

# Kaira Loro Architecture Competition

## Children's House

“Report” is a text document (in English) with a written description of the design project.

*Features:*

*Format: A4*

*Language: English*

*File: PDF*

*Rename the file as required by the announcement, ex: A4\_TeamID*

*Save in PDF format and send us your report.*

*The use of images into this report is NOT allowed.*

*Fill out this report to comply with the announcement guidelines.*

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Below is the part of the report to be filled in:

### **1. DESIGN**

*Describe your project idea and your architecture.*

*(Length of text allowed: 600 words maximum, spaces excluded)*

Located in Baghere village, south Senegal, the children's house with its modest stance demonstrates itself as a succinct design, which derives from the idea of forming a balance between openness and enclosure.

Facing towards the village in an inviting stance, the design also seeks to establish multiple spatial dialogues of publicity and privacy with defined elements. Three main volumes are extracted from major programs required for the healthcare house, and sheltered by light-weight roof canopy. Base volumes are subsequently divided, stretched, compressed, and morphed. Curved walls speak as a language of duality, reinterpreted from vernacular Senegal traditional architecture languages, they are introduced both to create a dynamic strong gesture of orientation, and to enclose tranquil spaces with intimacy for cared children. The diagonally cut roof on the corner close to the road creates an welcoming entrance and waiting space to the village side. The diagonal momentum of the roof continues down until reaching the ground, the meanwhile phase transforms into a public terrace. A public open space is hugged by the terrace steps, which is shared by the children's house and the village community together for events, gatherings and sports.

Lands for agricultural use are reserved on the back side of the house and in gardens for potential self-supporting needs and honing the living skills for cared children. Also based on the same principle, heavy rainfalls during wet-season in Senegal are able to be stored in small reservoirs in the gardens for the use.

## **2. USING OF MATERIALS**

*Describe the materials you use, why and their potential.*

*(Length of text allowed: 300 words maximum, spaces excluded)*

Vernacular and simplicity in assemble are principles for building materials of the children's house. Laterite rammed earth walls are erected first as weight-bearing elements and enclosure. Their curved shapes are adorned with adobe bricks, offering dynamic routes and letting in more sunlight. Bamboo beams are rested on top of rammed earth walls. The strong sunshine in West Africa is filtered by lattice of bamboo veins, gently flows through and sheds on the earthy walls.

The roof is made of corrugated metal sheets. Features such as modularity, durability to harsh rainfall and sunlight, easiness to fix and change, make it a perfectly adaptable choice for the use in Baghere village.

## **3. CONSTRUCTION PROCESS**

*Describe the construction or assembly process of the project.*

*(Length of text allowed: 300 words maximum, spaces excluded)*

The design uses a modular structural grid in order to make the construction of children's house efficient and organized. The process starts with flatten the site and build up the base with tamped earth and compacted gravel, then the concrete foundation beam embedded within. Rammed earth walls will be next build upon the top of concrete foundation beams with wood plank forms.

Bamboo columns and beams fitted to the structural grid are modular and repeatable, they can be assembled either upon rammed earth walls on site, or pre-assembled then lifted to their place. There will be concrete tie beams on top of rammed earth walls at some points to support ungrounded columns. Bamboo vein lattice and doors will be manufactured and mounted at this phase.

After rafters and battens being assembled and fastened, corrugated metal sheet units will be assembled for the roof. Roof metal panels are all modular units, some irregular triangle shapes are of the same size and can repeatedly cut from the same mould.

In the above process there is no heavy machine work involved, thus the building will be constructed by local community members who collaborate with the local construction consultants, builders and international volunteers.

#### 4. ESTIMATE OF MATERIAL COSTS

*It is a list just of building materials and their components for example: concrete, wood, sand, stones, screws, etc.*

*This list does NOT have to include workforces, equipment, labours, furnishings, electrical and water systems. (Use this example table in according to your project needs)*

<b>Material</b>	<b>Quantity</b>	<b>Total Costs</b>
Corrugated metal sheet	790 m <sup>2</sup>	€2,370
Bamboo Vulgaris Φ10cm	1118.1m	€704
Bamboo Vulgaris Φ15cm	749.8m	€472
Laterite earth	264.4tons	€9,650
Laterite brick 20 x 30 x 15cm	549	€494
Cement 32.5	56.6tons	€6,792
River sand	90 m <sup>3</sup>	€210
Wild bamboo	1846m	€185
Local bamboo fence	12.5 m <sup>2</sup>	€17
Rosewood plank 4cm x 20cm x 4m	5 m <sup>2</sup>	€72
Rosewood beam 5cm x 8cm section	162m	€344
<b>TOTAL</b>		<b>€21,310</b>