MANIFESTATION OF SPACES IN GURUKUL SYSTEM OF EDUCATION

A DISSERTATION
Submitted in Partial Fulfilment of the Requirements
for the degree
of

MASTERS OF ARCHITECTURE

BY

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BBD UNIVERSITY

TO THE

SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARSI DAS UNIVERSITY, LUCKNOW

June 2023

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5. Faculty of the University to which the thesis is submitted – Dr. Mohit Km Agarwal
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ABSTRACT

Indian knowledge system was one of the earliest and advanced education system. In India education was a sacred tradition. Education was not just mugging up the course not just for giving exams or to get jobs or to just earn a living. In ancient India education meant development of an individual as a whole, up lifting the individual intellectually, skilfully, cultural and spiritually. In this uplift of individual the teacher or the Guru plays the most important part. The students live in the proximity of the Guru, learn every aspect of life keeping the Guru as idol and the supreme, equivalent to God. Students use to live along with the Guru. In Gurukul Teaching and learning all the time making learning a continuous process. But the system was crushed by various invaders and later by Britishers which brought this glorious eco system to a downfall.

This unique system of Gurukul was supported by the environment which was in admist of nature, away from the hassle bussle of urban area. Gurukuls in ancient ages leave us unsolved clues for this setup of education, where students outreach their maximum potential and remain focused for attainment of knowledge. Now with the upcoming generation facing huge problems related to education such as unskillfulness, lack of focus, stress, lack of moral and ethical values, lost traditional and cultural inherence, calls for revival of Gurukul system for a holistic development, and so for the need of a setup which is traditional in concept but also fulfilling present day needs of technology and climate change.

There are some Gurukuls running in country but present Gurukuls and especially the Vedic Gurukuls are unplanned and are just organic growth of buildings as per the need and resources, leaving the place without any character and not even fulfilling the basic facilities. Now with a change in the outlook of the society the Gurukuls are again gaining a recognition. Government and various other organisations are now upcoming with institutes which could impart and promote Indian traditional knowledge, culture in very traditional ways gelled with new technology.

This dissertation aims to find physical spaces and environment for a gurukul which could aid for the holistic development of students providing traditional and simple solutions for enhancing learning. The project aims to establish a healthy and uplifting relationship between the teacher and student reviving the ***Guru-shishya Parampara*** by spaces for more interaction between the two. Creating a balance between built and unbuilt forms. Bringing in the natural elements and nature can create harmonised spaces for the pupils. Special spaces created for group activities enables develop qualities like coordination and empathy among the students.

The Gurukul system encourages pupils being self-sufficient in every aspect of life right from completing daily chaos to special tasks, thus skill development is one of the important aspects. Spaces designed for special training or skills are important along with the spaces for daily activities like cleaning, cooking, praying etc.

Along with various learning, discipline, self-control and contemplation is enabled by spiritual and meditation spaces. The spaces and architecture need to be simple and sustainable for promoting simple living and high thinking.

KEYWORDS-

Gurukul, Indian knowledge system, guru shishya Parampara, spatial planning,

CHAPTER- I

1.1 INTRODUCTION .

"True education is that which cultivates the soul or the spirit, and leads ultimately to the full and complete development of man's body, mind and spirit…Literacy then is not the primary goal of education: it is the cultivation of character, and the development of the spirit; it is the education of the heart not the head"

-Mahatma Ghandhi

"India has a **rich cultural** and traditional history and inherent one of the most **unique system of education** since ancient times-- the gurukul system of education -- **the Guru- Shishya Parampara** , which not only provided the students with the information but also helped them developed as a complete human being , who is sensitive and responsible socially, spiritually and personally." The earliest text of ancient India, Rig-Veda, is the source of Hindu civilization. In this ancient Indian Vedic literature we observe that education was not merely bookish knowledge but included any instruction which upholds the body and mind.

The gurukul system of education has been in existence since ancient times. Guru Shishya tradition has been considered a unique feature of Indian education system. Gurukuls are one of the earliest forms of public school centres paved to infuse character, personality development, social efficiency and happiness, spread of culture etc. The guru taught everything, including astrology, history, literature, religion, sanskrit, scriptures, medicine, philosophy, and more. Also covered topics like warfare, statecraft, philosophy, and literature. Reading books was only one aspect of learning; it was also correlated with nature and daily life. It wasn't memorization of certain facts and statistics and answering questions on exams. The Vedas, sacrifice laws, grammar, derivation, knowledge of nature's mysteries, logical thinking, science, and occupational skills were the foundation of education.

The ancient Indian educational system openly acknowledged that self-realization is the ultimate objective of life, and as a result, it claimed to be exceptional in the world in a number of ways, such as how society did not in any way interfere with the study programme or regulate it.

1.2 NEED OF THE PROJECT

In today's world education has become very conventional and commercialized overlooking the real knowledge and development of children. Today the task is learning something from everything, information is infinite and modes of learning are also vast and also readily available. With the advancement of technology and easily available information , students believe there there is no point in learning certain knowledge or attaining a skill. They are inclined and dependent on artificial memory than their own memory which has effected in registering, recalling, thinking and analysing data and judging things.

A student must possess certain quality like sence of curiosity , empathy, sensitivity to socialissuesand ethics in addition to his subject knowledge. These qualities can be inculcated through a interdiciplinarya and residential system of education like the gurukul system of learning which offer a blended learning experience. Along with the pedagogy of teaching the physical environment plays important role in bending and promoting the learning process in students. Thus the need of finding the appropriate spaces as per the pedagogy is important for a successful gurukul. Not much study and research have been done to find the appropriate spaces and their type for a gurukul till now which is need for designing a setup of gurukul.

Various government and non government institutions and organization are now looking forward, promoting Indian knowledge system and setting up gurukuls as an alternative means of education. Knowing the virtue of Indian traditional ways of learning and gurukul various setups are coming up abroad as well. Thus a need for setting parameters for design of a gurukul come into picture.

1.3 AIM-

This dissertation aims to find out spaces and environment for gurukuls which can support holistic development and learning for students in a traditional way without overlooking the present day needs of infrastructure and technology.

1.4 OBJECTIVE

- Understanding how architecture could contribute towards a holistic learning experience
- To analyse need and relevance of gurukul system in present times .
- To study physical settings in ancient gurukul system
- To find design parameters and considerations for contemporary gurukul for amalgamating traditional education with new technology needs and climatic considerations.

1.5 SCOPE

Scope Is limited to traditional residential type of educational setup imparting education focusing on Indian knowledge system and skill development.

1.6 RESEARCH QUESTIONS

- What is gurukul system and why it is important in present age. ?
- What are the characteristics of gurukul that need to be carried?
- What are the parameters which need to be studied ?
- How the ideologies of gurukul are manifested in gurukuls.
- What kind of spaces are required for a typical gurukul?

1.8 METHODOLOGY.

For the purpose of exploration of the topic and finding the future needs of gurukuls the basic study is done of some classic examples. Which includes a typical and legendry historic example which guide how the gurukuls use to be in past. Few other examples are selected which reflect both traditional and contemporary set up of a gurukuls. A survey of 35 gurukuls have been done trough a self structured questionnaire for finding the type and flow of spaces as they are used to strengthen the guru shishya parampara. The further details are incorporated by interviews of guru or the acharya of few gurukul exploring the importance of gurukuls in morden age and present day needs.

As per the literature study, few Parameters are identified which make gurukul a different typolology of educational institute. Feasibility and Relevance of these parameters are been again studied through survey. Interviews of Achrya helped exploring the unidentified aspects of gurukuls

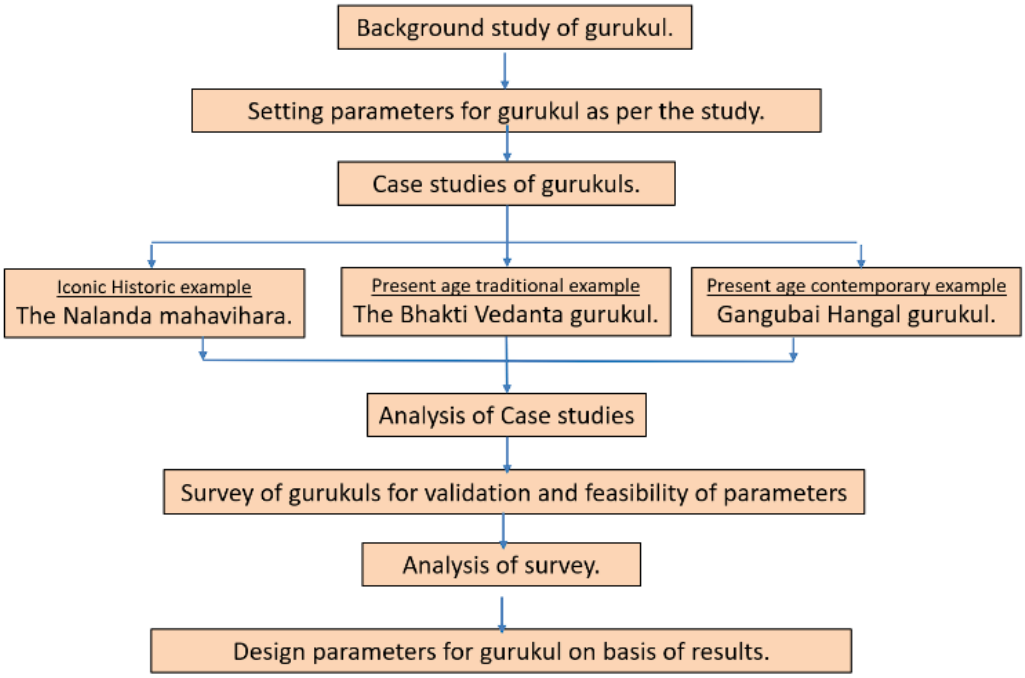


Figure 1- Methedology flowchart

CHAPTER 2- BACKGROUND STUDY

EARLY INDIAN EDUCATION: GURUKULAS AND MAHĀVIHĀRAS

This chapter provides a broad overview of early Indian schooling. Early Indian education was based on the demands and necessities of the ancient Indian civilization. Ancient Indian education underwent alterations and changes in response to the growth and stability of the society, economy, governance, and religion.

2.1 AIM OF TRUE EDUCATION-

Since ages of rig Veda i.e., 5000bc. The aim of education was at making human life better not only through economic upliftment of individual but also through social, moral and spiritual strengthening.
So, education is a vital means for the potentialities of a human being to emerge in a positive direction so that a man can live in society with full of dignity
Education has three central aims:
a) personal - for an individual, it is growth of the soul and its powers and possibilities,
b) social- for the nation, the preservation, strengthening and enrichment of the society
c) spiritual - to raise powers of the life and ascending mind and soul of humanity.

2.2 BRIEF HISTORY OF GURUKUL

The gurukul education system is what we see in mainstream ancient Indian historical writing, which represents the guru-śhiṣya paramparā. This gurukul tradition gives a clear picture of early Indian education. This tradition of learning started from the early Vedic Age i.e., 1500 B.C. and being incorporated in the regulation of social life in the later Vedic Age validated it. The number of such gurukuls or Vedic schools increased proportionately to the number of saints composing new hymns as well as to the number of successful students, who after the completion of studies set up their own Vedic schools in their residence or neighbouring area. In the Vedic age when learning was imparted through oral traditions and the system was kept alive with the help of guru-shishya tradition.
Over time, the systems of transmission of learning to newer generations got institutionalised and gave birth to famous universities such as Takshshila, Nalanda and the famous temple universities of which the remains are still found in southern India. A sizeable number of foreign students came to study in India from China, Korea, Japan, Indonesia and West Asia. While the most famous names are Fa-Hien and Xuan Zang (Hieun Tsang), who left behind detailed accounts. During Buddhist period the Gurukul system continued flourishing, but much earlier Vedic Vishwavidyalaya's were slowly converted into Bodh maha viharas as was the case with Takshashila and many others.

From the sixth century BC through the year 1200 AD, around fifteen ancient colleges are known to have existed. The oldest is reputedly Takshashila. When it was destroyed in the 12th century A.D., Nalanda, which had been founded in the 5th century, had been the epicentre of excellence. To name a few, other lesser-known universities are Vikramshila, Mithila, Valabhi, Pushpagiri, Odantipuri, and Somapura. The intellectual underpinnings of Indian knowledge and education are dominant schools of thought-systems, represented by numerous Darshanas. The slow evolution of the Ashram System is thought to have started

around 600 BC in a number of multidisciplinary institutions, including Takshashila, Nalanda, Vikramshila, and many others. Because of famous graduates like Kautilya, Panini, Charaka, Vishnu Sharma, Jivaka ,Takshashila was a centre of study for several centuries.
Vedic dharma took the backseat while Buddhism was in the driving seat.
The period from 6th century BC to 12th century AD may be considered as golden period of Indian scholarship and education. However, frequent invasions, conquests, gradually led to destruction of Indian universities
The Indian educational system was drastically altered during the British era to meet their demands. Macaulay noted that Indians' loyalty to their own traditions, cultures, and rituals was a result of the country's pervasive educational system. He advocated for the introduction of an education system that is dominated by the English language.
All fields of knowledge—sciences, humanities, engineering, and medicine—Western systems have entirely replaced Indian knowledge systems. As a result, Sanskrit and other regional languages were suppressed, thereby confirming English's domination. Convent schools, colleges, and universities were established in Mumbai, Kolkata, Chennai, and many other places, which sparked efforts to introduce the British educational system to India.

2.3 GURUKUL AS SOCIAL SCHOOLS-

Gurukuls were one of the earliest forms of public school paved to infuse character, personality development, social efficiency and happiness, spread of culture etc. Slowly these gurukuls took institutionalized forms and the system started functioning to impart knowledge of every kind.

