

# Architectural Psychology: The Impact of Architecture in Human Psyche

Gaurang Kakkar\*

## Abstract

*Architecture started out as a means of protection, guard from our surrounding environment. It slowly but surely evolved into an art form into which creativity, subjectivity and beauty were introduced. People spend 80-90% of their lives indoors surrounded by colors, artificial lights, spaces, furniture, flooring, ceiling, forms etc. These built environments effects personality and lives of human. Architecture effects human thinking, physical and mental wellbeing, cognitive abilities and emotions. Architectural psychology has been dealing with this perspective for many years. Architecture of a house can affect mood and that specialized cells in human brains might shape the behaviors of those who will live with it. The study demonstrates how can homes in general be designed and structured, so that they reduce anxiety and other disorders and promote wellbeing. As long as the role of architectural language on the psychology of people sees addressing, man can hope to move ahead. It will help people to understand better it's capacity to bring change.*

**Keywords:** Architecture, behavior psychology, design, psychology, environment, interior spaces, Well-being

## INTRODUCTION

When architect design a house, the architect must consider the needs of buyer. This is important for an architect to get a stress free architecture by using images. Architects can use these results as a foundation for systematic design for anxiety and stress relief housing. Quality of life include individual's perception of their position in society, standards, goals expectations and mental concerns. It includes a person's psychological state, physical health, social relations, mental wellbeing and relationship to silent features in the environment. Therefore architectural buildings must be design with interaction between building and people. Researchers found the various sources are responsible for anxiety and stress and architecture plays a key role in relieving stress.

## IMPACT OF ARTIFICIAL LIGHT

Most human on the earth governed by the day-night cycle and artificial light creates visual stimulation. Lighting has been a fundamental element in the conception of architectural spaces. Light is capable of playing with volumes, dramatizing the texture and shapes of the materials and even distorting the perception of space. Although in the world of architectural design, it is usually only applied to the use of natural light but the artificial lightning is absolute necessity where natural light does not reach that's why artificial lighting has become one of the fundamental pillars of exterior and interior design. The term artificial lighting to lighting that emanates from electric lamps (bulb or tube). Maximum use of natural lighting design has been one of the greatest

### \*Author for Correspondence

Gaurang Kakkar

E-mail: [kakkargaurang2001@gmail.com](mailto:kakkargaurang2001@gmail.com)

Student, Department of Architecture, DIT University, Dehradun, India

Received Date: April 15, 2022

Accepted Date: April 18, 2022

Published Date: May 05, 2022

**Citation:** Gaurang Kakkar. Architectural Psychology: The Impact of Architecture in Human Psyche. International Journal of Housing and Human Settlement Planning. 2022; 8(1): 47–52p.

achievement in the architectural history, but all most projects also require effective artificial lighting to defining volumes, textures, enhancing colors, maximize the aesthetic and functional quality of spaces. Artificial light is generally easily manipulated to achieve the lightning outcome. Artificial light can be directed, colored, and also can be increased or decreased.

Adequate lighting is needed for visual perception and safety, and to reduce falls and injuries. Light is highly essential for health and well being of human to regulate bodily functions. The raise of artificial lighting means most of us no longer practice truly dark nights. Study shows that use of excessive artificial light negatively affect human health, increasing risks for depression, immune system disorders, macular degeneration, cardiovascular diseases, sleep disorders, obesity, breast cancer and more. Artificial light at night can disrupt sleep wake pattern governed by the day night cycle. Sleep disturbance due to artificial light exposure may also have an impact on ageing and metabolic processes [1, 2]. If body is exposed to the artificial light as compared to sunlight then person will suffer from deficiency of vitamin D which is fundamental element to maintain the human immune system. Researches also proven that artificial lighting reduces sleep which encourages the production of gremlin in human body. This hormone regulates appetite and can increase body weight drastically. It has been also proven by numerous studies that when human away from the natural light for a long time, then stress level increase eventually. This is very clear that creature need to stay connected with the natural light in any way, otherwise our body will unable to function properly. So artificial lights are very useful, but human should not spend its entire day under their influence.

