Transformation of E-Shelter to T-Shelter and T-Shelter to Mud Brick House in Stadium and Bakassi IDP Camps, Maiduguri.

By

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On

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TRANSITIONAL APPROACH IN THE CONTEXT OF NE NIGERIA

The encouragement and support of the Government of Nigeria, a move from emergency shelters to more durable shelter solutions.

• Shelter is a **process** where PoCs can improve their own homes and engage to create a safe and secure environment not a **product**.
• Collaboration
• Durable Solution

This approach can be used for both:

• Existing emergency shelters in camps or camp like settings
• New construction of emergency shelters as extensions of camps or new settlements
MULTI-PHASED SHELTER APPROACH

Recovery Shelter Intervention

UNHCR has conceived a shelter intervention in the areas of return targeting most vulnerable returnees who are unable by themselves to build recovery shelter. The design of the recovery shelter was made by taking into account:

1. The average family size in northeast Nigeria
2. The family’s privacy
3. The cultural sensitivity demands.
What is E-Shelter

Emergency Shelter Design (Bama Type)
Materials Used For Transforming E-Shelter to T-shelter

- CGI Roofing Sheet (Kam) 1.8 x 0.6 x 0.15 – 24 pcs
- Ridge cap (4m) - 1.5 pcs
- 2" x 3" x 12' Hardwood Treated Timber – 12pcs
- Timber Battens – 0.5 Roll (25 pcs)
- Roofing Nails (Cap nail) - 1.5 Box
- Mosquito net - 2.3 m
- Termi guard - 4lt
- 3 Inches Timber Nail - 5 kg
- 1.5 Inches Timber Nail - 2.5 kg
- Plastic Tarp - (4x5m) - 0.5pcs
- Labor - 5000
The process is as follows;

- Remove existing plastic tarpaulin roof.
- 2 x 3 x 12’ hardwood treated timber purlin is nailed on the rafter at @ 700mm to make provision for roofing sheet.
- CGI Roofing sheet is now placed on the purlins with cap nails.
- After that, ridge cap is then fixed at the intersection of the two roofing sheets.
- Wire mesh is fixed between Roofing sheet and Tarpaulin for ventilation.
- Plastic tarpaulin are maintained at the gable ends of the roof.
E-shelter without top roof tarps

2 X 3 Hardwood Timber @ 700mm

Placing of CGI Roofing sheet

Ridge cap
Pictorial illustration

- Interior view of transformed shelter
- Fixing of Plastic tarps @ Gable end
- Ventilation provided between CGI & Tarps
- Completed Shelter
Lessons Learned

- Estimated cost of the transformation is **60,050NGN (155 USD)**.
- With this upgrade, there will be no need for plastic tarpaulin on the roof.
- The Design of the E-shelter Bama type 3 x 6m makes it easy to provide purlins on the roof.
- This shelter can later be upgraded to a mud brick house by the beneficiary as part of their contribution.
- The whole Construction of the roofing takes half a day by using 2 nos of carpenters.
- Vulnerable POCs may not be able to construct as this requires skilled laborer e.g. carpenter therefore, beneficiary contribution could be difficult to as certain.
- Since it is a transformation of an existing emergency shelter to a transitional shelter, there will be need for reinforcing of the existing emergency shelter by reinforcing the vertical timber palettes.
- Use of other materials such as GI pipes, Azara and etc. can be explored especially at the corners when upgrading.
- Plinth wall may also be introduced to mitigate rainwater.
The Bakassi Model is one example of a design that falls within the parameters of a T-shelter although it is no longer implemented.

What is T-Shelter

Bakassi Shelter Design
Materials Needed For Transformation of T- Shelter to Durable Shelter

- Burnt Bricks - 3200pcs
- Cement - 4 bags
- Clay - 2.5 Cum
- Water
- 2.5 inches GI pipe - 6
- 3 Inches Nail - 3kg
Process of Transforming Bakassi Shelter to Mud Brick

The steps are as follows:-

- GI pipes are replaced on the six corners of the structure to increase the strength of the structure including the the wall plate.
- Mud bricks are laid in pairs along the perimeter of the wall.
- This is aided by laterite with a small component of cement to increase the bonding of the clay.
- 2 x 4 timbers is reinforced on weak areas.
Mixing of Clay with cement

Burnt brick

Laying of burnt brick

GI pipes are introduced at the edges
Laying along the perimeter line

Arrangements mud bricks on columns

Rough cast of plaster with clay

Height of wall not exceeding 1.8m
Lessons Learned

- Estimated cost of the transformation is 243,000 NGN with locally burnt brick, however with ordinary mud brick the estimated cost will be within 120,000 to 130,000 NGN.
- Vulnerable POCs may not be able to construct as this requires skilled laborer e.g. carpenter therefore, beneficiary contribution could be difficult to as certain.
- Due to absence of column from foundation, height of wall is recommended not to exceed 1.8m due to lateral winds/
- Columns should be erected outside due to space constraints
- When properly done it can stay for at least 2-3 years with little or no maintenance work.
- Components of clay in molding brickwork may vary from place to place, therefore transporting of clay to some locations is likely.
- The tarpaulins are not removed because they help the mud walls from washing away.
- Environmental impact assessment may need to be carried out in some locations.
# Shelter Cost Estimates

<table>
<thead>
<tr>
<th>Shelter typology</th>
<th>Dimension</th>
<th>Estimated cost (USD)</th>
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</thead>
<tbody>
<tr>
<td>1 Emergency Shelter (Bama Type)</td>
<td>3 x 6m</td>
<td>300</td>
</tr>
<tr>
<td>2 Transitional Shelter (Dikwa Type)</td>
<td>3 x 6m</td>
<td>500</td>
</tr>
<tr>
<td>3 Transitional Shelter (Bakassi Type)</td>
<td>7 x 4m</td>
<td>800</td>
</tr>
<tr>
<td>4 Transforming of an existing emergency shelter to Dikwa Shelter</td>
<td>3x6m</td>
<td>155</td>
</tr>
<tr>
<td>5 Transforming of an existing Bakassi shelter to Mud Brick</td>
<td>7x4m</td>
<td>625</td>
</tr>
<tr>
<td>6 New Mud Brick House</td>
<td>3x6m</td>
<td>?</td>
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