

Affordable Rammed Earth Housing Idea

A photograph of a rural setting featuring a traditional rammed earth house with a thick, thatched roof. In the foreground, a group of five people, including women and children, are sitting on a green mat on the ground. The women are wearing colorful headwraps and patterned clothing. A young child stands nearby. To the right, there is a large stack of harvested crops, possibly cotton or wool, supported by wooden poles. A motorcycle is parked under a tree on the left. The overall scene depicts a community in a rural, possibly arid, environment.

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| Site Photos - Douguinaga Village



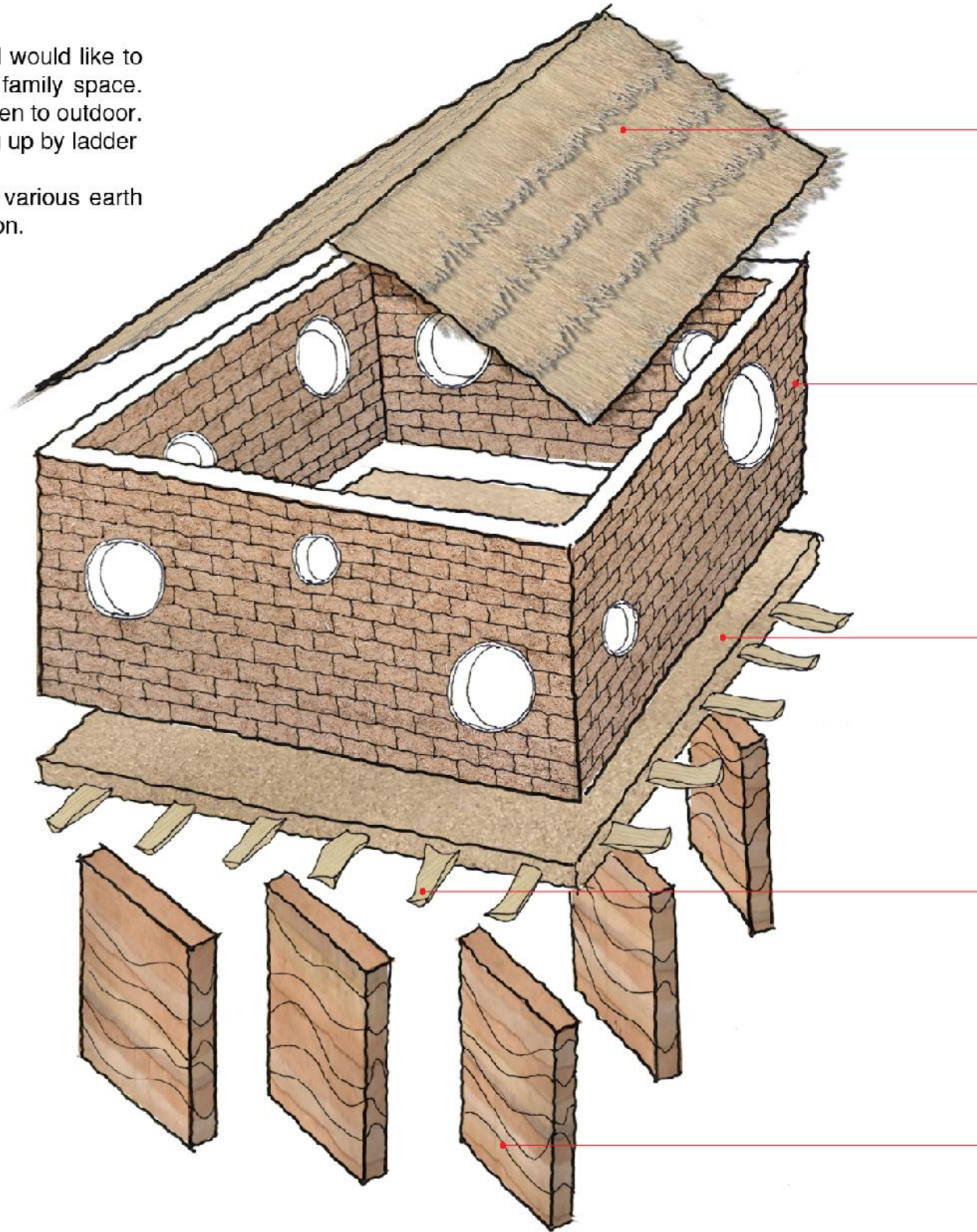
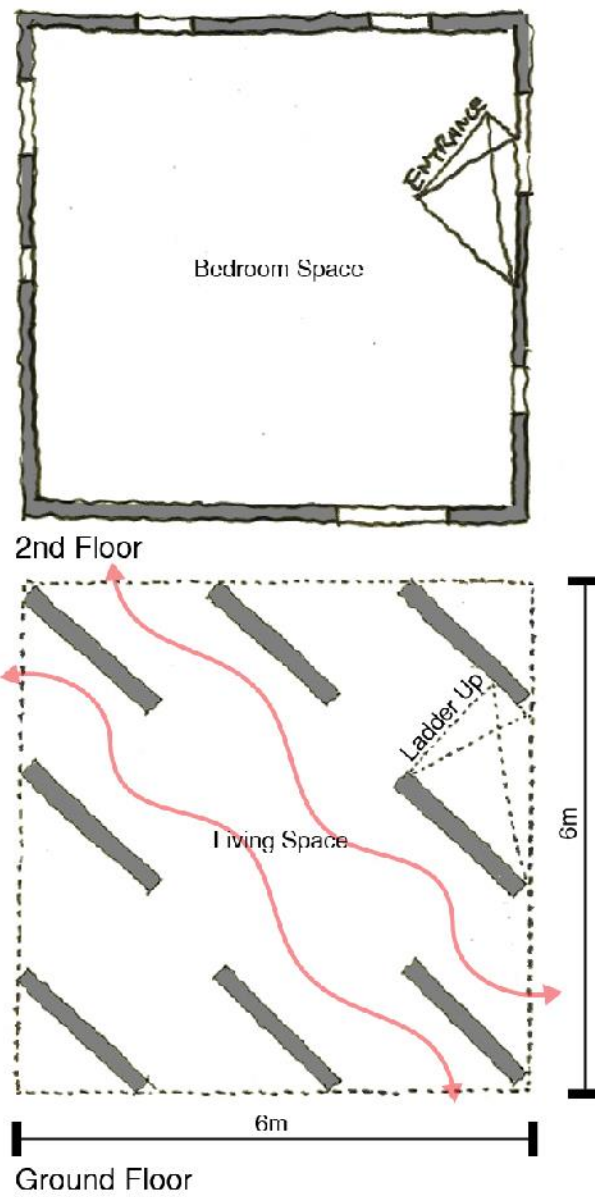
| 1st Idea

Affordable Housing Prototype for Chad

Ladder House

Unlike other typical single-storey housing in Africa, I would like to propose two-storey house which has more private family space. On the ground floor, it will be used as living space open to outdoor. On the second floor, the bedroom space which going up by ladder become as family's resting place.

This ladder house prototype is suggested by using various earth methods such as rammed earth, mud bricks and so on.