### **IMPACT OF COLORS**

We live in colorful world. Color is not only integral element in our natural environment, but also in the manmade architectural environment. Last some decades scientific studies and empirical observations has proven that reaction of human and environment in the architectural environment is to a large percentage based on sensory perception of color. The color that surrounds human in daily life reflect behavior and mood. Hence, using the right color in living spaces is very important. Various color represents various moods and influences the way individuals express their emotions. Color is a sensory perception, and as any sensory perception color has its effects that are associative, symbolic and emotional. Colors in architecture are important to highlight, illuminate, embellish and separate spaces and acts as create a first impression favorable or negative. The architect consider the color effect of every element of structure construction, from the earthy colors of primary building materials like marble, brick, stone and wood to extensive variety of colors available for paint-windows doors, trim and sliding.

Color is the first thing that our brain registers before textures, size or shape. Colors can generate arousal states and emotions. Many studies show the impact of the color used in houses and offices on the mood of the people they using them. Warm colors like red, orange and yellow evoke higher arousal emotions such as love, happiness, passion and anger. Cool colors like green, purple and blue are linked to sadness, indifference and calmness. If a room painted in warm color, temperature feel higher than the same temperature in a cool-colored room. Warm color influence human performance, such as orange and red seem to survival and activate mode, increasing force and speed but decreasing creativity and patience. Emotional state and our body also affected by the colors, red color activates nervous system and increases the heart rate and the amount of adrenaline circulating in our bloodstream. Cool colors calm the body, lower the blood pressure and reduce respiration. The negative effects were also detected on several colors such as blue, gray and beige able to minimize attention or concentration [3–5]. Colors if chosen wisely, can have a significant impact on individuals. Color can affect how memorable something is, evoke emotions, guide attention and even influence performance and motor functions.

### **IMPACT OF ARCHITECTURAL SHAPES**

When people live in house different shapes of rooms attributes different emotions, perceptions and thoughts. Architects can use different shapes to transmit different feeling to the people live in the

house. As people may not notice these shapes directly but they will definitely get impact on their behaviors and feelings. Architectural designers are aware of the reactions their shapes designs, how these can affect such as gender, age, social preferences and culture. Many studies proven that different shapes can affect human behavior and every shape has its own meaning and influence differently to the mind who lived in. The most common shape in any house is rectangles or square, that gave individual a sense of security and make people feel safe. Triangle represents balance and stability. Circles don't have any angles commonly it represents unity. Architects use pentagons, hexagons, octagons or abstract shapes as they required.

Architectural shapes can have a considerable impact on human psychology and emotions. Simple shapes evoke the sense of security and have a psychological impact and cause the release of neurological chemicals that feels human a sense of happiness. Complex shapes make human nervous and fearful by activating our sympathetic nervous system which is detrimental to our health, individual feel panicked and tense, human feel un stimulated and bored and boredom increases anxiety. That's why architects should avoid shapes having so many acute angles in interior. Razor sharp angles make uncomfortable living. The psychological effects of architectural shapes are difficult to prove, but difficulty does not dilute the value of the shapes that create the sense of awe. Each shape type has different functions and its help to create an optimal mood, sense of coherence, desire, security and meaning. If a person feel uncomfortable in room of any specific shape, this can lead to discomfort, restlessness, lethargy, hypersensitivity or even anxiety. Researchers found the correlation between poor room shapes and wellbeing, individuals health, educational attainment, and likelihood of criminality. Architectural shapes can influence how person feel. It is therefore essential that architect keep an eye on the functions and effects on humans.

### **IMPACT OF GREEN SPACE IN HOME**

Most of the people when buy or design house ignored the important living environment private green space but all the individual have to right to led a better quality of life. It can be possible when people are accessible to get a house with green space and avail maximum perceived benefits. The significance of green spaces has been analyzed for better human life through leisure activities, noise reduction and removal of air pollution. Architects have always taken inspiration from nature Humans and nature are inter linked. Even nature is complete without man but men's need nature for his survival [6]. Lush green garden, rolling lawns, taking breath in greenery are all bring serenity and peace to the mind. It is essential to have a own green area that can be relieving to the soul. There are a lot of benefit to having green space. Plants have a great filtering mechanism that help in reducing pollution. Plants in garden area constantly filtered out numerous toxic pollutants and fumes of sprays or household cleaners. Plants also provides oxygen and also provide shade and helps in lowering temperature.

