

Topic of dissertation

ANALYZING THE TECHNIQUES TREATMENTS OF CULTURAL HERITAGE ASSETS (TEMPLE)

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CERTIFICATE

It is certified that the work contained in this thesis entitled “Title of the Thesis **ANALYZING THE TECHNIQUES TREATMENTS OF CULTURAL HERITAGE ASSETS (TEMPLE)**”, by **Ankul Gupta (Roll No 1190109003)**, for the award of **Master of Architecture from Babu Banarasi Das University** has been carried out under my/our supervision and that this work has not been submitted elsewhere for a degree.

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A b s t r a c t

Each way of building development mirrors an obviously unmistakable fundamental rule that addresses a specific culture and time. In this setting the Indian Hindu sanctuary design are not just the residence of God and spot of love, however they are likewise the support of information, workmanship, engineering and culture.

The practices and customs of sanctuaries exist in history as well as in present time which enormously impact the socio-social existence of its kin and gives progression to conventional Indian qualities. The development of Indian sanctuary engineering is set apart by a severe adherence to the first old models that were gotten from strict thought and that went on over numerous hundreds of years.

The Hindu religion and its way of thinking extraordinarily impacted Hindu sanctuary design in its transformative cycle which go on till this date. Thusly this paper through authentic examination and other narrative, abstract works and hypothetical examination on old composition and present day research figures out on the sanctuary engineering of India brings the ideas that have been taken on since old times for the development of the sacrosanct Hindu sanctuaries, the science engaged with the development of the sanctuary structure and the cycles required alongside the ability it took to construct such buildings.

Together these viewpoints draw out the craftsmanship, science and reasoning behind the development of the Hindu sanctuary which is as significant today as it used to be in the old times. A progression of custom and a science which has its root in the beginning of human consciousness.

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RESEARCH BACKGROUND

An investigation of history of engineering shows that the significance of design and its connection to human encounters have been communicated in number of courses before. The scholarly and imaginative improvement of man showed itself in the shifted idea of design in various ages and across various civilizations. In this manner, everywhere, different civic establishments and societies have contributed extraordinarily to the specialty of building development and which have been uncovered in significant structure (Rowland,1953).

Each way of building development mirrors an obviously unmistakable essential rule that addresses a specific culture and time. For instance, the severe and predictable structure plan in Greek engineering shows a complex fitness, while the Roman structure plan which are great even by present day guidelines, depended on their trend setting innovation (Brown, 1942). Likewise, a particularly energetic French Gothic connotes an enthusiastic culture and the Italian Renaissance mirrors the imaginative grant of now is the right time. Similarly, the average nature of early Indian design lies in the statement of otherworldly items through its sanctuary engineering.

In India the sanctuaries are seen as wherever fluctuating from little towns to the metropolitan urban communities. The word 'sanctuary' is gotten from the Latin word *templum* implies a sacrosanct region. As indicated by the definition sanctuary is a design held for strict or otherworldly exercises, like supplication and penance, or comparable to ceremonies. Generally, the sanctuary is a sacrosanct design and furthermore a characteristic of home of god or divine beings. Anyway the Indian sanctuaries are not just the habitation of God and spot of love, yet they are additionally the support of information, workmanship, design and culture. The practices and customs of sanctuaries exist in history as well as in present time which enormously impact the sociocultural existence of its kin and gives congruity to customary Indian qualities. Nonetheless, dissimilar to the western engineering, the development of Indian sanctuary design is set apart by a severe adherence to the first old models that were gotten from strict thought and that went on over numerous hundreds of years with the utilization of the fundamental extent and inflexible types of the early sanctuaries.

One of the main features of Indian design has been the development of the Hindu sanctuary engineering. The Hindu sanctuary design is discernable from the Jain and Buddhist sanctuary engineering. Jain sanctuaries are only sometimes straightforward, the most intricate of them an outcome from duplication of the essential structures. The fundamental distinction between the Jain and Hindu sanctuary is the lighter and more exquisite person of the previous. Buddhist sanctuaries contrasted from those of the Hindus and Jains in two chief regards: they were intended for congregational as well as reflection use by the priests and in their plan enriching subtlety was utilized to underscore as opposed to disguise the design. By correlation with Buddhist and Jain designs, Brahmanical and Hindu structures adjusted to an unbendingly endorsed plan structure prompting a solitary point of convergence in the sanctuary bunch (Fletcher,1992

Aim:

This dissertation focuses on the study of the Hindu temple. There has been a lot of research into Hindu temple architecture, still many aspects of this subject is still unexplored. This study attempts to collate all the existing research that has been undertaken in this field, and potentially contribute to the existing body of knowledge through a structural analysis of Hindu Temple architecture.

This dissertation presents the philosophical and practical aspects that govern the construction of a Hindu temple building with the aim to understand how it influenced the form of the Hindu temple in its evolutionary process. The various stages of temple construction and construction techniques that have been employed in temple construction since ancient times has been studied not only through archival research but also through a comparative study of these important aspects and their relevance in modern day Hindu temple construction.

- Aim is to understand about the construction and material techniques and the conventional methods used in the structural method
- I am opting this project as a design for breaking the pattern of Stereotype temple designing.
- Aim is to learn more about the history of the temples and modify it visually without breaking the rules of vaastu.

Objectives

1. Understand the fundamental idea of Hinduism and its significance on the plan and development of Hindu sanctuary design.
2. Present an investigation of the idea of a Hindu sanctuary, its development, improvement of its engineering styles along their materials of development with the principal center around Nagara or 'north indian style' and Dravidian or the 'south indian style'.
3. Identify and incorporate the calculation and underlying frameworks of Hindu sanctuary engineering with models from the Nagara or 'north indian style' and Dravidian or the 'south indian style' Hindu sanctuaries.
4. Studying the material trademark, development strategies and cycle engaged with the development of a Hindu sanctuary.

Methodology

This exposition depends on chronicled research and other narrative, artistic works and hypothetical examination on old composition and current exploration chips away at the sanctuary design of India.

The recorded exploration has assisted with drawing out the essential idea of Hinduism and what it meant for the plan of Hindu sanctuary engineering. The Vastushastra and Shipshastra alongside other general manuals on Hindu design have been alluded to feature the ideas that have been embraced since old times for the development of the consecrated Hindu sanctuaries.

An investigation of the arrangement of the Hindu sanctuary and different components of the sanctuary alongside the structure and sizes in which they advanced over hundreds of years of sanctuary improvement structure the reason for understanding the primary reason for taking on specific conventional development procedures for the development of these sanctuaries.

This paper likewise presents the development innovation of the Hindu sanctuary the cycles required during its development, the human abilities required and techniques used by planners and their group. Together these viewpoints draw out the workmanship, science and reasoning behind the development of the Hindu sanctuary.

The layered review concerning the basic files broke down in the exposition is an endeavor to investigate the security assesment of the Hindu sanctuary structure. Studies have been led from the drawings and data accessible in the books, diaries and sites.

Limitations

The extent of this exposition is fundamentally the Nagara 'north Indian style' and the Dravidian 'south Indian style' sanctuary design, the two significant types of sanctuary engineering styles that noticeable the high place of Hindu sanctuary design in India. It investigates parts of their starting point and improvement, the way of thinking which made them and the manner by which this way of thinking can be deciphered for better comprehension of the actual design and the time and society that made them.

This concentrate likewise doesn't consider the subtleties of various sorts, structures and building highlights created among the 'Nagara' and the 'Dravidian' style. The review is essentially restricted to sanctuary development in stone and not those worked with different materials like wood and block.

HINDUISM AND ITS RELEVANCE TO ARCHITECTURE

The principal motivation behind the early structure workmanship in the Indian sub-mainland was the portrayal of the current strict impression of individuals in an unmistakable structure. Subsequently early Indian engineering as different sacrosanct landmarks is basically a portrayal of its strict convictions. The earliest critical realized structures connect with Buddhism and Jainism. Those connected with Hinduism were to trail not too far behind the start of the Christian time when the Vedic Gods were supplanted by the Trimurthy of present day Hinduism. The Hindu sanctuaries that came to be known for their elaborate worth are likewise imagery of Hindu way of thinking.

Hinduism is the most seasoned and among perhaps of the biggest strict custom rehearsed till date. It has thrived for more than 2,000 years in many pieces of Asia covering Indian sub-landmass, the fringe sub-Himalayan valleys and significant pieces of south-east Asia. It spread as strict, social and political power during this period. Despite the fact that the remainder of Hindu culture are seen all through the south-east Asia, India, Nepal and Bali are generally transcendently Hindu.

"Hinduism is definitely not a sole religion, it is the assortment of outfits of different religions which are local and overwhelming in India, trusts in no one logical idea or any single God, consequently might be comprehensively portrayed as a lifestyle."

This part talks about the fundamental idea of Hinduism and its importance to the plan of Hindu sanctuary design.

Origin of Hinduism

Hinduism is the religion and social foundations of the extraordinary larger part of individuals of India. Hinduism has not a single fixed scriptural standard yet its regulations are in sight in specific old works, prominently the Vedas, the Brahmanas, the Upanishads, and the Bhagavad gita (Baker, 1969).

The most established Vedic text 'Apparatus Veda' communicates the place that is known for the Indo-Aryans as Sapta Sindhu (the place that is known for the seven streams in northwestern South Asia, one of them being the Indus) (Wikipedia 2008). The word Hindu is the name of stream Indus in Persian and this term was generally involved by the Persians and Greeks for individuals who live around the waterway Indus and with next to no strict implication. Afterward, the term was broadly utilized by Mughal realms and towards the finish of eighteenth 100 years by the British for alluding to strict, profound, and philosophical customs of the Indian sub-landmass in this way making clear differentiations between the strict factions of Hinduism, Sikhism, Buddhism, and Jainism.

The darker looking Dravidians are said to have laid out a progress in the Indus valley somewhere in the range of 3250 and 2750 BC. They were polytheists who venerated various nature divine beings; a few components of their convictions continued in Hinduism. They were quelled by a fair looking Aryan individuals who attacked the Indus valley around 1500 BC. The language of these Aryan individuals was Vedic, parent of Sanskrit in which their strict writing (the Vedas) came to be composed after numerous long stretches of oral transmission (Baker, 1969).

The Veda or Sacred Lore as mantras or psalms of which there are four incredible assortments, the most popular being the RigVeda. These Vedic Aryans revered nature-divinities, Indra(rain), Agni (fire)

what's more, Surya (the sun). Their religion contained no worshipful admiration except for later retained the convictions of the vanquished Dravidians. Penance and custom became overwhelming in a stately religion.

As a response a more scholarly structure emerged (in 500 BC) with its sacred writings in the Upanishads. At its most elevated level, known as Brahmanism, conviction is in an unpretentious and complex type of monotheism (Brahma is an unoriginal, comprehensive soul), yet there is a lenient acknowledgment of the convictions of Dravidians. Consequently Vishnu (a moderate rule) and Siva (a horrendous standard) outgrew Vedic originations. The two incredible regulations of Hinduism are karma and immigration. The widespread craving to be brought together with indisputably the (the atman or Brahma) can be fulfilled by following the way of information. Life is a pattern of lives (samsara) in what man's still up in the air by his deeds (karma) from which he might look for discharge (moksa) through parsimonious practices or the discipline of Yoga. Inability to accomplish discharge implies resurrection relocation to a sequential type of eternal life until a definitive objective of retention in the outright is reached (Baker, 1969).

In the incomparable Sanskrit epic sonnets Ramayana and Mahabharata the god takes three structures, addressed by the heavenly characters of Brahma, Vishnu, and Siva. There are likewise different divine beings, demi-divine beings, heavenly creatures, and individuals from the trinity might try and manifest, as Vishnu became related to Krishna, one of the driving charaters of Mahabharata and the Bhagavadgita.

Treatises

There are a few old sacred texts and books in Hinduism. These sacred texts were for the most part written in Sanskrit language and classified as Shruti ("that which is heard") and Smriti ("that which is recollected"). This comprises of the Vedas, the Dharmas Shastras, the Purans, the Upanishads, the Shilp shastras, and so on. These sacred texts guide Hindus in their regular routine, help safeguarding the strict elements of family and society, gives information on medication, crystal gazing, humanism, reasoning of religion, procedures and underlying principles on design. The specialized compositions in Sanskrit on the essential standards in the field of engineering and figure are called as the Shilpa Shastras and Vastu Shastras. The Mayamata and Mansara are the two wellknown compositions of South India on design and iconography separately. The guidelines from these compositions were completely kept for the development of sanctuaries which are as yet present all

through the country in various structures and styles going back from the fifth Century A.D. 'The run of the mill plan of a Hindu sanctuary is a delineation of consecrated calculation where the sanctuary is portrayal of the mandala. Here the hallowed calculation implies the study of the exact spreading out the ground floor of the sanctuary corresponding to the cosmic developments and positions and the cardinal headings. The mandala is the hallowed structure comprising of the convergence of the circle and the square.'(Exoticindiaart 2007)

The Temple: Divinity and Man

The philosophy behind the planning of Hindu sanctuaries is to interface man with the divine beings. Hindu sanctuary is where one can feel being near god. It is a portrayal of the cosmos (the universe) as well as the microcosm (the internal space) and has created more than 2,000 years.

As per the Hindu strict way of thinking, a man life is a summation of endless individual life expectancies bound up in the pattern of resurrection. One can from accomplish illumination intensive unadulterated deeds, contemplations and commitment. Hence, in this world the sanctuary is the image of illumination: it is where god's presence can be felt and through customs and services men can find the heavenly information.

The consecrated and mainstream lives of a Hindu are brought together and generally, the everyday schedules require various contacts with the heavenly, whether it happens in smaller than normal sanctuary at home or a neighborhood sanctuary. There is seldom any proof of strict mistreatment among the factions of Hinduism, as Hindu accepts that religions are parts of the heavenly in various structures for example Shiva, Vishnu and Goddess. This obviously brings about a striking level of resilience and endeavors of harmonization among the factions.

