

An Assessment of Thermal Comfort and Air Quality in Educational Space: A Case Study of Design Studios in the Arab Academy for Science, Technology and Maritime Transport, Alexandria

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Abstract : A stuffy room is one of the indicators of poor indoor air quality. Through working in an educational building in Alexandria, it is noticed that one of the rooms is smelly. A field study is conducted in a private university building in Alexandria to achieve indoor sustainable educational environment. Additionally, the indoor air quality is empirically assessed, and thermal comfort is identified in educational buildings, in studio halls specifically during lecture hours. The current research uses qualitative and quantitative methods in the form of literature review, investigation and test measurements. At a similar time that the teachers and students fill in a questionnaire regarding the concept of indoor climate, thermal comfort variables are determined. The indoor thermal conditions of the studio are assessed through three variables including Fanger's comfort indicators (calculated using PMV, predicted mean vote and PPD, predicted percentage of dissatisfied people), the actual people clothing and metabolic rate. Actual measurements of air quality are obtained in a case study in an architectural building. Results have proved that indoor climatic conditions as air flow and temperature are inconvenient to inhabitants. Regarding questionnaire results, occupants appear to be uncomfortable in both seasons, with result percentages out of the acceptable range. Finally, further researches will center on how to preserve thermal comfort in school buildings since it has a vital influence on the student's knowledge.

Keywords : educational buildings, Indoor air quality, productivity, thermal comfort

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