

VASTU SHASTRA PRINCIPLES APPLIED IN TEMPLE COMPLEX OF NEPAL

Ms. TABASSUM SIDDIQUI

Assistant Professor

Kantipur International College, Kathmandu, Nepal

Abstract: *Nepalese architecture is unique in South Asia, because of its traditional development of striking architectural features which are different from the rest of the subcontinent, although based on a shared religious background, ancient symbolism and ritual. Kathmandu valley has distinctive culture which ensemble temple, palaces, private dwellings, monasteries, public courtyards and sunken water conduits. Vaastu- Shastra, being an ancient design principles and classical traditional architecture of South Asia has been applied in religious as well as secular buildings. Research Objective: To identify the factor that reveals a ritual, symbolic and ideological style of diversity; which lies within this seemingly similar forms and the immediate environment of temple complex. Hypothesis: what are the factors that influenced the Temple complex of Kathmandu Valley? Research Methodology: Descriptive and analytical analysis of elements and style of temple architecture in Kathmandu valley, physical and socio-cultural attributes, vastu shastra principles, applied in temple complex architecture. It will consist of combination of case study and collection of information about Changu Narayana temple compound and Indrevara Mahadeva temple compound, Panauti to identify the architectural uniqueness and formative influences of Vastu Shastra principles applied to layout plan of temple, Elevation, section, building details etc. Research Questions: a) What type of building structure has been incorporated in the temple complex? b) What are the principles of vastu shastra adopted within traditional temple architecture of Kathmandu valley? Conclusion: The architectural feature that distinguishes the Nepalese temple from the others is the vernacular and traditional architecture; the principles of temple architecture based on Vastu Shastra; (layout plan, elevation, structure, materials) form of the sloped and multi-tiered roofs, the exposed brick walls; the carved wooden doors, windows and strut etc. Different typology of building structure incorporated in the temple compound which includes temple, the Hindu priest house, the public rest houses, Newar houses, water reservoirs, public courtyard, sunken water conduit,*

Key Words: *Nepalese Temple complex; Vastu Shastra principles; Elements of Nepalese architecture;*

1. INTRODUCTION

Temple :

Mandir is a Sanskrit word means 'waiting place'. The sense of a waiting place distinguished by the term Mandir is remarked as Temples. Temples are assumed as buildings where through ritual Hindus pursue a temporary presence of god for the purpose of worship. It is a building which houses images of divinity for the human purposes of worship. An idea of a perfect building is conveyed by the design and ritual organization of a temple. It was the personification of god which was designed by the architect-God Viswakarma.

Local Newari or Nepali terms for temples is mandir, dega, deval which also refer to the style. "Newar style" is referred as Nepali trabeated buildings of brick and wood which characterize the architecture of the Kathmandu valley. The temples types are modified in terms of size, opulence, style, iconography and other infinite variables. Temple's colonnaded porches are served as places to rest other social activities. The tiered plinths provide bleachers for viewing spectacles in the squares and are sometimes act as stage for them. The inner sanctum of temples, reserved to the deity and its attendants is used for secular purposes, serving on occasion as store room, workshop or indigent's shelter. The sophisticated deities Vishnu or Siva are worshipped in temples that are free-standing, visible and accessible from all directions. The dwellings of the gods are designed to house both the divinity and accumulate to worship. Nepali worship is fundamentally an individual matter. The temple, therefore, needs to make no provision for a congregation. The worshipper does not penetrate the temple at all. He tenders his offerings through a priest; in return he receives the physical sign of the god's blessings (prasada). Circumambulation, clockwise passage known as pradaksina – literally, "moving to the right", that is turning the right side of the body toward that which is respected.

Nepali documents are studded with references to temple building, and they often include the precisely determined auspicious moment given to lay the temple's foundation, the door fitting, the completion of structure and the deity installation. The lunar mansion (naksatra) Purnarvasu is particularly favored as an auspicious time for building.

VASTU SHASTRA:

Literally, Vastu is an ancient Indian science from the vedic age. It strictly follows the standard measurement and a system of proportions. The vastu shastra consists of traditional values. The five vastu elements (air, water, fire, space, and earth) are the sources of natural power and capable of giving energy. The five fundamental principles of Vaastu Shastra- the vedic science of Architecture are: i) site orientation: also called Diknirnaya; ii) Site Planning: known as Vaastu Purusha mandala; iii) Proportions of the buildings known as maana; iv) Dimensions of the Buildings called as aayadi; v) Aesthetics of the buildings; known as chanda.

It has already been mentioned that the ancient Hindu science of architecture strictly follows the measurements (Vastumana). They have been divided into six divisions called mana (height), Pramana(Breadth), Parimana (width), Lambamana (perpendicular measure), Unmana (thickness)and Upamana (interspace between two parts), Aghanamana (Measurement of exterior), Aghanamana (measurement of interior), Talamana (comparative height). The measurement were taken from yard stick (human hands-hasta), as well as measuring Rod (danda) and string.

Vastu-shastra is conceptualized as a square space on which all buildings are built. It is occupied by vastupurusha, a personification of the primordial vastu, pressed on the ground facing downwards and held from any destabilizing movements by placing a group of gods over it. The presence of god in a cosmic formation with Lord Brahma at the center makes the square a potent diagram is a large square, sub-divided into a set of smaller squares, usually 64 or 81 in number, with the position of the vedic gods assigned therein. The 32 square spaces on the periphery, called padas, are occupied by the 28 nakshatras, called padas, are occupied by the 28 nakshatras (constellations), or lunar mansions, and the four gods of the cardinal directions as belonging to a solar-spatial symbolism.

