

Identifying an Air-Conditioned Room's Comfortable Zone with Respect to the Room Dimensions and Position of A/C Unit Mounted

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The goal of the study project is to assess the thermal comfort in the Mechanical Lecture Room (MLR) at Faculty of Engineering, University of Ruhuna in order to find the comfortable zone in that air-conditioned room. The subject room with dimensions of 14.66m x 5.10m x 5.13m and set up with two 36000Btu/h Split Type air conditioners were tested. The room air temperature varied from 18.5 Celsius to 24.6 Celsius, when both A/C machines were operating at 17 Celsius. The length of the MLR was divided into 12 parts, while the width was divided into 6 equal parts. The Temperature values were taken by using 10 J-type thermos couples. The findings of this study can be used to build and control air-conditioning systems for the identification of a room's comfort zone in relation to the size of the space and where the air conditioner is positioned.

Keywords: *thermal comfort, air-conditioned room, relative humidity, temperature, air flow variation*