Thatched Roof



Compressed Mud Brick with Pottery window



Mud Flooring



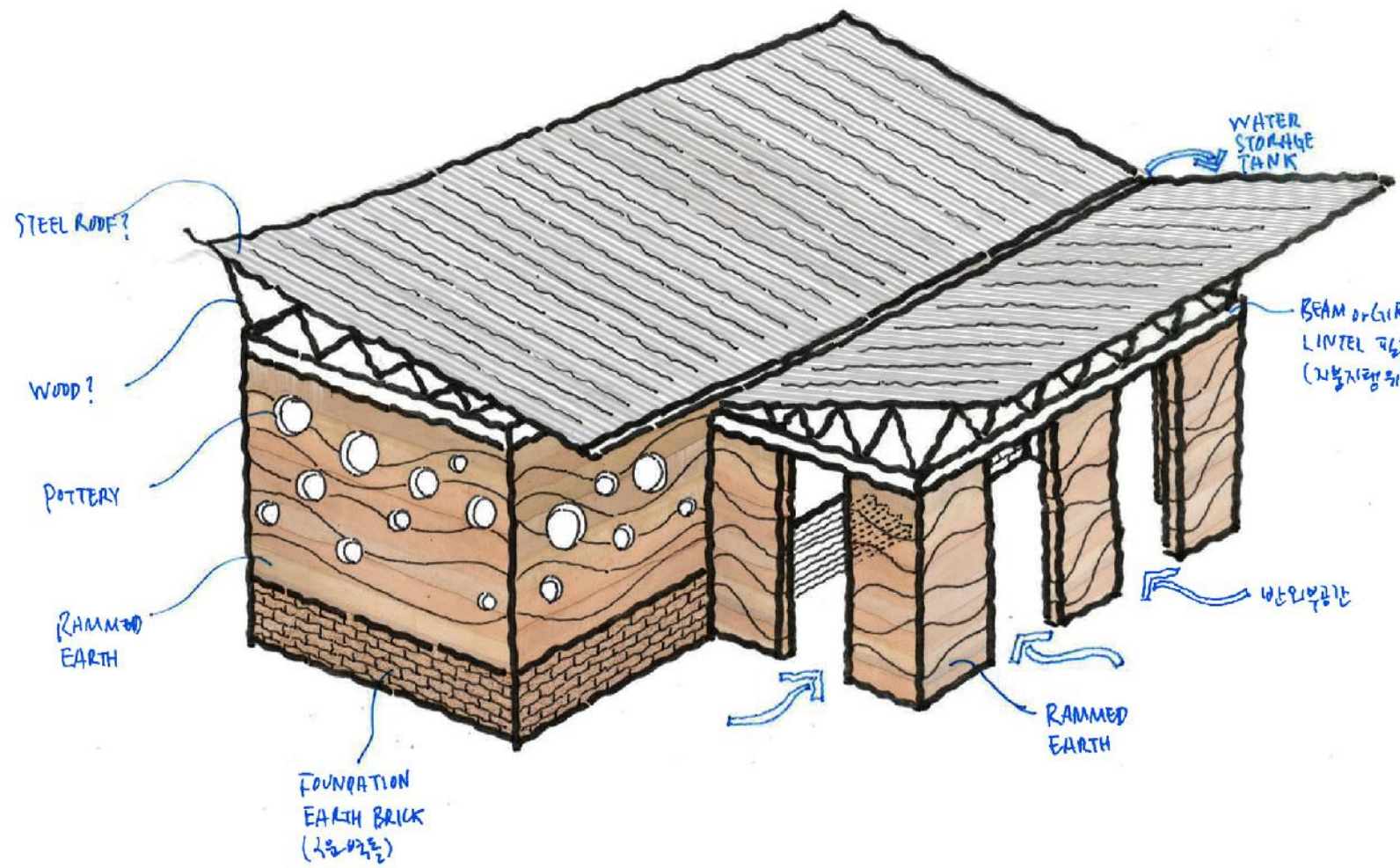
