

Malawi Floods and Rains Recovery Program

Learning from tradition



Background

The Government of Malawi estimated that 638,000 people were affected nationwide by severe rains and floods, prompting the the President of the Republic of Malawi to declare a State of Emergency on January 13, 2015. Over 170,000 people were displaced by the floods. Phalombe, Zomba, and Machinga were identified as three districts having large unmet needs in shelter. In partnership, CADECOM and CRS have targeted support to these districts.

Despite weeks of immersion in water and driving rain, many houses survived with little or no damage, including those constructed using blocks, render and mortar made of earth.



Learning from Tradition

A traditional house that survived the floods. The raised platform protected the core structure from erosion; the hipped roof with large overhangs and veranda avoids having exposed gable ends and prevented driving rain from damaging the walls. The roof and walls had been maintained and in so doing provided additional protection. The design provides protection from the elements and has been developed over centuries.

Other than some minor repairs to the veranda wall, the house was in good condition and allowed the family to return to their homes once the floods had subsided.

Shelter Recovery Strategies

When asked, people said that they intended to repair or reconstruct their homes during the dry season using the same building techniques and materials that they previously used, and were interested in what building methods could make houses more resilient.

Materials such as burnt brick, cement, and corrugated iron sheet roofing are beyond the financial means of the poorest households. To have wider impact, there was a need for assistance to be focussed on Safer Building solutions using local materials that were **affordable, replicable, and achievable** by the most vulnerable and at risk households.

The program provides:

- Local builder **training** in Safer Building to support their communities
- A **model house** built in each community as an example of Safer Building
- **Information** and Training provided to each community

- 1350 vulnerable households to be provided with **tools, materials** and technical guidance to build their home and construct latrines

Shared Learning

Best building practices were identified through theory and practical workshops with local builders. Each workshop culminated in the construction of a Model House using the developed techniques. A training and information curriculum for communities and builders was produced, covering the following themes:

- Hazard and Risk awareness
- Site Selection and house Orientation
- Building Design
- Materials
- Construction
- Protection and Maintenance of the house and environment

The workshops allowed a progression of learning and sharing of ideas. These were tested and reinforced during the practical sessions.



Local builder describing techniques for connected the roof structure to the wall.

(Photo – Jamie Richardson)

Theory to Practice



The strength and durability of earth bricks are determined by the ratio of sand and clay, the amount of water used, and care taken during moulding and drying.



Setting out foundations using simple 3,4,5 triangulation formula to obtain a 90 degree corner as basis for the rest of the setting out.

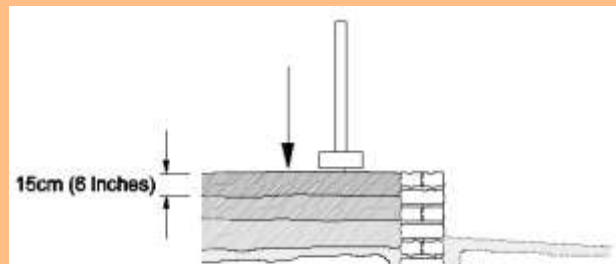
(Photos – Jamie Richardson)



Foundations dug to a depth to ensure proper ground bearing and to avoid exposure due to erosion.



Foundation walls constructed to provide a substantial footing for the walls. Infill compacted to prevent subsidence.



Brickwork constructed using mortar to the same standard as used for brick manufacture. Corners constructed using gauging rods to ensure regular mortar beds and so that the walls are level.

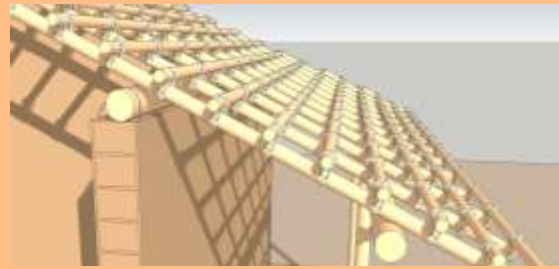


All mortar joints to be fully filled and the mortar compacted in the joints. Stretcher bond brickwork to have proper half bonds and corners constructed in steps.

(Photos – Jamie Richardson)



Rafters and battens fixed with tie wire. Wall plates fixed securely to posts and walls.



Plastic membrane fitted prior to thatch providing additional protection especially at times when there is a shortage of thatching material.



Thatch fitted over the membrane.



Walls are rendered using traditional techniques.



Latrine constructed by householder.



Trees planted around the house to provide shading, wind and rain protection, and a supply of wood for construction and fuel.



Small details such as wash stand and plate drying rack to encourage safer hygiene practices.

The finished product



Facts:

- Families prepare latrines with temporary superstructures and clear sites prior to receiving construction materials
- The CADECOM team constructed the model home in less than 10 days.
- Floor area (not including veranda, and kitchen) 16.5 M2
- Total costs of materials approximately \$200

Community:

The community were actively involved in the project. Community leaders commended the program for recognising traditional skills and knowledge as an affordable, effective means of coping with heavy rains and flood.

Training and information will now be provided to the communities, using the model house as an example. This will reduce the impact of future flooding and rains upon families and communities by reinforcing and building upon current good practice using local materials and available skills.



The house belonging to Beatrice Tsegula, her husband and 5 children was badly damaged by the rains and flooding and was very small.

Beatrice and her family now have a home and a safer future.