

MAKERERE



UNIVERSITY

**COLLEGE OF ENGINEERING, DESIGN, ART AND
TECHNOLOGY**

SCHOOL OF BUILT ENVIRONMENT

DEPARTMENT OF CONSTRUCTION ECONOMICS AND

MANAGEMENT

PROJECT: PREFABRICATED MODULAR HOUSING

ASSOCIATED WITH

MAKERERE ASSOCIATION OF CONSTRUCTION

MANAGEMENT STUDENTS

MODULAR AND PREFABRICATED HOUSING

Modular and prefabricated units can be defined as those that are built on an assembly line in a plant and transported to the construction site to set up a structure.

Unlike the traditional method of on-site construction, prefabricated units once brought to site are assembled piece by piece until the entire structure is complete.

Modular prefabricated construction represents a specific type of prefabrication in which the module building components are assembled off-site. Modules are complete box-shaped units, containing walls, floor and roof with the interior space, which are built in factory, shipped to the site, installed, and connected into a complete building. Faster speed of construction and thus, faster return on the investment, is one of the major drivers of this type of construction which can take place at a variety of scales, from single-house to high-rise, and for various types of functions including residential, student housing, and commercial. Other benefits include safer more productive working conditions in manufacturing settings, which is of particular value in extreme climate regions. The manufacturing setting also presents challenges in terms of inspections, permitting, labor organization, transportation and logistics.

The relevance of modular housing in Uganda.

Uganda among other developing countries is facing with a problem of rapid urbanization which is characterized by uncontrolled development of informal and unplanned structures. Most urban areas in the country are faced with high populations of dwellers that end up settling in slums.

With a housing shortage of over 1.5 million houses, the government therefore needs an immediate solution to fill the gap and as such is required to start up a scheme that allows quick development of structures and that is also cost effective, and prefabricated modular housing qualifies to be the answer.

Prefab or modular building systems can have advantages over traditional on-site Construction:

- Very time effective, Modular houses take a very short time to be assembled as compared to traditionally built houses.
- Site work can happen at the same time as units are being built in the plant;
- Units can be built when weather does not allow outdoor construction;
- Efficiencies and lean manufacturing principles realized on the assembly line can result in savings;
- Because units are built indoors and closely supervised they can be of higher quality and also create beautiful as well as long lasting houses.

However, there are also a variety of potential challenges with modular and Prefabricated construction:

- Modular units and prefabricated systems may have to travel long distances to the site, which can be costly or lead to damage, they are typically lifted off the truck and on to the foundation with a crane, which can be expensive;
- On-site integration of units, systems or pods can be a challenge, and there can be scope gaps;
- If units or systems get damaged on route or deficiencies are noticed once the unit is on site, it can be ambiguous whether site labour or the plant is responsible for making the repairs;
- Modular units using standard designs may not work in all climates and mistakes in the design can be repeated on the fast moving assembly line.

Proposed budget for the project

No	Item	Qty	Ratc(shs)	Amount (Shs)
1	boxes	4	1000	4000
2	Pi»s	1	2500	2500
3	Manila paper	4	1000	4000
4	Wood glue	1	3000	3000
5	miscellaneous			20000
	TOTAL			33,500