POLITECNICO
DI TORINO

Honors thesis

MASTER OF ARCHITECTURE FOR THE SUSTAINABLE PROJECT

ROMAMWE PRIMARY SCHOOL:
project for a multifunctional classroom at Ndaragwa, Kenya

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The idea of this thesis was born from the union between desire and demand.
My desire to make available university knowledge acquired in five years and the concrete request of a school in **Kenya**.
It was possible to write the thesis in collaboration with the Turin project Karibu Ndugu, which from a year helps Romamwe Primary School, near Ndaragwa, in the center of Kenya.
I have done the research work has as support of the needs of the school, and at the same time tries to provide support for future projects of Karibu organization.
The final object of the thesis concerns the **design of a multifunctional classroom**, used as a canteen for the school children, or as a meeting room for teachers and parents.
The primary objective is to realize a building in connection with the other allready existing, as an example for future low cost construction, built with materials easly available on site and local building techniques with elements of innovation, according to aspects of sustainability and environmental comfort.
The thesis is organized into three distinct parts: the first part analyzes the geographical, physical and socio-economic development of Kenya, the second focuses on the study of "low-cost" schools in the world, and the last it focuses on the design of the school building.
The first phase of documentation and research was deepened during the **on-site experience**, needed to understand better the needs of the school, construction technologies and materials available, and that gave the design a more real perspective.
Parallel were analyzed as series of “case studies”, nine projects of schools selected according to specific criteria: they are all projects located in rural areas of developing countries, in which were adopted local low cost materials with contemporary construction technologies.
To get to the stage of the design I’ve identified the materials used for the construction, analyzed according to positive and negative aspects in economic terms, the availability on the area and the time for their realization and implementation. Particular attention was given to issues of environmental sustainability, social, functional-spatial and economic development.
In the third part of the thesis, the one dedicated to the project, also taking as a challenge to raise community awareness towards the use of the earth as a building material, studies have focused on the technique of **interlocking blocks of unfired stabilized earth** (ISSB: Interlocking stabilized Soil Blocks), referring to the company press Makiga which is based in Nairobi. The multifunctional classroom hypothesis was then studied by detailing its components, described in a practical **construction manual** attached to the project.
This project experience, fortunately, it doesn’t end with the conclusion of the Master's thesis, but it will be the beginning of a path that will lead to the realization of the multifunctional classroom and serve as a basis for projects of other facilities within the school.

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Figura 1 vista dell'aula polifunzionale

Figura 2 vista dell'aula polifunzionale

Figura 3 vista dell'aula polifunzionale