

## Psychological Impact Of The Spatial Awareness In Built Environment

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### ABSTRACT

We aren't always aware of it, but our physical environment is constantly influencing our emotions and general well-being. There is a fine link between health promotion and the architectural design of any surrounding resulting in certain variables. The notion nowhere thrusts that the architecture, when used independently, has the ability to heal; but the architectural manipulation of space can act as a catalyst in creating a curative environment that may affect the physical and psychological behavior of human beings. Architectural spaces directly affect human emotions in a way validating that architecturally sound space helps in the natural process to alleviate.

**Keywords:-** *Well-being, physical environment, sound spaces, visual perception,*

### 1. NTRODUCTION

*"We shape our building, and later they shape us"*  
- Winston Churchill.

Humans tend to achieve nuances by constantly developing something new in the hope of a better future. But, hardly realizes that these advances have led to so much dependency that our lifestyle is completely mechanized leading to busy work schedules, increased toxicity levels, reduced green spaces, and unplanned and unpleasant surroundings. The long-term effect of it is a multitude of health issues and diseases; leading towards overindulgence in medication, and health care centers.

When talking about the psychological impact of a built space we often bring out the ideology of therapeutic architecture. Therapeutic architecture, sometimes referred to as 'evidence-based architecture' is not entirely new in conception, but it is slowly entering the consciousness of mainstream thought. Born out of studies of architectural facilities designated for psychiatric care, therapeutic architecture was originally an examination of the people who lived and suffered in hospitals and institutions. This marked the inception for architects: the realization that architecture could wield substantial influence, not only as a tangible environment but also as a mechanism for power and control.

There is assorted evidence and research that implies that a place's atmosphere and design can affect the psychology and mood of its occupants. The concept of designing Architectural spaces by considering various factors like normalcy, sound, light, color, smell, touch, texture, affinity, open spaces, positive distractions, quality environment, and pleasant views certainly connects to human senses and proves to show more ability in the physical and psychological healing.

### 2. NEED OF THE STUDY

The significance of adhering to therapeutic architecture standards appears to be diminishing when it comes to implementing projects, particularly within the human-centric industry.

The conventional approach taken in designing certain spaces contributes to heightened stress levels and poses a potential threat to the overall well-being of a user.

### 3. METHODOLOGY

This paper discusses how Spatial awareness in the built environment has a profound psychological impact on individuals who inhabit and interact with those spaces. The objective is to analyze various architectural methodologies and spaces designed with mindful sensitivity resulting in a more compassionate perception of both fellow individuals and our surroundings.

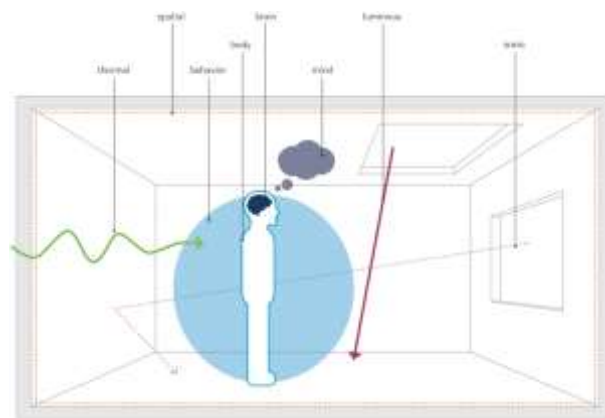
The paper will start with deliberating the concept of Therapeutic architecture and how the idea emphasizes the contrast that is created on the occupants of a space when certain considerations are followed while designing it with apprehensive consciousness. Furthermore, A Detailed literature review related to the introspection of various practices for a therapeutic approach will be discussed.

#### 4. DECIPHERING THE TERM THERAPEUTIC ARCHITECTURE

Therapeutic architecture is characterized as a **human-centered** and **evidence-driven** field within the realm of the constructed environment. Its goal is to discover and facilitate methods for integrating spatial components into designs that engage with individuals both on a physiological and psychological level. The term "therapeutic architecture" has emerged as a acknowledged notion in response to the starkness of contemporary experiential structures. This concept encapsulates the idea of methodically integrating the spatial arrangement of a building to establish a meaningful interaction with individuals, ultimately promoting holistic well-being.

