

# Study of Proportion System of Shiv Temple, Baijnath using Square Circle Sequence (SCS)

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**Abstract**—A Hindu temple is a visualization. Evidently, even the most ideal body seems dead without the perfect soul. To the Hindu, the temple is the abode of God who is the soul inherent in the universe. The temple is a structure based on the rhythm of proportionate correlated measurements. Analysis of temple geometry can be comprehensively classified into three separate areas namely ground floor plan, elevation, and the roof plan. The separate study of each of the three elements has been done of Shiv Temple at Baijnath, Kangra to understand the temple architecture using square circle sequence proportion system. The proportioning system studied infers a connection between the three elements.

## 1. INTRODUCTION

A Hindu temple is a visualization. It is visualized in terms of the human organism which is the most evolved living structure. Evidently, even the most ideal body seems dead without the perfect soul. To the Hindu, the temple is the abode of God who is the soul inherent in the universe. The temple is a structure based on the rhythm of proportionate correlated measurements. Evidently, even the most ideal body seems dead without the perfect soul. To the Hindu, the temple is the abode of God who is the soul inherent in the universe. The temple is a structure based on the rhythm of proportionate correlated measurements. Hindu temples are mostly considered to be polytheism in nature i.e. belief in multiple deities [1].

## 2. PROPORTIONS OF ANCIENT HINDU TEMPLES

The Hindu temple architecture has been broadly examined and archived, but the investigation of the geometry of sanctuaries, overall arrangement, planning and the general frame is still in its underlying stages. Whatever review had been led in the architectural planning and the geometrical principles of the Indian temples have lacked a focused and lucid approach to study architectural form, while addressing a temple's plan and its elevation along with its roof form. Analysis of temple geometry can be comprehensively classified into three separate areas of the ground floor plan, elevation, and the roof plan. Ananya Gandotra [2] has introduced a comprehensive and coherent design and geometrical analysis method termed 'Square Circle Sequence'. The Square Circle Sequence for

temple design and planning and has given the general properties of the SCS. A lot of thought has been given to the squaring of the circle and its symbolic connotations. The author has established a relationship between the expanding squares of SCS, the location of Garbhagriha with respect to the SCS. She has also developed a relationship between the plan of a temple and elevation, as well as the roof plan of the temple. Her study also addresses the need to study the temple architecture proportions in totality rather than isolating it into parts.

## 3. PROPORTION SYSTEM: THE SQUARE CIRCLE SEQUENCE (SCS)

The study proposes a design and geometrical analysis method, termed Square Circle Sequence (SCS), it is not the only method of design and analysis but it helps to resolve quite a few unresolved questions. The SCS method can generate the main areas as well as the smaller details. The method is a simple sequence of squares and circles. The squares are rotated at  $22.5^\circ$  to form a sixteen-point star (these 16 points can be equated to the 16 petals of the Sriyantra). Three sets of points are created, the first set consists of the corner of the squares (example, a and a'), the second is the sixteen point of the each rotated square (example, b', b'', b''') and the third set consists of the intersection points 'marma' (example, c', c'', c'''). the intersection points marmas when projected provide the key location of the temple plan. Smaller details can also be derived with exact precision from this method. The SCS starts with a square which coincides with the size of the deity and in the case where the enshrined figure is a linga and its yoni pitha the sequence starts with a circle. With the help of numerous examples, it can be proved, that if we start the sequence with the dimension of the deity, then all the key elements coincide with the SCS sequence. The location of garbhagriha is also located with this method. Besides locating the subsidiary shrines, the location of the peripheral wall and their entrances can also be done by this method.

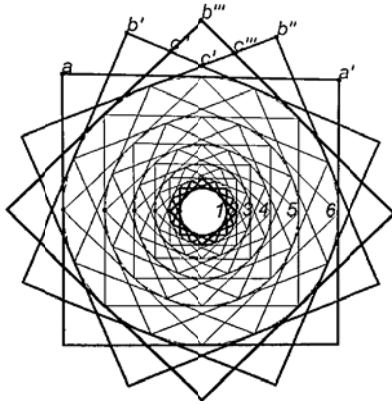


Figure 1 The Square Circle Sequence (SCS)

#### 4. ANALYSIS OF SHIV TEMPLE, BAIJNATH, KANGRA

Bajjnath is famous for its 13th-century temple dedicated to Shiva as Vaidyanath, 'the Lord of physicians'. It is a Shikhar style temple which is a tower like conical formation built of stone and decorated with carvings. The top of shikhar has amalaka, the circular sun-disc. It has got all the essential elements of a Hindu temple. It has got mandap (porch), garbh-griha (sanctum sanctorum) and shikhar (tower).