Rodier Palm



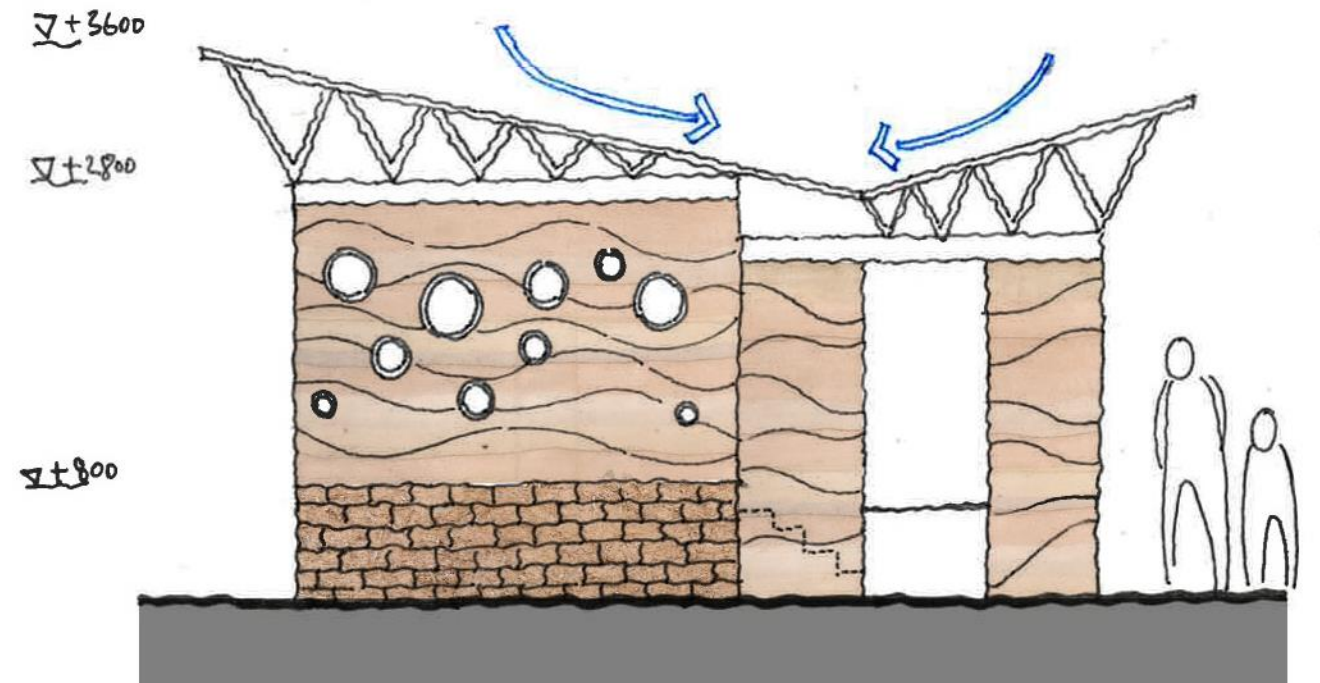
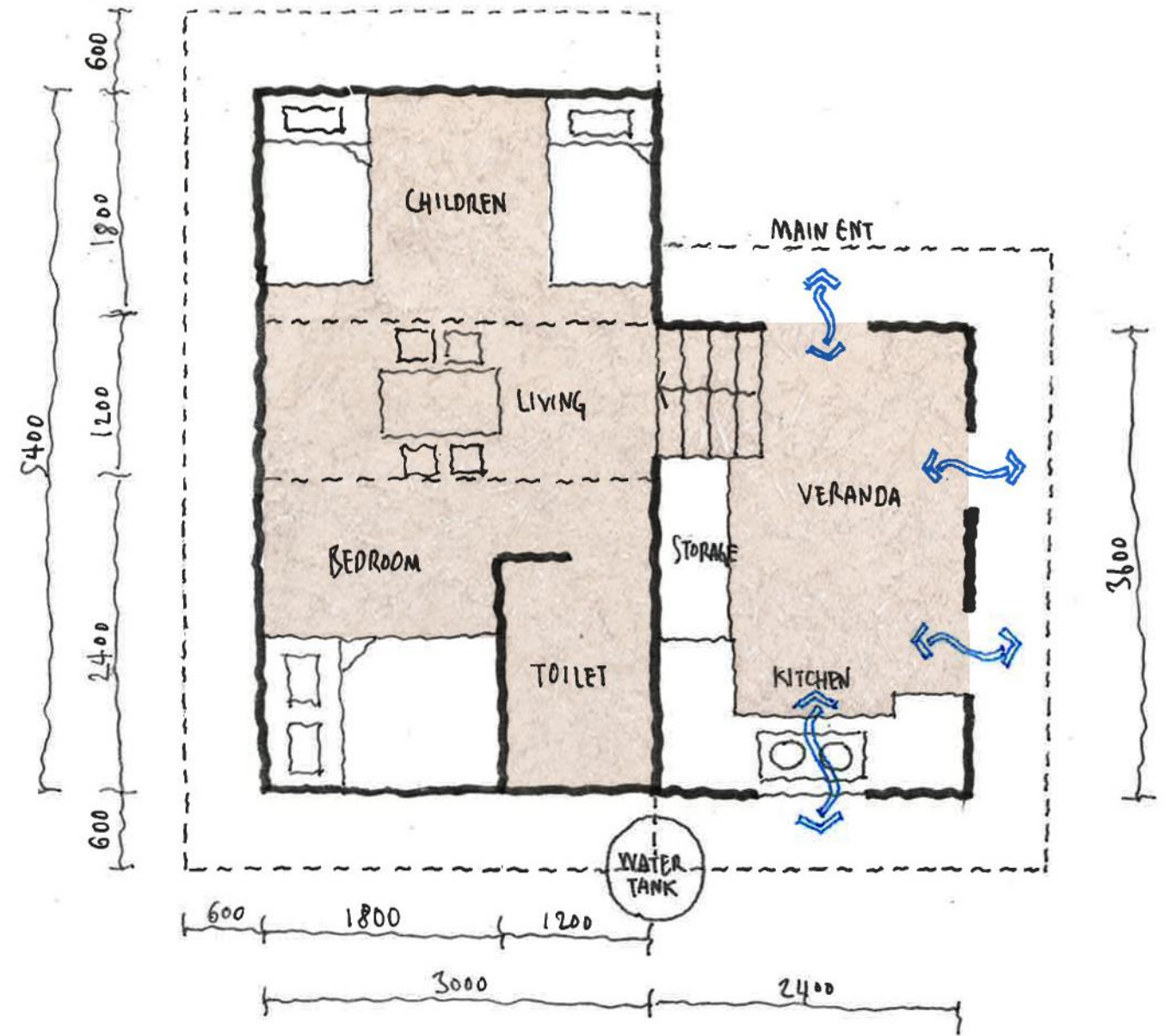
Rammed Earth



