

Towards post industrial vernacular architecture Zambia, Africa

Assignment 6

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Framework for vernacular architecture for a traditional homestead in Zambia

1. Post industrial transformation as per Leonard Buchmann's principles

- a. Identify the uniqueness of the project.
- b. Consider a building as a set of flows.
- c. Distinguish systemic solutions from symptomatic ones.
- d. Distinguish between facts, opinions, and ideas.
- e. Adapt benchmarks from relevant existing projects

2. Socio cultural determinants as per Amos Rapoport

- a. Basic Needs
 - Eating
 - Sleeping
 - Sitting
 - Light levels
 - Aspects of comfort
- b. Family
- c. Position of women
- d. Need for privacy

3. Change in Zambia due to modern education

- a. Borrowing of construction systems from European countries

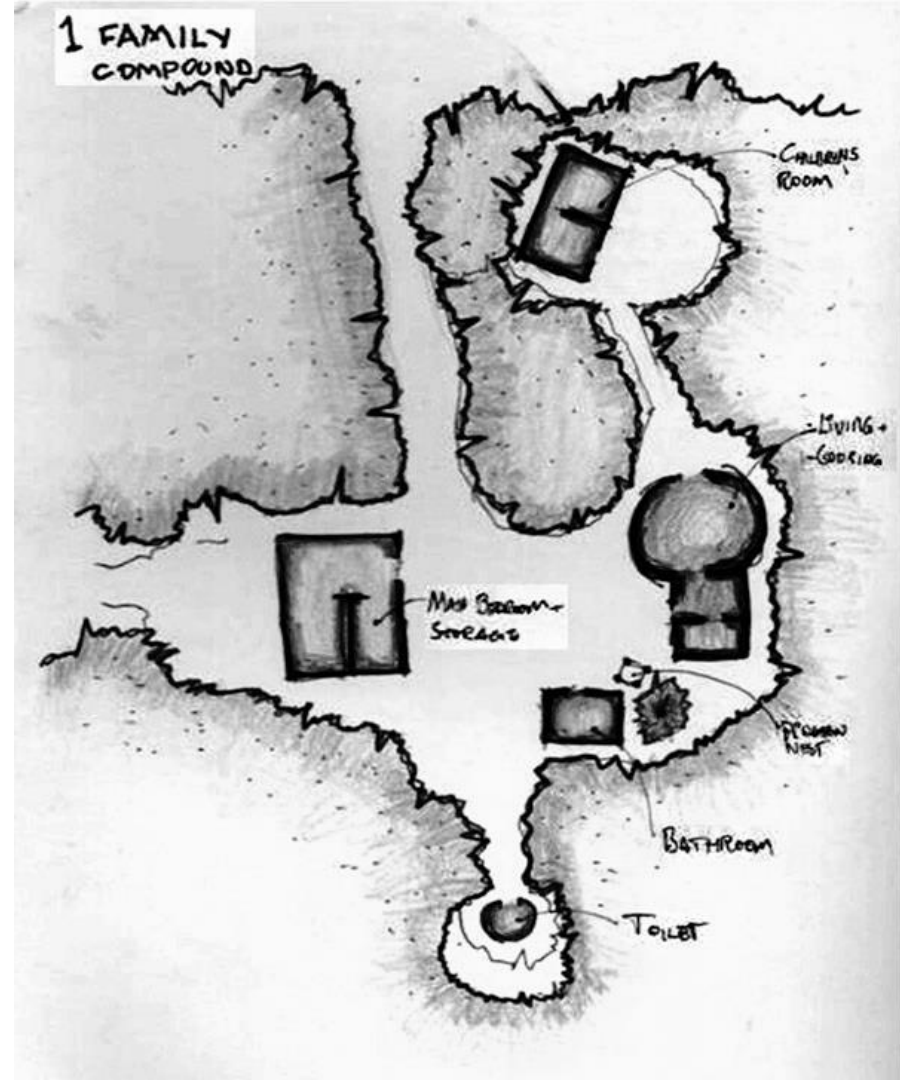
Design determinants

Traditional typical family structure of a Homestead of **Kunda compound** in Zambia.

Family occupation:	Farming
User type 1:	Head of the family (male head)
User type 2:	Woman of the family
User type 3:	Three son
User type 4:	Two Daughters

Existing layout

Understanding the layout of an existing Kunda compound in Zambia



Deriving a design brief

Traditional typical family structure of a Homestead of **Kunda compound** in Zambia wants to design a house. What are these traditions that they are seeking to keep intact in times of a post industrial society

- Cooking and Socializing Insaka
- Main house for the head of the family
- Plan areas between the main house and the Insaka where most of the guest are welcomed as a lobby space
- Children's house to be planned some distance away and secluded from the other buildings
- Internal private space used for sleeping and private activities with semi covered spaces for other activities
- Toilet, which is usually a simple pit latrine, is also placed a distance.
- The windows are small, to minimize on heat lose
- Double-sided fireplaces
- A small Pigeon/Chicken coop that is located next to the Insaka, and provides food for the family
- A frame of a temporary structure for grain storage