Temple and Society

A huge assortment of Hindu sanctuaries was built all through India with unique excellence in scale, strategies of building and especially the gods that were revered, which were the consequence of the distinctions in political, social and flourishing between the towns and towns. The personality of Hindu sanctuaries reflected neighborhood design styles and the material and abilities to which they related. It isn't not difficult to separate these sanctuaries in any case because of restricted data has made due about the Hindu sanctuary and their manufacturers which are generally recorded on the stone sections and metal plates and on compositions composed on the plant leaves. The data which endure makes sense of that the

sanctuary building, particularly in stone and block was completed because of regal support. Working of sanctuary in stone was a costly issue and communicates the actual power and financial assets of the ruler. Other than illustrious benefactors, relationship of rich vendors and gathering of people assumed a significant part in the development of sanctuaries. In any case, aside from the regal benefactors and the traders, each individual gave something to the sanctuary, for example, they could give a field or water tank, or asset a never-ending light, or give two sheep to supply milk to make ghee to keep light consuming.

In Hindu culture sanctuary isn't just a position of love yet they go about as a middle for scholarly and creative life (Michell,1988). The sanctuary complex housed schools, emergency clinics and courts for the local area. The extensive corridors of the sanctuary were the spot for the recitation and tuning in of cultural stories, Vedas, Ramayana, Mahabharata and discussions. Music and dance were the piece of everyday ceremonies in the sanctuary. The presence of these exercises at last gave individuals more information about the customs and caused them to see the value in the more established rehearses. The sanctuary additionally possessed cultivable land which was rented out and incomes were procured. By this strategy the sanctuary was supporting the upkeep of the sanctuary and ready to likewise uphold the needful during destitution and crisis. Sanctuary gave method for business to an enormous number of people and extraordinarily impacted the monetary existence of the local area

THE HINDU TEMPLE

It was the later 50% of the seventh century that the Hindu sanctuary designs of India started to procure a clear structure (Fletcher,1952). Like phrasing used to recognize the essential parts of a Gothic Church (for instance nave, walkways, chancel, tower, and so on), the normal components of a Hindu sanctuary which are realized in their unique sanskrit words are as per the following:

The safe-haven as entire is known as the Vimana that comprises of two sections. The upper piece of the Vimana is called as the Sikhara and the lower segment inside the Vimana is called as the Garbhagriha (cella or inward chamber).

1. 'Sikhara' importance the pinnacle or the tower. It is the pyramidal or tightening piece of the sanctuary which addresses the legendary 'Meru' or the most noteworthy mountain top. The shape and the size of the pinnacle change from one locale to another.

2. 'Garbhagriha' importance the belly chamber. It is core and the deepest office of the sanctuary where the picture or icon of the god is put. The chamber is for the most part square in plan and is placed by an entryway on its eastern side. The guests are not permitted inside the garbhagriha in the majority of the sanctuaries, just the ministers play out the ceremonies and love.

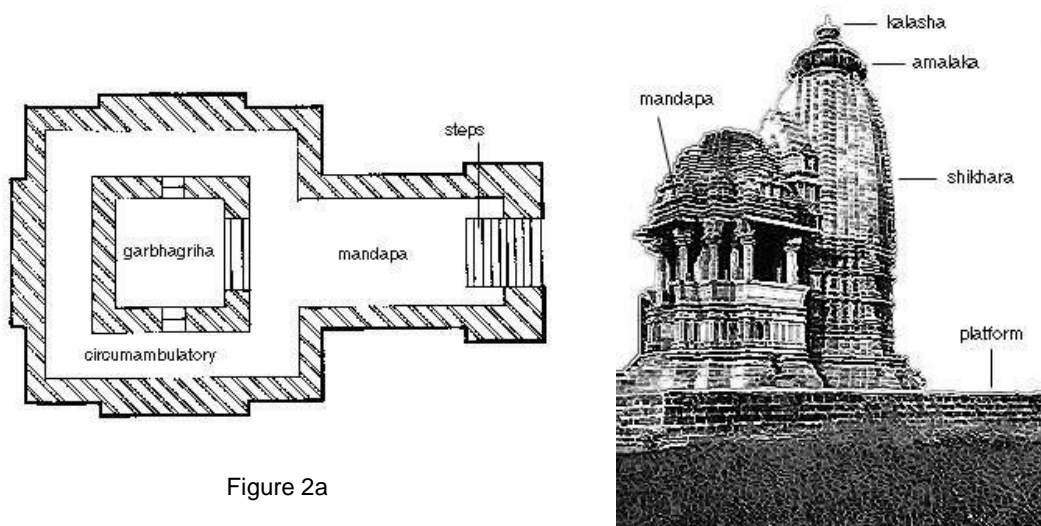


Figure 2a

1. 'Pradakshina patha' meaning the walking way for circumambulation. It comprises of encased passage hefted around the beyond garbhagriha. The lovers stroll around the god in clockwise course as a love custom and image of regard to the sanctuary god or goddess.

2. 'Mandapa', is the pillared lobby before the garbhagriha, for the gathering of the enthusiasts. It is utilized by the lovers to sit, implore, serenade, contemplate and watch the clerics playing out the ceremonies. It is otherwise called 'Natamandira' meaning sanctuary lobby of moving, where in times past custom of music and dance was performed. In a portion of the previous sanctuaries the mandapa was a disengaged and separate design from the safe-haven.

3. 'Antarala' significance the vestibule or the middle chamber. It joins the principal asylum and the pillared corridor of the sanctuary.

1. 'Ardhamandapa' importance the entryway patio or the fundamental entry of the sanctuary prompting the mandapa.

2. 'Gopurams' importance the amazing and resplendent pinnacle at the entry of the sanctuary complex, exceptionally tracked down in south India.
3. 'Pitha' , the plinth or the foundation of the sanctuary.
4. 'Toranas', the normal passage of the sanctuary for the most part tracked down in north Indian sanctuary and
5. The Amalaka the fluted plate like stone put at the zenith of the sikhara

KEY FEATURES



Devi Mata
a goddess in the Hindu pantheon; At Chintpurni Mandir, Devi Mata is represented by a round stone known as a *Pindi*.



chunis
long scarves that some South Asian women wear around their head and shoulders

banyan
sacred Indian fig tree that is used for ritual purposes



talaab or stepped pond
a manmade shallow basin or pond with steps leading down to it; collects rainwater and it is often used for bathing



SHIKHARA OR THE SUPERSTRUCTURE

the highest point of the temple, symbolic of a mountain peak. As the summit it is directly above the sanctum along an axis.



GARBHAGRIHA OR 'WOMB-CHAMBER'

this sanctuary is strongly reminiscent of a cave; it is usually small, dark, and elevated; the walls are unadorned and massive



WALKWAY

around the walls of the inner chamber for circumambulation. Devotees move around the deity as a mark of respect to the temple's god or goddess.



MANDAPA OR TEMPLE HALL

a multifunctional large open space which may be used for sitting, meditating, praying, chanting or for watching the pundits perform the rituals. This space could also be used for performances during festivals.



FRONT PORCH

a threshold space which leads one into the temple. It usually has a bell that hangs from the ceiling. Devotees entering and leaving the porch ring the bell to declare their arrival and departure



RESERVOIR

is a part of the site of the temple. If the temple is not in the vicinity of a natural water body, a reservoir of fresh water is built on the temple premises. The water is used for ritual and cleansing.

Material of Construction

The Indian sanctuaries were worked with a wide range of materials relying on the accessibility from one district to another. The scope of material shifted from lumber to mud, mortar, block and stone during all periods and all through India. The materials assume a significant part in the general appearance, development procedures and stupendous person of these sanctuaries.

As the previous designs were formed from less sturdy materials, for example, lumber, block and mortar the early instances of Hindu engineering and craftsmanship have generally vanished or are recognizable simply by the most fragmentary remaining parts. .Anyway a portion of the help carvings and compositions show that the prior Hindu sanctuaries were developed in wood and bamboo. A considerable lot of the later stone sanctuaries were displayed on wood and bamboo design is evident from the carvings, rooftop structures and window shapes

Evolution of Architectural Styles

The particular engineering styles of Hindu sanctuaries have so evolved because of expansive topographical, climatic, social, racial, verifiable and etymological contrasts between the northern fields and the southern promontory of India. Extensively founded on topography, Hindu sanctuaries have been characterized into three unique orders; the Nagara or 'northern' style, the Dravidian or 'southern 'style, and the Vesara or cross breed style which is found in the Deccan between the other two.

There are additionally other unmistakable styles in fringe regions like Bengal, Kerala and the Himalayan valleys. This paper centers around The Nagara or 'the northern style' and the Dravidian or the southern style of Hindu sanctuary engineering.

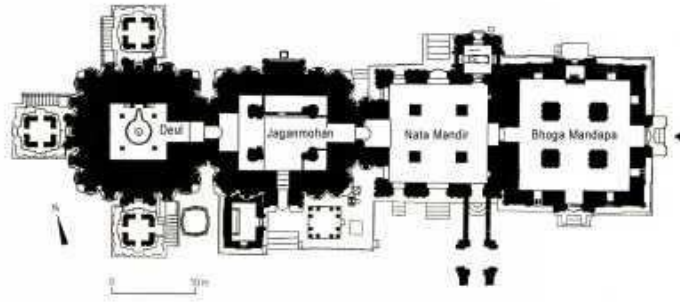


Developments in Temple Architecture

Nagara or the 'Northern Style'

The trademark sanctuary plan of the northern India was created in the fifth hundred years subject to the authority of Hindu tradition. These sanctuary comprised of the multitude of fundamental components; the garbhagriha encompassed by a mobile way, an external colonnade with segments in front and a level top of stone. The sanctuaries built during this period were basic and less great contrasted with the sanctuary developed during the tenth - thirteenth century sanctuaries. A portion of the models from this period are sanctuaries at Sanchi, Tigawa and Deogarh. The improvement of sikhara began at the sanctuary of Deogarh in Madhya Pradesh (Brown, 1942). The sanctuaries developed in the eighth century had more modest holy places and the sikhara turned into the delegated element of the sanctuaries. The expansion of mandapa (the pillared corridor) to the sanctuary began during this period itself. The other unmistakable person of this period was the rectangular wall around the sanctuary and expansion of auxiliary altars at each corner. The most well-known instances of this period are the sanctuaries at Osian Rajasthan and the bunch of Jain sanctuaries worked between eighth - twelfth 100 years in Gujarat and Rajasthan.

The sanctuary of Teli-ka mandir, Gwalior and Vaital Deul, Bhubaneshwar were exceptional and motivated from the early Buddhist engineering with rectangular arrangement and the barrel vault top of chaitya lobby. These sanctuaries don't make the full organization of Hindu sanctuary as they just comprise of primary safe-haven with neither the mandapa nor the patio. This type of engineering was deserted by the designers in the north yet was acknowledged in the design of south India. A particular compositional style created in the sanctuaries of Orissa (seventh to eleventh hundred years). The elliptic bend of sikhara from the prior time frames were changed as an opposite kaleidoscopic pinnacle and met close to the pinnacle. Without precedent for history extraordinary consideration was given to the development of mandapa; the top of the mandapa was currently pyramidal with tightening at the top and lower than the sikhara. The best instances of this period are the Lingaraja sanctuary, Bhubaneshwar, the Jaganath sanctuary Puri and the Sun sanctuary Konark with there sikhara level going from 43 m to 57 m high.



Plan and view of the Lingaraja Temple(Source:www.indoarch.org)

An equal improvement to the Orissa sanctuary, occurred in the focal India during the ninth to eleventh hundred years. The sanctuaries of Khajuraho are renowned for their funnel shaped tower made of heaps of stone with a plan of smaller than normal pinnacles called sikhara (Grover,1980). Every one of these sanctuaries has porch, entrance lobby and the sanctum. The tops of different segments of the sanctuary have particular structure. Every single façade, wall, roof of these sanctuaries have cut figures from the folklore and history. The best models are the Khandriya Mahadev sanctuary, and Lakshmana sanctuary, Khajuraho.

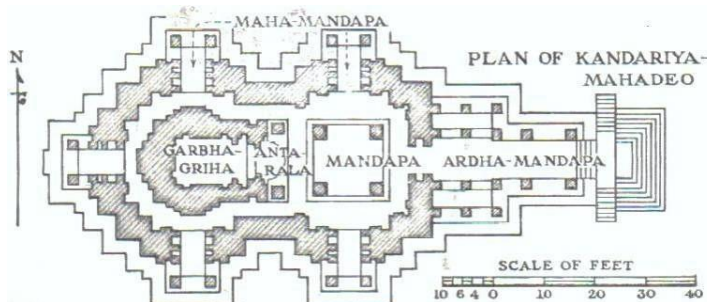


Figure 5.1.



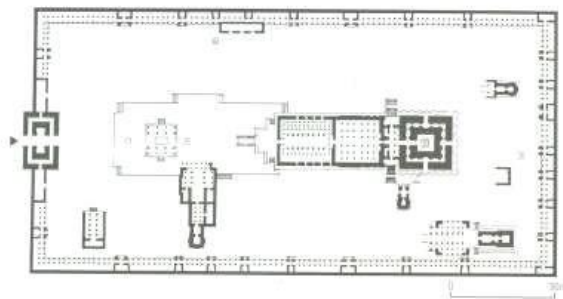
Dravidian or 'Southern Style'

Sanctuary improvement in southern India began during the Chalukya rule in the mid seventh 100 years. These sanctuaries were motivated from the Buddhist design. The sanctuaries advanced from straightforward stone slice hallowed places to huge and convoluted structures. The sanctuaries in this period were huge square structure with a projecting patio and brightening points of support. The top of the sanctuary had little design which later arose as the sikhara. The whole sanctuary is straightforward with insignificant

beautification. A portion of the models from this period are Lad Khan sanctuary and Durga sanctuary , Aihole.