That is no surprise from the long year architects, ecologist and psychologists are studying the effect of nature on human behavior. They are linked and complex to fully understood. Many studies suggest exposure of green space reduced stress, less depressive symptoms, positive mood, better emotional well being improved behavior and mental health and decreases psychological distress. Green space in home also strongly protects against mood disorders and neurotic behavior. Children's mental health and wellbeing is also associated with green space. Garden, lawns and backyards helps in cognitive development of children. It promotes attention, memory, competence, restoration, self discipline, supportive social groups, improve behaviors and moderates stress. If children are spending more time indoor will effect in the mental and behavioral health problems. Studies suggests elderly people without green space in house facing more mental health issues. Older people living with green space in house have more life satisfaction, better general health and less stress. In addition, old people living in a house with green space have lower risk of cardiovascular disease they have better cognitive functioning as verbal fluency, reasoning and short term memory. They also experience healthy physical functioning, refers to the capacities of the body that are important activities in daily life such as balance, walking and strength and had lower decline in walking speed.

---

## IMPACT OF AIR QUALITY

A man can survive without eating for thirty days, without drinking three days and yet three minutes without breathing. Human need for air is so constant. Unpleasant odors makes human aware of bad air. Smells are the signal, consciously perceived by the nervous system and brain, allowing individual to make judgements about environment. This is important for an architect to design a house with good ventilation and good indoor air quality. Gases let off by the use of variety of products like paints, flooring, carpeting, furniture, sprays etc. use in house. These all effects on health. Air quality in a house include many factors, like humidity, temperature and absorption of pollutants. Damp or condensation can cause growth of bacteria and moulds that generate microscopic airborne particles [7]. Many factors like age, gender, culture and nationality affect an individual perceives air quality. Poor air quality have negative effects on individual living in house in short or long period. Generally Indoor air quality is associated to the health, comfort, and well being of individual living in the house. Natural day light and ventilation is very essential for physical and mental health of human. Outdoor sources like built-up and traffic contamination are one of the most affecter of indoor air quality. Fumes of cooking, tobacco smoke, personal care products, cleaning products are also the sources of air pollution. Air velocity, humidity, temperature and the duration and frequency of exposure to these pollutants influence the effect and resultant perception of the indoor air quality.

Some times biological and chemical pollutants, even the stuffiness of the room affects human's comfort and health and cause allergies, fatigue, cough, headaches and other related problems. Poor indoor air quality has been linked to aggravation of asthma and other respiratory problems, decreased productivity and attention due to discomfort of bad air quality. Decreased focus is also noted due to bad air quality. Poor ventilated rooms can make feel tired and foggy the individual live in that house. If the ventilation is not proper can affect decision making capabilities. Poor air quality in a home due to stuffiness or any other reason can effect sleep quality. Poor ventilation can reduce the cognitive ability of elders and may also lead to stokes. Contact to poor quality of air can also raise the risk of lung cancer. Poor ventilation increases brain inflammation, increases levels of anxiety and depression. Long term neurological inflammation may increase central nervous disorders like Alzheimer disease and Parkinson disease. Architects approach is to make the building as resistant to the outdoors as possible. But sometimes air tightness and insulation inside the building lead to poor indoor air quality. Human spend the majority of time indoors, so it is important to making it worth, the air human breath is not causing them harm.

