

# BRICK-MAKING

OBSERVATIONS FROM THE WOMEN'S OPPORTUNITY CENTER





2|Brick-Making: Observations from the Women's Opportunity Center

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# 1. Introduction

Located on a one-hectare site in the Kayonza district in eastern Rwanda, the Women's Opportunity Center is energizing one small community's subsistence-agriculture economy through female empowerment. The facility was designed in collaboration with the humanitarian organization Women for Women International, and as such it poses a more expansive role for architects. In particular, the design of the Women's Opportunity Center takes social equity into consideration, by weaving job training into the scheme.



Future students were assigned the manufacture of pavilions' bricks, using clay extracted from nearby sites as well as a manual press method adapted from local building techniques. Direct construction administration improved workers' skills, as well.

## 1.1 Objectives

The following specific objectives contributed to the attainment of the above overall goal:

- To increase the economic opportunities for our participants/ graduates
- To increase the knowledge in Brick making vocation to 250 women participants/graduates of the core program of WFWI-Rwanda
- To make 500,000 fired bricks needed for building Women Opportunity Center within 6 months period of time.

# 2. Existing Brick Manufacturing in Kayonza



We began by examining the prevailing brick-making techniques employed in Kayonza. Through research and site visits, it became evident that this vocation was dominated by men in the village, and the bricks being produced exhibited imperfections resulting from the current process and approach. Our objective extended beyond introducing brick-making skills to women; it also involved identifying opportunities for enhancement in the brick-making process.

These were some of the factors investigated to enhance the process:

- Replace the current wooden molds to a more efficient material like steel for smoother edges and more consistent brick sizes.
- Provide a leveled surface for the drying of bricks to avoid warping.
- Provide a tank and properly constructed area for clay mixing to improve the consistency of the clay mixture.



### 3. Site Preparation and Logistics

#### 3.1 Infrastructure Requirements

A visit to the brick making site in Kayonza was made to assess the infrastructure requirements needed to enhance the rate of production.

The following were found to be required to facilitate the needed upward movement:

- The construction of two or more tempering tanks created extra working areas, thereby involving women in the production process.
- The construction of one more mixing platform increased the working area.



- The tempering and mixing areas were covered so that women could continue working even during rain-falls and scorching heat.
- The number of tools and aids was increased to facilitate the attainment of desired levels of production. These included mounds, bow cutters, and carrying boards.
- Drying shade area was immediately covered to save unfired bricks that were likely to be destroyed by rain, especially during the coming rain season. If not addressed, we were likely to lose half of the 30,000 unbaked bricks in this shade. The prospect of this happening would have demoralized the women since they thought their efforts put into making bricks were not valued. Upon review, it was recommended to use corrugated iron sheets for the covering due to durability and overall savings on maintenance and life cycle costing.



## 4. Brick Making

### 4.1 Materials and Process



#### Clay Type and technique

- Local soil was tested to confirm it contained enough clay and a moisture content of 5.5%.



- Approximately three buckets of water were used for nine buckets of dry clay; depending on the wetness of the clay when it came out of the ground.



- Water was gradually added as one or two people mixed with hoes until there was no visible dry clay left. The idea was to fill and empty a new tank every day, allowing the tanks to temper for a minimum of three days.



#### Mold Making technique

- Clay soil was packed by hand into the steel form.
- The dimension of the mold was 90mm x 140mm x 115mm. This translated to roughly 545 cubic meters of soil.
- The logo of the WFWI was integrated into the steel mold.



#### Firing Process

- Bricks were allowed to dry on a flat level surface with a tent to protect the bricks from rain for three weeks before firing.
- The bricks were removed from the tent, sun-dried, and then stacked with other bricks to form the kiln.



- We attempted to use rice husks for a more sustainable fuel, but the husks did not create a fire hot enough for brick firing, so we used wood.
- Depending on the size of the stack, fuel was burned for a period of approximately six days. The kiln was allowed to cool, and then the bricks were ready for use as the kiln was disassembled.

## 5. Monitoring and Evaluation Reporting



The project underwent monitoring and evaluation to gather data and information that WFWI-Rwanda utilized for internal program management and to assess the project's progress in achieving its objectives.

### 5.1 Project Monitoring

Monitoring was done by various staff and beneficiaries. Project staff (Trainer & Assistants) based at the project site monitored the implementation of the project on a daily basis, while other stakeholders did it periodically. This was an especially important activity as it guided the project implementation process towards efficiency, effectiveness, and achievement of the goal.



### 5.2 Evaluation

The IG Team conducted mid-term and final evaluations. The lessons learned after the final evaluation were used by the organization in future planning of follow-up phases or in the development of similar projects in other areas.

### 5.3 Reporting

Reporting was the responsibility of the trainer and was done monthly. The Department Manager prepared and submitted monthly progress and financial reports to the headquarters after receiving the one compiled by the IG Coordinator and Officer.



## 6. Conclusion



In conclusion, our goal of introducing brick-making skills to women in Kayonza was successfully met. We were able to produce the desired number of bricks required for the Women's Opportunity Center. The method of brick-making that we established was recognized as the best in the area, signifying an improvement in both the quality and efficiency of the production process. The women's cooperative made 500,000 bricks, this achievement not only empowered the women in the village by providing them with a new skill but also contributed to the overall development and progress of the community.



