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Vimana: A Crisis of Translation

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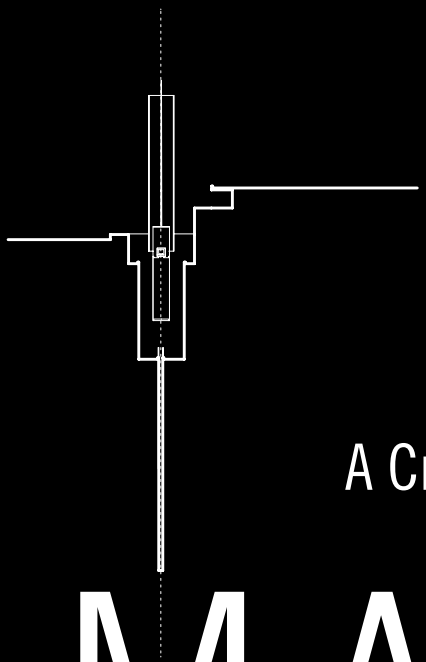

A Crisis of Translation

VIMANA

Apoorva Rao

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Syracuse University School of Architecture

Advisory Group: Richard Rosa, Elizabeth Kamell, Timothy Stenson

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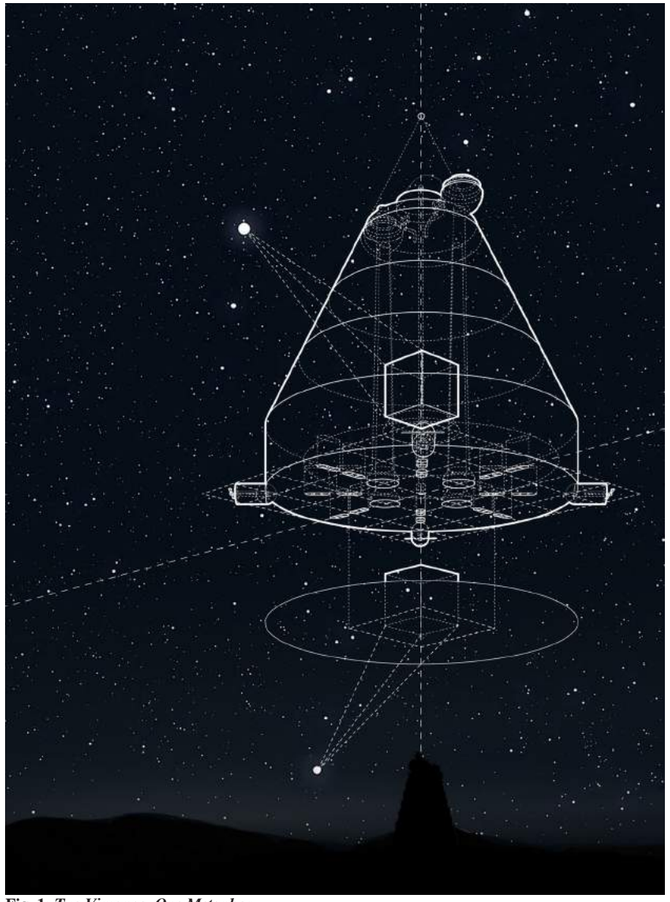

Fig. 1: ***Two Vimanas, One Metaphor***

This image is of the ancient rukma vimana, as documented in the Rg Veda, rising to the sky as the temple vimana fades into a silhouette lodged in the ground.

A MANIFESTO

The architecture of the Hindu temple, as we know it today, has become a caricature of applied style and a theater for rituals rather than the symbolic representation of the core concepts of Hinduism. There is a disconnection between the beliefs and their translation into architecture, which has resulted in a dissolution and erosion of the temple as a vehicle for the ritual spiritual journey[1]. The temple is built on a literal and conceptual framework of core essential elements such as the sanctum sanctorum, the roof, the plinth, its orientation on earth, and its function to, metaphorically, transport people from earth to the sky. Lost in this apparent evocation is the ability for the architecture to transmit and provide a permanent built monument to the universe and a conduit for the individual's soul to realize moksha (ultimate enlightenment). This thesis proposes to design a possible new evolution of the Hindu temple through the identification, extraction, and redefinition of Hindu mythology, cosmology, ritual, architectural tectonics of the temple, and the vimana as a machine. The word vimana first refers to an ancient aircraft extensively documented in ancient Indian scriptures that pre-date Hindu temples[2], translated through history to mean mythological flying palace/chariot, and then phased into temple architectural vocabulary to mean the monumental roof structure over the sanctum. The injection of the vimana's mechanistic origins back into the temple typology will result in what can be interpreted as a pre-historic future architecture.

The ambition for the architecture is to create a meaningful translation of the core essential elements of the Hindu temple and the prehistory of the vimana that will set the groundwork for the temporal continuity of its typology. This thesis may or may not operate as a prototypical framework of the Hindu temple where the essential elements are often combined to communicate its place on earth regardless of context or site.

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[1] Prof. S.K. Ramachandra Rao, *The Indian Temple: Its Meaning, (*Bangalore: 1979), 25.
[2] David Hatcher Childress, *Vimana: Aircraft of Ancient India and Atlantis*, (Kempton: 2004), 35.

FRAMEWORK

Vimana: A Crisis of Translation, is an examination of transformation, translation and relative meaning in architecture. This exploration operates as a critique of the architecture of the contemporary Hindu temple as it regards material, programmatic, linguistic and symbolic expression and performance. Unlike it's typological counter parts such as the church or the mosque, the temple has not been translated into contemporary western culture with the same rigor and care as maybe in countries such as Cambodia and Thailand. I contend that most examples of Hindu temple architecture in western culture exist as a caricature of applied/ inauthentic style and a theater for staged-ritual rather than as the manifestation of the symbolic core concepts of Hinduism[3]. This project serves to highlight the dissolution and mistranslation of the core elements of the pure typological model and its cultural intent. The thesis aims to define the design terms and tactics to construct a framework for an architectural prototype for the Hindu Temple in the 3rd millennium. The question of how to meaningfully translate a typological ideal by constructing rules of engagement based on the issues endemic to the origin, lies at the center of this inquiry. The relationships between formal structure, context, ritual and ornament gain increased relevance in the transformation from historical origin to contemporary abstraction.

It is important to note that the only purpose of the temple is to provide a ritual journey to spiritually cleanse one's negative energies and feel a spiritual presence, and therefore does not need additional program to support its existence[4]. The Hindu temple is defined by a framework of its 2 core elements: the **garbha grha**(sanctum sanctorum), and the **vimana** (roof structure), through which flows the highest concentration of spiritual energy, metaphorically transporting people into a non-physical existence at the end of the journey. It is also defined by the relationship between the human, the temple, and the earth as exponential scales of one another. These sacred scales are surrounded by the profane whether it be physical land, air, or historical context. This thesis proposes to design a prototypical temple that may set the groundwork for the temporal continuity of this typology through the identification, extraction, and redefinition of Hindu mythology, Vaastu (or philosophy of space), ritual, tectonics, and the history of the vimana as a machine. The word **vimana** first refers to an ancient aircraft, extensively documented in ancient Indian scriptures, these machines were then translated through history to mean mythological flying palace/chariot, and then phased into architectural vocabulary to mean the monumental roof structure over the sanctum. Each definition is a strategic mistranslation of a mode of transportation that has continued the existence of the word and therefore the typology, the rocket can be the next logical step as a recognizable icon that has the ability to continue the linear mistranslation in the Hindu time cycle.

A point this thesis is also arguing for is the translation of mythology into the formal architecture, and not only in its ornamentation and sculpture. The form of the temple is that of a vimana or an ode to our visual familiarity with the rocket, as Brahma is the architect of the ancient vimanic machines which were built for other gods as methods of transportation around the world and out of the world. Brahma is shunned in most parts of India and not worshiped often so this temple is a symbolic representation of this work in relation to his role as the creator of the world. The temple of his wife goddess Saraswati is then situated inside the vimana as a protected and sacred space. The narrative sequence proposed is designed such that one spirals down into the temple constantly about the axis of highest energy and then ascending back through the chakric points vertically, as per the prescribed sequence. This is a significant departure from the historical horizontal axis through which the person enters the temple as passes through the phenomenal thresholds.

As an abstract framework which defines the terms through which to construct a prototype, this thesis seeks to continue the conversation of reviving stagnant typologies and their meaningful translation.

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[3] Prof. S.K. Ramachandra Rao and D. Vikhanasacharyulu. *Indian Temple Traditions*. (Bangalore: 1997), 130.
[4] Ibid, 129.

02 PROLOGUE

A. CRITIQUE

Fig. 2: ***Interior temple of BAPS Akshardam Mandir in Robinsville, New Jersey.***

Vision of the garba grha surrounded by exquisite pillars of imported white marble lit by strategically placed LED lights. The walls are lined with examples of Indian craft art, much like a museum display.

Photo Credit : Copyright held by BAPS Swaminarayan Sanstha, Unknown photographer

The BAPS Akshardam Mandir in Robinsville, New Jersey, in particular is a disturbing example of this claim that the temple has become a caricature of style and theatre for ritual. The built environment of the temple defies the internal logic set fourth by the essence of the temple and its meaning. This temple is set up like a theater in which rituals are performed for the public in flashy displays of wealth. The outer envelope is reminiscent of a bad translation of a new jersey warehouse merged with north Indian architectural detailing. The actual temple is located inside this structure as a jewel inside a plain jewelry box. It is made of imported white marble with intricately carved statues that populate the entirety of the temple, inside and out. The ushers quietly remind people to not take pictures past the designated photo line and guide stray people to the sanctum. The traditional east/west axis entry is obscured by the designated photo area, disrupting the view of the sanctum which should be the start of the meditative journey of the mind. When one reaches the sanctum they will realize the doors to the sanctum are closed. What is the purpose of the temple if not to have a vision of the sanctum and the alter? Temples are laid out as a ritual journey from profane to the ultimate sacred space which contains the cosmic pillar, a conduit to space/ether/moksha/ enlightenment. It signifies the devotees' ascension into a higher understanding or deeper meditation where one casts away all material desires. In this respect, only the outside of the temple should be ornate while the inside slowly becomes more austere, but in this temple, there is no such gradual change. Over the loud speaker it is announced that the ritual with commence at 11:30 am. The men are seated in front, separated from the women who are forced to sit towards the back. Women who stray into the front lines are quietly escorted back to their places. The doors swing open and the speakers play the ritual chant while the LED lights inside the temple turn the room into a light show of rainbow colors. The priests waved large candelabra contraptions at the deities as the ushers offer the ritual fire to the seated devotees. The ritual promptly stops, the doors are closed and everyone files out of the temple. This performance inside a cage of marble is enough to make one wonder how the architecture is an accomplice of these theatrical rituals. Is this what the West has chosen to represent authentic Indian temple architecture and the Hindu principles of life?

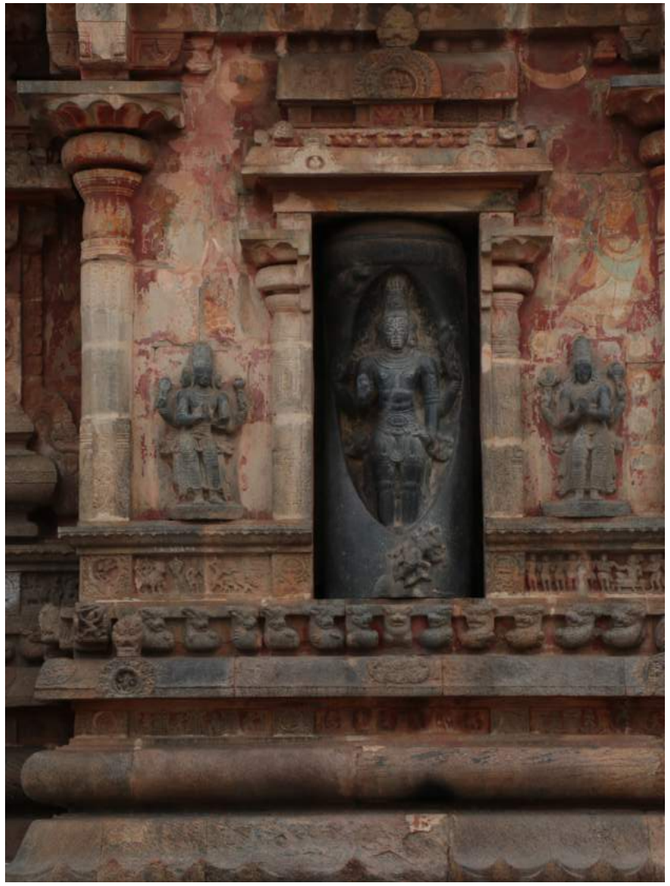


Fig. 3: ***Iconic Aniconic Shivalinga on the west exterior face of Airavateeshvara temple***

This marble Shivalinga niche insert corresponds directly to the placement and figure of the actual linga in the temple's garba grha (sanctum). It depicts the story of Vishnu as the boar and Brahma as the swan trying to find where the start and end of the cosmic pillar only to realize that they cannot know.

B. 3 TEMPLE CASE STUDY

The Hindu temple can be seen as a metaphor or the physical narrative for the temple's presiding deity. Although many temples convey these narrative elements in varying capacities, there are 3 temples in particular that translate metaphors and narrative into both an intrinsic and extrinsic architecture. Koranganatha Temple (Srinivasanallur), Airavateeshvara Temple (Darasuram), and Konark Sun Temple (Konark) are temples which exhibit an incredible scale of meticulous narrative thought which starts at the formal design stage and makes its way into the way staircase railings and pedestals are designed. Although this is not a comprehensive list of temples which exhibit these qualities, they powerful examples.

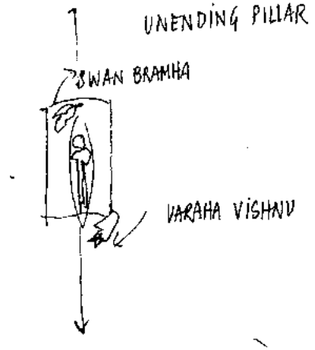


Fig. 4: ***Diagram of cosmic pillar myth***

In this myth Shiva asks Vishnu and Bramha to find the ends of the universe essentially. Vishnu becomes as boar and digs into the earth and Brahma becomes a swan and flies into the sky. When they both report back to Shiva, Vishnu obliges to not finding a definite end or beginning whereas Brahma lies and says he has. Shiva knowing the quest is unanswerable curses Brahma so that he may not be worshipped because of his misplaced arrogance. This story is one of many stories that depicts Bramha's fall from grace and justifies his lack of temples and following in India.

Fig. 5: Koranganatha temple reconstruction

The proportion of the garba grha plan to the height of the vimana is 1:2.

KORANGANATHA TEMPLE

851-899 CE, Srinivasanallur, Tamil Nadu, India.

This temple is approximately an mid-9th century Chola temple built in what is now the small town of Srinivasanallur. The Koranganatha temple is based on the description of the deity, Ranganatha, who sits on a cobra on the ocean of life. The temple sits in a moat and its vimana is proportioned like the head and body of the king cobra, under which ranganatha sleeps. This temple was said to have never been in use due to a monkey that damaged the idol in the graba grha (sanctum), hence the name Koranga(monkey in Tamil)- Natha (Rangnatha-Vishnu)[5].

[5] Saurabh Saxena. "Srinivasanallur – Koranganatha Temple." Indian History and Architecture.

Fig. 6-7: (above) the stairs down into the moat and up into the temple, (below) monster sculptures on the middle tier.

When the moat floods with water a wooden bridge is placed across to allow access to the temple. The miniature sculptures are of monsters devouring asuras(demon gods). Each monster around the temple holds a different asura.

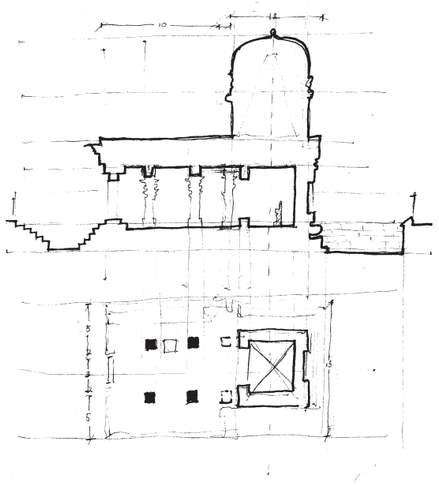


Fig. 8: Section and Plan of Koranganatha

The proportion of the garba grha plan to the height of the vimana is 1:2.

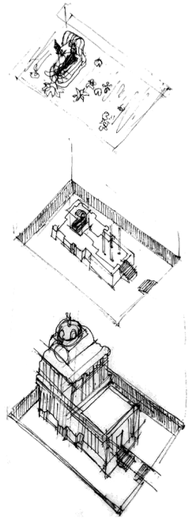


Fig 9. Koranganatha Temple Myth to Building Diagram

Series of architecture to narrative drawings.

Mythology: Ranganatha is the god Vishnu in the resting position on vasuki, his multi-headed snake vehicle.

Translation: Ranganatha sits on a plinth which is supposed to represent a lotus on top of which sits the vimana (roof) which is proportioned like the head of the king cobra, Vasuki, surrounded by a moat of water which simulates the cosmic waters

Temple: The temple is a house for Ranganatha which operates as a metaphoric space for the deity's existence

Fig. 10: Elephant details

The staircases and corners are subtly detailed like elephant trunks alluding to Airavata, the white elephant, king of elephants. There are also more explicit sculptures of elephants around the temple.

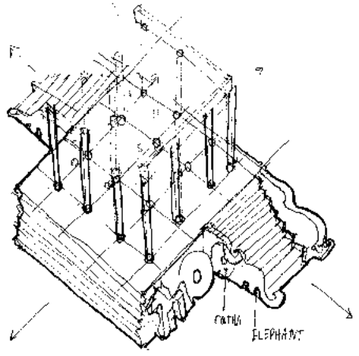
Fig. 11: Entry Gopura (Gate) and Exterior Moat

The depressed ground makes what can be interpreted as a watering hole of elephants that extends around the temple walls creating a moat.

AIRAVATEESHVARA TEMPLE

1100-1200 CE, Darasuram, Tamil Nadu, India.

Indra's white elephant is called airavata, airavat-eeshvara means the white elephant who guards the Shiva temple. The myth is that Airavata was cursed to worship the Shiva linga inside this temple by sage Durvasa for disrespecting him. The white elephant would suffer from skin discoloration which was only curable after bathing in the holy water from the Airavateeshvara temple, hence how the linga got its name. An image of Airavta and Indra can be found in an inner shrine of the temple as commemoration of the event. The temple subsequently sports afterimages and reminders of the elephant, present in stair details and water based detail construction[6].



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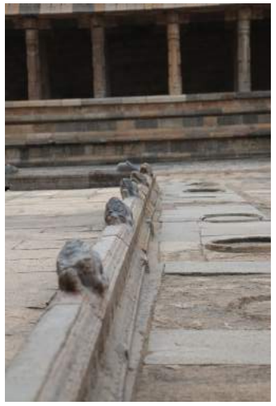
[6] "Airavata: The King of Elephants – Sanskriti - Hinduism and Indian Culture Website." Sanskriti.



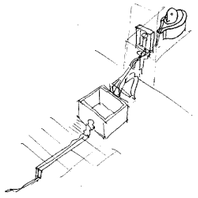


Fig. 12: Large Tank

Details of ritual water drains and mythological symbolism. The Shiva linga inside of the garba grha (sanctum) drains the sacred ritual liquid mixture (milk/ghee/banana/water) into the niche on the south side of the temple. It flows down open pipes held up by stone dwarves into a tank, a crevice drain, and finally a gutter outside of the temple.

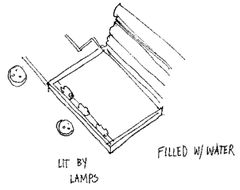


Fig. 13: Moat Pool

The shallow moats and circular indents that line the temple were filled with water and lit with little lamps on religious occasions.

Fig. 14: Corner Drain

A corner drain that siphons ritual water from a side shrine, constructed like a beautiful machine.

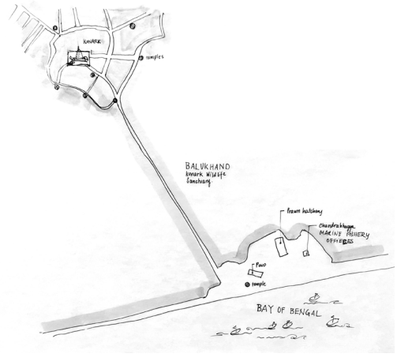
Fig. 15: Mythical Chariot Wheels

The Konark sun temple has a collection of 24 wheels, each 10 feet high with 8 spokes [7], which are decorated with mythical ornaments, some resembling various calenders and reminders of the sun, the moon, and the Indian cosmology.

KONARK SUN TEMPLE

1250 CE, Konark, Orissa, India.

Mariners relied on this temple as a landmark from sea. The architect "visualized the abode of the sun god in the form of the deity's vehicle"[8], Surya's chariot. The front of the chariot Surya's 7 horses are carved in stone pulling the stone chariot forward. The temple is built and ornamented such that one must see it morning, noon, and evening in order to understand its beauty.



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[7] Kaumundi Marathe. *Temples of India: Circles of Stone*. (Mumbai: 1998), 62.
[8] Ibid.

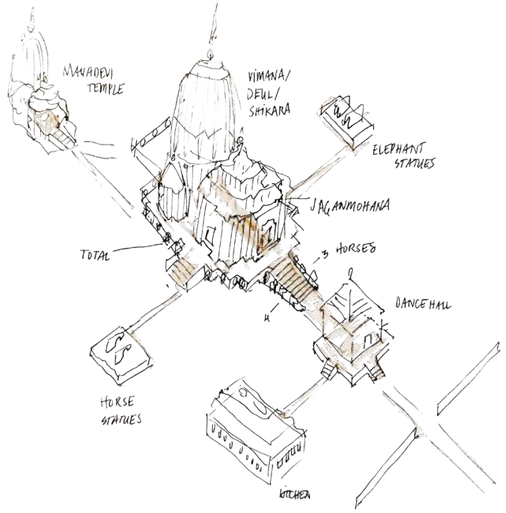


Fig. 16: Temple Axon

Konark Sun Temple's layout and collection of parts.

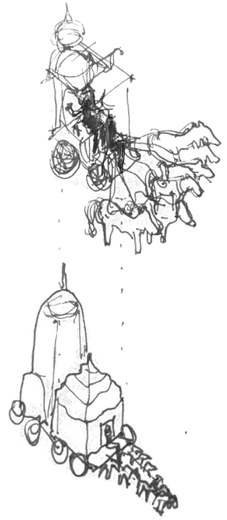


Fig. 17: Konark Sun Temple Mythology Diagram.

The Konark sun temple is laid out and detailed like the sun deity, Surya's, mythological chariot guided by 7 horses.

Mythology : Surya, Sun God, his chariot, charioteer, and 7 horses

Translation: The Chariot becoming enclosed compartments of the temple and the symbols becoming sculptures on the wall

Temple: Shows the hybrid form of a chariot and a temple with sculptures of Surya

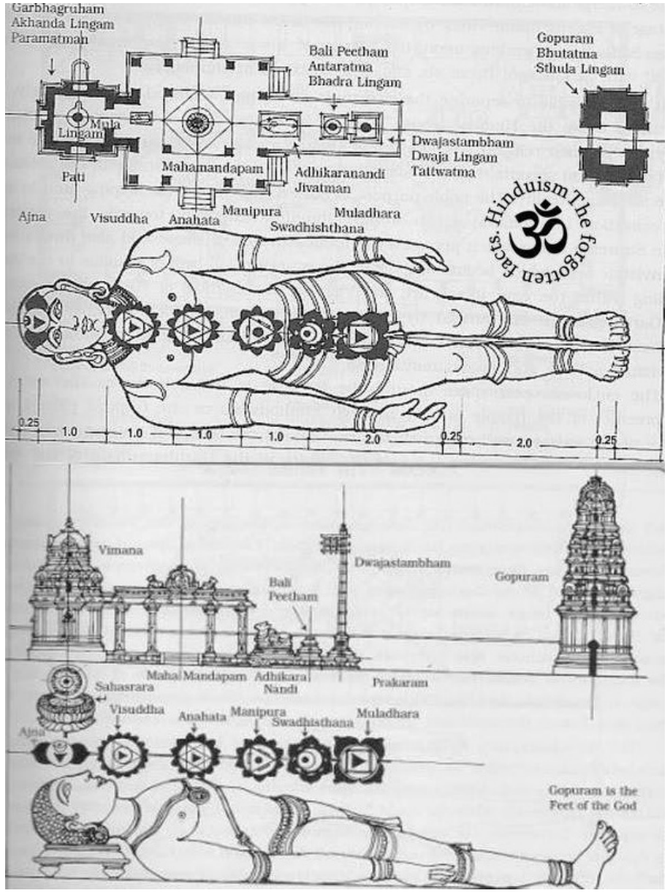


Fig. 18: ***TEMPLE AS A BODY***

The chakras of the body line up with the horizontal thresholds of the temple parts.

Photo Credit: https://www.kannadigaworld.com/news/culture/161163.html

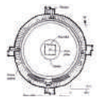
C. TYPOLOGY

The Hindu temple typology was developed thousands of years ago and perfected as both art and science. Because of this notion that it is the most perfect representation of the universe, the model of the temple was not questioned very much or for that matter reconsidered. The transplantation of the Hindu temple through the Indian diaspora to the west in the late 1970s started to expose this question of what defines a temple and what defines a copy of a temple. Temples in the United States are an incredibly diverse collection of mistranslated temples which function as community spaces meant to preserve Indian culture. Temples in the West require a complete reconstruction of the principles that govern Hindu temple architecture starting with the redefinition of parts of the Vaastu shastra (architectural treatise on philosophy of space) and architectural construction. Many Indian architectural principles and practices do not translate well into western culture because many practices are defined by the regional history and reliance on the community for an understanding of Indian cultural practices.

The translation of types such as churches, mosques, and synagogues into western culture has allowed their religious cultural practices to evolve and adapt to the current millennium, ensuring the typology's temporal continuity. In each typology the essential elements and program are transferred, and the materiality, symbolism, and construction methods are evolved.

