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Adaptive model of thermal comfort for office buildings in GCC

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The Gulf Cooperation Council (GCC) nations top the world in CO2 emissions/ capita. However, plummeting oil prices and increasing energy demands necessitate rethinking on thermal comfort delivery. This region has warm desert climate throughout. In GCC states, the adaptive comfort standard or the precursor field studies to develop one are non-existent. We carried out thermal comfort field studies in Qatar for thirteen months. In ten typical air-conditioned office buildings, 1175 voluntary subjects completed 3742 questionnaires, while their thermal environments were simultaneously measured. This paper proposes the adaptive model of thermal comfort for GCC. Adopting variable indoor comfort standards that track the outdoor conditions may be effectual in meeting the sustainability goals of the GCC and Qatar Vision 2030.

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