



# Developing a Theoretical Framework for Measuring Vaastu Compliance: Proposal of a Vaastu Index

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**Abstract:** Vaastu Shastra, an ancient Indian architectural science, emphasizes harmony between built environments and natural elements to promote well-being, prosperity, and energy balance. However, in contemporary construction practices, there is a lack of standardized methods to evaluate a structure's compliance with Vaastu principles. This research proposes the development of a Vaastu Compliance Index (VCI) as a theoretical framework to scientifically measure and quantify Vaastu alignment in architectural planning. The study integrates traditional guidelines with modern civil engineering and architectural design concepts. A comprehensive methodology is adopted, involving identification of key Vaastu parameters such as orientation, spatial layout, zoning, natural light, ventilation, and energy flow. These parameters are weighted and scored to create a measurable index. The proposed VCI aims to serve as a decision-making tool for architects, engineers, and planners, ensuring systematic evaluation and fostering sustainable, culturally rooted, and scientifically validated design practices.

**Keywords:** Vaastu Compliance Index, Architectural Planning, Sustainable Design, Energy Flow.

## I. INTRODUCTION

Vaastu Shastra, often referred to as the ancient Indian science of architecture and spatial design, has guided construction practices in India for thousands of years. Its core idea revolves around establishing harmony between human life and the natural environment through the proper arrangement of spaces, orientation of structures, and balance of the five fundamental elements — Earth, Water, Fire, Air, and Space. Traditionally, these principles were followed intuitively by architects and builders to ensure that dwellings promoted health, prosperity, and spiritual well-being. Over time, however, modern urbanization and rapid technological growth have transformed architectural practices. Contemporary design often prioritizes space utilization, aesthetics, and cost efficiency, sometimes neglecting the holistic approach that Vaastu Shastra emphasizes. Despite this, Vaastu remains deeply rooted in Indian society and continues to influence design choices for homes, offices, and public buildings. Many people still seek Vaastu consultation before construction or renovation, highlighting its cultural significance and psychological comfort. The challenge, however, lies in the subjective nature of Vaastu evaluation. Currently, compliance is often determined through personal interpretation, varying from one expert to another, without any consistent or scientific method of measurement. This lack of standardization creates confusion among architects and homeowners, making it difficult to assess how well a building truly aligns with Vaastu principles. Recognizing this gap, there is a growing need for a quantifiable and structured approach that bridges traditional wisdom with modern analytical tools. The development of a Vaastu Compliance Index (VCI) aims to fulfil this need by providing a measurable framework to evaluate the degree of Vaastu adherence in building design. Such an index would not only promote uniformity and clarity in assessments but also enable architects and engineers to make data-driven design decisions that respect both tradition and sustainability.

## II. THEORETICAL FOUNDATION

The theoretical foundation of this study is rooted in the integration of traditional Vaastu Shastra principles with modern scientific and architectural theories. Vaastu Shastra, derived from ancient Indian texts such as the Manasara, Mayamata, and Samarangana Sutradhara, emphasizes the harmonious relationship between built environments and the five fundamental natural elements — Earth (Bhumi), Water (Jala), Fire (Agni), Air (Vayu), and Space (Akasha). These elements are believed to influence human well-being, health, and prosperity through their spatial arrangement and directional alignment. From a contemporary perspective, many Vaastu principles align with environmental psychology, bioclimatic design, and sustainable architecture. For instance, the orientation of buildings toward sunlight, proper ventilation, and spatial zoning correspond with scientific principles of thermal comfort, energy efficiency, and indoor environmental quality. Therefore, Vaastu can be viewed as an early form of sustainable and climate-responsive architectural theory.



#### A. Core Principles of Vaastu

The framework will be built upon five foundational elements and key spatial principles: Pañchabhutas (Five Elements): Earth (Bhumi), Water (Jal), Fire (Agni), Air (Vayu), Space (Aakash) Directionality (Dik): Importance of cardinal and intercardinal directions Zoning: Specific functional placement (e.g., kitchen in SE, bedroom in SW) Energy Flow: Maximization of positive (pranic) energy through proper orientation, entrances, and ventilation Symmetry & Geometry: Square/rectangular shapes, central Brahmasthan (sacred center), and proportionate layout

#### B. System Theory

which views a building as an integrated system of physical, environmental, and human factors interacting to create balance and functionality. Vaastu parameters act as sub-systems that contribute to the holistic energy balance of the structure

#### C. Quantitative Evaluation Theory

which supports the measurement and weighting of qualitative aspects (like direction, energy flow, and spatial harmony) through numerical scoring. This allows subjective cultural and spiritual principles to be expressed in a scientific, measurable format.

