

# The Influence of Sacred Geometry on Psychological and Emotional Responses in Built Spaces

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## Abstract

*"Any work of architecture which does not express serenity is a mistake."*

-Ar. Luis Barragan

Sacred geometric patterns exist all around us, creating the fundamental structure and templates of life in the universe. A lot of ancient texts in different cultures have described Sacred Geometry as the blueprint of creation and the genesis, the provenance of all forms.

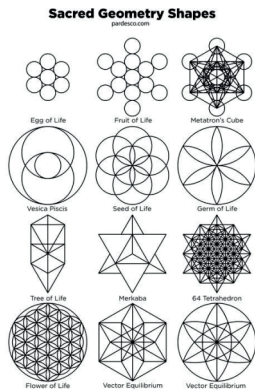
In this research paper, we embark on a voyage to unearth the secrets of sacred geometry and its transformative power in the built environment. By incorporating sacred geometric principles, architects can create buildings that resonate with the inherent order found in nature.

A mixed-methods approach has been used for the research that includes literature reviews, surveys, analysis of on-site experiments and case studies to explore how sacred geometric patterns impact psychological well-being, to enhance user experience in built environments. Key findings indicate that spaces designed with sacred geometry foster a sense of tranquility, connection, and inspiration, positively impacting users' mental well-being.

The research concludes with practical design guidelines bolstering the intentional use of sacred geometry to create environments that not only serve functional needs but also promote psychological health and emotional fulfillment. The concept of self-similarity found in nature is applied to create designs that are both aesthetically pleasing and functionally efficient. This approach aligns with the Hindu philosophical concept of "Yatha Pinde Tatha Brahmande", implying that patterns found in nature can be replicated in architectural design to create spaces that resonate with the cosmos.

## Introduction

Sacred geometry is profoundly ingrained in the structure of the built world and goes beyond simple aesthetic appeal (David, 2016). It is frequently understood as the meeting point of mathematics, nature, and spirituality (Nikos, 2006). Sacred geometry is expressed through exact mathematical ratios and geometric patterns



### Sacred Geometry

Source: <https://www.rareearthgallerycc.com>

that reflect a universal order in everything from the breathtaking constructions of ancient civilizations to modern architectural wonders (Ian, 2014). According to Vitruvius, a good building should incorporate three principles: **firmitas** (durability), **utilitas** (utility), and **venustas** (beauty). While the first two principles address practical needs like robustness and functionality, **venustas** appears to be more complex as it focuses on the emotional and psychological impact, aiming for contentment and upliftment of the human spirit. This principle links architecture to deeper philosophical and psychological considerations.

"Sacred" describes something that is held in high esteem, usually in a religious or spiritual setting, and is associated with reverence, respect, and importance (Mircea, 1957). Sacred geometry plays a vital role in achieving **venustas**. It involves sacred universal patterns used in the design of everything in our reality, most often seen in sacred architecture and sacred art such as the **Golden Ratio**, **Flower of Life**, and **Platonic Solids**, to create spaces that evoke aesthetic delight and spiritual resonance.

Sacred Geometry plays a key role in healing by:

1. Balancing the body's energy systems (chakras).
2. Promoting relaxation through harmonious shapes.
3. Facilitating self-healing by releasing emotional trauma and restoring well-being.

### Research Statement

The research aims to examine the influence of incorporating sacred geometry principles to enhance participants' psychological and emotional experiences in a built space. It explores how geometrical patterns and proportions, rooted in ancient traditions, resonate with human consciousness to promote tranquility, relaxation, and emotional well-being.



*The Chakra System and Sacred Geometry :  
Aligning Energy Centers for Holistic Healing  
Source : <https://www.healingstudioz.com>*

## Hypothesis

"Incorporating principles of sacred geometry will enhance participants' psychological and emotional experiences."

## Research gap

- 1) How do different sacred geometric patterns evoke varying emotional responses in individuals?
- 2) What empirical methods can be used to measure the psychological and emotional effects of sacred geometry with precision?
- 3) What is the neuroscientific basis for the human brain's response to sacred geometric patterns?

## Methodology

The research employs a mixed-methods approach, including literature reviews for exploration of historical and theoretical foundations of sacred geometry, case studies and empirical studies which includes surveys and experiments measuring emotional and psychological responses to spaces with sacred geometry.

