



POLITECNICO
DI TORINO

Honors thesis

COURSE OF DEGREE IN SUSTAINABILITY DESIGN

Abstract

Concrete Africa: Ghanaian Experience
_ **Red Soil**
_ **Kente in formwork**
_ **Natural Sign**

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During the course of the studies, the candidates did an internship in Ghana, and that experience became the main topic of their thesis.

Throughout the research phase, we notice that the conception of concrete as a building material in Ghana is rooted, although it's unsuitable for the African climate and the context. The development of architecture has settled on this material in such a way that in Ghanaian cities (and African ones in general), it has replaced materials more closely related to local architecture, which would instead be more relevant to the context surrounding them.

It's therefore important to stimulate new trends that can guide the design choices of the Ghanaian architects, towards technologies that are more closely related to their context, taking up the elements of the environment or even better of the vernacular architecture, but revised in a more modern way.

This great change, being so radical, would require a slow and gradual process that can only be implemented over a long period of time.

From this assumption, the candidates will propose by the project design, who want to be the first step towards this renewal, going to take the concrete and modify it on the surface to make it more contextualized to the African situation.

Research seeks to ensure that architecture absorbs the Ghanaian context, using concrete (now well-rooted material, which at least doesn't seem to want to be separated from people's mentality at least recently) as a vehicle.

Architecture inevitably establishes a relationship with what Surround it and creating a communication between the context and the building that materializes in viewer's impressions.

This bond becomes one of the key role players of architectural design and needs to be taken into account in an appropriate way.

The survey work involves a first step wich analyses various elements that make up the environment in search of textures, patterns and strong patterns that characterize the Ghanaian environment in all its aspects (the fabric Kente, red earth and palm fiber of Cocos Nucifera).

After that, we studied some of the methodologies and principles with which These elements can relate to the surface of the concrete.

This research ended with a more practical phase through the realization of concrete specimens so that concrete hypotheses can be applied concretely.

In addition, during the research phase, it was decided to bring the survey work to a more professional level, through the creation of a site, which would be an information tool for foreign companies that want to join the African context.

As a result, it emerged as a tool for communication and synergy collaboration between European and African construction companies, academic institutions (Kumasi University, etc ..) and the professional ones (GIA).

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Figure 1: Concrete test with the study of Kente pattern (Kente in formwork)



Figure 2: Concrete test with insertion of red soil into the mixture (Red Soil)

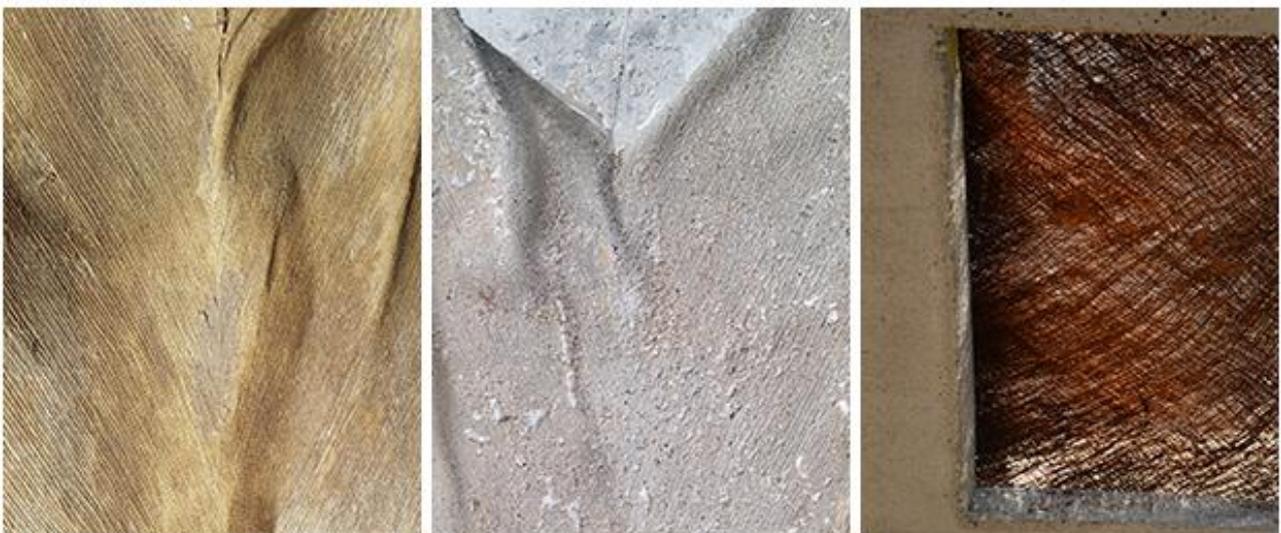


Figure 3: Concrete test with the application of palm fiber to create lights and shadows effects (Natural Sign)

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