Gurukuls played an important role in the development of Indian culture, the system of 4 Purusharthas ,4 Varnas, and 4 Ashrams were not only interdependent, but Gurukuls acted as a great support system for them.

There are four Purusharthas —

1. Artha – wealth and prosperity and deals with economical values
2. Kama- means pleasure and desires.
3. Dharma –righteousness, law or duties deals with moral values
4. Moksha – means liberation deals with spiritual values.

four 'Varnas,' (Castes) or social divisions based on occupation were:-

1. Brahmins (scholar, teacher, priest)
2. Kshatriyas (warrior, king, the administrator).
3. Vaishyas (merchant, agriculturist - responsible primarily for protection of herds, food production, trade and banking)
4. Shudras (worker, service provider)

There were also four ashrams (Transitory stages) in one individual’s life. These were:-

1. Brahmacharya: (student life). transitory stages of life live in purity and study the Veda for first 25 years of their life are called Bramhacharins.
2. Garhastha or Grihasta (Householder’s life).
3. Vanaprastha (retirement to Sylvan life).
4. Sannyasa (renunciation).

2.4 THE PROCESS OF EDUCATION-

This legacy was passed down orally for thousands of years through the Guruparamparya system, which involved a succession of students and teachers forming an unbroken chain through the centuries. Reducing the Vedas to writing was regarded as sacrilege even in the eighth century AD since education was not only the capacity to read, write, and comprehend but rather as something to be realised and assimilated as an organic part of oneself. As a result, the Gurukuls used a special teaching strategy that followed the Upanishads' description of three phases.

Education was concentrated to the three processes

SRAVANA was the process of listening to the words of the teacher. It was considered that sound itself carried power, so that the sound and rhythm of the verse, and the ensuing vibration, carried potency and meaning to be directly internalized.

MANANA**,** a process of deliberation and reflection on the subject, comprising discussion, debate and arguments Education then was the training of controlling the mind, so as to be able to dive deep into the depths of our inner awareness

NIDIDHYANASANA is the realization of the Truth through meditation. The Upanishads describe preliminary exercises for training in contemplation called Upasanas, which if practised rigorously would lead to the "consciousness of the One.

2.5 THE CURRICULUM

Ancient Indian study and teaching went on with a definite goal. There were different branches of knowledge like arts, science, philosophy, politics, astronomy, medicine etc in ancient India. These were called aparávidyá. Supreme knowledge is technically called parávidyá, that which is different from all other fields of knowledge. This highest knowledge, which is the science of all sciences and knowledge of all knowledge, is the ultimate one.

The curriculum mostly comprises of 14 vidyas and 64 kalayen

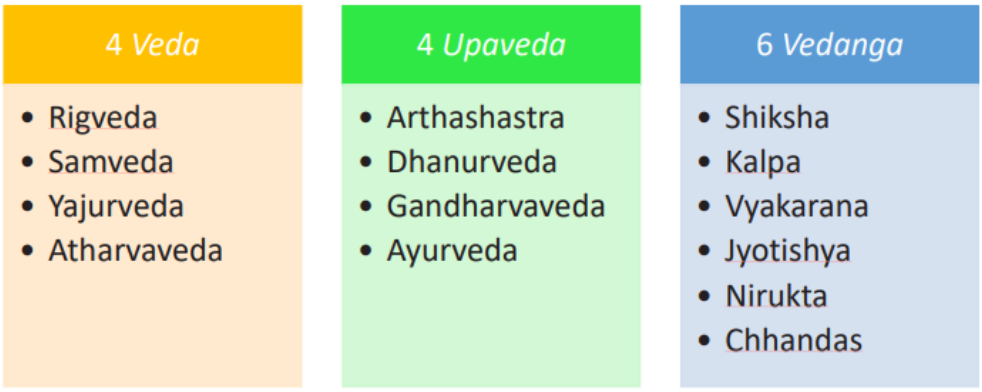


Figure 2 -14 vidyas

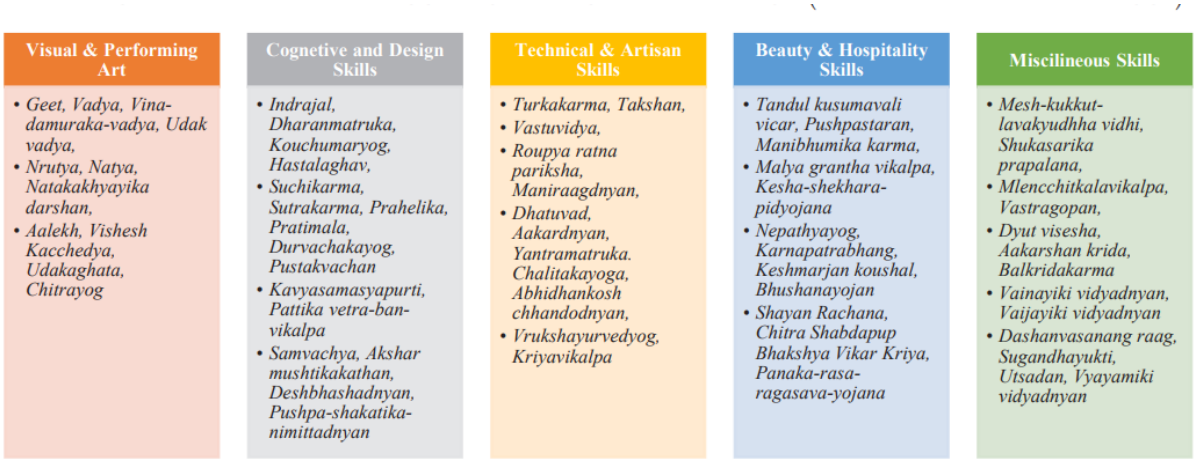


Figure 3- 64kalayen

2.6 METHODS OF TEACHING IN GURUKUL

Listening and repeating of various mantras and hymns wires the brain of pupil in special way which can absorb , retain and recall the teachings given by the guru. The vibration created have great power and create a deeper awareness by uplifting spiritual energy.

Apart from this doing daily chaos of oneself , gurukul and guru, the pupils learn not only to be independent but also empathically towards others and society.

Other pedagogy which were adopted for imparting various kind of knowledge and skill can be listed as.

	Technique
1	Samwad or Dialogue
2	Preaching
3	Teaching by example
4	Learning by doing
5	Estimation learning
6	story telling; The learner reads the story
7	Learning by teaching
8	Group Discussion
9	Learning from traits of things
10	Learning with the help of playing
11	Memorizing by rhythming
12	Story Telling
13	Debating
14	Syntactic method
15	Delivering learning by celebrating festivals
16	Encoding Method: Puzzles
17	Octave
18	Poetry
19	Experimentation
20	Researching or sharing the research
21	Group working)

2.7 LITERATURE REVIEW

Few studies have been made in different fields supporting the **gurukul system ideologies**

An experimental study conducted by Dr Madhusoodanan Nair on engineering students by dividing them into smaller groups and provided ambience of gurukul system and adopting more interactive methods resulted in increase in performance by 48% shows that gurukul approach is highly effective. Suggestions have also been made for keeping the class strength as 30-35 .

A survey conducted (Mihir Madhekar) shows about 64% people of total sample size ae willing to learn or teach in gurukul for wholesome learning environment one on one attention and more extra curricular activities. Tis shows a willingness and acceptance towards alternative education system.

Main charecterstics of a gurukul have been identified as (bhushan Patwardhan reimagining Indian universities-learning from glorious past)

- Master disciple relationship
- Spontaneous life ioriented learning
- Learning by doing
- Personality and individual potential.
- Philosophy lineage
- Shastra based adhyan
- Ethical growth.
- Compassion driving force.
- yogic calmness
- contentment
- curiosity and creativity.

2.8 INFERENCES

Most of the studies made, suggest an amalgamation of gurukul system with present needs and modern education.

As outcome of the background study the Constituents of a Gurukul can be listed as

- Acharya
- Building and location
- A pattern (method) for delivering education
- Subjects taught e.g. Vedas, Vedangas, Mathematics, Language, etc

On the basis of various other literature, important virtues of gurukul system can be listed and accordingly the parameters for a gurukul spaces can be identified.

This can be listed as

VIRTUES	CONNECTION	PARAMETERS
Guru shishya parampara	**Relationship between guru and shishya to strengthen the learning.**	**Interactive places for guru and shishya.(not only during study hours but through out the day)**
Living for learning	**Learning all the time**	**Residential cum scholastic space**
Kalayen	**Skill development**	**spaces for training and special classrooms**
Calmness, spiritual upliftment	**Contemplation**	**Meditation and spiritual spaces**
Discipline Self control Physical deveopment	**Rules, Martial arts / sports**	**Spaces for sports and physical activities**
Empathy , self dependence	**Teamwork, working for self and others**	**Common working spaces, connection between built and unbuilt**
Respect to nature	**Location and landscape**	**Natural surroundings and natural elements**
Simple living, high thinking	**Simple and sustainable living**	**Simple and sustainable architecture and ecosystem**

So the parameters for the further study can be listed as

1. **Guru shishya connection**
2. **Residential cum scholastic space**
3. **Skill development spaces**
4. **Meditation center/ spiritual spaces**
5. **Common working/ gathering spaces**
6. **Natural surroundings**
7. **Connection between build and unbuild**
8. **Architectural relevance**

CHAPTER –3

PROBLEMS AND ISSUES

3.1 PRESENT EDUCATION SYSTEM-

Sadly, the aforesaid idea has been abandoned, and the contemporary educational system that Lord Macauley introduced to India in 1835 is now centred on the competitive rat race to outperform others. Personality formation, the development of a moral conscience, and ethical education are completely absent. One of the greatest problems with this school is that it is more of a for-profit endeavour than an institutional idea meant to give kids a well-rounded education. Physical exercise and the development of other skill sets that can help a kid become a better person are given relatively little attention in this curriculum.

Various change such as modernization, industrialization, urbanization, privatization, globalization, and the influence of Western culture have brought many troubles and evils to Indian society, leading to a decline in ethical values in the Indian education system. increase. While this system certainly improved literacy, it did not help produce educated individuals in society.

Parental pressures on children are increasing at an alarming rate, with stress to focus on the competitive examinations alone, taking a greater toll on the young mental framework.

Today, Indian society is constantly facing new challenges. Uncontrollable corruption and ethical devaluation, illegality, inhumane behavior, violation of discipline, violation of rules, lack of self-realization and immoral consumption are slowly destroying the fabric of Indian society, nation and world. I'm here. It is time to identify the goals of education and the main causes behind the decline in social, moral values and spiritual empowerment in the Indian education system.

3.1.1 Problems of the Indian Education System

- Factory Schooling
- Marks over Learning-In the current education system, the brilliance of a student is measured by how many marks he scores on the test rather than what he has learned by heart.
- One size fits all- The current schooling system treats every child of a particular age in the same way. Students are grouped based on their age rather than interest or learning potential.
- Critical Thinking Vs imitating-Most of the education imparted in current Indian schooling system is completely theoretical. It has minuscule practical component. Students learn by imitating the teacher without much understanding.
- Lack of understanding of the process of learning- Methods like storytelling, experiential learning with the involvement of as many senses as it can, Group Discussion, Lecturing, learning through teaching, etc. can break the monotonicity of learning thereby helping in the retention of knowledge.
- Lack of autonomy- The current schooling system lacks dynamism and autonomy
- Inauthentic learning-. Students are taught to follow the algorithm of solving a problem. This doesn’t develop their critical thinking or anylitical abilities.

3.2 PHYSICAL SETTING OF SCHOOLS

Physical features, such as light, space, furnishings and equipment, air quality, noise, graffiti, cleanliness and density of pupils effects on behaviour and attitudes and can significantly enhance or impede the learning process.

3.3 THE IMPORTANCE OF THE GURUKUL SYSTEM IN PRESENT TIMES-

The primary goal of gurukuls was to teach pupils in a natural setting where shisyas coexisted with one another in a spirit of brotherhood, humanity, love, and discipline. Through group debates, self-learning, etc., the fundamental lessons in disciplines like language, physics, and mathematics were imparted. Additionally, the emphasis was placed on activities that honed their intelligence and critical thinking, such as singing, sports, crafts, and the arts. Yoga, meditation, mantra chanting, and other exercises helped people become happier and more at peace while also making them fit. Additionally, it was required that they complete their own daily tasks in order to teach them useful skills. All of these aided in the formation of the individual's personality and boosted their self-assurance, sense of discipline, intelligence, and attentiveness, all of which are still important today.

. **The main purpose of education** is not merely the acquisition of knowledge but also attaining materialistic and idealistic self-fulfilment along with the awareness of about the good of society and fellow beings.

The pointless pressure has taken the reallocation of educational parlance from a holistic approach towards education to farcical rote learning.

Unfortunately, the **standard of education has drastically deteriorated** in the last couple of decades due to lack of infrastructure and degradation of moral capacities. Consequently, both teachers and students have been completely deprived of the exceptional amenities that could foster a better standard of living.

Students need to have supple minds that are capable of analytical thinking, while integrating complex core concepts that aid them to evolve as human beings. They need to build an infallible foundation of scientific and technological knowledge, while staying true to their roles in the planet. This is possible through deep levels of determination, focus and concentration, that is enshrined in Gurukul learning. This is the reason why Gurukul systems are considered to be the best places to facilitate a sound learning environment.

3.4 PRESENT SCENARIO OF GURUKUL SYSTEM

There are about 5000 gurukuls still functioning in India and are increasing in number. Though these gurukuls do not compare well to the glory of ancient gurukuls. Still, it is heartening to see some of them functioning defying all the odds.