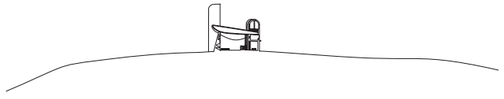
Buddhist Stupa

Sanchi Stupa



Church

Ronchamp, LeCorbusier



Greek Temple

Parthenon

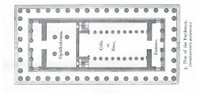


Fig. 19: ***TYPOLOGIES AS OBJECTS IN LANDSCAPES***

In different religious or spiritual typologies the buildings are generally object buildings conceived from a set of core architectural elements that can fit anywhere regardless of context. Hindu temples experience a similar treatment to Greek temples as being stand-alone structures on mountains, hills, water, in forests, and towns. Ancient temples were in a place of peace and tranquility to escape the pressures of daily life. The journey to the temple was as important to the location of the temple itself.

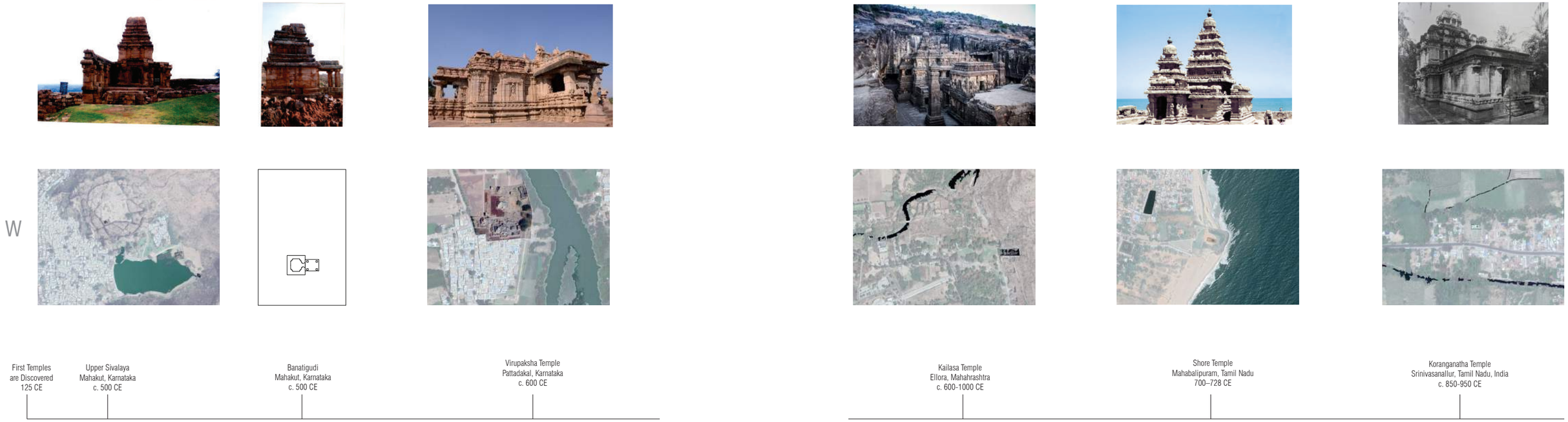
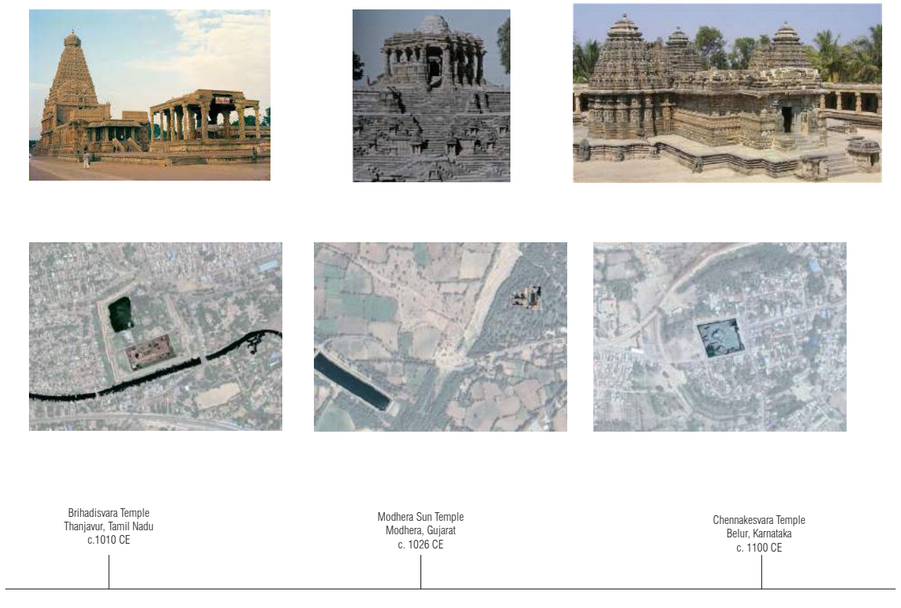


Fig. 20: ***TEMPLE TIME-LINE***

Temples in chronological order and their locations/proximity to water.



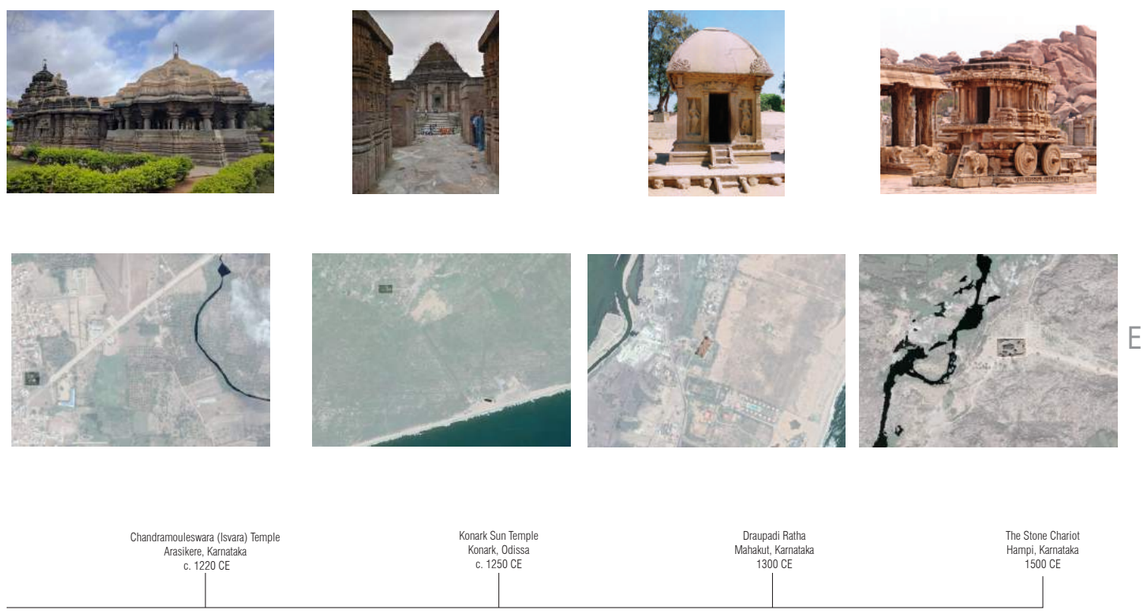


Fig. 21: ***TEMPLE TIME-LINE (CONT.)***

Temples in chronological order and their locations/proximity to water.

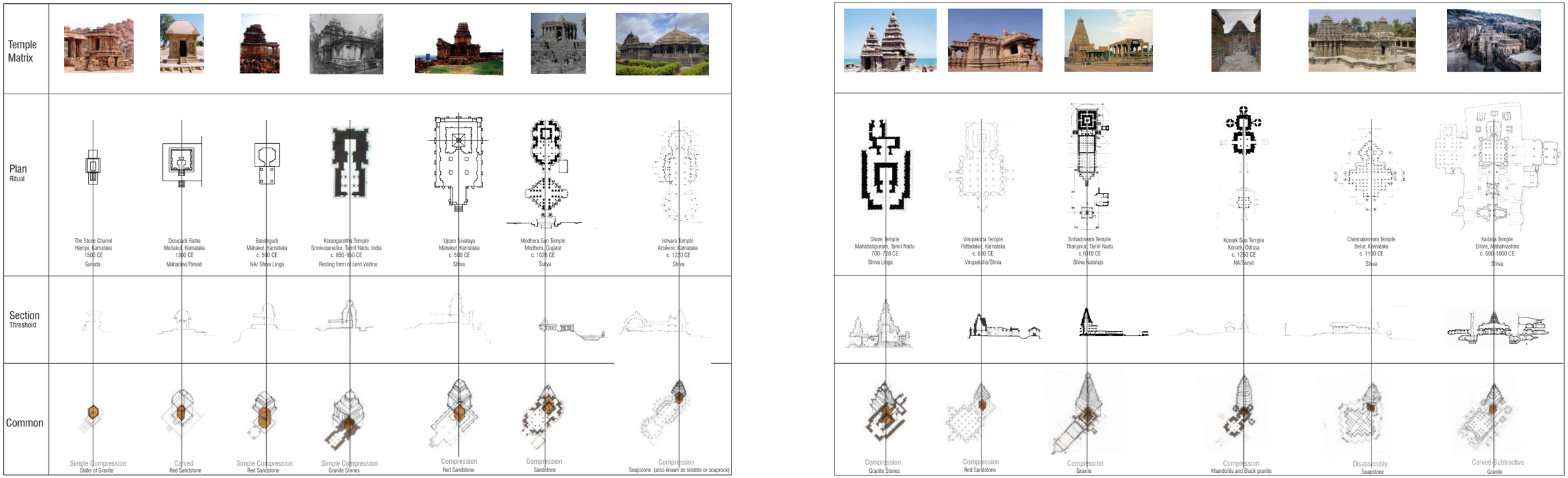
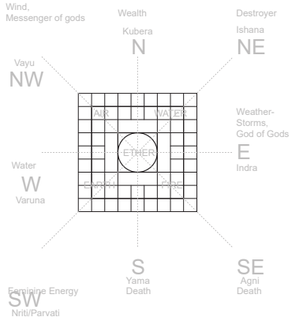
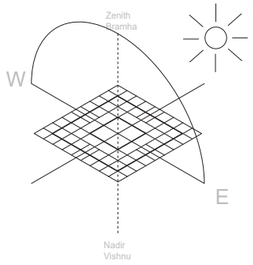


Fig. 22: ***TEMPLE MATRIX***

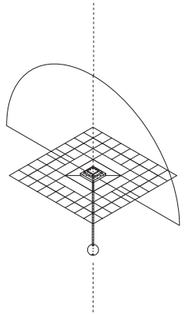
Plan, section, catalogue of garba grha and vimana.



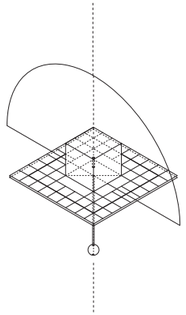
Vastu Mandala
(Cosmic Building Plan Diagram)



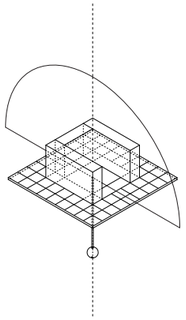
3 Dimensional
Building Diagram
Marks E/W Axis



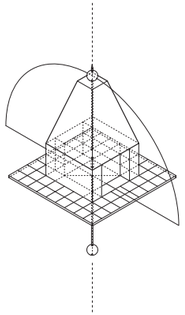
Site Ritual/
Axis Establishment



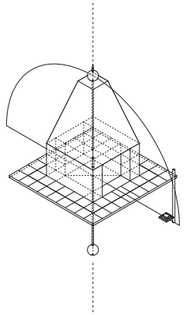
Garbha Grha
(Womb House)
Sanctum Sanctorum



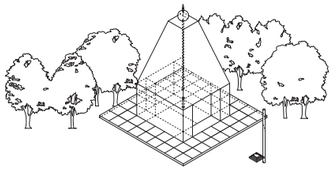
3 Walls and a Roof
Installed



Vimana
(Conduit to Ether)
Roof Structure



Marking N/S Axis with Stamba
(Pole) and Dispensation Seat



Sculptures and Nature
Mask the Sacred

Fig. 23: ***TEMPLE RITUAL CONSTRUCTION***

The major commonality in the temple components are a result of the ritual construction process of the hindu temple which starts with the sacred cosmic diagram and ends with the temple being contained in the profane.

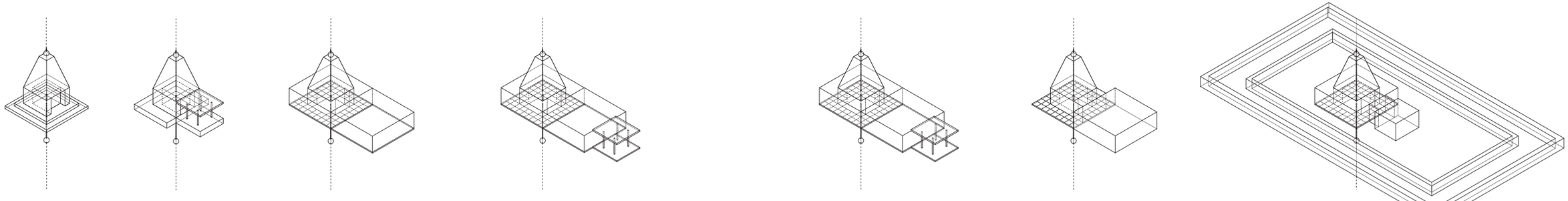
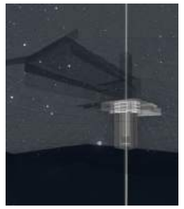


Fig. 24: ***TEMPLE RITUAL CONSTRUCTION***

The major commonality in the temple components are a result of the ritual construction process of the Hindu temple which starts with the sacred cosmic diagram and ends with the temple being contained in the profane.

03 HINDU TEMPLES



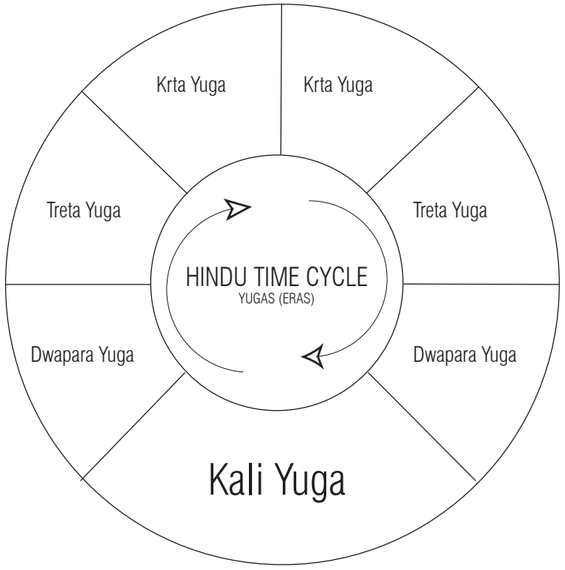


Fig. 25: ***TYPOLOGY IN THE TIME CYCLE***

A. HISTORY

In vedic history, the Indian perception of time represented as infinite cycles where each cycle is divided into 4 periods or Yugas: Krta Yuga, Treta Yuga, Dvapara Yuga, and Kali Yuga (Fig. 25). In Krta Yuga god was said to have walked amongst humans, in Treta yuga, the presence of god became scarce and desended to earth only when invoked by sacrifices and ritual, and in Dvapara, humans only had images of gods to worship and gods would come down in disguised forms[7].

Kali Yuga, the era in which we live, is considered the dark age because it is devoid of the presence of god. Public temples only appeared in this era because it is said that one can feel the presence of god in a correctly built temple with properly installed icons[8]. The symbolism of the Vastu mandala (cosmic diagram) and other icons became increasingly more important and as a result, fused into the architectural and sculptural elements.

Vimanas as ancient aircrafts were documented in the Rg veda and the Vimanika Shastra to have existed in the yugas preceding Kali yuga (during and before the Ramayana, Chronicles of a reincarnation of Vishnu as Rama)[9]. The vimana as the roof structure of a temple, was said to be modeled after these ancient aircrafts.

---

[7] Prof. S.K. Ramachandra Rao and D. Vikhanasacharyulu. *Indian Temple Traditions*. (Bangalore: 1997), 133-134.
[8] Rao, *The Indian Temple: Its Meaning, 67.*
[9] Childress, *Vimana: Aircraft of Ancient India and Atlantis*, 35.

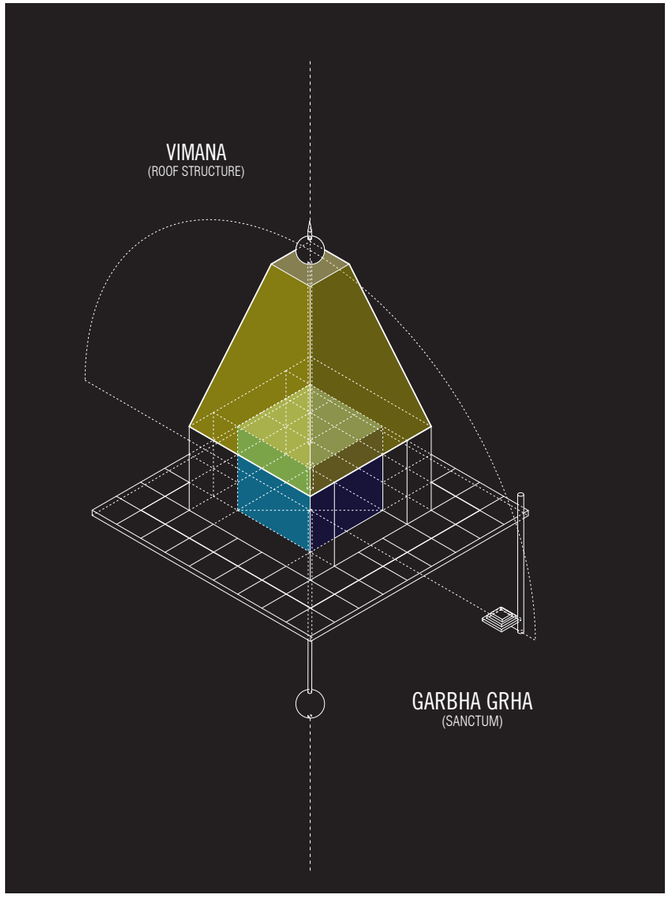


Fig. 26: TWO ESSENTIAL ELEMENTS, ROOF AND SANCTUM

The axial energy of the temple is ancored by the earth kalasha (copper pot with jewels), flows through the mandala (cosmic diagram) which sits on the plinth, and then up through the garba grha (sanctum), vimana (roof) and finally through the air kalasha releasing the energy into the ether.

B. PURPOSE AND PARTS

A temple's purpose is "not so much to pray" as it is to feel a spiritual presence. It has been imbued with various programs over the millennia: shrine, community gathering place, "art gallery, economic institution, political power, social organization, crafts- guild, fortress, and refectory[10]. S.K. Rao states that the decay of the temple as a spiritual institution is a result of the disillusionment of the temple's purpose and of its association with political and social power. He argues that the temple has become an office building filled with god fearing people who go out of obligation rather than spiritual fulfillment.

The Hindu temple's only purpose is to provide a ritual journey to spiritually cleanse one's negative energies and feel a spiritual presence, and therefore does not need additional program to support its existence. It is common for religious and spiritual typologies to be defined by their programmatic parts, form and desired location (Fig. 19). The Buddhist stupa has the outer gate with 4 toranas, an ambulatory around the anda (mound), a harmika, and a chatri. The standard components of a mosque are the mihrab pointed towards mecca, the minbar, ablution fountains, a sahn, the portal, and the minaret. The church is defined by its Latin cross or square plan, the alter and sanctuary, ambulatory space, sacristy, and a symbol of Christ. The Greek temple is iconic for its clearly defined set of parts. The cella sits on a plinth surrounded by massive columns with a roof structure that defines each layer of the roof.

The temple is defined by its set of essential parts outlined sequentially through the ritual construction of the temple (Fig. 23). First, there is a determination of the vertical axis and the horizontal East/West Axis so that the cosmic diagram of the universe (Vastu Mandala) can be placed. Then markers are placed on the vertical axis to signify the journey from the ground to the sky. At the bottom a kalasha (copper pot) is placed containing precious metals, then the sanctum sanctorum or womb-chamber, followed by the roof structure (vimana) and finally the upper kalasha on the filial (Fig. 27). The whole structure sits on a plinth and is inscribed with a dedicated clockwise ambulatory pathway around the sanctum sanctorum, either outside and/or inside the temple itself. The two main and required elements are the vimana and garba grha, the roof and sanctum sanctorum respectively (Fig 26).

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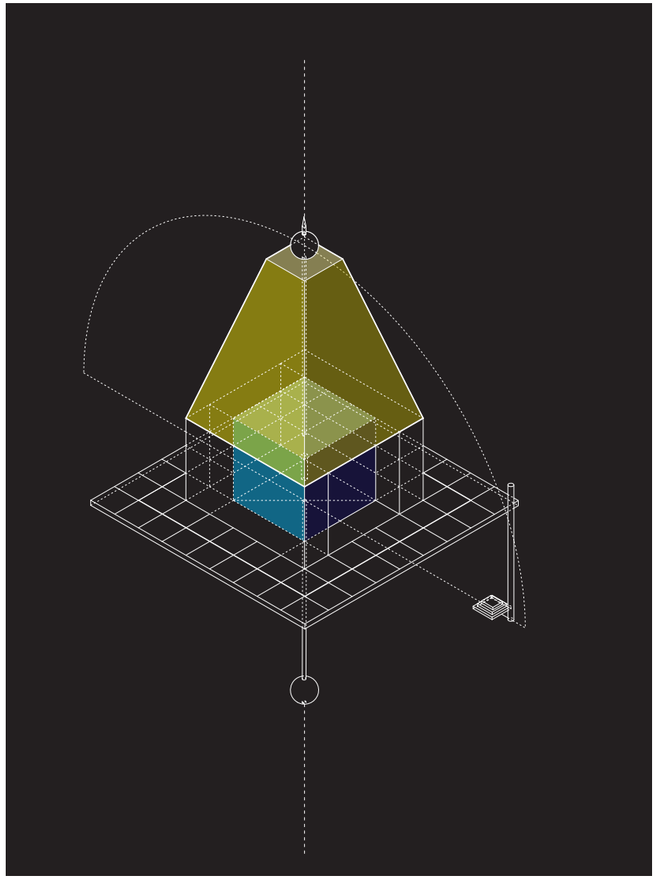
[10] Rao, *Indian Temple Traditions, 130.*



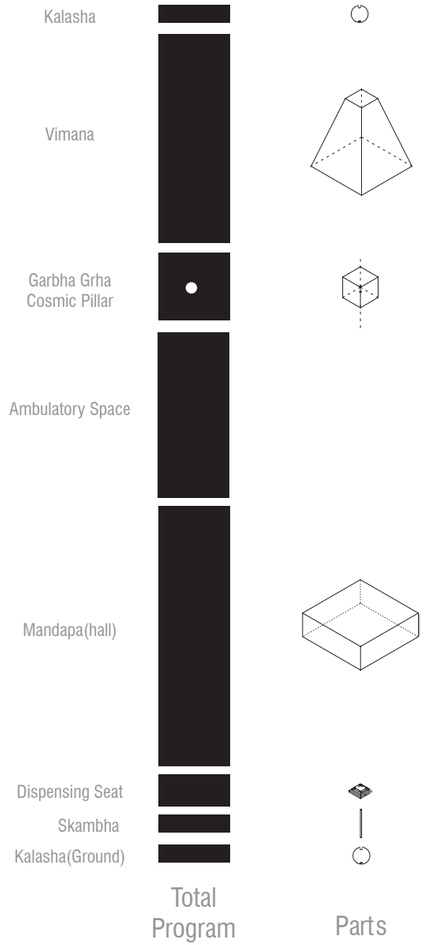


Fig. 27: INVENTORY OF PARTS

PARTS OF THE HINDU TEMPLE

Kalasha x2: The kalasha is a copper pot that, for the purposes of the temple, contains the precious metals of earth. One is placed below the earth during the consecration of the temple and another is placed above the vimana when the temple is finished. They both mark the vertical z-axis, cosmic pillar.

Vimana: a hollow monumental pyramidal roof structure that sits right above the garbha grha.

Grabha Grha: Literally meaning “womb chamber”, the sanctum sanctorum of the temple is where the seed of god is placed (the idol’s manifest or un-manifest form). This part of the temple is always square in plan.

Ambulatory Space The process of circumnambulation is very important in the hindu temple and as a result, there are generally spaces to circumnambulate around the temple, on the plinth around the temple, and around the sanctum or shrines.

Mandapa: a hall and/or porch that precedes the garbha grha (sanctum) or other mandapas that connect it to the garbha grha(sanctum).

Dispensing Seat: a pre-alter that is situated before the garbha grha (sanctum) on its E/W axis. It is usually circled in an ambulatory way and is used to perform rituals. The dispensing seat is usually shaped in the image of the vimana.

Dwaja-stamba: The flag pole and phenomenal threshold for one of the body’s chakras

Garden/Water Source: Temple rituals require for fresh flowers to be picked everyday as well as an adequate water source (well, tank, river, lake, ocean)

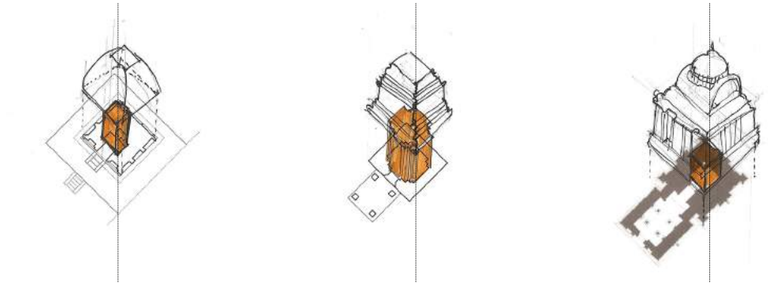


Fig. 28: SANCTUMS AND ROOFS

Collection of temples and the orientation of the garba grha (sanctum) and vimana (roof).