VASTU PURUSHA MANDALA:

Vastu means architecture; a mandala is a point and a circle centered on it; more meaningful translate as “a group around a center”. Purusha is the energizing power of vision. The vastupurusha mandala means a ways of evolving a conditioned existence based on the symbol of unconditioned essence, or a way of divine incorporation through the personification of the cosmos. The diagram is applied for the proper design of any built element, whether a city, a temple a chariot or a cart.

Vastushastra principles are largely prescribed for implementation through the medium of the design diagram called the Vastupurusha mandala. Vastu shastra seem to have made a beginning with Brahmanism and observations of the towns and the architecture. Vastu purusha Mandala as the design tool whether it is considered in temporal, phenomenal or spatial context must follow a rigorous exercise of assessment of forms and their geometric properties and potentialities of representing astral/ universal conditions. The acceptance of the square as a perfect forms able to constrain as well as represents the absolute. The square Mandala with its cardinality was seen as a manifestation of the supreme principle as well as an image of the laws governing the cosmos, hamlets, villages, market towns, citadels, cities, capitals and suburbs, all these walled habitations as the Prasada itself, were laid out on the Vastupurusha mandala, and the temples of the villages or city have their place assigned on it (karmrisch 1986:1,2).

Vastupurusha Mandala used in the design diagram, controls the size, orientation, proportions and period of consecration etc., offer fixed time character to the building. The doctrine of remainders (volwahren 1968:49) is a complex set of computational rules that relates the temple to the ruling star, zodiacal sign, day of the solar, week and the tithi, the lunar day, etc. The physical size, location and orientation of the temple, are thus, through the application of the doctrine of remainders, made responsive to the Hindu concept of time, which is made up of five parts of panchanga. Thus the Vastupurusha mandala incorporated both solar and lunar time (kramrisch 1986:29) and is more than a simple spatial diagram. All buildings based on vastu can only be built on material ground. Vastu for temple structure is also raised on spatial diagram of vastupurusha mandala and spans extent between the earth and heaven.

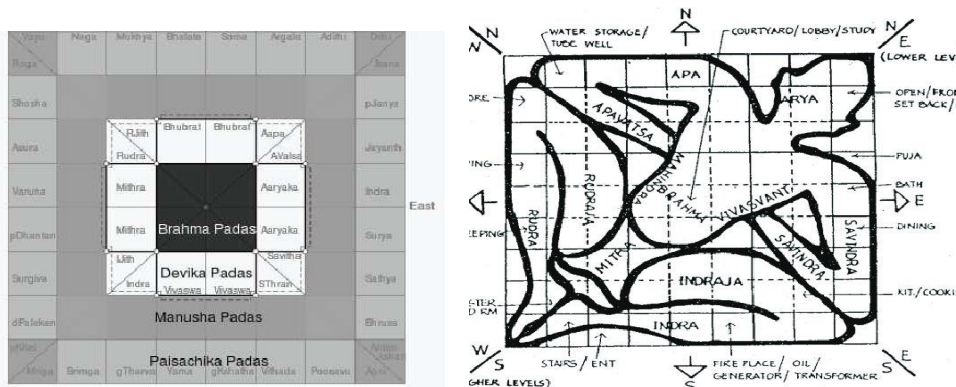


Figure: Mandala- Hindu Temple 64 Padas (Left) Vastu Purusha Mandala (Right)
 Source: https://en.wikipedia.org/wiki/Vastu_shastra

APPLICATION OF VASTU SHASTRA PRINCIPLES

It is well known that in ancient India, buildings were planned in accordance with strict principle of vastu-shastra. Numerous Nepali architectural manual attest that Nepali architects were fully conversant with vastu-vidya (architectural science). Thus formal buildings were planned as per vastu shastra. As Brihatsamhita suggests temple site, is a simple application of the vastupurusha mandal diagram, where 32 Vedic gods of the cosmos were sited in the perimeter. A body of water, whether as a river or a pond, is necessary requisite for a temple site in Hindu philosophy. Solid stone sculptures of water jars (kalas) on the spot were placed for the ritualistic purpose where rivers, ponds and ridges were not available. Newar community of Kathmandu valley required more space for interaction than space allocated in the classical pattern of Hindu town. The durbar square, neighborhood chowk, and many cross road nodes transformed into communal activity spaces such as market squares or just festive squares. The extended family system played an important role in characterizing the urban space with private families square of court lying with the neighborhoods square. The religious and ritual mediation of life and the congregational nature of people combined to develop public spaces.

The main source of water was through springs, Inars and ponds. Along with it natural underground water flow was also connected to hitis. Water for household and religious purposes was often drawn from wells. Water from the hitis springs were collected in open tanks (pokharis) which was used for commercial and household purposes. Tutedharas consisted of tanks filled with water and drying out through stoppered spigots.

IMPORTANCE OF VASTU PRUSHA MANDALA IN TEMPLE ARCHITECTURE

Temple manifest its divinity through the application of the principle of Vastu purusha mandala, a square diagram used for proportioning as well as locating it in time and space. The building gets its potency through its correct proportion as it enables energy from the image. The conceptual anchoring of the temple design is important in vastushastra, where the term 'vastu' itself is perceived as a material residue. The Hindu temple symbolizes the center of the universe. The temple plan was derived as a mirror image of the conceived geometry of cosmos.

The advancement in the study of astronomy and time (jyotishastra) played an important factor to grave importance in the application and development of ancient architecture. The location of temple must be effective space with divine presence influenced with natural form or scenery with great charm and beauty or occupy specific geometry or philosophical location in the cosmic image imposed by the believers in the design and planning. A temple symbolically and geometrically realize the ideas of a perfect building and submit to ritual dictates as well as to codes of geometry, proportions, measures and other physical criteria of three-dimensional perfection.