The stone cut structures created during the seventh - ninth hundred years subject to Pallavas. The Pallava rulers lead the method of dravidian style of sanctuary engineering and they assembled the sanctuaries at Mahabalipuram. During the Pandyas rule the south Indian sanctuaries were added with the grand passages gopurams at the entry with the essential sanctuary sythesis. The gopurams made the sanctuary outwardly alluring and furthermore gave the sanctuaries a nook. The gopurams developed from a rectangular base with a pyramid delegated with a barrel vaulted structure. In the eleventh century the Chola rulers constructed one of the tallest sanctuaries of that time the Brihadeshvara sanctuary, Thanjavur with a level of 60 m (Hardy 2007). In the later period the sanctuaries broadened and turned out to be more mind boggling.

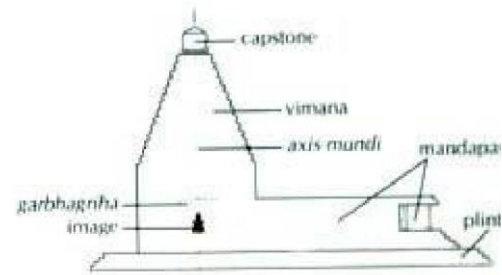
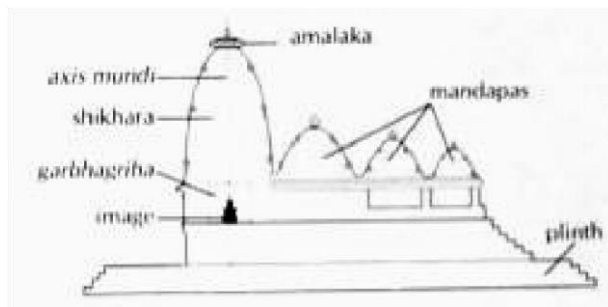
More mandaps were incorporated for different exercises like moving, get together, eating, relationships, and so on. The Dravidian style deduced in a progression of broadened sanctuary urban communities or municipalities. The best illustration of the sanctuary municipality is the sanctuary at Srirangam and Madurai with a few concentric nooks.



. Plan and view of the Brihadeshvara Temple (Source:www.indoarch.org)

Distinct Features of ‘Northern style’ and ‘Southern style’ temples

The major and particular highlights between the north Indian sanctuary and the south Indian sanctuary are their superstructures. In the north the bee colony molded tower is the most recognized component called as the sikhara. The doors are in the north and they are plain, basic and little. The plans of the north Indian sanctuaries depend on square however the walls are in some cases broken at such countless spots that it gives an impression of sanctuary being roundabout in plan. The pinnacle is comprised of scaled down sikhara making an astonishing enhanced visualization looking like mountain.



In the south, the unmistakable elements are the vimana and the gopurams. The vimana is a tall pyramidal pinnacle comprising of a few continuously more modest stories, the pinnacle of the vimana is called as shikhara in the south Indian sanctuaries. This stands on a square base. The sanctuary complex comprising of the principal holy place and other more modest altars are encased by the external wall called as the prakara. Along these external walls are the many-sided and heavenly passages called as gopurams. These gopurams turned out to be increasingly tall overwhelming the primary place of worship and its superstructure and ruling the entire sanctuary complex.

THE GEOMETRY OF HINDU TEMPLE

The past part covered the various styles and primary components that won in Hindu sanctuaries of India. It is obvious that sanctuary styles varied essentially from one district to another. For instance, a sanctuary plan might be put along a solitary straight hub or it could be put in concentric rings. This section makes sense of the math of Hindu sanctuary with deference for the Hindu cosmology and reasoning in view of the heavenly 'Vastupurushamandala' and its application to the sanctuary structure.

Albeit, the components of Indian sanctuaries might contrast across locales, the genuine intention was gotten from a solitary way of thinking of plan. All little and enormous Hindu sanctuaries worked since memorable times have been following a similar way of thinking. This way of thinking has evidently permeated to the remotest pieces of India. The Vastushastra and Shipshastra alongside other general manuals on Hindu design are as yet alluded for the development of the sacrosanct Hindu sanctuaries.

Cosmology and Hindu Temple

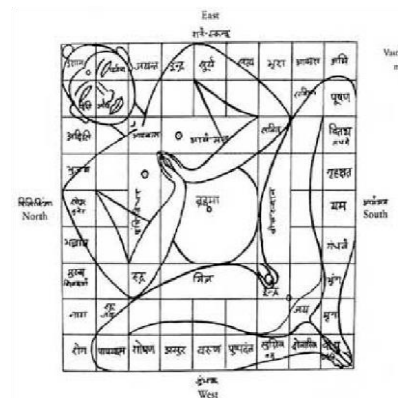
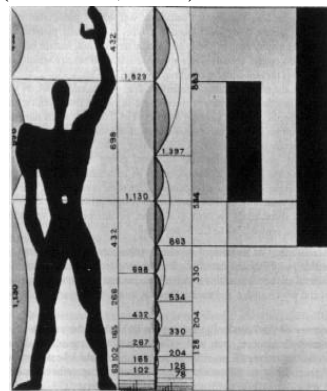
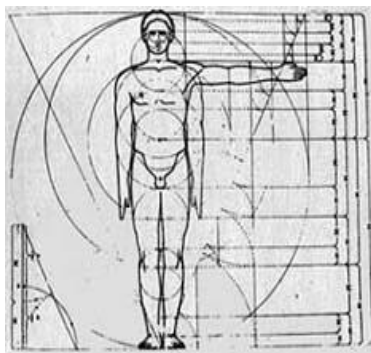
As per the old Hindu sacred writings, the sanctuary is the microcosm of the universe and the inestimable request is seen as vital to the human body, brain and soul; with the individual a microcosm (Hardy, 2007). The Hindu sanctuary structure presents the huge data about the science and cosmology of the period in which they were built. It is an imagery of the external and the internal universe where external universe is communicated as far as different galactic associations between the sanctuary structure and the movements of the sun, the moon, and the planets, though the inward universe is addressed as far as the cognizance at the belly of the sanctuary and different levels of the superstructure compare to the degrees of awareness (Kak, 2002).

The sanctuary is a connection between the actual universe of man and heavenly universe of God. Furthermore, to associate them, the arrangement of universe were graphically replicated in the underpinning of the sanctuaries called as the Vastupurashamandala. The Hindu engineering, strict or vernacular, in the antiquated times depended on the math of the Vastupurashamandala.

In the expressions of Stella Kramrisch, "The sanctuary is the substantial shape (mūrti) of the Essence; as such it is the home and frock of God. The brick work is the sheath (kośa) and body. The sanctuary is the landmark of sign." The extension might be seen either as continuing from the essential issue of the garbhagrha in every one of the headings of room, coming to the bindu over the finial of the sanctuary and then some, or as an indication kept intact by a strain between the bindu and the garbhagrha, with the hub joining the two being the world pivot (Kramrisch, 2002).

The Concept: - Vastupurashamandala

The Hindu way of thinking was among quick to relate the human figure as the premise of an arrangement of extent, which was years after the fact showed by Leonardo da Vinci and by Le Corbusier in Modular arrangement of estimation. In Hindu way of thinking the type of the purasha (human) body was made to suit the theoretical thought of the square, as the preeminent mathematical structure (Groover,1980).



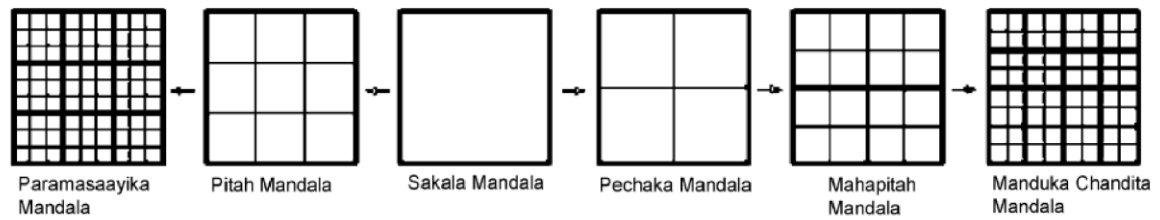
The Vastupurashamandala is gotten from three separate words each having a particular significance where vastu alludes to actual climate, purusha alludes to energy, power or infinite being, and mandala is the outline or diagram (Rian,et al. 2007)The essential type of the Vastupurashamandala is the endlessly square is the significant and ideal mathematical structure in Hindu way of thinking, which addresses the earth. Every one of the essential structures like the triangle, hexagon, octogan and circle, and so on can be gotten from the square. The four sides of the square address the four cardinal bearings. The square likewise represents the request, the fulfillment of perpetual life and the flawlessness of life and passing (Michell, 1988). As per Hindu convictions, man's day to day existence is additionally represented by the number four as in four classes(varnas), four period of life, four extraordinary times, four head of Brahma(the maker God), the four Vedas, and so on. (Exoticindiaart, 2003). Essentially, the circle addresses the universe and is considered as the ideal shape, with no start and end, proposing immortality and limitlessness, an ordinarily sublime component.The mandala is really a square partitioned into more modest squares as a matrix with each square unit obviously denoting the areas of separate divine beings. The most ordinarily utilized mandala is the square partitioned into 64 and 81 squares. Generally the square of the mandala on its external fringe are partitioned into 32 more modest squares, in agreement to the visionary computation called nakshatra, addressing the star groupings or the place of planets through which moon passes in its month to month way. The shut polygon of 32 squares is symbolical to the intermittent patterns of time as determined by the developments of the moon (Gosai 2002-2008). The four headings lie outside the mandala

which addresses the gathering of the earth and the universe as well as the development of the sun from east to west and its pivot toward the northern and southern halves of the globe. The focal piece of the mandala is the spot for the Brahma, the maker, and the rest squares are the place of different Gods according to their pertinence.

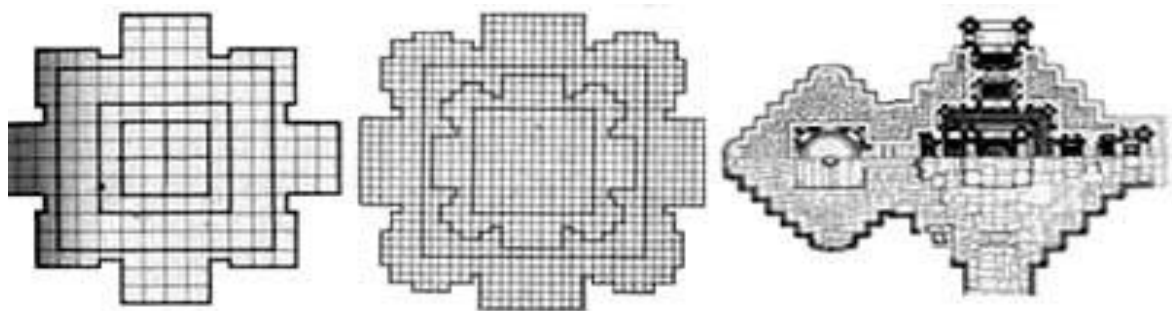


The vastupurushamandala are the square matrices and are of different sorts framed from the principal shape, the square. The more modest squares in the matrix are called as the one pada and they might differ from 1, 4, 9, 16, 25, etc 1024 and follows a mathematical movement series of 1, 2, 3, 4, 5, U, 32 with the normal component 2. There can be even quantities of pada and odd quantities of pada in a mandala and are called as yugma mandala and ayugma mandala separately.

Vastupurushamandala has various names as per the quantities of pada inside the matrix. The mandala having 1,4,9,16,25 and 36 quantities of pada inside the lattice are known as sakala mandala, pechaka mandala, pitah mandala, mahapitah mandala, manduka chandita mandala and paramasayika mandala.



The Vastupurushamandala, having every one of the mathematical, cosmic and human properties was the premise of the ground floor plan for every Hindu sanctuary. The essential shape procured by the sanctuary plan is the external most ring of square of the mandala frames the thickness of walls of fundamental sanctum. The focal 4 squares get the spot of the primary god and the internal ring of 12 squares structure the walls of the garbhagriha and the following 16 to 28 structures the pradkshina patha. These straightforward divisions of square with numerous stages and mixes turned into the base for the mind boggling designs of the sanctuary; as symmetrical and stellate plans of the sanctuary Therefore the huge squares of mandala were isolated into thousand squares hence basically framing a diagram paper for the modeler to work with him to add a unit at one side and slowing down on the other.

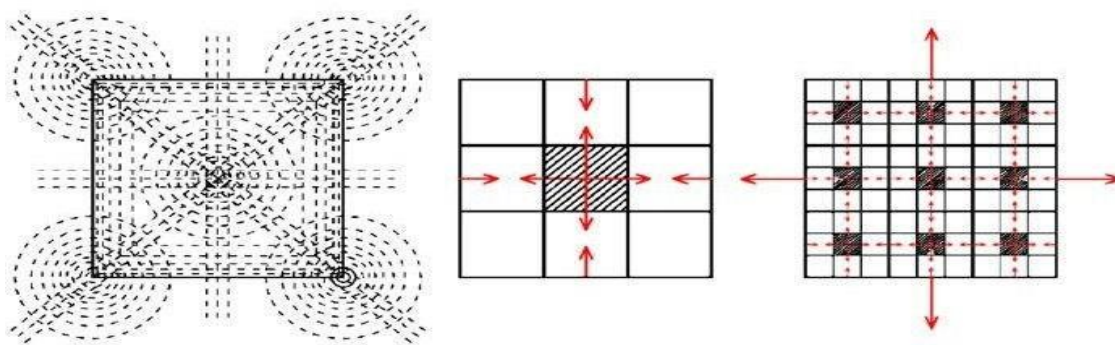


The *Vastupurushamandala* transformed into architectural plans (Source: Grover, 1980.)

[The Layout of Hindu Temple](#)

The Vastupurushamandala is first portrayed on the arranging sheets and a while later illustrated on the earth on the spot of the real sanctuary building site. This heavenly chart is the emblematic of the universe with its fractal conduct. As referenced in the past area every unit of square addresses the introduction of new universe and the focal square is the formation of the every unit. The mandala is a square lattice and the redundancy of significantly number of square matrix forms into 4 square networks and further to 16 square frameworks, etc. Comparably the redundancy of odd number of square network forms into 9 square matrices and further to 81, etc.

