ABSTRAK

Kenyamanan termal merupakan aspek penting pada bangunan komersial yang menerapkan desain pasif dan ventilasi alami. Penelitian ini bertujuan mengidentifikasi elemen desain pasif, menganalisis kondisi lingkungan termal, serta mengevaluasi kenyamanan dan respons pengguna pada Havana Garden Coffee di Kota Bireuen. Penelitian menggunakan pendekatan kuantitatif deskriptif melalui observasi, pengukuran lapangan, dan kuesioner selama tujuh hari pada lima titik pengamatan. Parameter yang diukur meliputi suhu udara, kelembapan relatif, kecepatan udara, dan *Mean Radiant Temperature* (MRT). Evaluasi kenyamanan menggunakan CBE Thermal Comfort Tool dengan metode *Adaptive Thermal Comfort* (ATC) berdasarkan ANSI/ASHRAE Standard 55-2023, sedangkan respons pengguna dianalisis melalui *Thermal Sensation Vote* (TSV) dan *Thermal Preference Vote* (TPV) dari 112 responden. Hasil menunjukkan bahwa bangunan menerapkan orientasi, ventilasi dan bukaan alami, ruang semi-outdoor, peneduh, vegetasi, serta material yang mendukung desain pasif. Kondisi termal menunjukkan suhu udara 27,3–37,2°C, kelembapan relatif 54–86%, kecepatan udara 0,32–1,88 m/s, dan MRT 27,02–38,58°C. Berdasarkan waktu, kondisi *Too warm* terutama terjadi pada siang hingga sore hari, sedangkan pagi dan malam berada pada kategori *Comfortable*. Berdasarkan titik pengamatan, seluruh titik *Comfortable* pada tingkat penerimaan 80%, sementara pada 90% T2, T3, dan T5 berada pada kategori *Too warm*. Respons pengguna didominasi TSV netral sebanyak 48 responden (42,9%) dan TPV tidak ingin berubah sebanyak 69 responden (61,6%). Hasil menunjukkan bahwa kenyamanan termal bervariasi berdasarkan waktu dan titik pengamatan, sementara persepsi pengguna secara umum cenderung netral dan menerima kondisi termal yang dirasakan.

Kata kunci: Desain pasif, kenyamanan termal, Adaptive Thermal Comfort, Havana Garden Coffee

ABSTRACT

Thermal comfort is an important aspect of commercial buildings that apply passive design and natural ventilation. This study aims to identify passive design elements, analyze thermal environmental conditions, and evaluate thermal comfort and user responses at Havana Garden Coffee in Bireuen City. A descriptive quantitative approach was employed through observation, field measurements, and questionnaires conducted over seven days at five observation points. The measured parameters included air temperature, relative humidity, air velocity, and Mean Radiant Temperature (MRT). Thermal comfort was evaluated using the CBE Thermal Comfort Tool with the Adaptive Thermal Comfort (ATC) method based on ANSI/ASHRAE Standard 55-2023, while user responses were assessed through Thermal Sensation Vote (TSV) and Thermal Preference Vote (TPV) from 112 respondents. The results indicate that the building applies passive design elements including building orientation, natural ventilation and openings, semi-outdoor spaces, shading devices, vegetation, and building materials. The measured thermal conditions showed air temperatures of 27.3–37.2°C, relative humidity of 54–86%, air velocity of 0.32–1.88 m/s, and MRT of 27.02–38.58°C. Based on measurement time, Too warm conditions mainly occurred during the afternoon and late afternoon, while morning and evening conditions were categorized as Comfortable. At the 80% acceptability level, all observation points were categorized as Comfortable, while at the 90% level, T2, T3, and T5 were categorized as Too warm. User responses were dominated by neutral TSV, with 48 respondents (42.9%), while 69 respondents (61.6%) preferred no change in their thermal condition. These findings indicate that thermal comfort varied by measurement time and observation point, while users generally perceived the conditions as neutral and preferred to maintain the experienced thermal conditions.

***Keywords**: Passive design, thermal comfort, Adaptive Thermal Comfort, Havana Garden Coffee.*