The design principles of vastushastra are essentially aesthetic and ritual elaborations of a dark cave-like room called the garvagriha, which houses the image or presence of a single god, the other three types of temples are designed with open and well-lit sanctums, quite the reverse of the dark womb chamber of the degah. In Brihatsamhita, halfway up the sanctum wall, the symbolic middle temple is separated from the earthly sanctum, the garvagriha, by interposing continuous stringcourses of timber and terracotta, repeating the motifs of the lotus petals and lion-heads that run to make a cornice around the core, its corners again provided with large projecting bricks to accentuate the form of the chariot

APPLICATION OF VASTU PRUSHA MANDALA IN NEPALESE TEMPLE

Since Lichchhavi period, the Hindu temple architecture incorporates vastushastra principle: the Hindu science of architecture. In the classical Vedic sciences, Vastushastra classified under Jyotishastra, Nepali temples do not use the north orientation and the site selections are used to take the best of east, south or west orientations. Generally, In Indian temples only use one entrance door into the sanctum room, but in Nepalese degah as a rule has four doors one on each cardinal point of the square sanctuary. The access stairs, guardian animals, the positioning of the Vahana, the carrier of god, and the torana over the main door, etc. are used in practice which visually and ritually represents the orientation. Also the space in the front is usually larger than on other sides. The garvariha with its ritual foundations, conceals the three tatvas of water, earth and fire, and makes the temporal sanctum of the temple for the devout to view and worship. The 'air' space bounded by the chitrasala and its pasuka/gavaskshya windows is the praggriva; in stylistic variants, praggriva is also granthakuta, where the supreme luminosity resides and an upper sanctum. The point, the bindu, to which one's vision is directed to by the gajur, is the ultimate sanctum, the heavens. The design of the gajur itself repeats the total symbolism in a miniature. Luminosity in the dark void i.e. garva griha has to come out and is also symbolically provided by windows that does not let light into it from outside but lets the all powerful rays from inside reach out. These 'blind windows', called gavakshya in Sanskrit and ga in newar, may be seen singly or in odd numbers over the door or in the shade of the projected roof in all the temples of Nepal. Ancient documents on architecture state that the chitrasala, the symbolic space over the garvagriha, is to have many such small windows forming a net, or jala, around it. The Newar term for the central blind window, pasuka, literally translates as the 'garland of ritual threads'. The temple is not complete without a circumambulatory path going around the sanctum since worship requires

circumambulation as a first preparation step. Without it, there will be no darshan, or visual realization of the presence of the god inside. It is only for such a symbolic purpose that the exterior of the temple is full of imagery.

In the Nepali temple, the struts carry the needed imagery for the darshan requiring the devout to look up to them. While circumambulation was physical need in the case of a temple in the middle of the lake, it has been theorized into a spiritual purpose of absorbing and paying homage to the energy radiant from the center of the temple (kramrisch 1986:167). The temple structure, with its central axis pointing towards the sky, provided the conceptual transition from the heavens to the temple where godly energy temporarily resides for the purpose of worship on earth

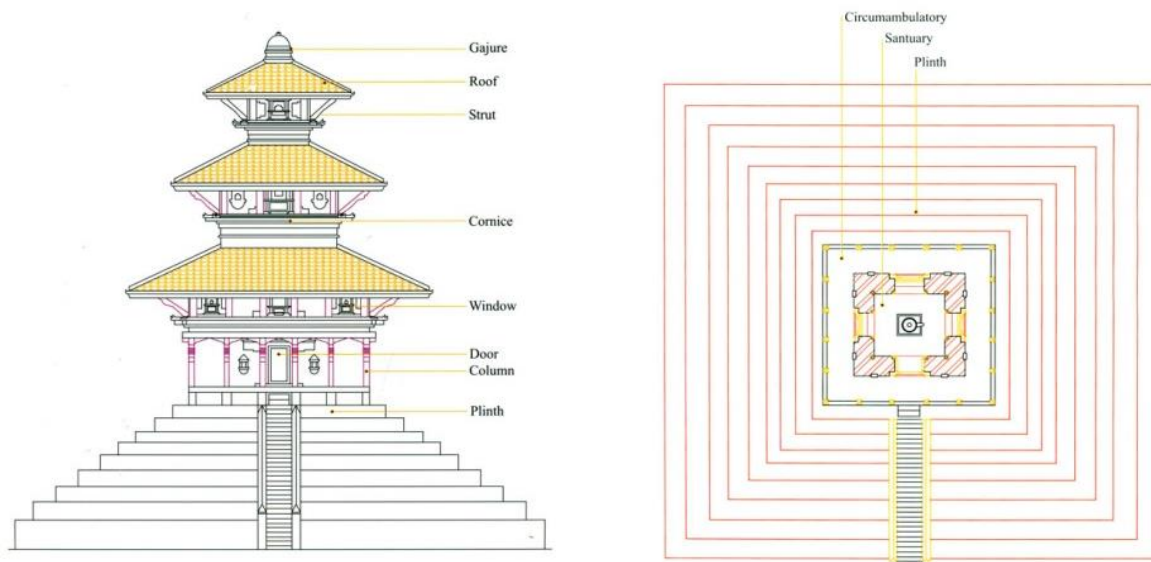


Figure: 1 Showing Elements of Nepalese Architecture
Source: *Elements of Nepalese Temple architecture* by Purusottam Dangol

SYMBOLISM AND PROPORTION APPLIED IN NEPALESE TEMPLE ARCHITECTURE

a) Symbolism:

The Hindu temple form symbolizes the center of universe, where God live. The square was considered as the perfect form. The circle and the sphere represented as God's. The square with its center, cardinal direction and limited symmetry was used to symbolize the universe. The center of the square is the garbha griha, where god's image is placed and considered as the center of the universe (Tiwari, 1989).