The mandala is presently put on the establishment plan of the sanctuary to hold onto every one of the vast energies under the sanctuary. The focal point of the mandala produces the energies and emanates to the actual world. The square state of mandala altogether infers to keep up with the energy harmony. Each side of the squares applies the power towards the middle and consequently the middle applies the power towards the sides, subsequently keeping up with the balance (Rian,et al. 2007).Thus expanding the quantity of squares in the heavenly chart assists with holding more energies and radiate it out to the actual world through the middle. Subsequently, the focal point of the mandala is the spot for the fundamental divinity in the sanctuary.



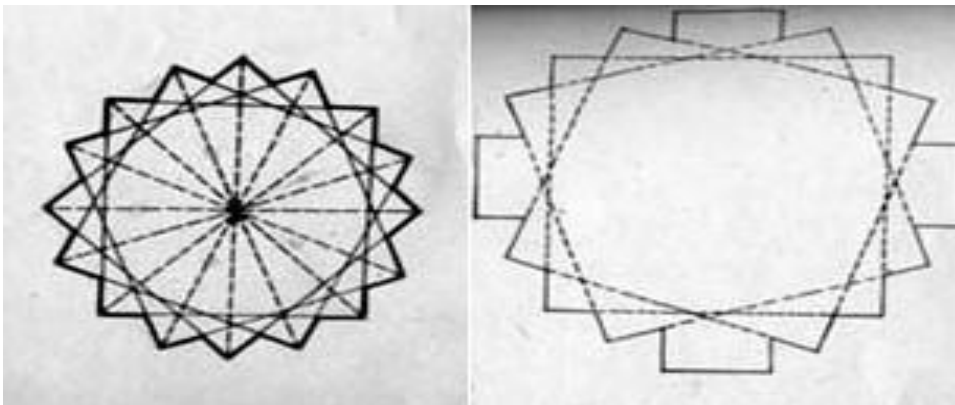
Fields of forces in the square, radiation of forces from 9 grids square and radiation of forces from 81 grids square

The Plan

The arrangement of the sanctuaries are the reproduction of the Vastupurashamandala, the matrices of the square of 8X8 where the cella is two times the width of the walls of the cella. The Nagara style of sanctuaries in the west and the focal India followed the symmetrical lattices of the mandala. In models from seventh 100 years at the Vishnu Temple Deogarh in Madhya Pradesh, the square network was adjusted by expanding one time on each side outwards. Further, during the tenth hundred years at the Surya sanctuary, Modhera the square lattice was changed by expanding two times on each side outwards. Later on in the eleventh century the Hindu sanctuary plan became perplexing and arrived at their last structure. This time the square matrix was adjusted by broadening threefold on each side outwards, The Khandriya Mahadev Temple at Khajuraho in Madhya Pradesh is the best model for this.



The sanctuaries in the South India in the mid seventh to eighth 100 years and later in the thirteenth century fostered the stellate plans meaning the arrangement of the garbhagriha was in the intricate star molded. These intricate plans were gotten from the essential square . This was accomplished by pivoting the square around its proper focus, and turning it corner to corner through a progression of equivalent points. Consequently the corners framed by overlaping such countless squares brought about a star. The quantity of focuses and their extents could be shifted just by changing the point through which the slanting was turned up at each step (Grover 1980). Typically the arrangement of the sanctuary comprised of 8, 16, 24 and 32 places. The 16 and 32 pointed star plan was accomplished by bisecting the points of a 8 point star. And furthermore 24 pointed star plan is accomplished by the 6 point star plan. The Chenna Kesava sanctuary, Belur is one of the best illustration of the stellate arrangement.



The rotation of square around its centre gave rise to star shaped plans 'stellate plans'

[The Structural System of the Hindu temples](#)

The essential development procedure utilized in the Hindu sanctuary was the trabeated framework or the post and the pillar strategy and which was stretched out by the utilization of corbelling methods. This technique was initially utilized for wooden development in India and was subsequently embraced for the stone designs also.

Trabeated System

In the trabeated framework just the level and the upward individuals are utilized and the dependability is accomplished by the monstrous courses of action of vertical components like points of support and pilasters together and weighty cross pillars and lintels. The utilization of the traversing framework to encase the inside spaces was the most average component of this framework. The openings in the Hindu sanctuary have lintel made of stone or lumber. The material framework comprises of on a level plane laid sections of stone crossing from one supporting bar or wall to the next.

The plan of the inner roofs in the Hindu sanctuary were purposely bound to the covering of the one stone course with the another or, on the other hand, to the laying of the corner to corner and square stone course to deliver plans with turning and decreasing squares (Michell, 1988).

Later in the tenth and eleventh hundreds of years the inner roofs were traversed round stone courses, situated one over the other in retreating widths, to deliver complex plans.

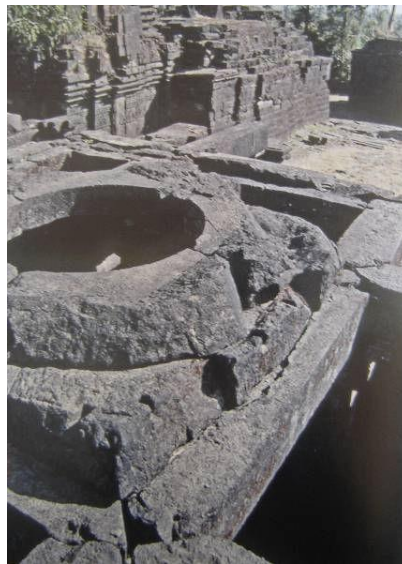


Corbelling System

In the corbelling framework the stones or the blocks in every level courses are projected on a mission to overcome any issues between the two walls to decrease until it tends to be shut with a solitary piece of stone or block. The corbelling framework was utilized to make the insides of the sanctuary and the stone shells of the super design that transcend the safe-haven. Later in the thirteenth century the utilization of iron clips and wedges to keep the stone sections intact, permitted the extraordinary element of corbelling in which even stone layers were projected out over enormous ranges and slice into uncommon shapes to deliver exceptionally enriching roof plans (Michell,1988).

The section shaft corbel strategy for development was the vitally primary standard administering the development of each and every Hindu sanctuaries. The standards of harmony of powers in real life through curve, vaults and different types of practical designing principles never truly had an impact in the development of Hindu sanctuary. Its doesn't imply that draftsmen of Hindu sanctuaries were uninformed about these methods, rather it is their conformance to custom and severe adherence to points of reference, mirroring a specific solidness in their social disposition (Brown, 1942). There was no example of purpose of vaults or arches in the Hindu sanctuary engineering, however angled specialties were made on the outer layer of the walls and they seldom convey loads from a higher place.

The Hindu designers stayed appended to his own conventional strategies and achieved his undertaking of development via cautiously investigation of the laws of gravity, getting the strength by the mass supporting mass and dependability by the strong obstruction of the loads acting upward, all strain being tranismitted straightforwardly downwards. Subsequently the utilization of mortar was futile on the grounds that there being basically no slanted strain to convey between the courses of masonry. Consequently, the Hindu sanctuary engineering masonry created as dry masonry framework (Brown, 1942).



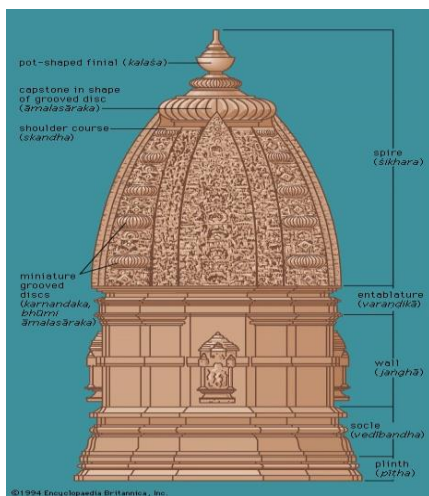
The column-beam-corbel method of construction was the main structural principle governing the construction of every Hindu temples. The principles of equilibrium of forces in action by means of arch, vaults and other forms of functional engineering rules never really played a part in the evolution of Hindu temple. Its doesn't mean that architects of Hindu temples were ignorant about these techniques, rather it is their conformance to

tradition and strict adherence to precedents, reflecting a certain firmness in their cultural attitude (Brown, 1942). There was no instance of use of vaults or domes in the Hindu temple architecture, but arched niches were created on the surface of the walls and they rarely carry loads from above.

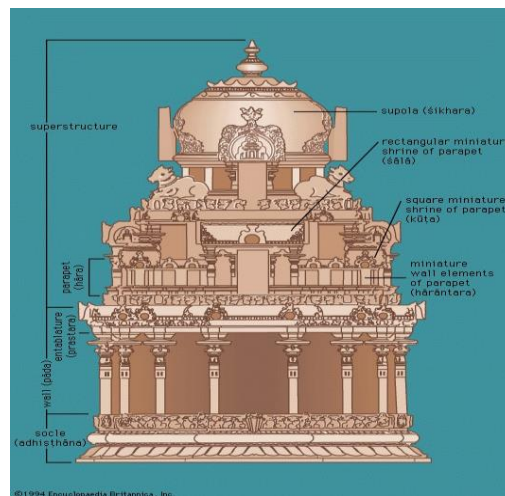
The Hindu architects remained attached to his own traditional techniques and accomplished his task of construction by carefully study of the laws of gravity, obtaining the strength by the mass supporting mass and stability by the solid resistance of the weights acting vertically, all pressure being transmitted directly downwards. As a result the use of mortar was pointless because there being almost no inclined pressure to distribute between the courses of masonry. Therefore, the Hindu temple architecture masonry developed as dry masonry system (Brown, 1942).

The Structural Components

In the north Indian sanctuaries the sanctum or the garbhagriha is arranged on a raised base, or a plinth (pitha). over which is the socle (vedibandha), these have different brightening moldings, over the vedibandha is the walls of the sanctum (jangha), having unmistakable counterbalances and specialties, which are additionally delegated by the molding or a progression of cornices(varandika) or more this is the superstructure (sikhara). On the highest point of the sikhara is a solitary piece of stone having grooves called as the amalaka which thus is delegated with a pot and finial. The entire sanctuary complex including the mandapas and different sanctums are normally raised on a porch (jagati) which is on occasion having huge levels and size. The sanctum has a level roof inside and the superstructure is normally empty from inside to decrease the weight.



North temple

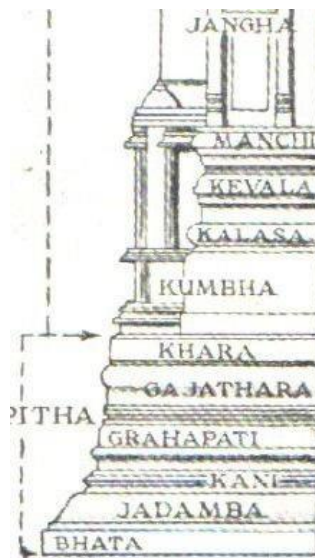


South temple

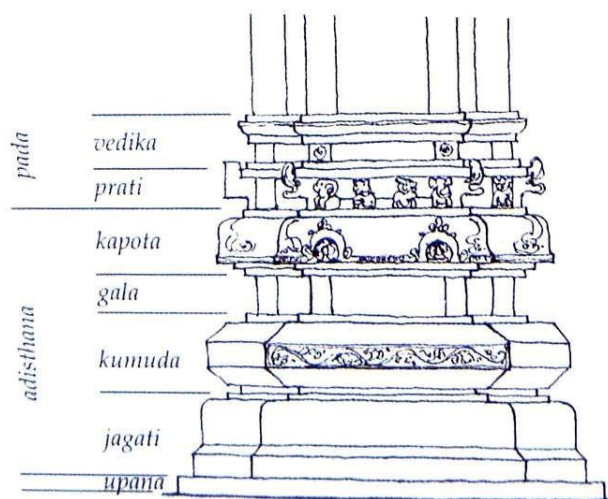
In the South Indian Temples the sanctum or the garbhagriha transcends the socle (adhithana), comprising of series of moldings which contrast from the North Indian sanctuaries, they don't have the plinth (pitha), over the socle rises the walls (pada) of the sanctum, the walls are partitioned in to series of pilasters, over the walls rises the pyramidal formed superstructure comprising of ventured stories and every one of them are encased by there own railing. The highest point of the ventured structure upholds the strong vault called as sikhara in the south which thusly is crowed by a pot and finial.

The Base or the Pitha

The foundation of the Hindu sanctuary comprises of series of moldings. These moldings are flat groups relating to the courses of brick work supporting the walls and super construction of the Hindu sanctuary. In Hindu sanctuary design moldings exists not as edgings or tweaks to different components, but rather as components with bigger components. These are more like the architrave, frieze and molding in an old style pediment than to moldings inside these



NORTH TEMPLE



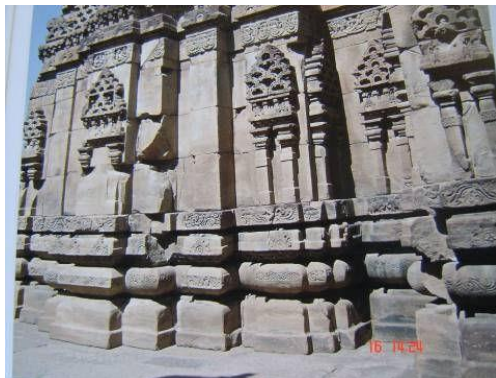
SOUTH TEMPLE

In the plinth or the railing or in the superstructure each course of workmanship can be characterized as a solitary embellishment. Now and again these single embellishment are partitioned and treated as two separate courses are cut out from one course. The formed base is called as vedibandha in the North and adisthana in the South. The floor level is at the foot of this component in the North or more the component in the South. These have elaborate carvings and have sub-bases and platforms.

The Walls:

The zone between the superstructure and the foundation of the Hindu sanctuary engineering comprises of walls, support points and pilasters.

The walls in the Hindu sanctuary engineering are built as composite stone masonry with an infill of stone and block with lime and mud. The thickness of the stones changes from 300 to 4500 mm. The typical thickness of the workmanship wall fluctuates from 800mm-1200mm. Through stones are given at ordinary spans to fortify the walls.