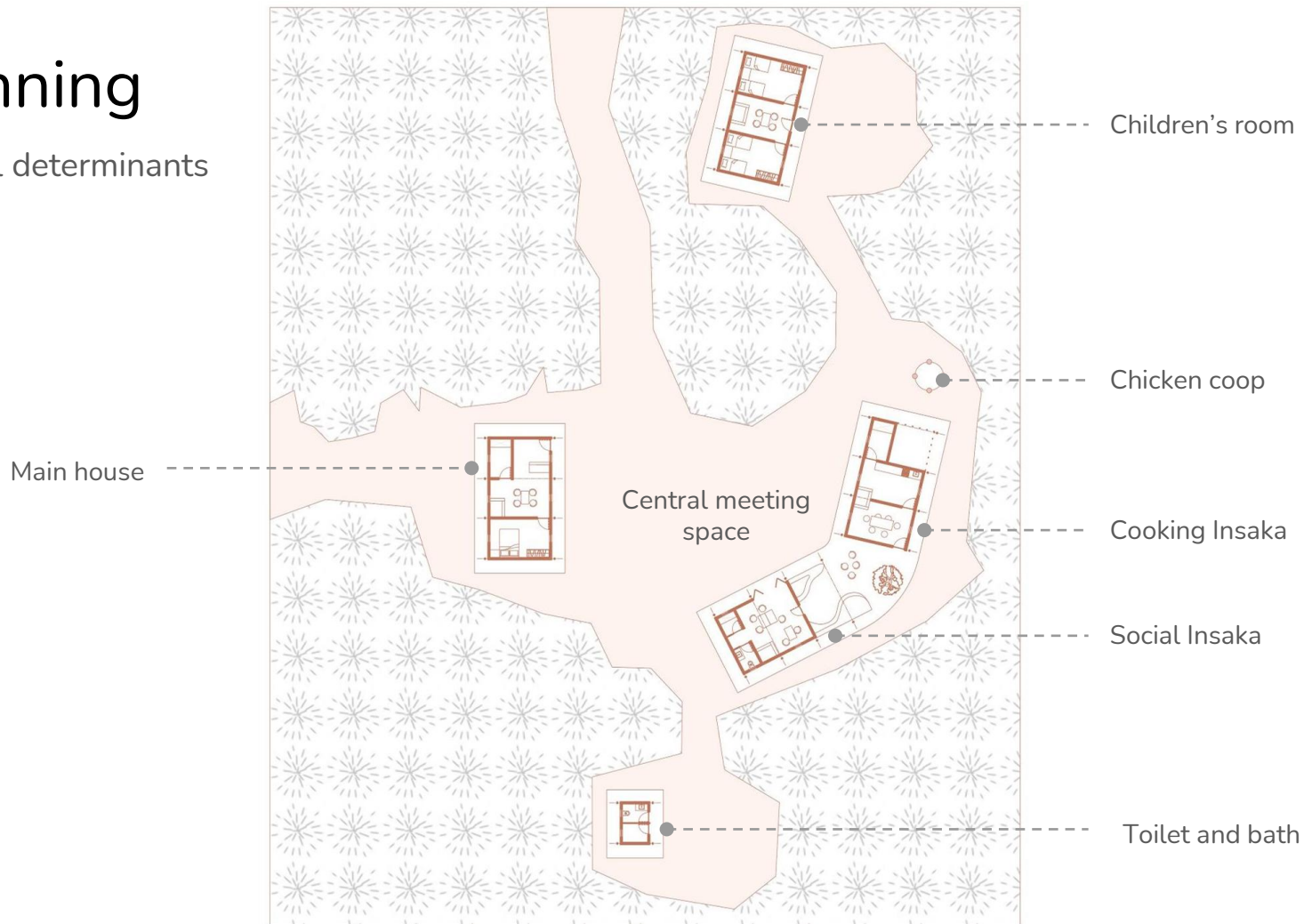
Post- industrial design for a homestead

Physical determinants that have been considered for the design of the homestead

- Planning of the homestead
- Design of a module
- Construction and technology
- Materials
- Climate response

