African Urban Development Studies (Interdisciplinary -

# Eco-Friendly Construction Materials and Urban Housing Energy Efficiency in Nairobi: A Comparative Assessment

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## Abstract

Nairobi, Kenya is experiencing rapid urbanization, leading to increased energy demand for housing and infrastructure. This study aims to assess the impact of eco-friendly construction materials on energy efficiency in urban housing projects. A mixed-method approach combining field surveys, interviews, and building energy models was employed. Data were collected from ten randomly selected projects that used either eco-friendly or traditional construction materials. Recycled aggregate and bamboo use in housing projects showed an average reduction of 15% in heating and cooling energy consumption compared to conventional materials. The findings suggest that the adoption of eco-friendly construction materials can significantly enhance urban housing energy efficiency, contributing positively to sustainable development goals. Urban planning authorities should prioritise the use of eco-friendly materials in future housing projects, while developers and architects are encouraged to explore these options for cost-effective and environmentally friendly solutions.

**Keywords:** *Kenyan, Geographical, Sustainable, Construction, Materials, Efficiency, Assessment*

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