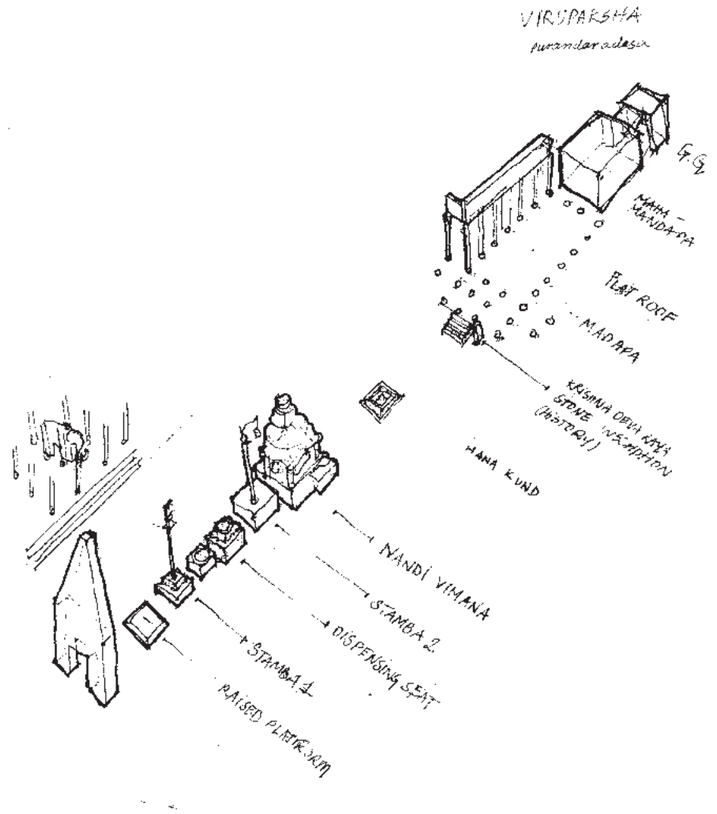


Fig. 29: PARTS AND HORIZONTAL THRESHOLDS

This sketch of the Virupaksha temple in Hampi illustrates the sequential parts in the horizontal physical thresholds as one reaches the garba grha (sanctum) in the end.

C. VIMANA

Vimana (n.)
Sanskrit Origin

01 Aircraft, Ancient flying machine

02 A mythological chariot or flying palace of the ancient Hindu gods as described in the sanskrit epics

03 The monumental pyramidal roof over the sanctum sanctorum of the Hindu temple or a gopura (entry gate)

04 Traversing, measuring out

This word, vimana, is a loaded term. It represents millennia of evolution and subsequently is the object of strategic mistranslation. The word vimana was first referred to an ancient mechanical aircraft, translated through ancient history to mean mythological flying palace/ chariot, and then phased into temple architectural vocabulary to mean the monumental roof structure over the garba grha (sanctum sanctorum)[11].

My interest lies primarily in the meaning defined in the Rg veda (a chronicle of the origins of Hinduism) and the Vimanika shastra (a disputed ancient text/manual for flying vehicles) as a machine and its visual similarity to the vimana, roof structure of the temple (Fig. 30,32). In both meanings, the vimana serves as a transportation device between earth and the sky. The aircraft vimana physically transports a being from earth to space while the roof vimana is a spiritual conduit connecting the human from earth to the sky (Fig. 33A). The temple vimana can then be understood as the translation of an ancient machine that has a lost its mechanical ability and quality overtime. This transference of meaning begs the continued mistranslation to continue the temporal continuity of the Hindu temple typology.

The temple in the current century acts as a bridge between the human and tradition. It remembers the past but has no connection to the future. I am proposing that because of the present-day relationship between technology and space travel, a conduit is created where the temple can bridge the gap between theology and science as it once did eons ago. The rocket-ship in the silo provides the recognizable symbolism that conveys transportation from the inside the ground into space, continuing and providing the mistranslation that will lead the evolution of the typology into the next yuga, dwapara (Fig. 33B). The reincorporation of mechanical elements of the vimana back into the temple will allow for western construction to adapt prescribed ritual Indian construction practices for the temple.

---

[11] Dr. Enrico Baccarin and Dr. Kavya Vaddadi, *Reverse Engineering Vedic Vimanas: New light on ancient Indian heritage*, (Florence: 2018), Chapter 5 Vimana Literature.

MACHINE

Fig. 30: ***Rukma Vimana, 2018***

TIME: Krta Yuga, Treta Yuga

The gold celestial chariot able to move with the speed of mind, was summoned to Rama's presence, and the reunited royal couple sits in the highest chamber.

MYTH

Fig. 31: ***Rama's Journey , 17 1/8 in. x 13 7/32 in.***
Media: *Opaque watercolor and gold on paper*
Himachal Pradesh Court: Mandi (possibly), ca. 1650, unknown artist

TIME: *Dwapara Yuga*

The gold celestial chariot able to move with the speed of mind, was summoned to Rama's presence, and the reunited royal couple sits in the highest chamber.

Photo Credit: Edwin Binney 3rd Collection, The San Diego Museum of Art

MONUMENTAL ROOF

Fig. 32: ***Brihadeeshwara Vimana***

TIME: Kali Yuga

Brihadeeshwara temple is a classic example of a monumental vimana roof. It can be seen over a great distance and is a signifier of the Tanjore art and architecture tradition. It's roof is inhabitable and has dance poses carved into its walls.

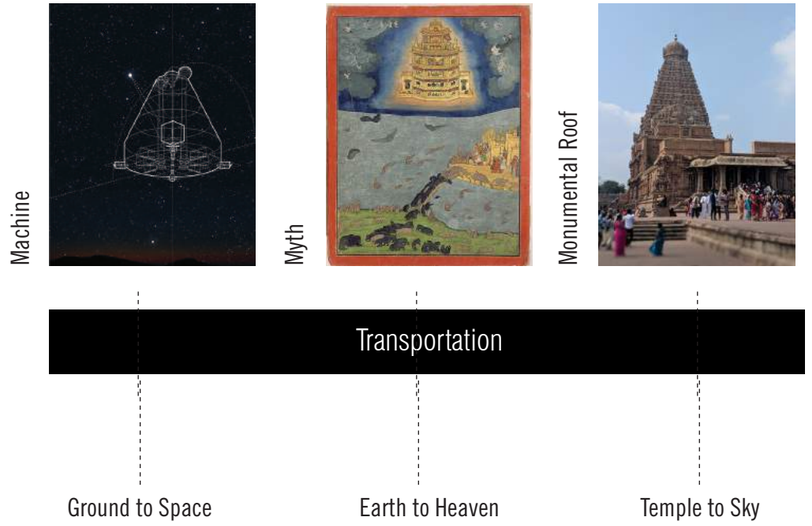


Fig. 33A: ***Vimana as Transportation***

The one prevailing definition of the vimana is that of transportation or the act of transversing from one place to another, physically or non-physically.

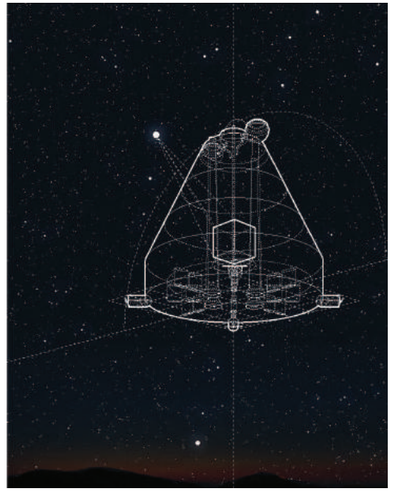
Kreta Yuga

Treta/Dwapara Yuga

Kali Yuga

Dwapara Yuga

Machine



Ground to Space

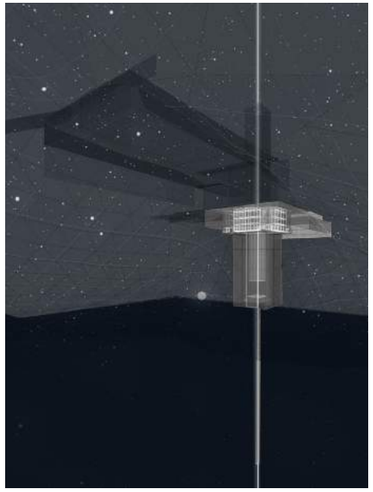
Myth

Earth to Heaven

Monumental

Temple to Sky

Temple Rocketship



Temple to Universe

Fig. 33B: ***Vimana as Transportation (Part 2)***

The temple as a rocket-ship is the strategic mis-translation that will continue transport people of this age from in the earth to the rest of the universe where gods may or may not exist.

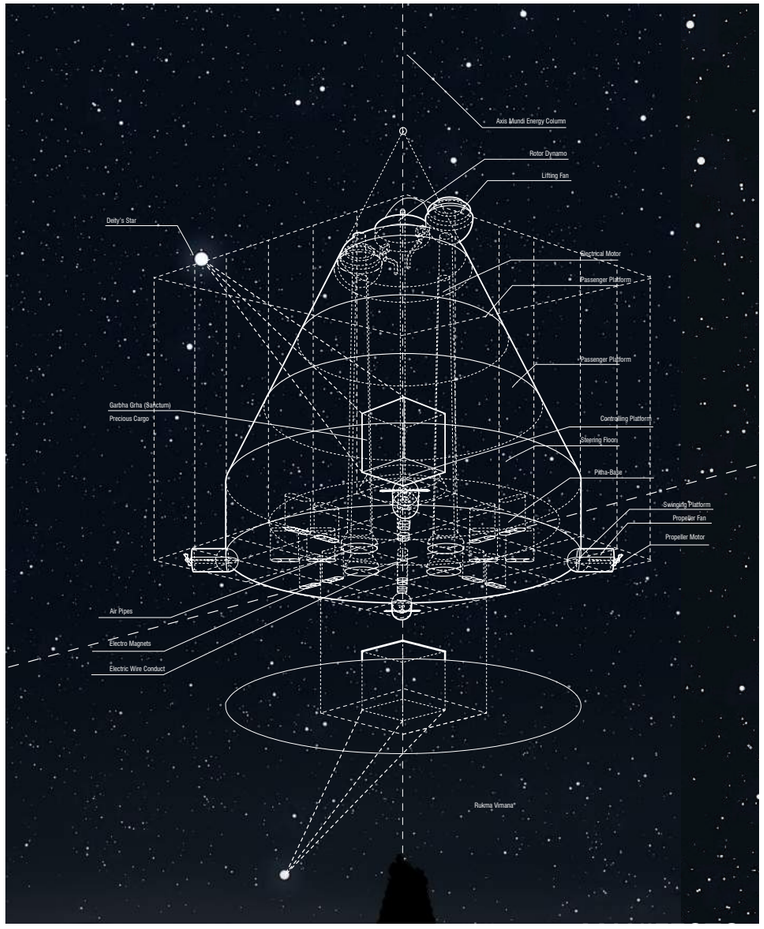


Fig. 34: Vimana as Machine

The mechanical parts of the Rukma vimana from the drawings done by T.K Ellapa, Bangalore, 1932.[7]

1. MACHINE: SPACE-SHIP

The aircraft vimana is a mechanistic marvel of advanced technology which used different forms of propulsion (antigravity, solar, wheels, aerodynamic wings etc…) and served a variety of functions (exploration, transportation, enjoyment, war etc…). The mechanistic origins of the vimana are essential to the history of the temple. This reclamation of mythological history will inject a new vitality and redefine the parts put forth by the new temple typology.

Different Vimanas documented in the Rg Veda [12]

Jalayan
A vimana designed to operate in water and air
(Rg Veda 6.58.3)

Kaara
A vimana that operate in ground and water
(Rg Veda 9.14.1)

Tritala
A vimana consisting of three floors
(Rg Veda 3.14.1)

Tri Chakra Ratha
A three wheeled vimana designed to operate in air
(Rig Veda 4.36.1)

Vayu Ratha
A vimana powered by wind or gas
(Rg Veda 5.41.6)

Vidyut Ratha
A vimana powered by solar energy
(Rg Veda 3.14.1)

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[12] Shivanandam M. ,"Mercury Propulsion System in Vedic Vimanas and Modern Spacecrafts", *International Journal of Research and Analytical Reviews 2*, no. 2 (2015):138.

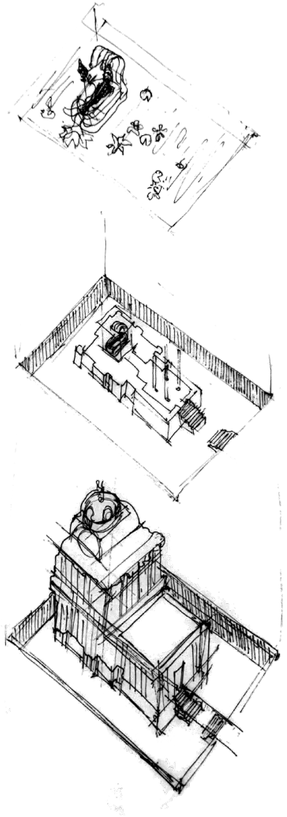

Fig. 35: Koranganatha Temple, Tamil Nadu

The representational image for ranganatha sleeping on the cosmic water is translated into a temple

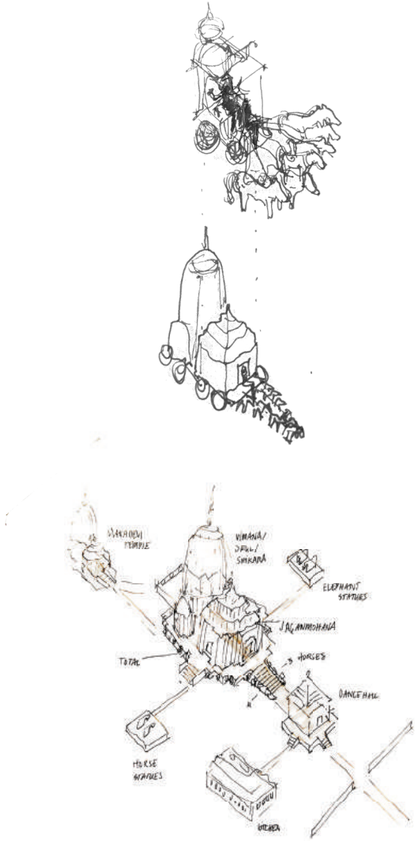

Fig. 36: Konark Sun Temple, Orissa,

Surya's (Sun god) chariot is literally translated into a temple which represents the wheels and horses as stone vestiges.

2. MYTH: CHARIOT

In the next yuga of Indian cyclical time when gods lived amongst humans, humans perceived vimanas as flying chariots. The vimana in ancient Indian mythology refers to a flying palace or chariot that took deities from the world of the humans to the world of devas (demi-gods), from country to country, and from the sky to the ground. There are many examples of vimanas, as chariots ot vehicles in the sanskrit epics which service different royal families and deities to carry out their needs. The pushpaka vimana in the Ramayana is used by the demon king Ravana to abduct Rama's wife, Sita, from was is now India to Sri Lanka. "Flying Vimanas were cited at 41 places in Mahabharata. The asura king Salva had an aerial vehicle called Saubha Vimana with which he attacked Dwaraka capital of Lord Krishna. He began to shower missiles and landed in the high seas[13]."Krishna also has his own vimana.

The mythological chariot vimana can be treated as an interpretation of the machine which was then literally translated into the structure and iconic figure of the temple. Two examples of translated metaphors can be seen in the Koranganatha temple in Tamil Nadu and Konark Sun Temple in Orissa. The translation of their narratives into the physical form of the building shows the complexity of the design that pervaded Indian architecture of that time period.

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[13] Shivanandam M. ,"Mercury Propulsion System in Vedic Vimanas and Modern Spacecrafts", 139.

Fig. 37: Small, Vimana

A small sculptural vimana above a smaller shrine attached to the temple.

Photo Credit: Unknown

Fig. 38: Medium, Vimana

The miniature shrine outside the temple.

Photo Credit: Apoorva Rao

Fig. 39: Large, Vimana

The dispensing seat which physically looks like a smaller version of the roof vimana itself.

Photo Credit: Apoorva Rao

Fig. 40: Xtra Large, Vimana

Brhiadeeshvara temple has one of the largest vimanas in India.

Photo Credit: Apoorva Rao

3. MONUMENTAL ROOF: S M L XL

The architectural vimana is a monumental piece of compressive stones that sit on top of the garbha grha (sanctum sanctorum). The vimana is made up of talas, or layers of stone. This roof structure has been developed throughout history into different styles such as the Dravida (Southern), Vesara (Hybrid), and Nagara (Northern). Each of these styles were shaped as a result of the regional cultures to which they were exposed. Each vimana, however dissimilar in physical style, metaphorically represents cultural symbols such as sacrificial fire (yagna), the divine tree growing into the sky and a cosmic pillar which acts as the conduit for souls to realize moksha.

The complexity of the vimana can be seen in its unique ability to manifest itself in a range of styles of and on the temple. The vimana becomes the "basic building block of full-scale buildings in the Deccan and in other parts of South Asia. Small versions of the temple appear on lintels, door jambs, basement moldings, on interior and exterior walls, on cornices, clerestories, entablatures, on superstructures, on almost any and every sculpted surface of the temple"[14]. The vimana is represented in the temple as the unit of form that manifests itself in multiple variations and scales. It is extra-large at the roof scale, large at the aedicule scale, medium at the scale of the dispensing seat, and small at the sculpture scale.

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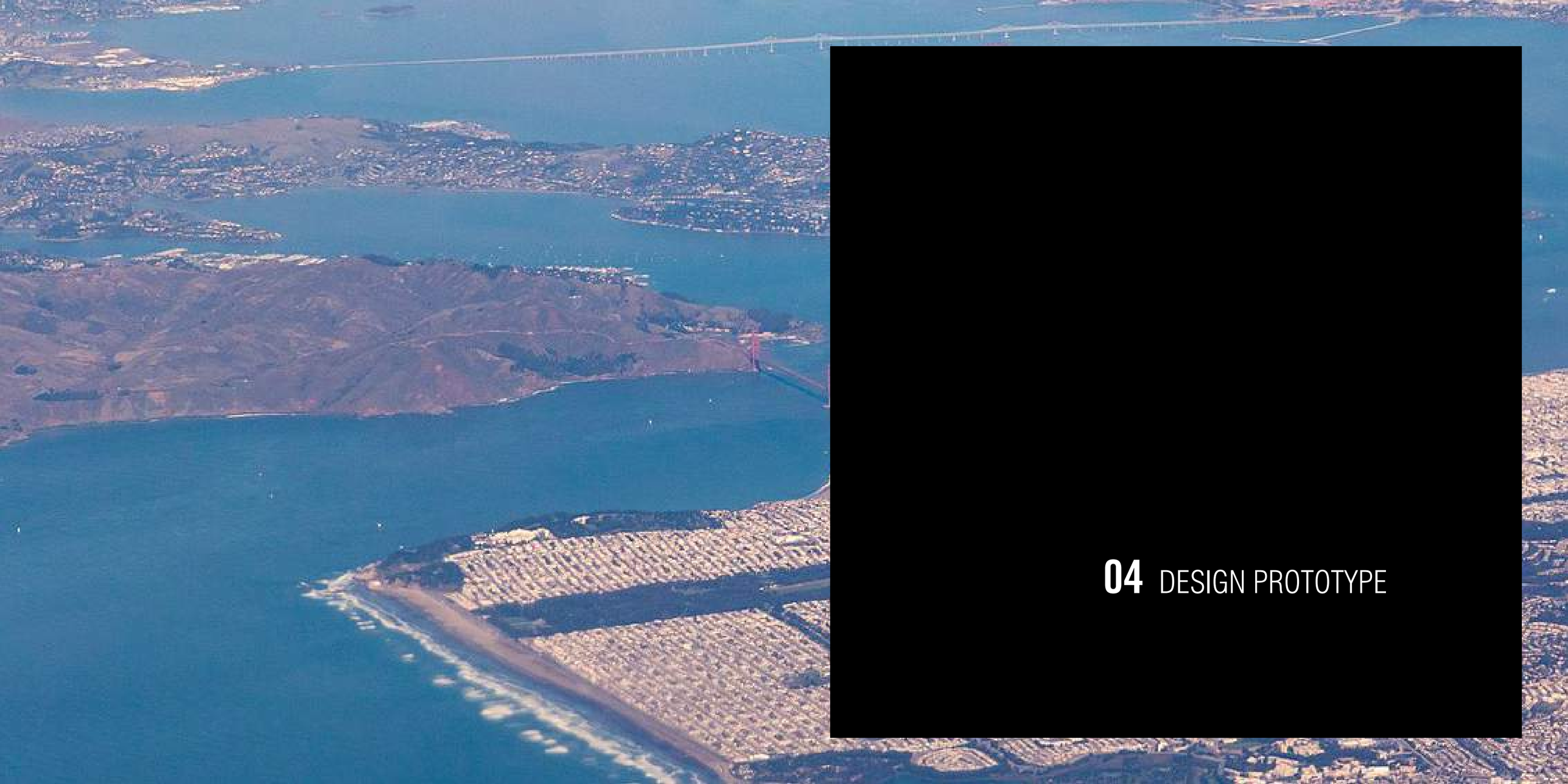
[14] Subhashini Kaligotla . "Shiva's Waterfront Temples: Reimagining the Sacred Architecture of India's Deccan Region."(Columbia University:2015), 63-64.



04 DESIGN PROTOTYPE

A. 3 PROPORTIONS, 4 SCALES, 5 ELEMENTS

The hindu temple was perceived by ancient Indians as the confluence of 3 scales of the universe: the human, the temple, and the earth. The essential commonality in all these scales are the base, the core, and the axis, and the representation of all 5 natural elements: earth, water, fire, air, ether in the form of human chakras, syntax of temple architecture, and physically present in the earth[15].

As mentioned previously, temples emerged in the Kali Yuga out of the need for physical spirituality which supplemented the meditation over home shrines. The temple's purpose and identity has gradually corroded over time. Temples were at first communal home shrines to individual village deities who, much like Greek mythology, were personified elements of nature. As civilizations expanded and societal structure became more complex, it became apparent that more complex higher powers needed to be represented. It was then that Brahma, Vishnu, and Shiva became popularly recognized as the forces that govern the cycles of life and the universe: creation, maintenance, and destruction. Temples, as a result, became more complex in their architectural syntax to accommodate larger crowds, community activities, performance art and music, and marriage[16].

Fig. 42: ***HUMAN, TEMPLE, EARTH***

This depiction shows the confluence of the three divine scales of the universe and how they interact.

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[15] Rama P. Coomaraswamy, *The Door in the Sky*, (Princeton: 1997), 178.
[16] Kaligotla, "Shiva's Waterfront Temples: Reimagining the Sacred Architecture of India's Deccan Region", 63-64.

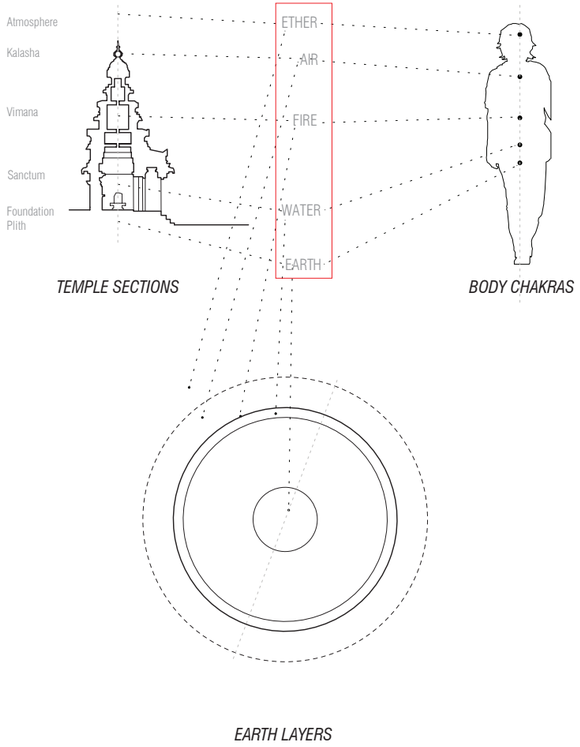


Fig. 43: THREE DIVINE SCALES AND THE ELEMENTS

Each proportion: body, temple, and earth, have the same representational elemental makeup of earth, water, fire, air, and ether defined by their respective parts.

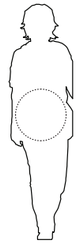


Fig. 44: Scale 1, Human Scale, *Womb*

The word garba means womb refers to the ability for the woman to bear life.

Fig. 45: Scale 2, Temple Scale, *Garba Grha (Sanctum Sanctorum)*

The temple's sanctum is reflective of the woman's womb as a dark primal place where nothing but life and energy exists.

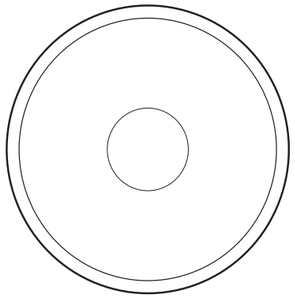


Fig. 46: Scale 3, Planet Scale, *Core*

The core of the earth is representative of both the center of a woman and the center of the temple.

B. SCALE 1: SITE

Marin Headlands, CA, USA 37°49'27.6" N 122°29'57.7" W

A temple is a symbol of the universe which tracks a spiritual and physical journey from the profane to the sacred. In this case the profane being the land in relation to the sacred temple. It is a visual history of mythology and a reminder of identity and origin. An Individual goes to a temple to feel a spiritual presence, to be surrounded by meditative images and calming thoughts. It is a quiet journey into an induced sleep state where at the end, the body and soul are cleansed on their way to achieve ultimate enlightenment. The missile base and silo on site can also be considered the profane element in relation to the sacred temple Rocket-ship which can be considered the positive counterpart to the negative history of the SF-87 Nike missile base.

Hindu temples are generally stand-alone structures located in environments that facilitate contemplation and peace. They are built away from urban society or as a sanctuary from the pressure of daily life/ urban life. If they happen to be in urban spaces, they are surrounded by trees as natural sound barriers. Location of site should not be near crematorium, near any public place, and should be selected far from public centers to avoid hindrance in day-to-day life. For the major part temple should be situated in places closest to the sky, in forests, on hills, on water, and in caves. "It was customary in the olden days to select a site for building a temple near a natural and perennial source of water. It is usual to find in old temples a natural or artificial pond..."[17]. "The buildings' scenic locations on riverbanks, alongside artificial lakes and waterfalls, and atop sandstone bluffs offering panoramic vistas further enhance their visual appeal"[18]. The temple's proximity to a water source, be it ocean, sea, lake, river, tank, or well, is very important because of the prevalence of water-based rituals and access to basic hygiene. Daily rituals are performed by the priests in the temple to prepare for the day's activities like cleaning the enclosure, cleaning vessels used in rituals, removing old flowers and putting new ones, preferably fresh garden grown flowers, and collecting freshwater for the day.

[17] Prof. S.K. Ramachandra Rao, Indian Temple Traditions, (Bangalore: 1997), 277.
[18] Subhashini Kaligotla. "Shiva's Waterfront Temples: Reimagining the Sacred Architecture of India's Deccan Region.", 1.