Figure 2 View of Baijnath temple

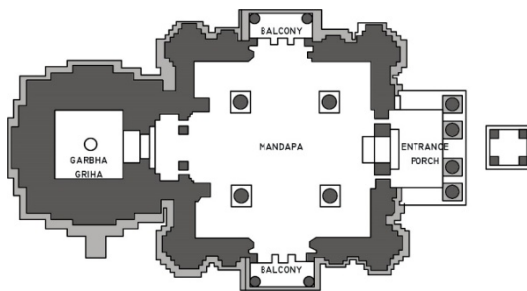


Figure 3 Floor plan, Baijnath Temple

##### 4.1 SCS application on the Garbha Griha

The sequence originates from the center of the garbha griha (lingam being the point of focus). The sequence of circles helps in locating the minor as well as major details.

The points projected forms the overall outline of the temple floor plan.

The sequence of circle originates from the lingum of the Garbhagriha. The analysis includes a sequence of ten circles C1, C2... C10 and their respective squares. The intersection the sequence provides the minute detail as well as the outline of the design.

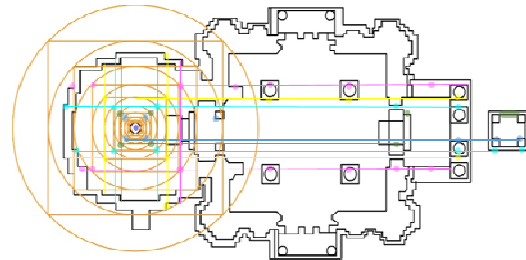


Figure 4 SCS application on the Garbha Griha of the Baijnath temple

Here, the first circle of the sequence C1 derives the position of the holy Lingum. As it can be seen In Figure 14, the third circle C3 and C4 provides the position of the various columns (at mandapa as well as at the entrance porch). C5, C6, C7 and C8 helps in developing the basic outline of the design of the temple as well as marks the distance between the pillars. C9 helps in determining the outer boundary of the Garbha Griha and C10 develops a relationship between the garbha Griha and the Mandapa and provides the location of the inner wall of the Mandapa.

##### 4.2 SCS application on the Mandapa

The sequence originates from the center of the mandapa and marks the placement of central columns. The projections from the sequence of circles help in locating the details as well as marks the area of Garbha Griha as well as the entrance porch. The size of side balconies may also be referred to the sequence of square and circle.

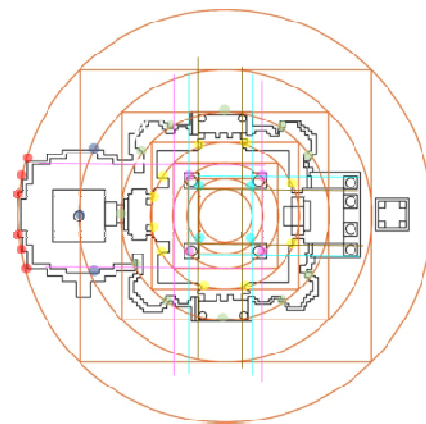
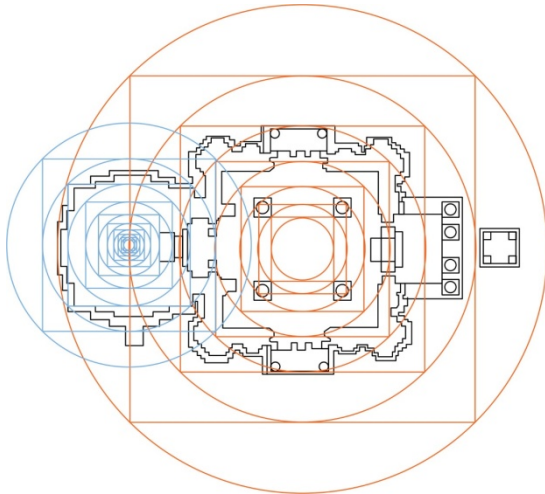


