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A Study on Assessing Thermal Comfort in the Library College of Engineering

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Structured Abstract:

Background: Thermal comfort is vital for improving workers' health, well-being, and productivity in indoor settings (Bueno et al., 2021). The pleasant alignment of various factors in the thermal environment contributes to this comfort, enhancing job performance and satisfaction (Bueno et al., 2021; Ortiz et al., 2017). In a library, achieving thermal comfort is crucial for the overall well-being and productivity of both users and workers (Horr et al., 2016). The study utilizes the HD32.3TC Delta OHM Microclimate instrument to measure and analyze environmental parameters in the library, aiming to determine and optimize indoor conditions.

Methods: The study thermal zone was at the library of Universiti Teknologi MARA (UiTM) Shah Alam. This study was conducted in three thermal zones in the library which are office administration, open space area, and reception area. Before starting the real-monitoring sampling, a preliminary assessment of indoor thermal conditions was conducted. The readings of environmental parameters which are air temperature, air velocity, and relative humidity were taken to calculate the mean and standard deviation of each parameter. The graphs of average data for each parameter were produced as a bar chart.

Results: Air temperatures in the three zones are 22.6°C, 22.6°C, and 22.9°C. Relative humidity averages between 70.9% and 75.28%. Air velocity ranges from 0.0 m/s to 0.5 m/s. While mean temperatures align with DOSH and ASHRAE standards, relative humidity exceeds DOSH limits. Air velocity falls below recommended levels, indicating potential issues with indoor comfort and health, especially in the open space and reception areas (Horr et al., 2016).

Conclusion: In summary, the UiTM Shah Alam study on thermal comfort in three zones revealed satisfaction with air and radiant temperature, but issues with air velocity and humidity. Predictions were effective in the Office Administration area, but less reliable in Open Space and Reception Areas, emphasizing the need for context-sensitive approaches in diverse indoor environments.

Keywords: Thermal comfort, Environmental parameters, ASHRAE Standard 55, Recommended limit

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