All Nepalese temples are conceptualized as lying on a subterranean water body. The rituals associated with the study of the temple site posturize underground form tic white nagas which represent water. Certain elements are used in the temple to convey the concept of encircling water body. Very few temple were actually built in the middle of lake e.g. Rani-pokhari. Each corner strut of the temple depicts a vyala, a winged horse-like aquatic creature. At various levels, the entablatures depict Nagapasa, the snake. Similarly, the Torana above the entrance ways include image of the Makara, nagas and fish which also represent water. Circumambulation around the temple symbolizes circling the lake. Devotees move along the passageways surrounding the garbha griha, in the case of double core wall circumambulation along the inner wall is generally limited to the priest. When the temple is raised on plinth figures along stairways were supposed to guard the deity. A lotus, agnishala and the pillar with the gods vehicle were along the central axis of the temple. The lotus defined temple area while the pillar probably defined the sacred surrounding the temple, a line beyond which the devout not entered with shoes on.

b) Proportions:

The vastushastras have represented the square as one or divided into 4,9,16,25,.....1024 square called as padas. The Nepali builders apparently restricted themselves to use vastupurusha mandalas which were divided into odd numbers squares e.g. 1, 9, 25, 49, 81,121,,961,,,. The most commonly used plan in the temples of Kathmandu was one using 81 squares. The odd number is also apparent in the temples plans with odd number bays is selected, normally 2-5

(tiwari 1989). The design module (pada for the mandala) of the temple determined by dividing the outer measurement of the temple by $2n-1$ where n is the number of tiers in a temple when odd the number of bays in the lowest core when tiers are even.

When both conditions apply, n will be the greater of number of tiers of bays. The lion face motif (simhamvah) of the smallest temple decorations is an indication of artisan's working module as their numbers are always equally each face of the temple. The standard design module determines the sizes of the temple core and the roof above. The reduction in size of the successive roofs is determined reducing the roof size by one or more modules (Tiwari 1989). The temple symbolically represents the mountain. The ideal height of a temple which the nepali builders appear to have followed dictate Matsyapurana which prescribes that the total height of the temple should be twice or three times the width of the temple plan.

STRUCTURES INCLUDED IN TEMPLE COMPLEX

The majority of traditional Nepali buildings follow a common architectural style either farm house, palace or lofty temple, construction is post and lintel (trabeated) and the primary building materials are wood and earth (brick, tile, clay mortar, sparsely supplemented with stone) combined in a specific and distinctive way. Traditionally, the buildings that are devoted to the gods are shared by men. In the Kathmandu valley, the sophisticated images in bronze and stone, symbols and objects include trees, bodies of water and especially natural stones. The Nepalese temple complex include the following building within periphery.

1. **Temples**
2. **Pillars and platform**
3. **Houses: Public & Residential**
4. **Water Resources**

1) TEMPLE

The structure layout of a temple is a building housing the symbolic fire altar, vedic, a place of sacrifice. The temple is seen as this altar standing on a square piece of earth that is floating on the waters and reached through the air space up to the void. Thus, all the five elements, water, earth, fire, air and void, called the pancha-tatva that make up the physical world, are their designated levels. The most common temple plain is square, cosmic symbolic mandala of Hindu thought. Although the shape of temple serves all gods and goddesses but certain typical shapes are assigned to some specific God. For example, Mother Goddesses occupy either square or rectangular temple. Lord Krishna is worshipped in an octagonal temple, although he can occupy other shapes too. Typically Siva, Vishnu and Ganesha, three of the most popular deities are worshiped in square temple.

The basic geometry of the temple plan-square, rectangular or octagonal is further diversified. The majority are housed on the ground floor-the cella, sanctum, or garbha griha ("womb house"). The sanctum is simply a room entered by a single door facing the image. Such a sanctum is proper for a wide variety of deities whose images usually stone relief sculpture, are set toward the rear wall. Or again, the square temple is a mandala in which the deity, the "sovereign of the Mandala", occupies the inner mansion (kutagara), the center of the sanctum is approached from a door pierced in each façade. Sanctums such as these are appropriate for the worship of a Siva linga, a Caturv yuha Vishnu or the four-faced Brahma, symbols and images that are meant to be viewed from all sides.

2) PILLARS AND PLATFORM

a) Pillars:

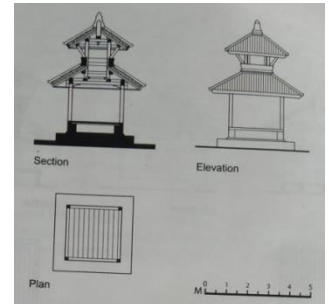
Pillars are the most interesting feature of a square. Emblematic pillars are known to Nepalis by many names, the most common being stambha, silastambha (pillar, stone pillar), dhvaja (standard flag), or dhvajastambh, garudadhvaja or simhadhvaja. Stone pillars are tall which are crowned either by human portraits or seat for the vahanas of many gods typically of the birds or beasts that serve them. The half divine them, the vehicles face the temple doors of the deities they serve. The most emblematic standard is of Garuda. Pillars are often wreathed at base or summit with a carved serpent guardian. The capital, usually cushioned by an amalaka, is typically a full-blown lotus whose broad surface provides ample space for the crowing emblem. The pillars themselves are always of stone, square, or ascending in stages from square through octagonal to round. The pillars of Nepal Mandala are fascinating architectural monuments which owe the sage preservation aloft of a number of important stone and metal sculptures.

