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## Analyzing the Homogenous Nature of Central Courtyard structure in Formation of Iranian Traditional Houses.

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### Abstract

In historical cities and especially traditional houses in 17-19 century A.D in Iran, vacuum model (central courtyard) as one of the most fundamental concepts, has always played a key role in organizing Iranian cities at large scale and consequently houses at a micro scale. In the spatial organization of traditional houses, the central courtyard, among other spatial elements, has consistently played the role of a homogenizer and organizer rather than a neutral factor. Generally in the vast range of Iranian central cities including Isfahan, Shiraz and Yazd, courtyard has had a homogeneous and fluid nature, and has acted as a link between different spaces and contributed to the continuity of space in the traditional houses.

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### 1. Introduction

By a comprehensive look, the whole body of research on Iranian traditional houses can be categorized into five different approaches including dictionary-based, interpretative, typological and historical and single category (Golijani, 2005). In this context, although the relevant studies have investigated a wide range of architectural

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monuments of Iran, among the existing research methodologies, structural-spatial analysis of central courtyard (vacuum) has been less addressed as an effective and organizing model.

Notably, the research on structural-spatial structure of courtyards has been limited to a typological level and a purely interpretative approach as presented in the physical space of the courtyard. Similarly, a wide range of studies have examined the central courtyard from the perspective of climate and geography of the area. Unfortunately, in this field, the area of spatial and structural analysis of the courtyard as an effective component of traditional houses has been neglected.

Therefore, considering the importance of the issue of the spatial and conceptual analysis of Iranian architecture as a successful model of urban development, and courtyard as an effective and organizing component of Iranian traditional houses, it is possible to cite a number of structural and infrastructure studies performed in this regard. A carried out research by Nader Ardalan “Sense of Unity” can be considered as one of the most effective resources in the evaluation of Iranian architecture. By avoiding a merely interpretive and even structural-spatial approach, Ardalan has shed light on the hidden and esoteric layers of Iranian architecture including traditions and philosophical ideas associated with Iranian architecture (Ardalan & Bakhtiar, 2005). In a research performed by L.B entitled “the role of in-between spaces in shaping the identity of the spatial extent of Iranian historical contexts”, the nature of in-between spaces and their roles in Iranian architecture are specifically investigated. Utilizing an interpretative and phenomenological approach, the article addresses some concepts including organization, spatial hierarchy, field packing, neighbourliness, thresholds and spatial in traditional houses, and also analyzes the concept of courtyard in traditional houses playing a critical role in the progression of the current article.

(Balilan, Etesam, Eslami, 2011).

The present paper mainly intends to examine the homogeneous nature of courtyard in traditional houses as a vacuum model, and at the same time, an organizing component among other elements of the house. It must be noted that the recognition of the homogeneous nature of the courtyard is of the utmost significance not only to be informed of the spatial structure of the courtyard, but also to understand its nature in the formation of a spatial continuity and surge in the whole organization of the house and to understand the process of how to develop a range of functional areas in different places in the houses as a sustainable and systematic pattern in the range of Iranian architecture.

Basically, understanding each phenomenon and recognizing its historical process and development is important due to the fact that by utilizing it, it is possible to find a solution to the problems and bottlenecks and the questions posed in the status quo or the main causes of the current situation (Habibi, 1996).

Therefore, to do a comprehensive analysis of the homogeneous nature of the courtyard, the current paper first examines the history of central courtyard as a sustainable model, and then on the basis of library and field studies and by using an interpretive and case study approach, the paper investigates the development of the central courtyard. Then the various functions of the courtyard in the traditional houses of the Iran’s central cities including Isfahan, Shiraz and Yazd are described. Comprehensive typology of courtyard in the above mentioned cities during 17-19 century AD are evaluated as the third step of the current article. In this context, the basis for the final analysis was homogeneous vacuum nature (central courtyard) as the most fundamental pattern in the spatial organization of courtyard in Iran’s traditional houses, which is discussed in the present paper by an interpretative, historical and phenomenological approach and also a structural-spatial method in the final section.

## **2. The definition and history of the central courtyard**

Courtyard or *mian sara* refers to an open space that is constructed generally to provide light and exchange heat with the outside world in the form of a square or rectangle. In Persian into Persian Dehkhoda Dictionary, courtyard means a surrounded area and every place enclosed by a wall (Kiani, 2004). In terms of history, the history of the courtyard in Iran dates back to the late tenth century BC, in *Khaneh E Soukhteh* or IV floor, located in *Tappe Hasanlu* in *Shahr E Soukhteh* (Mirlatifi, 2004). According to some carried out research, the primary structure of the central courtyard has rooted from the basic model of *charsofeh*, which it could be regarded as the most ancient model of house construction in Iran (Pirnia, 2008). In the *charsofeh* model, Fig. 1, the middle cross-shaped space of the house is encircled by four peripheral rooms in the corners and in a square or rectangular plan, and the only way to access to open area is through front courtyard or circular space located on the *mian khaneh* it is a rectangular space located in the middle of the *charfoeh* houses roof (Memarian, 1994). Likewise, based on some scholars, the model of the houses with a central courtyard, from a small circular opening in the ceiling was devoted into a

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