

# THE ROLE OF SIMULATION IN URBAN DESIGN DECISIONS: MICROCLIMATE AND HUMAN COMFORT CONSIDERATIONS IN PLANNING

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## **Abstract**

*This paper reviews the usage of simulation tools that can evaluate outdoor thermal comfort and to predict outdoor environmental conditions with specific focus on decision making. The literature also highlights on the use of simulation as a tool in the field of urban design and the microclimatic enhancement approaches. Finally, the paper discusses the moderation of the built environment's components on the climate with the aim for optimizing the thermal comfort level in outdoor urban space (Setaih K. et al., 2013).*

*The aim of the paper is to highlight on the importance of simulation methods that can influence urban space design and the planning process. In addition to understand how air temperature, relative humidity, air movement, and mean radiant temperature in urban canyons as well as in open public spaces for human thermal comfort on the microscale in a sample of the old historic district south Kom Al Shoqafah by Al Mahmoudiya Canal.*

*In the recent past, rapidly growing urban areas are being observed worldwide. This growth has a direct impact on the microclimate and in turn on human comfort, hence negatively affecting global climate and energy consumption levels. Design decisions such as street (geometry and orientation), sidewalk widths, shading structures, materials, landscaping, building heights and air flow are key factors for pedestrian thermal comfort (Rosheidat, 2008).*

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