Planning

Physical determinants



Materials



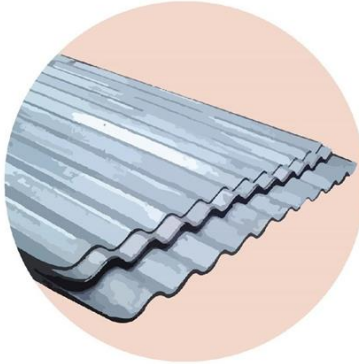
Local stone



Local clay + concrete mix



Eucalyptus wood



Tin sheet



CSEB blocks



Local fabric

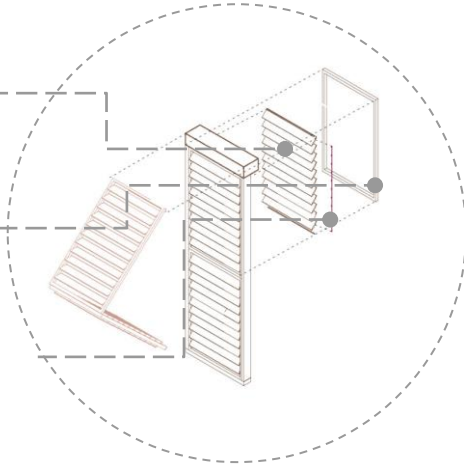
Construction details

Window detail

Wooden louvres

Metal handle

Wooden window frame

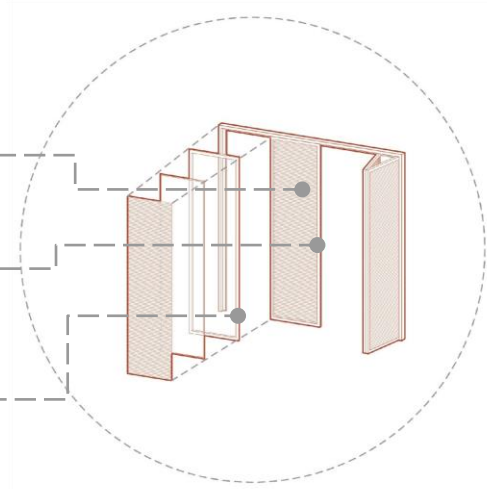


Door detail

Wooden louvres

Metal handle

Wooden door frame



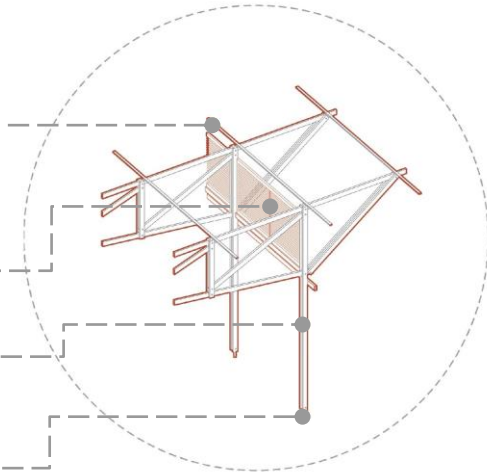
Truss detail

Wooden purlin

Wooden louvres

Wooden posts

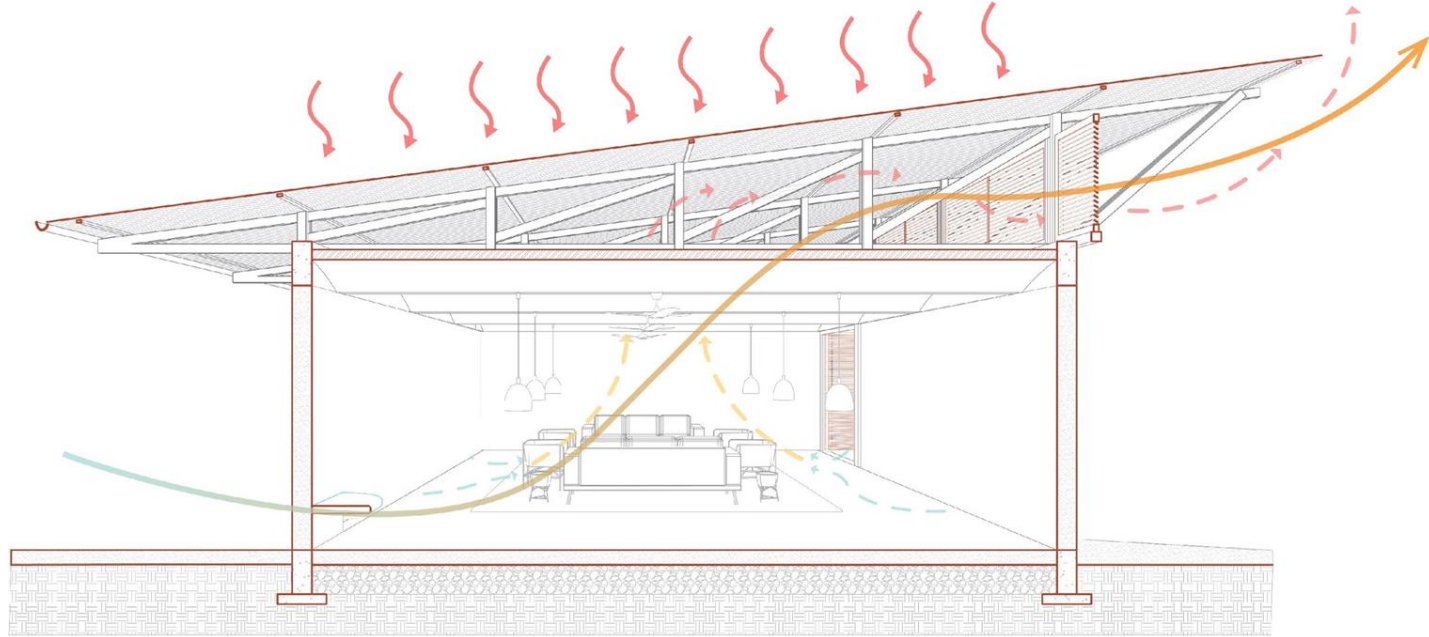
Metal bolts



Climate response

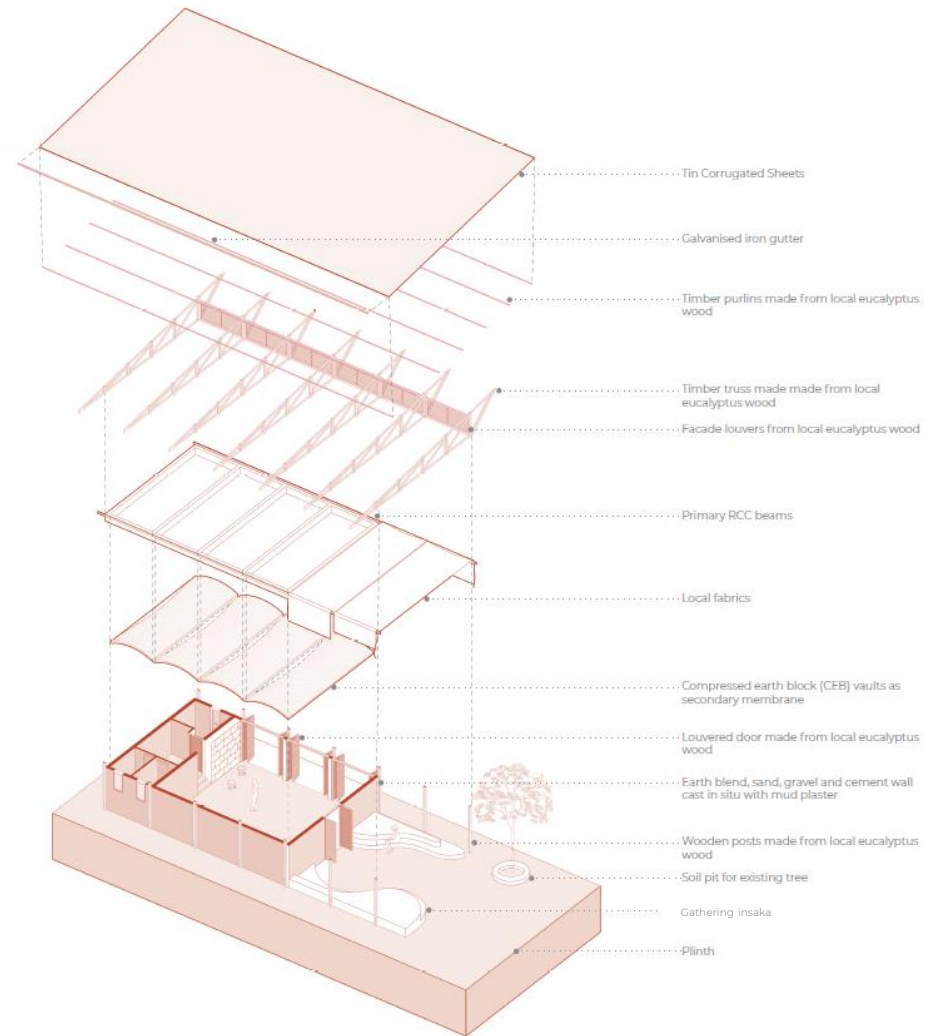
The double roofing acts as a to prevent the radiation of heat in Zambia where openings on both sides of the wall allows for cross ventilation with larger overhang of roofs.

The first roof layer is made of vaults made up of CSEB blocks with ventilation slit and the second roof layer is a tin sheet over roof truss.



Anatomy of the insaka

The structure of the gathering insaka proposed as an enclosed space as well as semi covered which is an extension of the house.



