

## People Space: Courtyard as a Spatial Microclimate Adjuster in Hot-arid Climate

**Assist.Prof. Dr. Dalia Abdelmoneim Osman Mohamed**

Associate Professor of Architecture & Urban Design Architecture Department, Faculty of Fine Arts, Helwan University, Cairo, Egypt

[Daliaarchitect@hotmail.com](mailto:Daliaarchitect@hotmail.com)

**Dr. Nesma Ahmed Zakaria Mohamed Elian**

Lecturer of Architecture & Urban Design Architecture Department, Faculty of Fine Arts, Helwan University, Cairo, Egypt

[Nesma.elian@hotmail.com](mailto:Nesma.elian@hotmail.com)

### **Abstract:**

Architectural identity reflects the features of a country's people, society, and environment. Recently, Countries' unique architectural identities have been faded due to globalization, making it difficult to determine each country's regional and local identities. One of the significant architectural elements which characterize the Arab heritage urbanism is the courtyard residence. It is the most important element that characterizes the heart of all the Islamic-Arab houses. The building design usually begins from the courtyard it had been used by Arabs and Muslims in architecture for its compatibility within the environmental, cultural, and social requirements. In traditional residences, Courtyard was considered the focal point of the house, it had functioned as the essential ventilation and daylight for the adjacent built-up spaces. Despite there have been different studies of historical, social, cultural, and environmental aspects of courtyard architecture, but there was not much focusing on its spatial impact. In most traditional Cairene houses, the courtyard was used not only to obtain privacy, which in Arab society is a requirement but also to improve the thermal comfort inside a residence. This paper investigates the climatic and social benefits of the courtyard houses and studies the courtyard's effect as a natural design technique and a microclimate adjuster in a hot arid climate. The paper is illustrating spatial locations, composition, and thermal performance of courtyards, in addition, it analyses the contemporary courtyards house application in the hot-arid regions. Two selected case studies were chosen to be discussed in accordance with the theoretical studies. Finally, the paper proposing a guideline in design process to improve a courtyard's thermal performance.

### **Keywords:**

People space; Courtyard houses; spatial microclimate; Thermal performance; Hot-arid Climate.