Design Indoors

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Abstract: DESIGN and INDOORS – It is decisive to understand the meaning of the terms – design and indoors hold and the co-relation that exists between them. While design focuses primarily on conception, ideation and creation of spaces, indoors implies space with a stronger sense of enclosure characterised by controlled environment which is created through design. The design process fundamentally looks into the cohesion of various space making attributes such as planes (vertical and horizontal); materials, light and ventilation (air) etc. and defining the role of each of these attributes to human responsive indoor spaces.

Against this backdrop, the paper attempts to explore the different design approaches that can be employed in creating dynamic and experiential humane spaces.

I. Introduction

Space is the most evident thing around. It can be inside a set visible boundary, around it or beyond it. Sometimes the boundaries could be an illusion itself. The space is where we walk, build, reside, grow, create and thrive. It is within which everything exists. It is a boundless expanse that the human senses can respond to and feel. We can assess a space by putting it in two parameters: physical parameters and non-between an indoor space, an outdoor space and the spaces in-between the two realms as they are very closely associated in creating experiential humane spaces.

Figure 1: Sketch of 'The Room' by Louis I. Kahn[i]

To comprehend how various design approaches can be explored, the paper is structured in two parts. The first part discusses the individual parameters established and the second part discusses the relation of these parameters with each other.

II. PART 1

physical parameters. The physical parameters have instantly relatable factors like dimensions, scale, proportions, light, etc. These factors give a precise understanding of a space. The non-physical factors include economic, socio-cultural, psychological, etc. Space is constant, while the parameters and their factors are variables. The same space maybe used for different activities. The usage objective of a designed space may undergo constant change from its initial purpose to the current usage to suit the evolving changes. The look and feel of the space may change, its users may change, its purpose may change, but the space thrives.

A space reaches out to our senses in creating experiences that evoke, enhance or subdue human emotions. These experiences created are a result of how an individual perceives a space. Perception of space is subjected to how various space making attributes are placed together in a visual construct. These attributes, through their placement and volume create enclosures of varying scales. These enclosures are the indoors wherein human interactions and encounters occur. Indoor spaces has to, then, be designed keeping in mind the various aspects of human behavior. It is also important for one to understand the relation that exists

1. The Space Making Attributes

A three-dimensional indoor space is the resultant of various two-dimensional planes designed and detailed to create enclosures. These two-dimensional planes are essentially horizontal and vertical that are elaborated in their third dimension. To create spaces for desired human activities these elements are detailed and disposed with respect to to their placement, position, scale and proportions.

i. A horizontal plane can be an element defining the base (base plane) or defining a volume (overhead plane). A base plane defines a field of space whilst an overhead plane defines the volume of a space. The vertical elements play a critical role in firmly establishing the limits of a spatial field.[ii] The planes together create an enclosure for an indoor space.

Floor Plane:

The floor plane is a base plane to which all elements relate to. It is a datum which displays strength and stability to a structure. Elements are either on, above, below or alongside a floor plane. Defining this plane, defines the primary extent of any space. Articulating these planes in interesting combinations and patterns help in enhancing experiential qualities of indoor spaces.

For Example: Modulations in the floor plane by elevating or depressing it (like a raised platform or a sunken court), can create interesting transitional spaces at various levels while reinforcing and optimizing the functional usage.

Roof Plane:
Similar to the manner in which a shade of a tree offers a sense of enclosure beneath its umbrella structure, an overhead plane defines a field of space between itself and the ground plane.[iii]
A roof plane is an overhead plane which essentially gives volume to a space. By placement of these planes one defines the height of a space. The volume of a space is closely associated to the function. How one articulates this overhead plane defines how strong the enclosure is and creates spaces which are closely associated to intended human experiences.

For Example: By shifting and modulating the roof plane in its height, level or inclination one could create volumes that could be highly intimidating or could make one feel claustrophobic. When related to a function, the roof plane can be modulated to reinforce the required emotions for an individual or for a group.

ii. Vertical planes, by their thoughtful disposition, create forms and spaces. This is done by way of structural systems connecting and supporting other planes and providing shelter and protection from light, heat, sound, rain, dust etc. Modulations of these vertical planes create interesting volumes and spaces which have the ability to evoke desired human emotions.

Vertical forms have greater presence in our visual field than horizontal planes and are therefore more instrumental in defining a discrete volume of space and providing a sense of enclosure and privacy for those within it. In addition they serve to separate one space from another and establish a common boundary between the interior and exterior environments.[iv]

Walls:
Along with columns, walls are structural elements that support the roof planes, connect different floors and take the building loads. As a space making attribute, walls form the major space defining vertical element. The placement, position and size of the walls are closely related to the required function of the space which it encloses. The walls are what the eye constantly reads and sees. Articulating these walls helps in providing efficient usable spaces and visually strong yet pleasing interior environments. Short walls, thick walls, long walls etc. can be employed with relation to the function and intended experience.