Fig. 47: MARIN HEADLANDS OVERLOOKING SAN FRANCISCO BAY

Fig. 48: NIKE MISSILE BASE, SF-87 HAWK HILL

Each proportion: body, temple, and earth, have the same representational elemental makeup of earth, water, fire, air, and ether defined by their respective parts.

Fig. 49: NIKE MISSILES

Each proportion: body, temple, and earth, have the same

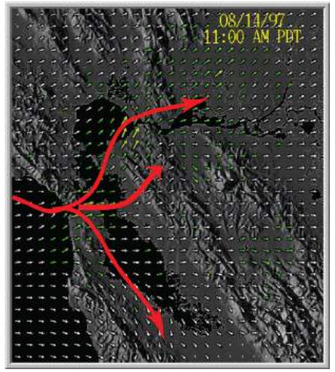
History of Marin Headlands

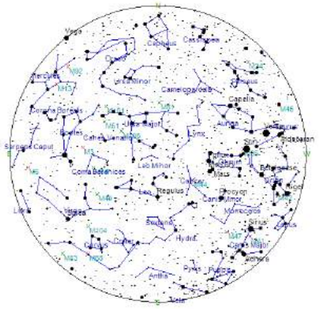
2000 BCE	Coast Miwok tribe artifacts are found to date back 4000 years in the Marin Headlands
0 CE	
1579 CE	Coast Miwok tribes by a priest on a ship under the command of Sir Francis Drake
1776 CE	Spanish military, missionary, and civilian settlers began arriving in the San Francisco Bay Area
1780-1810 CE	Coast Miwok tribes are introduced to disease, forced labor, and religious and societal indoctrination had led to the demise of their way of life
	Spanish and Mexican rancheros, later giving way to Portuguese dairy farmers
1890 CE	Marin Headlands began to see U.S. Army settlements
1907 CE	The army owned all of the Marin Headlands
1940 CE	WWII-era military fortifications are still intact today for guests to explore, including Battery Townsley in Fort Cronkhite
1947 – 1991 CE	Marin Headlands became a top-secret location for Cold War initiatives, including two NIKE missile sites and rumored CIA operatives
1960 CE	The U.S. government sold more than 2,000 acres of land in the Marin Headlands to a private developer who planned to build a city in these rolling hills just north of San Francisco. A small group of local citizens, incensed by the prospect of development and the process the developers had undertaken, pursued every vein they could to put a stop to Marincello -- and were ultimately successful.
1972 CE	Creation of the Golden Gate National Recreation Area, an effort supported by the Golden Gate Council of American Youth Hostels (now the Golden Gate Council of Hostelling International USA)
1978 CE	The National Park Service leased the old Fort Barry infirmary building to the fast-growing youth hostel organization, making it the second of six Golden Gate Council hostels on National or State Park land.

Fig. 50: ***PROJECT NIKE MISSILE BASE PROXIMITY TO SITE***

The abandoned Nike Missile Control Site F-87 from the 1940s is right next to the Marin Headlands site.

Photo Credit: Google Map Images





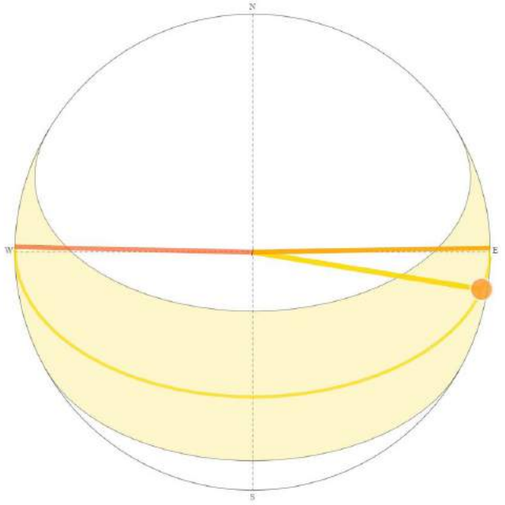


Fig. 51-53: ***PROJECT NIKE MISSILE BASE PROXIMITY TO SITE***

The abandoned Nike Missile Control Site F-87 from the 1940s is right next to the Marin Headlands site.

Photo Credit: Google Map Images

Fig. 54: ***JEFFERSONIAN GRID***

The abandoned Nike Missile Control Site F-87 from the 1940s is right next to the Marin Headlands site.

Photo Credit: Google Map Images

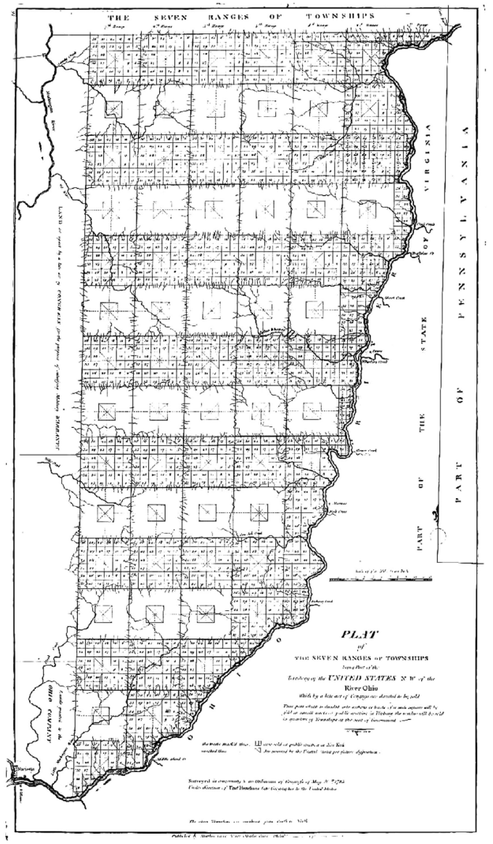


Fig. 55: ***JEFFERSONIAN GRID***

The abandoned Nike Missile Control Site F-87 from the 1940s is right next to the Marin Headlands site.

Photo Credit: Google Map Images

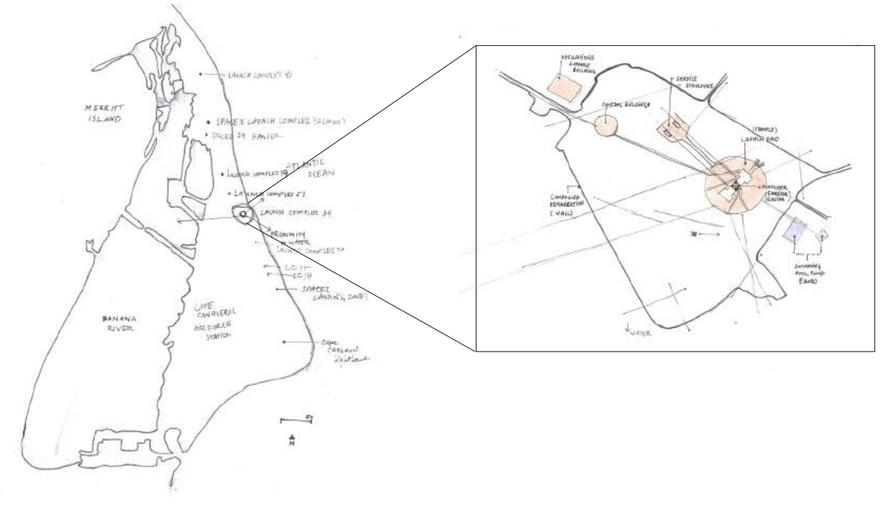


Fig. 56: ***CAPE CANAVERAL AIR FORCE STATION LAUNCH COMPLEX 34***

Analysis of the now-abandoned complex 34 site in Cape Canaveral and its layout similarity to hindu temple complex

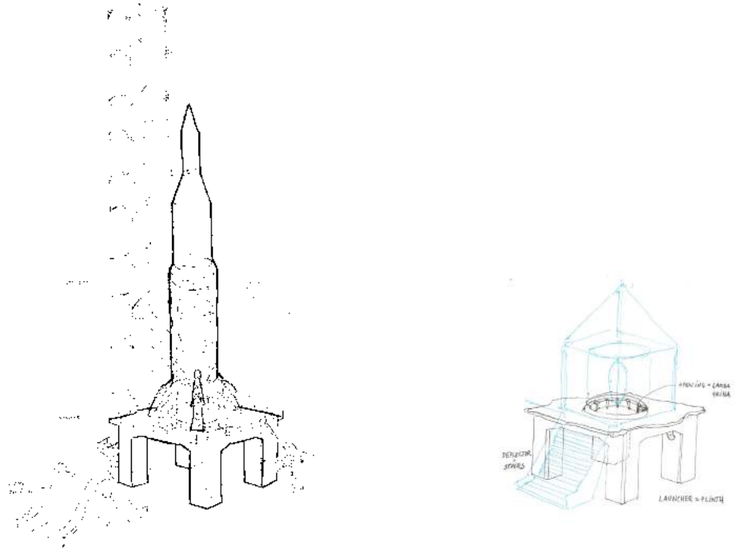


Fig. 57: ***COMPLEX 34, ROCKET LAUNCHER***

Diagram of the rocket launcher and its parts. Like the vimana, the rocket has much the same anatomy: A foundation support(plinth), A chamber holding an important item(sanctum), and a pyramidal upper structure(vimana) which functions to transport the rover to space.

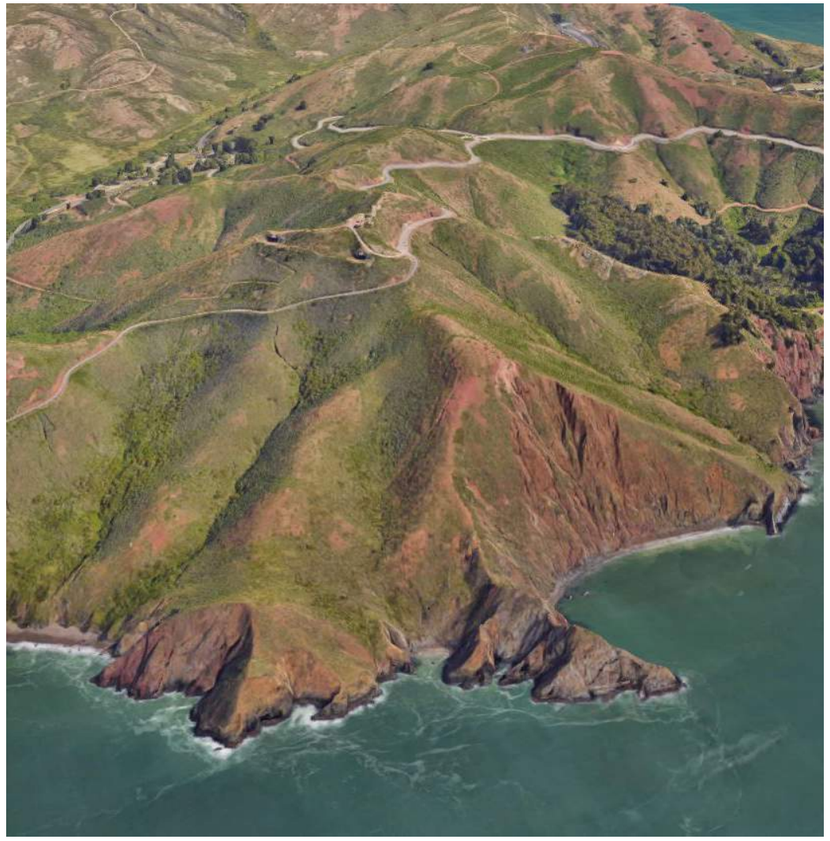


Fig. 58: ***NORTH AXON VIEW***

Photo Credit: Google Map Images

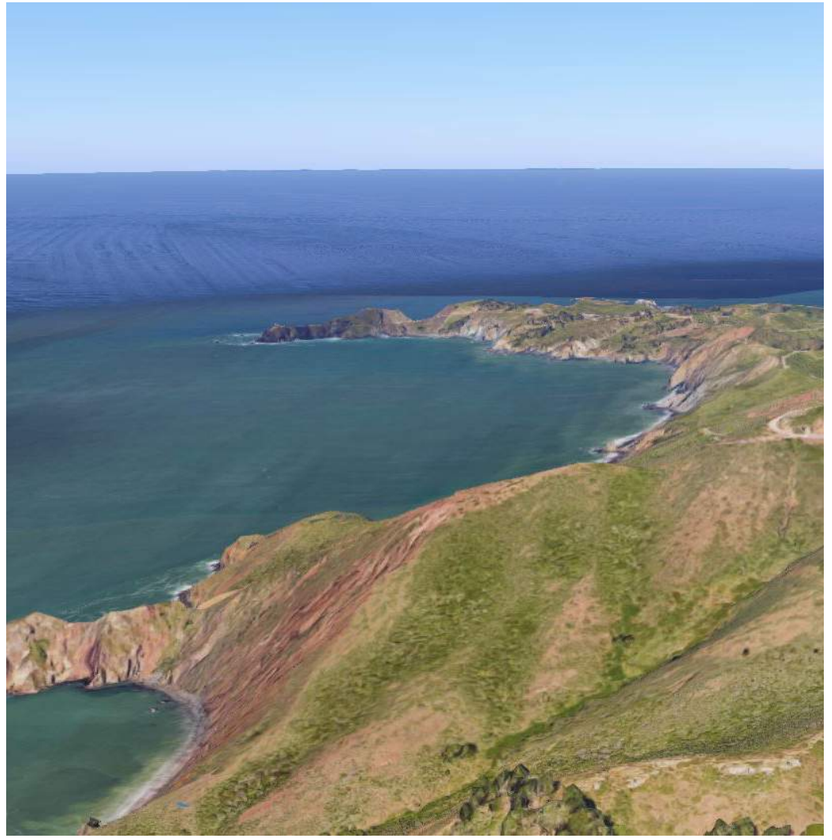


Fig. 59: ***EAST VIEW***

Photo Credit: Google Map Images

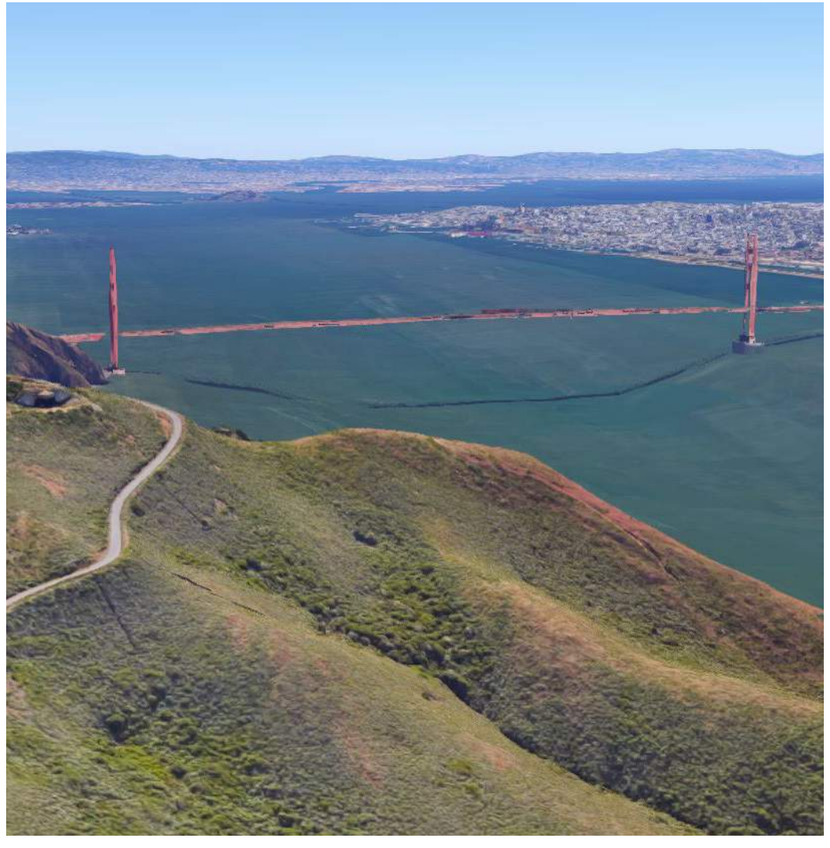


Fig. 60: ***WEST VIEW***

Photo Credit: Google Map Images

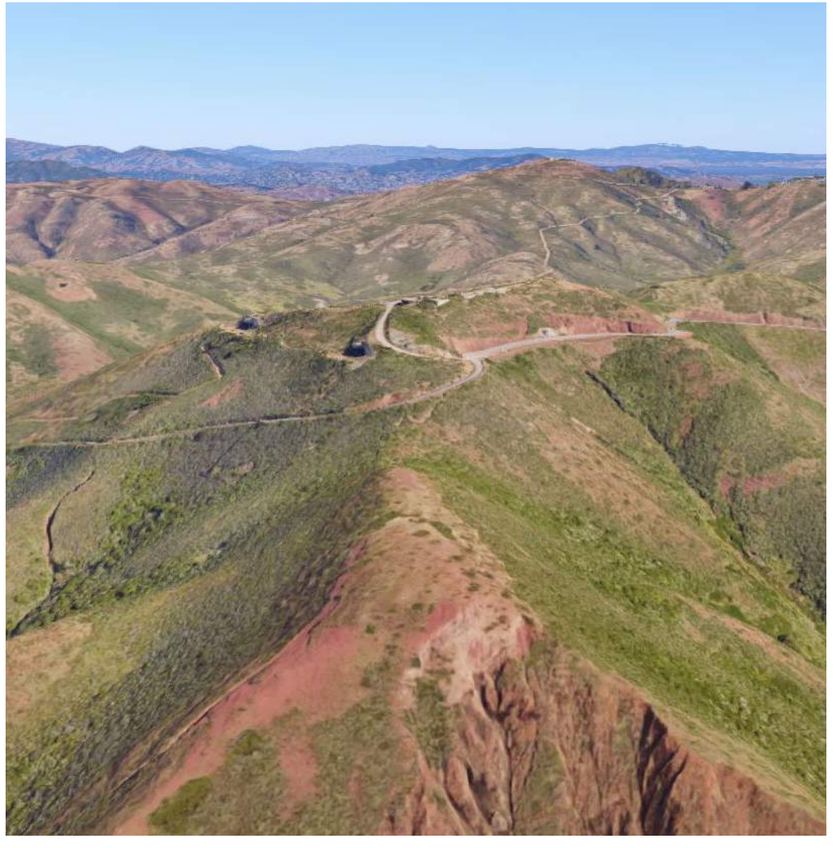


Fig. 61: ***NORTH VIEW***

Photo Credit: Google Map Images

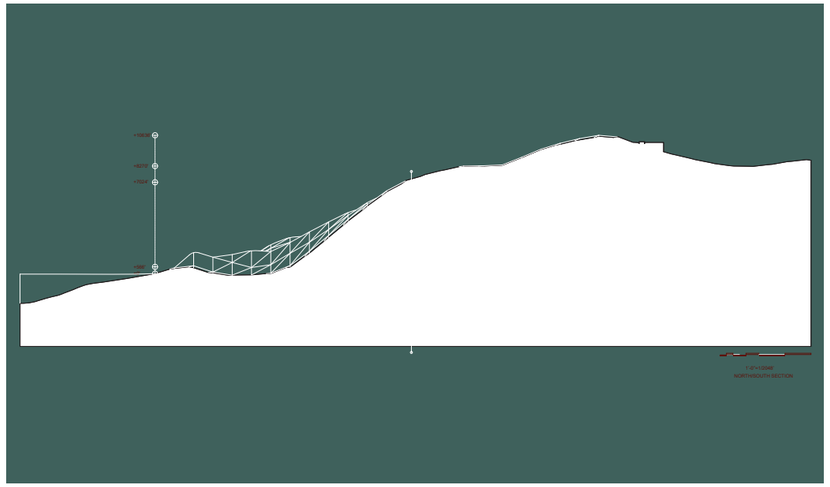


Fig. 62: *NORTH SOUTH SITE SECTION*

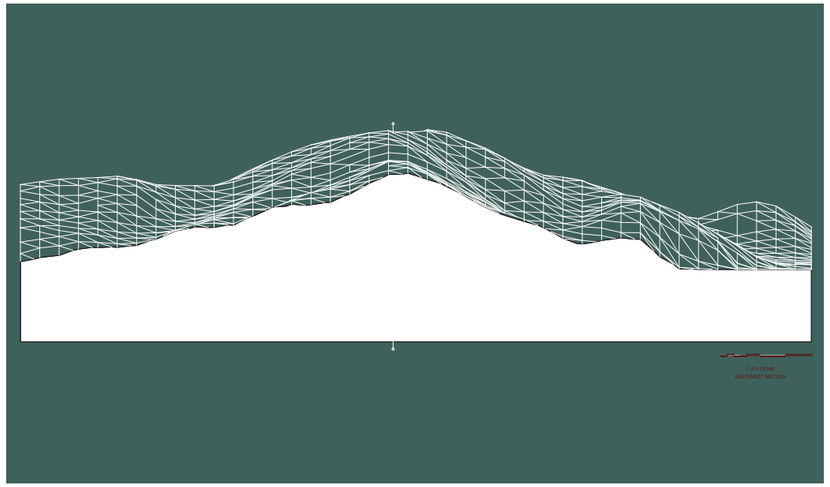


Fig. 63: *EAST WEST SITE SECTION*

Fig. 64: ***SITE ITERATION PERSPECTIVE 1***

Photo superimposed with trace paper and pen.

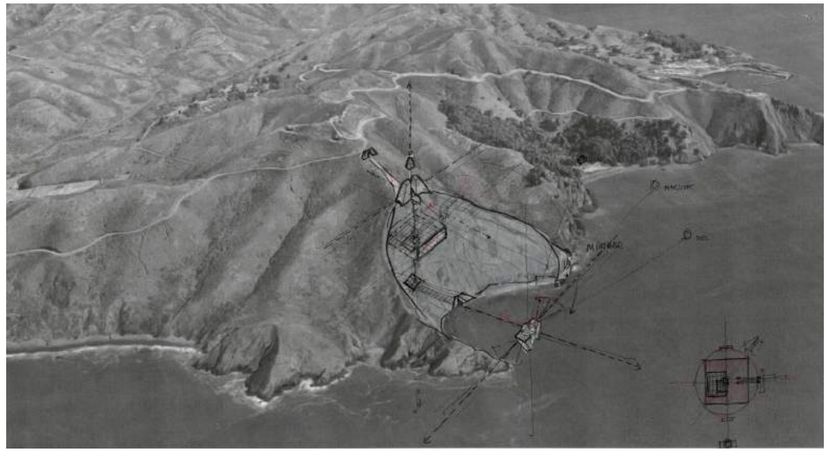


Fig. 65: ***SITE ITERATION AXON 1***

Photo superimposed with trace paper and pen.

Fig. 66: ***SITE ITERATION PERSPECTIVE 2***

Photo superimposed with trace paper and pen.

Fig. 67: ***SITE ITERATION AXON 2***

Photo superimposed with trace paper and pen.

Fig. 68: ***SITE ITERATION PERSPECTIVE 3***

Photo superimposed with trace paper and pen.

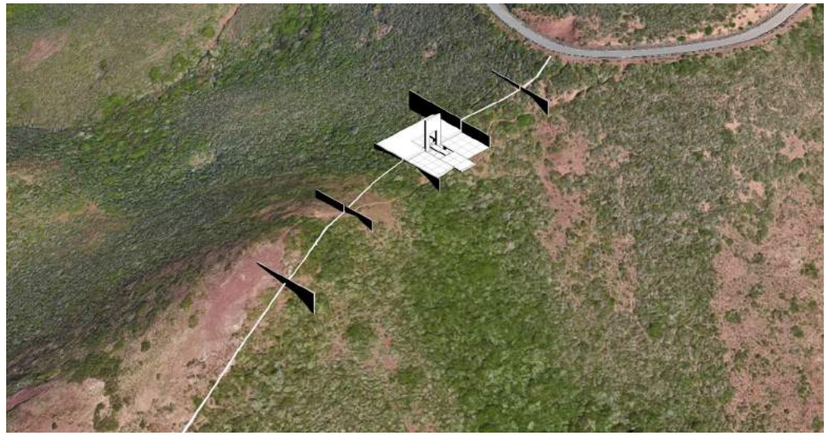
Fig. 69: ***SITE ITERATION AXON 3***

Photo superimposed with trace paper and pen.

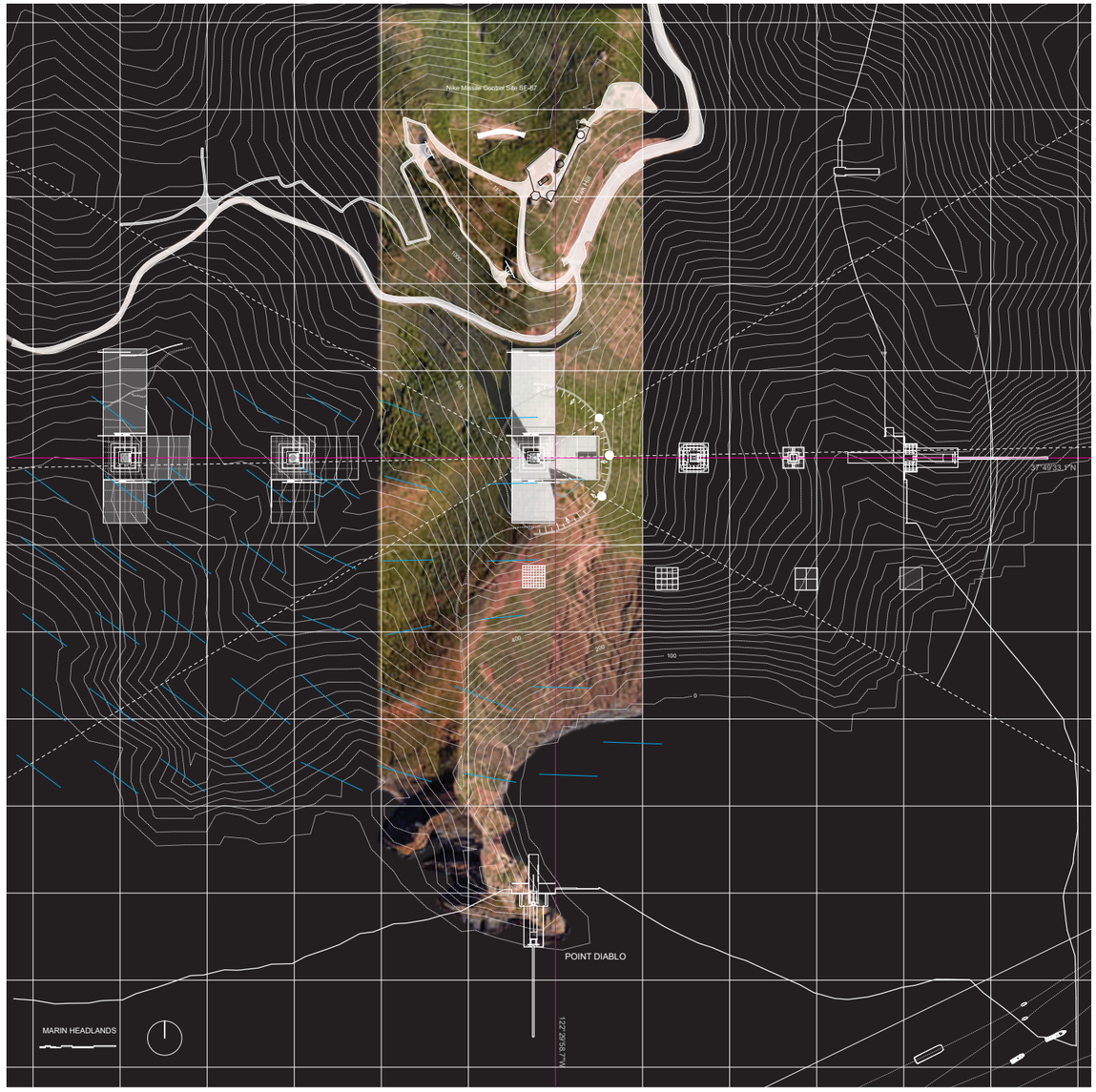
Fig. 70: ***SITE PERSPECTIVE WITH PROPOSED DESIGN***

Photo superimposed with trace paper and pen.