## IMPACT OF FLOORING

The flooring in a house is a particularly close surface to the human being living in the house. In the morning when a person wake up bare feet step into in and in night last thing they touch before climbing into bed. So the effect of the house flooring has on an individual is psychological and physical both. There are many criteria available that a man can choose the flooring material. Some of these may be soft and warm on feet. This kind of flooring gives you comfort and create the sense of lush luxury and also protects from cold toes on chilly winter mornings. Hardwood flooring is very popular choice now days. Among architects and designers hardwood is usually regarded as one of the best flooring materials. It is not only relatively warm and durable but it's also beautiful in looks and environmentally friendly. Bamboo flooring is similar in quality and use like hardwood. It is a completely renewable material and harder than most hardwoods that's make it a very durable flooring. Its cost is less then other hardwoods and easy to care. The look is quite unique. Cork flooring relatively unusual flooring material becoming popular in houses. The most important feature of this kind of flooring is insulation between floors this feature help in sound proofing and also helps in air conditioning and heat when it belongs. Vinyl flooring is a flooring form of sheets. It's look luxury and almost indistinguishable from stone, ceramic or wood but cons of this kind of flooring that it is not a green choice and not recyclable. Last but not least when it comes to types of flooring, most Indian homeowners commonly think of either tiles or marble. Every flooring has their pros and cons and have their physical and psychological effect.

Many allergens come from dust mites that hide and breed in carpet. These dust mites are impossible to see with the naked eyes. It could have a massively negative impact on health, well being and happiness. Flooring materials can certainly influence indoor environmental conditions, effect comfort, behavior, health, activities and learning performance. Wrong choice of flooring can psychologically effect on individual's subconscious. A good flooring can contribute wellbeing, fueling anxiety and calm individual living in home.

### **IMPACT OF CEILING**

A ceiling has a power to change the atmosphere of the room. The ceiling is an important element in architectural design. Ceilings are often use to cover floor and roof construction. Ceilings are not only give beauty to the house but also create the sense of openness and acting as thermal insulation. One other main feature of the ceiling is their noise reduction properties. Some ceiling made with special materials that can absorb sound and help in making the interior space more comfortable. Many designs can very successfully use in ceiling, provides style and uniqueness to the house. Architects use ceiling panels to protecting the plumbing system in vertical construction. Now days ceiling made up of plasterboard using as a decorative elements, combined with lighting and other objects. Ceiling are designed to achieve quality housing which gives acoustic comfort. Ceiling can be decorated to taste of person live in house. There are many different types of ceiling which gives the home décor and every ceiling has a distinctive character and can change the look and feel of any house. Domed ceiling resembles the shape of half sphere and are popularly used to create an accent feature within the ceiling. These ceilings are most suitable for areas like lobby, living or dining room. Dropped ceiling is commonly known as false ceiling. This ceiling have a functional role to conceal services like the electrical wires or for installing ceiling lights. Tray ceiling looks a bit like an upside-down tray and it holds LED strip lights so as to create a dramatic effect. Tall ceiling are found in double height room creating an interactive space by connecting two levels with an atrium. Beamed ceiling is a traditional style ceiling. This type of ceiling use on the homes where load-bearing beams are bare on the indoor of the home. Coffered ceiling is divided into a uniform grid and finished with molding with elegant touch. Barrel vault ceiling, Cathedral ceiling, Shed ceiling, Exposed ceiling and various ceiling are used by architects as per house requirement.

Now a day's architects and buyers are showing more interest in high ceiling above the standard eight foot. High ceiling no doubt related to a general preference for space. Some findings shows high ceilings gives psychological sense of freedom. The homes with higher ceiling include cleaner and improved thinking, more energy and better health among residents [8]. High sealing gives the mindset of freedom, creativity and abstraction, whereas the low ceiling promoting restricted learning. Taller ceiling enhance innovative thinking. Researches shows Low ceilings put individual in bad mood. Sometimes low ceiling room can leave individual with mixed feelings such as-a sense of isolation, self doubt, sadness, sleep problem and headaches but these symptoms are generally vary person to person.