Classification Based on the *pattern* followed

- This classification is based on the pattern that a gurukul follows. The pattern is what makes a gurukul different from the factory schooling of the current system.

. There are three types of Gurukuls in India right now.

- Type 1: Gurukuls where students live with the acharya and learn mathematics, Arthashastra, astronomy, science, Darshanas(philosophy), Vedas, Vedangas, Ayurveda(medicine), Yoga, etc.
- Type 2: Gurukuls mainly focus on the study of the Sanskrit language with the help of Asthadyayi of Panini and some study of Vedas. But doesn't focus on the holistic approach taken by Type 1 gurukuls. This is the typical category of gurukuls, that people are most familiar with.
- Type 3: This is the route taken by more and more gurukuls these days. They adopt a hybrid approach. They follow the CBSE pattern and are accredited by a particular board. But they also include some elements of the gurukul system like residential schooling, Sanskrit language studies, and moral education. They are nothing more than residential schools with some sprinkling of Vedic principles.

CHAPTER -4

CASE STUDIES.

4.1 NALANDA MAHAVIHARA

Nalanda was zenith in ancient monistic establishment center of higher learning

Location	Nalanda district, Bihar, India
Region	Magadha
Type	Centre of learning, ancient university
Length	240 m (800 ft)
Width	490 m (1,600 ft)
Area	12 ha (30 acres)
Time dated	427 To 1197
subjects	Arts, medicine, mathematics, astronomy, astrology, etc
Students	About 10000
Teachers	Around 2000
structures	Stupas and viharas and a library

Figure 4- - excavated remains of nalanda mahavihara site 1B

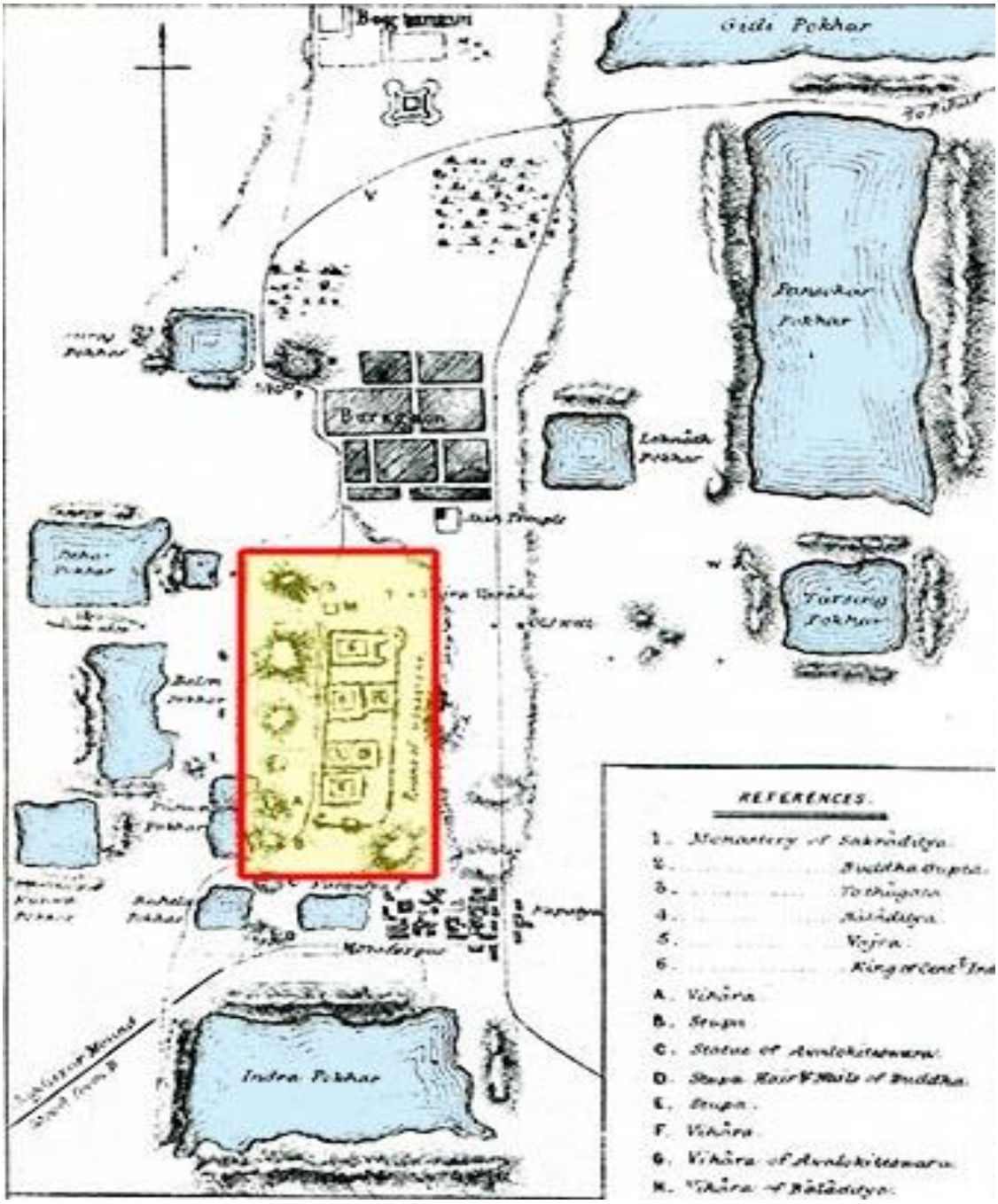
Figure 5- excavated remains of nalanda mahavihara site no. 3

Source-whc.unesco.org

4.1.1BACKGROUND

- Nalanda stands out as the most ancient university of the Indian Subcontinent.
- It engaged in the organized transmission of knowledge over an uninterrupted period of 800 years.

Figure 6- *A map of Nalanda and its environs from Alexander Cunningham's 1861–62 ASI report which shows a number of ponds (pokhar) around the Mahavihara*



As the first planned university of the Indian subcontinent, Nalanda`s built remains exemplify its extraordinary contribution to institution-building, pedagogy, architecture, art and pan-Asian culture. It represents maturing of ancient Indian pedagogy that influenced early medieval Buddhist art, architecture and belief system. It's built ensemble show processes of assimilation and developments of prototypes of planning, architecture and art that influenced large parts of Asia. The planning system and architectural forms evolved here were followed by later mahavihara in the region.

Excavated ruins today only occupy an area of around 488 metres (1,600 ft) by 244 metres (800 ft) or roughly **12 hectares. eleven monasteries** and **six brick temples** neatly arranged on grounds 12 hectares (30 acres) in area. Great library at Nalanda named ***Dharmaganja* with 9 floors and 3 buildings carried more than 9000 hand written manuscripts which were burnt during the great fire.**

Subjects such as the Vedas, *Hetuvidyā* (Logic), *Shabdavidya* (Grammar and Philology), *Chikitsavidya* (Medicine), the works on magic (the Atharvaveda), and Samkhya. law, astronomy, and city-planninget were taught. Indian systems of Logic and Philosophy, principles of Yogachara and Madhyamika Schools and debate as a tool for learning. While principles of Yogachara and Madhyamika enabled transition from Mahayana to Vajrayana, the principles influenced culture of Asia survives till date in the form of several sects and social customs.

Figure 8- ecavation remains of stupa

Figure 7- excavation remains of monestory

Nalanda`s systems enabled establishment of later Mahaviharas and continues to be practiced in Tibetan monasteries. Till date **Nalanda is an inspiration for universities across Asia** Excavated Remains of Nalanda Mahavihara' represen**ts maturing of ancient Indian pedagogy** and the related philosophical discourses that influenced early medieval Buddhist art, architecture and belief system. All surviving remains of Nalanda Mahavihara in the proposed property area demonstrate amply the attributes of the property such as its planning and layout, its architectural manifestation and extant building materials and applied ornamental embellishments

4.1.2 NALANDA MAHAVIHARA FROM LITERARY ACCOUNTS –

Nalanda Mahavihara was set **amidst a Pavarikavana (mango grove)** in a landscape **with abundant trees and water bodies**. This landscape was recognised for its sanctity by the Buddhists, Jains and Ajjivikas and was the epicentre of Buddhism since its inception. One of the first descriptions is dateable to 7thcentury CE provided by Chinese scholars like Hui Li and Xuanzang. Their description details **a lush landscape** abundant in **flowers, trees and water bodies as an immediate setting for the Mahavihara**, beyond which were **large tracts of agricultural land**. Both mention Nalanda to have eight 'halls' (possibly viharas), 'outside courts' where there were priest chambers having

four stages with dragon-like projections and red eaves along and richly adorned ‘towers’ and fairytale like turrets enclosed within a gated brick wall(Loizzo).

4.1.3 UNDERSTANDING THE LAYOUT

The **clustered alignment accommodated a modest number of bhikshus** through whose endearing scholarship Nalanda grew into a gargantuan educational facility. The **layout shows initiation of segregating functional spaces for sacred and secular activities**. While the **clustered planning allowed bhikshus to be proximate to the sacred core**, the layout had limited possibility to expand when the studentship and rituals (associated with transformation of teachings of the Buddha into a religion) started growing manifold (by 4th century CE) The north-south layout of the later Sites has allowed for the systematic expansion of the Mahavihara. The later (post 4th century CE) layout reflects a heightened emphasis on **sacred structures where each chaitya was provided with an open space and were built in monumental scale. Chaityas also became the dominant element determining the location and orientation of other structures in the Mahavihara**. These were **located along the western arm, opening eastwards and commanding the row of viharas overlooking it.. shows a stupa-centric planning where the orientation of the viharas is towards the focal stupa**

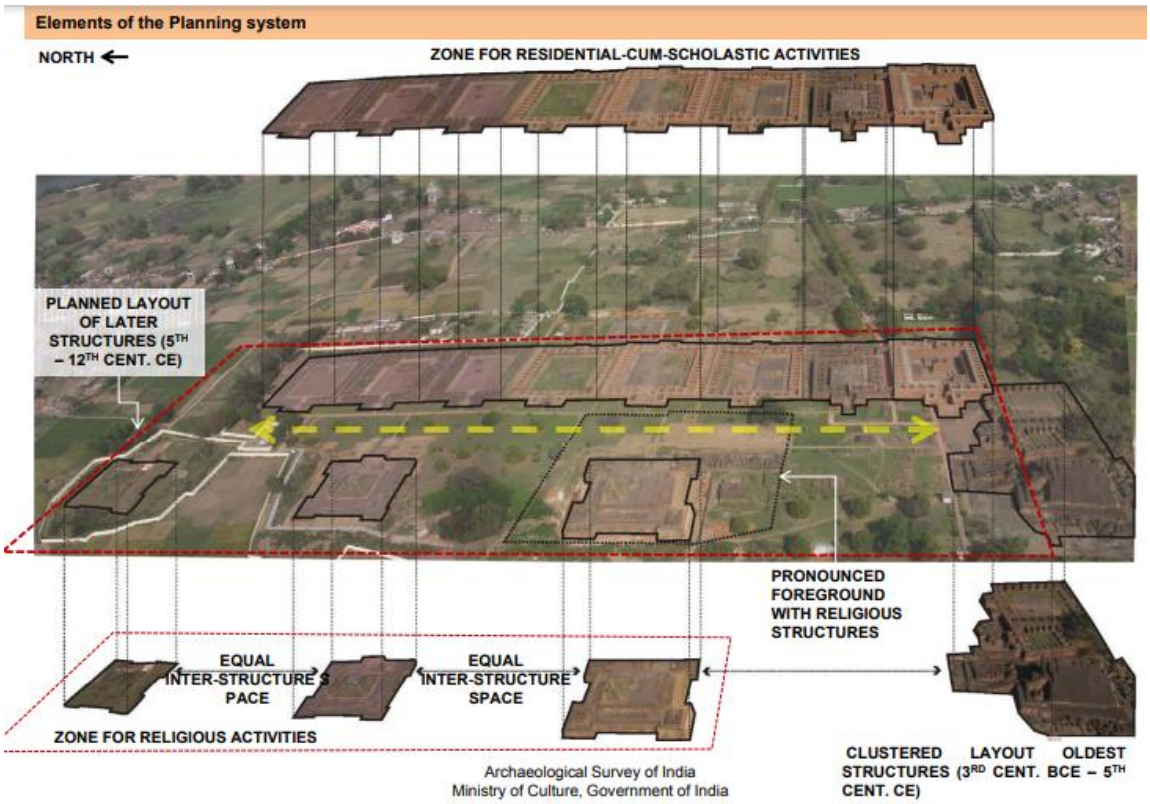


Figure 9- elemants of planning system

Source –reconstructed image of A Guide to Nalanda, Ghosh, Amalananda, e book, ASI