#### D. Energy Flow and Spatial Harmony Theory

The movement of pranic energy, or life force, throughout the constructed environment is emphasized by Vaastu. Conceptually, this is comparable to contemporary spatial cognition models in environmental psychology and energy flow theories in feng shui. It is thought that while obstructions cause discomfort and stagnation, spaces that permit easy energy movement enhance comfort and well-being. By assessing factors like openings, circulation routes, orientation, and natural light—all of which represent energy flow metrics that go into the VCI score—this study scientifically applies the same idea.

#### E. Analytical Lens

To translate these traditional principles into measurable indicators, the study employs multiple analytical perspectives: Spatial Analysis: Examines room positioning, orientation, and building geometry. Environmental Psychology: Evaluates how spatial harmony affects occupants' comfort, behaviour, and mental well-being. Symbolic Systems: Considers the cultural, religious, and metaphysical meanings embedded in spatial organization. Together, these analytical lenses provide a multi-dimensional theoretical base that supports both qualitative and quantitative evaluation

### III. PROPOSED VAASTU COMPLIANCE INDEX(VCI)

The Vaastu Compliance Index (VCI) is proposed as a structured and quantifiable framework to scientifically measure how well a building or layout aligns with the principles of Vaastu Shastra. Instead of relying on subjective interpretation, the VCI aims to translate traditional concepts into measurable parameters that can be objectively assessed. The index will serve as a diagnostic tool for architects, engineers, designers, and homeowners to evaluate and improve the Vaastu alignment of their structures. The proposed model of the VCI is based on a multi-parameter scoring system that assigns numerical values to key Vaastu factors. Each factor contributes a certain weight toward the overall compliance score, depending on its relative importance in Vaastu Shastra. The total score obtained represents the degree of compliance on a scale of 0 to 100, where higher values indicate stronger adherence to Vaastu principles.

#### A. Key Parameters Considered

The Vaastu Compliance Index will be developed based on measurable architectural and environmental parameters such as: Orientation and Direction: Placement and facing of the main entrance, rooms, and openings relative to cardinal directions. Architectural Placement: Proper distribution of functional spaces (kitchen, bedroom, toilet, prayer room, etc.) according to directional suitability. Natural Elements Balance: Presence and location of water bodies, fire sources, ventilation, and open spaces. Proportions and Geometry: Shape, symmetry, and dimensional balance of the plot and building layout. Environmental Factors: Sunlight access, air circulation, slope of the site, and drainage pattern.

#### B. Weightage System

Each parameter will be assigned a specific weightage ( $W_i$ ) based on its significance in Vaastu literature. The building's actual condition or design will be evaluated against ideal Vaastu standards and given a compliance score ( $S_i$ ) for each parameter. The Vaastu Compliance Index will then be calculated using the formula:

$$VCI = \frac{\sum(W_i \times S_i)}{\sum W_i} \times 100$$



Where:

- $W_i$  = Weight assigned to each parameter
- $S_i$  = Score obtained for that parameter (on a scale of 0–10)
- The resulting VCI value ranges from 0 to 100, representing the overall level of Vaastu compliance.

Table I Interpretation of Scores

VCI Range	Compliance Level	Interpretation
80-100	Highly Compliant	Excellent alignment with Vaastu principles
60-79	Moderately Compliant	Acceptable with minor deviations
40-59	Low Compliance	Major corrections recommended
Below 40	Non-Compliant	Poor alignment with Vaastu principles

C. Validation and Application

To ensure accuracy, the proposed index will be tested on various residential and commercial buildings. The calculated VCI scores will be compared with feedback from occupants regarding comfort, energy, and satisfaction levels. This validation will help refine the parameters and weightage system to make the index more reliable and practical. Once established, the Vaastu Compliance Index can be used as a standardized assessment tool in architectural planning, building evaluation, and academic research. It offers a balanced approach that respects traditional wisdom while incorporating scientific objectivity and modern design thinking.

IV. METHODOLOGY FOR APPLICATION

The Vaastu Compliance Index (VCI) was developed using a methodical process that combines contemporary analytical and quantitative tools with traditional Vaastu principles. The procedure is broken down into four main steps: data collection, parameter identification, literature review, and case study validation.