Ancient Egyptian and Mesopotamian cultures, dated back to the 2000 BCE–1001 BCE, also inferred sacred geometry as a way to understand mystic ways of nature and supreme (Robert, Sacred Geometry: Philosophy and Practice, 1989). For example, the Egyptians used geometric forms in the design of pyramids and temples, believing these shapes held cosmic significance and represented divine order. The ancient Greek philosopher Plato associated five regular solids (tetrahedron, cube, octahedron, dodecahedron, and icosahedron) with the classical elements (earth, water, air, fire, and aether respectively) (Plato, 1971). These shapes were considered fundamental building blocks of the universe and were seen as symbols of perfection and spiritual significance.



Platonic Solids and Sacred Shapes for healing

Source:<https://thesacredbeing.com>

The colours of shape waves have a direct correspondence with our energetic centers or chakras, in such a way that each one of them is linked to a visible colour from their frontside. In addition, chakras 2nd to 6th are also linked to an invisible color from their backside.

PLATO'S ELEMENT	VOLUME	SHAPE OF FACE	FACES	EDGES	CORNERS	ANGLES	COLOUR EMITTED BY VERTICES
Heaven	<b>Dodecahedron</b>	Pentagon	12	30	20	108°	Green
Fire	<b>Tetrahedron</b>	Triangle	4	6	4	60°	Orange
Air	<b>Octahedron</b>	Triangle	8	12	6	60°	Orange
Water	<b>Icosahedron</b>	Triangle	20	30	12	60°	Green
Earth	<b>Cube</b>	Square	6	12	8	90°	Green

Platonic solids and the colours emitted by the vertices

Source:Author

## Results and Findings

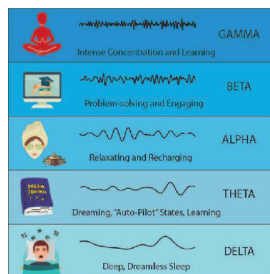
The research includes three significant architectural and spiritual spaces, each incorporating sacred geometry in their design:

### 1. Matrimandir, Auroville:

1. Located in Auroville, Tamil Nadu, and completed in 2008, Matrimandir serves as a spiritual space for meditation.
2. Its golden sphere, harmonious proportions, and luminous crystal globe promote meditative states, emotional peace, and a sense of unity. This design subtly enhances well-being, supporting spiritual and inner transformation.

### 2. Pyramid Valley International, Bangalore:

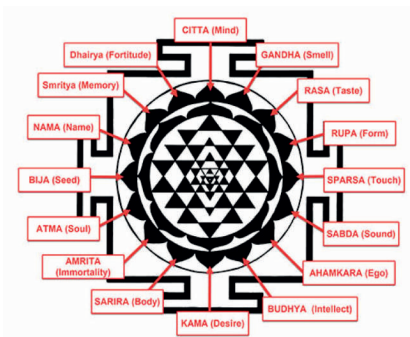
1. This 28-acre site features the Maitreya Buddha Pyramid, which serves as the largest pyramid in the world dedicated to meditation.
2. A set of measurements outside the pyramid was taken before meditating and compared with the same set of measurements after meditating inside the pyramid. Increase in the Mean value of alpha brain waves in people was detected reflecting a state of relaxation after practicing meditation inside the pyramid



Human brain waves frequency  
Source: <https://nexus.jefferson.edu>

### 3. Akshardham Temple, Delhi:

1. Completed in 2005, this temple follows traditional Indian architectural principles.
2. It features intricate carvings, domes, spires, and statues, all of which reflect sacred geometric patterns like mandalas. These geometric designs are incorporated into the temple's domes, ceilings, fountains, and water features to create symmetry, tranquility, and a sense of awe.
3. It is a stunning example of Indian architecture and spirituality that incorporates principles of **sacred geometry**, including inspirations from the **Sri Yantra**, to create a space of divine energy and harmony.



