

## عنوان مقاله:

Courtyard thermal performance in arid regions

## محل انتشار:

سومین کنگره بین المللی عمران ، معماری و توسعه شهری (سال: 1394)

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## نویسنده:

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## خلاصه مقاله:

Arid regions of Iran are characterized by their traditional courtyard houses. The following study analyzes the thermal performance of the internal courtyards of traditional houses. The first part of this article focuses on courtyards' dimensions and their effects on the potential of courtyards' natural ventilation and also on the possibility of direct-gain passive solar heating of the interior spaces used in winter. The second part of this article examines the air temperature and humidity changes in the day in three selected courtyards by ENVI-met simulation. The results show that the distance to height ratio of the courtyards ensures the potential for their natural ventilation and allows direct-gain passive solar heating of areas used in winter. Design features of the courtyard such as vegetation, traditional water ponds and other sources of shading and evaporative cooling can create microclimatic effects, by reducing the air temperature and increasing humidity, for instance. Dimensions and design of an internal courtyard influence its microclimatic effects in such a way that with the realization of the form of an internal courtyard alone no effective cooling impact will be reached

## کلمات کلیدی:

courtyard, ventilation, passive heating, energy-efficient, arid climate, Iranian house

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/469894>