Post- industrial design for a homestead

Socio-cultural determinants

a. Basic Needs

- Eating
- Sleeping
- Sitting
- Light levels
- Aspects of comfort

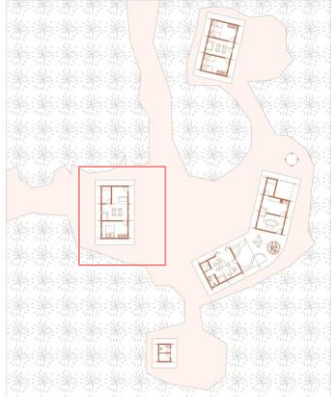
b. Family

c. Position of women

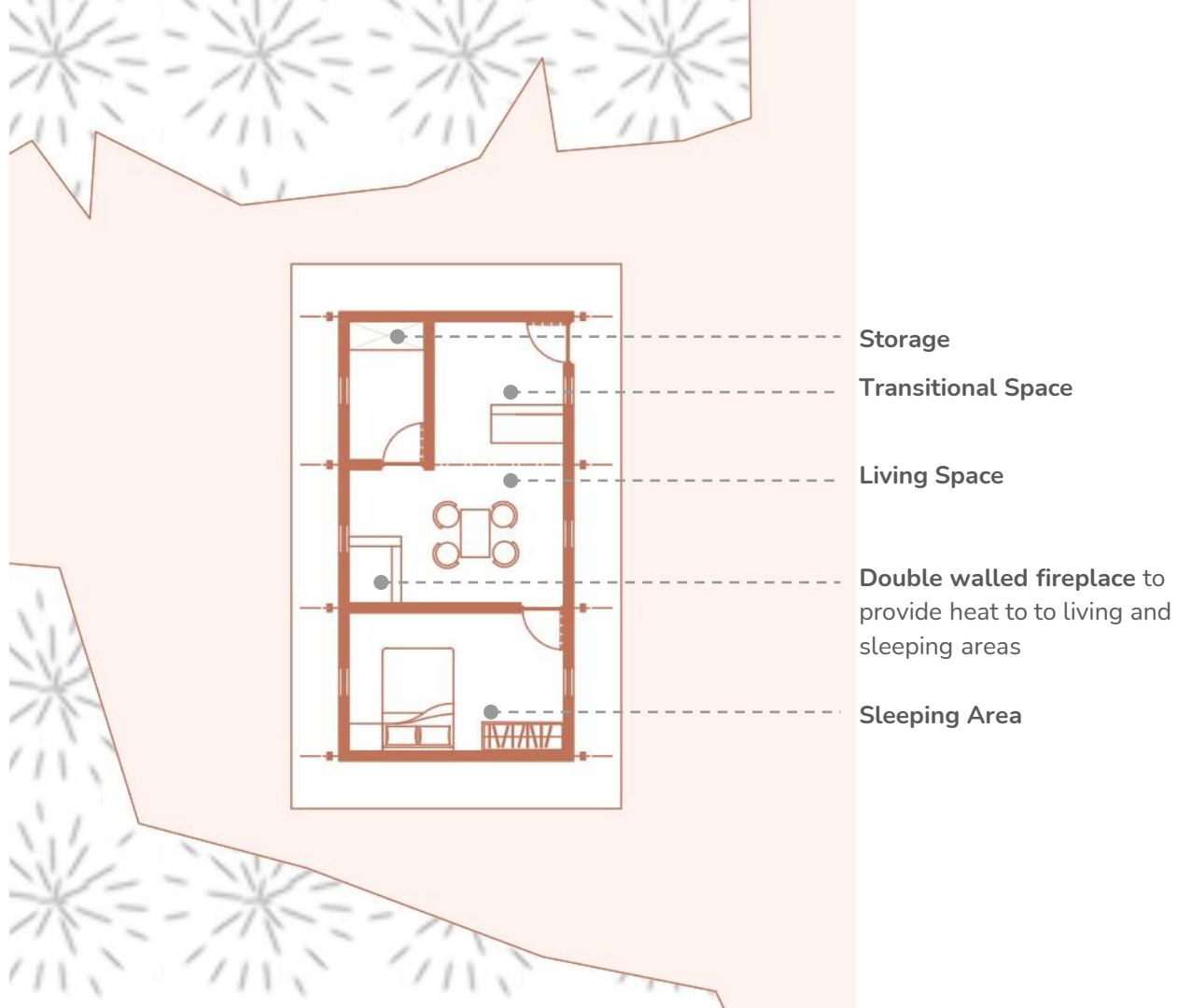
d. Need for privacy

Main House

Spaces

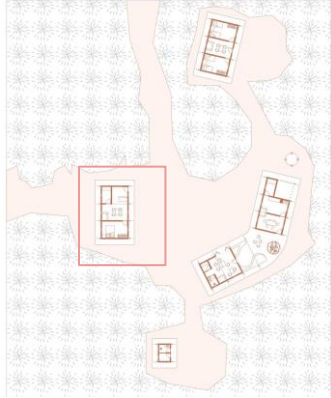


The internal space of the main house, occupied by the man of the house and his wife, is the **space used for sleeping and other private activities**. The covered space around the room is used for performance of chores by both men and women that do not need to be done in private.

