

Submission Summary

Conference Name44th IAEE International Conference - 2023

Paper ID245

Paper TitleImproving Energy Performance in Residential Buildings in Saudi Arabia

Abstract

Saudi Arabia, like many developing countries, is experiencing rapid urbanisation and infrastructure expansion, especially in the area of residential buildings. With current demand threatening long-term energy security and forecasts indicating that domestic energy consumption will rise at a rate of 5% to 7% annually, it is crucial to improve the energy and environmental performance of the building stock. This paper explores the most effective ways to achieve energy efficiency in residential buildings in the context of Saudi Arabia. An existing family villa, representing a typical dwelling type in Saudi Arabia, was selected for modelling purposes, and examined to identify design weaknesses and propose effective remedies, using DesignBuilder software. The results of the simulations show that energy consumption and peak electricity demand could be reduced significantly by implementing the optimal strategies proposed in the framework. A potential reduction of 68% in total electricity consumption and 74% in peak electricity demand was shown to be possible, with nearly 81% reduction in cooling energy use intensity (EUI) bringing Saudi Arabia within the range of recommended European standards.

Created on9/9/2022, 4:14:47 PM

Last Modified1/19/2023, 1:52:42 PM

Authors**MANA ALYAMI** (NAJRAN UNIVERSITY) < mmsalmansour@nu.edu.sa > **Primary Subject Area**Energy Efficiency
