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Thermal comfort investigation in traditional and modern urban canyons in Bandar Abbas, Iran (Article)

Dalman, M.[a], Salleh, E.[a], Sapian, A.R.[b], Saadatian, O.[c]

[a] Faculty of Design and Architecture, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

[b] Department of Architecture, Kulliyyah of Architecture and Environmental Design, International Islamic University of Malaysia, P.O. Box 10, 50728 Kuala Lumpur, Malaysia

[c] Solar Energy Research Institute, Universiti Kebangsaan Malaysia, Perpustakaan Tun Sri Lanang, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

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Abstract

Urban design plays an important role in a city's daily life. Therefore, accessibility to **thermal comfort** spaces for citizens engaged in **urban** outdoor activities could be one of the main goals of **urban** designers. **Urban** forms and **canyons** have important roles in microclimate and **thermal comfort** situation in outdoor spaces. The hot humid climate of **Bandar Abbas**, especially in long summers, causes **thermal** stress for **urban** activities. In this study, two different **urban** fabrics were investigated using **thermal comfort** and Computational Fluid Dynamics (CFD) methods. Eight provisional measuring points in the selected prevailing **canyons** were used to obtain the data. The results correlated with the effects of the **urban canyon** orientation to variation of the microclimate factors, and consequently, the **thermal comfort** situation in the hottest period of the year. In addition, the results also indicated that the **traditional urban** fabric is more thermally comfortable than the new residential **urban** fabric. According to field measurements, **thermal comfort** calculation and wind simulations, the **canyons** with the north-south direction present a better orientation for air circulation benefiting from the sea breezes as compared to the other **canyon** orientations. Hence, this study provides insights for **urban** designers and policy makers residing in the hot and humid climate in the Middle East. © Universiti Putra Malaysia Press.

Author keywords

Computational Fluid Dynamics; Hot-humid; Microclimate; **Thermal comfort**; **Urban canyon**

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