The Supporting Elements

The Hindu sanctuary comprises of tall, slim, unattached, bar supporting segments, points of support and pillasters. The segments are not the characterizing components of the Hindu sanctuary engineering as that of the Western Classical design. It isn't not difficult to arrange the Indian segments as there are no specific plan kind of the section.

The plan of segments in every period and style have various interrelated at this point various sorts, which were conveyed starting with one period then onto the next or were changed into new kinds. The Indian texts order segments regarding their cross area. The cross area goes from square round and polygonal (faceted), through scalloped (fluted), lobed, stunted and stellate (Hardy, 2007). The advancement and cooperation comprehensively partition the Indian segments in five fundamental sorts in particular; the ringer type sections, the block and roundel type segments, the pad type sections, the Ghata-pallava sections and the Bharana segments.



Indian sections comprises of particular parts organized in vertical series, similar to the moldings of the sanctuary base and is seen typically in all the period and styles. The essential pieces of the sections are:

The pillar (uttara) the highest part of the segment is the shaft and these are the underlying light emissions sanctuary. The part underneath is the section (potikas) supporting the shafts. The sections gives the bearing to the shaft and abbreviates the range between the segments. There after is the level plate (phalaka) and under is the mandi, something like a dish, fluted or petalled. These bears the section as opposed to the shaft straightforwardly and go about as a pad to receive the forced burdens. The head or the capital of the section is called as the ghata, an adjusted or enlarged part which is held by the neck (tali) and the shoulder (lasuna) of the segment. This ghata goes about as pad to the heap of the design. Underneath the bone and the lasuna is the level band, an iron, the malasthana and further down is the mala another flat band. These two component are inseparable are cut out of a solitary stone block. Beneath the mala comes the shaft which remains on the base block frequently cuboid in shape.

[The Superstructure or the Sikhara](#)

The superstructure of the Hindu sanctuary connects with the tower or the sikhara of the sanctuary. The sikhara is the most unmistakable piece of the Hindu sanctuary and gives the premise to the most helpful and educational order.

In the North Indian sanctuary there are three essential kinds of sikhara called as the phamsana, latina and the sekhari.

The latina sikhara is curvilinear in frame and is made out of series of one over the other level rooftop sections. The outer layer of the whole śikhara is covered with a creeper-like intertwined work, made out of small elaborate candraśālā. The sikhara decreases at the top and is covered by a flat course (skandha), above which is a roundabout necking (grīvā), conveying an enormous scored plate called the āmalasāraka. The sikhara is at last delegated with the kalasa (pot) and the finial (South Asian Arts, 2008).

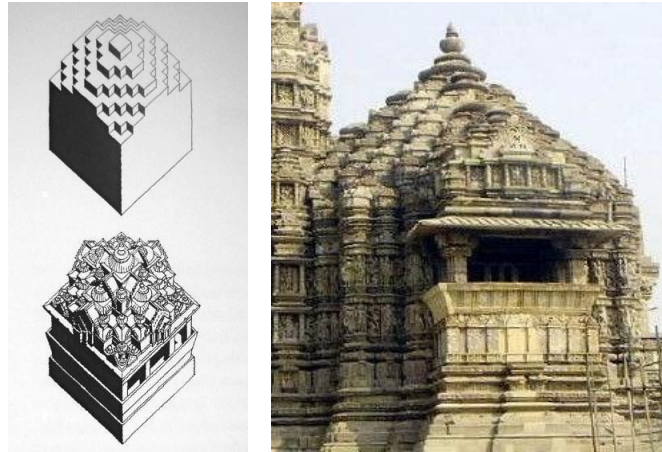
The phāmsanā śikhara have rectilinear blueprint and is lower in level contrasted with the Latina. It likewise comprises of even pieces and is covered by a ringer molded part called the ghaṇṭā. The surfaces of this sort of śikhara likewise have projections, and are brightened with an assortment of design trimming

The Pillared Hall or the Mandapa

The essential Hindu sanctuary will have a yard before the sanctum. The bigger sanctuaries have at least one mandapa, the crowd lobby before the fundamental sanctum. The mandapa might be shut or open with one a few doors.

During the seventh and the eighth hundreds of years the mandapa have level rooftops generally covered with enormous stone pieces. The dispersing between the still up in the air on the premise bearing limit, reasonableness of the quarrying and transportation (Hardy, 2007). The sections of stones for the material were cut under into lovely examples proceeding with the stone cut custom.

In the north Indian sanctuary during the ninth century onwards the mandapas were based on the vastupurashamandala hypothesis and calculation. The mandapa mirrors the arrangement of the fundamental sanctuary, the focal sound of the mandapa overwhelms the arrangement and have the very width as that of the garbhagriha. Various types of roof designs created among which lamp roof was the most well-known. In the lamp roof the three-sided sections stacked up to build lessening squares and square shapes. Later on the top of the mandapa were built in the corbelled framework. The square sounds were decreased to circle through three-sided corner pieces and inclining radiates and the space was covered with the ventured even courses and reducing until it very well may be shut with a solitary stone or block. The mandapa have phamasana kind of design remotely.



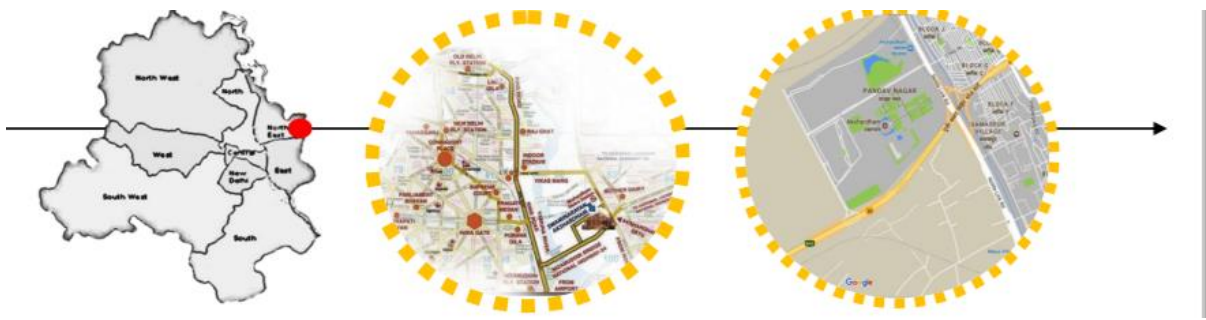
While in the south the mandapa are given compliment pyramidal covering with waterproofing and encompassed by a railing. The Madapa in the south Indian sanctuary are many times enormous in size. (hundredpillar mandapa, thousand-support point mandapa - truth be told, there are less in number); support points are most times all around ornamented and show carvings of divine beings and goddesses, different characters and legendary creatures.



(AKSHARDHAM TEMPLE ,NEW DELHI) CASE STUDY 1

- LOCATION-NEAR NIZAMUDDIN BRIDGE
- BULLT BY-PRAMUKH SWAMI MAHARAJ
- BUILT IN –DURING 2000-05
- INAUGRATED BY-DR.A.P.J.ABDUL KALAM,MANMOHAR SINGH
- DECICATED TO –SWAMINARAYAN
- ATTRACTION-LATEST TEMPLE COMPLEX IN INDIA
- HIGHLIGHT-INTRICATE ARCHITECTURE AND VARIOUS SHOWS
- SITE AREA-100 ACRE

LOCATION

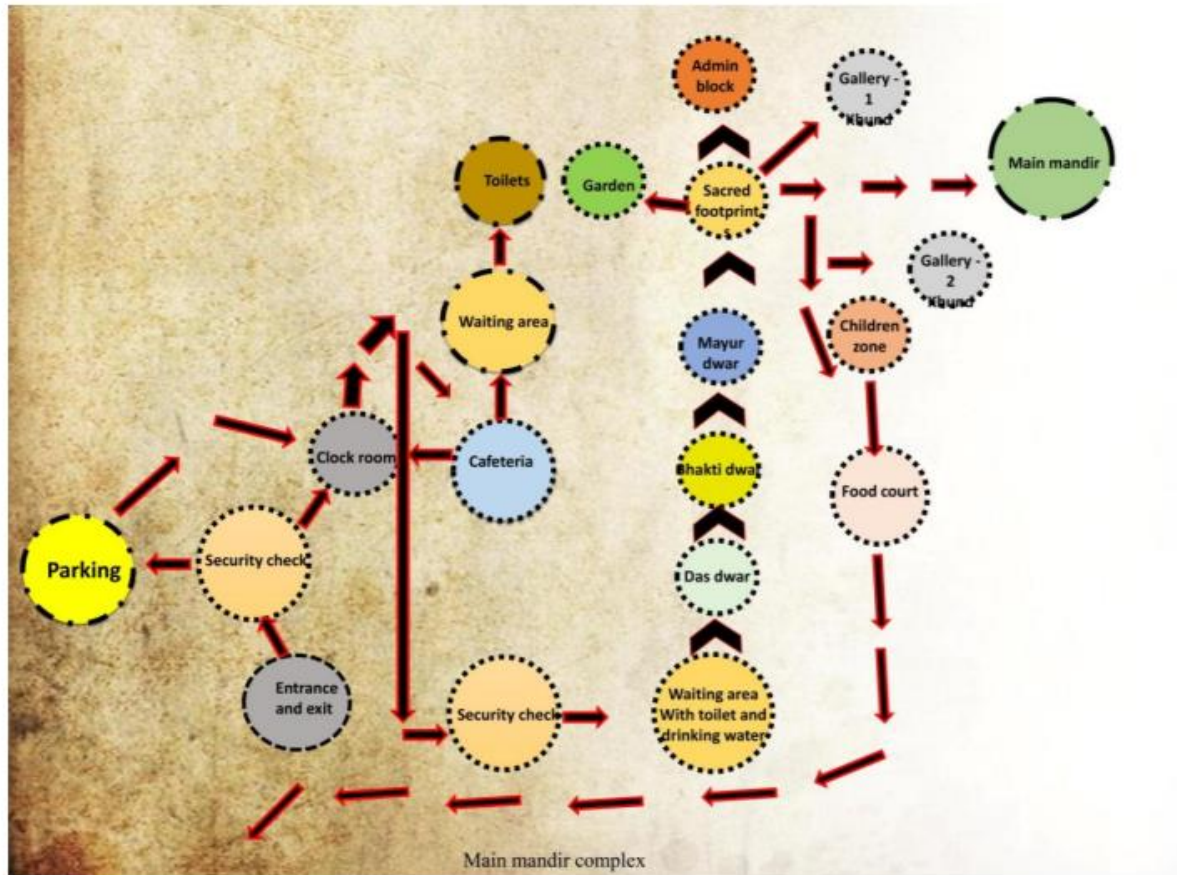


The enormous and entrancing Akshardham Temple situated on the banks of River Yamuna in New Delhi is a visual treat for guests. Akshardham Delhi Complex has been created by Pramukh Swami Maharaj, the profound head of Bochasanwasi Shri AksharPurushottamSwaminarayanSanstha (BAPS). Akshardham Delhi is committed to Sri Swaminarayan, the divinity venerated in the Swaminarayan group of Hinduism. This faction is a sub-organization of Vaishnava Hinduism and has its beginnings in Gujarat. Supporters of this organization accept that Swaminarayan is a symbol of the Nara Narayana who performed repentance at Badarikashram. They accept that Narayana accepted resurrection as Swaminarayan to obliterate insidiousness and lay out "Ekantik-Dharma"- a religion in view of ethical quality, information, separation and dedication.

A MONOTHEISTIC CONCEPT

Akshardham means the eternal, divine abode of the supreme God, the abode of eternal values and virtues of Akshar as defined in the Vedas and Upanishads where divine bhakti, purity and peace forever pervades. For the first time ever in the world witness the heritage of India in all its facets, insights and beauty at the SwaminarayanAkshardham through its mandir, exhibitions, verdant gardens and other attractions.

CIRCULATION AND ZONING



FACTS AND FIGURES

- Opened 6th november 2005
- Constructed by bochasanwasishriaksharapurushottamswaminaraysanstha (BAPS)
- Inspired by HH yogijimaharaj (1892-1971 CE)
- Created by his holiness pramukh swami maharaj • More than 300,000,000 volunteer hours went into making the complex
- Over 8,000 volunteers from across the world participated in building it
- Mandir built from intricately carved sandstone and marble • Exhibitions on hinduism, including bhagwanswaminarayan's life and teachings.
- Open gardens, water bodies and step-well styled courtyard