| 2nd Idea

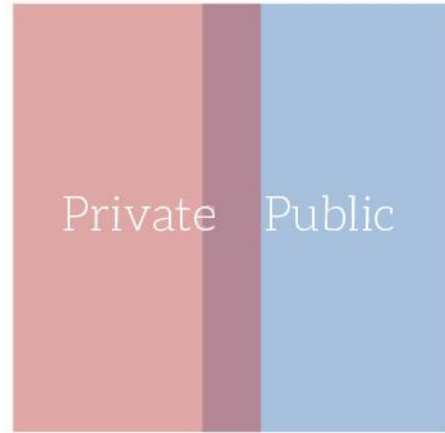


SIMPLE RAMMED EARTH
 AXONOMETRIC NON-SCALE
 20170702

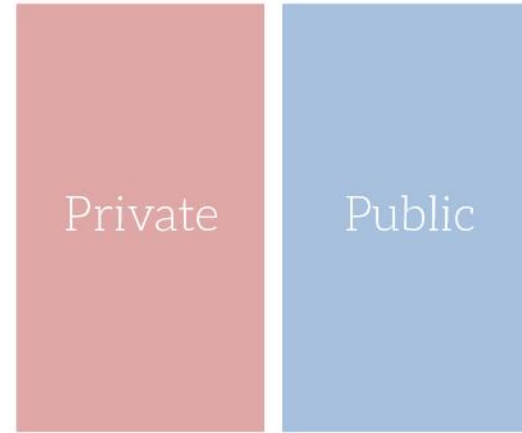


Design Principle - Simple

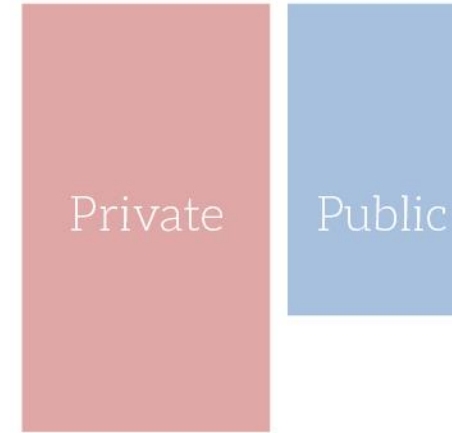
1. Semi-open Space



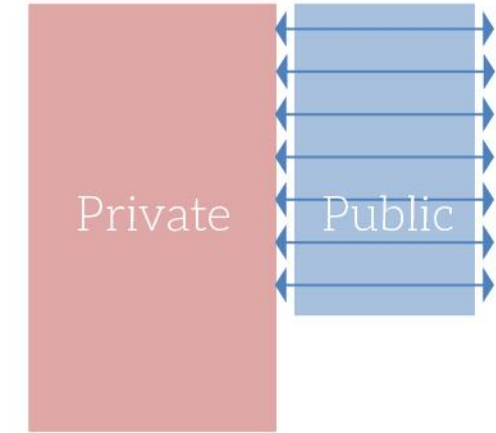
① Existing House



② Public & Private Space