In India, only symbolic animals are served as pillar emblem where as In Nepali pillar standards are the peacock for kumara's vehicle, and the lion, Garudas are portrait images are portrait. Axis mundi is oldest and rise directly from the ground but others

are mortised into a low pedestal in the form of a tortoise. Like the fountains, the pillars also provide valuable indices to the history of art and architecture, religion, and politics-visual information amplified by the inscriptions they frequently bear. Transitional period include votive pillars and the largest traditional building in Nepal.

b) Dabali:

Dabali in newari means dabu, phalaca, phale. It has institutional importance which has masonry platforms. Rectilinear in form, they vary in height and width, but typically are two or three feet high and twelve or fourteen feet wide. They are made of brick and dressed stone, one or both of which may be decorated. It is established next to temples, in the public squares, and in the royal compounds, where they serve as open air stages for sacred purposes. Kings are crowned on a dabali; images of the gods are displayed there, it was the traditional place for the performance of sacred dance dramas; and some dabalis have special names and designated uses.



c) Yajna –majdala:

Yajna-Mandala or Yajna-kunda: another architectural modest but ritually important structure. It is the “burnt offering pond” or “diagram”. It is a small sanctified place proper for conducting the yajana or homa, the presentation of burnt offering to the gods. Typically the Yajna-kunda or mandala is a shallow pit, hardly exceeding a square foot, simply sunk into the temple courtyard or elaborated with a raised metal frame. these are simple surface arrangements, several feet square, demarcated by a particular pattern of bricks or special paving surrounded with a balustrade.

3) PUBLIC REST HOUSES

The traditional Nepali rest houses which are free of charge for the travellers located in all towns, villages are known as dharmasala. Public shelter in Newar-Style means dharmasala, literally means “charitable asylum”. The principal function is shelter a place for people to rest, work, and socialize.

Dharmasala have different names and identify along with different shapes and sizes such as sattal , pati , mandapa , chapat . It was generally donated by wealthy individuals, religious groups or families. These donors formed a society called a guthi who were responsible for the construction and maintenance of these buildings. The concept of Nepali public rest-houses originated from the Indian pattern.

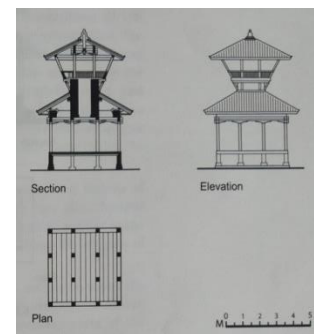
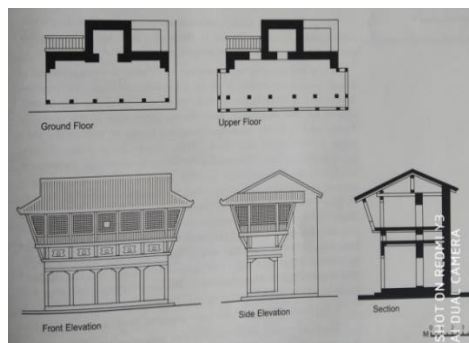
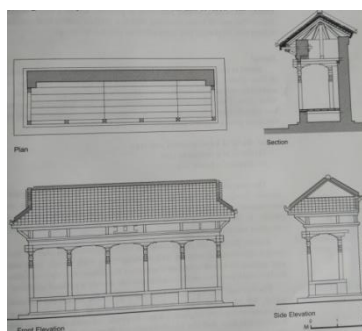
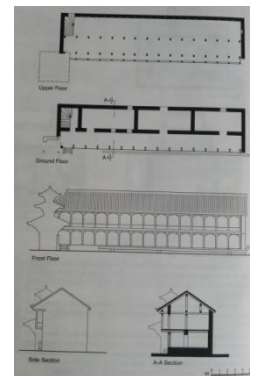


Figure: Pati (Left), Sattal (Middle), Mandapa (Right) Chapat (above)
 Source: Reference 1

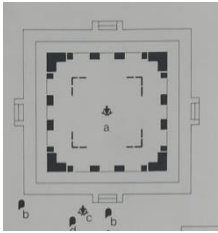
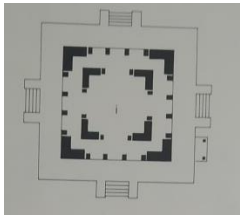


4) WATER SOURCES

Water itself is sacred, as is everything that relates to it- the vessels the well, or pond that contains it, the fountain from which it issues, or the stream in which it flows. The structures related to the storage, distribution and access to water- the riverside ghats , the reservoirs , well , and fountains are ubiquitous elements of the cultural landscapes of the Kathmandu valley.

A sacred fountain or tank has at least one or more Sivalanga or caitya or numerous sacred images associated with it. Utilitarian use of the water sources is culturally important. They serve as social centers where people gather not only for water but for social interaction; a logical place to publish proclamations that concerned the community. Water for domestic use is obtained from reservoirs and wells or from running fountains. The source of water can be issued in form of Spigot Fountain , Gaihradhara or Kunda . The source of water from where the water is spill out is classified from which material and shape it

has been made. For example, dhungedhara , sundhara , tutedhara , makara spouts etc. It was associated with a nearby fountain of running water.

ANALYSIS OF TEMPLE COMPLEX:

Descriptive Analysis	Changu Narayan Temple	Indrevara-Mahadeva Temple
<p>Location</p>	<p>Bhaktapur</p>	<p>Panuti</p>
<p>Plan</p> <p>A square room, opens on all four sides and encircled by a second wall, which has a wide doorway on each of its four sides. The deity generally is centrally placed.</p>		
<p>View</p>		
<p>Temple complex</p>	<p>Pillars, Countless number of small temples, statues of Gods, Statues of Kings and Queens, stone carvings, Shrines, Stone coloumn, Public rest houses, (Figure:)</p>	<p>Pillars, platforms, enormous temples of Gods and Goddesses, water resources (Ghats), public rest houses. (Figure:)</p>
<p>Main temple</p>	<p>Dedicated to Lord Vishnu.</p>	<p>Indreswor Mahadev temple dedicated to lord Shiva.</p>
<p>Architectural Features:</p>	<p>The temple is located near the center of the yard.</p> <p>Each side of four entrance of the temple, the two sides of the way up has been guarded with beautifully sculpted animal's statue. Such as stone lions, griffins, elephants and sarabhas (part-lion, part-bird creatures from Hindu mythology).</p> <p>The pinnacle is bell-shaped made of copper sheets with gold polish and is combination of odd subsets.</p>	<p>Located at the center of the complex built on a square block</p> <p>Each side of four entrance of the temple, the two sides of the way up has been guarded with beautifully sculpted Lions.</p> <p>The pinnacles of roof are made of hand beaten copper which is gold polish.</p>

