

UNDERSTANDING COURTYARD DESIGN

THROUGH HAVELIS OF RAJASTHAN

The havelis of Rajasthan used chowks and their elements as the perfect architectural response to the state's diverse culture and climate. A courtyard continues to define the perfect spatial organisation of those times, being the heart of the haveli, it also served as a micro-climate modifier. Can we borrow principles of the past to ensure better design in the present and the future?

“Traditional architecture is not concerned with historical styles, but with historical principles.”

- Lucein Steil in *Tradition and Architecture*

We all relate to tradition as something that has been handed over to us by our ancestors, and has become the past. Why then do we study this past? Societies have changed over time, so when we design something today, will we use principles from the past? Yes. This is because the past has the quality of timelessness, by the virtues of its values and the meanings.

The havelis of Rajasthan are excellent examples of regional character and traditions; a house form that represents the architectural responses to the diverse culture as well as the climate; a language of architecture expressed through a way of living, aesthetics, beautiful facades and rich variations in the elements. Most fascinating are the courtyards, which not only define the perfect spatial organisation of those times, but were also the centres for rituals, marriages, festivals and social gatherings.

So does borrowing from the past and designing with courtyards hold relevance in the present times? Should architects go by the wisdom of our forebears?

The traditional Indian courtyard is built on the principles of Vastu Shastra, which state that all spaces emerge from a single point, that is, the centre of the house. All other activities revolve around this centre, which has some divine power and energy associated with it - radiating through the entire house.

The origin of courtyards can be traced to the Indus Valley Civilisation, and they continued with the Aryans (before 10th century). With the shaping up of various cultures, there was a transition from the cluster court to the private court. The entry of the Islamic rulers (14th century) into northern India brought in the key issue of treating open space in building design, to respond to the harsh climate. The advent of the British led to a marked change in the architectural style and the concept of the courtyard (18th century and onwards).

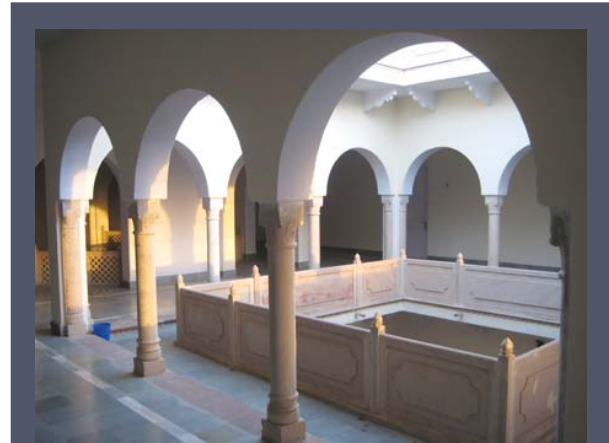
Courtyards have, down the ages, served many purposes:

- **Socio-Cultural Aspects:** The chowk served as the centre for various ceremonies and the rituals. The tulsi plant was placed here and worshipped daily to bring prosperity to the house.
- **Security and Privacy:** The chowk, at times, separated areas for men and women, and provided them with privacy.
- **Climate:** The courtyard served as a micro-climate modifier.
- **Different Activities At Different Times:** The use of the court in the day time, mostly by women to carry out their work, talk and interact with other women is one of the uses.
- **Articulation Of Space:** In Mor chowk, City Palace, Udaipur, there is the concept of courtyard as a dancing hall. It well explains, how it can be used in articulating space. Similarly, in havelis, a courtyard has several functions. Some miniature paintings also explain this.

The Elements of Courtyards

The Planes: The horizontal plane not just imparts spatial experiences, but also accentuates them by adding intangible effects to spaces, by virtue of levels, patterns created, materials used, the form, etc. It can be taken as a surface for reference, with respect to which other elements in the space are seen. The vertical plane encloses the courtyard, and defines its volume. It gives connectivity to areas or spaces inside and outside the court. The elements of facade make the court lively. The openings, balconies and *jharokhas* opening into the court also control the climate very efficiently. The proportions of these facade elements affect the orientation, flow of space, the quality of light coming in, the views, the wind circulation, and the shading, which is provided by the projections opening into the court.

The sky is the intangible ceiling, spreading out across the entire dimensions of the courtyard. It completely transforms the space with each passing hour of the day. During the day, when there is sunlight, the court appears to be large and spacious; when it is night, the same court looks smaller.