Figure 5 Application of SCS on Mandapa

**4.3 SCS relationship between Garbha Griha and Mandapa**

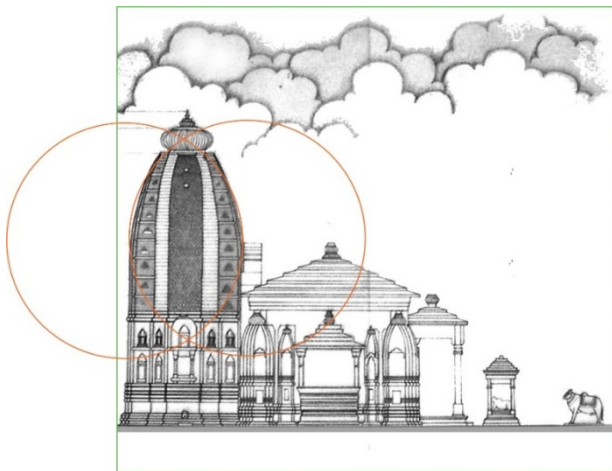
The tenth circle of SCS of garbha griha and fifth circle of mandapa intersects to form the line of union, marking the division between the mandapa and the Garbha Griha. Also, the sixth and seventh circle of SCS marks the placement of the lingam as well as the outer edge of the Garbha Griha. (Figure 16)



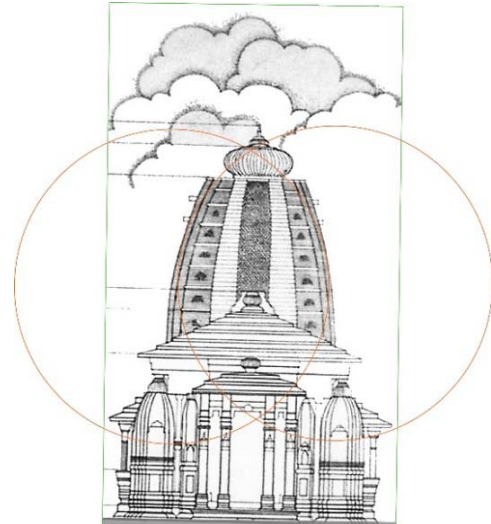
**Figure 6 SCS relationship between Garbha Griha and Mandapa**

**4.4 SCS application on the Elevation**

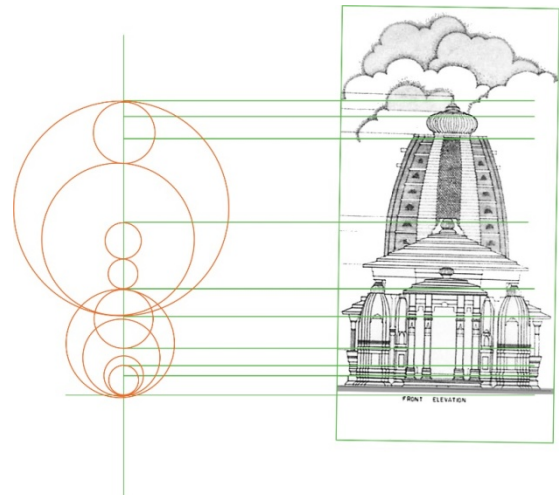
The seventh circle of the sequence defines the curvature of the shikhara. The detail in elevation is a combination of the circles of the SCS (Figure 7)



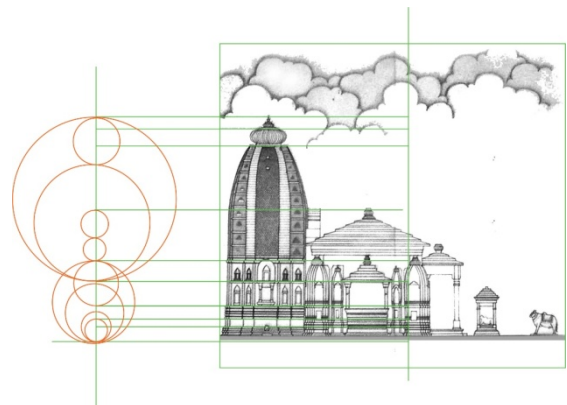
**a) The seventh circle of the sequence defines the curvature of the shikhara**



**b) The seventh circle of the sequence defines the curvature of the shikhara**



**c) SCS relationship in front elevation**



**d) SCS relationship in side elevation**

**Figure 6 Elevation proportions obtained by SCS**

## 5. CONCLUSION

The Square Circle Sequence (SCS) proportion system revealed that there exist a thoughtful design in Baijnath Temple, Kangra even in the older days. It strongly highlights that the temple architecture of earlier days was meaningful and based on strong sense of geometry. Further, this study is useful in thoughtful designing of temple in modern days.

## 6. ACKNOWLEDGEMENTS

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- [1] Kramrisch, Stella. The hindu temple. Vol. 1. Motilal Banarsidass Publ., 1946.
- [2] A. Gandotra, "Indian Temple Architecture - Analysis of Plans, Elevations and Roof Forms", Shubhi Publications, Gurugram, 2011.