Gajur (Pinnacles)	Tiered (pagoda) two Story	Tiered (pagoda) three Story
Style of Roof	Jhigati tiles	Jhigati tiles
Roof covering:	A bird made of metal placed at the eaves.	The upper section of the temple is hung with pots and pans
Eaves:	Available	Not Available
Jhallar:	wooden struts, which support the temples' two roofs, bear 10 incarnations of Vishnu and other multi-armed tantric goddesses.	The supporting struts have beautiful carvings of Matrikas, salabhanjikas and the hindu epic Mahabharat and Ramayan.
struts	The cornice corner bricks are especially designed (lhakha lhahpa) and project out and rest on hand – shaped wooded pieces (lhahphvah) projecting from the body of the wall.	The cornice corner bricks are especially designed (lhakha lhahpa) and project out and rest on hand – shaped wooded pieces (lhahphvah) projecting from the body of the wall.
cornice		
Stringcourses	Available	Available
Windows	First level consist of three blind windows (gh-jha). Second level consist one ga-jha	First level consists of three ga-jha with two adjacent alcove windows. Second level consist of one ga-jha with two adjacent alcove windows. Third level has only ga-jha
Door,	Three Pannelled Doorways on Four side among them one is platted with copper plated and rest are made of wood. Adjacent to the Doorways exist two alcove windows made of wood on the outer wall	Three Pannelled Doorways on Four side among them one is platted with copper plated and rest are made of wood Adjacent to the Doorways exist two alcove windows made of wood on the outer wall
Tympanum (torana):	The doorways on the four sides of the temple are adorned with golden torana (representing windows). The one placed over the main western doorway is stunning, with Vishnu as the central figurine	The doorways on the four sides of the temple are adorned with wooden torana.
Plinth	Made of stone	Made of stone

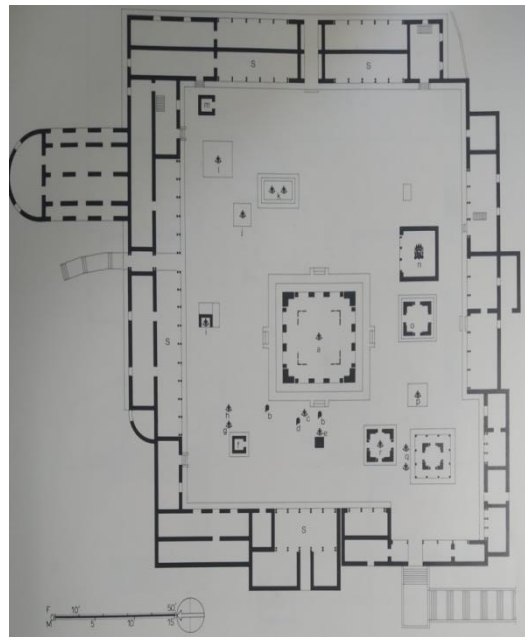


Figure: Plan of a Nepalese temple compound, Changu Narayana
 Source: Reference 1

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|---|---|
| a. Narayana (Dolasikhara-svamin) | l. Plinth of a destroyed temple, image of Laksmi Narayana |
| b. Manadeva's pillar inscription shaft and stub | m Sivalinga Shrine |
| c. Garuda (Manadeva portrait) | n. Dasamahavidya |
| d. Inscription of Sivadeva I | o. Sivalinga Shrine |
| e. Raddhilaksmi and Bhupalendramalla Portraits
Visvarupa | p. Plinth of a destroyed temple, images of Laksmi-Narayana and Visnu |
| F. Krsna-Radha | q. Plinth of a destroyed temple, images of Narasmha and Vishu
Trivikrama |
| g. Garudasana Visnu | r. Pashupatinatha tirtha |
| h. Sridhara Visnu | s. Encircling dharmasalas |
| i. Uma-Mahesvara | |
| J. Plinth of a destroyed temple, Visnu image | |
| k. Plinth of a destroyed temple, images of Visnu, Avalokitesvara and others | |

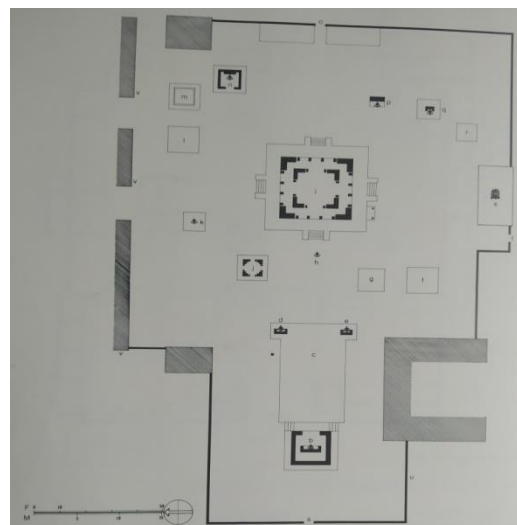


Figure: Plan of a Nepalese temple compound, Indrevara mahadeva, Panauti
 Source: Reference 1