Iteration 1 in the Site

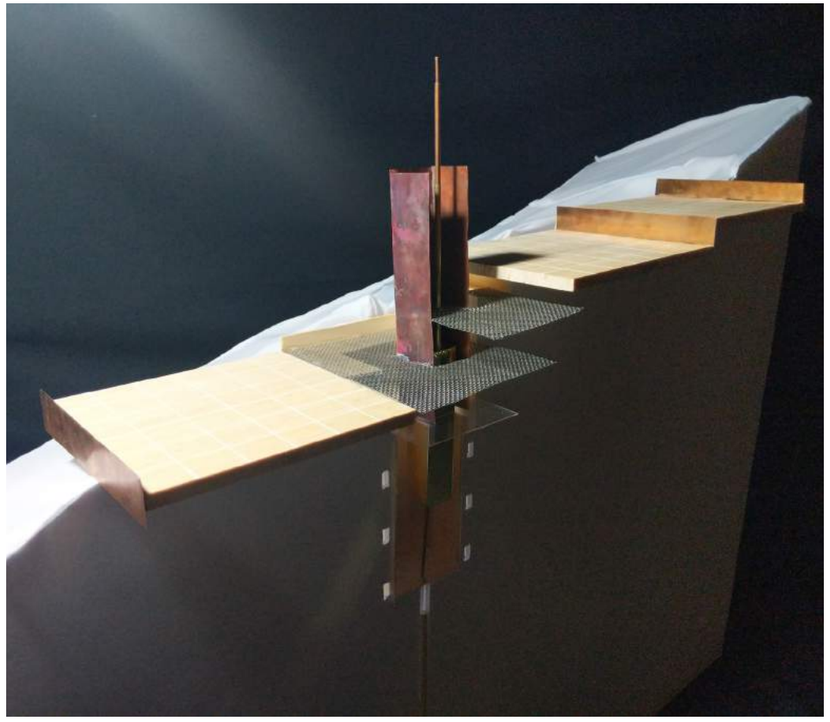


Iteration 2 in the Site

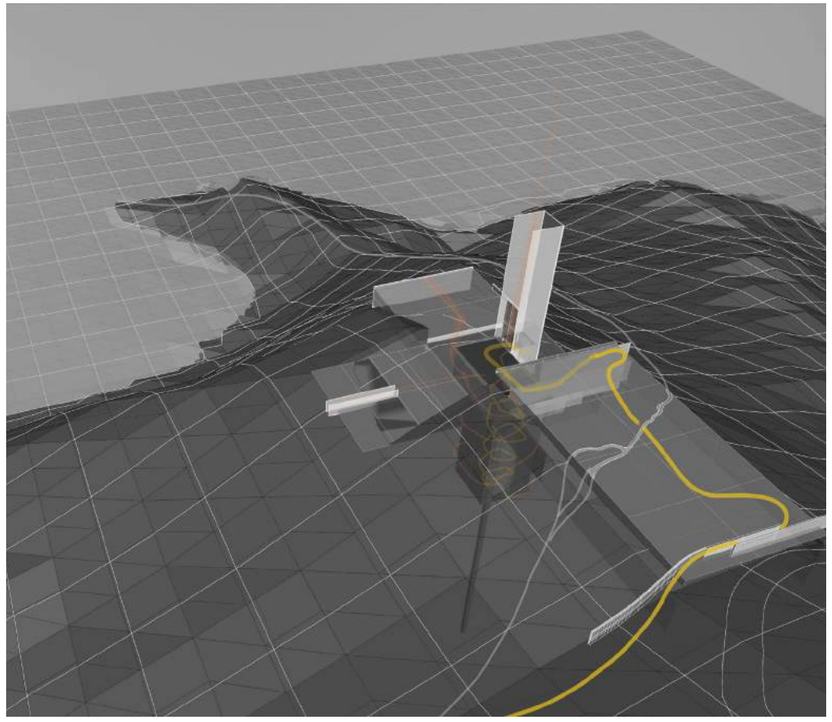


C. SCALE 2: COMPLEX

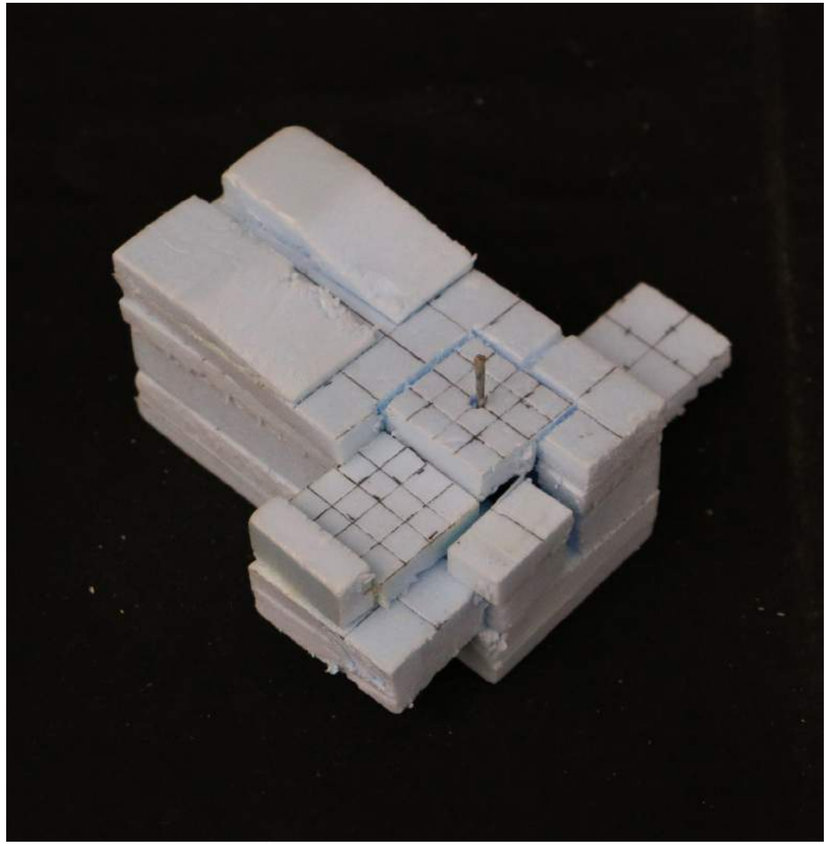
The temple complex is laid out according to Vaastu shastra as a series of cartesian grids in the profane land which mark the E/W and Zenith axes and the proposed symmetrical alignment of the temple. The complex creates the tabula rasa on which the temple will sit. This thesis recognizes these cartesian marks in the land and additionally seeks to recognize grid systems like the historical Jeffersonian grid and Hartmann's magnetic grid lines as important regional and global considerations when designing temples. The Jeffersonian grid, developed in 1785, was meant to mark properties of one square mile to be distributed among settlers in the west. This site is in California, so the Jeffersonian grid system is a part of the site's regional history. Hartmann's grid theory suggests that there are natural magnetic divisions on the earth's surface that intrinsically attract high amounts of energy. If this theory is indeed true, placing a temple on a division line could benefit the atmosphere and energy output of the temple.



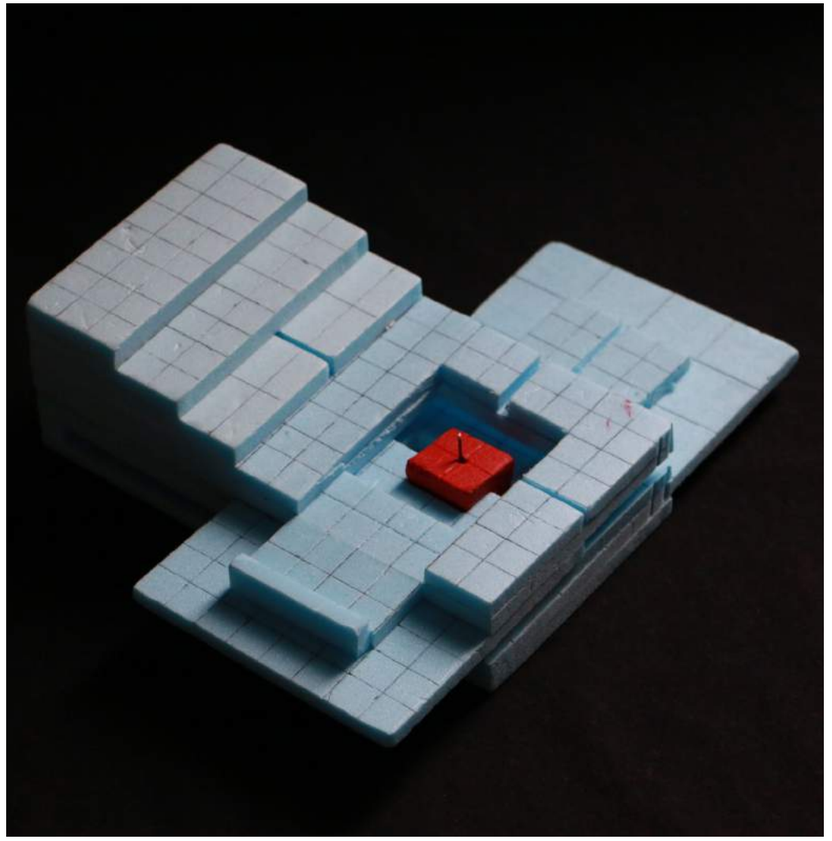
View of the model complex.



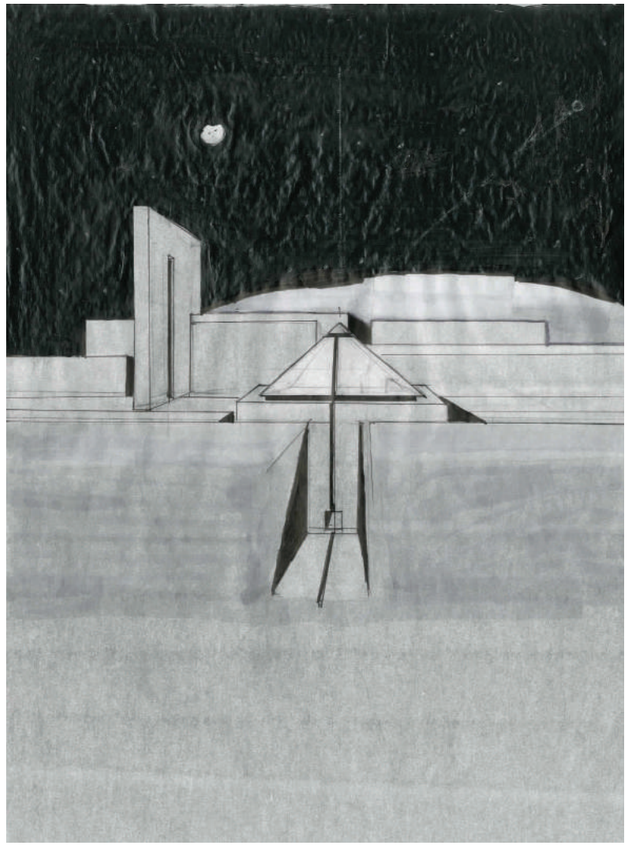
Rough Sequence.



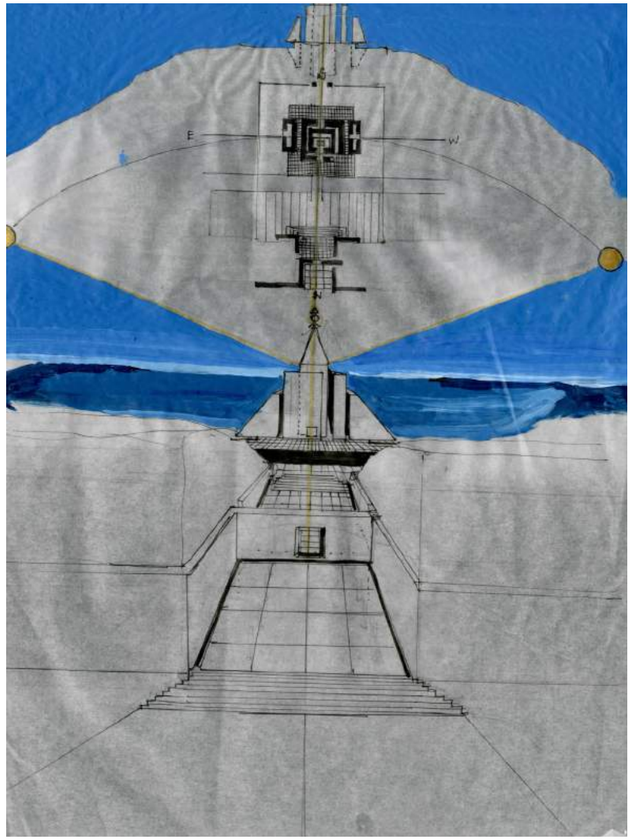
Complex Iteration Model 1.



Complex Iteration Model 2.



Perspective of the complex iteration 3 and its parts.



Plan, section, perspective of iteration 4.

D. TEMPLE

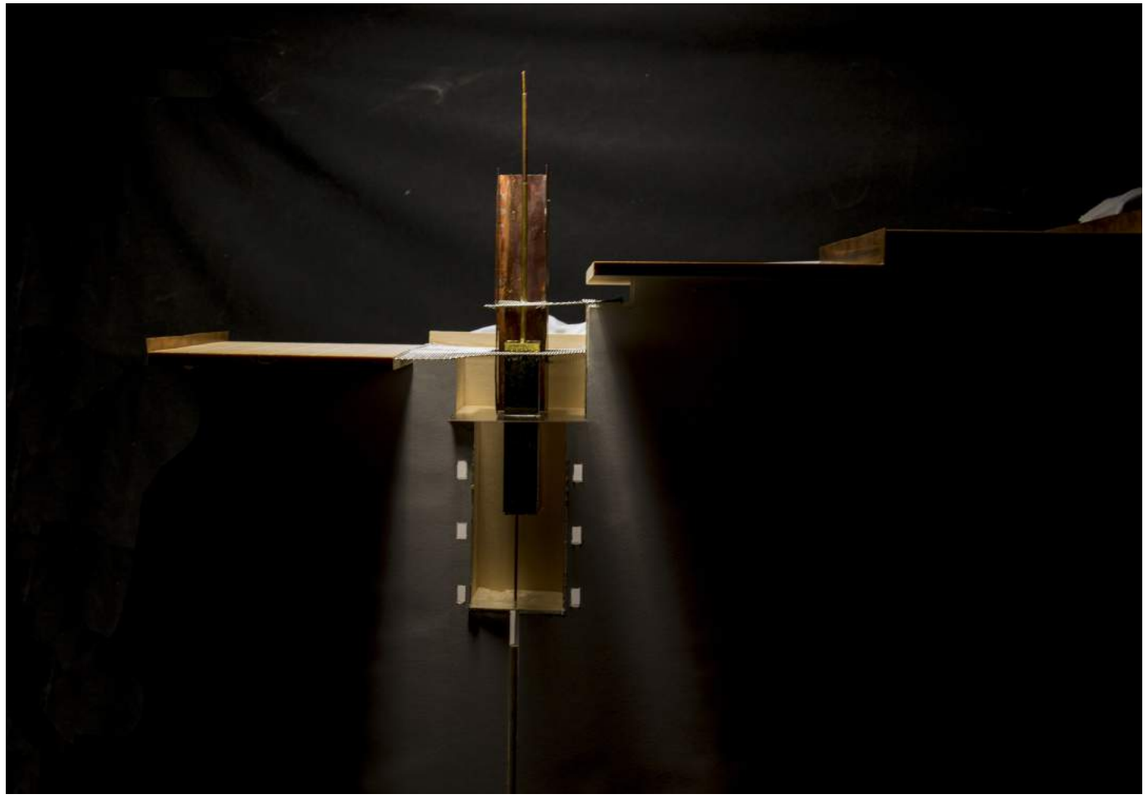


Fig. 71: ***SECTIONAL MODEL AND TEMPLE PARTS***

As mentioned previously, temples emerged in the Kali Yuga out of the need for physical spirituality which supplemented the meditation over home shrines. The temple's purpose and identity has gradually corroded over time. Temples were at first communal home shrines to individual village deities who, much like Greek mythology, were personified elements of nature. As civilizations expanded and societal structure became more complex, it became apparent that more complex higher powers needed to be represented. It was then that Brahma, Vishnu, and Shiva became popularly recognized as the forces that govern the cycles of life and the universe: creation, maintenance, and destruction. Temples, as a result, became more complex in their architectural syntax to accommodate larger crowds, community activities, performance art and music, and marriage[19].

The temple itself is the sacred object which sits in the profane land. There is a ritual construction process and rituals which dictate the requirements and construction of parts. The horizontal sequence in the temple curates the ritual spiritual journey where the human is supposed to experience the journey from the profane temple to the sacred sanctum. I am proposing that this sequence can develop into a 3-dimensional journey: vertically spiraling down into the temple silo about the axis of highest energy (zenith).

---

[19]Rao. *The Indian Temple: Its Meaning.* 1979: 67.

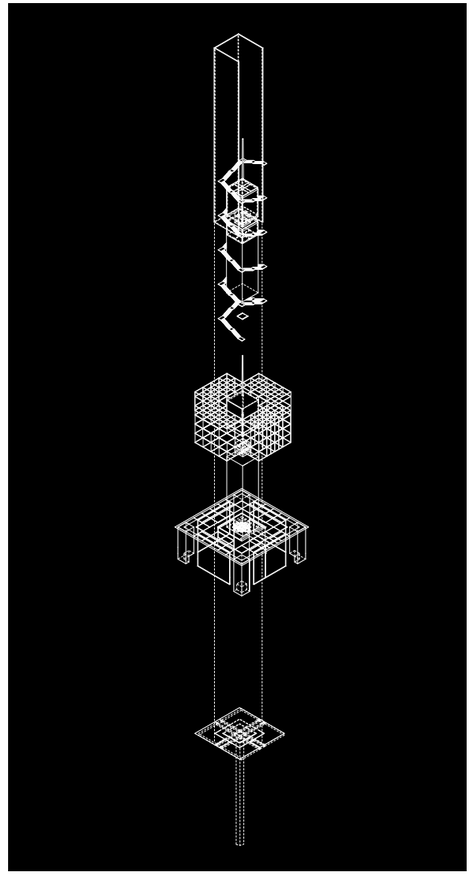
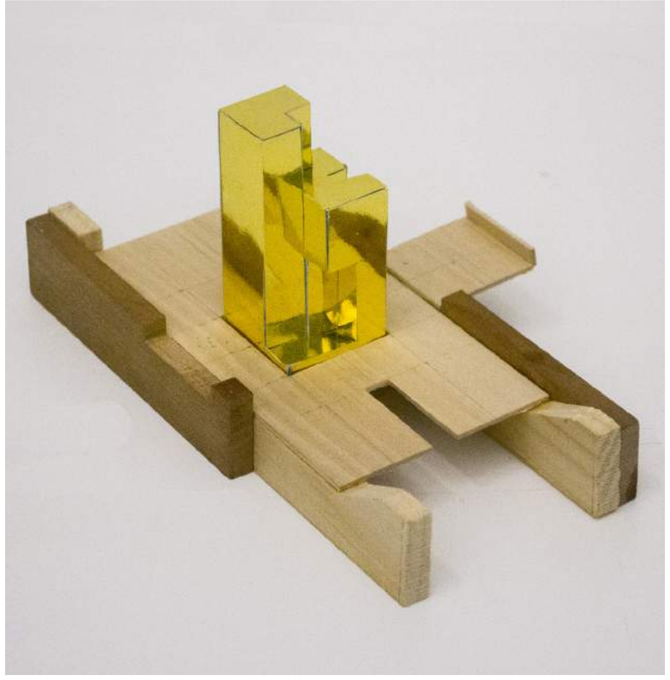


Fig. 72: ***VERTICAL SEQUENCE***



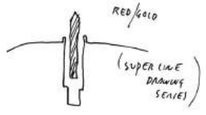


Fig. 73: ***Mechanical ground and a golden rocketship***

DESIGN AND PROCESS

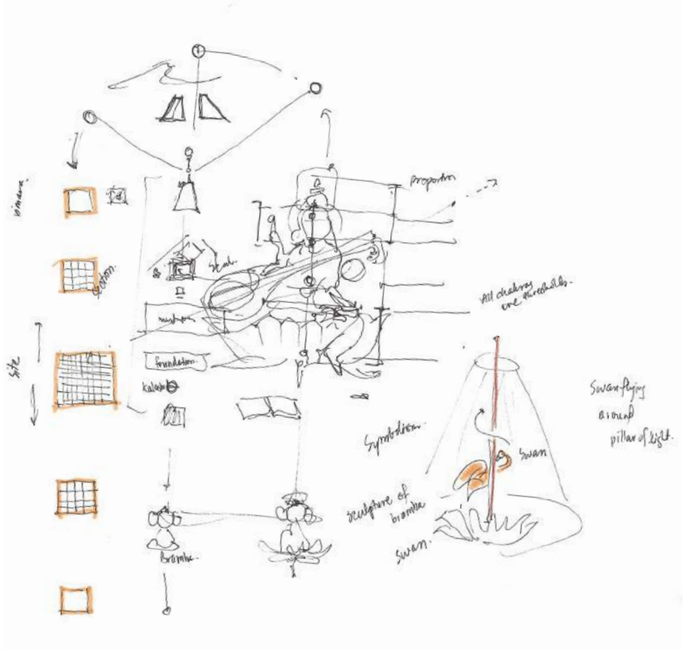
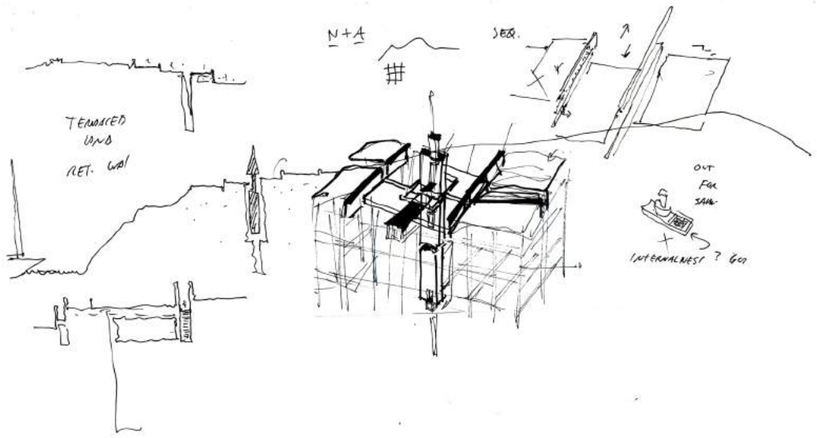
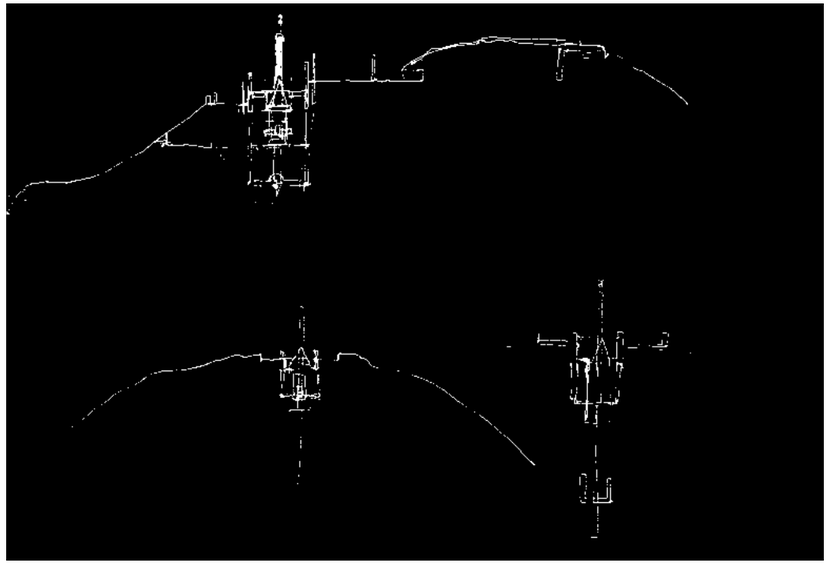


Fig. 74: ***PICTORIAL ORGANIZATION OF POSSIBLE TEMPLE RECONFIGURATIONS***

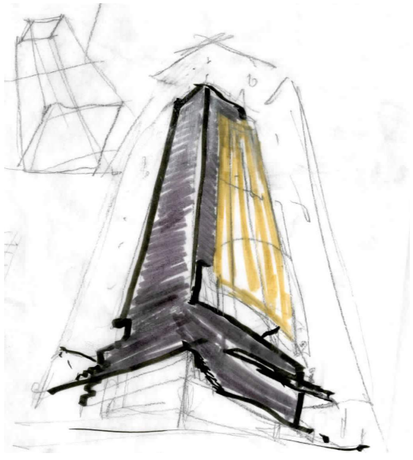
The temple is a multi-layered configuration of the complex, the temple parts, symbolism and iconography of the presiding deity, and their collective synthesis with the cosmology of the site.



