

## عنوان مقاله:

Energy Efficient Design Optimization of a Building Envelope in a Temperate and Humid Climate

## محل انتشار:

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## خلاصه مقاله:

A building envelope plays a key role in controlling the internal environmental conditions. The evaluation of façade designs for naturally ventilated residential buildings in the temperate and humid climate of Iran was carried out to optimize façade design for energy saving. Firstly, the common types of building materials were identified through a field study. In the next step, a computer simulation was conducted to investigate the impact of façade design parameters, including U- values, window to wall ratio (WWR), the open able part of the window, and the length of shading devices on buildings energy consumption. The simulation results indicate that the building envelopes constructed with Lightweight Steel Framed (LSF), 3D Panels, and Autoclaved Aerated Concrete (AAC) blocks are more effective than the other investigated materials, for reducing heating and cooling loads of the building. Using these materials can reduce the energy consumption for heating and cooling by ۴۵%. Large and unprotected windows increase the building energy demands and require additional control devices. Therefore, ۲۵%WWR, with ۳۰۰mm horizontal shading devices in four steps, light opaque internal curtains, and windows with low emission glass parts that are closed during noon and afternoon hot hours were suggested and analyzed for the studied climate.

## کلمات کلیدی:

Energy efficiency, Envelope materials, Temperate and humid climate, Windows control devices, Window to wall ratio

## لینک ثابت مقاله در پایگاه سیویلیکا:

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