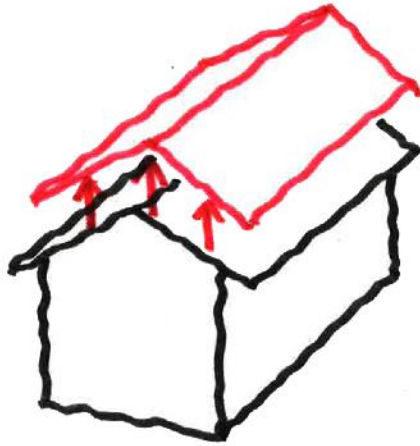


③ Hierachy of Space

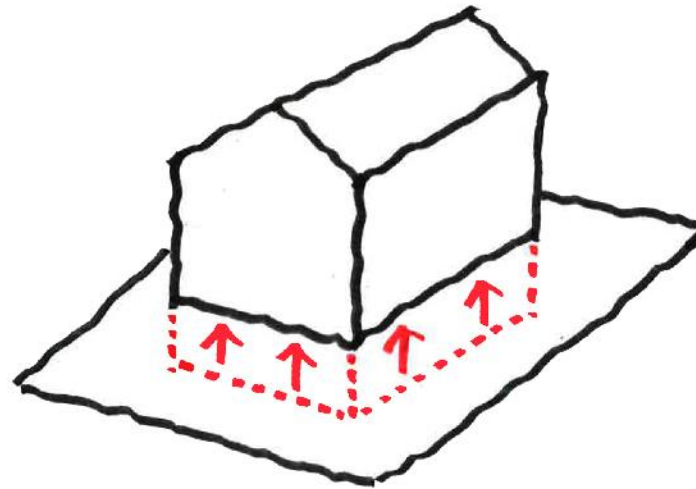


④ Open Public Space

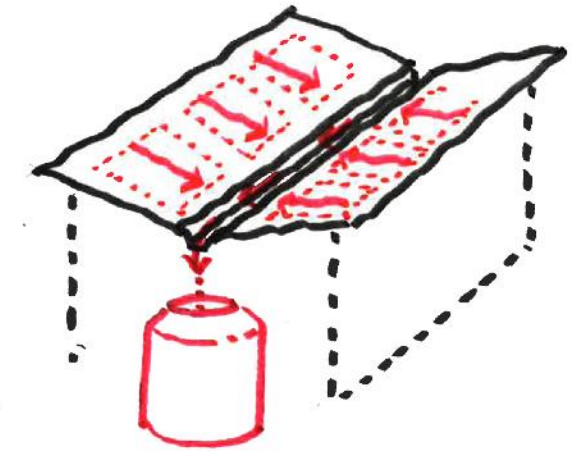
2. Simple Structure



① Floating Roof
- Enable Air Circulation



② Raised Floor
- Prevent moisture from rising



③ V-Shape Roof
- Collect water & Solar panel

3. Sustainable Material



