

# Havelis of Mandawa: A Study of Passive Design Techniques and their Adaptability in the Modern Built Forms

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**Abstract**—Architecture across various civilizations of the world has evolved responding to various factors over a period of time. The response to local bio-climatic conditions as a factor has undoubtedly been an important one. Understanding of the vernacular architecture with respect to the various climatic parameters indeed helps in achieving comfortable indoor environment for the inhabitants. In the present day design initiatives this is being much neglected due to unmindful over reliance on mechanical automation to achieve comfort in buildings. The research paper focuses on understanding passive environmental control systems of vernacular architecture of the town of Mandawa. Located in Shekhawati region of Rajasthan famous for its lavish havelis the town of Mandawa has a hot and dry climate. A detailed study of the Haveli's, each more than 100 years old was carried out to understand the indigenous design principles which can be applied to any dwelling unit in a settlement located in hot and dry region. The paper aims at understanding the potential of time tested, climate adapted passive techniques applied in traditional built forms which will help in reducing the energy consumption in modern buildings along with achieving the thermal comfort and how these lessons can be applied or adapted while making a modern built form.

**Keywords:** Vernacular Architecture (Havelis), Passive Techniques, Thermal Comfort, Reduced Energy Consumption