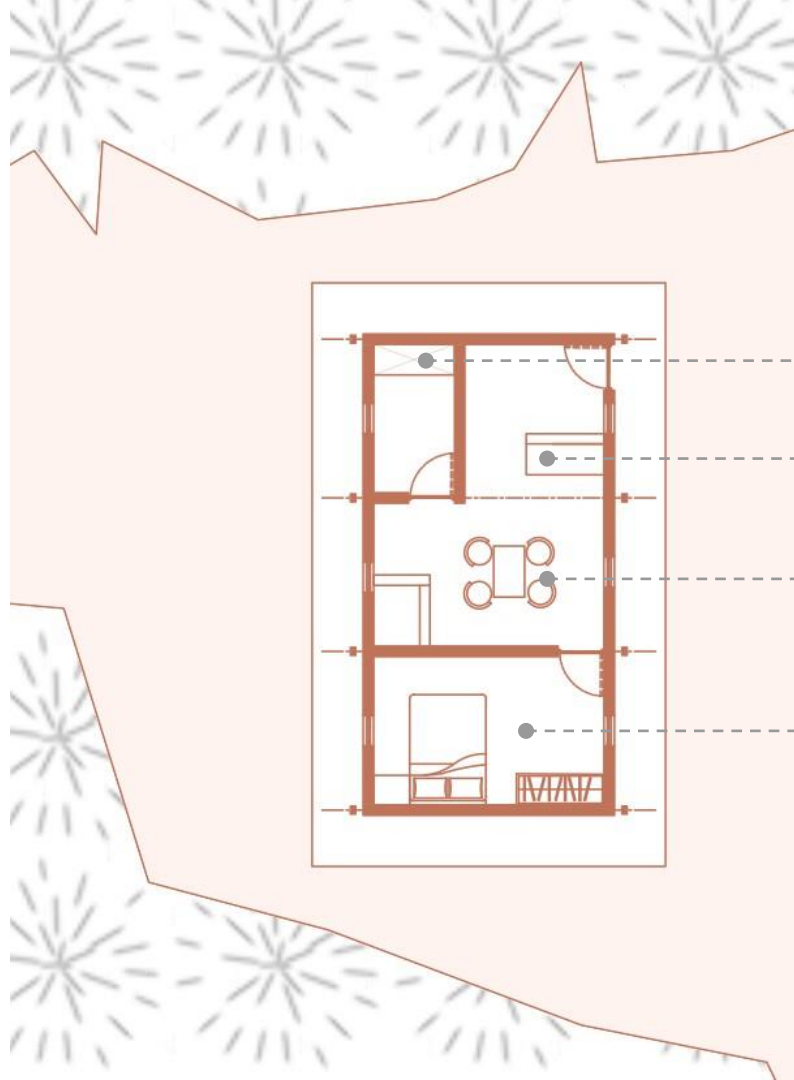


Main House

Activities



The internal space is occupied by the man of the house and his wife and is often only used during the night hours when most of the social activities are completed. A transitional space is used as the entrance to the main house which provides privacy to the internal spaces.



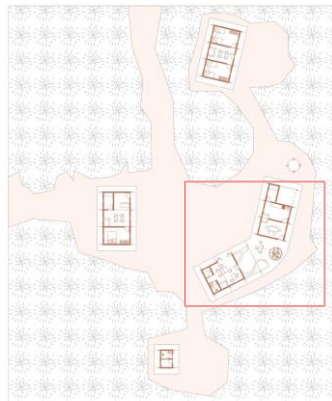
Storage used for storage of firewood and personal belongings

Transitional space provides a secluded entrance with a half wall to distribute spaces and provide privacy

Living Space used for private activities by the occupants

Sleeping Area used by the man and woman of the house

Cooking Insaka and Social Insaka Spaces



Insaka is a Bemba word for "place to gather". An insaka is a structure which is similar in western thought as a gazebo. In Zambia these structures have significant roles in social life in village life and the preparations of food.



Cooking Insaka and Social Insaka Activities



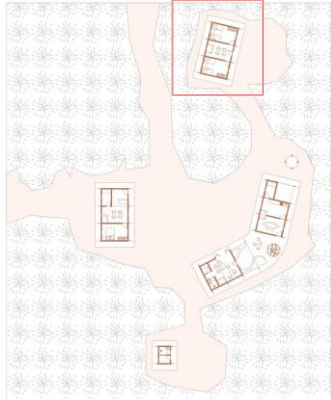
The Cooking Insaka is evolving with the modern times and the home is placed with indoor cooking stove and wash basin. as traditionally, cooking was done using firewood.

The Social insaka is provided with an indoor and outdoor seating areas with attached indoor toilet as an addition.