① Rammed Earth

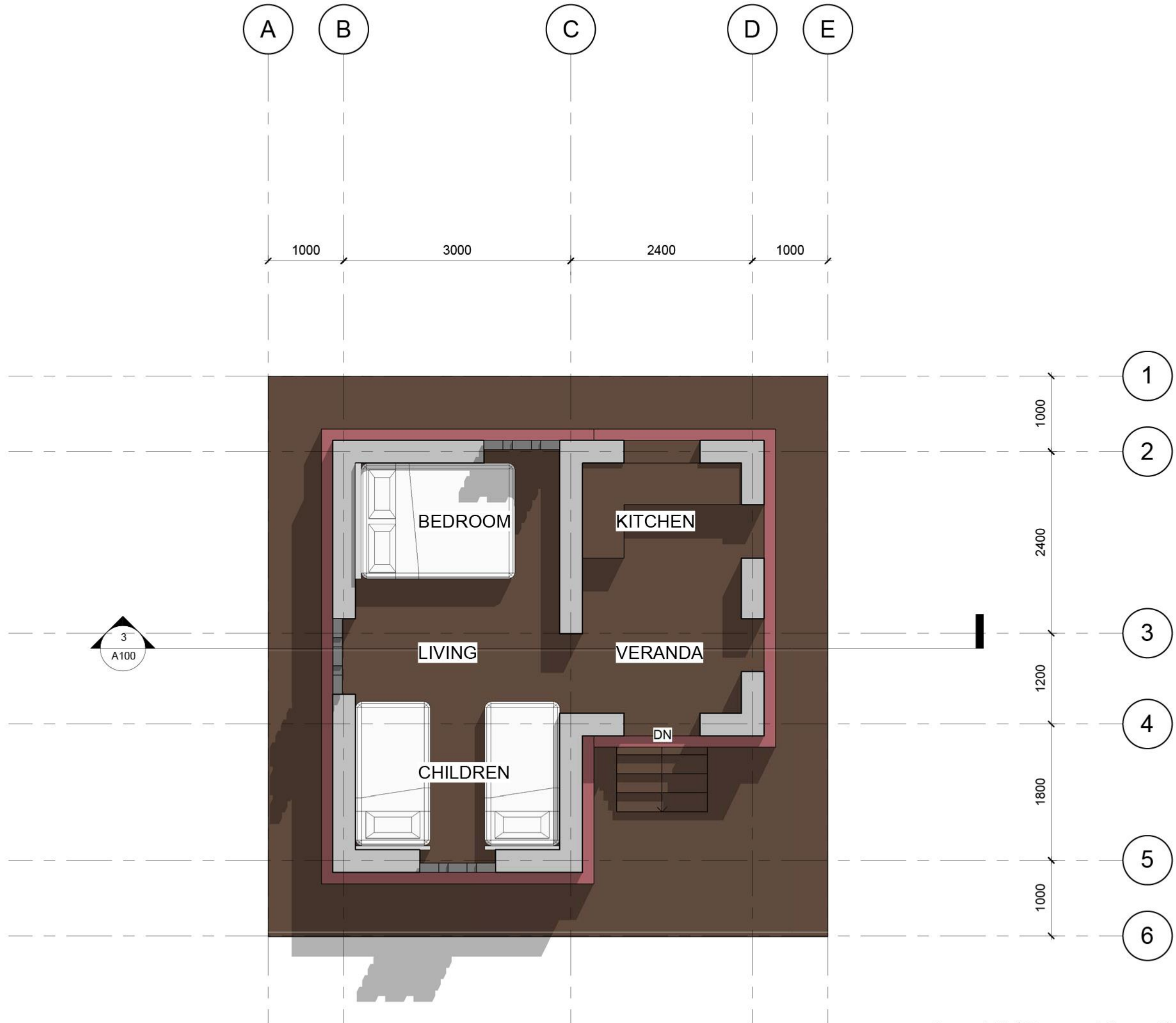


② Compressed Earth Brick



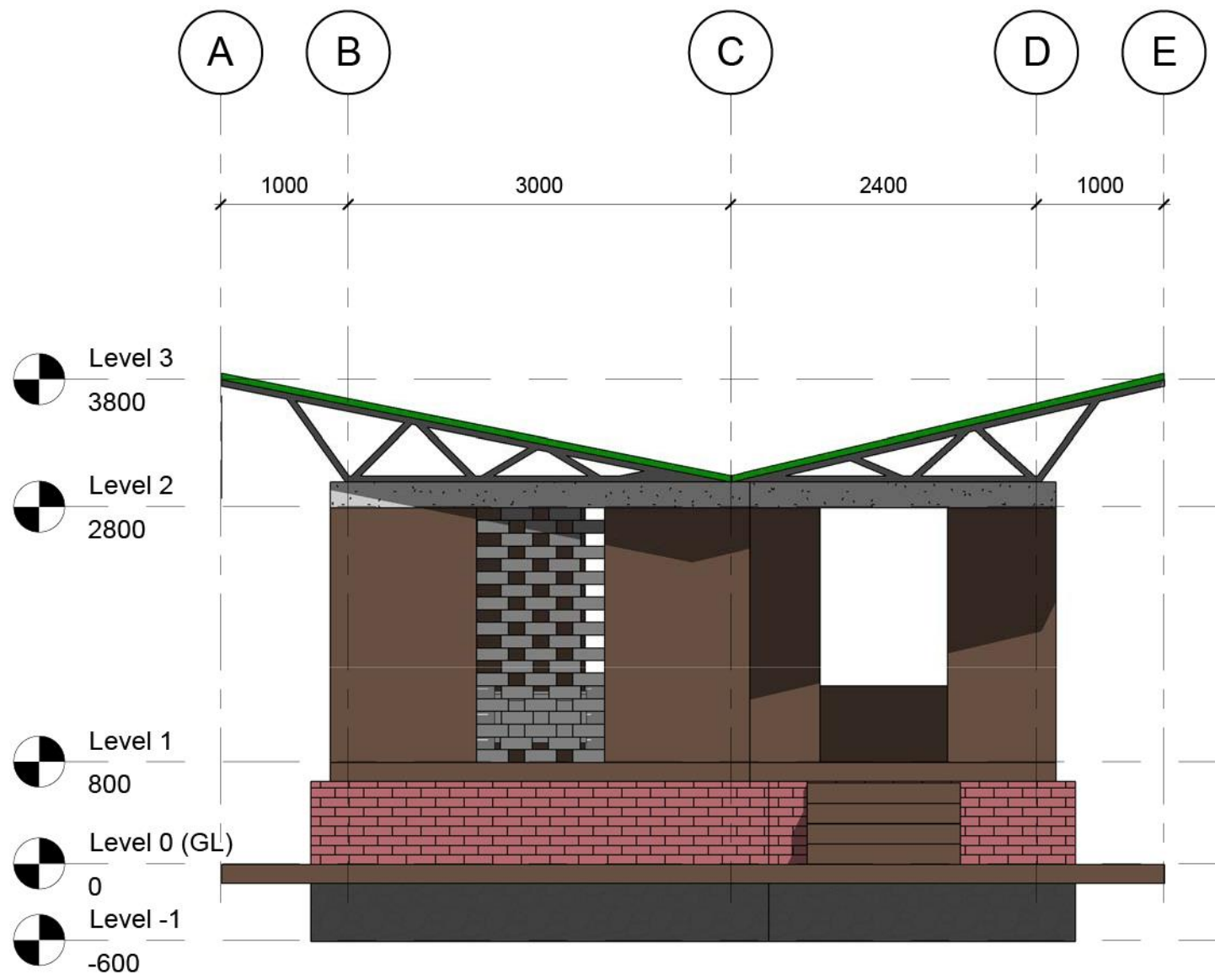
③ Corrugated metal Roof

Plan

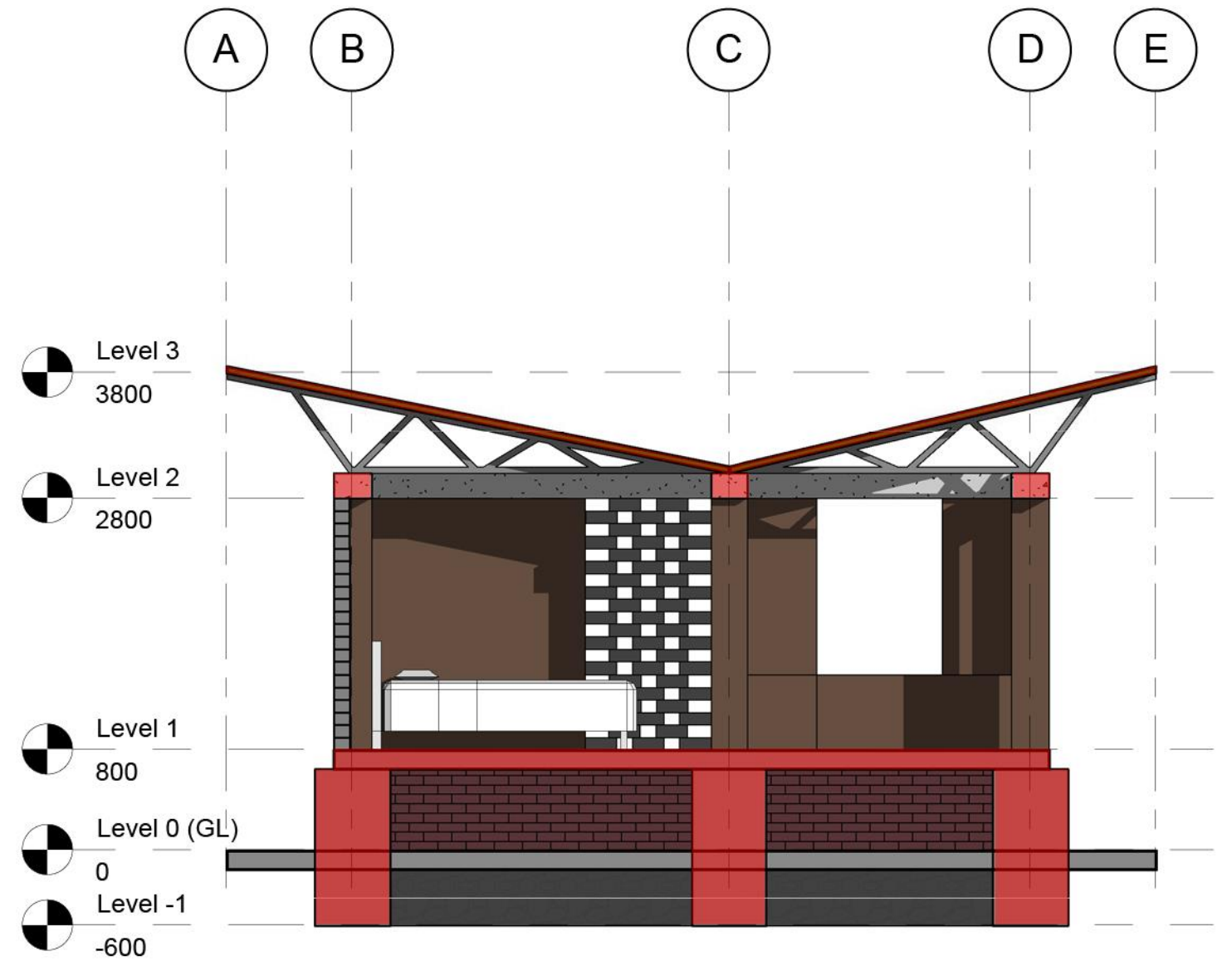


Level 0 (Ground Level) Scale 1:50

| Elevation & Section

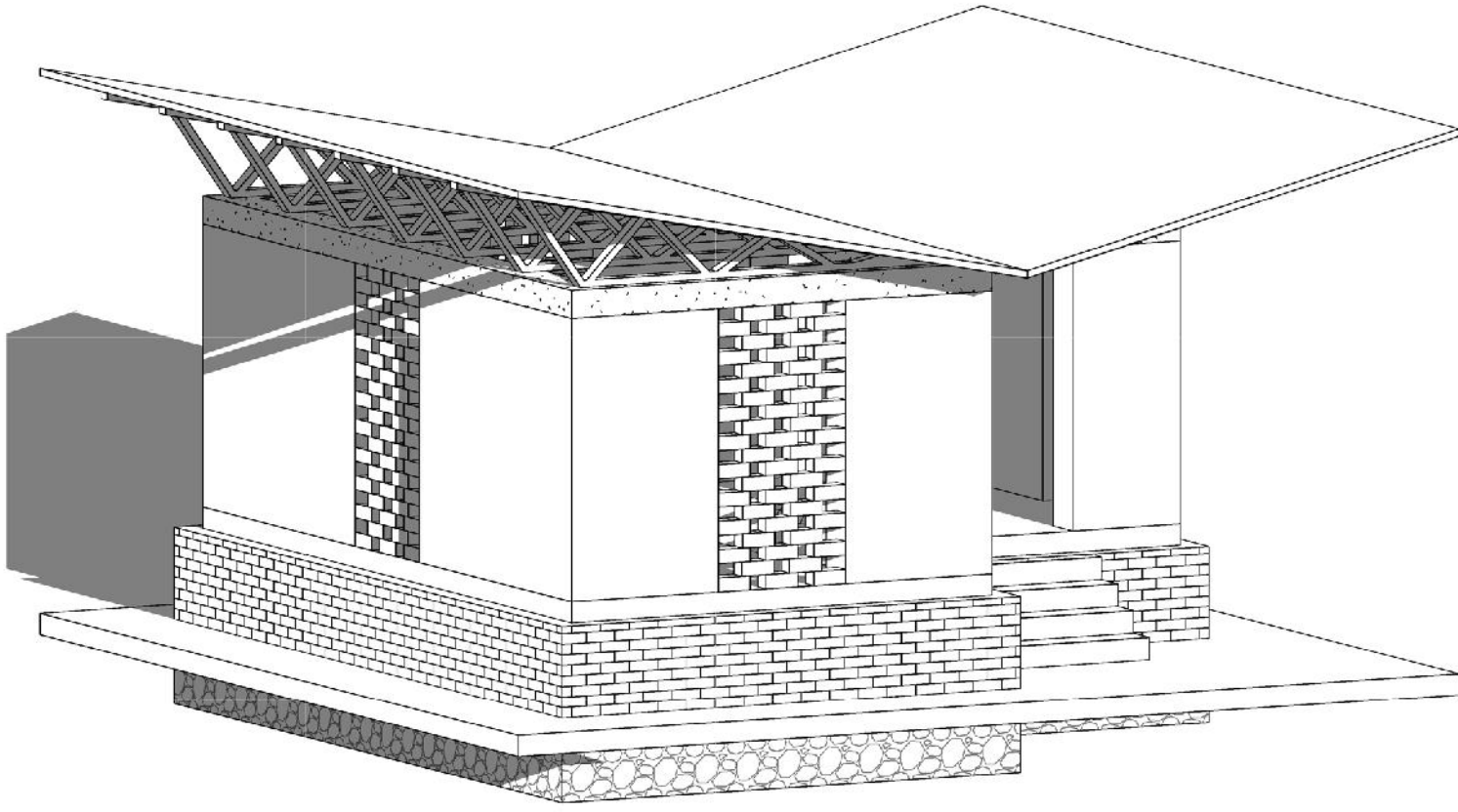
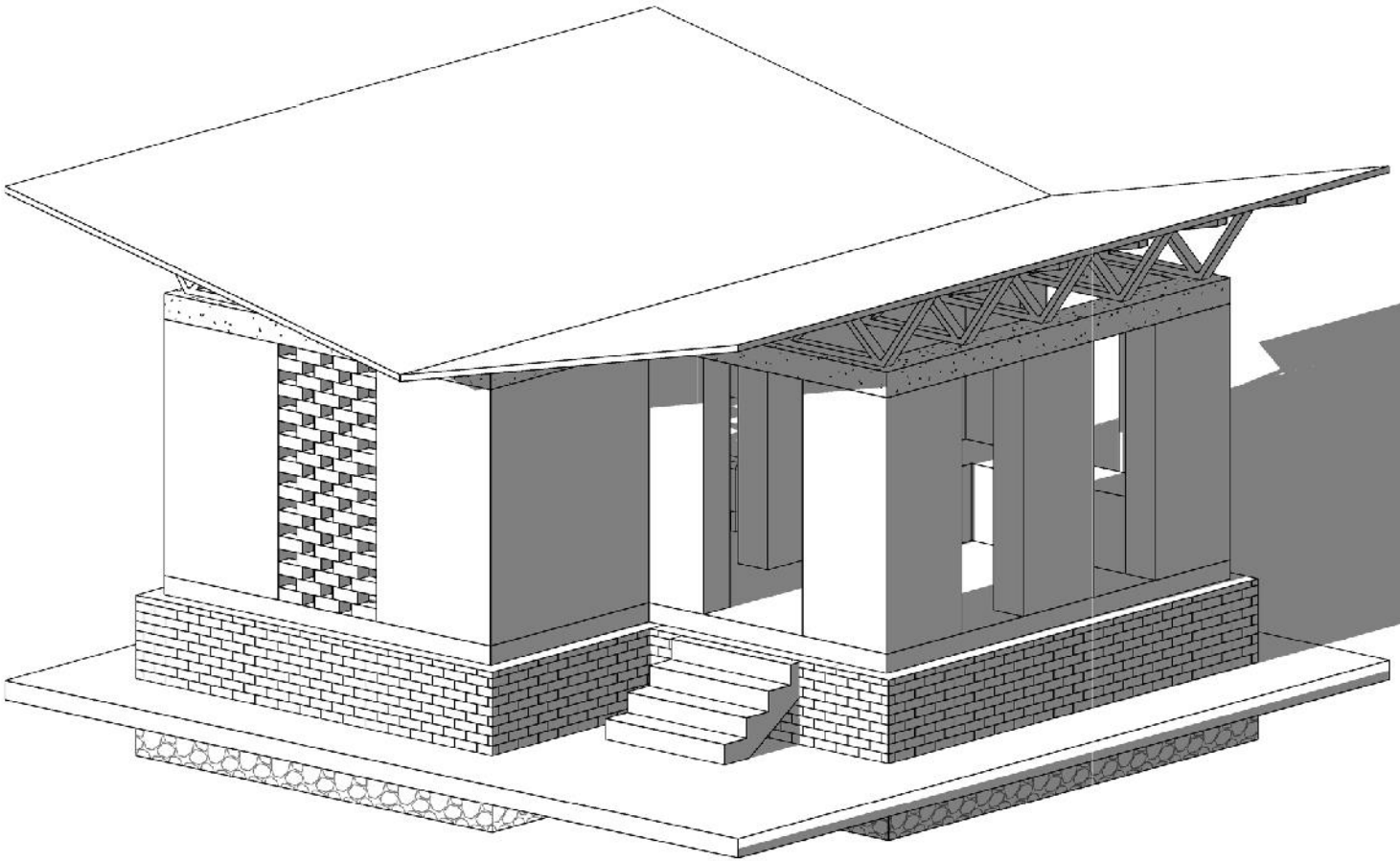