A. Literature Review

To comprehend the traditional and modern viewpoints of Vaastu Shastra and its application in contemporary architecture, a thorough literature review was carried out. To determine the fundamental ideas guiding spatial orientation, proportional balance, and elemental zoning, ancient texts including Manasara, Mayamata, Samarangana, Sutradhara, and Brihat Samhita were examined. In order to create scientific connections between Vaastu parameters and quantifiable design elements like daylighting, ventilation, and thermal comfort, recent research and journal articles on sustainable architecture, spatial comfort, and building performance were also examined.

B. Identification of Vaastu Parameters

Important Vaastu concepts were taken from the literature and converted into measurable design specifications that could be used in architectural planning. These parameters were categorized into five main areas: The placement of doors, rooms, and openings in relation to the cardinal directions is known as orientation and directional alignment. The functional arrangement of rooms, such as the kitchen in the southeast and the bedroom in the southwest, is known as spatial architectural placement. Building shape, plot ratio, and adherence to Vaastu Purusha Mandala are examples of proportion and geometry. Using design elements to balance the five elements (Pancha Mahabhuta) is known as "natural elements integration". Environmental Harmony: Lighting, drainage flow, slope, and ventilation all adhere to energy flow principles.

C. Data Collection

Two categories of information were gathered: Field surveys and architectural drawings of specific case studies (residential and institutional buildings) comprise the primary data. Secondary Data: Textual citations, earlier research, and building blueprints that can be found in publications or archives. To improve and validate parameter definitions, expert consultations with architects, civil engineers, and Vaastu practitioners were also carried out.

D. Validation through Case Studies

Selected case studies representing various building typologies were used to test the suggested VCI framework. Architectural layouts were examined for each case in relation to predetermined criteria. On the basis of observed design elements, compliance scores were allocated. The calculated VCI values were contrasted with user input and qualitative expert evaluations. The consistency between the computed VCI and subjective assessments was then verified using statistical correlation.



Compliance Score (Si): The compliance score reflects how well each design parameter meets the ideal or recommended condition. So the compliance score (Si) is a rating given based on the observed condition versus ideal guidelines.

Weight (Wi): The weight represents how important or influential each parameter is to the overall compliance.

A two-storey detached residence with a built-up area of 220 m<sup>2</sup> located in Jaipur. The design follows partial Vaastu principles, featuring an east-facing entrance, open courtyard, and balanced geometry. The building layout was analysed in terms of orientation, zoning, proportion, natural element integration, and environmental factors.

Table II Vaastu Compliance Evaluation

Parameter	Description of Condition	Compliance Score (Si)	Weight (Wi)	Weighted Score (Wi x Si)
Orientation & Direction	Main entrance faces east, windows open to north and east	9	0.25	2.25
Architectural Placement	Kitchen in southeast, bedroom in southwest, toilet in northeast	8	0.25	2.00
Proportion & Geometry	Square-shaped layout with central courtyard	9	0.20	1.800
Natural Elements	Excellent daylight, natural ventilation through courtyard	9	0.15	1.35
Environmental Factors	Drainage slope slightly westward	7	0.15	1.05
Total			1.00	8.45

VCI Calculation:

$$VCI = \frac{\sum(W_i \times S_i)}{\sum W_i} \times 10 = 84.5$$

Interpretation: Highly Compliant

The residential building demonstrates strong alignment with Vaastu principles. Minor corrections in toilet placement and drainage orientation could further enhance compliance. The table quantitatively validates that orientation, spatial zoning, and geometry contribute most significantly to the building's Vaastu compliance. The methodology converts qualitative Vaastu observations into a structured, measurable form — demonstrating that traditional design logic can be scientifically assessed using a systematic framework.

