

Title of Article: Life Cycle Assessment of Environmental Impacts of Using Concrete or Timber to Construct a Duplex Residential Building.

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Abstract: *Traditionally, the choice of construction materials depended principally on the strengths of materials, cost of material, availability of materials, simplicity of erection, aesthetics and technical expertise available to the society. This meant that little attention was paid to the environment impacts of materials adopted for civil construction. After centuries of speedy advancement accompanied by deteriorating ecosystem as evidenced by the global climate change and the accompanying gap between the rich and the poor, the world is becoming more conscious of the ecosystem and the future of mankind. This has led to the growing quest for sustainable development. In the more recent years, environmental and sustainability factors are becoming compelling factors in the choice of construction materials. Researches focused on materials for affordable houses for the increasing low income masses are on the increase. This research focuses on the environmental impact performance of concrete and timber applied to a modest duplex residential building. It explores using Athena Impact Estimator software to model the greenhouses gases expressed in terms of carbon dioxide equivalents, sulphur dioxide equivalents, phosphate equivalents and ethane equivalents potentials obtainable from using concrete or timber to build a duplex residential building. From the various results obtained, it is very evident that timber construction is more eco-friendly in terms of carbon emission reduction which translates to reducing global warming, thermal insulation and energy efficiency. This will be helpful in making choice for building materials to be adopted for affordable houses developing countries.*