It constitutes a substantial realm within architecture that pertains to individuals' experiences during times of good health, but its importance escalates when people undergo periods of poor health. The entirety of this research has contributed to launching into the broader sphere of both commercial and residential domains. It helped in advancing the that architecture is about space and place, and how the two of them comprise the physical context of our lives.

*“A concept that embodies the vision of well- designed architectural spaces that encourage human well-being”*



**Figure 1:** diagram analyzing the human environment within the built environment

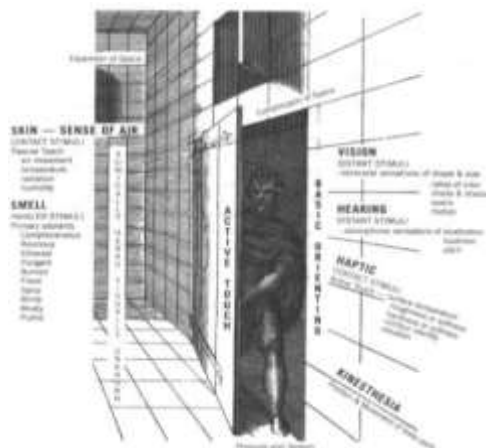
#### 5. CONTEMPLATIONS FOR THERAPEUTIC APPROACH

The physical aspects affecting human psychology in a setting: are identified based on case studies, literature reviews, analysis, and crucial observation.

Subsequent design considerations can impact the well-being and behavior of its occupants-

- **Responsive architecture through sensory design –**

Experiencing architecture has less to do with how the building looks but rather to do with how it engages with all of our senses. Responsive architecture is a design that interacts with people. People experience a space with their entire body, through movement, memory, and imagination. A space impacts the way they feel, think, and behave. This is where sensory design comes in because it is a way of designing that places the building occupant at the centre, with careful attention to the way a space may impact them both in the short and long term.



**Figure 2:** Range of the senses

- **Sight:** *the primary sight-* Sight is what allows us to perceive light, form and color. Take the work of Mexican architect Luis Barragan, otherwise known as the architect of color. Barragan’s style can be recognized not only from the distinctive color palettes he uses but also the serenity permeating his architecture.

### COLOR

Color is a sensory perception, and as any sensory perception, it has effects that are symbolic, associative, synesthetic, and emotional. Because the body and mind are one entity, neuropsychological aspects, psychosomatic effects, visual ergonomics, and color’s psychological effects are the components of color ergonomics. Whether the emotions one experiences are through acquired knowledge and/or personal history, there is evidence that colors provoke emotions on average in the same way with few exceptions.

The color designer has the task of knowing how the reception of visual stimulation, its processing, and evoked responses in conjunction with the hormonal system, produce the best possibilities for the welfare of human beings. This is of utmost importance in varied environments, such as medical and psychiatric facilities, offices, industrial and production plants, educational facilities, homes for the elderly, correctional facilities, and so forth.



**Figure 3:** Color wheel of emotional psychology

**Source:** Krohn, M. (2007). Robert Plutchik’s Psych evolutionary Theory of Basic Emotions. Retrieved

### LIGHT

Lighting plays a vital role in the way people experience and understand architecture, bringing an emotional value to architecture – it helps create an experience for those who occupy the space. Whether it’s daylighting or artificial lighting, light draws attention to textures, colors, and forms of space, helping architecture achieve its true purpose and enhancing the way we perceive architecture even more.



**Figure 4:** Inclusion of diffused lighting

**Tactile design-** In architectural discourse, tactile design is usually employed to describe how materials relate to a user's experience when felt. A relatively new concept in design, haptic architecture, studies how humans interact with structures and their surroundings through touch, movement, and other senses. This approach is founded on the idea that a building's design must compel occupants on a physical, emotional, and aesthetically pleasing level. The shape and size of building materials, textures, and surfaces are the emphases of haptic architecture, and the term "haptic" relates to the sensation of touch. This architectural approach takes into account the human body's sensitivity to numerous physical stimuli and attempts to build environments that are more responsive and engaging for the occupants.

One of the main advantages of haptics is that it can give building occupants a more interesting and lasting experience. Haptic design can evoke a sense of intimacy and emotional resonance with a space by appealing to the senses. Haptic perception creates deeper, enhanced memories of place, which resonate more profoundly within us than mediated, digital, or simulated reality. Haptic engagement with life and objects that remind us of life allow us to create more emotionally resonant experiences, and increases awareness of our connection to life systems; an awareness that engenders humility, empathy, and a more humane perception of life and our environment.