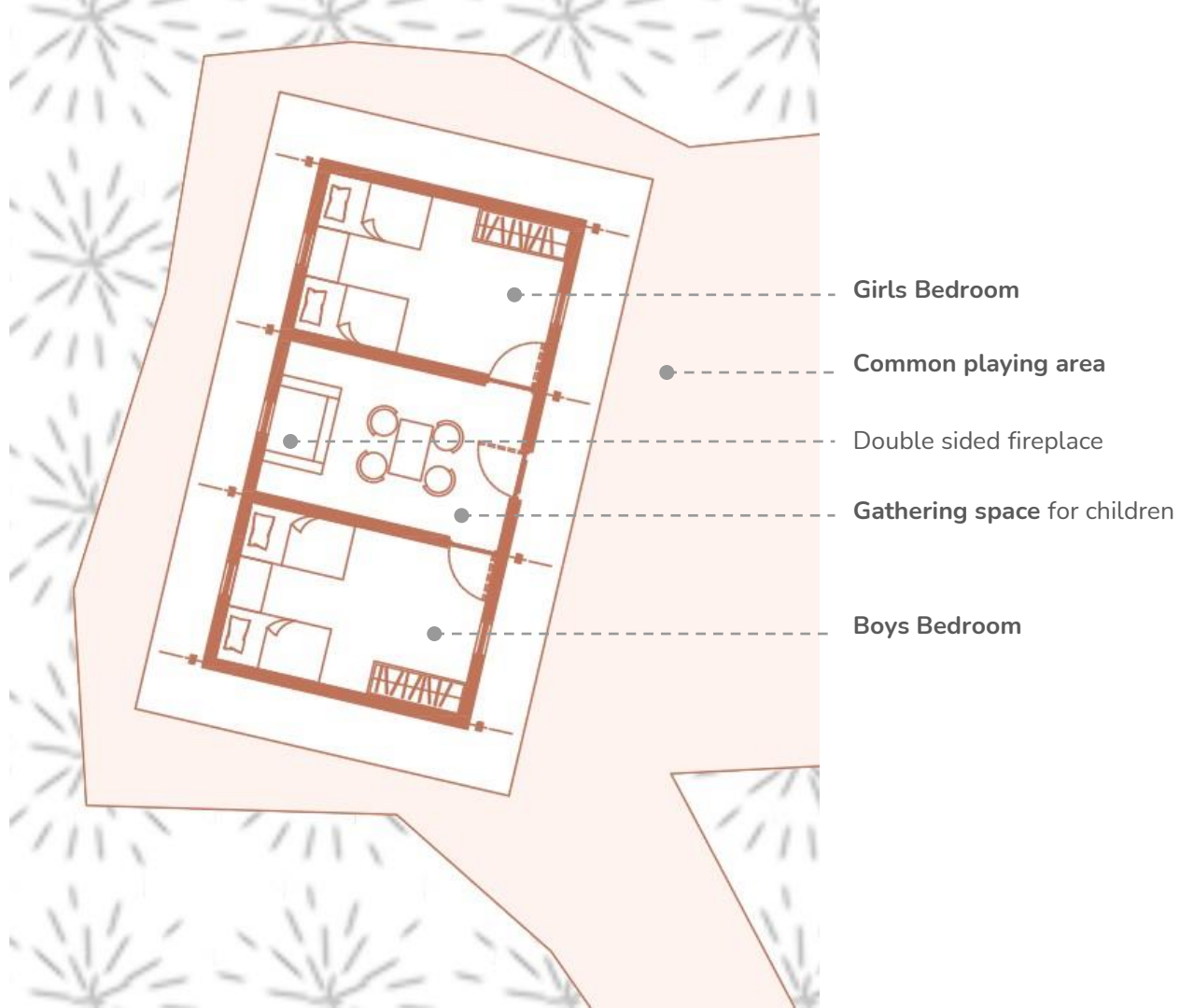
Children's room

Spaces



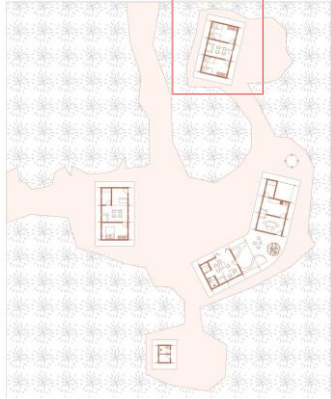
The children's house is designed some distance away from other structures for safety of the children.

Bedrooms for girls and boys are separated with a common playing area in the centre of the house.

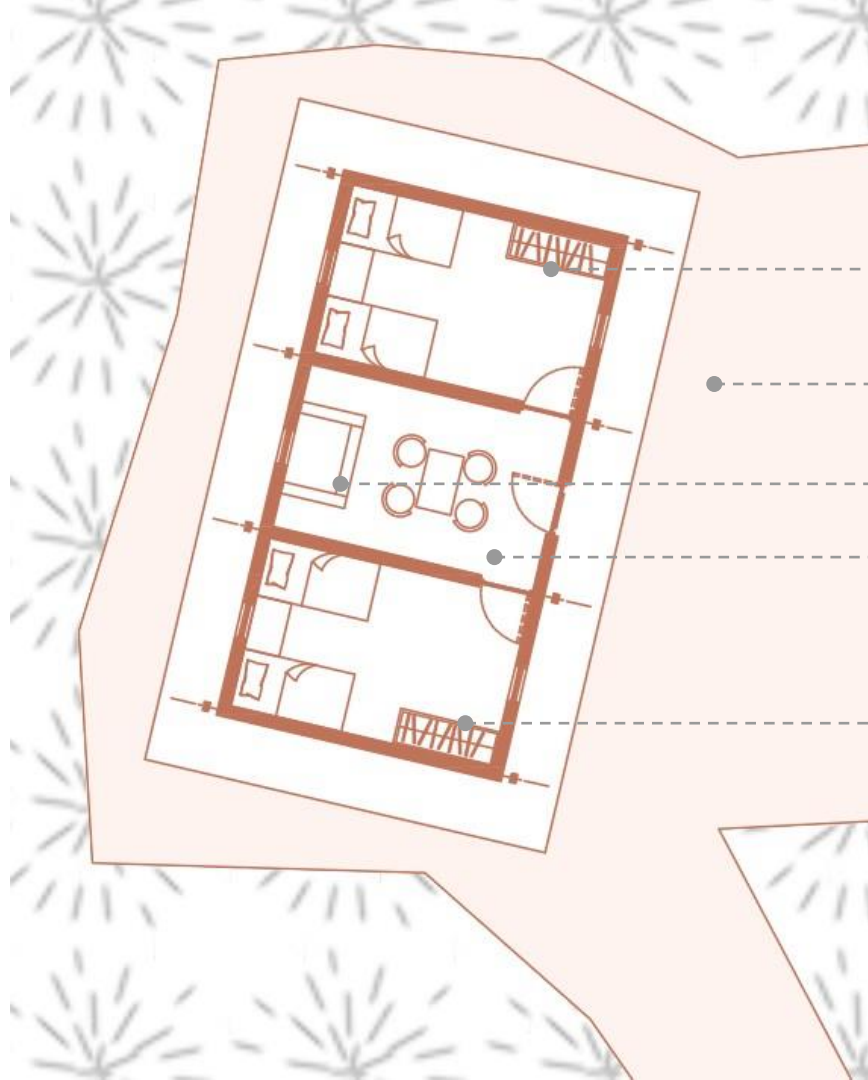


Children's room

Activities



The children's playing area is of two types, closed and open, closed space is located in between the two bedrooms and can be used in the evening or night for playing whereas the open playing area is allocated front of the house and can be used in the daylight.



Girls Bedroom space is used for sleeping and private activities by the girls.

Open space used for playing in daylight by the children

Double sided fireplace, to provide heat to both the bedrooms.

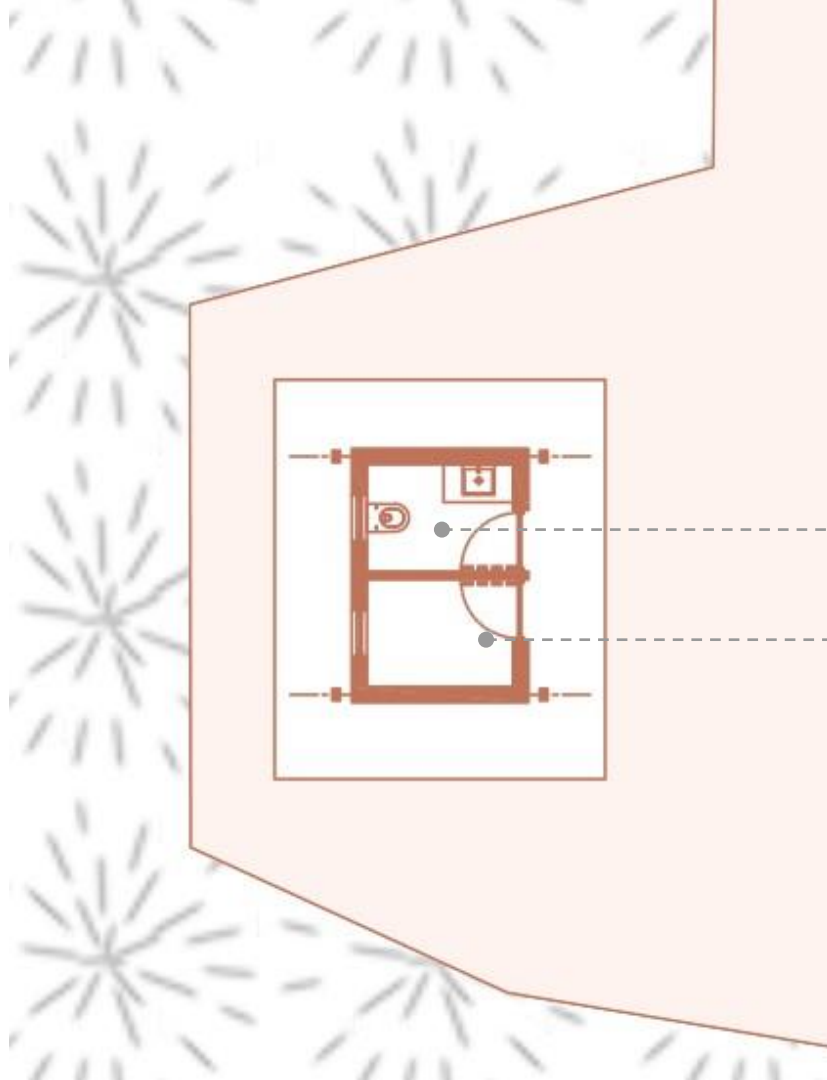
Common gathering space is used for playing indoor games or for interactions between the boys and girls.