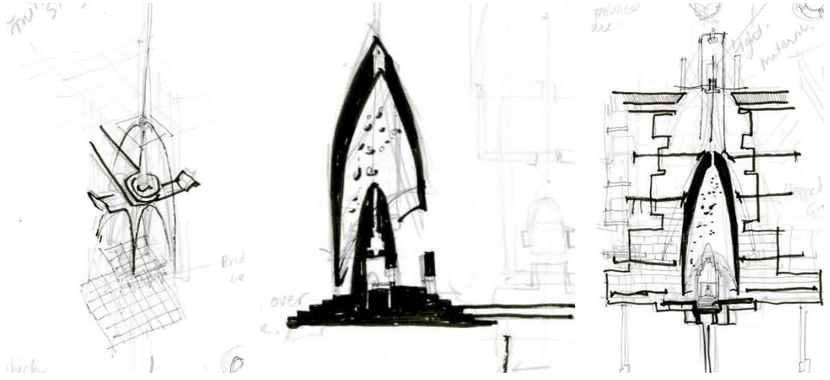
Axons and sections of iterative design.
(Collaborative sketch with Prof. Richard Rosa)



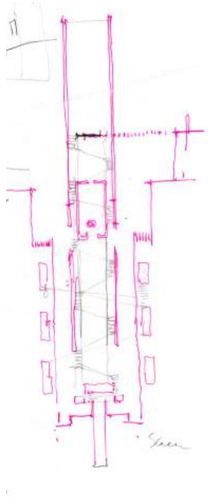
Iterative Design: Sketch of temple sections.



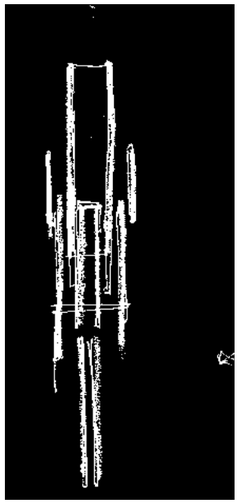
Iterative Design: Sketch of temple in ground looking up.

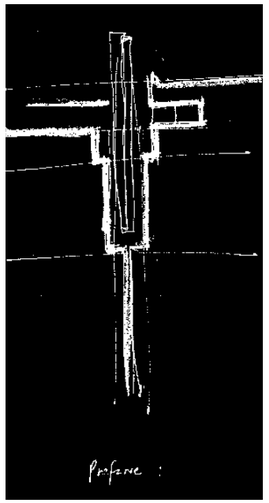


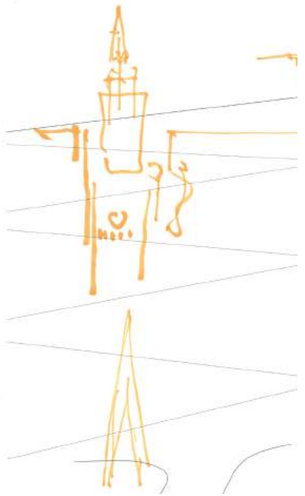
Iterative Design: Axon, E/W Section, N/S Section



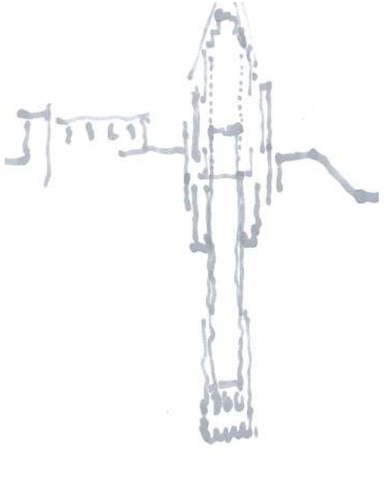
(Sketch by Prof. Richard Rosa)



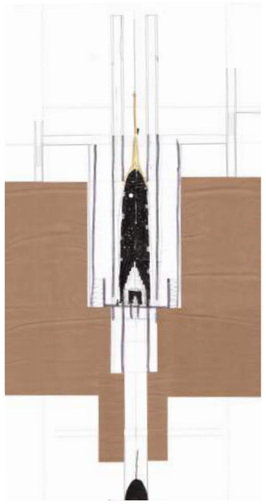




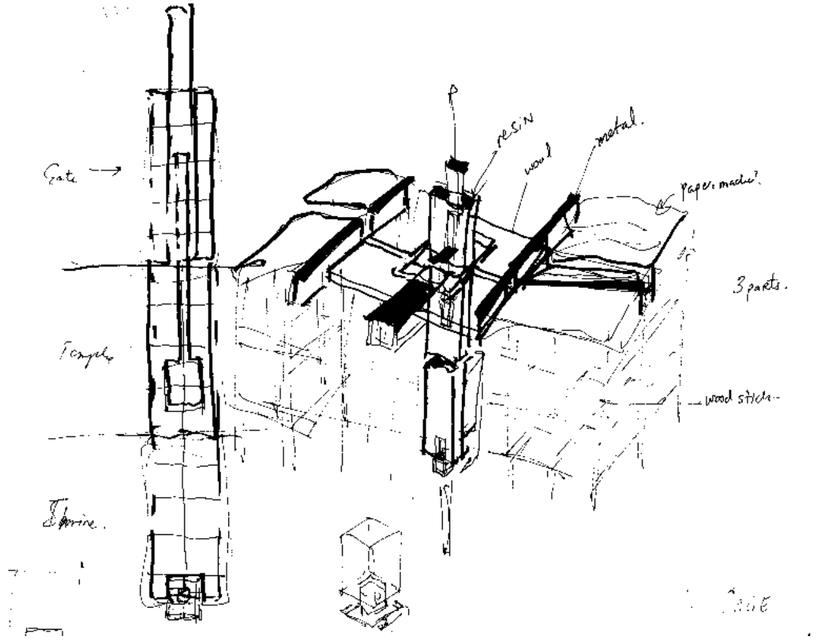
(Sketch by Prof. Richard Rosa)



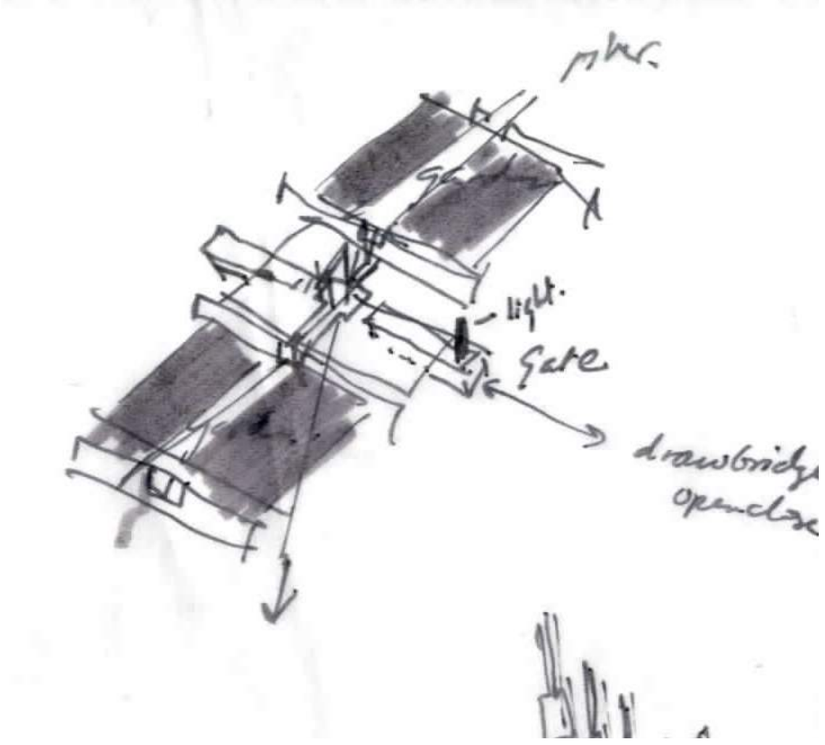
(Sketch by Prof. Richard Rosa)



Iterative design of temple as rocket in rocket silo.

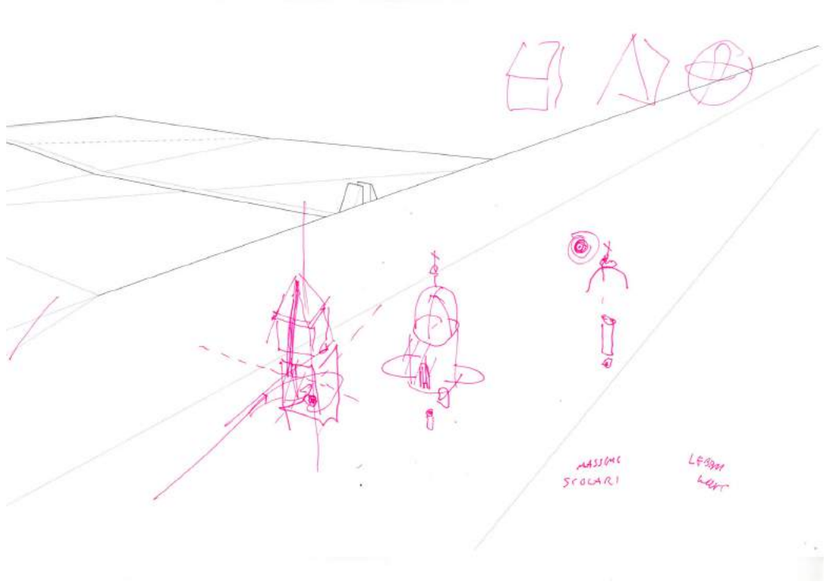


Sketch defining the gate, the temple, and the forbidden shrine.

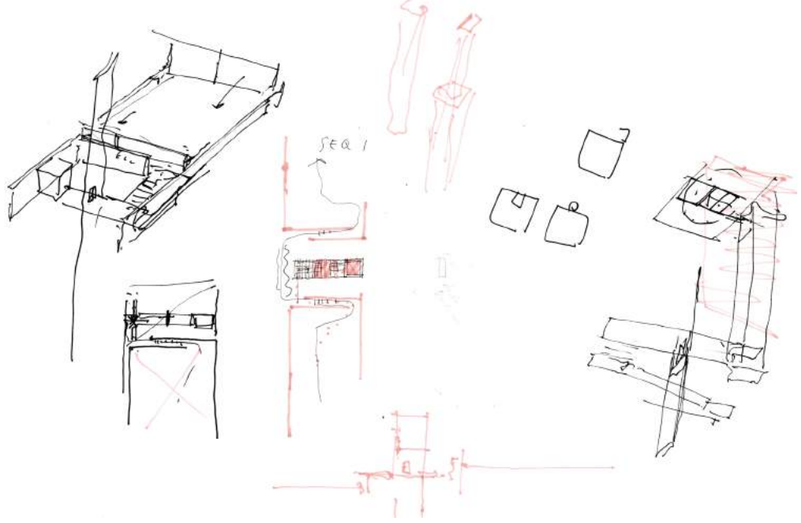


Sketch about the temple complex.

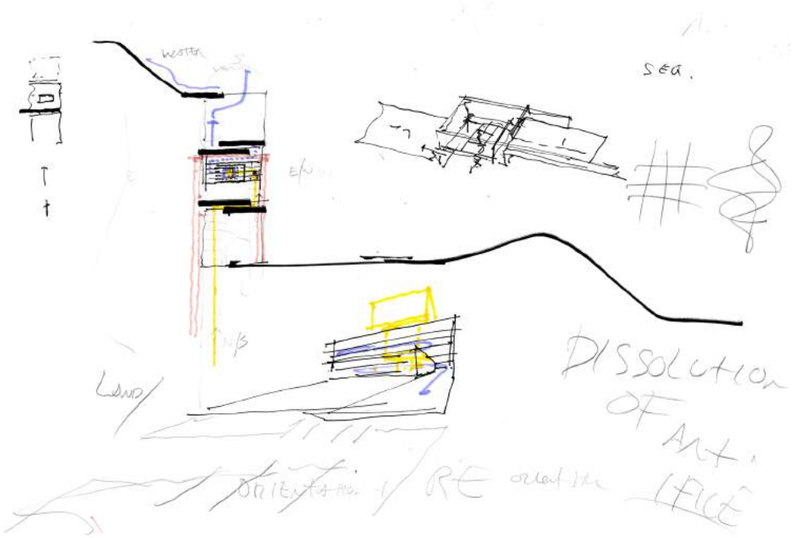
Model about the ground and the temple as a gateway.



Perspective and Rockets.
(Collaborative sketch with Prof. Richard Rosa)

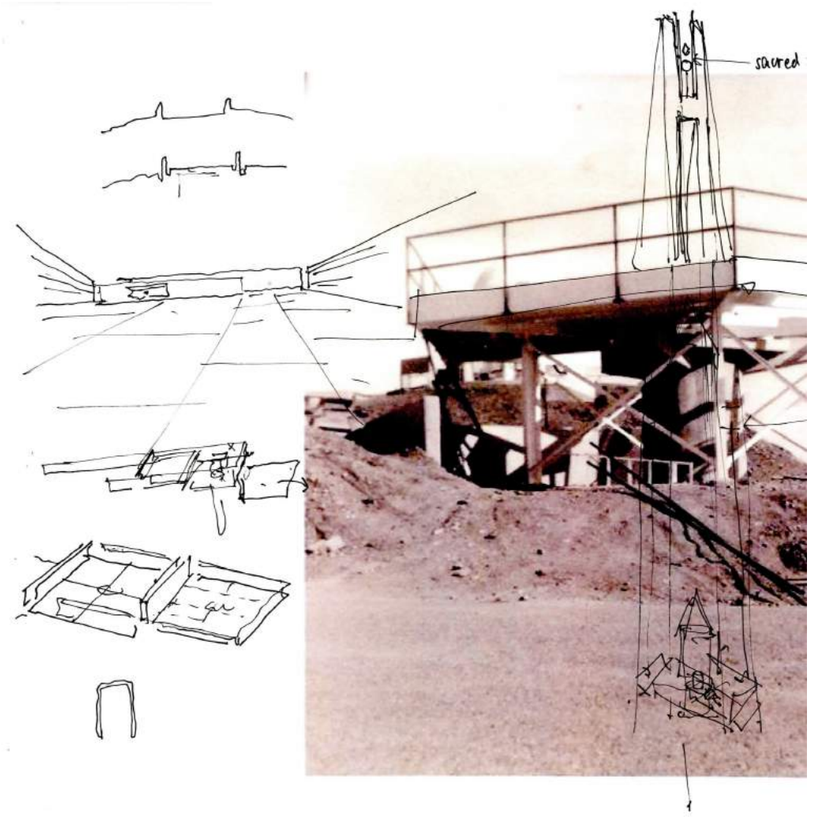


Iterative Design.
(Sketch by Prof. Richard Rosa)

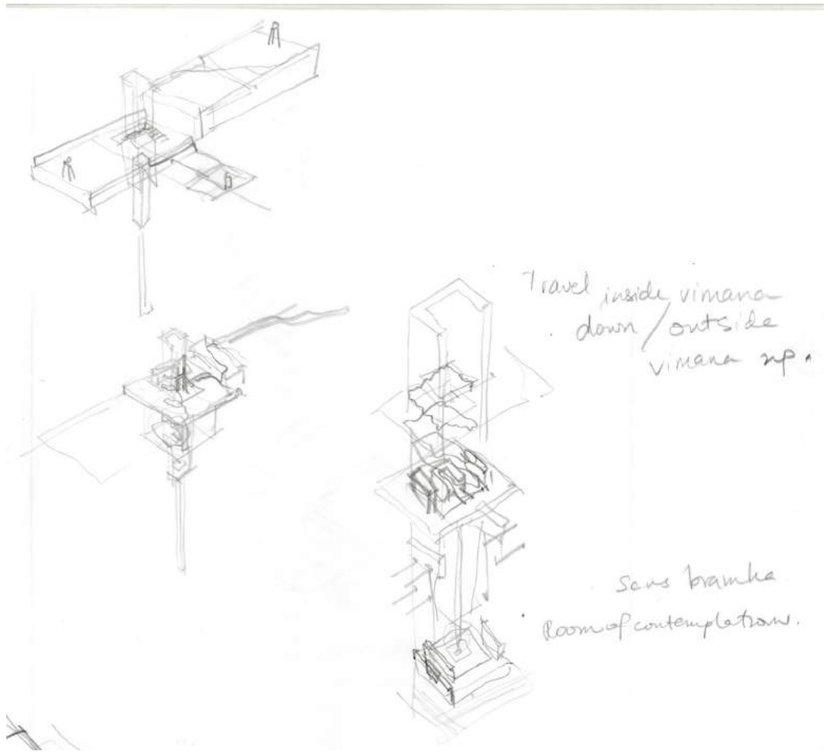


Iterative Design.
(Sketch by Prof. Richard Rosa)

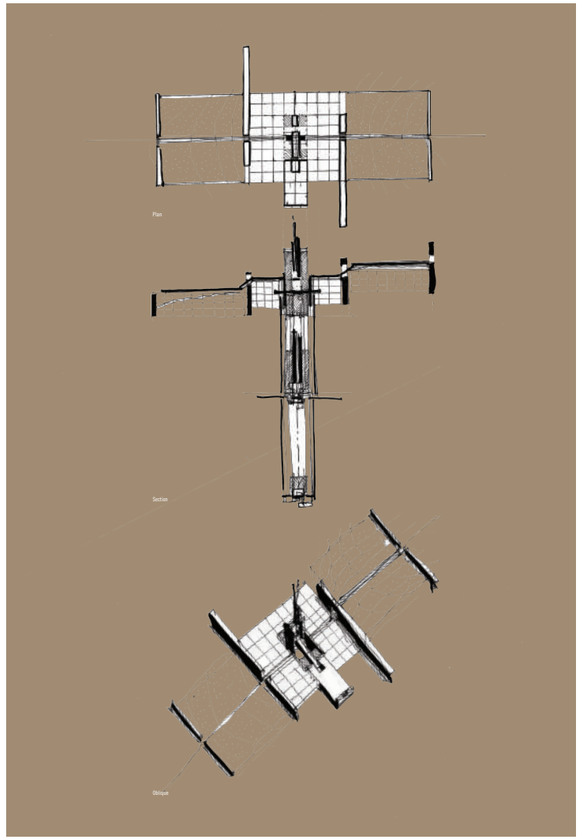
Plan iteration sketch.
(Collaborative sketch with Prof. Richard Rosa)



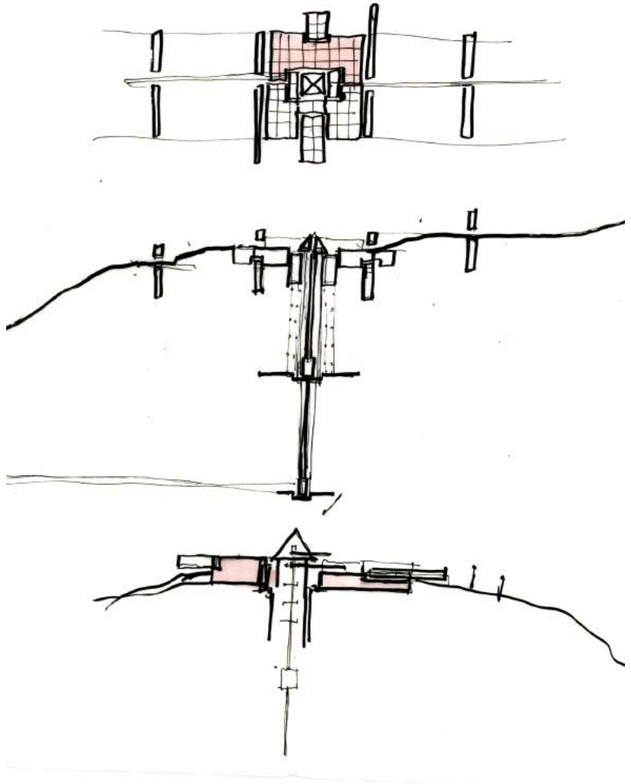
Walls and Platforms.
(Collaborative sketch with Prof. Richard Rosa)



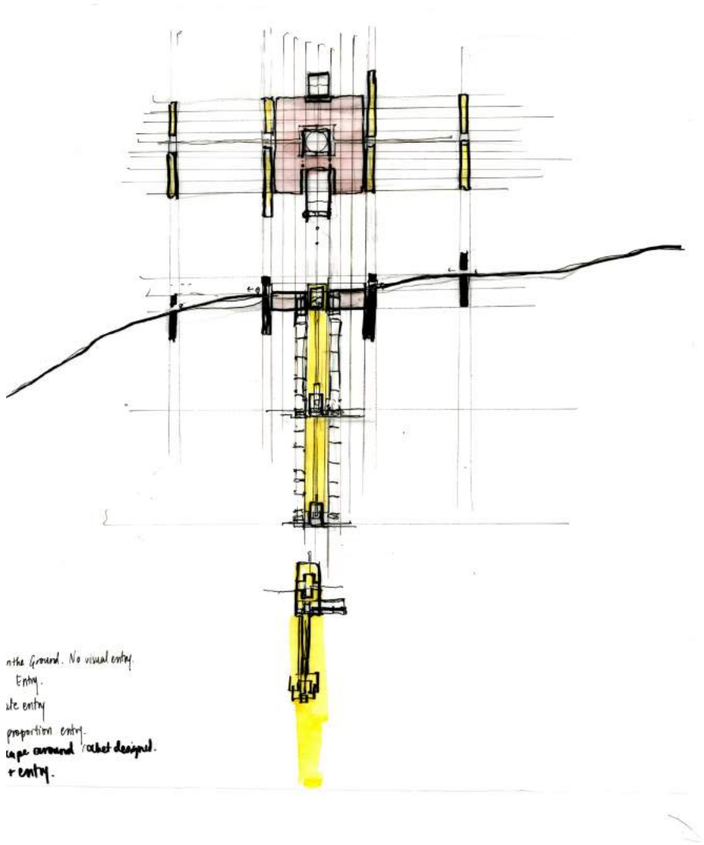
Working through circulation of different iterations.