- | | | |
|---|---------------------------|--------------------------------|
| a. Main gateway, west | h. Nandi | p. Vasudeva-Kamalaja |
| b. Supreme Visnu, gift of Jayasimha-ramavarddhana | i. Indresvara | q. Supreme Visnu |
| c. Dabali | j. Siva | r. Siva |
| d. Venudhara krsna | k. Uma-Mahevara | s. Matrka temple with Bhairava |
| e. Surya | l. Sivalinga | t. Gateway to Rossi Khola |
| f. Sivalinga | m Sivalinga | u. Masonry Wall |
| g. Sivalinga | n. Supreme Visnuv. Houses | |
| | o. Gateway to ghats | |



Figure: Temples at Treveni Ghat

Source: <http://vishramsociety.org.np/panauti-world-cultural-heritage-site/>

CONCLUSIONS:

The Nepali builders intimate knowledge of the Indian science of architecture (vastu –vidya) in Nepal of classical Indian architectural manuals known as vastu-sastras together with documentary evidence that they were actually used by Nepali builders. The architecture includes the palaces, temples, monasteries, fountains, pillars, and even the modest ceremonial platforms. The Nepali builders intimate knowledge of the Indian science of architecture (vastu –vidya) in Nepal of classical Indian architectural manuals known as vastu-sastras together with documentary evidence that they were actually used by Nepali builders. The architecture includes the palaces, temples, monasteries, fountains, pillars, and even the modest ceremonial platforms.

Nepalese architecture is a unique with distinctive characteristic which adhere the crafty use of brick and timber in construction and the overhanging tile roofs support the struts. The basic organization of all the temple types, classified by way of their roof forms and other associated architectural details, are similar in both the horizontal (i.e. plan of the temple) and vertical (i.e. Elevation) planes. The location and nature of the sanctum room, the gavakshya, kuta or agam of the upper level, the bell under the gajur, the upper core or chandrasala, and the gajur itself, all show a unity of ritual purpose behind their varying and architectural fabric.

The temple were planned as per the instruction prescribed in Vastu Shastra but were also often modified on the basis of environment and topography. The amalgamated design principle was based on the square form and the temple represents the center of the universe. Both the orientation and the proportion of these temples are based on vastushastra. The use of the square in the plan form of a Hindu temple and its symbolic bearings and all square tiered temples subscribe to the same symbolism. The Vedic prescription for drawing the square, which is required to make any sanctified space for an altar, already fixes, its orientation to cardinal directions. It can be observed from the construction method that it also enables the drawing of another square oriented to the cardinal direction. The eight cardinal and corner direction, which automatically generated by the prescription, were later theorized as potential choices for orienting the altar. The Elevation of temple also symbolize in geometry.

Nepalese temple distinguishes a ritual, symbolic and ideological diversity that lies within similar forms of tiered temples: The form of the sloped and multi-tiered roofs, the exposed brick walls, and the carved wooden doors, windows and struts. The architectural styles of religious buildings are dominated by symbolism and ritual. The design approach transfers the architectural style from one region to another along with particular culture and religion. The Kathmandu valley architecture encompasses temples and shrines, monasteries and stupas, palaces, community buildings, fountains, votive pillars and a number of other minor features. Even the fountains, ponds and wells are not merely utilitarian. They are usually created as acts of piety are surrounded with sacred images and symbols and water itself is divine.

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REFERENCES:

1. Shepherd, Mary Slusser,,Nepal Mandala A cultural Study of the kathmandu Valley, Volue 1: Text; 1998, Princeton university Press, New jersey.
2. Tiwari, Sudersha Raj, “Temples of the Nepal Valley”, 2009, Himal Books; Sthapit Pess, Tahachal, kathmandu.
3. “The Traditional Architecture of the kathmandu Valley”
4. Dangol, Purusottam, *Elements of Nepalese Temple Architecture*, 2019, Adroit Publihsers,Indial.
5. Van der Geer J, Hanraads JAJ, Lupton RA. The art of writing a scientific article. *J Sci Commun* 2000;**163**:51-9
6. Strunk Jr W, White EB. *The elements of style*. 3rd ed. New York: Macmillan; 1979.
7. Mettam GR, Adams LB. How to prepare an electronic version of your article. In: Jones BS, Smith RZ, editors. *Introduction to the electronic age*. New York: E-Publishing Inc; 1999. p. 281-304.
8. Mishra, Tara Nanda; the traditional materials and techniques used in the conservation of Nepalese historical monuments.
9. Fazeli.H and Goodarzi A. “the principles of vastu as a traditional architectural belief system from an environment perspective; Department of Architecture, University of malaya, Malaysia
10. Hari, A. R. Amazing science of vastu. s.l. : A.R.Hari, 2000.
11. Bhattacharya, Trapada. A Study on Vastuvidya or Canons of Indian Architecture. s.l. : The United PRR Patna, 1974.
12. Devi Vasudev, Gayatri and Dash, Nilakanth. Vāstu, Astrology, and Architecture: Papers Presented at the First All India Symposium on Vāstu, Bangalore, Held on June 3-4, 1995. s.l. : Motilal Banarsidass Publication, 1998.
13. Kumar, Ashwini. Vastu: The Art And Science Of Living: The Art and Sciene of Living. s.l. : Sterling Publishers Pvt. Ltd, 2005.
14. Oldenberg, hermann. The grihya Sutra. Sacred Text, [online]1886. [cited:72,2009.]<http://www.sacred-texts.com/hin/sbe/sbe29131.htm>.
15. silver, sheri. Vastu: transcendental Home design in Harmony with nature.s.l.: Gibbs Smith,2007.tions/journals/ancientnepal/pdf/ancient_nepal_135_03.pdf
16. “<http://himalaya.socanth.cam.ac.uk/collection>

FOOTNOTES:

Cornice: is a composition of several layers of projecting bricks with varied patterns. Lowest stringcourse has a minimal projection and would have a lotus –petal/leaf pattern (palepate).