This engagement with life and objects that remind us of life, allow us to create more emotionally resonant experiences, and increases awareness of our connection to life systems; an awareness that engenders humility, empathy, and a more humane and mindful perception of life and our environment.



**Figure 5:** Tactile experiences



**Figure 6:** Elevated experience in a space due to haptics

- **Smell:** *the untapped design source-* The smell is a powerful trigger for memory construction, more so than sight and hearing. This is because it is intimately connected to the brain parts that process emotion and memory. Exposure to odors could result in health effects ranging from none, to mild discomfort, to more serious symptoms. Good odor can suddenly enhance the mood of a person while there could be display of tensed behaviour and frustration in the opposite case. If we understand the fundamental role of architecture in creating memorable experiences and memories, intentionally incorporating the sense of smell can enrich the user's experience.

- **Materiality:** Materiality has a direct influence on the overall sense of the environment. Materials have the ability to affect the sound environment, circulate movement, increase /decrease comfort, and various other actions. With this, the form in which the material becomes a part of will also determine the powers of its placement. The associated dimensions of the material also will play a factor in the design. For instance, wood is a material that retains heat, is soft and comforting, and can be associated with the concept of natural environments. However, stone is cool and smooth to touch, but hard on feet. When the materials become integrated in the program, the quality of the materials will embody the vision of the space and creates a serene environment.



**Figure 7:** Materiality and its effects

- **Integrating nature into built spaces: biophilia**

Access to landscape to occupants offers feeling of liberty and seclusion. Contact and access to nature increases the recovery rate and decreases the stress, blood pressure and maintains normal heart rates. Building should be placed and shaped so that it will create outdoor space in relationship to landscape, climate and place.

The practice of incorporating nature and natural elements into the built environment — has been proven to measurably reduce stress, enhance cognitive function and creativity, and expedite healing. And this translates to increased productivity, healthcare cost savings, and reduced turnover.

- **Qualitative day lighting:** Daylight has significant effects on the well-being of humans both physically and psychologically. The presence of visible light in an indoor environment does influence the physiological responses, mood as well as visual needs. Professionals believe that seasonal affective disorder with symptoms of depression; fatigue and irritability may be triggered by shorter hours of exposure to daylight. To optimize the quantity of light, design of openings, different materials e.g., tinted glass and building orientation, colors in the interiors, visual comfort plays an important role.



**Figure 8:** Openings admitting daylight

- **Indoor planting:** Indoor plants can act as natural air purifiers by absorbing pollutants and releasing oxygen. They help improve indoor air quality by reducing levels of volatile organic compounds (VOCs) and other toxins. This is especially important in contemporary architecture, where airtight buildings can sometimes lead to poor indoor air quality. Studies have shown that the presence of indoor plants can reduce stress and increase productivity. In office settings, for example, employees tend to feel more relaxed and focused when surrounded by greenery.



**Figure 9:** Plants in the interior

- **Water feature:** Water has indeed been recognized for its therapeutic effects on human health for centuries. It plays a significant role in any surrounding by adding aesthetic, functional, and experiential dimensions to built environments. Interacting with water features, whether it's walking alongside a flowing stream, sitting by a pond, or feeling the spray of a fountain, offers a multisensory experience that fosters connection and engagement with the surroundings. Water features align with the principles of biophilic design, which seeks to connect people with nature within the built environment. The presence of water indoors or outdoors helps establish a stronger connection to the natural world, promoting well-being and reducing stress. Water features establish a tranquil atmosphere conducive to mindfulness and meditation. The rhythmic sound of flowing water aids concentration, mental clarity, and achieving a mindful state. Additionally, they serve as captivating focal points, offering a positive diversion from daily stressors, shifting focus from negativity and promoting an optimistic perspective.



**Figure 10:** Water features as central focal point

Incorporating ergonomic factors in design/considerations for ergonomic approach The ergonomic design focuses on creating spaces, products, and environments that align with human capabilities, needs, and behaviours. A well-designed ergonomic environment can contribute to a more harmonious and satisfying overall experience for individuals. Here's how this approach can affect occupants psychologically:

- **Enhanced comfort and satisfaction:** Ergonomic design prioritizes user comfort by considering factors such as seating posture, desk height, and lighting. When individuals are physically comfortable, they are more likely to feel satisfied and content in their surroundings. This can contribute to a positive emotional state and a sense of well-being.



