

عنوان مقاله:

Effect of different wall slopes on building energy consumption in Tabriz, Iran

محل انتشار:

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خلاصه مقاله:

Nowadays, optimizing energy consumption in buildings requires precise assessment and precise strategies to reduce energy consumption, which is unavoidable due to the high cost of investment in construction projects. On the other hand, with the reduction of oil resources, there are various environmental, technological and economic approaches to energy saving. In this paper, the importance of wall slopes as an important parameter in increasing or decreasing energy consumption is considered. For this purpose, a reference residential building model with two storeys is created. The south wall of this building model is sloped at angles 15°, 30° and 45° degrees in the first and/or second storey. Besides the reference building model, a total of nine building models with different angles are investigated for the cold and mountain climate of Tabriz. All maps of lighting models in the building and monthly heating and cooling loads were calculated by means of Design Builder energy simulation software. The results of these calculations show that the south wall slopes caused high heating loads and low cooling loads according to the reference building model. Therefore, it is determined that walls without slopes are preferred for cold climates while walls with slopes could be preferred for hot climates.

کلمات کلیدی:

Wall slope, Energy consumption, Design Builder, Residential building, lighting map

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