Symbolism of outer petals of Sri Yantra  
Source: <https://kathleenkarlsen.com>

A survey was conducted at the Akshardham Temple in Delhi to assess visitors' experiences with sacred geometry, focusing on both emotional and sensory perceptions within the temple's interior and exterior spaces. The study aimed to evaluate the impact of sacred geometry on visitors' experiences and identify any differences between the temple's inner sanctum and external architecture. In addition to the survey, an experiment was conducted at the Akshardham Temple, Jaipur, to measure electromagnetic field (EMF) radiation inside and outside the temple, exploring

the effects of sacred geometry on EMF and its potential impact on mental health:

- Measurements revealed fluctuating EMF levels outside the building, with a noticeable increase in the entrance and transition zones. The highest readings were recorded in the sanctum, suggesting that the temple's sacred geometry may create a resonant frequency influencing EMF.



EMF meter readings outside the building, inside and at the sanctum respectively Source: [Source](#)

In conclusion, the survey and experiment highlighted the possible connection between sacred geometry, EMF, and visitors' emotional and mental states, suggesting that these architectural elements could help promote relaxation and spiritual clarity.

The table below is derived from a combination of esoteric traditions, metaphysical interpretations, and widely discussed spiritual concepts within sacred geometry. These ideas are commonly referenced in various fields such as energy healing, sound therapy, and New Age philosophy.

SACRED GEOMETRY	SYMBOLIC ENERGY/FREQUENCY	EXPLANATION	PSYCHOLOGICAL RESPONSE	EMOTIONAL RESPONSE
<b>Seed of life</b>	~432 Hz	Reflects the creation process	Sparks creativity and interconnected thinking	Inspires hope, renewal, and a sense of purpose
<b>Flower of life</b>	528 Hz	Associated with DNA repair, universal harmony, and resonance with natural vibrations.	Promotes harmony and understanding	Evokes joy, connection, and universal love
<b>Vesica piscis</b>	~432-528 Hz	Symbolizes the blending of energies, representing the connection of polarities.	Enhances intuition and creative problem-solving	Balances duality, fostering empathy
<b>Golden spiral</b>	Not a directly measurable attribute	Aligns with the Fibonacci sequence and symbolizes growth and flow.	Encourages natural alignment and flow	Instills awe, inspiration, and creative energy
<b>Metatron's cube</b>	~432 Hz	Represents interconnectedness and harmony within three-dimensional matrix.	Strengthens mental clarity and protection	Boosts inner strength, confidence, and calm
<b>Sri Yantra</b>	~963 Hz	Linked to awakening consciousness and connecting with higher	Enhances focus and deep spiritual connection	Elevates a sense of transcendence and inner peace

Different sacred geometry forms, energy levels, along with their psychological and emotional effects on humans. Source:Author

## Conclusion

Sacred geometry bridges ancient wisdom with modern design, offering a tool to create spaces that elevate human experiences. Such spaces go beyond functional utility, fostering healing, emotional balance, and psychological well-being. In a world marked by increasing chaos, these designs provide sanctuaries for renewal and peace.

Recommendations for incorporating sacred geometry in architecture:

1. Design with Proportions and Ratios Derived from Nature
  - Use the Golden Ratio (Phi) to design harmonious layouts, facades, and interiors that naturally appeal to human aesthetics and promote emotional balance.
2. Incorporate Sacred Symbols and Patterns
  - Utilize yantras, mandalas, and other culturally significant sacred geometric symbols in ceilings, flooring, and wall carvings to enhance the spiritual atmosphere of a space.
  - Include Platonic solids and other symmetrical geometric forms in structures and decorative elements to create a sense of order and balance.
3. Use Natural Elements and Light Integration
  - Incorporate geometric forms in the arrangement of natural light and ventilation.
4. Incorporate Water Features
  - Design fountains, water bodies, or soundscapes in geometric forms like spirals, hexagons, or circles to promote serenity and emotional healing.
5. Apply in Diverse Architectural Contexts
  - Spiritual and healing spaces, Hospitals and wellness centers and public parks
6. Educate and Collaborate with Stakeholders
  - Train architects, designers, and builders in the principles and applications of sacred geometry to ensure the concept is well-executed.

By aligning built environments with universal patterns, architects can craft spaces that transcend functionality, fostering peace and mindfulness in an increasingly chaotic world. As this study demonstrates, sacred geometry is not merely an aesthetic tool but a profound medium for enhancing human experiences.

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