**Figure 11:** Ergonomics in office seating

- **Reduced stress and fatigue:** The concept aims to minimize physical strain and fatigue by promoting natural body movements and postures.

When occupants experience less physical discomfort and strain, their stress levels are reduced. This can lead to improved mental well-being and a more relaxed state of mind.

- **Increased Productivity and Performance:** Spaces that have been ergonomically constructed encourage productive and efficient work. Focus and concentration increase when people can work comfortably and without unneeded physical barriers. This can lead to higher productivity levels, a sense of accomplishment, and increased self-esteem.



**Figure 12:** Provision for specially-abled

- **Sense of safety and security:** Ergonomics addresses safety concerns by reducing the risk of accidents and injuries. When occupants feel safe in their environment, they experience reduced anxiety and stress. A secure environment enhances psychological comfort and allows individuals to focus on their tasks and activities.
- **Sense of control:** Ergonomics often empowers individuals by allowing them to customize their environment to suit their needs. Adjustable furniture, lighting, and other design elements provide occupants with a sense of control over their surroundings. This sense of control can contribute to feelings of empowerment, autonomy, and reduced anxiety.

## 6. CONCLUSION OF THE STUDY

Spatial awareness in the built environment has a profound psychological impact on individuals who inhabit and interact with those spaces. The arrangement, organization, and design of physical spaces can influence emotions, behaviors, and cognitive processes. Here's how spatial awareness can impact psychological well-being: -

- **Cognitive Stimulation:** Spatial complexity and variety can stimulate cognitive processes. Environments with diverse spaces, visual interest, and opportunities for exploration can engage the mind and enhance mental alertness, creativity, and problem-solving abilities.
- **Stress Reduction:** Thoughtful spatial design can help reduce stress levels. Open, uncluttered spaces with ample natural light and good ventilation can create a calming atmosphere, promoting relaxation and psychological well-being.
- **Aesthetics and Emotional Response:** Spatial aesthetics can evoke emotional responses. Harmonious proportions, balanced layouts, and aesthetically pleasing designs contribute to positive emotions and a sense of aesthetic satisfaction.
- **Cultural and Symbolic Significance:** Spatial awareness can reflect cultural values and symbolism. Design elements that resonate with cultural identity or historical significance can evoke feelings of pride, connection, and a sense of belonging.
- **User Control and Engagement:** Spaces that allow users to adapt and personalize their environment promote a sense of ownership and engagement. Customizable spaces empower individuals to create surroundings that align with their

preferences, enhancing their emotional connection to the space

- **Sense of Comfort and Safety:** Well-planned spatial arrangements create a sense of comfort and security. Clear pathways, easily navigable layouts, and well-defined zones contribute to a feeling of safety, reducing stress and anxiety related to getting lost or feeling disoriented.
- **Perceived Size and Scale:** Spatial awareness influences how people perceive the size and scale of a place. Manipulating proportions, sightlines, and perspectives can create a sense of expansiveness or coziness, impacting emotional responses and comfort levels.
- **Wayfinding and Orientation:** Effective organization aids wayfinding and orientation.
- Clear signage, landmarks, and intuitive layouts help individuals navigate with ease, fostering a sense of control and reducing feelings of frustration or disorientation.
- **Social Interaction:** Spatial design can encourage or inhibit social interaction. Spaces that facilitate informal gatherings, conversation, and collaboration promote a sense of community and connectedness among occupants.
- **Privacy and Intimacy:** Spatial awareness contributes to creating private and intimate spaces. Well-designed areas for focused work, relaxation, or personal reflection offer individuals a sense of personal space and control over their environment.
- **Environmental Stimulation:** A carefully designed spatial environment can provide sensory stimulation through textures, materials, colors, and sounds, influencing mood and emotional states.

I believe in building and design practices that satisfy Juhanni Pallasmaa's definition for the role of architecture as "enabling us to perceive and understand the dialectics of permanence and change, to settle ourselves in the world, and to place ourselves in the continuum of culture and time." While architecture should reflect our current zeitgeist, it should do so responsibly and thoughtfully, and not just theoretically. It should teach us about 'life today' while grounding us in 'life eternal'.

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