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Modeling Comfort by Thermal Inertia in Eco-Construction for Low-Income People in an Aqueous Environment in the Face of Sustainable Development in Sub-Saharan Africa; Case of the City of Kinshasa, DR Congo

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Abstract : In this 21st century, while design and eco-construction continue to be governed by considerations of functionality, safety, comfort and initial investment cost. Today, the principles of sustainable development lead us to think over longer time frames, to take into account new issues and the operating costs of green energy. DR Congo (sub-Saharan Africa) still suffers from the unusability of certain bio-sourced materials (such as bamboo, branches, etc.) and the lack of energy, i.e. 9% of the population has access to electricity and 21% of access to water. Ecoconstruction involves the energy performance of buildings which carry out a dynamic thermal simulation, which targets the different assumptions and conventional parameters (weather, occupancy, materials, thermal comfort, green energies, etc.). The objective of this article is to remedy the thermal, economic and technical artisanal problems in an aqueous environment in the city of Kinshasa. In order to establish a behavioral model to mitigate environmental impacts on architectural modifications and low-cost eco-construction through the approach of innovation and design thinking.

Keywords : thermal comfort, bio-sourced material, eco-architecture, eco-construction, squatting, design thinking
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