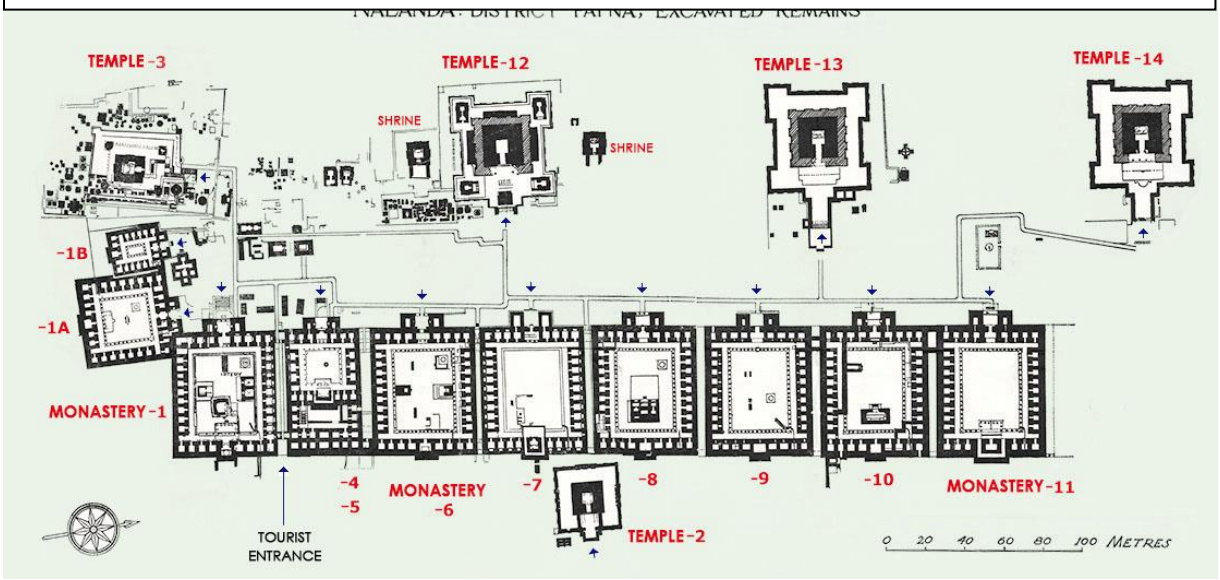


Figure 10- layout plan of Nalanda Mahavihara

4.1.4 MONESTORIES/ VIHARAS- RESIDENTIAL-CUM-SCHOLASTIC FACILITY

All the monasteries at Nalanda are very **similar in layout** and general appearance. Their plan involves a **rectangular form** with a central **quadrangular court** which is **surrounded by a verandah** which, in turn, is bounded by an outer row of cells for the monks - a typical design of vihara architecture. The central **cell facing the entrance leading** into the court is a shrine chamber. Its strategic position means that it would have been the first thing that drew the eye when entering the edifice. The building was originally at least **2 storeys high and contained a colossal statue of a seated Buddha**

At Nalanda, this quadrangular structure attained a regular form and was the hub of scholastic life. Rooms of average dimension of 9'3" by 9'and a clear height of 11', aligned along the four arms of the enclosure and at its south western corner was a staircase leading to the upper floors.Most rooms had provisions for a single scholar and opened onto a continuous **verandah which separates the residential spaces from the courtyard**. The rooms had niches to house the belongings of its resident and were provided with wooden doors and pad locks. In certain viharas, rooms were provided with berths and at times additional storage space. Each vihara had a centrally located **courtyard which housed community level facility for the conducting of daily classes, debates etc** apart from being a stage for **religious activities**. The raised platform on the eastern side of each vihara suggests that the same was a part of the educational facility where a distinguished acharya could assume his seat to conduct lectures or debates.

4.1.5 SALIENT FEATURES

- 11 monasteries, 6 temples and a giant stupa,
- meditation halls, parks and lakes .
- All monestries and stupas connected through pathways.
- The monasteries, laid out in a row, face a parallel row of temples directly across.
- A 30-metre-wide path runs between the two rows.
- Each monastery, averaging about 40m x 60m
- Made of oblong red bricks, once plastered with a paste of lime and sand.
- A **Buddha shrine** greets the main entrance.
- Walking through a **thick-walled corridor**, reaches an **inner courtyard.**
- It is enclosed on all four sides by **two storeys of rooms**, perhaps thirty-two on each floor.
- A veranda lines the courtyard on all four sides; stone pillars hold up a wooden roof over it.
- The **open courtyard has a podium for lectures**, a brick oven/stove, a well (with an octagonal cross-section, supposedly inspired by the eightfold path)
- **bathrooms with covered drains leading out**.
- Parts of the courtyard floors that aren't brick or stone are daubed with a mixture of **dried cow dung and straw**, which provides termite repulsion, thermal insulation and a cleaner, firmer surface than mud.
- All rooms in the monastery have walls that are multiple feet thick.
- **Teachers and students live together in the monastery**; each year before the monsoon, **the eldest monks are given the best rooms**.
- Monks training to become temple priests get a room with a purpose-built niche for a holy image, to which they offer flowers and incense after bathing each morning.
- Rooms host either **one or two monks** and have wooden doors.
- The monks sit on simple chairs, wood blocks or small mats.
- Each morning, the monks roll up their mattresses – two sewn sheets of cloth with a layer of wool in between.

Figure 11- actual photo op Nalanda Mahavihara site showing remains of monestrories and stupa

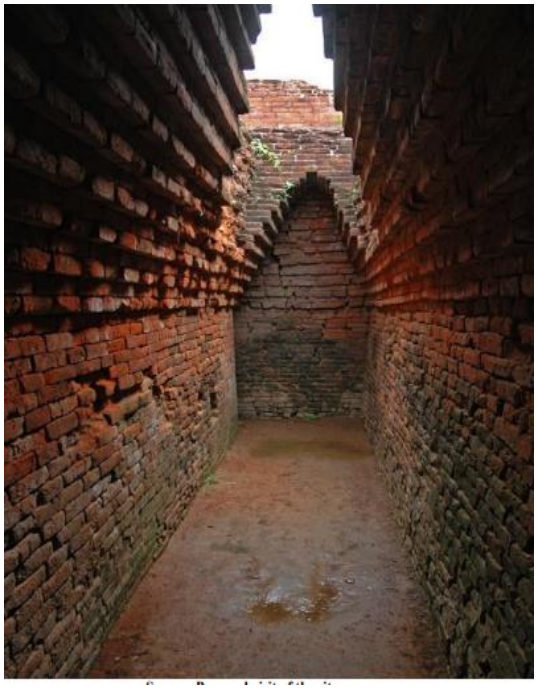


Figure 13-Arched doorway to chamber at nalanda

Figure 12- the doorway of monestary with basic reinforcing lintel cap

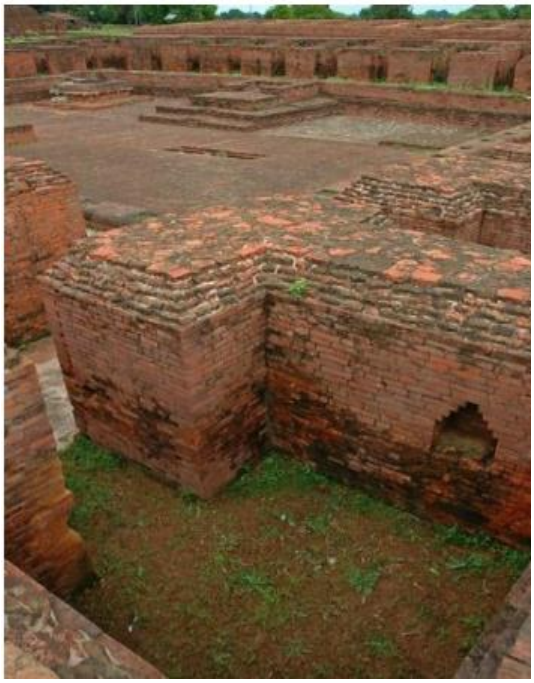


Figure 15-a typical cell in the monestary

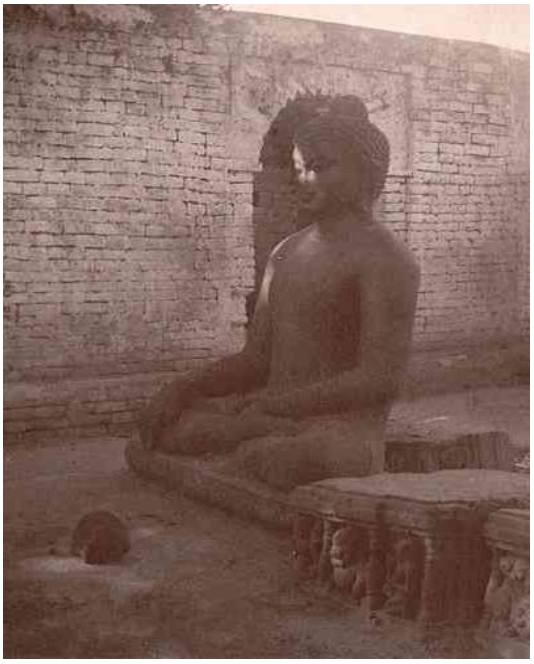


Figure 14-buddha statue in monastry courtyard

Source – A Guide to Nalanda, Ghosh, Amalananda, e book, ASI

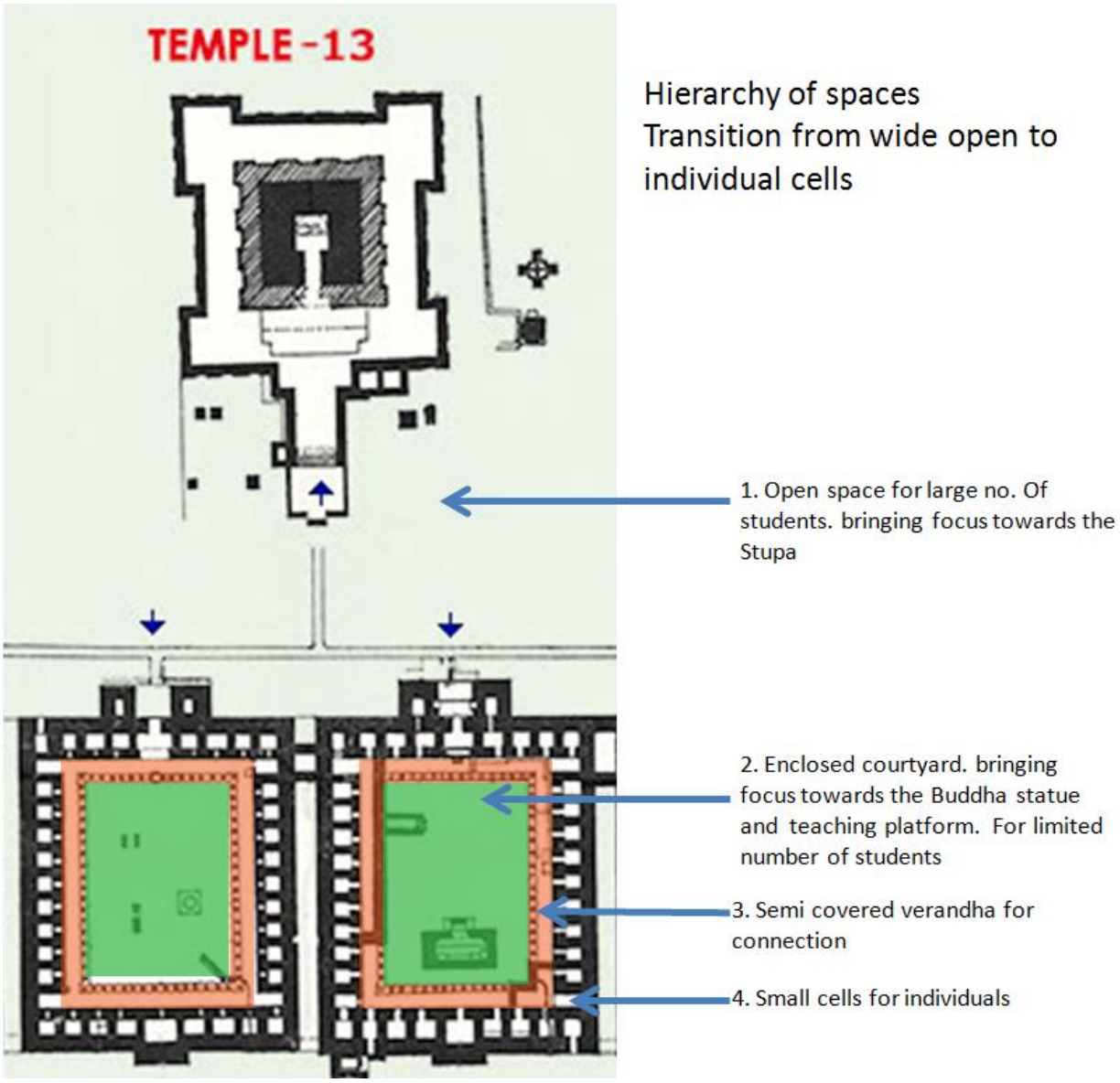


Figure 17- part plan of maahavihara showing transition of spaces- making done by authour

