

Reducing the Rate of Carbon Dioxide Emissions for Social Housing Units in New 6th of October City

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Abstract:

When creating new cities, it is necessary to take into account the environmental dimensions of not harming the climate and designing buildings so that they contribute to reducing carbon dioxide emissions in light of the increasing global crises resulting from climate challenges, which no longer have a small impact on the contemporary world and with the increasing demands for different solutions to solve the housing crisis And the provision of housing units appropriate to the needs and requirements of users and from this point of view decisions have been taken to implement a social housing initiative for the low-income people by the Egyptian state and are working to provide economic support for housing units, The main goal of this research paper was to reduce carbon dioxide emissions for social housing units in the New Sixth of October City by treating the building envelope, using thermal insulation for walls and choosing a type of low-e glass that reduces carbon dioxide emissions, and that was through an applied study using Computer simulation in Design Builder 6.0 program for the model of social housing units, taking into account design limitations and variables such as orientation, type of glass used and building materials used in the building envelope, The simulation results indicate that treating the building envelope with a thermal insulation thickness of 6 cm in the walls and 8 cm in the surface and the wall thickness of 25 cm red bricks can reduce the CO₂ emissions by more than 50% over the base case, These results are among the good indicators that show the importance of choosing materials in reducing the rate of carbon dioxide emissions in the buildings of the social housing units in the new 6th of October city in Egypt.

Keywords:

Reducing CO₂ Emissions, Social Housing Units, Thermal Insulation.