

Abstract

Aly I Shehata

A Full Scale Heat Transfer and Air Flow Simulation for a Heated Dormitory Room

Nowadays the crisis of energy is one of the most important problems of the world. Building units are the first consumer in world energy. Because of this, in design of Green Buildings the most important challenge is reduction of energy consumption in buildings. The object of this study is to investigate the effect of heating system position such as radiator in a dormitory room on the amount of energy saving. To obtain this object, investigation was focused on a particular room with one window and one radiator. This space was numerically modeled with FLUENT CFD package. Three different positions were considered for radiators first beneath the window, second at the non window wall, third beside the room door. Parameters such as average temperature, average air velocity inside the room etc were compared for these three models. Results showed that when the radiators were remote the window the average temperature inside the room is 19% more than when they were installed beneath the window.