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**A STUDY OF THE
NATURAL COOLING SYSTEMS OF JAISALMER**

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SUMMARY

The town of Jaisalmer, Rajasthan, is famous for its richly carved buildings. This is a qualitative study of the traditional building design of this town. Temperature measurements by the author show that the buildings are reasonably comfortable during summer as well as during winter. Some new findings are the use of a 24-hour time-lag and the use of extended surfaces for reducing solar heat gain. The town-planning of Jaisalmer also appears to favourably modify the micro-climate around the buildings. To test the efficiency of this type of urban layout in preventing solar heat gain to buildings, a new method has been devised which takes into account the mutual sun-shading of buildings in clusters, with respect to parameters like building height, street width, building orientation, degree of subdivision and latitude of place. The concept of solar exposure has been proposed and used further in a thermal simulation model of buildings. It has been shown that a single index of the thermal efficiency of building forms in hot climates which determines the level of discomfort experienced indoors is the solar exposure per unit surface area of a building. The Jaisalmer urban form and building design perform well against this index. The major short-coming of the massive buildings of Jaisalmer is the slow response time and a new concept of vary-therm wall or roof has been proposed and experimentally tested to overcome this difficulty. This concept has great potential for use in modern buildings.

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ACKNOWLEDGEMENTS

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