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Indoor Temperature, Relative Humidity and CO_2 Level Assessment in a Publically Managed Hospital Building

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Abstract : The sensitivity of hospital-microenvironments for all types of pollutants, due to the presence of patients with immune deficiencies, makes them complex indoor spaces. Keeping in view, this study investigated indoor air quality (IAQ) of two most sensitive places, i.e., operation theater (OT) and intensive care unit (ICU), of a publically managed hospital. Taking CO_2 concentration as air quality indicator and temperature (T) and relative humidity (RH) as thermal comfort parameters, continuous monitoring of the three variables was carried out. Measurements were recorded at an interval of 1 min for weekdays and weekends, including occupational and non-occupational hours. Outdoor T and RH measurements were also used in the analysis. Results show significant variation ($p < 0.05$) in CO_2, T and RH values over the day during weekdays while no significant variation ($p > 0.05$) have been observed during weekends of both the monitored sites. Maximum observed values of CO_2 in OT and ICU were found to be 2430 and 624 ppm, T as 24.7ºC and 28.9ºC and RH as 29.6% and 32.2% respectively.

Keywords : indoor air quality, CO_2 concentration, hospital building, comfort assessment
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