

Executive summary:

This dissertation's topic is "Low embodied energy materials in sustainable buildings". The idea and purpose of this dissertation is to give an overall idea of what low embodied energy is, and defining several low embodied energy materials by exemplifying. These building materials have great significance on the environment. Keeping posterity in mind, we need to conserve the natural resources as these are limited. The building construction materials have to undergo different process during manufacturing, all of which consume energy. The energy consumed during the manufacturing processes releases carbon dioxide which is major concern for global warming also. As the resources of raw energy and building materials are running low, we have to find solutions to the problem. The reduction of the energy consumed in building sector including the energy in the building construction materials is of great importance and low embodied energy building material is one of the seen as a panacea. More and more new building construction materials are being manufactured and used in the buildings and these materials consume considerable amount of energy in the manufacturing processes and during transportation from one place to another. Conservation of energy becomes important in the context of limiting of green house gases emission into the atmosphere and reducing costs of materials. The dissertation illustrates methods of estimating low embodied energy, such as Life Cycle Assessment (LCA). It also provides information on the usage of low embodied energy materials and life cycle assessments as helpful tools in decreasing the negative impact on local and global eco systems, by lowering the emissions of CO₂. The dissertation also includes a

brief on the common low energy embodied materials and comparison between various materials. The dissertation also compares the embodied energy of various buildings, energy consumed in transportation, different types of masonry, mortar, roofing etc. particularly in the Indian context based on the literature review. The recycling/reuse of the building materials is of great importance or preserving the resources and energy. Efforts made for conservation of energy by way of adopting low energy embodied materials in India are also mentioned.

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