Chapat: It partly serves as dharmasalas and particularly as the community hall for guthi associations. It is a long, rectangular, two-storey building structure. The ground floor is divided by masonry walls into storerooms for the guthiars affairs (musical instruments, cooling cauldrons, firewood, and so on), while the columned front sector is simply a pati. The upper floor, walled on three sides, is a colonnaded hall used for the guthiars feasts and other communal activities.

Darbar Square: Durbar square means Royal Squares in English i.e. plazas and areas around/ opposite the royal palaces in Nepal. It consists of temples, idols, open courts, water fountains, rest houses, public spaces and many more. In kathmandu valley three Durnar squares exist which belong to the three Newar kingdoms: Kathmandu Durbar Square, Patan Durbar Square and Bhaktapur Durbar square.

Doors: Doors are elaborately carved and it may have one, three and five panels with only the central one opening.

Dhungedhara / newari, lohiti: Dhungedhara means spouts made of stone from which the water is issued.

Gaihridhara: Gaihridhara or ga hiti means “deep fountain” a terraced pit into which one descends to the sources. Mirror image of the stepped plinths and tiered roofs of the nearby temples, the fountain is terraced in diminishing stages, each bricked and paved and traversed by one or more stairways. Fed by gravity flow through underground clay pipes, one or more spouts emerge from the lowermost retaining wall, and drains are provided to carry away the overflow.

Most gaihridhara are rectilinear square or cruciform but smaller fountains are often oval, rectangular with apsidal ends, or fashioned in other aesthetically pleasing and symbolic shapes. They are in fact, conceived as cosmic diagrams, the ubiquitous mandala, and even the underground clay pipes may be arranged accordingly

Gajur is the crowning piece of temple and sits on the top centre of the uppermost roof. It is made of metal sheet work and is composed of kalas with a lotus bud cover set on a representation of a lotus seat, all piled on a bell-shaped base, a form that representd a temple for the Hindus. As a construction element the gajur seals the roof at the top and are always odd and composed as a combination of odd subsets.

Ghats: Ghats access to the rivers, whose waters are sought not only for domestic but for religious purposes is by means of ghats. Constructed of dressed stone and brick, the ghats transform the river bank into broad flight of stairs that provide sage and easy access to the water’s edge. Ghats facilitate both mundane use of the river water and ritual bathing, and important prelude to most religious observances. The preferred rendezvous with death is at the riverside, bathed in its waters if possible and afterward, as ash reintegrated through it with the cosmic stream. Thus, at regular intervals the steps are interrupted with large masonry platforms, usually circular known as masan for the purpose of cremating the dead.

Hitis: also known as Ghaidhara (gahiti) or deep sunken pit taps provided for larger community use.

Inar or well brick lined wells were built primarily for private uses but also served for communal functions.

Jhallar or banner with floral and geometric designs often perforated for lightness on impact. Usually carry embossed inscriptions about the donor. The roofs with metal sheets are usually provided with thin metal eaves, jhallar or banner.

Khola: Nepali word meaning stream

Kunda: Kunda hydrological conditions permit; fountains are constructed at ground level, or only a step or two below. Such fountains are usually nearer the sloping periphery of the valley, where springs feed both them and natural pools (kunda). Together they are important tirthas that attract large number of Nepali’s for ritual bathing. The natural pools are also contained in tank-like structures, with steps provided for safe entry. To accommodate crowds, the fountains usually have numerous spouts

Mandapa: a square or slightly rectangular platform protected by a roof supported on sixteen coloums or more. It act as common shelter, town meeting hall, a public weigh station and a center for market price exchange. It is simply a railed and canopied enclosure of the deity’s image (Goraksanatha) in the middle of the ground it serves in all the ways of an ordinary mandapa. The upper stories, reached by steep stairways, are partly walled and partly enclosed by laticing to provide semi protected quarters. These are quite soberly decorated but incorporate superb carvings

Pati is a lean to roof rectangular platform, a free-standing structure. These are quite soberly decorated but incorporate superb carvings.

Pond or pokhari or reservoirs: Water tank built with large brick lined used for commercial and household purposes.

Reservoirs are typical accessories of the palace compounds. Some are quite large. Large reservoirs usually known as pokhari, daha or in Newari, pukhu which are brick-lined tanks surrounded by continuous ghat-like steps for sage access, and sometimes protected by a low wall or balustrade. They are conveniently located here and there in the towns or on their outskirts. A number of largest reservoirs, situated on the city periphery, were the donations of kings, and are in effect small brick-lined lakes, costly engineering achievements measuring several hundreds of square feet. Eg Rani Pokhari,

Sattal: it is a simple multistoried Pati or Mandapa but also have enclosed space suitable for the more permanent occupation of wandering ascetics, and in incorporating a shrine. A sattal is half shelter, half temple.

Spigot Fountain: Drinking water was often made available by means of small covered reservoirs known as “spigot fountains”, tutedhara in nepali or jahru in Newari (from Sanskrit jaladroni). They consist of a stone trough, elevated on a masonry support or built into a wall or the side of a fountain. Usually holding a few gallons and replenished by means of a funnel arrangement in the rear, the tutedhara is furnished with one or more stoppered spigots. In use from the time of the Licchavis , the

tutedharas were established at temples and tirthas, in the streets and squares and often near a well or fountains to facilitate refilling them. Usually a guthi endowment was established for this purpose.

Struts are the diagonal beams that support the temples tired roof. they are carved imageries in the struts (tunal) are of deities in anthropomorphic form and depict images.

Sundhara/ lumhiti : It is made of metal which are rare. They are carved and case in form of symbolic creatures. The most common shape is the makara, a mythical water dragon much employed in Nepali art, especially ubiquitous in pairs on the toranas.