Hotel Haveli, Fatehpur Chowk enclosing the world inside and outside

The Enclosure & Life Around It

All these elements joining to form an enclosure, give the chowk a composed and a secured feel. The level of enclosure depends on various factors - treatment of the horizontal and the vertical plane, the proportions, the light coming in, number of occupants and the activities carried out by them. The positions of the openings will have a tremendous effect on the sense of enclosure felt by users.

It is not just these three planes that matter. An unseen fourth dimension, relating to culture and traditions, also has a part to play. The paintings on the walls overlooking the chowk in the havelis of Shekhawati, depicting Krishna-Radha Leela, the stories related to the owner, the stories of Shekhawati itself, the battle scenes to make women aware of them, the steam engine to depict advancement - all these are manifestations of the lifestyle of people. It is an inward looking area, but an open space!

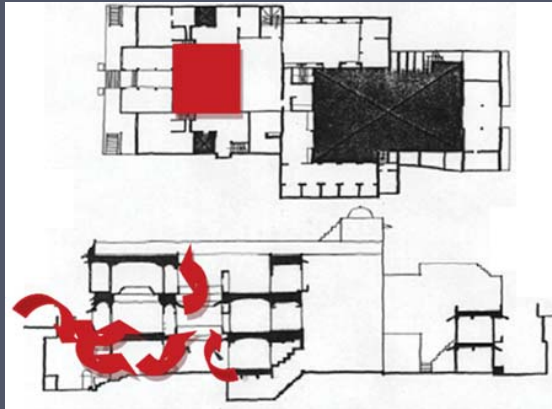
What an intelligent way it was to cope with the situation, where technology was a limiting factor in covering a large space under one roof. Simply break up the required spaces into smaller units, and tie them together with the central courtyard. The breaking of spaces also served the purpose of lighting and ventilation well.



The Game of Chausar and A carving depicting Krishna-Radha Ras-Leela at Poddar Haveli



The Horizontal, Vertical and the Sky Poddar Haveli Museum, Shekhawati



Floor plan and the section of a typical courtyard haveli, Jaisalmer, showing the air flow and the cooling by convection currents formed. Air movement caused by temperature differences is utilized in the natural ventilation of building.

Response to Climate

The architectural built form of these havelis has evolved in response to the climate, lifestyle and availability of material. In hot climates where cooling is a necessity, buildings with internal courtyards were considered the most appropriate. It acted as a perfect shading technique, while also allowing light inside. The arcade along the court, or the high wall around it, kept the interiors cool. Is it not fascinating, that in those times we had an immense knowledge of passive techniques, and there were no issues related to the energy crisis. In fact, these courtyard havelis are excellent examples of sustainability in the hot and dry climate.

These courtyard havelis were developed when the concept of air-conditioning did not exist. No mechanical devices were used to achieve desirable thermal comfort conditions - it all depended on the sheer magic of architectural concepts, plans, forms, elevations, sections and details. Traditional layouts essentially promoted air flow within and around buildings. The built form, and even the street layout and vegetation, aided lowering of temperatures in summer.

The courtyard was a simple design strategy that enhanced daylight availability in every room. Daylight, being a cool source of light, further reduces the cooling load.


Learning from the Past

Why have we forgotten, things that are still relevant? The reasons why these design principles are lost today:

- Many construction techniques of old times cannot be justified from an economic point of view today. The jack-arch mechanism and thick walls required a lot of space, and every single inch of it today is very expensive.
- The influence of the Western culture, their methods of construction, and the Modern movement, ultimately resulted in the sidelining of our traditional and climatically appropriate principles of planning.
- With advances in technology, the arrival of new materials in the market and a changed lifestyle, we are keen to give our buildings a modern look, often forgetting the impact on the environment. The inappropriate use of glass, for example, increases heat gain and denies ventilation, which is most essential in India.

What is required on our part, as designers, is consciousness and a careful reinterpretation of traditional and regional aspects, existing well within the parameters of contemporary times.

Going back to our roots does not mean we start building like our ancestors. We need to go back in context, to rekindle our lost values, which were not just visible in the ethos, but also in functional aspects of buildings back then.

In fact, many hotels, farm houses and restaurants today recreate courtyards, primarily because they serves as an antidote and retreat from the busy, closed-in-a-box kind of lifestyle. So why shouldn't we gain inspiration from the past when it can revitalise our present and future? 



Courtyards in Modern Context