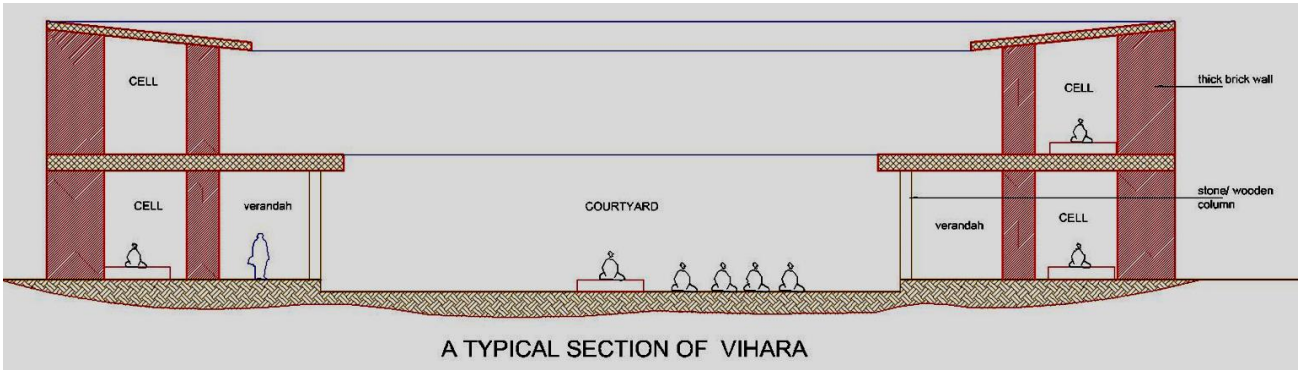


Figure 16-typical section of vihara

BY AUTHOR

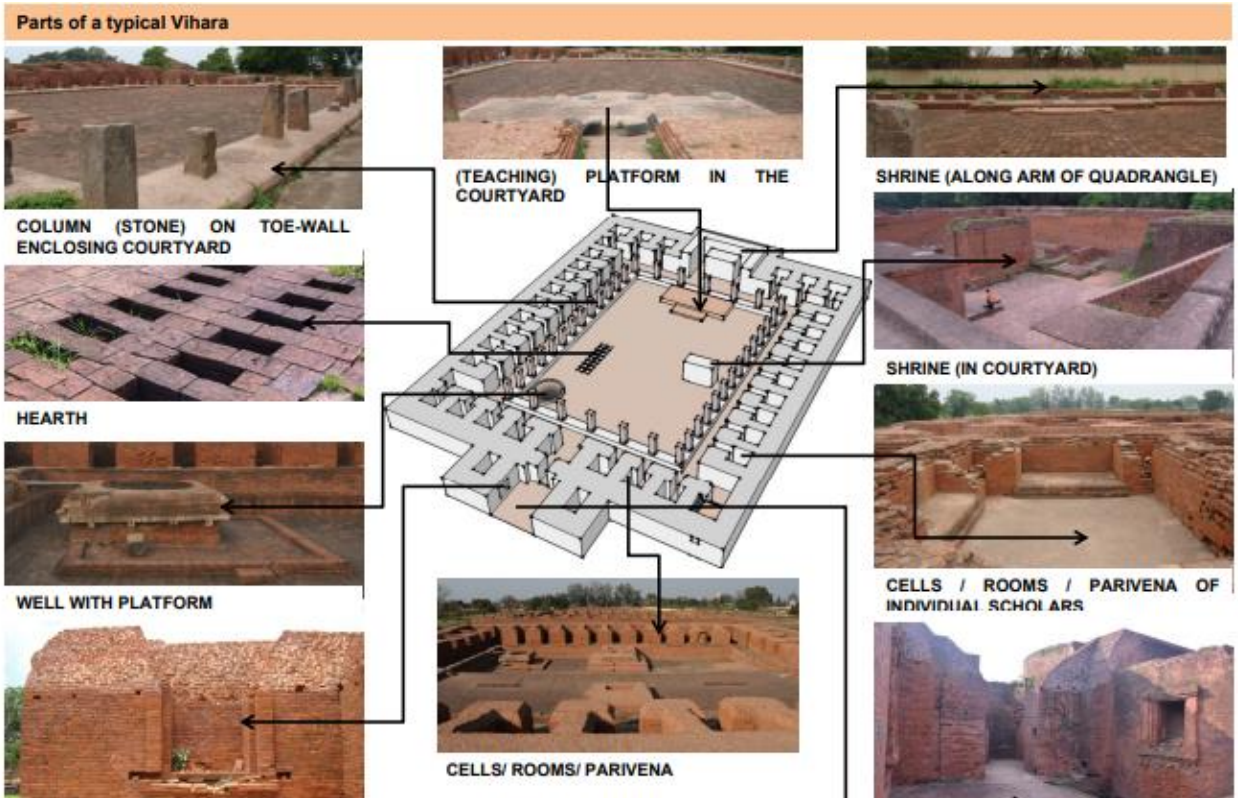


Figure 19- parts of typical vihara.

Source- ASI, Documentation of Excavated Remans of Nalanda Mahavihara

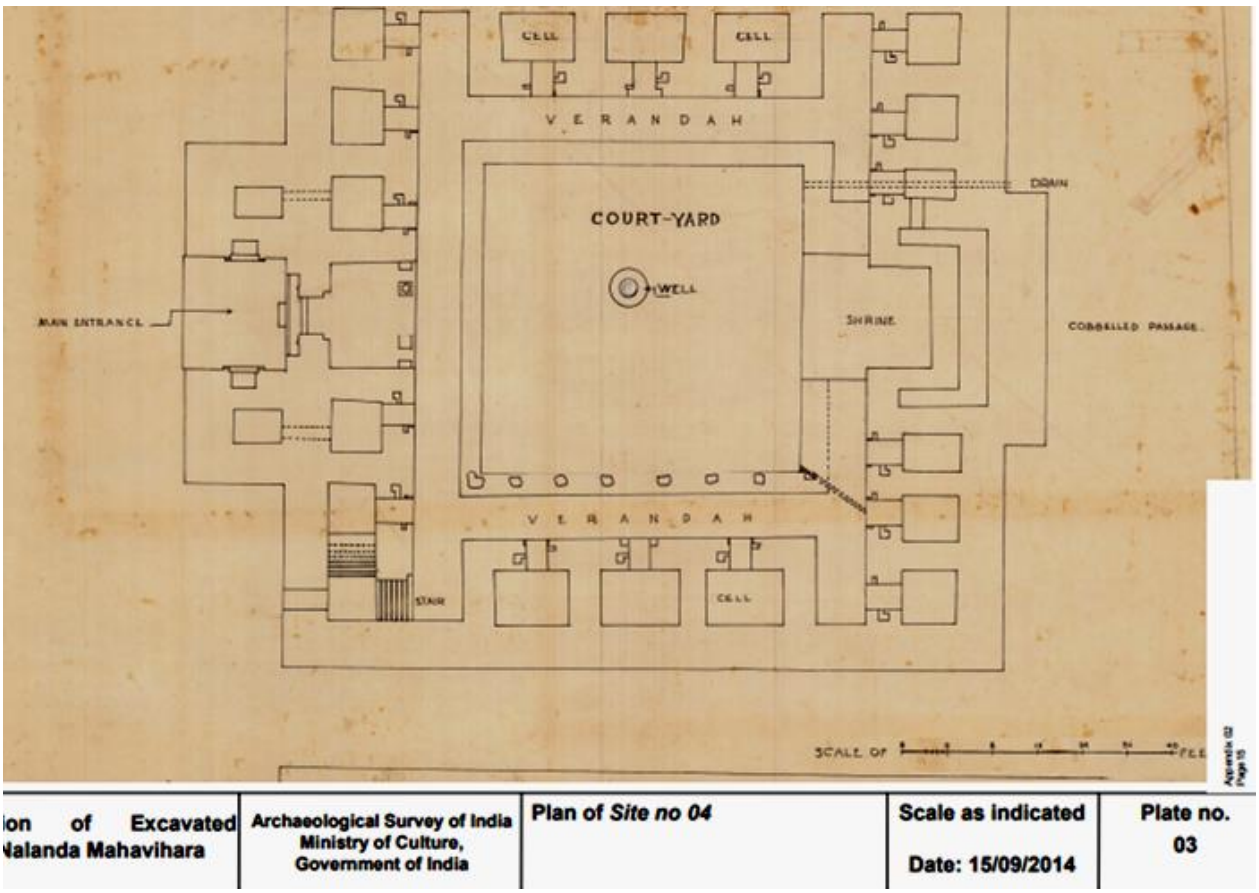


Figure 18-PLAN OF SITE 4

Source- ASI, Documentation of Excavated Remans of Nalanda Mahavihara

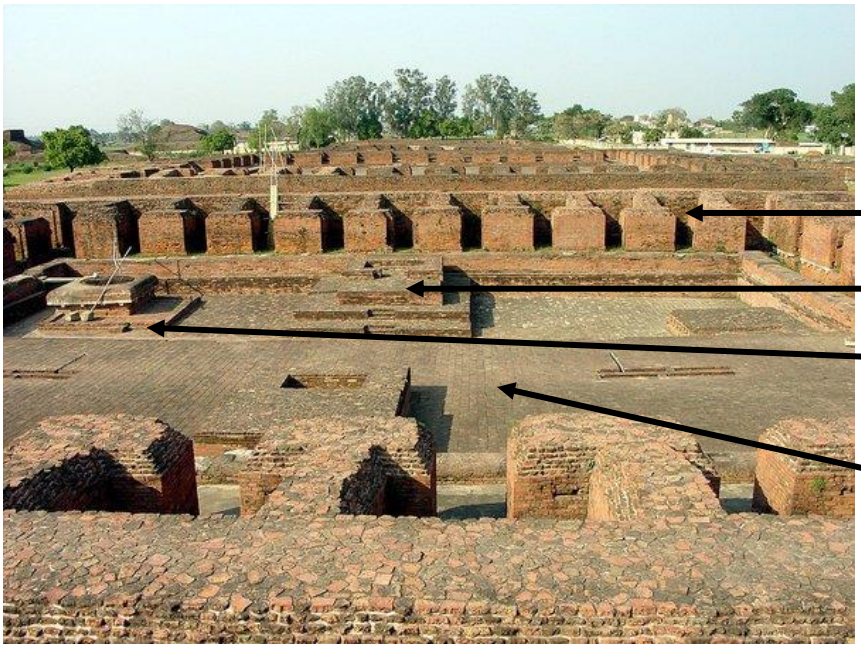


Figure 20- photo showing vihara courtyard

The courtyard becomes an exclusive and a very close learning space for pupil and teacher of a particular monastery. The courtyard is surrounded by cells from all four sides leaving a very limited and small entrance so when u you are in the courtyard you are cut off from any kind of movement or activities outside which enables on complete tranquillity of the space. The serenity of the place is all the time maintained due to presence of Lord Buddha statue.

The verandah between the courtyard and the cells, build a strong connection between open and closed area.

Figure 21- photo showing verandah and courtyard

The size of the courtyard being not too big also enables creating a strong connection visually and emotionally with the activities running in the courtyard.

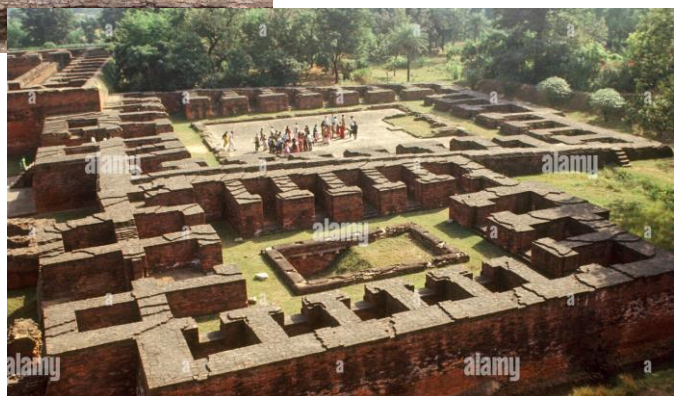


Figure 22- view of vihara

4.1.6 INFERENCES – NALANDA MAHAVIHARA

Guru shishya connection	The teacher or guru and student live in same monestery . Guru takes a special room with place for shrine . But shares same common and interaction space
Residential-cum-scholastic facility	Planning of vihara clearly shows their use as living cum learning space.
Skill development spaces	No well defined spaces for skill development
Meditation center/ spiritual spaces	The stupas and temples serves as meditation and spiritual centers. Apart from stupas.the individual cells were also used for meditation and contemplation.
Common working/ gathering spaces	The central courtyard in each monastery plays important role. Place of interaction, Place for teaching and learning (avident from presence of teaching platform), Place for prayer (presence of shrines/ budha statues placed on platform near entrance. the scale of court is quite similar to residential court yards of ancient times
Natural surroundings	The main residential and spiritual area surrounded by pokhars or lakes which make the land fertile and aid to tree and vegetative growth around the main habitable land.. Were used as lotus ponds. Evidence tell presence of mango groves, flowering beds, agricultural area etc. Also create a buffer zone
Connection between build and unbuild	Open space where stupa/ temple takes the attention due to huge size----- inside the monastery with court serving an open space for limited no. Of students.(may be divided as per the courses or subjects) the scale of courtyard is similar to residential courtyard which connects the members and also serves as teaching – learning space---- the verandah ----- the indiviual cell .. The place for contemplation and rest
Building material	Structures majorly made of red bricks, Wood used for roofing, doors etc Floors finished with cow dunk., Straws