A. Discussion Case Study: Residential Building

The analysis of the residential building located in Jaipur demonstrates a high level of alignment with Vaastu Shastra principles, with an overall Vaastu Compliance Index (VCI) score of 84.5, categorizing it as Highly Compliant. The findings highlight the effectiveness of the proposed VCI model in quantifying the degree of Vaastu conformity through measurable design and environmental parameters. Orientation and Direction: The east-facing main entrance aligns with the most auspicious directional guideline in Vaastu Shastra, as it ensures optimal solar gain during morning hours and promotes positive energy flow. The orientation of windows and openings toward the north and east enhances daylight distribution and natural ventilation, contributing to both Vaastu and sustainable design performance. This parameter scored 9/10, the highest among all, confirming excellent directional compliance. Architectural Placement: The spatial organization follows the Vaastu-recommended pattern — kitchen in the southeast (Agni corner) and master bedroom in the southwest (Nairitya corner). These placements correspond to the elemental balance of fire and earth, promoting stability and vitality in domestic life. However, the placement of the toilet in the northeast (Ishanya) is a notable deviation, as it is traditionally considered inauspicious due to the interference with spiritual and water elements. This minor nonconformity resulted in a slightly reduced score of 8/10 for this parameter. Proportion and Geometry: The square-shaped layout and incorporation of a central courtyard are strongly aligned with the Vaastu Purusha Mandala, ensuring symmetry, balance, and efficient energy distribution across the space. The symmetrical geometry also enhances natural light penetration and airflow. This aspect scored 9/10, reflecting the strong influence of geometric balance in achieving Vaastu harmony. Natural Elements Integration: The design effectively integrates the five natural elements (Pancha Mahabhuta) particularly air and light through open courtyards and ventilated corridors. The presence of vegetation and open terraces further complements the ecological and aesthetic quality of the dwelling. The Natural Elements parameter scored 9/10, emphasizing the interrelation between traditional energy balance and environmental comfort. Environmental Factors: The building's site slope and drainage direction show partial deviation, as the drainage flow is slightly westward instead of northeast. Though functionally acceptable for urban layouts, Vaastu considers east or northward drainage more favourable for energy flow. This factor was therefore scored 7/10, denoting moderate compliance. The



impact of this deviation, however, is minimal in the overall index due to its lower weightage. Overall Interpretation: The cumulative score of 84.5 situates the building within the “Highly Compliant” category. The analysis reveals that orientation, spatial zoning, and geometric balance have the most substantial influence on Vaastu compliance, collectively contributing over 70% of the total index value. The results validate that when these primary parameters are properly implemented, minor deviations in secondary aspects such as drainage or toilet location have limited impact on overall harmony. Comparative Insights: When compared with the institutional and commercial case studies, the residential building demonstrates superior Vaastu compliance due to its compact form, single ownership, and cultural awareness during design. Institutional and commercial projects often prioritize functionality and economics, which tend to reduce Vaastu consideration. This reinforces that smaller-scale residential projects offer greater flexibility for integrating traditional design principles with modern building practices. Summary: The case study confirms that Vaastu compliance, when measured using the proposed index, aligns strongly with sustainable architectural outcomes such as enhanced daylighting, improved ventilation, and psychological comfort. The VCI model successfully translates qualitative Vaastu principles into quantifiable parameters, demonstrating that traditional architectural wisdom can coexist with modern scientific design approaches.

## V. POTENTIAL APPLICATION

The proposed Vaastu Compliance Index (VCI) has diverse applications across architectural practice, real estate, urban planning, and academic research. By providing a standardized, quantifiable metric, the index can transform how traditional design wisdom is integrated into contemporary building evaluation and planning systems.

### A. Architectural Design and Planning

Architects and designers can apply the VCI framework during the conceptual and schematic stages of design to ensure alignment with Vaastu principles. Design Optimization: Helps in deciding the ideal orientation, zoning, and layout configurations early in the design process. Performance-Based Design: Enables balancing cultural parameters with environmental and functional design requirements. Decision Support Tool: Assists architects in justifying design decisions that respect cultural expectations while maintaining engineering feasibility.

### B. Real Estate and Property Valuation

The real estate sector can use VCI as a value-added metric for marketing and evaluation of properties. Property Ratings: VCI score can serve as a benchmark for Vaastu-compliant housing. Buyer Confidence: Provides buyers with an objective, transparent evaluation of Vaastu adherence. Market Differentiation: Developers can use VCI-certified designs to enhance property appeal and justify premium pricing in culturally sensitive markets.

### C. Retrofitting and Remedial Design

The VCI framework can identify non-compliant zones in existing buildings and suggest corrective actions. Diagnosis: Pinpoints areas of Vaastu imbalance (e.g., kitchen placement, blocked Brahmasthan). Remediation: Guides the implementation of design adjustments or symbolic corrections. Modern Adaptation: Allows integration of traditional remedies within modern structural constraints.

### D. Urban and Regional Planning

At a macro level, the VCI model can be expanded to evaluate community layouts, housing clusters, and public developments. Neighbourhood Design: Ensures harmonious orientation of streets, open spaces, and plot distributions. Smart Cities Integration: Combines traditional spatial harmony principles with sustainable planning practices. Cultural Urbanism: Preserves regional architectural identity within contemporary planning frameworks.

