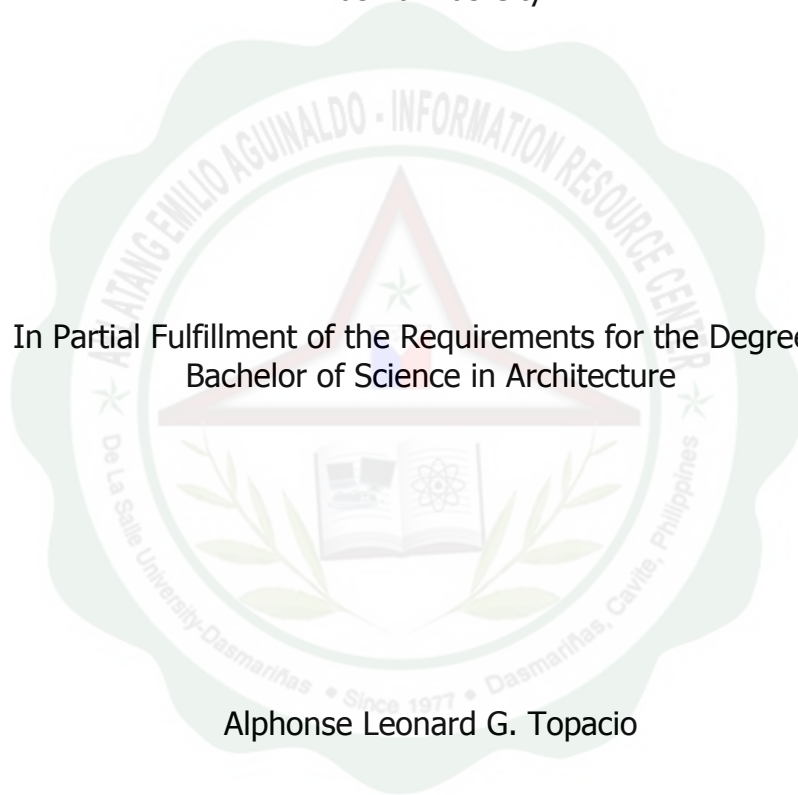


# **A Study on Classrooms in De La Salle University - Dasmariñas Based on Indoor Environmental Quality for Optimal Learning**

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## ABSTRACT

Thermal comfort, acoustics, and indoor air quality comprises the indoor environmental quality (IEQ), and it plays an important factor in the comfort and satisfaction of a space as it influences the mood, sensation, and the physical and cognitive performance of an occupant, especially in learning environments such as classrooms in colleges and universities. The two main objectives of this study are to describe the current condition of the IEQ in classrooms in DLSU-D in terms of thermal comfort, noise level and reverberation time, and indoor air quality; and to compare the IEQ against the standards set in ASHRAE Standard 55, ASHRAE Standard 62.1, and ANSI/ASA S12.160. 35 classrooms from over 9 buildings in DLSU-D were selected to be tested. To assess the thermal comfort, observed values from a thermo-hygrometer to monitor air temperature and humidity levels were used in a Fanger PMV thermal comfort model. For the noise level, a sound level meter was used to measure ambient noise levels in five points in a room, while the reverberation time was estimated using the Armstrong reverberation time calculator. For the indoor air quality, a carbon dioxide (CO<sub>2</sub>) meter was placed in a classroom to observe the CO<sub>2</sub> levels over a period of one hour. Finally, a one-sample t-test was used to identify if there is a significant difference between the observed values and the standards. The findings of the study clearly show that most of the classrooms are not on par with the IEQ standards, particularly the noise level, reverberation time, and indoor air quality. While the results say that the classrooms are not on par with the IEQ standards, the tests only describe a particular situation and is limited only to certain parameters such as time, methodology, and other determinants such as the architectural indoor environment.

Keywords: IEQ, classrooms, comfort, temperature, noise