4.2 THE GANGUBAI HANGAL GURUKUL, HUBLI

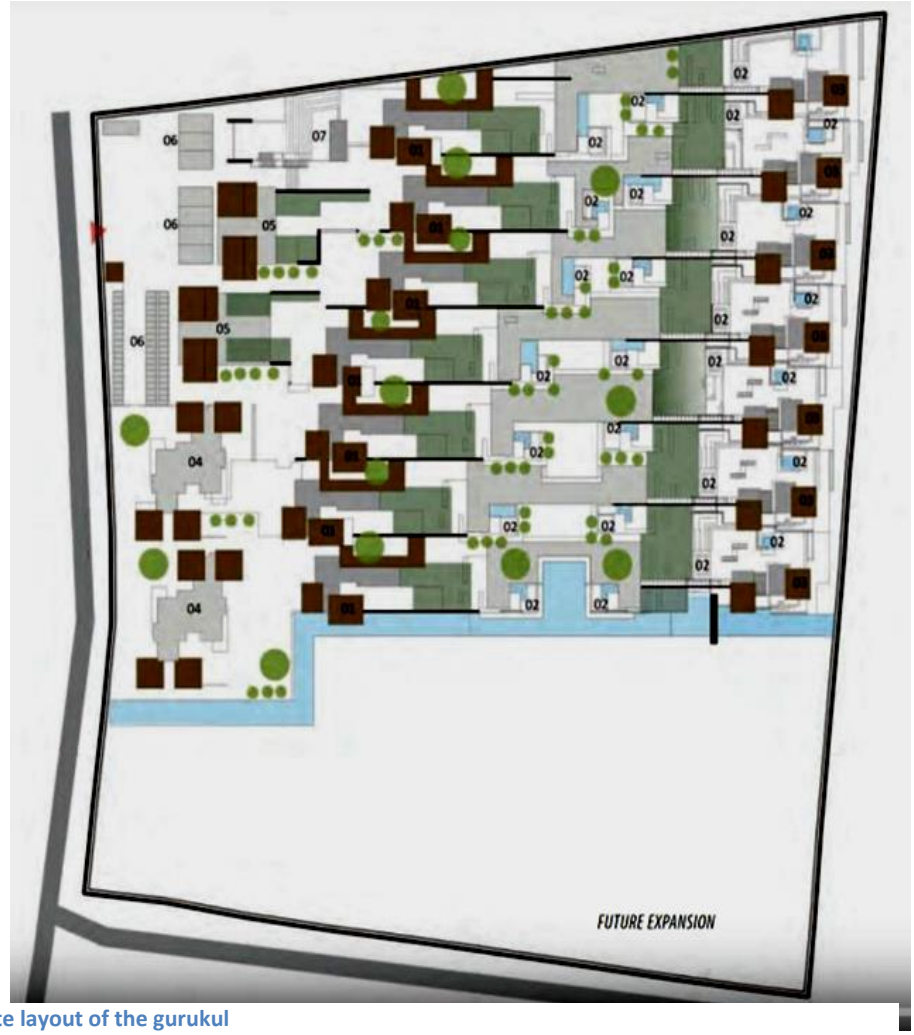
4.2.1 BACKGROUND-

Dr.Gangubai Hangal Gurukul is established by the Government of Karnataka in the fondmemory of legendary musician late Padmavibhushan Dr.Gangubai Hangal

Type	Music gurukul
Project completed	2011
Location	Dharwad, Hubli
Architect	Praveen B (third space architecture studio)
Area	5 acers

4.2.2- CONCEPT AND PLANNING

It is modeled on Guru-Shishya Parampara without any regimented and rigid curriculum. he Gurukul is set up with all the facilities to accommodate 6 gurus and 36 students and is administered by a trust committee formed by the Govt. of Karnataka



1 Guru House
2 Riyaz Platform
3 Student House
4 Faculty House
5 Guest House
6 Parking
7 Oat

Figure 23-Site layout of the gurukul

Source- IAB feburary 2012 publication, article, The frozen music.

Gurukul is located **distant from chaos of life.** More over residential and educational areas are **kept at the far end of the site** keeping **a buffer zone** by agricutural and other activity zones. Design is **based on guru shishya parampara** maintaining a **learning and living relationship between the master and the pupil.** A crossing **water channel** is used to divide the site into gurukula and other utility area. The stream has been **remodelled for collecting rain water and creating a microclimeate** for the site. Gurukul is **arranged in north south with communal space and acedemic facilities integrated east west.** The lawns between the students and gurus houses rises up into the inclined roof and ground line. Gurus house, riyaz area, students house are in close vicinity A continous walk from gurus residence roofnto riyaz garden/ space to students residence aided with different texures .

Figure 24-part plan and section of site

House of guru opens towards gurukul as well as on faculty street forming faculty communal space. The complete campus is designed with great connection with nature with large green areas flowing into the residential areas

Figure 26- plan of guru's house opening towards gurukul and faculty area

Figure 25- sloping lawns reaching upto roof of guru serving as open riyas platforms.

Figure 27-faculty area side of gurus residence

Figure 29-the grass speckles pathway leading upto the stair to the students accomodation

Figure 28- the sloping lawn near gurus residence make a spontaneous riyaz platform at any time of day

walls between students and gurus house create a physiological division between different gharanas pof music more over they act as shading device, creating interesting shadow patterns. Apart from this they also chanellize wind on the site.

Figure 30- photo showing wall in between gurus residence

4.2.3 INFERENCES:- GANGUBAI HANGAL GURUKUL

Guru Shishya Connection	• Design provide ample space for student teacher interaction providing opportunity for student `s to imbibe values and precious knowledge by spending time with guru. • Guru and students spaces are seperate but still connetected very stongly though common space for a common motive of teaching and learning.
Residential-cum-scholastic Facility	• The riyaz platforms are created along with the residential area which promote and justify this point
Skill Development Spaces	The gurukul it self is a skill development center. Advocating need of special skills in life
Meditation Center/ Spiritual Spaces	No separate meditation space
Common Working/ Gathering Spaces	Space between guru residences and students residence act as common gathering and learning space
Natural Surroundings	• Holds a strong connection with nature and natural elements. • Gurukul has its own organic farm, that provides healthy and high-quality vegeta¬bles for canteen
Connection between Build and Unbuild	• places provide spaces for spontaneous riyaz and thus making learning a continous process rather than a time and space bound activity. • The vast and uncluttered design provide perfect ambience for better concentration during riyaz.
Building material	Modern building material with extensive use of natural elements
others	• The complete setup give a feel of residential area and not resembeling a college • There are separate administrative block, faculty houses and a canteen to provide for non teaching requirements and administrative work. • Gurukul is constructed on an eco friendly design tem¬plate. There is a rain water harvesting pit to save the water for gardens. All buildings have enough space to let in the light and wind to reduce energy needs

4.3 ISKCON GURUKULA, MAYAPUR, WEST BENGAL

- *"The old system of gurukula should be revived as the perfect example of a system designed to produce great men, sober and responsible leaders, who know what is the real welfare of the citizens."—**Śrīla Prabhupāda***

4.3.1 BACKGROUND

Type	**Vedic and traditional knowledge gurukul**
Location	Mayapur, West Bengal
Established	1984
area	40 acres
Campus consist of	Gurukul, agriculture area, waterbodies, gaushala

4.3.2 CONCEPT

The Vedic education system is based around the cultivation of a child's **character, skills and knowledge**, keeping at the forefront the individual child's inherent nature. Special emphasis is given on the **values of co-operation, team spirit, honesty, integrity, purity, compassion and selflessness.** The children are groomed within a **rural environment** with a lifestyle and practices based around 'Simple living and high thinking'. Their daily routine, which starts at the sacred early morning time of Brahmamuhurta (pre-dawn hours), includes a variety of activities with a considerable portion of time allotted to **meditation and spiritual practices**, thus helping them develop **discipline of the body and mind.** The different buildings are located in the close visinity of one another. With most of the made in traditional vernacular architecture of west bengal using hard burned local bricks, bamboo and straw.Some Area around Gurukul is developed for open play and gathering area. Rest area is used for agriculture . And reserved for future expansion.

Figure 31- temple hall cum learning space

Figure 32-vernacular architecture of temple hall

Figure 33- temple also serves as yagna hall

Figure 34- typical bengal vernacular architecture for kitchen and dining hut

Figure 35- vents in kitchen hut

Figure 36- prasadam huts

Figure 38- google image showing positioning of different huts

Figure 39- gawshala and animal shelters

Figure 37- new residential and administrative building

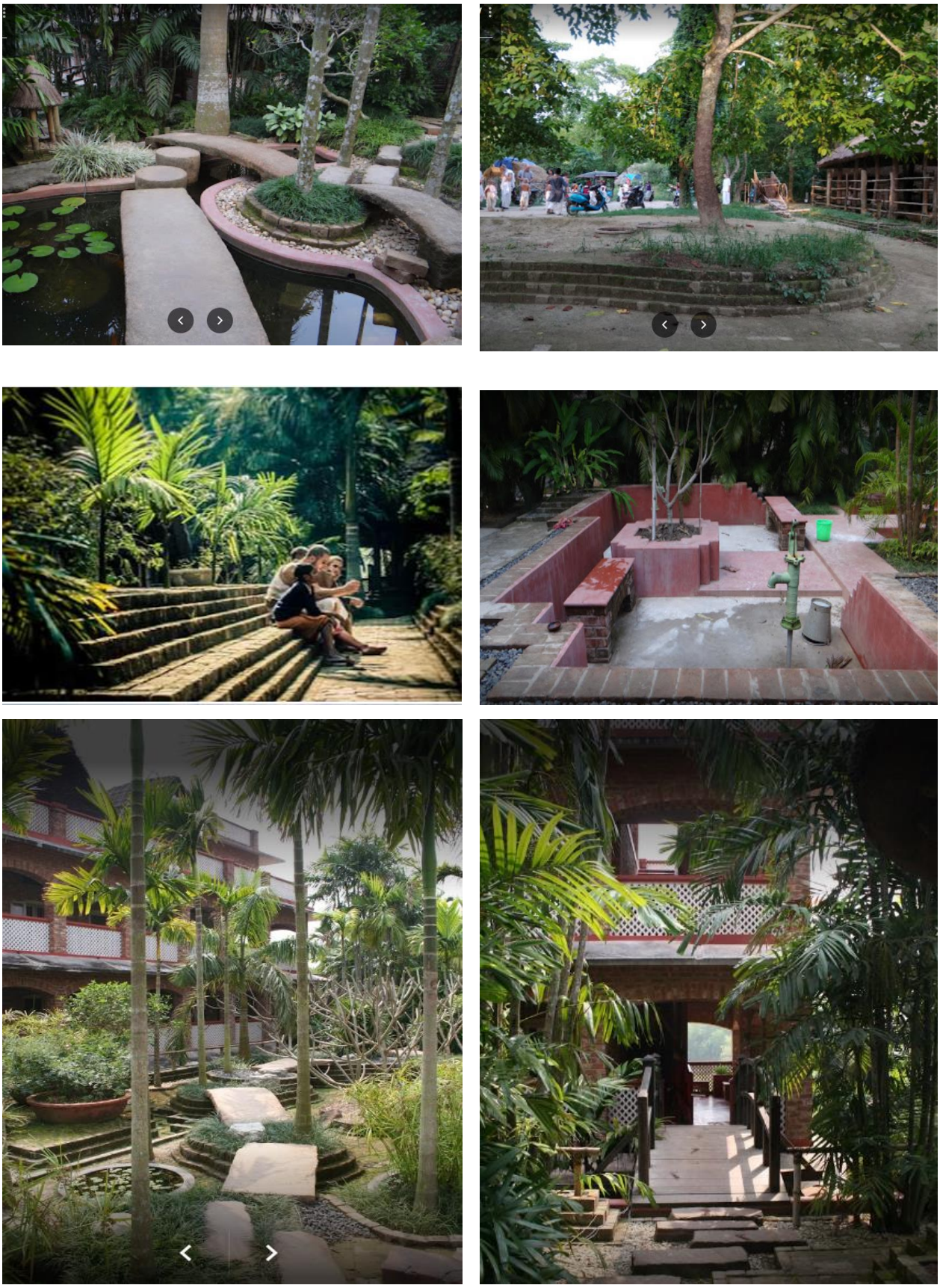


Figure 40- various inclusive landscaped area in gurukul

4.3.3 INF**ERENCES- BHAKTIVEDANT ACADEMY**

- Gurukul is located in admist of nature.
- Activities and spaces are planned and placed keeping the temple and yagna hall in the center and a one of the most important part of the gurukul.
- Most of the spaces are in vernacular architecture except the new buildings.
- New buildings are palnned with a stong connection with nature .
- Building is surrounded with trees and landscaped area.
- Gurukul is self sustainable in various aspects like agriculture, fuel consumption, electricity consumption, water consumption etc.
- Most of the spaces are simple and for multiple uses.

