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Study on Outdoor Thermal Comfort Among Outdoor Workers in UiTM Shah Alam

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Structured Abstract

Background: This study focuses on evaluating outdoor thermal comfort within a university campus, specifically for outdoor workers, such as police campus officers. Given the prolonged periods spent outdoors, especially managing traffic flow, addressing outdoor thermal comfort is crucial for their health, productivity, and overall well-being. Prolonged exposure to hot and humid conditions can result in adverse health effects. The study aims to measure the thermal environment status of outdoor workers' activities systematically, emphasizing the importance of ensuring safe and comfortable working conditions. This assessment involves measuring environmental factors and workers' subjective responses to effectively manage and provide optimal comfort to the extent feasible.

Methods: A comprehensive approach was conducted by combining objective measurements and subjective evaluations to assess outdoor thermal comfort. Meteorological parameters, including ambient air temperature, relative humidity, air velocity, and thermal indices such as PET, UTCI and HI were recorded using Delta Ohm data loggers at 10-minute intervals. Subjective assessments involved a thermal comfort questionnaire distributed to outdoor workers over three days, covering morning, midday, and afternoon periods at selected study areas which are Police Campus Guardhouse A and B.

Results: This study reveals that both surveyed locations encountered elevated air temperatures, specifically 32.73 °C at location A and 32.71 °C at location B, potentially influencing the thermal comfort of workers. Additionally, air movement was observed to be relatively low at 0.95 m/s and 0.81 m/s for locations A and B, respectively, falling below the optimal range of 1-2 m/s. This inadequacy may interfere with the capacity to maintain the workers' bodies in a cool and comfortable state. The analysis of thermal comfort votes indicated that half of the respondents reported discomfort, experiencing sensations of dryness and stickiness.

Conclusion: In conclusion, the findings of this study revealed concerns with elevated air temperatures and low air velocity. Despite the result, a significant portion of workers expressed comfort, suggesting acclimatization and a high tolerance of heat among the workers. Due to the nature of the work under the sun, limited control measures can be implemented, and administrative controls like rotational shifts and breaks are recommended.

Keywords: Outdoor Thermal Comfort, Workers, Air Temperature, Wind speed, Humidity

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