

ABSTRACT

The annual United Nations Forum for Climate Change summits being held for the last few years have reinforced the need of sustainable development. Sustainable development has been defined as achievement of social, economic and environmental goals without compromising with the needs of future generations. As civil engineers we can also contribute to this noble agenda by curbing the wastage of natural resources and energy during construction and minimizing carbon emissions at each stage of an infrastructure project.

But this is not possible without arming the concerned people in the industry with sufficient knowledge and data to take well informed decisions. Over the last few decades the trend of 'Building Green' has taken the market by wave. This has led to a corresponding increase in the scope and size of the global green building material market which is expected to reach \$234 billion by 2019. Green materials claim to be environment friendly, low carbon emitting, energy saving and resource economical. But the question that largely remains unanswered is whether the use of these materials is cost efficient in real economic terms or not. The stakeholders in the construction industry are divided on the answer owing to the lack of authentic academic research and data on the same, especially in India.

This study aims to compare three such green materials i.e. flyash bricks, autoclaved aerated concrete blocks and cellular light weight concrete blocks for their cost efficiency at the construction stage vis a vis total building height, reduction in dead load and thermal insulation. The results will help the structural designer, architect or project manager in arriving at a reliable decision whether to use the material or not for a given residential project.