South Elevation Scale 1:50

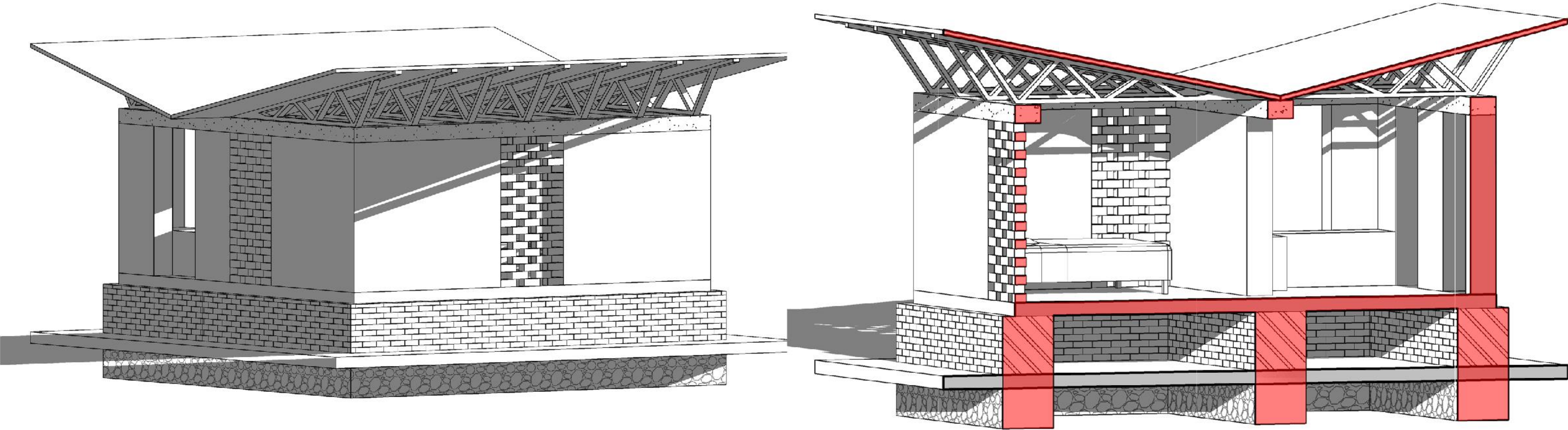


A-A' Section Scale 1:50

| 3D Views

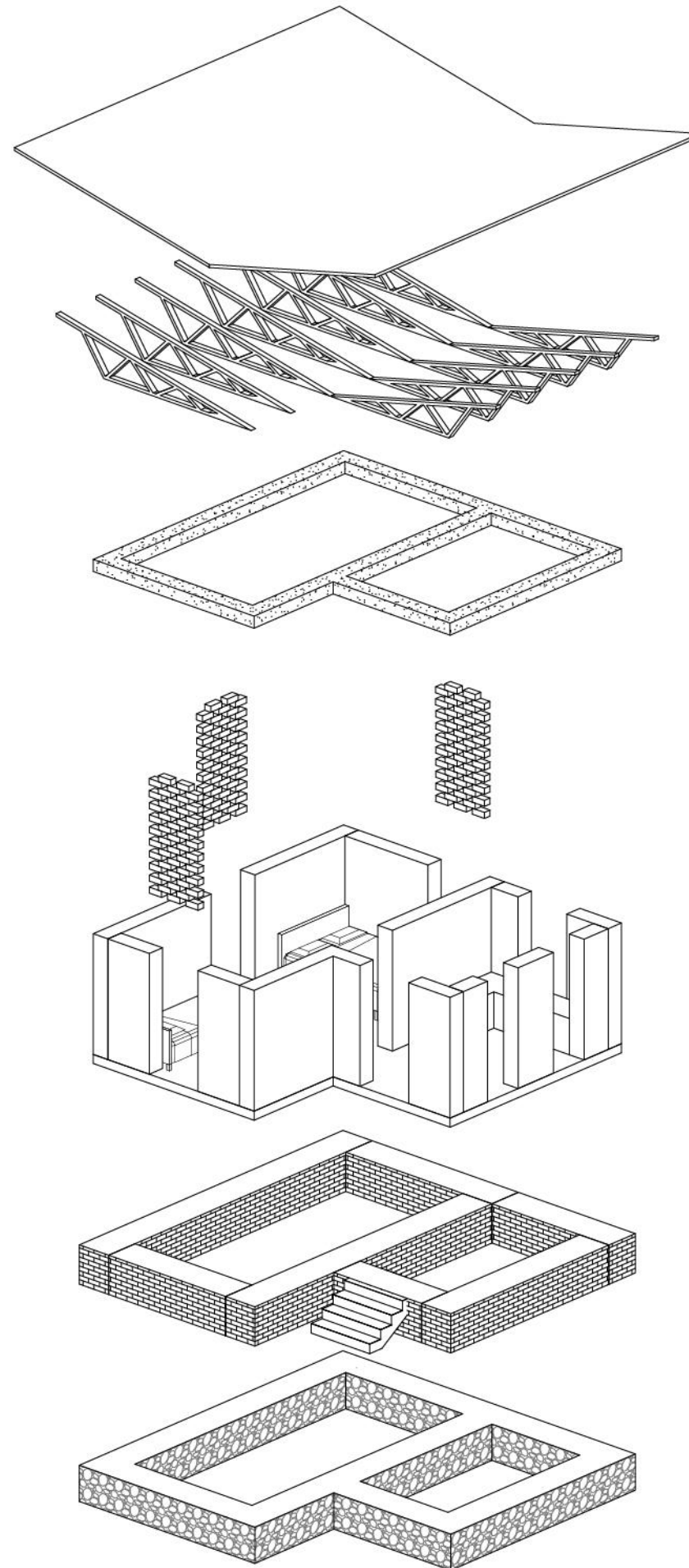


| 3D Views



3d Section

| Exploded Diagram



Corrugated Metal Roof

Truss

Concrete Beam

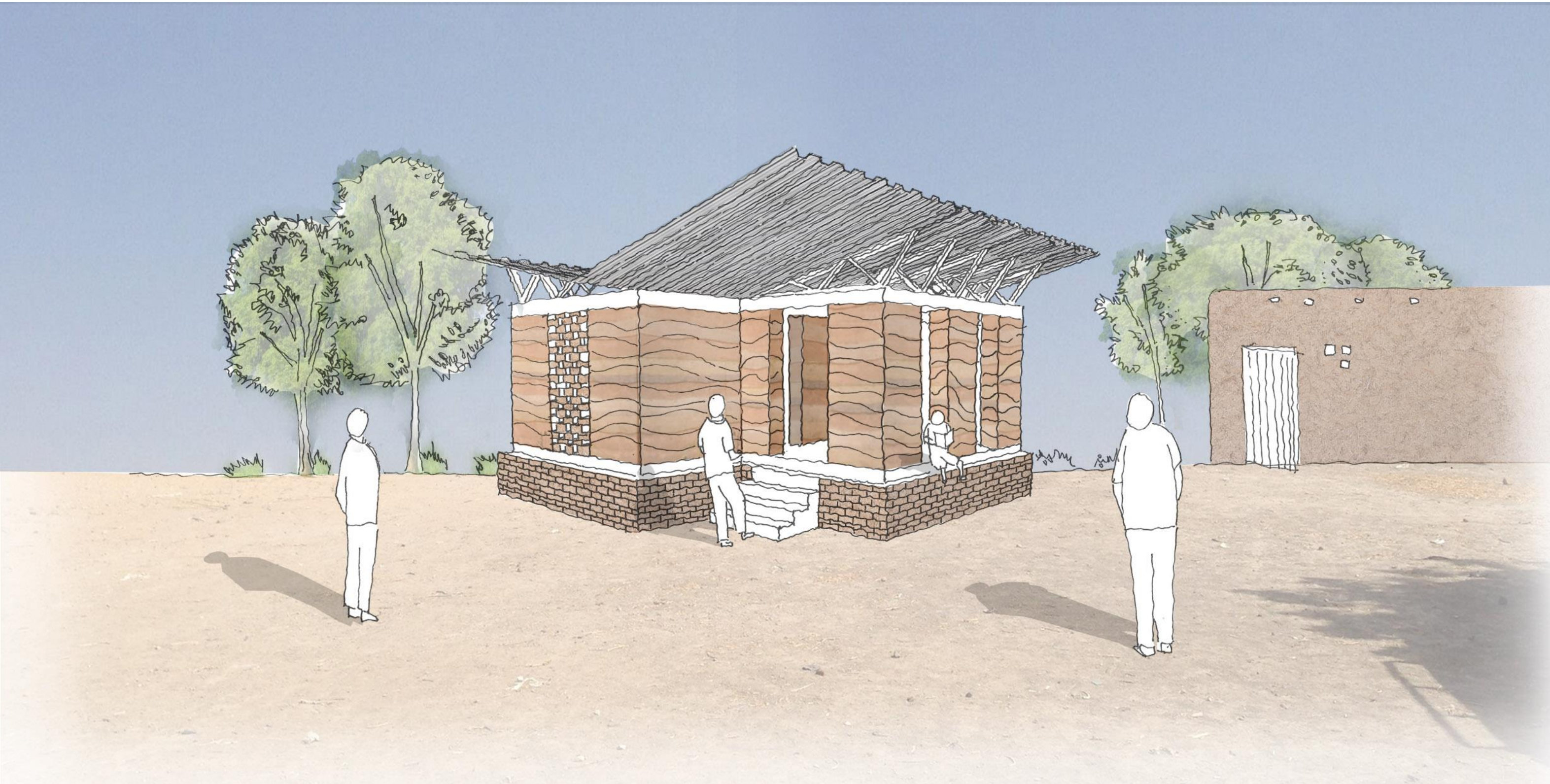
Compressed Earth Brick

Rammed Earth, Thickness 300 mm

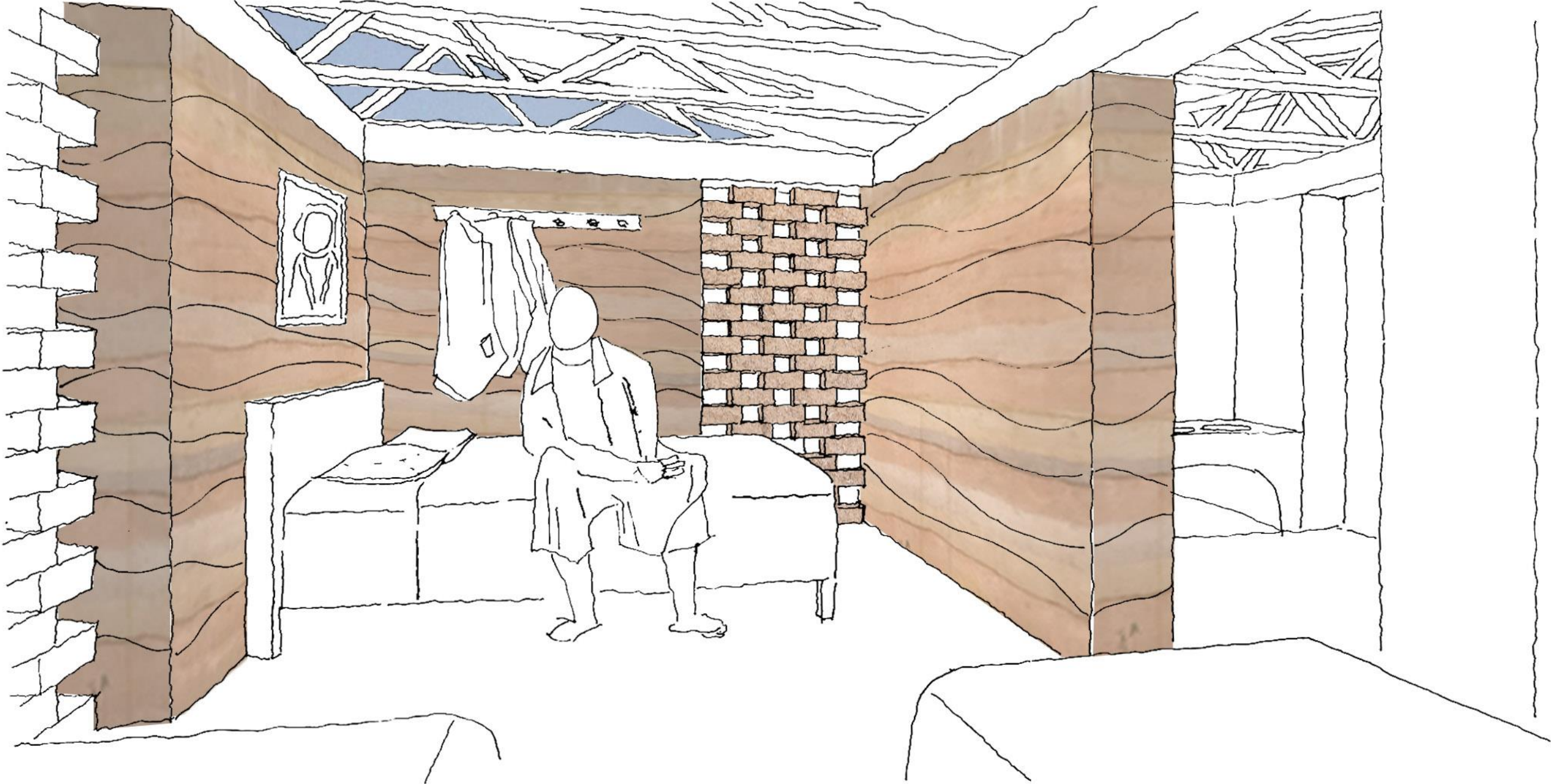
Earth Brick Raised Floor

Stone Foundation

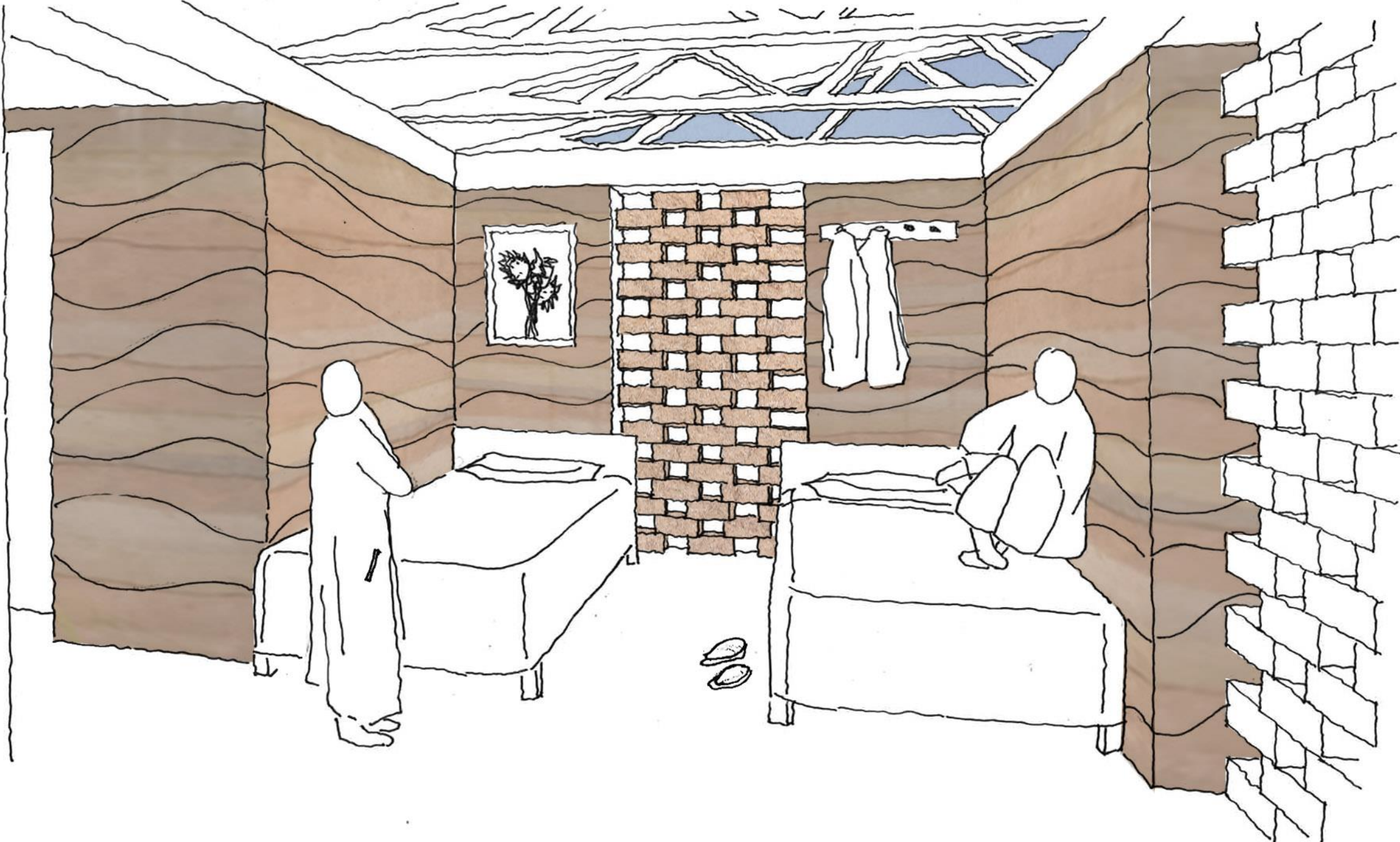
| Rendered Views



| Rendered Views



| Rendered Views



Rammed Earth Construction

RAMMED EARTH WALLS IN OPERATION



1. Locally available earth to be ground and mixed with additives to improve the earth hardness



2. Put earth in to ready-made formwork (made of steel shape + board)



3. Compacting earth with small-sized and easy-to-use pneumatic rammer



6. Completed wall with overhead elastic interstices; wall capping to be locked by concrete brace (thickness 150) along the wall



5. Installing lintel and joining formwork to connect wall base



4. Lower wall after removing formwork

Rammed Earth Construction