SPIRITUAL SIGNIFICANCE

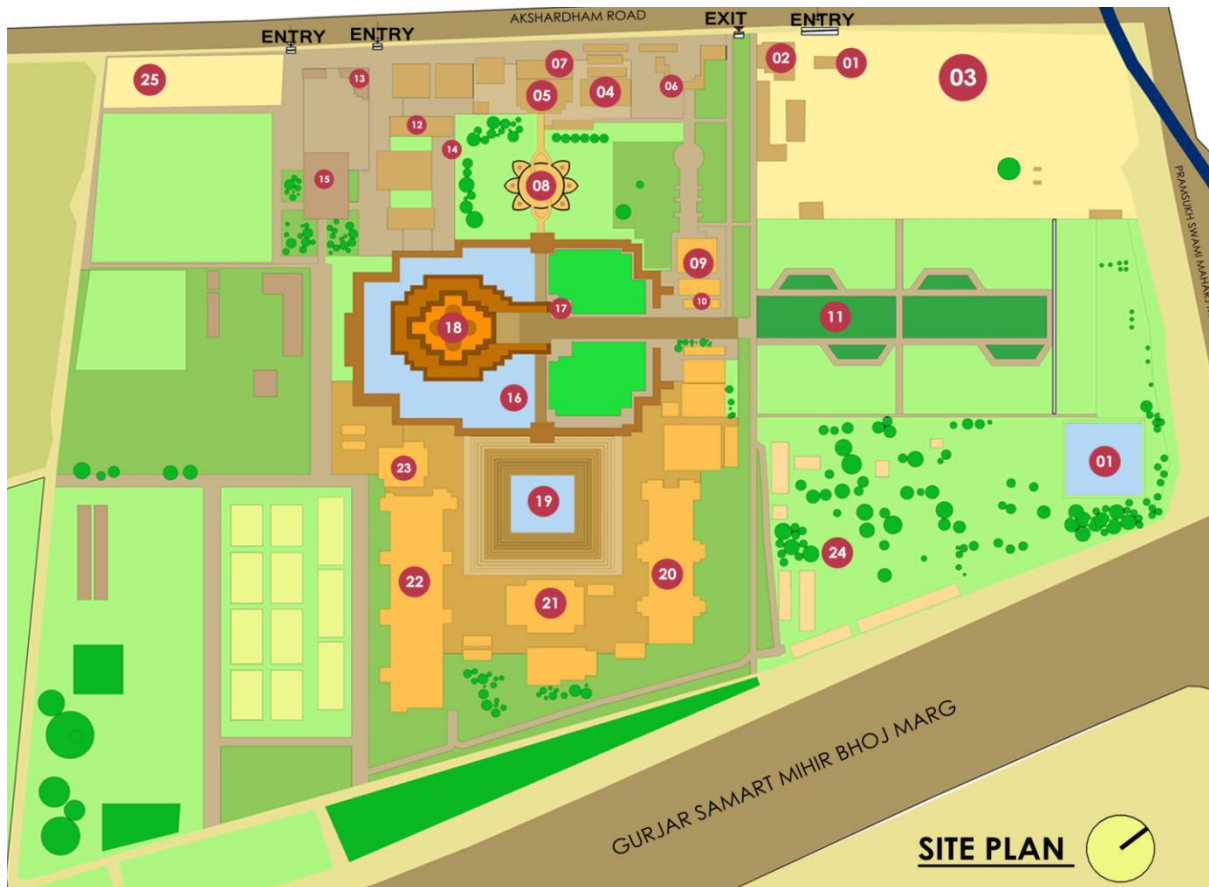
Every component of Akshardham reverberations with otherworldliness - the Mandir, the Exhibitions and, surprisingly, the Gardens. The Akshardhammandir has north of 200 murtis, addressing a significant number of the otherworldly stalwarts over numerous centuries. The otherworldly reason of Akshardham is that every spirit is possibly heavenly. Whether we are serving the family, the country our neighbors or all living creatures the world over , each assistance can help one action towards divine nature. Every request is a call towards working on oneself and drawing nearer to God. A visit to Akshardham is a profoundly enhancing experience. Whether it is in understanding the force of supplication, in feeling the strength of peacefulness, in monitoring the widespread idea of Hinduism's old standards, or simply in respecting the magnificence of God's dwelling place on Earth - every component has a profound importance.

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THE MOVEMENT PATTERN AND NARRATION

SWAGATAM

Swagatam' - Welcome. The investigation of Akshardham starts with promising images and petitions for widespread harmony and congruity. The experience starts with the conjuring of the Vedic supplication: आनोभद्राःऋतवोयन्तुववश्चताः' - 'Let respectable contemplations come to us from all headings'. Akshardham invites individuals from all headings, foundations, religions and convictions and helps everybody to do likewise.



MANDIR

Built of pink sandstone and marble, the mandir is the spiritual center of the entire complex. The murtis of BhagwanSwaminarayan, his successors, Shri Radha-Krishna, Shri Sita-Ram, Shri Lakshmi-Narayan and Shri ParvatiShiva reside in this intricately carved abode. Strengthening the faith of believers, blessing all aspirants and bringing peace to everyone, the Akshardham Mandir is a temple that welcomes all.



ABHISHEK MANDAP

Everyone can join in the sacred abhishek ritual. Bathe the sacred image of BhagwanSwaminarayan as the youthful yogi, Neelkanth, and offer a prayer – for personal strength and spiritual progress, for loved ones, for world peace, or for anything you may desire.



EXHIBITION

A balanced fusion of ancient wisdom and modern media technology, these exhibitions provide a powerful, soulstirring experience of Hindu heritage and universal values. A source of education, information and inspiration, they are a fourfold combination of art, science, culture and spirituality

WATER SHOW

Sitting on the steps of an ancient step well as the Sun sets, visitors travel back in time to the Vedic era and explore the secret of 'SahajAnand' – spontaneous joy. This new water show, opened in November 2014, presents a profound story from the Kena Upanishad using a breathtaking interplay of various media including water, lights, laser, video projection, and fire.



THEMATIC GARDENS

A visit to SwaminarayanAkshardham's two thematic gardens is a conversation with nature and history. Learn about inspiring women, men and children from Hindu culture and Indian history at the Bharat Upavan. Imbibe the wisdom of great minds from around the world at the Yogi Hriday Kamal.

THE YAGNAPURUSH KUND

The YagnapurushKund is a fascinating combination of a Vedic yagnakund and a musical fountain. It is the world's largest yagnakund measuring 300' X 300' with 2,870 steps and 108 small shrines. In its center lies an 8-petaled lotus shaped yagnakund designed according to the JayaakhyaSamhita of the Panchratra scripture.



DAS DWAR

The ten gate symbolize the ten principal directions described in indian culture and reflect the vedic culture sentiments of inviting goodness from everywhere for the benefit of all



BHAKTI DWAR

The intricately carved gate of devotion represents the worship of bhagwan by developing the virtues of his ideal bhakta .the gate has eight sacred sculpture ,including the dual bhaktabhagwan form of Radha –Krishna ,Sita- Ram,Parvati-Mahadev,Lakshmi-Narayan,revati-balram,savitri-brahma,nar-Narayan,aksharpuruhottam and other images.



MANDOVAR(EXTERNAL MANDIR WALL)

The ornate mandovar(external wall) of the mandir is 611 ft.long and 25ft high.It comprises 4287 carved stones which includes 200 sculptured figures honouring the fgreatdieties ,acharyas ,rishis and philosophers of Indian culture ,as well as 48 different forms of Ganeshji.alothre are 180 ft of beautiful metallic reliefs in bhagwanswaminarayan’s divine life



GAJENDRA PEETH (ELEPHANT PLINTH)

The akshardhammandir rests on a 1070 ft. Long and 3000 ton Gajendrapeeth.It includes 148 life like elephants in scenes depicting the ancient wisdom and values tales of India in three themes; Elephants with nature, elephants with man kind and elephant with god.

Case Study 2, ISKON DELHI

INTRODUCTION

Sri Radha Parthasarathi Mandir or popularly known as iskcon temple is a popular tourist attraction of delhi. It is located at hari krishna hill in east of kailasha area of new Delhi.

- This is among the most lavish temples renowned across the globe for its exquisite architectural beauty. The stupendous structure of this temple rises up to a height of 90 feet above ground level.
- It aims to promote peace in the society by following the Vedic texts as given by His Divine Grace A.C.Bhaktivedanta Swami Prabhupada. The temple also acts as a cultural base providing facilities for Vedic research and studies.

PROJECT INFORMATION

Architect: Ar. A.P. kavinde

- Built in:1995
- Dedicated to: lord krishna
- Attraction: contemporary style of architecture
- Area: 3.5 acres excluding parking area
- Hottest month: June (45 degrees C)

CLIMATIC CONDITIONS

- Coldest month: January (10 degrees C)
- Wettest month: August (10 inches of rain)
- EARTHQUAKE ZONE: zone IV
- AVERAGE WIND SPEED: 6.7 miles per hour
- Vegetation of Delhi is typical Northern Tropical Thorn Forest Type.
- Composite Climate

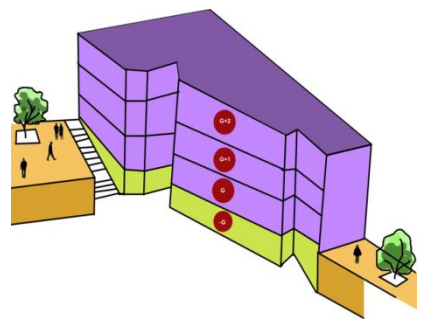
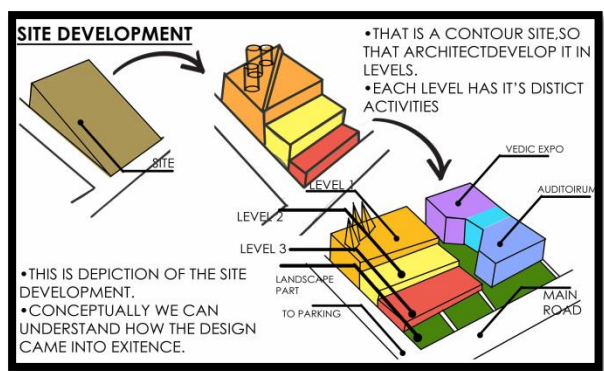
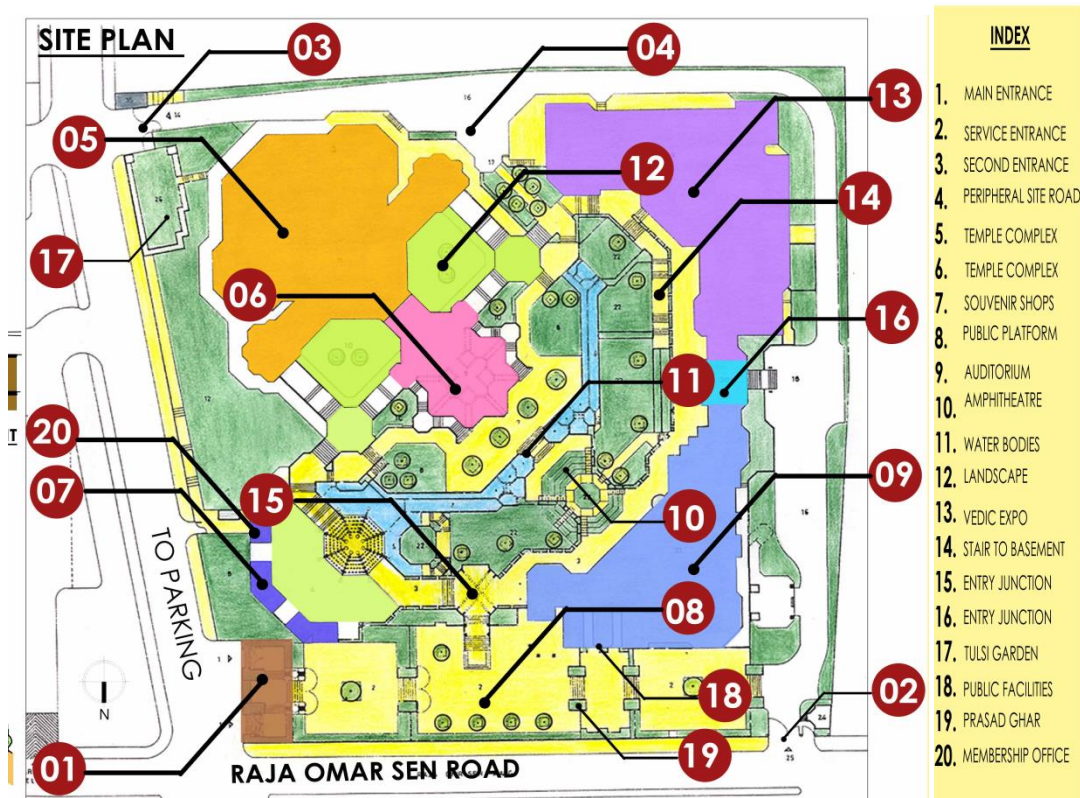
MATERIALS

Red sand stone

- Marbles
- Timber
- Walls are cladded with stone

APPROACHES

- 1) METRO STATION (NEHRU PALCE)-1.8KM
- 2) BUSS TO (KALKAJI MANDIR BUS STOP)3.3KM
- 3) AIR PORT (IGI) - 20KM



MERIT :

1. ALL THE SPACES ARE WELL INTERCONNECTED TO EACH OTHER WITHOUT HINDER THE OTHER SPACES.
2. EACH BLOCK OF THE ENTIRE COMPLEX PLACED WELL.
3. SERVICES ARE NICELY HANDLED WITHIN THE BUILDINGS
4. SOLAR PLANT ARE INSTALLED TO MEET THE ENERGY NEED OF BUILDING.