Guru shishya connection	Techer and student live in same building, Buildings are closely placed
Residential-cum-scholastic facility	Buildings are used for multiple usage
Skill development spaces	Skills like cooking , martial arts, animal husbandry, agriculture etc are inbibed
Meditation center/ spiritual spaces	The temple and yagna hall also serves as meditation and spiritual center
Common working/ gathering spaces	Common movement and habitat spaces.
Natural surroundings	Common areas are covered with trees. Trees also used as screens and barriers . Places near hostel are interestingly landscaped.
Connection between build and unbuild	The structures are gelled with each other due to close proximity and free movement between the structures
Building material	Huts made in vernatular style using bamboo and straw
Others	

4.4 GOTIRTH VIDYAPEETH, AHMEDABAD

4.4.1 BACKGROUND

- started by the promoter Shri Gopalbhai Sutaria, in Ahmedabad.
- established a Gurukul setup, in a spiritual environment, for
- providing education to the students in a traditional way.
- Thestudents learn various skills here such as music, martial arts, agriculture, cattle rearing, preparation of various ark , ayurvedic medicines, reciting shlokas, performing yagnas, vedic mathematics, yoga etc.
- This gurukul caters to students from diverse backgrounds with no discrimination between the rich and the poor.
-

Location	Ahmedabad , Gujrat
Established	2013
students	More than 80
Teachers	20(regular+visiting)
area	23 acers(gaushala+gurukul)

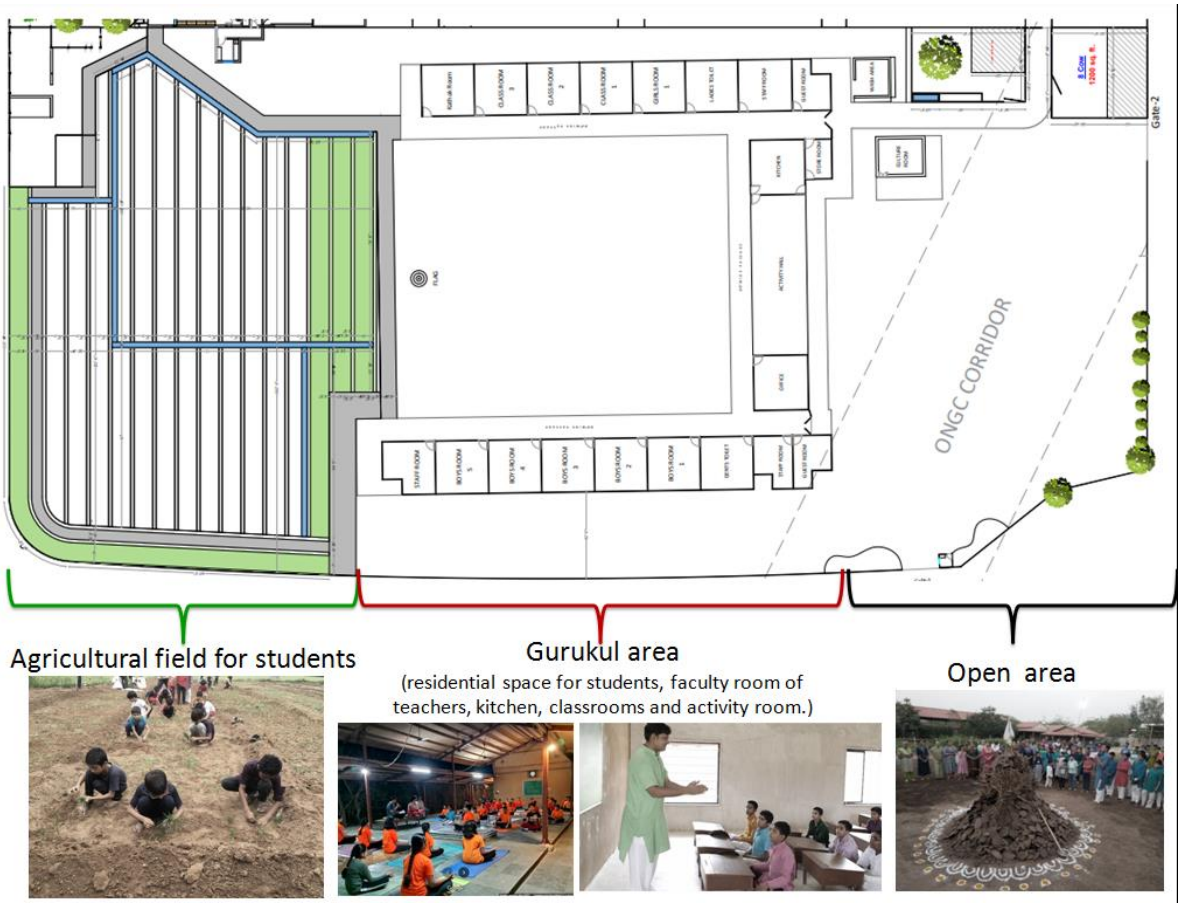


Figure 41-plan showing divions of gurukul

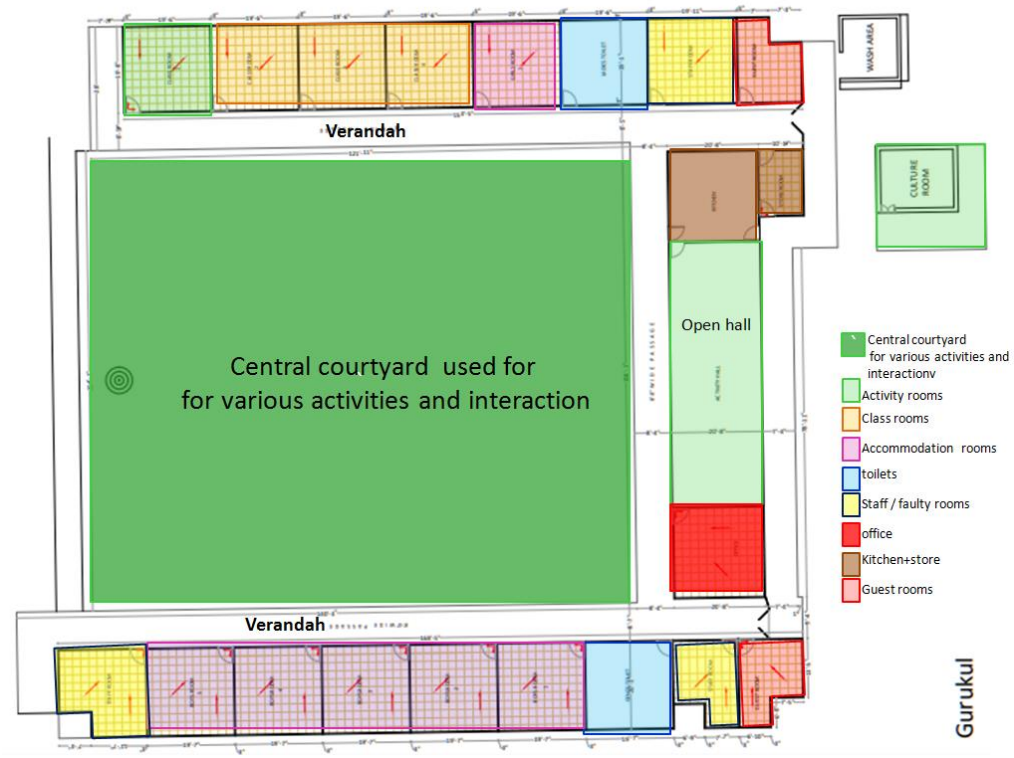


Figure 42- plan showing various activities in gurukul

4.4.2 CONCEPT AND SETUP *(Infrastructure, Atmosphere and Amenities)*

The Gurukul is set up in completely natural environment and is away from thehustle and bustle of city life. Gaushala and Gurukul are spread across 70 vighas. There are total 5 classrooms and five activity rooms There is a space for the **kitchen, dining area, area for doing Yagna and administrative office**. **the Gaushala is just adjacent to the Gurukul** having around 800 cows. There is no provision of Air Conditioning anywhere in the setup. The **classrooms and the hostel rooms are constructed using cow dung, clay and limestone**, therefore the temperature is maintained naturally even during scorching summers, bitter winters and pouring monsoon. There are **no chairs** in the class As per the traditional system, students **sit on the floor** folding their legs, which leads to **blood circulation in the forehead**, thereby improving the concentration power, high memory power and speedy grasping power.

Teachers (Gurus)

The recruitment of Gurus is purely on the **skills, knowledge, character, moral values, mindset, and level of patience**.The **student teacher ratio** of 4:1 is very well above the revised AICTE guideline of 20:1. This will result in to personalized attention and care which is missing in our formal school education. Majority of the teachers of Gurukul have never been to conventional schools, but have been **educated through Gurukul methodology.** In the entire teaching learning process, the emphasis is given to the **ethical values** and virtues rather than marks and grades. The Gurukul builds the character of the students keeping India and Gaumata at the centre. Knowledge is provided to the students in such a way that the students become **self-reliant.** Gurus passively evaluates the skills learnt by the student. The teaching learning pattern at Gurukul, is completely flexible and ensures thorough learning.

Exhibit 1:Course Curriculum

Sl. No.	Subjects	Description	Pedagogy
1	Sanskrit	It is the main language which is emphasized in the Gurukul. Conversation in Sanskrit is appreciated.	Listening and Speaking of 'Shlokas, Mantras, Stotras',
2	Gujarati (Mother Tongue)	Gujarati subject is being taught to them.	Listening, Speaking, Reading and Writing
3	Science	By experiencing and experimenting the concept in Bhartiya way.	Practical sessions.
4	Vedic Mathematics	Shri Shankracharya and Shri Krushna Thrith's 13 formulae out of 16 are being taught.	Abacus method, making clay items and counting etc is also adopted.
5	Kalaripayattu	The oldest form of martial arts in India,	It is taught by the expert.
6	History	Ancient literature like Ramayan and Mahabharata is taught.	Role plays.
7	Agronomy	Students are made to understand the importance of cow-based farming.	Cultivation by students
8	Cow Rearing	Importance of cow rearing, cow breeding and manufacturing of Panchgavya products is taught.	Taught to milk the cows and treatment that should be given to her
9	Music and Dance	Classical music, Sugam music, folk music, Kathak dance and folkdance	Practical sessions of various types of dance.
10	Ayurved	'The cure through changes in diet, lifestyle medicines is being taught.	Taught to do the diagnosis of diseases
11	Yoga (Pranayam, Suryanamaskar etc)	Physical postures, breathing techniques, and meditation or relaxation.	Compulsory sessions in the morning of 1 hour.
12	Yagya	Offering done in front of a sacred fire, often with mantras.	Performance by the students daily.
13	Drawing	Activity of carving on scriptures or designs on paper.	Students are asked to draw and colour
14	Indian Games	Judo, Ropemalkham, Polemallakhamb	Taught through the experts of the field.
15	Product Making	Art of making a thing.	Practical sessions
16	Cooking	Art of making food.	Practical sessions
17	Mehndi Art	Art of beautifying hands and legs through designs.	Practical sessions
18	Blindfold	Students are made to read and interpret the objects even if the blindfold is tied on the eyes.	Sequence of Exercise, Music and Dhyan
19	Handicrafts	It offers great entrepreneurial opportunity.	Practical sessions
20	Pottery	Making things from clay.	Practical sessions
21	Spinning	Spinning clothes from the self-grown cotton	Practical sessions
22	Playing of Musical Instruments	Various Musical instruments	Trained professionals impart the skills.
23	Hindi	National language	Listening, Speaking, Reading and Writing
24	Regular/Current Mathematics	To enhance the logical and rational thinking.	linked with Vedic Maths concepts
25	Leadership and Independence	Moral and character building stories of Lord Krishna, Shivaji, Mahrana Pratap and Aryabhatta etc.	Role-plays, dramas and oral recitation.

Source: Primary Discussion

Figure 45- open courtyard for various activities

Figure 46- music skills

Figure 44- weaving skills

Figure 43- martial arts skills -kalripattu

Inferences`

The building is simple but effective in terms of visual and active conectivity.

The residential, academic and adminstrative areas area placed in the the same building. Along with the areas for faculty /staff and even guest which create a environment of continous learning with teacher across the clock.

The scale and feel is more residential rather than a school or institutional.

Use of local and traditional building material for buildings.

The central courtyard area acts as connecting area for interaction as well as place for activities..

- Less number of classrooms are required as mostly the teaching methodology is skill and practical based.

Guru shishya connection	Techer and student live in same building
Residential-cum-scholastic facility	Same building serve for learning, living and activities
Skill development spaces	The gurukul focuses on skills like cow rearing, agriculture, weaving potery,etc
Meditation center/ spiritual spaces	The central activity hall used as meditation space as well.
Common working/ gathering spaces	The central courtyard forms the pace for all kind of activities
Natural surroundings	The green courtyard is the binding elemnt. The visibility of natural surrounding from every space also works for the place. More over the agriculture field form an connection with nature
Connection between build and unbuild	Build and unbuild well connected though huge openings, verandah and semicovered spaces
Building material	Contemporary
others	

CHAPTER 5 COMPARATIVE STUDY

PARAMETERS	NALANDA MAHAVIHARA	GANGUBAI HANGAL GURUKUL	ISKCON MAYAPUR	GOTIRTH VIDYAPEETH
Type of gurukul/ center	Specialized subjects like science,astrology astonomy, maths, and other vedic subjects. Focus on learning through meditation and contemplation	Music gurukul as per the Indian music gharanas	Vedic sciences and Vedas, skill and physical development for a spiritual attainment	Skill based center with focus on lifeskills and cow rearing.
guru shishya connection	Techer and student live in same monastery	Students and teachers residence are in front of each other with interactive space in between	Techer and student live in same building, Buildings are closely placed	Techer and student live in same building
skill development spaces	Buddhist learning focuses on meditation so no separate skill development activity	Focuses on music skill	Skills like cooking , martial arts, animal husbandry, agriculture etc are inbibed	The gurukul focuses on skills like cow rearing, agriculture, weaving potery,etc
meditation center/ spiritual spaces	The stupas served as meditation and spiritual center, along ith individual cells for contemplation		The temple and yagna hall also serves as meditation and spiritual center	The central activity hall used as meditation space as well.
common working/ gathering spaces	Courtyards serve well as common interactive space	Common space between students and teacher residencess	Common movement and habitat spaces.	The central courtyard forms the pace for all kind of activities
natural surroundings	The lotus lakes all round the monesteries and stupa	Various natural textures and spaces	Common areas are covered with trees. Trees also used as screens and barriers . places near hostel are interestingly landscaped.	The green courtyard is the binding elemnt. The visibility of natural surrounding from every space also works for the place. More over the agriculture field form an connection with nature
connection between build and unbuild	The hierarchy of spaces is well working in terms of transition of spaces.	Build and open spaces and well connected visually and functionally	The structures are gelled with each other due to close proximity and free movement between the structures	Build and unbuild well connected though huge openings, verandah and semicovered spaces

Building material	On site made red brick are prominent feature	Contemporary	Huts made in vernatular style using bamboo and straw	Contemporary
others				

PARAMETERS	**NALANDA MAHAVIHARA**	**GANGUBAI HANGAL GURUKUL**	**ISKCON MAYAPUR**	**GOTIRTH VIDYAPEETH**
Guru shishya connection	Yes	Yes	Yes	Yes
Learning area close to / same as residential area	Yes	Yes	Yes	Yes
Skill development spaces	No	Yes	Yes	Yes
Meditation center/ spiritual spaces	Yes	No	Yes	Yes
Common working/ gathering spaces	Yes	Yes	Yes	Yes
Natural surroundings	Yes	Yes	Yes	Yes
Connection between build and unbuild	Yes	Yes	Yes	
Building material	Local	Contemporary	Local	Contemporary

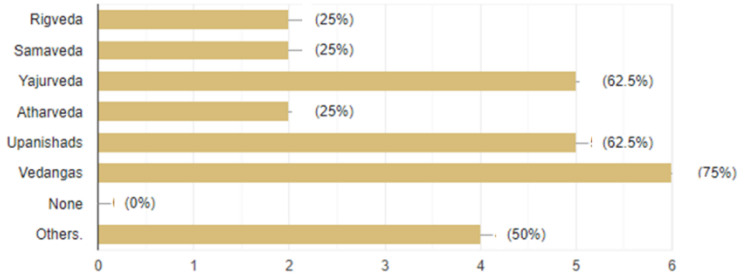
CHAPTER 6-

ANALYSIS

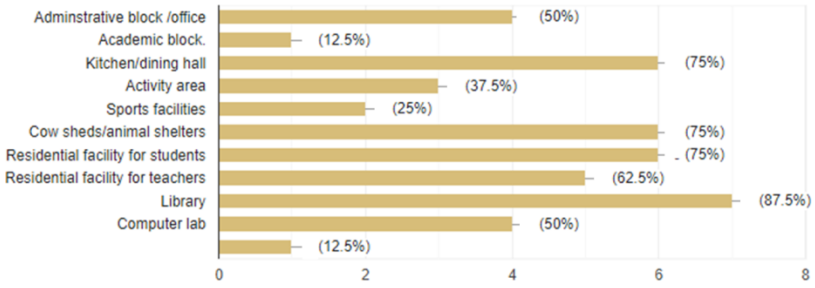
6.1 SURVEY.