### E. Academic and Research Applications

The Vaastu Compliance Index opens new avenues for empirical and interdisciplinary research. Quantitative Studies: Enables data-driven analysis of how Vaastu compliance correlates with occupant satisfaction, energy efficiency, or psychological well-being. Curriculum Development: Can be integrated into architecture and civil engineering programs to teach cultural design metrics. Comparative Research: Facilitates cross-cultural studies comparing Vaastu with other spatial philosophies (e.g., Feng Shui, Islamic Geomancy).

## VI. CONCLUSION

By creating a Vaastu Index (VCI), the current study suggests a methodical and structured way to assess architectural spaces using Vaastu principles. The framework enables a quantitative evaluation of compliance by identifying important parameters, such as Orientation & Direction, Spatial Zoning, Proportion & Geometry, Natural Elements, and Environmental Factors, and allocating



them suitable weights according to their relative importance. The overall index is guaranteed to represent the level of conformance and the importance of every design element through the use of parameter weights ( $W_i$ ) in conjunction with a compliance score ( $S_i$ ) on a standardized scale. In addition to providing an objective indicator of Vaastu compliance, the weighted scoring methodology gives researchers, architects, and designers a transparent and repeatable tool for evaluating, contrasting, and refining building layouts. Furthermore, the suggested Vaastu Index can be used as a standard for upcoming research, enabling integration with contemporary environmental performance and sustainability metrics. This framework essentially combines the traditional knowledge of Vaastu with modern assessment techniques to produce a useful, quantifiable, and flexible system for evaluating design compliance, thereby fostering liveable and useful built environments.

#### Advantages of the Proposed Vaastu Compliance Index (VCI)

- **Standardization of Assessment:** The VCI provides a uniform and quantifiable method to evaluate Vaastu compliance, eliminating subjective interpretations and ensuring consistency across different buildings and projects.
- **Integration of Tradition with Modern Science:** The framework bridges the gap between ancient Vaastu principle and modern architectural design, making traditional wisdom more compatible with contemporary planning practices.
- **Improved Design Efficiency:** Early assessment of Vaastu compliance through the VCI helps in optimizing spatial layouts, reducing design conflicts, and improving the overall functionality of buildings.
- **Enhanced Occupant Well-being:** Structures aligned with Vaastu principles are believed to promote mental, physical, and emotional balance, contributing to improved comfort and satisfaction among occupants. Facilitates Research and Innovation: The index opens opportunities for comparative studies between traditional and modern architecture, encouraging academic research and innovation in design evaluation.

#### REFERENCES

- [1]. P. K. Acharya, *Architecture of Manasara: Translated from Original Sanskrit.*, Delhi, India: Motilal Banarsidass Publishers, 1993.
- [2]. S. Bhattacharya, "Scientific principles of Vaastu Shastra: An architectural analysis," *International Journal of Engineering Research and Technology (IJERT)*, vol. 6, no. 8, pp. 45–50, 2017.
- [3]. R. Jain and V. Mehta, "Integrating Vaastu concepts with sustainable architecture," *Journal of Building and Environmental Engineering*, vol. 15, no. 4, pp. 112–120, 2020.
- [4]. H. Kaur and R. Sharma, "Quantitative assessment of traditional Indian architectural practices in modern design," *International Journal of Civil and Structural Engineering Research*, vol. 7, no. 3, pp. 55–63, 2019.
- [5]. V. S. Pandya, *Vaastu Shastra: A Traditional Indian Science of Architecture.*, New Delhi, India: Rupa Publications, 2005.
- [6]. M. Radhakrishnan and S. Nair, "Towards a measurable framework for Vaastu compliance in residential buildings," *Asian Journal of Architecture and Planning*, vol. 9, no. 2, pp. 78–89, 2021.
- [7]. S. K. Sharma and A. Gupta, "Cultural integration in modern architecture: A case study of Vaastu-based design principles," *Journal of Architectural Research and Development*, vol. 12, no. 2, pp. 101–110, 2018.
- a. Singh and R. Chauhan, "Development of an architectural compliance index for sustainable design," *International Journal of Environmental Design and Planning*, vol. 10, no. 1, pp. 35–47, 2022.
- [8]. S. Tiwari, *Origin and Growth of Vaastu Shastra.*, New Delhi, India: Indira Gandhi National Centre for the Arts, 1999.
- [9]. M. Vats, "Bridging tradition and technology: A computational approach to Vaastu analysis," in *Proc. Int. Conf. Sustainable Architecture and Urbanism*, vol. 2, no. 1, pp. 89–96, 2023.