



ES Seminar

Minimizing the embodied and operational energy of buildings using bio-composites; How did we get to study Orange Peels

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Abstract:

The building sector, both commercial and residential, is the largest consumer of energy and natural resources in industrialized countries. These, consumed mostly in the production of building material and operational energy in buildings. Conventional building materials, especially constructive cement-based elements and insulation, has great energy embodied in their production (Embodied Energy) which could account for as much as 60% of the building's total life-cycle energy consumption. Furthermore, successful studies focusing on minimizing the ongoing (operational) energy in the building has developed high embodied energy (EE) materials. Hence the relative share of embodied energy (EE) in the building's life-cycle is increased correspondingly through improvement in operational energy loads. Since the wall systems (mass, insulation and finish materials) account for a significant portion of the EE, the wall infill should be carefully chosen.

Arising environmental awareness has produced alternative low-energy wall systems and lead to revival of ancient building materials and techniques such as Rammed Earth and bio-composite insulation. This study wishes to develop innovative low-energy walls system, which will significantly reduce the EE along with satisfactory thermal properties, thus, minimizing the overall life cycle energy consumption in buildings. Mixing bio-composites in a soil matrix using vibration, could potentially originate brick with varying density.

The presentation will deliver an updated picture of the current study linking critical distinctions attributable to preliminary results, and redirection of the study.

Date & Location:

Tuesday, December 26, 2017, 13:00-14:00
Department of Man in the Desert Seminar Room

