The open floor plan is well ventilated at all sides, thus improving airflow in and out of the building. Simulation results from Revit Architecture software assisted in defining required shadings where needed and their required sizes, such as eaves, horizontal and vertical shadings as seen in figures 1, 2 and 3. To facilitate building services, H-beams made from reinforced concrete (see figure 2) were used both as structural components and service ducts which ran across the building to accommodate electrical components, battery cells for photovoltaic panels, and roof drains. Building specifications included the use of double glazed windows of 0.5 W/m²K (see figure 2), light coloured roof to reflect sunrays, compressed earth bricks with a U-value of 1.73 W/m²K of low thermal transmittance (see figure 7 and 10), large windows to maximize daylighting and natural ventilation while providing shades where necessary. One third of the building was fully cantilevered, while the rest were elevated to reduce heating, improve air circulation and cut down water capillary action (see figures 4.5).

The building was mostly site assembled (figures 6 - 9), such as the steel frame stanchions bolted on foundation pads for easy dismounting (figure 5), laid bricks with no mortar for ease of reuse (figure 7), wooden floor bolted on steel frames, screwed-in roofing sheets and suspended ceiling members.

Conclusion
The West African tropical temperature was easily managed using passive design principles, thereby, attaining a thermal comfort range of 23-25 degree Celsius simply by natural ventilation and thermal mass. The project received good commendations from visitors as to the ease of construction and deconstruction strategies applied. It was discovered that the region have a wide range of material that can be employed in circular economy. 80 % of reusable and recyclable materials used for the construction were locally sourced. This study is essential because residential buildings amounts to most of the regions’ building stock. The human population in these regions are increasing and if more homes must be built, they need to be done in an energy and resource efficient manner considering the challenges of these regions such as unstable and inadequacy in electricity supply, unavailability of building material and the hot climate. A simulation with DesignBuilder software revealed that the building’s primary energy demand was under 120 kWh/(m²a) by achieving 48 kWh/(m²a) with a 46 % improvement in comparison with business as usual buildings in the area. The building as a demonstration project has gained popularity and currently serving as a reference for a resource and energy efficient building (see figure 10) built to basic Passive Design and Circular Economy Principles.