Boys Bedroom space is used for sleeping and private activities by the boys.

Toilet



The toilet is located far away from the other structures. Usually, in Zambian culture toilets are placed away from the usable areas for cleanliness purposes. The toilet is common in nature and is used by the family as well as the guests.

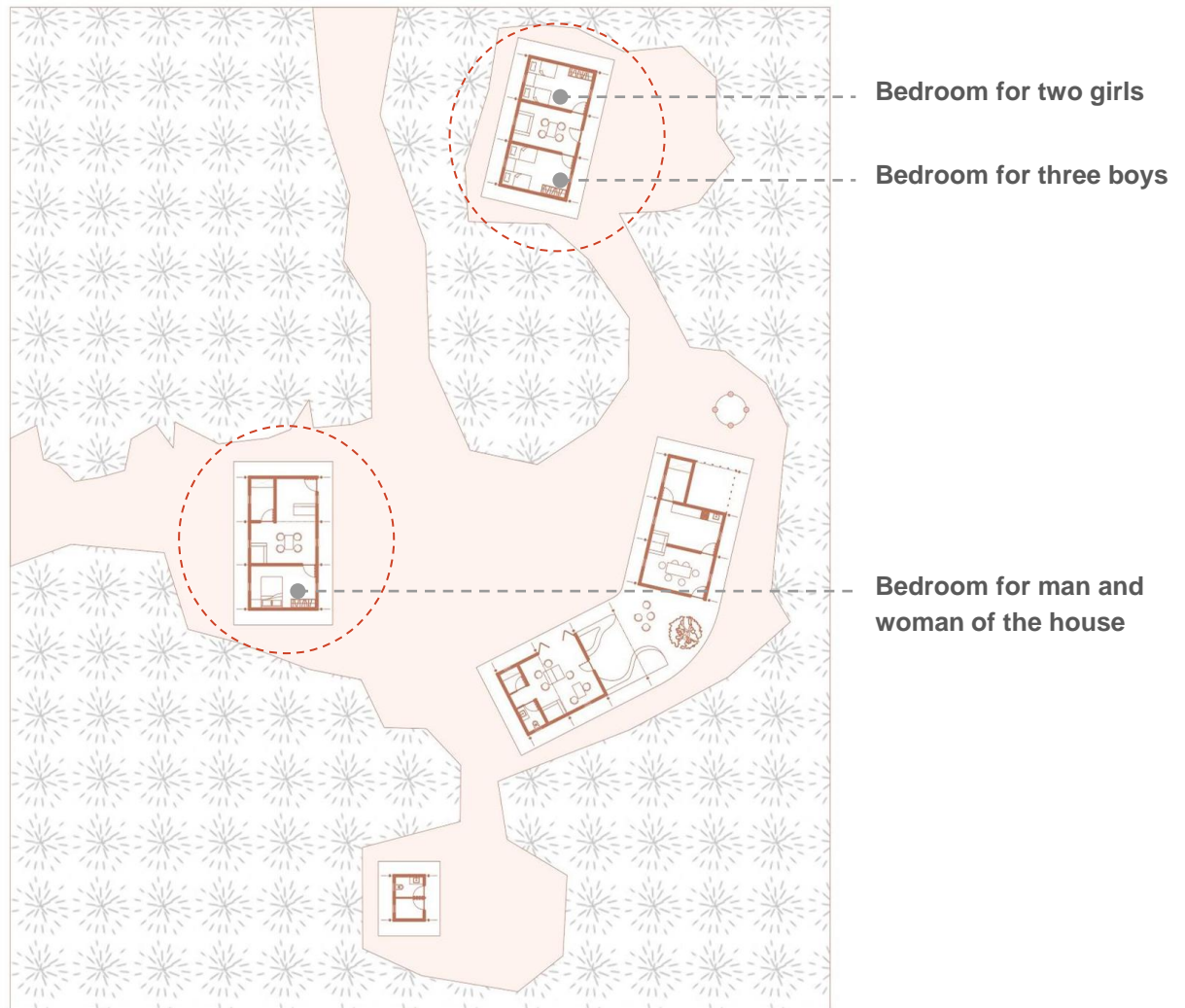


Toilet

Bathing area

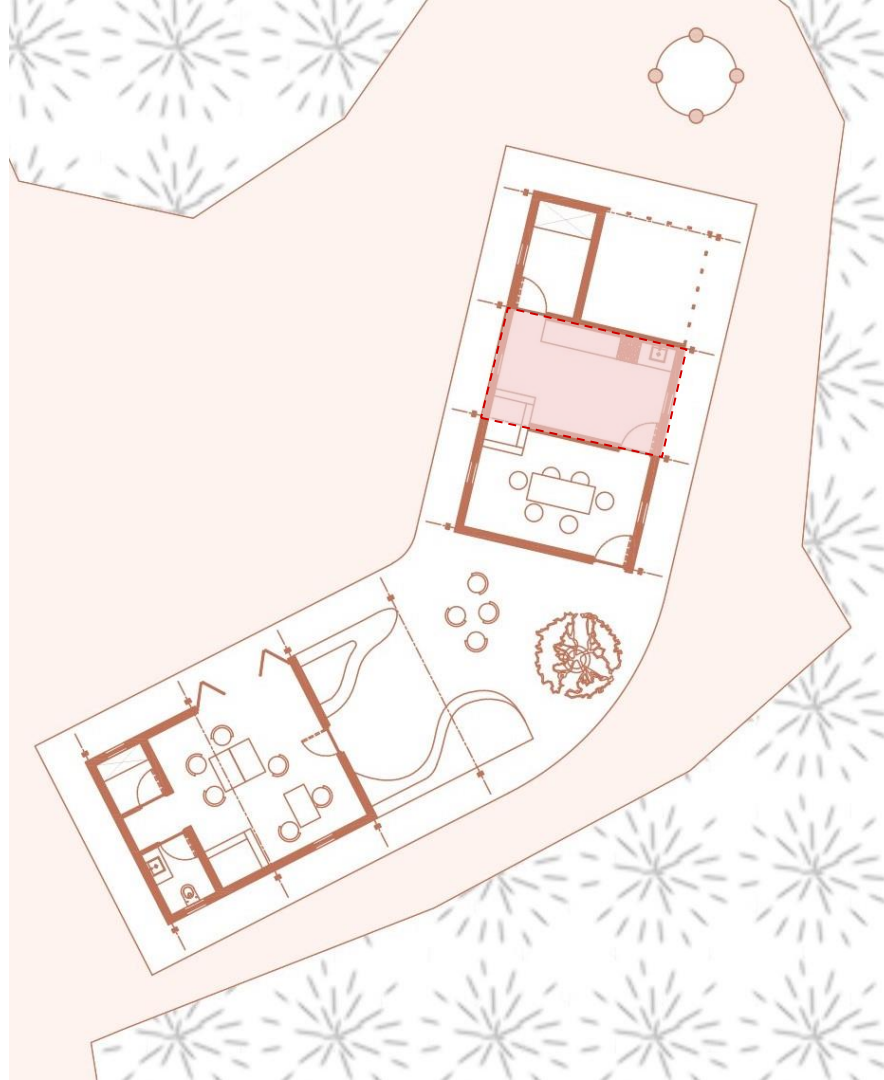
Family Structure

The home that was studied was that of the North of Zambia called Kunda Chibale. The family consists of a couple and five of their seven children - two daughters and three sons.



Position of Women

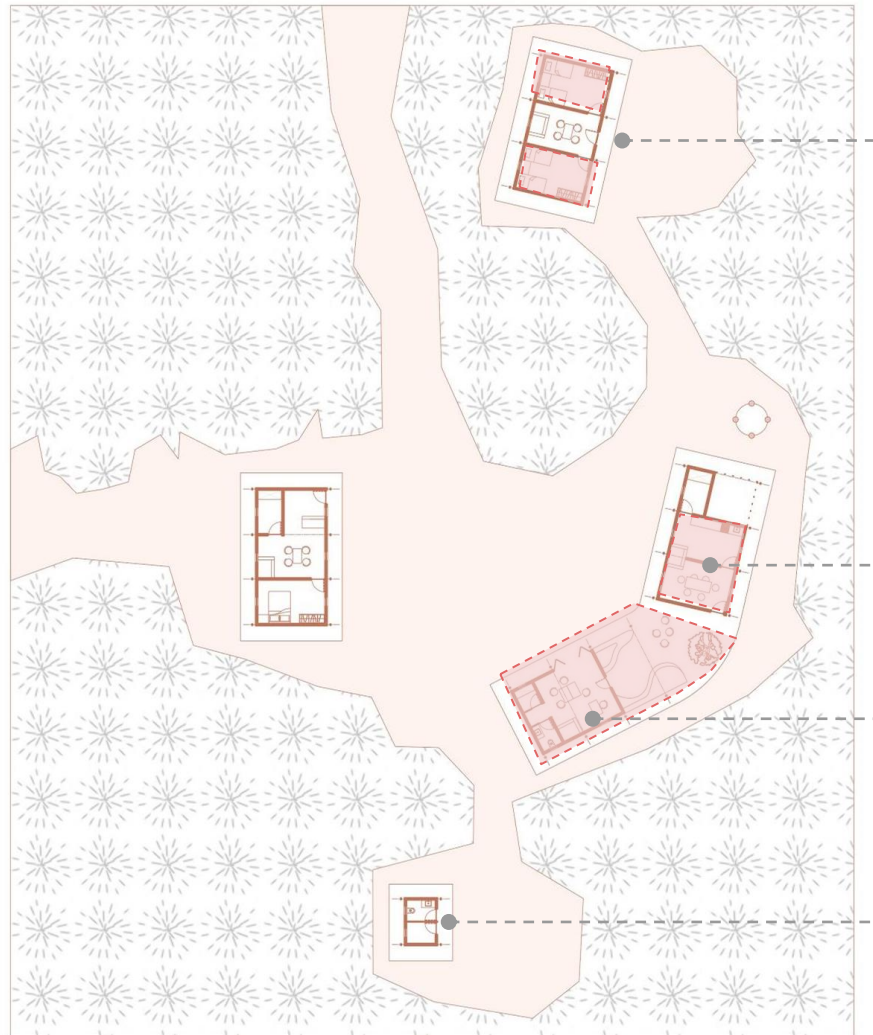
Every wife has her own sleeping house and cooking house. Getting a cooking house is a sign the wife is fully accepted into the family. These houses are round and consist of one room filled with utensils, pots, bowls, baskets, food, a grinding stone, and stools for visitors. The cooking is usually done in the cooking house. For special events, when many people are expected, the cooking takes place outside. On these occasions, larger pots and utensils are used and the cooking is done by all the women in the compound together.



Need for Privacy

The men and the women have different accepted social areas. Spaces for women are more private in nature as well as spaces for men are more public. Traditionally people would gather underneath a tree.

The children's house is some distance away and secluded from the other buildings for safety of children. The Children's house is a simple two bedroom building with some mats on the ground. The boys sleep in one compartment and the girls in another. Play area is allocated which is located at the front of their house away from the public areas in the homestead.



Children's room is designed away from the main zone of the homestead, for security and privacy of them. Girls and boys room are separated for privacy.

Women socialize around the cooking insaka's nucleus for activity. It is preferred for women to stay in their nucleus.

Men socialize in the insaka which is more public, where one greets a visitor.

The toilet, which is usually a simple pit latrine, is also placed a distance from everything else.