
SECTION B-B



APPROACH ELEVATION



LEFT-SIDE ELEVATION



RIGHT-SIDE ELEVATION



REAR ELEVATION

CONSTRUCTION PROCESS

Step 1 (Day 1 - 3)

Excavation and Strip foundation laying on stone foundation



Step 2 (Day 4-6)

Casting all lintels only at openings



Step 3 (Day 7 - 10)

Installing Windows, doors, roof truss and roofing sheets.



Laying the CEB without mortar to Lintel Level.

No Mortar  
No Plaster  
Needed



Raising the Gabion Walls to Ceiling level



Final Product  
in 10 days