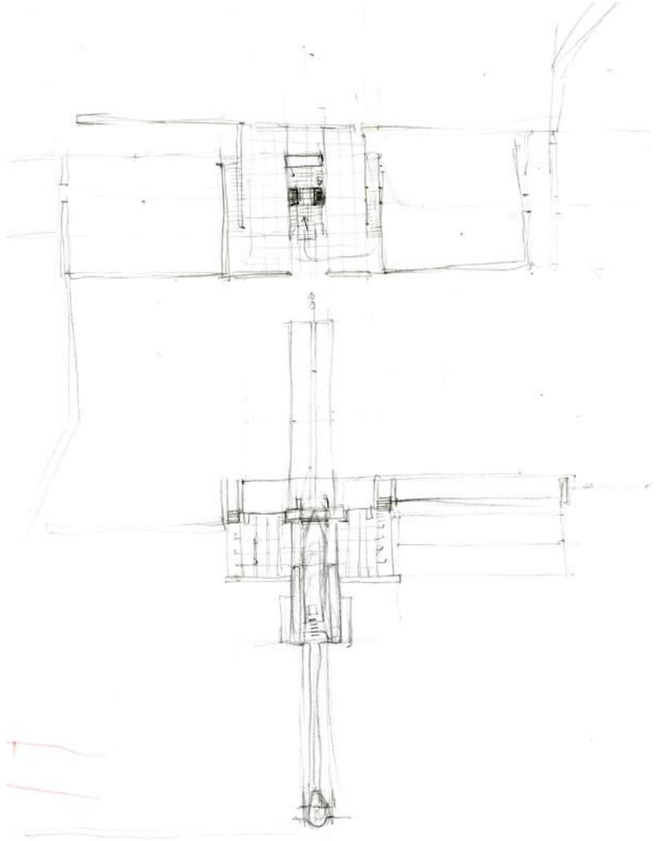
Temple design: Iteration 1



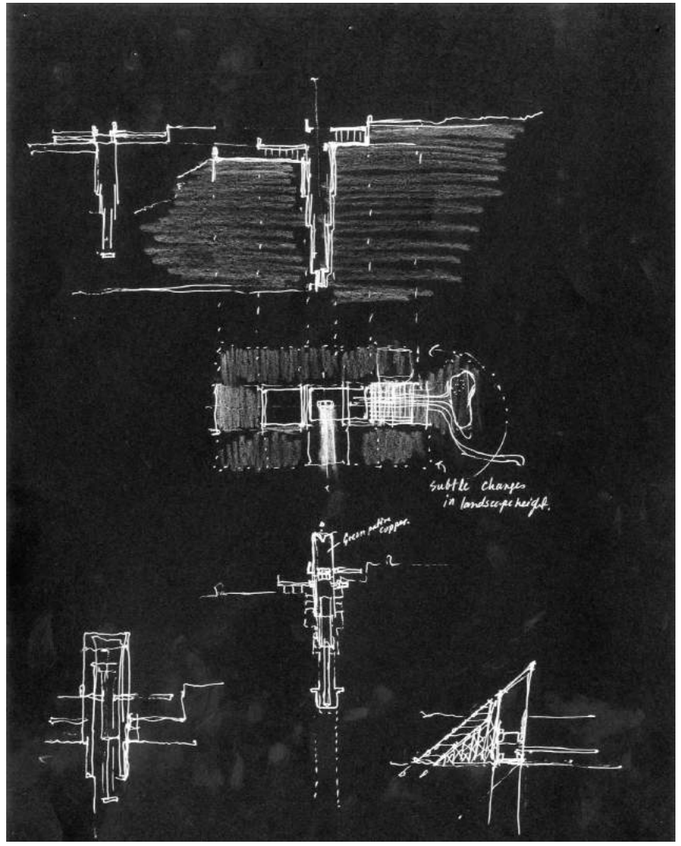
Temple design: Iteration 2



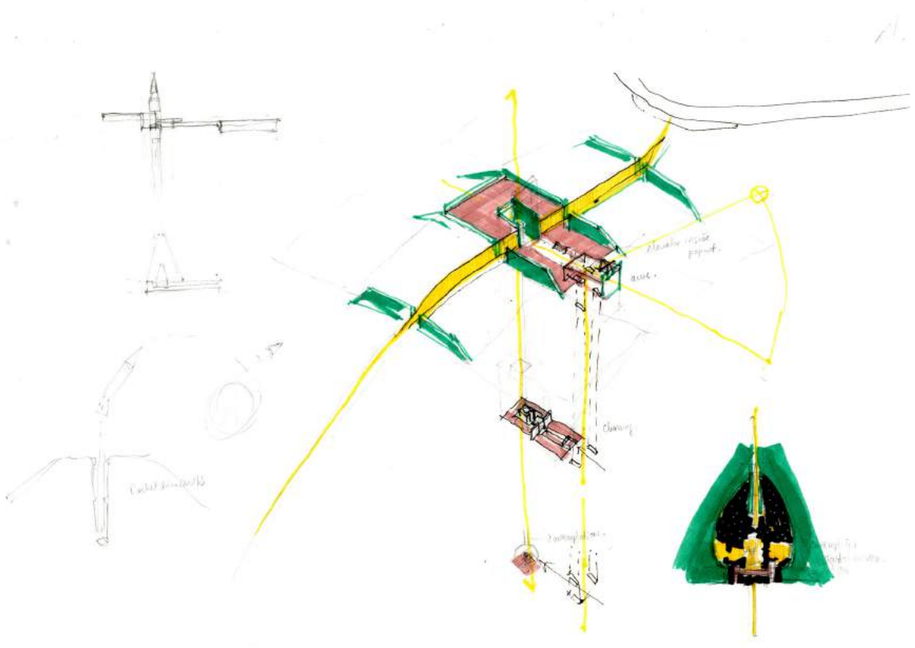
Temple design: Iteration 3



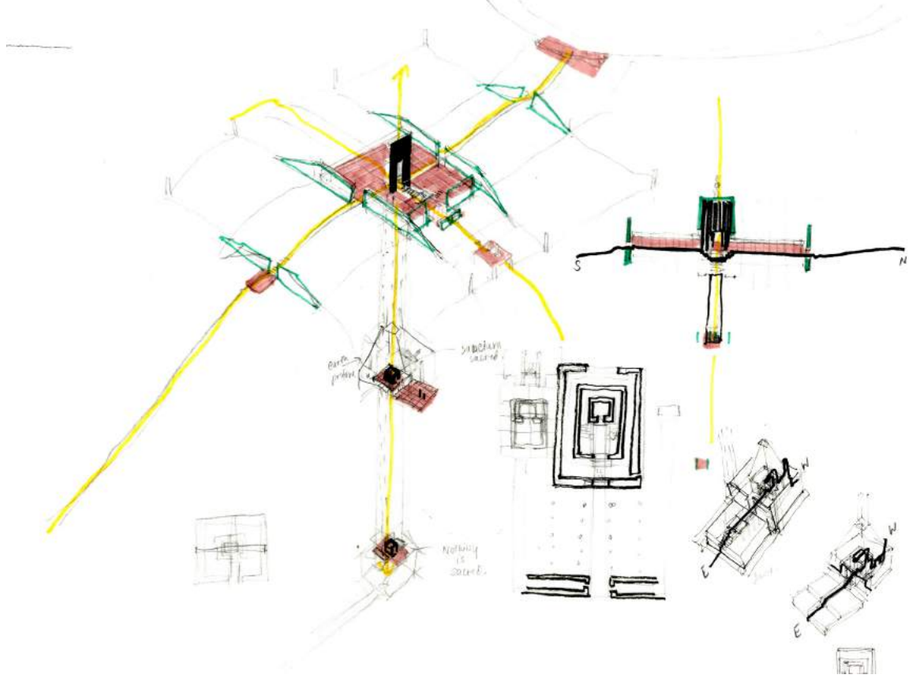
Temple design: Iteration 4



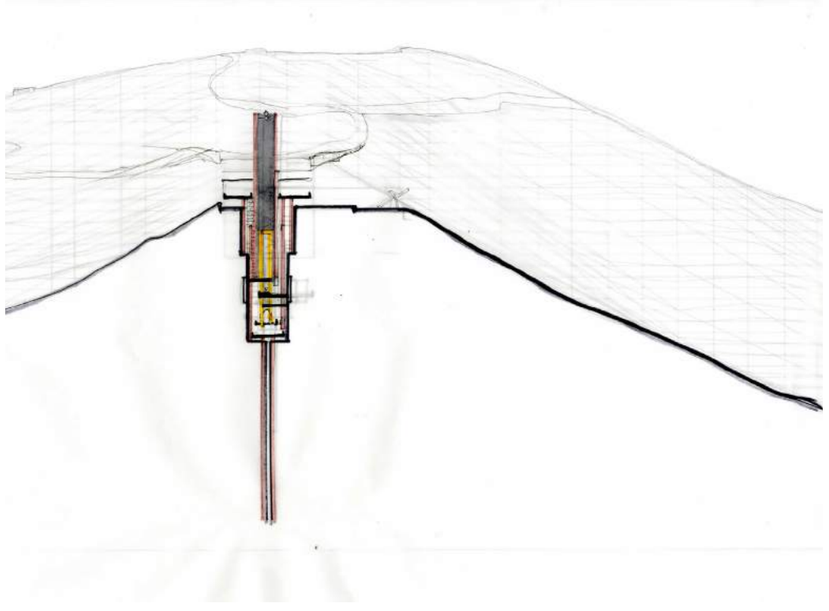
Temple design: Iteration 5



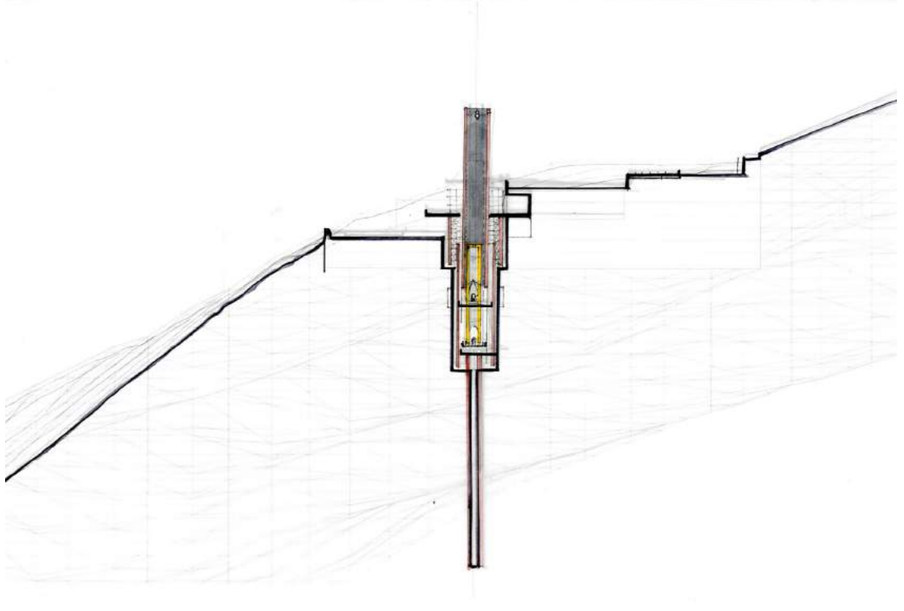
Temple design: Iteration 6



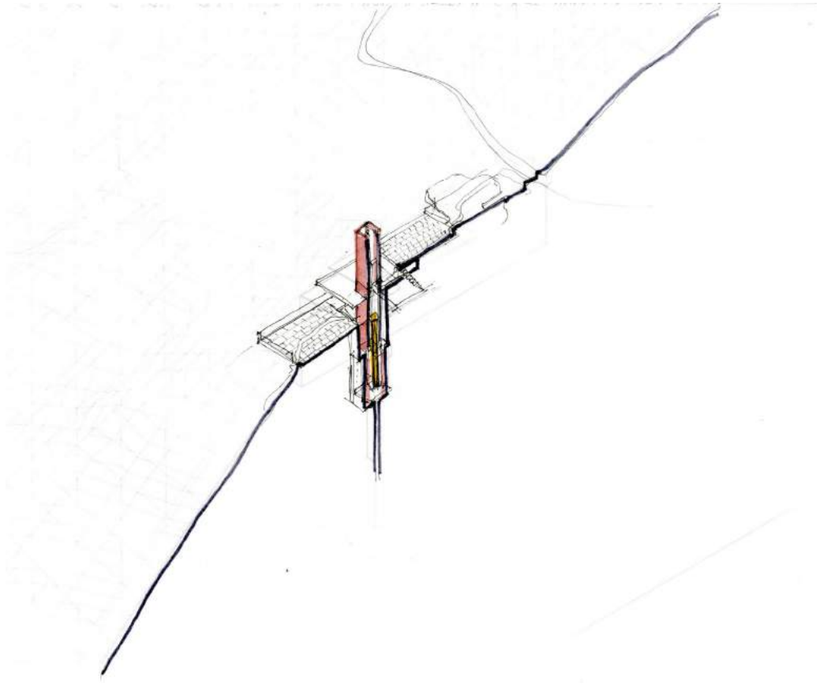
Temple design: Iteration 7



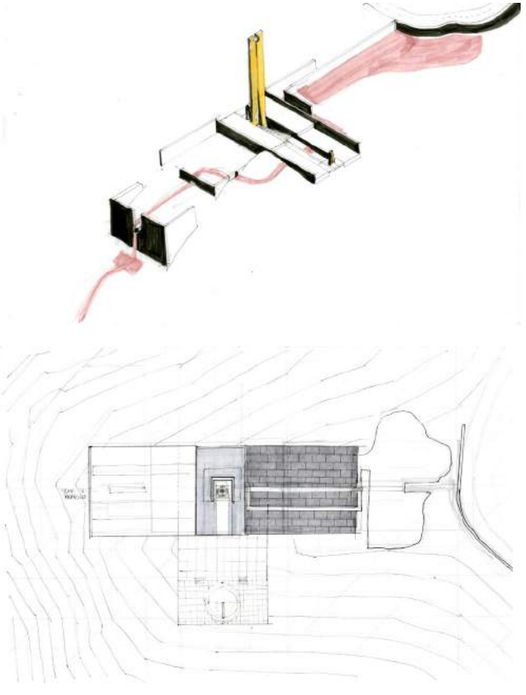
Short Section
Temple design: Iteration 8



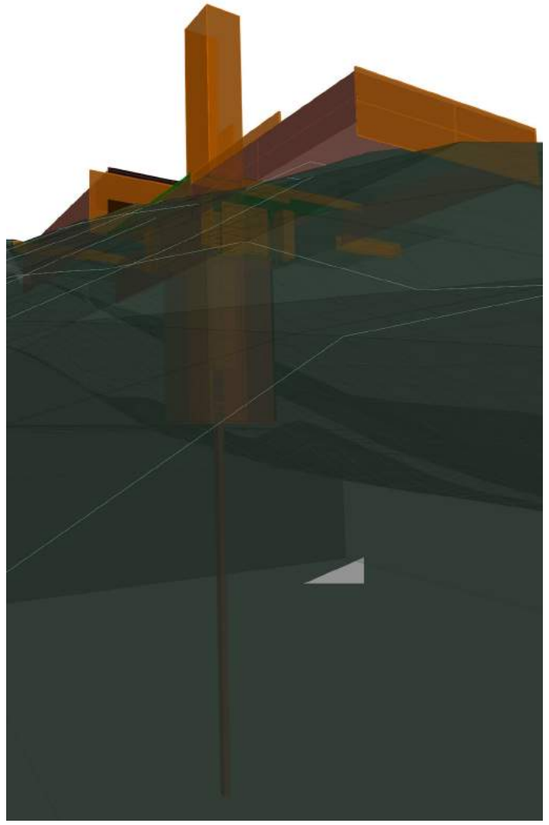
Long Section
Temple design: Iteration 8



Sectional Axon
Temple design: Iteration 8

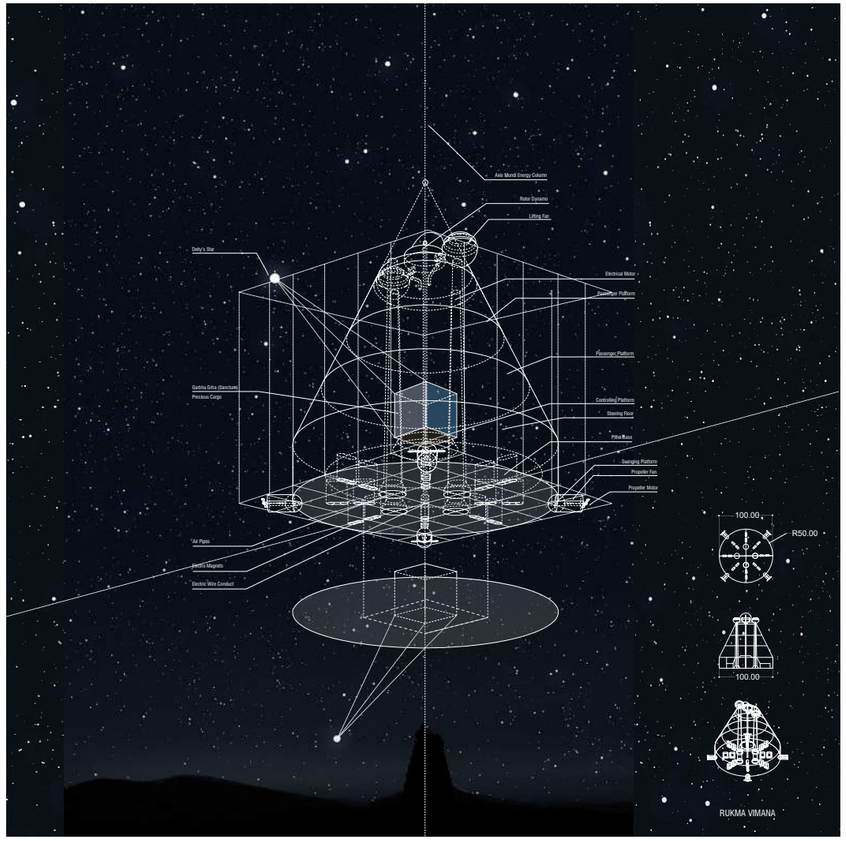


Axon, Plan
Temple design: Iteration 8

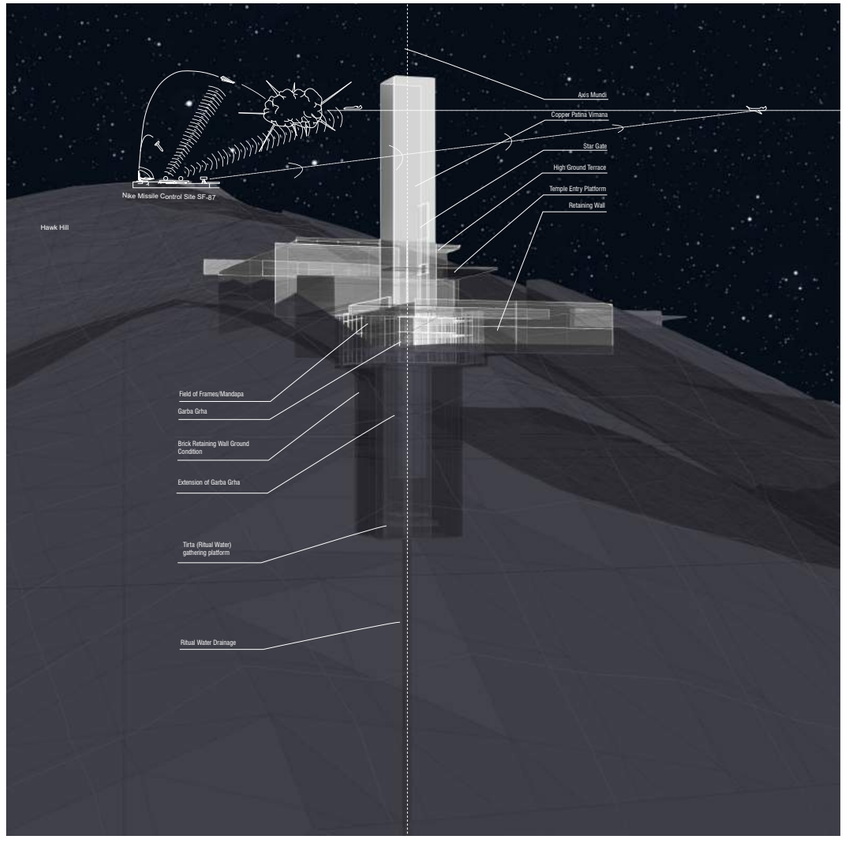


Quick Perspective

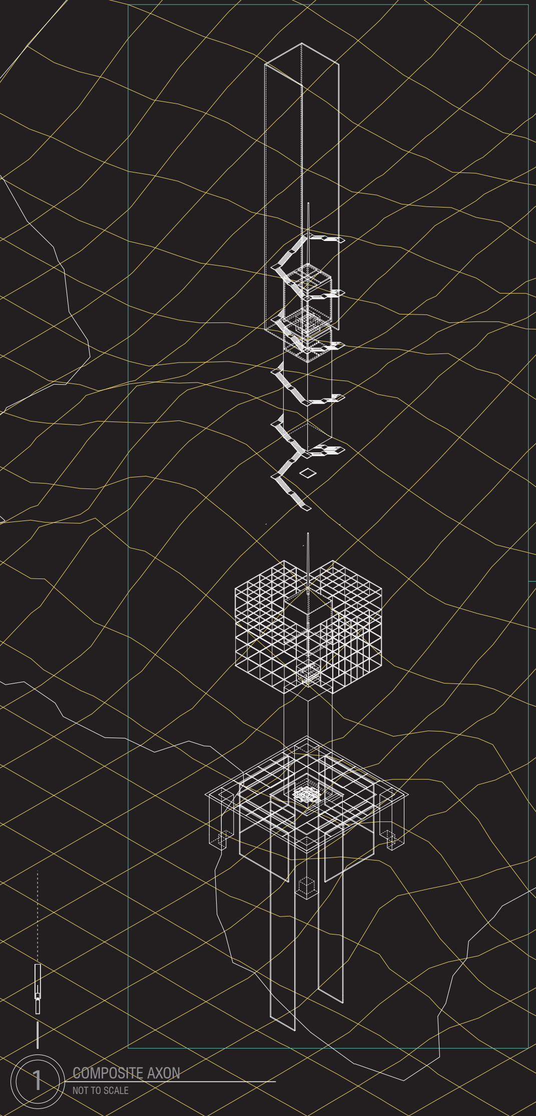
Sky, Space, Water. Plane, Rocket, Boat.



2 Vimanas, 1 Metaphor.

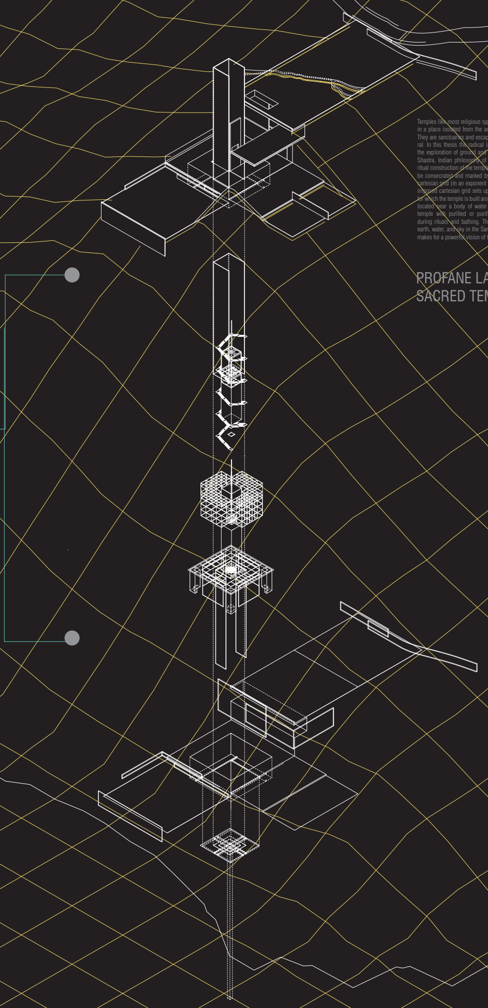


The sacred and the profane: temples and missile silos.



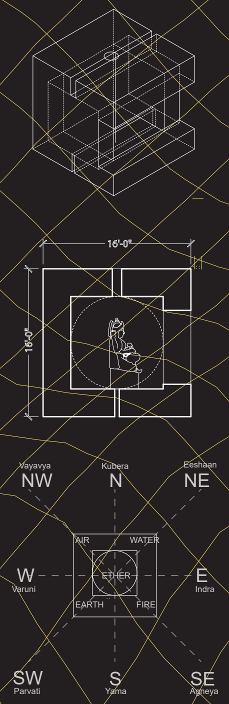
Historically, and as per the Vastu Shastra, the temple is a horizontal series of thresholds that leads to the garbha grha, womb chamber, where the primary deity is located. This initial vision and sequence are very important to the act of cleansing the soul of bad energies. The thresholds simulate the chakras on must pass through to achieve moksha or pure enlightenment. It is a spiritual journey which ends at the sacred axis denoted by the symmetrical placement of the garbha grha (sanctum) and the vimana (roof). This is the axis containing the highest amount of energy in the surrounding area which is physically and metaphorically funneled from the ground into the sanctum, through the vimana and then released into the air and ether. The threshold sequence through the chakras has historically always been horizontal. If this sequence were to be vertical, one would always be rotating about the axis of highest energy while simultaneously walking through the phenomenal chakric-thresholds. The constant vision of the sanctum and the vimana reinforce the axis and the reason and nature of the spiritual journey. Temples were not meant to have any other purpose than this but over the year have added program to benefit the community living of the regional area. They exist only for the purpose of spiritual cleansing and as a representation of the universe.

VERTICAL SEQUENCE



Temples like most religious typologies are situated in a place isolated from the activities of daily life. They are sanctuaries and escapes from the unnatural. In this thesis the radical landscape allows for the exploration of ground and excavation. In Vastu Shastra, Indian philosophy of building space, the ritual construction of the temple requires the land to be consecrated and marked by the cosmos and a cartesian grid (in an exponent of 4 divisions). This imposed cartesian grid sets up the formal strategy for which the temple is built around. The land is also located near a body of water which provides the temple with purified or purifiable water for use during rituals and bathing. The confluence of the earth, water, and sky in the San Francisco Bay area makes for a powerful vision of the profane space.

PROFANE LAND SACRED TEMPLE

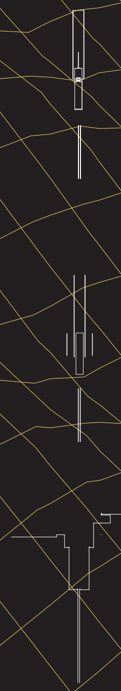


Vastu Mandala (Cosmic Building Plan Diagram)

Mandala: cosmic diagram, classically employed to denote the air that encompasses the light of the sun and the moon: the orb that spins around the entire cosmos luminously. It symbolizes the totality of existance. It is a circle because circle's are perfect and comprehensive without a beginning or and end.

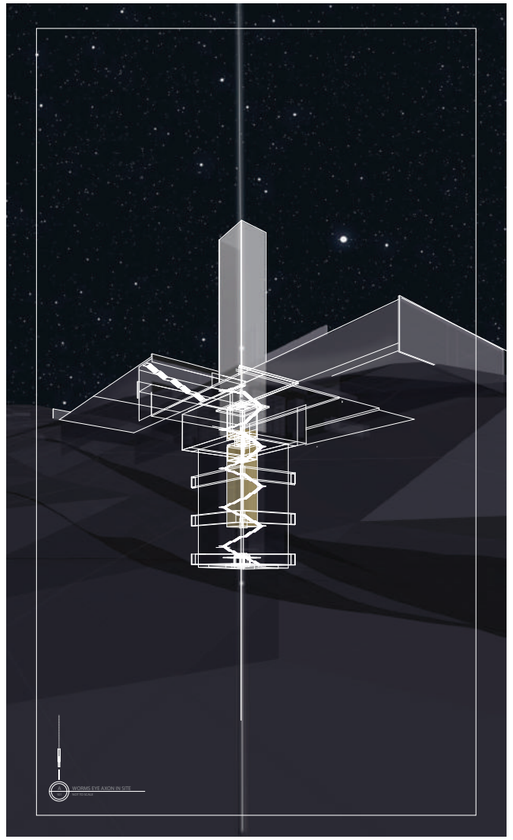
The translation of a mythological story into a formal architecture may allow for the temple typology to develop overtime without the style of the architecture being the driver. Temples have always been defined by their regional styles and core essential elements. While the style may change with the region and generation, the core elements stay the same. The vimana, garbha grha, and the elevated platform are the most essential elements which are shaped according to the deity. In this case the chosen deity is Saraswati, the goddess of knowledge, complemented by her shunned husband, Brahma, the creator of the world. The temple in its formal sense is an ode to Brahma's creation of the vimana/rocket and holds Saraswati as the primary deity whose story starts as the river Saraswati and morphs into the muse goddess of knowledge.

MYTHOLOGY METAPHOR: SARASWATI

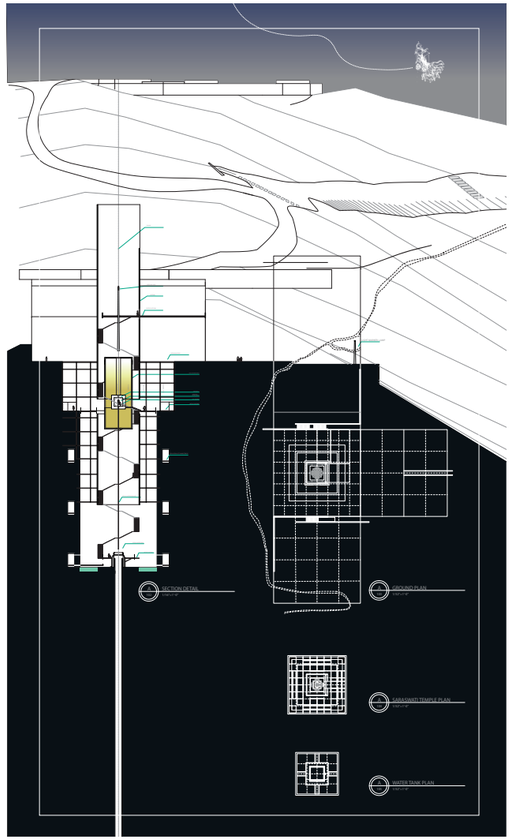


The vimana as an ancient Indian machine has been pushed aside as myth for the longest time despite its documented origins in the Vimanika Shastra. These machines were thought to have been developed by brahma (by the gods for the gods) who would fashion these vehicles for transportation. The purpose, material, and the parts were detailed to each deity. When seen by humans, the stories of ancient flying machines were passed down as mythological flying chariots used by demons, ruler, and gods to transport from one part of the world to the other. The most well-known mythological references to vimanas are that of Ravana in the Ramayana who acquires a vimana and kidnaps Sita in the north of India and transports her to what is now Sri Lanka and that of the sun god, Surya, who crosses the sky to welcome the sun. In this thesis I have taken the contemporary advancement in space technology, the rocket and historical cold war missile silos, and translated them to be the formal deconstruction of the design. The idea being that the rocket exterior/skin is the vimana which protects the precious cargo, or in this case the deity in the sanctum.