For Example: In the book Pattern Language, the author Christopher Alexander explain in the pattern *167: Thick Walls* talks about how a thick wall can provide us with options to add life in an indoor space and how a simple wall can transform into utility providing element. Spaces like alcoves, shelves, window seats, etc can be carved out of thick walls without compromising on its structural strength. However, in the modern day, these thick walls are replaced by thinner partitions owing to the need for more useable space in less available areas. By doing so, it then becomes important on how can these thin vertical elements add life to a space and provide options for one to create their own story boards, thus creating individual associations in a given indoor space.

Doors and Windows:
Doors and windows are openings in a vertical plane, with the primary function being connectivity. These elements are utmost important in a design as they are the ones which establish an immediate connect to the two realms of inside and outside spaces. While doors connect space and provide for movement, windows are providers for visual connectivity along with acting as a major element in providing light and ventilation to the indoor spaces. Together, doors and windows, through their positions and sizes in a vertical plane, are very important attributes that directly affect the quality of an indoor space and also have the ability to strengthen or weaken the sense of enclosure in a space.

Several horizontal and vertical planes such as raised podiums, sunken courts, different types of staircases, structural elements like columns and beams, different thickness and heights of walls, fenestrations etc. could be designed in a creative way to better perceive an indoor space. These elements work in cohesion with each other and one needs to, through the design process, create various configurations to arrive at a desirable indoor space.

2. The Aesthetics of an Indoor Space
A visual construct is built to leave an image in the viewer's eye. A stronger sense of aesthetics leaves a more positive imagery. The aesthetics of an indoor space is the second parameter which forms part of the process. In an indoor space, certain factors can be modulated in better comprehension of creating such positive imageries. In a built environment, light and colour and two important factors that have an impact on the psychological well being of a person as modulations in these two factors have a close relation to the performance of an individual in an indoor space.

i. Light:
"The structure is a design in light. The vault, the dome, the arch, the columns are structures related to the character of light. Natural light gives mood to space by nuances of light in the time of the day and the seasons of the year, as it enters and modifies a space." – Louis . I. Kahn[v]

Light is the major source of everything that we see. It is in the presence of light that an object along with its characteristics is seen. As *Le Corbusier* states in his book *Towards a New Architecture*, it is light that reveals the form and the space. It is the result of light and shadow that one perceives a space. Light plays a major role in building the aesthetics of an indoor space. Modulations in light can create emotions and enhance moods. Light as we know are of two kinds: Natural light and artificial light. Designing spaces involves modulations in natural light through elements like windows, jaalis, skylights, etc. Artificial light can be designed through available technology to enhance and modulate the exact amount of light required in a space by way of task lighting, wall washers, cove lighting, motion sensor light etc. However, it is the quality of natural light that is directly related to the quality of an indoor space. In the design process, it is important for one to decide how and how much of light enters an indoor space, which is directly relatable to usage of space. Light in indoors also as a psychological bearing to the user. Light could

Figure 2: Church of Light by Ar.Tadao Ando[vi]
Light as a part of the design detail.

ii. Colours, Patterns and Textures

Colours have a high psychological influence on our perception of a space and are hence very critical. They are an integral part of nature and the man-made world. Colour is what adds to the visual aesthetics of a place and has the strength to create and draw attention in spaces. The inherent character of colour can be tapped in design to bring focus or avoid the same. It could be used to create various moods depending on the functions of spaces. It can, when combined with light, be used to create beautiful compositions in indoor spaces. Natural materials like brick, stone, wood have their own materials, which in the past, have proved to create beautiful indoor spaces when used alone or in combination. With technological advancement and newer materials, the use of colours and the spectrum of available colour in varied materials can be used in the design of interior spaces adding beauty to it. Pattern, textures and colours are available in various forms today and can be worked in various combinations to provide intended indoor spaces in combination with natural and artificial light.

Materials that are used in a space have a certain texture and a pattern to it. Use of materials with appropriate textures, will provide the required aesthetics in a space. The human eye and the mind are trained to observe patterns, be it in nature or in an artificial setting. Patterns along combined with the inherent texture of a materials can be used to strengthen the look and feel of an indoors space, this adding to the visual quality.

These elements, apart from the design of natural light, do not essentially form a part of creating spaces but are used in a stage where the visual character of a space has to be strengthened and hence can become highly superfluous and redundant if not designed sensibly and can end up being mere applications to surfaces.

