

Impact of Climate Change on Energy Consumption of the Residential Building Stock in Turkey

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Abstract : The energy consumed in the buildings constitutes a large portion of the total energy consumption in the world. In this study, it was aimed to measure the impact of climate change on the energy consumption of residential building stock by analyzing a typical mid-rise residential building in four different climate regions of Turkey. An integrated system was developed using the "Distribution Evolutionary Algorithms in Python" tool and Energy Plus. By using the developed integrated system, the energy performance of the typical residential building was analyzed under the effect of different climate change scenarios. The results indicated that predicted overheating will be experienced in the future, which will significantly increase the cooling energy loads of the buildings. In addition, design solutions to improve the future energy performance of the buildings were proposed, considering budget constraints. The results of the study will guide researchers studying in this area of research and designers in the sector in finding climate change resilient design solutions.

Keywords : energy_efficient, residential buildings, climate change, energyplus

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