### **IMPACT OF FURNITURE**

Home is supposed to be relief from the stresses of the outside world. That's why people set up their house as their choice. It gives to a healthier lifestyle physically and mentally. When people select right furniture can relax at home happily and leave the outside world at the door. Decorating house with furniture show the creativity of individual living in the house. Many people select furniture with theme or color scheme. Many people select furniture for comfort reasons. Uncomfortable furniture makes human cranky and uncomfortable. Taste in furniture differs person to person but it is important for all to choose the right furniture that fits the space and provide the warmth in the house. Architects and designers focus on the purpose of the furniture-size, durability, finish, flexibility and comfort of the individual using it. They also focus social, emotional and cultural values of their clients. Architects and designers helps the owner to choose functional and space efficient furniture. This is seen that the people would approach the settings with curvilinear lines compared to the settings rectilinear lines this also gives the great impression on the mind of onlookers [9–12]. Right furniture

works in effective way to boost the morale of the family, improve productivity and create a good impression on the minds of the relative and friends. Now days furniture are comes with very fine finishing. They looks visually appealing as it is light and airy with various type of surfaces dark, light or can also be shiny or glossy. Designer furniture can be avail from the market and can be customized according to the need or setup. If someone is planning for furniture, make sure that is practical, efficient, contemporary and pleasing to the eyes of the onlookers.

Correlation between furniture and child development is very linked. Furniture have an active affect in their development. Good interior furniture increases their sensory skills and also determine children's behavior. Children spend more times in their homes. The home becomes the place used for various activities: playing games, reading, conversation, watching T.V., listening music, working etc. Practical and efficient furniture helps in physical, social, emotional and perceptual development of child. Many researches shows unorganized, inefficient and uncomfortable furniture decrease reaction time, attention span, decrease decision making skill, develop depression, less emotional wellbeing, and bad mental health in individuals.

However, since architecture has a different impact on everyone because every person has their own perception, personalities and cultural imprints come to play. It is very difficult to define clear measures or tips for all people.

## REFERENCES

1. Hood, B., Bruck, D. & Kennedy, G. (2004). Determinants of sleep quality in the healthy aged: The role of physical, psychological, circadian and naturalistic light variables. *Age Ageing*. 33: 159-165.
2. Stevens, R.G., Blask, D.E. & Brainard, G.C. (2007). Meeting report: The role of environmental lightning and circadian disruption in cancer and other diseases. *Environ Health Perspective*. 115: 1357-1362.
3. Knez, I. (2001). Effects of color of light on non visual psychological process. (doi:10.1006/jepv.2000.0198). *Journal of Environmental psychology*, 21 (2), 201-208.
4. Stone, N .J. (2003). Environmental Viewand color of a Simulated telemarketing task. (doi: 10.1016/ S0272-4944(02)00107-X). *Journal of Environmental psychology*, 23 (1), 63-78.
5. Dalke, H., Little, J., Niemann, E., Camgoz, N., Steadman, G. & Hill, S. (2005). Color and lightning in hospital design. (doi:10.1016/j.optlastec.2005.06.040). *Optics and Laser Technology*, 38(4-6), 343-365.
6. Wolch, J.R., Byrne, J. & newell, J.P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough' *Landscape and urban planning*, 125, 234-244.
7. Gorny, R.L., Reponen, T.,s Willrke, K. Schmechel, D., Robine, E., Boissier, M. & Grinshpun, S.A. (2002). Fungal fragments as indoor air bio contaminants .*Appl Environ Microbes*. 68(7): 3522-31.
8. Bivins, R. (1997). Home builders toy with better designs as baby boomers age, *Huston chronicle* (January 26), A34.
9. Madani Nejad, K. (2007). Curvilinearity in architecture: Emotional effect of curvilinear forms in interior design. (PhD Thesis, Texas A&M University). Retrieved January 5,2009 from <http://repository.tamu.edu/handle/1969.1/5750?show=full>.
10. Kuller, R. (1980). Architecture and emotions. In B. Mikellides (Ed.), *Architecture for People* (pp. 87-100). New York: Holt, Rinehartans Winston.
11. Hasselgren, S. (1987). On architecture: An architectural theory based on psychological research. Bromley, U.K.: Chartwell- Bratt.
12. Shepley, M. (1981). Age changes in spatial and object orientation as measured by architectural preference and EFT visual performance. Doctoral Dissertation, Ann Arbor: University of Michigan.