MACHINE



Descending into the earth, visions of the temple.



Section and plans.

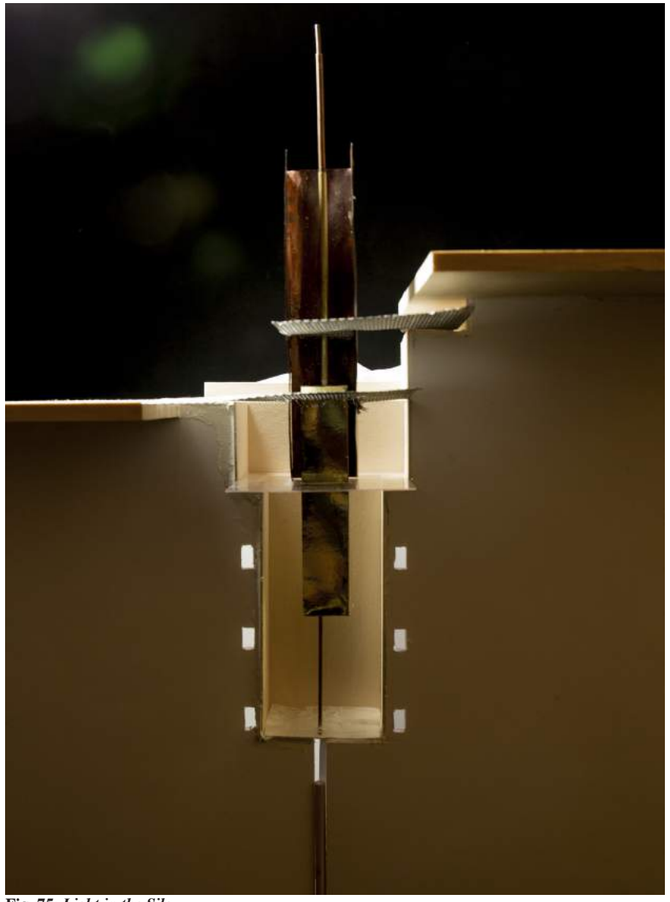


Fig. 75: ***Light in the Silo***

Sunlight and moonlight filters into the silo, illuminating the vimana and the sanctum on the inside. The atmosphere is created by the material interacting with the elements.

E. SPACES

The garba grha is the sacred room which sits in the profane temple. In temple architecture the temple mimics nature through its iconic form and the content of the sculptures. It should consider naturally reflective sound (reverberation throughout the mandapa from the sanctum), dramatic natural lighting, smell of sandalwood and incense, feeling of entering a cave or dream, on or near a body of water for rituals and simulating the cosmic waters, sequence from profane to sacred. The local materials should be considered and thoughtfully integrated into the design. The local materials should be considered and thoughtfully integrated into the design. For example, in India the locally quarried red sandstone, from which temples are built, come alive at sunrise and sunset, showing off the temples' fine figural sculpture and deeply faceted exteriors. Sometimes sculptures are of human erotica, animals, miniature architecture, natural elements, and elements of daily life (the profane in every sense). In stark contrast, the garba grha (sanctum sanctorum) is supposed to be devoid of iconography and ornament because it allows one to focus on spirituality rather than physical aesthetics. I propose that the western obsession with the machine and industry form the basis for ornament and sculpture, a regional adaption. Machine parts and mechanical design becomes the sublime which replaces the cultural sublime imbued in sculptures in India, recognizable iconography. This also beings up an important discussion of iconography and translation of sculpture. Can sculptures or their essence be truly be translated into western temple design? Will it then hold the same meaning out of context? The potency and spiritual effect of the temple relies on the devotee/viewer's ability to comprehend and understand the symbols and the architectural metaphors[21].

Narrative of the deity for which the temple is built is also important when shaping spaces. In this thesis, the narrative of the goddess Saraswati and her consort lord Brahma are showcased. Saraswati's journey started as a river goddess in north India, this mythical river was said to have dried up and split into both the Ganges and the Yamuna rivers. The temple in this thesis starts its sequence with a mapping of this mythical river. Lord Brahma is a shunned god because of arrogance accounted in various myths and is the creator of the vimana as vehicles of the gods. The temple is an ode to his work as the vimana creator: a vimana that contains his wife, goddess Saraswati, the goddess of knowledge and the arts.

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[21] Rao, *Indian Temple Traditions, 131.*

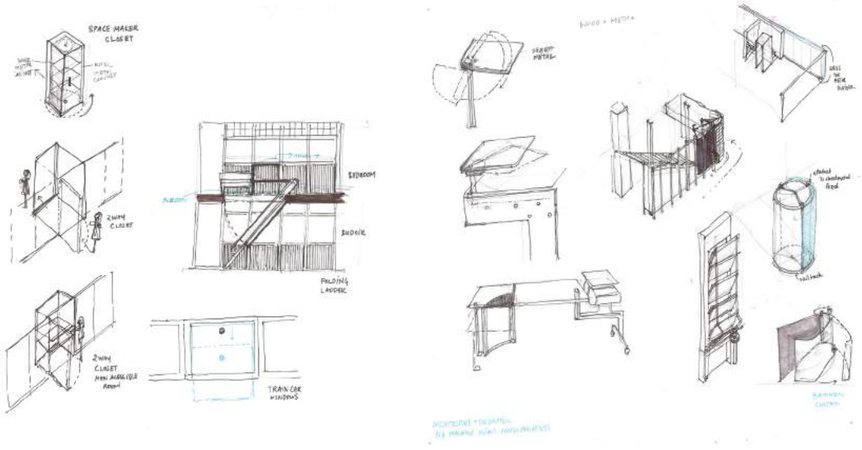


Fig. 76: ***Maison De Verre, Paris, Pierre Chareau +Bernard Bijvoet, 1932***

Diagrams of the individual mechanical innovations that added both function and character to the house. Maison De Verre was used as a case study for machine parts in a building. Each furniture detail and opening carefully constructed by Paris, Pierre Chareau and Bernard Bijvoe. The building is built like a machine inserted into the fabric of Haussman's Paris and constructed like a machine for living. The original owners used the house to live as well as to work.

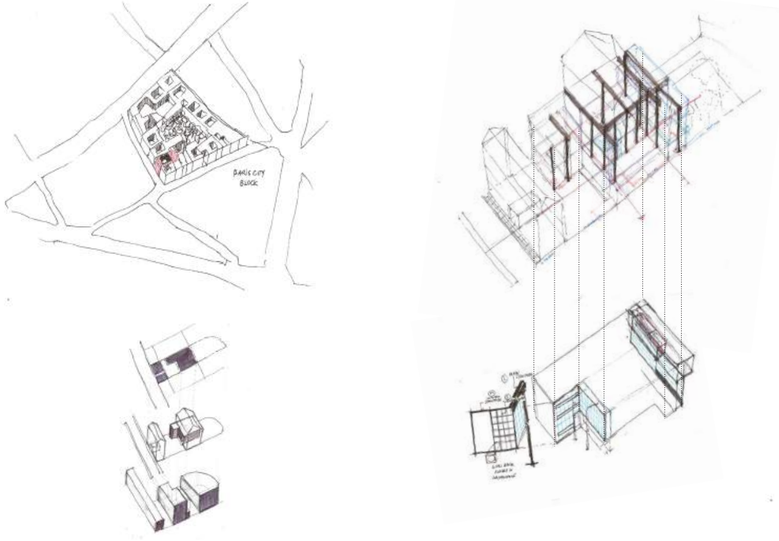
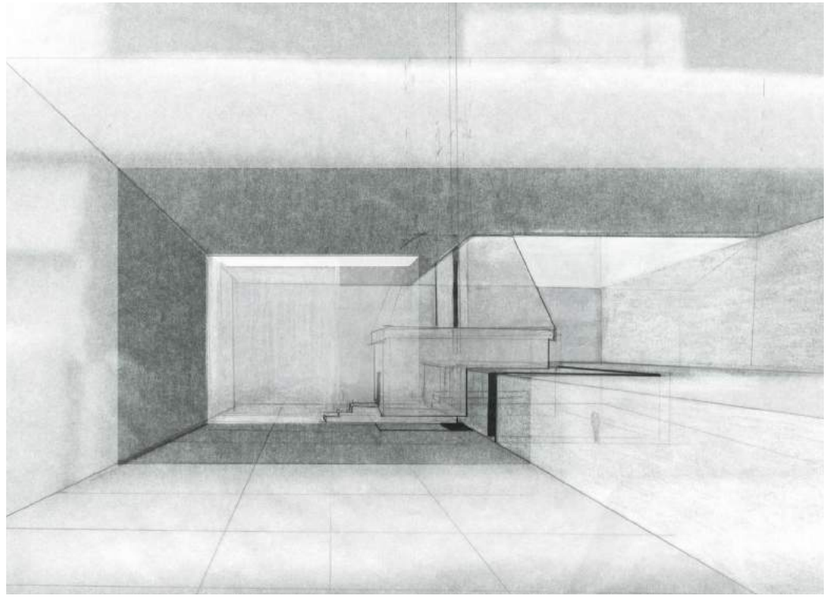
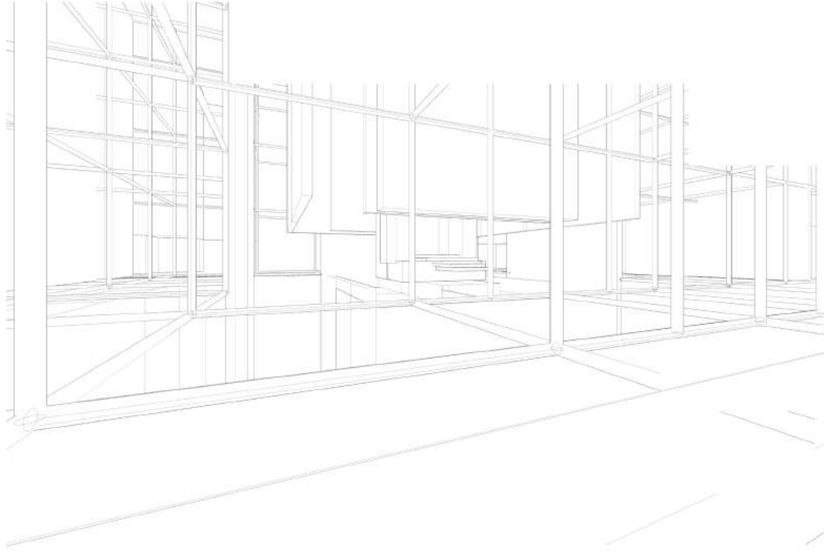


Fig. 77: ***Maison De Verre, Paris, Pierre Chareau +Bernard Bijvoet, 1932***

Diagrams indicating the location, form and structure of the Maison de Verre.

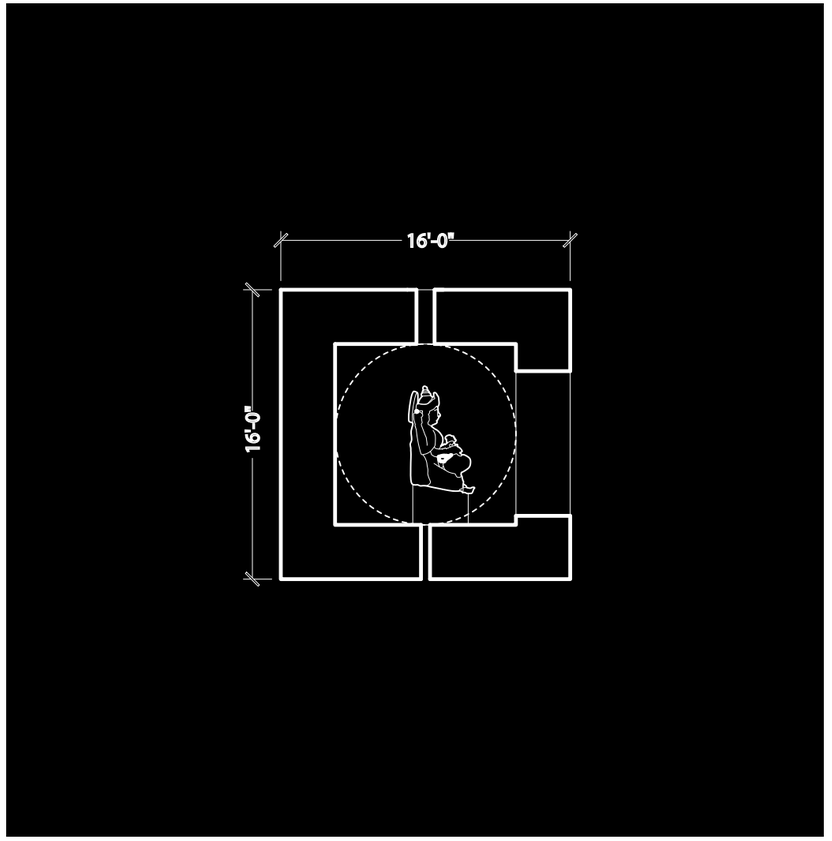


Early iteration of atmospheric space around the sanctum.

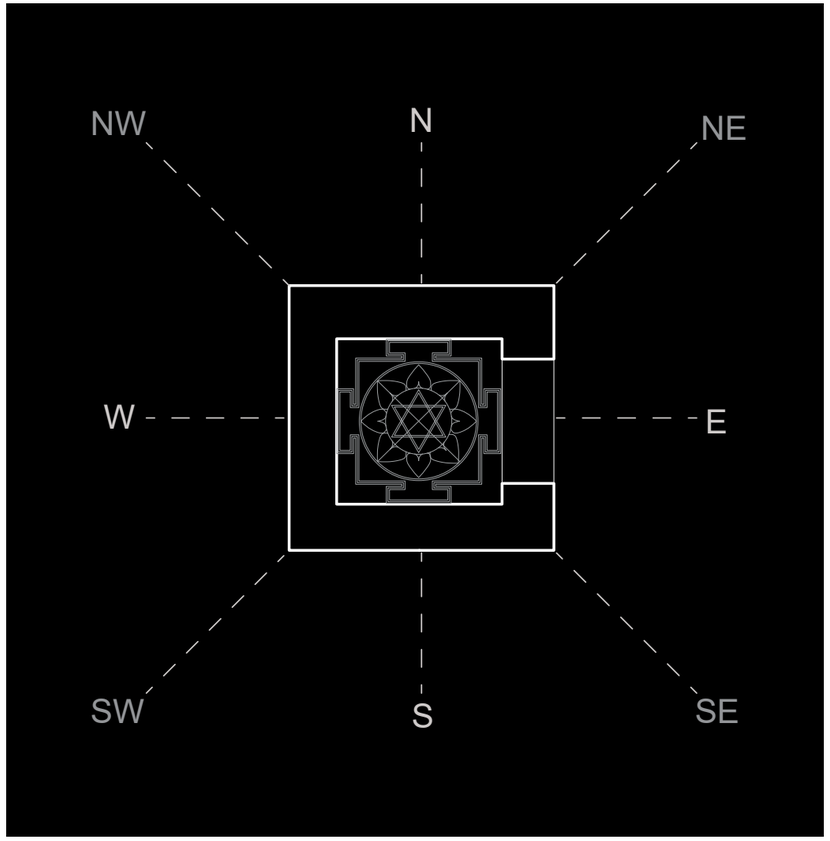


Abstract line drawing of garba grha space.

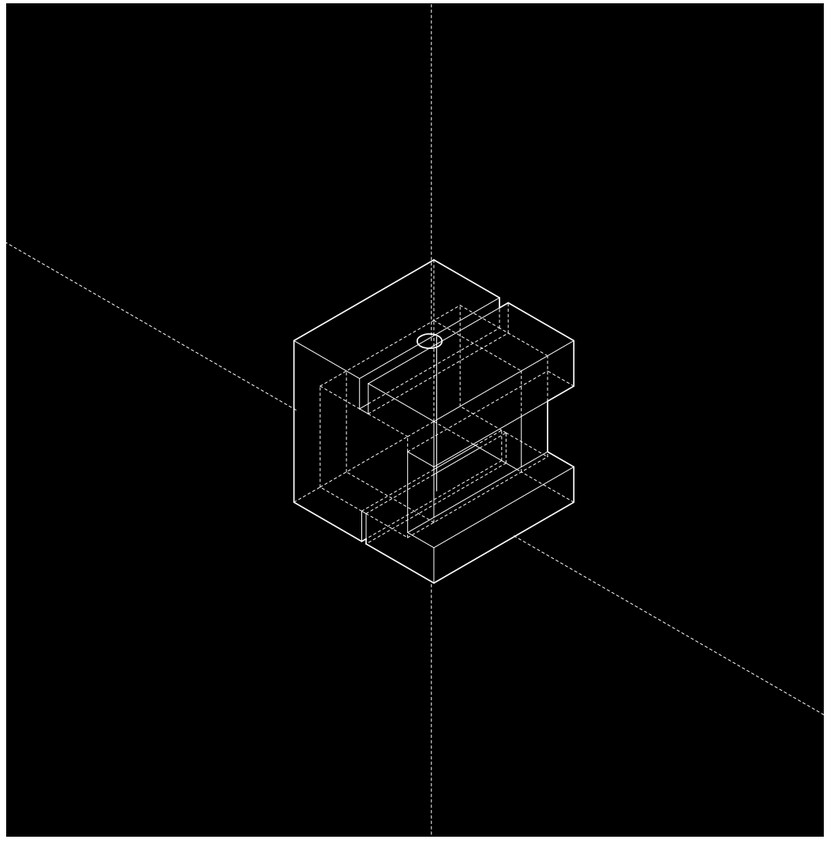
Goddess Saraswati of knowledge, consort of Lord Brahma, creator of the material world.



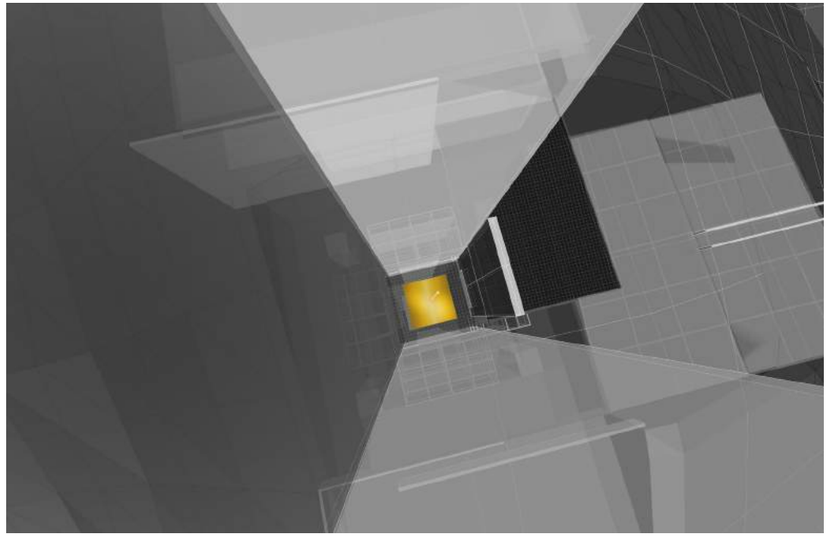
Section of garba grha.



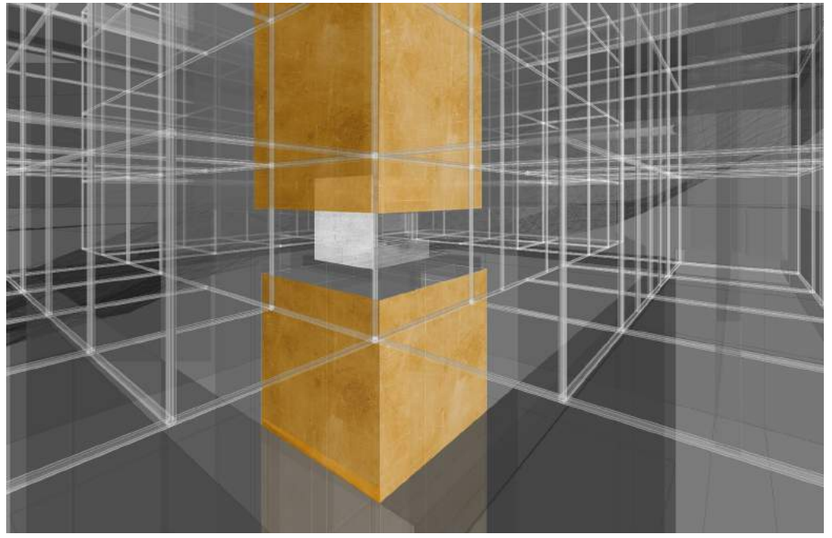
Saraswati yantra mandala, cosmic diagram.



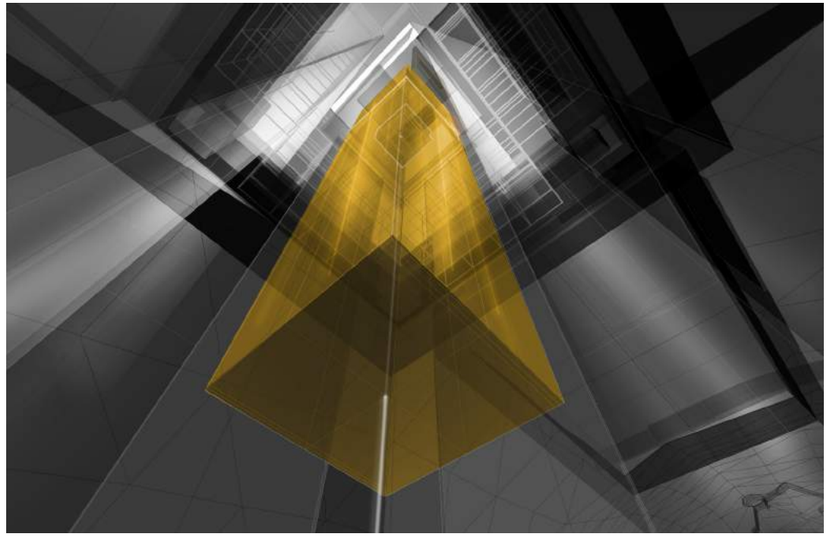
Abstract cartesian cosmological axis.



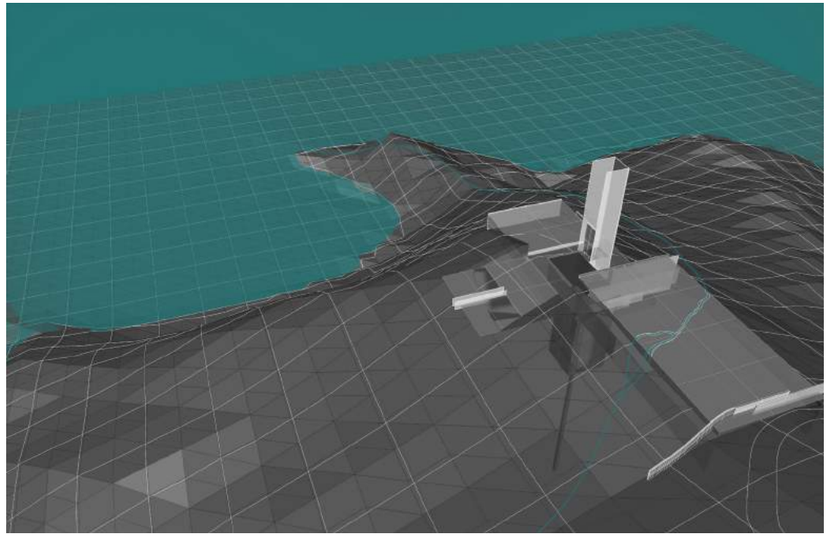
Vision inside the vimana to the sanctum.



Abstract view of the garbha grha. Copper vimana, gold clad sanctum and stone/brick inner sanctum.



Golded rocketship interspace between vimana and sanctum.



Water sources: San Fransisco Bay and the constructed mythical Saraswati river.

05 APPENDIX

A. GLOSSARY OF TERMS

Garbha Griha(n.)	(Sanskrit) 1.The sanctum sanctorum of the temple where the idol deity is kept and venerated, 2.The 'womb' of the shrine
Kali Yuga(n.)	The fourth period in the yuga cycle consisting of 432,000 Human years. Temples were created because god's presence disappeared and had to be remembered in a physical capacity.
Mandala (n.)	Cosmic diagram classically employed to denote the air that encompasses the light of the sun and the moon: the orb that spins around the entire cosmos luminously. It symbolizes the totality of existence. It is a circle placed in a square because circles are perfect and comprehensive without beginning and end.
Mechanism(n.)	The dynamic parts of a machine
Profane(n.)	The organic, worldly, ornate, desires, possessions, wealth, status
Rg Veda (n.)	A sanskrit text written between 1200 and 900 BCE chronicling the origins and theology of Hinduism.
Sacred(n.)	The space created as an embodiment of ultimate enlightenment and release of all worldly desires and possessions
Temple(n.)	A place of meditation and serenity
Vimana (n.)	*(Sanskrit)* 1. A mythological chariot or flying palace of the ancient Hindu gods as described in the Sanskrit epics, 2. The monumental pyramidal roof over the sanctum sanctorum of the Hindu temple or a gopura(entry gate), 3. Aircraft or mythological rocket-ship, 4."Apart" or "having measured", 5. An area of land measured out and set apart to be used for sacred purposes
Vimanika shastra (n.)	a fourth century Sanskrit text written by Sage Bharadwaj about ancient Indian flying machines found in a temple in 1875 and then subsequently translated and re-translated into English

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Gives a through description of the Airavateeshvara myth and its origins.

Ananth, Sashikala. 2001. *Vaastu: A path to harmonious living*. New Delhi: Lustre Press Roli Books.

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This thesis was awarded the Ralph T. Walker Travel Prize ($1,500) for international travel which allowed travel to south India from December 2018 to January 2019 to do extended research on south Indian temples. The extended research is included in another publication which acts as a catalogue of sketches and photographs.

Vimana: A Crisis of Translation qualified for the Super Jury Prize 2019 and was able to be presented to a panel of external jurors. This thesis was also awarded one of 5 Dean's Citation for Excellence 2019.