

عنوان مقاله:

Optimizing insulation thickness and analyzing environmental impacts of insulated building

محل انتشار:

کنفرانس بین المللی مهندسی معماری و شهرسازی (سال: 1395)

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خلاصه مقاله:

The buildings sector is responsible for large consumption of energy and corresponding GHG (Greenhouse Gases) emissions in Iran. Thermal insulation of buildings is a relevant technology to reduce such energy consumption and GHG emissions, and helps achieving sustainability in buildings. The main objective of this study is to determine and evaluate the environmental impacts of buildings by applying recommended details using thermal insulation materials in external layer of residential buildings. Five common details in developed countries are used. The most conventional thermal insulation materials produced in Iran, Expanded Polystyrene (EPS) and rock wool, are selected as thermal insulation material. In the second part of this study, net environmental saving and energy demand are calculated for a typical residential building in climatic condition of Tehran, simulated and optimized using suggested physical properties of materials according to Iran's national building code. The results of this study presents details for outer shell of the building with acceptable thermal behavior and optimum energy consumption and least environmental impact.

کلمات کلیدی:

Life Cycle Assessment, Thermal insulation, Global Warming Potential, Optimization, Insulation Thickness

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