Sustainable housing with soil, for " slums", in Praia city, Cape Verde – reflection on the concept of Cape Verdean traditional architecture and the earthen construction technique

Summary

This thesis proposes to develop an idea of sustainable housing with soil, for slums in the city of Praia in Cape Verde, from the analysis of the traditional Cape Verdean housing, associating the earthen construction technique, adjusted to the current Cape Verdean reality. In this project the habitability conditions are measured in Rhino 3D + Grasshopper and the plug-ins Ladybug and Honeybee, which import the climate data archive of Cape Verde and integrates the prescriptive method of ISO 52016-1:2017, related to the energy performance of buildings and ISO 15928-5:2013, related to the operational energy performance of buildings, as well as the economic performance of construction costs, life cycle of use and demolition, applicable in the urban regeneration of slums in the city of Praia.

A case study was selected, with the slum community of slum Jamaica, in the city of Praia, in Cape Verde, to understand the housing difficulties of this community and to propose a sustainable and feasible housing solution, based on the idea of traditional Cape Verdean housing, associated with earthen construction techniques that best suit the socio-economic and environmental reality of this community and that help to solve or minimize their housing problems. This solution also integrates economical, durable, bioclimatic, self-sufficient and efficient construction solutions.

This is an evolutionary project, generated from computer simulation, in three-dimensional models in Rhino 3D + Grasshopper with evolutionary genetic algorithms that allow to optimize the geometry and integrate the climatic, environmental and socio-economic requirements of the families of the slums in the city of Praia, preserving the historical, functional, durable and aesthetic value of the Cape Verdean housing.

Keywords

Slums in the city of Praia, sustainable and solidary housing, urban regeneration of slums, Traditional housing in Cape Verde, earthen construction technique.

"Settlements become modality of housing."
Luna DI Primo

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