3. The Human Experience

Spaces are designed for use by people and spaces create experiences. Prolonged use of a space, can create associations and a bond for people over a period of time. This is what makes the design process so important because one creates spaces for creating experiences and creating associations. The degree of associations one has varies with the function of a space. The relation and association one hold with their room would vary highly to their workspace to a restaurant to a bookshop to a street and so on. Thus while designing indoor spaces, one has to positively provide options to the user to create such relationships and associations. What helps in creating such indoors is by creating quality indoor spaces. Volumes created in indoors are depended on the function and people using these spaces. But providing required volumes, one can help in building human experiences through navigating within these volumes. What adds further to the human experience of an indoor space is the movement through spaces and the sequencing of spaces. It is very important how one arrives and departs from a space and how one space is connected to the next space. For example: Creating mystery in the sequencing of spaces or providing pauses can make a difference in the way one would experience a space. In a typical Hindu temple, the spaces are sequenced in such that as and one moves from one space to another, different experiences are created along the path. This is reinforced by the play of volume, light, materials and textures. Similarly when we look at a house, the spaces are sequenced as to who and how one enters the various zones in the house and what is revealed and what is hidden through porticos, verandahs, foyers, etc.

PART 2
Confluence

The three parameters discussed above cannot be understood in isolation but are very intricately connected with each other. The configurations of these three parameters create humane spaces. Spaces become zones of rich sensorial experiences when designed sensibly and sensitively.

Indoors have close relationship with the outdoors and it is important to distinguish each from the other and yet keep them co-related. This could be done by transitional elements like thresholds, anti-rooms, porticos, porches, entrance foyers etc. Through design process, one has to keep in mind the role each element has and the degree of their modulations and their co-relations to highlight or subdue certain characteristics in a space.

The bhungas of Kutch in India display a character which is very humble in its scale but rich in the quality of form and space. The simple geometry of its form, ample natural light, the details of the planes and the vibrant colours form a narrative of an indoor space which is responsive to climate and close to human. (Refer Fig. 3)

Kimbell Art Museum is an example which displays a building to a public scale where the modern materials and technology are designed along with the core elements of form (use of planes), light, texture and colour. The design and detailing of the vaulted roof to capture natural light , displays the importance of light in an indoor space and how it can be done in conjunction to the structure itself.
(Refer Fig 4 & 5)

From profane to religious or residential to public, our built environment works on various scales, all to be inhabited and used by people. Spaces created by these structures are where

people work, dwell and perform various activities. One has to design spaces that respond to people and their senses.
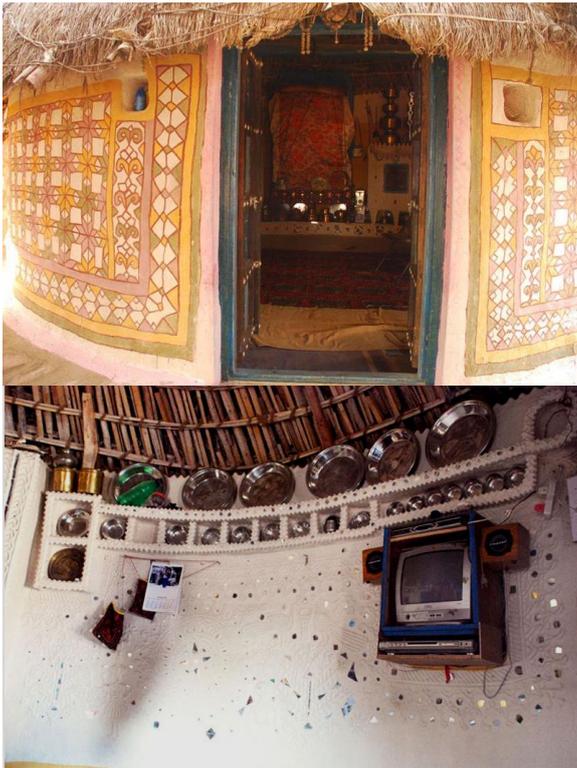

Figure 3: Bhungas in kucth [vii]
The humane spaces of the bhungas in Kutch reflect the strong cultural associations of people and a way of life.

Figure 4&5: Kimbell Art Museum[viii]
Poetics of light in an indoor space through architectural detailing.

III. Conclusion

It is highly important to create indoor spaces that provide options for people to create and stitch their own stories. This can be done by a conscious design process wherein the design parameters are constantly put in motion and efforts are made to understand the role of each element and its co-relation with the other elements. Design indoors is more serious process of critical decision making and conscious use of elements in a space and not mere surface treatment or adding redundant elements. The act of creating spaces is the act of creating life to a building form as it is in these spaces that life begins, propagates and thrives.

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iii D.K Ching, Francis – Architecture: Form, Space and Order.
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v   As taken from the book Louis I Khan: Light and Space by Urs Buttiker
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