Plan



Circulation plan

SUN PATH DIAGRAM ON THE SITE



CASE STUDY: 03

BALAJI TEMPLE, NANDYAL, ANDHRA PRADESH, INDIA

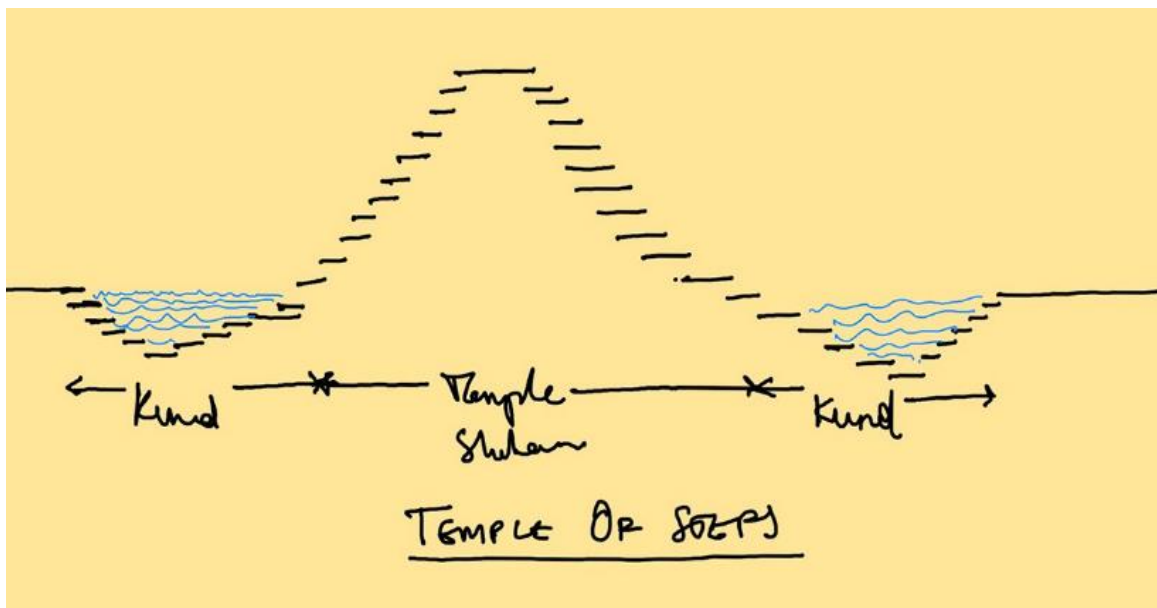
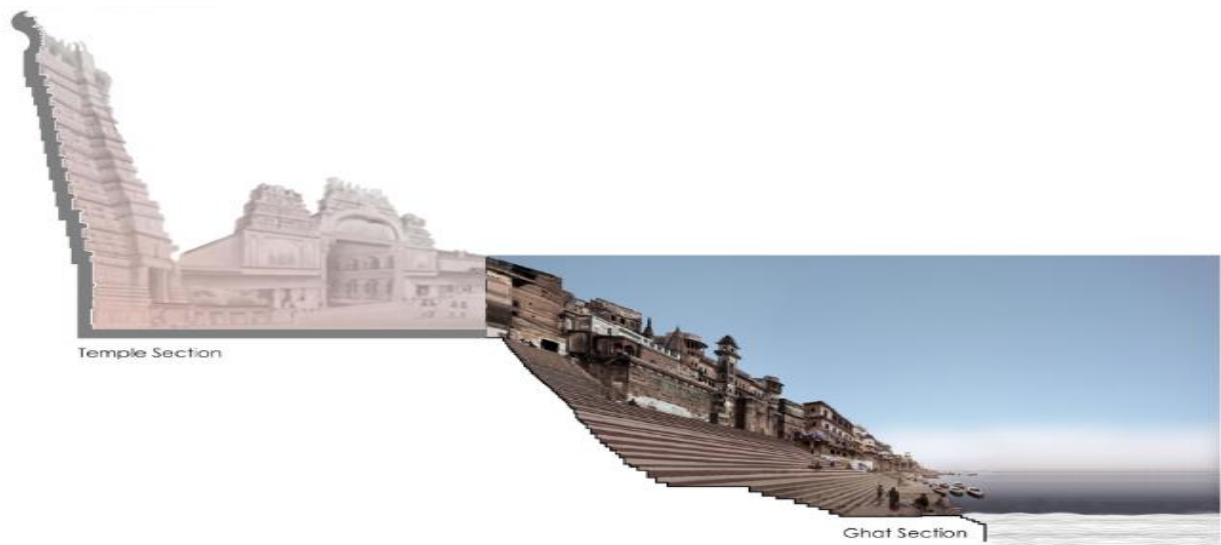
- **Name:** Balaji temple (temple of steps)
- **Architects:** Sameep Padora & Associates
- **Location:** Nandyal, Andhra Pradesh, India
- **Area:** 2.5 Acres
- **Project Year:** 2020

ABOUT

The Balaji Temple in Nandyal, Andhra Pradesh, India, A ventured sanctuary for the occupants of towns around Nandyal that weds the socio-social assumptions with the natural structure and elements of the site, has gotten a lot of acknowledgment across the world. Planned by Sameep Padora and Associates (sP+a), the undertaking makes a similarity much past what was to be its extent of work. While the brief was to plan a sanctuary for the occupants of towns around Nandyal, the creators have made a kund, a waterbody which produces groundwater re-energize, stores and gives water to the cotton and cold ranches in the district. While the normal trench framework had evaporated, the kund not just goes about as a reviving asset for the district, yet in addition makes a social space, in the way of the conventional ghat, seen along the bank of Indian waterways



CONCEPT:



The brief was to plan a sanctuary for the occupants of towns around Nandyal. The prompt setting of Cotton and cold homesteads in the locale was taken care of by a characteristic trench framework that had evaporated. The biological technique for the sanctuary consequently started with re-energizing of groundwater.

Water flood from the limestone quarries was directed to a low-lying re-energize pit or 'kund': the banks of which was envisioned as a social space, in the way of a customary ghat, a trip of steps driving down to a waterbody. This exchange of land and water with steps is a huge piece of India's structural legacy, as is found in the ghats of the old city of Banaras.

The preparation of the actual sanctuary depended on a tenth century sanctuary for similar god at Tirupathi in Southern India and comparably incorporates the Balaji and Varahaswamy places of worship and a Pushkarini (water tank).

The development cycle utilizes locally accessible dark limestone pieces corbelled to frame the primary body of the sanctuary. A similar corbelled profile likewise consolidates soil and establishing in the lower half of the sanctuary body to support against the intensity. At long last, this stone corbelling transforms into a ghat, i.e., the means that entrance the water.



The preparation of the Balaji sanctuary, otherwise called the 'sanctuary of steps', depended on a tenth century plan for a similar divinity in the city of tirupati, which incorporates

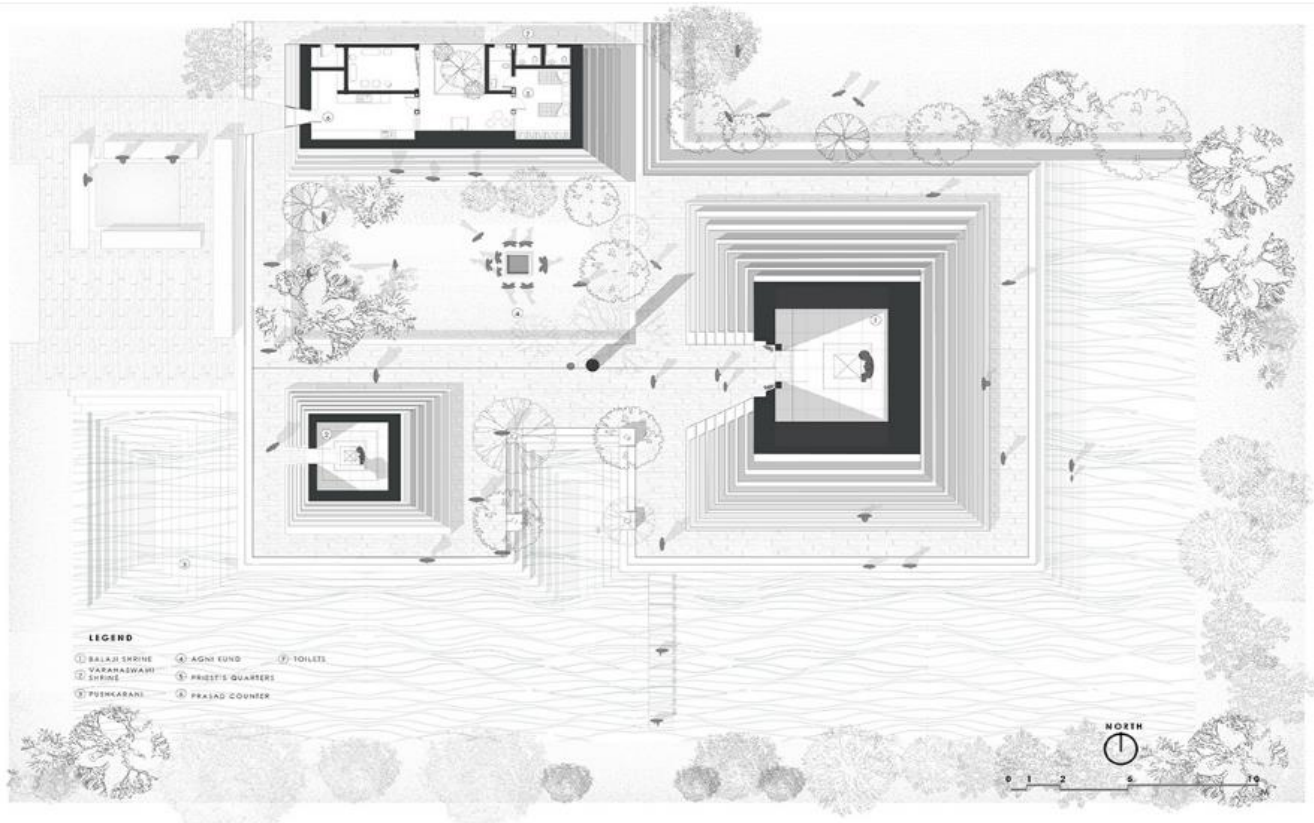
similar hallowed places. The development interaction utilizes locally accessible dark limestone pieces to frame the fundamental body of the sanctuary. In the mean time, soil and establishing has been consolidated in the lower half of the designs to give security against heat.

relationship, which is so clear, frequently is inconspicuous. Here, by utilizing a similar engineering gadget (steps or corbels), one makes this unequivocal but magnificently unique. Unexpectedly, it becomes apparent that the Kund (ventured water tank) is the transformed negative of the shikhara (tower), and it drives one to rehash this entire discussion between the two, even in the sanctuaries of the past.

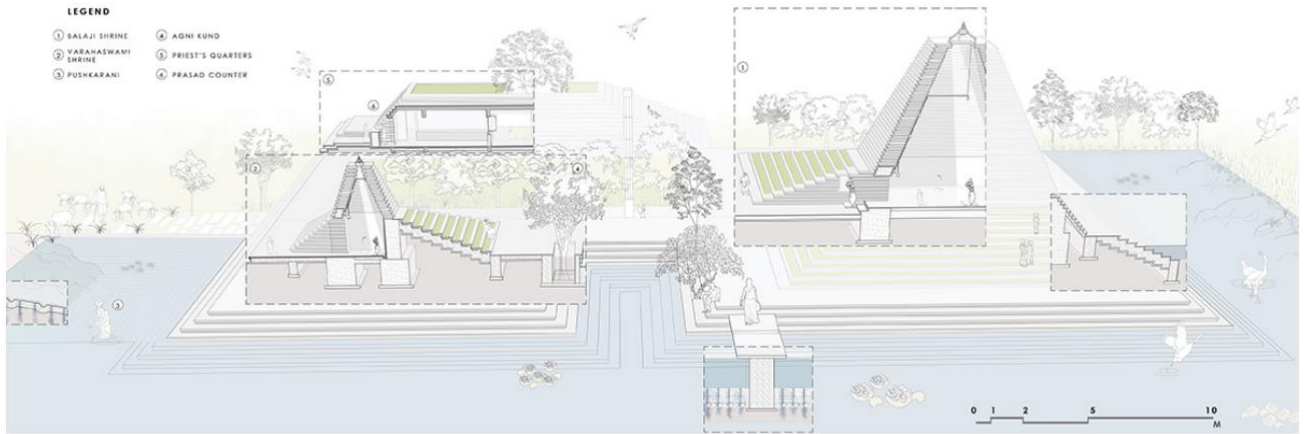
The utilization of flat layers or corbels is a reflection of how Hindu sanctuaries have utilized these corbels to accomplish verticality. However, at the Balaji Temple, by making the structure rise continuously from the beginning, weakens the idea of the sanctuary as a straightforward figure-ground. This slow ascent reverberation's maybe the protohistoric underlying foundations of the shikhara (tower) as an unadulterated gravity-driven early stage hill/pyramid.



PLAN OF TEMPLE



SECTION



Case Study 04, (SUN TEMPLE KONARK)

Konark is situated at 35 K.M distance from the famous religious and tourist centre of Puri and the capital city of Bhubaneswar (65 K.M.) ORISSA.



FORMATION

As the legend says that, King Narasimha Deva-I of the Ganga Dynasty had requested this sanctuary to be worked as a regal decree of the political matchless quality of his tradition. A labor force of 12 hundred craftsmans and designers contributed their innovative ability, energy and creative responsibility for a debilitating time of 12 years. The lord had proactively spent a sum comparable to the state's income receipts of 12 years. Anyway the culmination of the development was not even close to locate. Then the lord gave a last order that the work be finished by a specified date. The group of draftsmen headed by Bisu Maharana was confounded. It was then that Dharmapada the 12 year old child of the central planner Bisu Maharana showed up there as a meeting passerby. He became mindful of the uneasiness posing a potential threat among the planners. Despite the fact that he had no reasonable experience of sanctuary development, he was careful in his investigation of the hypotheses of sanctuary design. He proposed to take care of the frustrating issue of fixing the last coping stone at the highest point of the sanctuary. He amazed everybody by doing that without anyone's help. Be that as it may, not long after this accomplishment the dead body of this young adult wonder was found on the ocean side at the foot of the sanctuary. Legend says that Dharmapada set out his life to save his local area.

LEGEND

In later ages the five supreme Gods worshipped by Hindu and In Orissa there are five different kshetras or religious centers celebrated for these PanchaDevata

- Ganesh (destroyer of obstacles and fulfiller of desires)
- Vishnu (the cosmic sustainer of the phenomena universe)
- Siva (the cosmic destroyer of the universe)
- Durga (the mother goddess and source of all energies)
- Surya (the life giving energy)

MYTHOLOGY

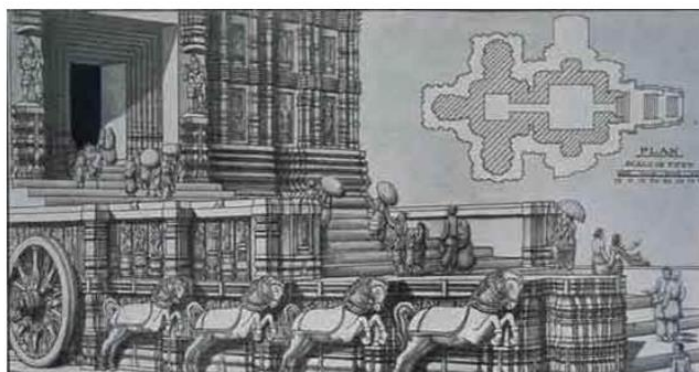
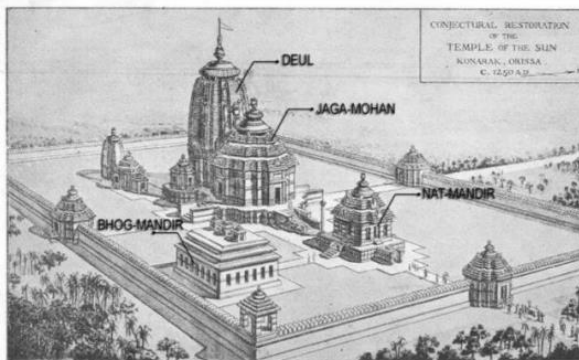
Fantasies and legends impregnate the entire city of Konark. There could be referred to various purposes behind the rise of the sanctuary. As per a legend, Samba, the child of Lord Krishna invested wholeheartedly in his magnificence. Such a lot of that he once dedicated a slip-up of scorning a sage called Narada. The sage, overflowing with rage, hit upon a plan to show Samba a thing or two. Some way or another, the sage tricked the kid to a pool where his step moms, the consorts of Lord Krishna, were having shower. As Krishna got to learn of this indecent movement, he was aroused and reviled his child with infection. Nonetheless, in a little while, ruler Krishna came to realize that it was every one of the a planned arrangement of the naughty Narada. He recommended to his child that he proceed to love the Sun god, the healer, everything being equal. Samba followed the educate and endured 12 long years regarding compensation and love. In the end, Surya taught Samba to proceed to bring a plunge into the ocean at Konark. So did the tormented kid and shockingly enough his sickness was restored. Thrilled Samba decided to constructed a sanctuary to pay tribute to Surya at the very spot. Furthermore, that was the means by which the sanctuary appeared.

- A shallow pool of water is known as the Chandrabhaga , where even presently hordes of pioneers wash up before sun ascend on the seventh day of the brilliant portion of the long stretch of Magha (January-February). A fair likewise happens on this event. Once in the year the abandoned heavenly spot of Surya subsequently pulsates with strict inclination. This is probable an endurance of an old work on following the development of the sanctuary. Magha - Saptami is referenced in the MadalaPanji as one of the celebration of this blessed focus. It is additionally alluded to the Brahma Purnima regarding the portrayal of Konark. The genuine sanctuary appears to have an archetechtural arrangement with magnet at the top and lower part of the sanctuary making the icon stand in air with practically no actual help.

OVER VIEW

This sanctuary worked in 1250 AD by the Ganga King Narasimha Deva is one of the most fantastic sanctuaries of India and was alluded to as the Black Pagoda. The remains of this sanctuary were uncovered in late nineteenth 100 years. The pinnacle over the Garbagriha is missing, but the Jagmohana is unblemished.

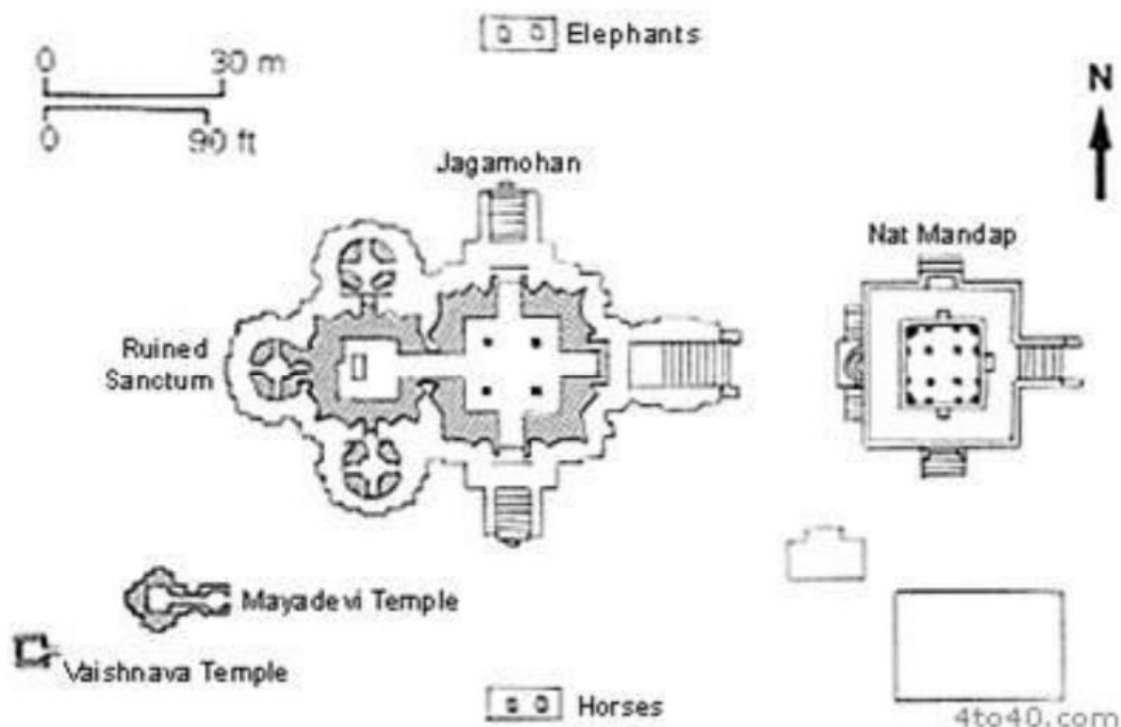
- The Temple: The Konark sanctuary is well known for its engineering magnificence as well as for the unpredictability and bounty of sculptural work. The whole sanctuary has been imagined as a chariot of the sun god with 24 wheels, each around 10 feet in width, with a bunch of spokes and elaborate carvings. Seven ponies drag the sanctuary. Two lions watch the entry, pulverizing elephants. A trip of steps lead to the primary entry.
- "In the subtleties of estimations, it is referenced that the once-existing kalasa and the lotus-finial, the padma-dvaja, were broken, however the iron pole called chumbaka-luha-dharana (attractive iron bar), which most presumably gone through the kalasa, was still ready"
- The natamandir before the Jagamohana is likewise unpredictably cut. Around the foundation of the sanctuary, and up the walls and rooftop, are carvings in the sexual style. There are pictures of creatures, foliage, men, fighters on ponies and other intriguing examples. There are three pictures of the Sun God, situated to get the beams of the sun at first light, early afternoon and dusk.
- All encased inside a patio estimating 865 ft. by 540 ft.



ARCHITECTURAL DISCRIPTION

All orrisan sanctuary have indo-aryan style in which all sanctuary have same engineering component and general person .the fundamental design in these strict sanctuaries are deul andmandapa.The greater construction is called each wheredeul yet the mandapa is likewise known by the name of jagamohana.

- The two different structures for the most part supplimaented where first nat-mandir or moving corridor and second is bhog-mandir or lobby of offering . Three unique kinds of stone were utilized.
- Chlorite was utilized in the door jamb.
- Laterite was utilized in the establishment flight of stairs and the focal point of the stage.
- Khondalite, the most common kind, was utilized somewhere else. The stones were flawlessly gotten done and afterward fitted together. They were laid evenly, put one upon another, and combined with iron spasms and dowels. The workmanship was amazing to such an extent that the joints could scarcely be seen. Plans were cut on them solely after that.

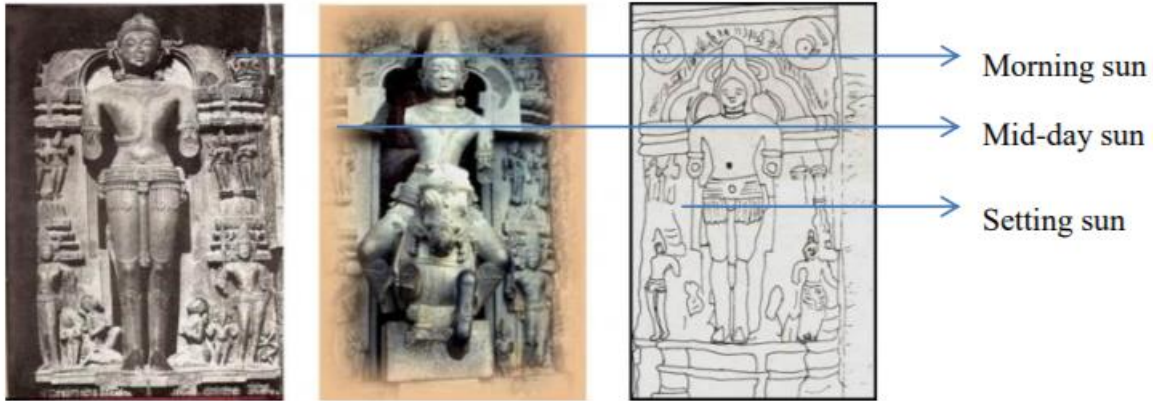


DEUL(GARBHA-GRIHA)

It was the biggest structure in the temple arena of 70m in height.

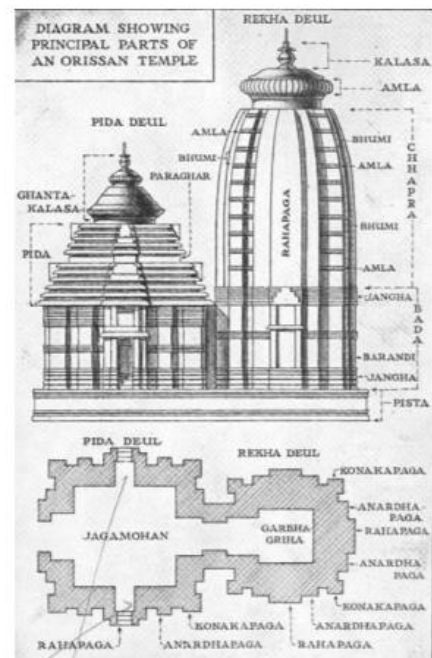
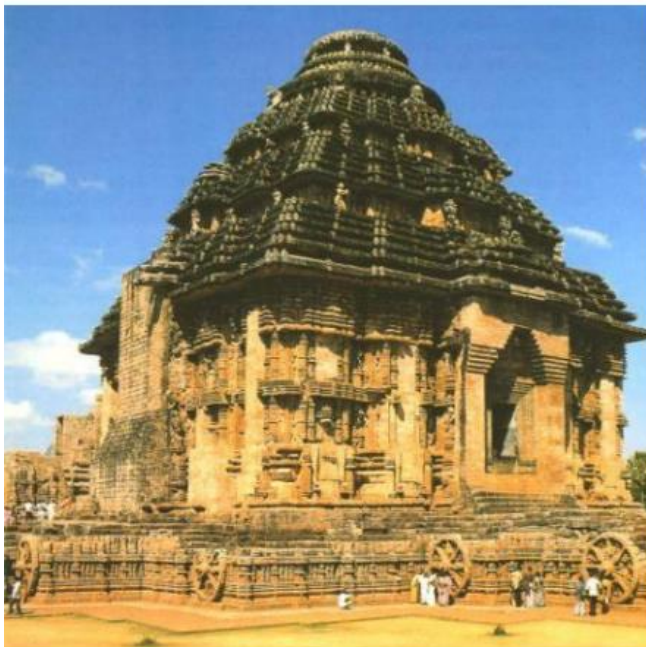
- It was collapsed in 1837.
- In its three sides it has three subsidiary shrines with stairways leading to the niches, each containing a life size image of sun god (morning , mid-day & setting sun).Made up of greyish-green chlorite stone

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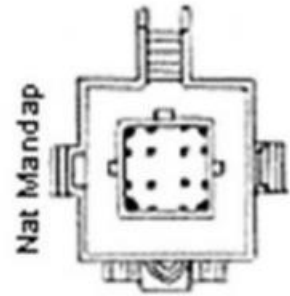
JAGAMOHAN

It is a square plan based building of 36x36 m and 40m high. Following Nagarastyle.It has largest internal space in hind architecture of 20 m sq. It has a vast hall inside no longer accessible. Its corbelled roof, carried on four mighty pillars of about 30 m high



NAT-MANDIR

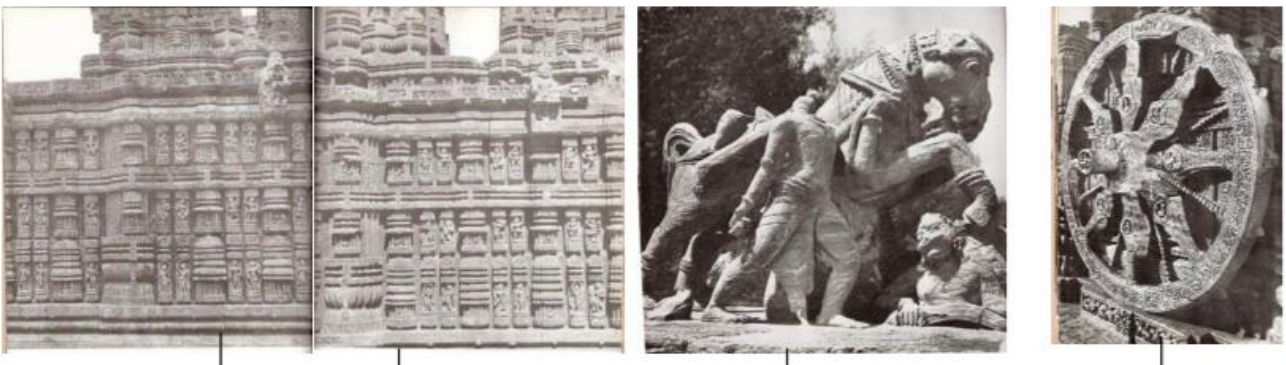
- It was built on the same principal as of jagmohana standing on a basement or a plinth, these halls were invariably of one storey only, and the elevation of each consisted of two parts, a cubical portion (bada) below, and a pyramidal roof above.
- Its pyramidal roof stands on the four-square system of roof iron beam



- Showing group of four pier having four square system of roof iron beam



THE SCULPTURE OF THE SUN TEMPLE



INFERENCES

- LEARNED ABOUT THE CONSTRUCTION TECHNIQUES AND PLANNING PROCESS
- . • HOW TO DO PLANNING AND THE COSMOLOGY PROCESS
- . • STRUCTURE SYSTEM TRABEATED AND CORBELLING
- . • THE ANCIENT TECHNIQUES OF TEMPLE CONSTRUCTION.