A survey was conducted across 35 gurukuls for understanding the present conditions of gurukul and also the relationship between guru and shishya in spaces.the results are as follows

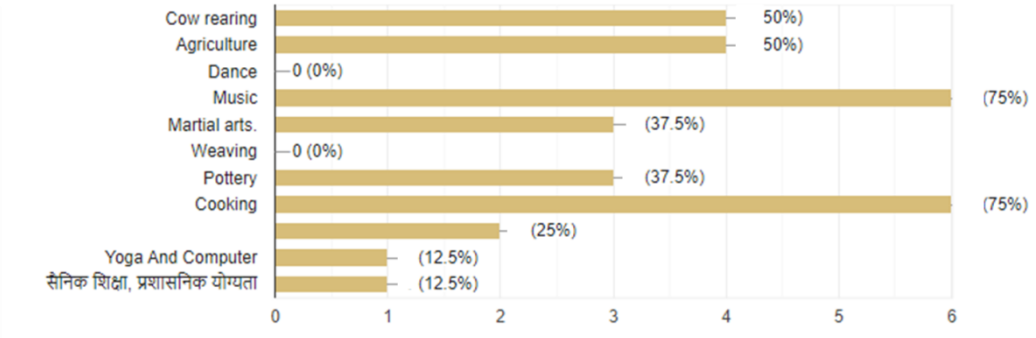
Vedic knowledge. (more than one can be selected) Copy



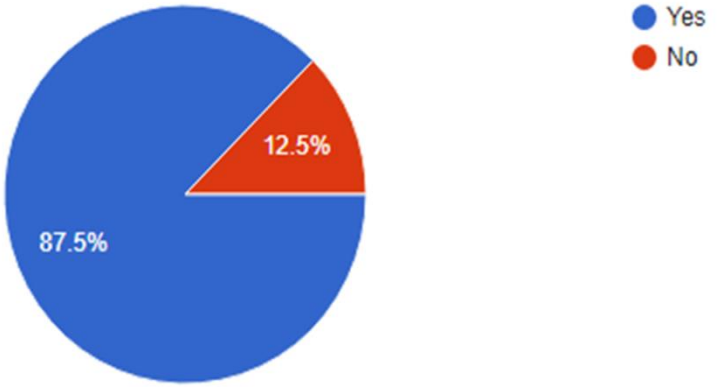
Tick the facilities present in you gurukul (more than one can be selected) Copy



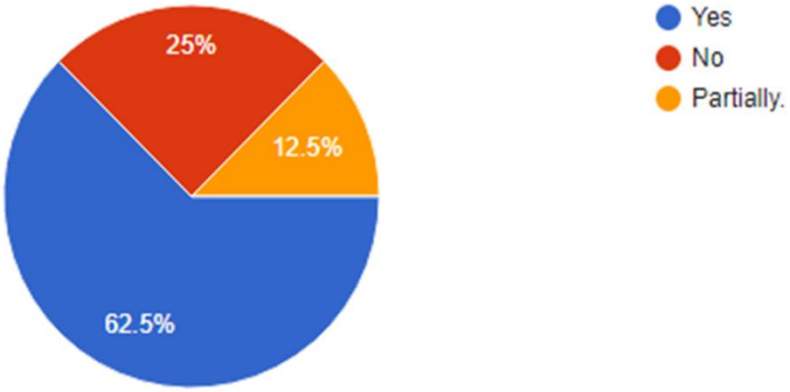
Skill development provided (more than one can be selected) Copy



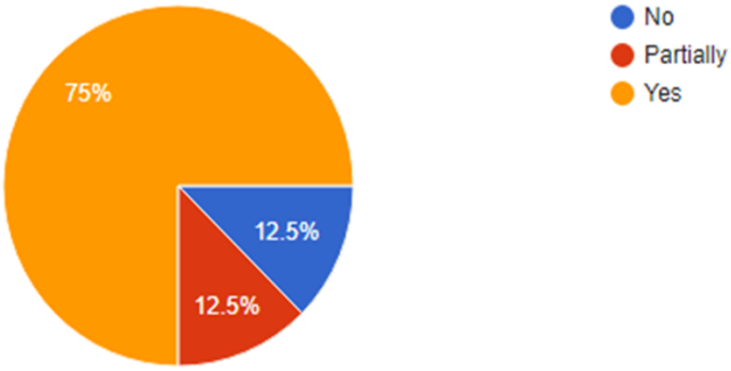
Do guru and shishya reside in same building?

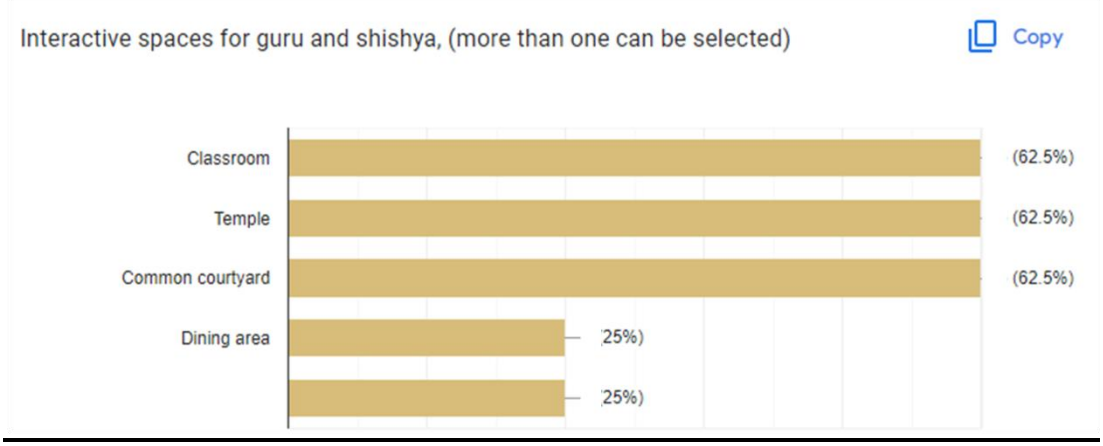


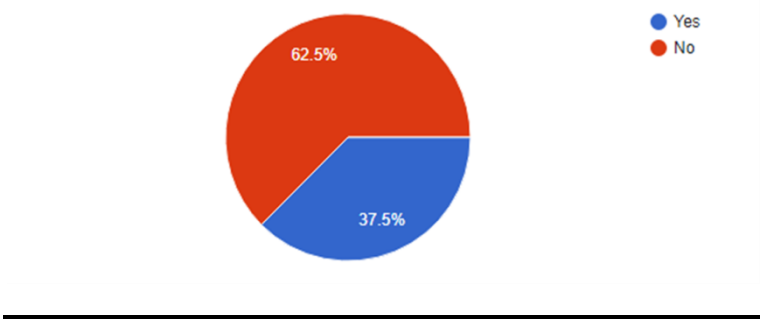
Do shishya live in same building where they are taught?



Do guru and shishya have interactive spaces apart from classroom?







the survey done across the 35 gurukuls show that about 75% Gurukul shishya lives in the same building in which they are being taught partially or fully, which shows that living in learning spaces should be either same or can be made in vicinity. In 87.5% Gurukul Guru and shishya that is teacher and the student, live in the same building the result reinforces the fact of practice of students living with the teacher.

The result also shows that the interaction between Guru and shishya is not limited to the classroom in about 75% of the Gurukul the interaction more than Just in classroom, in a spaces like temple, dining spaces open areas like Courtyard etc . Through the survey conducted it was evident that apart from learning the Vedas which were mainly yajurveda 62.5% Upanishad 62.5% vedangas 75% Rig ,Sam and Atharv veda (25%each) the gurukuls also train students with the skills like cooking (75%) music (75%) cow rearing and agriculture (50%) martial arts and pottery (50% each.)

6.2 FINDINGS

- The traditional indian learning system- Gurukul is all about the the **relationship between the shishya and the guru**. The learning should not be confined to studing for 6 to 8 hrs. But it is a continous process. We learn all the time.
- Thus the environment in a gurukul should be such that it **increases the interaction between the teacher and the student**. And make learning a continous process. It can be done by
    - Sharing same campus or building.
    - Common living and learning spaces.
    - More interactive places apart from study area.
- The **learning and living spaces should be either near to each other or should be common**. This makes the learning an part of life and life style. Common living and learning space enhance the students feeling toward the space.
- In gurukul the teacher and the students are connected not only for studies but also **the values, traditions , skills and culture** which a guru wish to imbibe in his students. This enable the students to bring a holistic development and uprise as an great individuals.
- Gurukul is guru's -kul , that is family of guru. A family lives in a house. So gurukul being is a larger family, the building and spaces should remain of **residential feel** and essence , and not resembeling a college or institute.
- Gurukul focuses on **simple living** , high thinking and moderate lifestyle. Focusing on needs and not wants. And thus the **design of spaces should be simple and uncluttered and sustainable.**
- **Presence of nature and natural elements** increase our potentials and bring our body and mind in harmony. Thus a learning space should by greatly supported by nature. Trees and plants not only increase the capabilities but also enhances enviromental quality of the place.

6.3 DISCUSSION

Over the period of time the education and its need changed and so does the learning spaces. Various research and study show that the gurukul system of education provide a better learning environment and holistic development to students ,enhances and support Indian knowledge ,cultural and tradition and can be taken up as an alternative education system. But there are also various demerits of gurukul system which need to be catered in order to florish in todays fast age of technology artificial intelligence.

More research with help of survey, phycological and physiological need to be done to find the presesnt day needs of the educational environment. Even though idea of gururkul has been long existent, practical implementation of the same in present scenario has not been seen extensively. In terms of architecture almost non of the running gurukuls are consciously designed and even no research have been done in the feild of architecture.

Throughout the study of gurukul it was found that various researches are made in the field of education, management and history, advocating the Indian knowledge system, concluding and suggesting , the amalgamation of modern and traditional system. But non of the study was found in the field of architecture which could help and guide the planning process and suggest the type of spaces and building in gurukuls.

The need was to fill the gap with a study of gurukuls , understanding the ideologies of gurukuls and needs of modern age. The virtues like learning by sitting near guru, listning, meditating , contemplating, moral values, being independent and sellf sufficient , life skills need to be manifested in the spaces

The attention was not given to the gurukuls since ages because of lack of recognition in formal education system. But with government interventions and formation of vedic board by Maharishi sandipani Rastriya Ved Vidya Parishad. Vedic studies gets a direction. The seven years vedic board cource of ved bhushan abd ved vibhushan, need of propoer and well planned spaces also arise , which abide both values of gurukul and needs of mornern age. More gurukuls parallel to the Rashriya Adarsh Vidyalaya for vedic studies are coming up. This study will thus be very useful for shaping a new typology of educational institutes.

This study will give a direction for future studiesfor eveloving a sustainable environment for gurukuls..s

6.3 CONCLUSION

Various scholars and Indian legends like Ravindranath Tagore assessed it long back that Indian education system need a change. The education must be uplifting and enriching not only for individuals but also for society. In gurukul the teacher and the students are connected not only for studies but also the values, traditions, skills and culture which a guru wish to imbibe in his students. The virtues and pedagogy of gurukul need to be manifested in Architecture of the gurukul.

Thus the environment in a gurukul should be such that it increases the interaction between the teacher and the student. And make learning a continous process. It can be done by Sharing same campus or building, like creating a common courtyard or movement spacebetween students area and teachers area. There must be More interactive places apart from study area like kiosks or platforms can be create as informal spaces.

The study reveal that there must be Common living and learning spaces or the two spaces must be adjacent to each other, this makes learning an integral and amalgamated part of living and life style. Study of nalanda shows that the best rooms were allotted to the best scholars as appreciation. This inculcates a motivational factor for better performance. Gurukul being a larger family of the guru, the building and spaces should remain of residential feel and essence, and not resembeling a college or institute. The scale should not be overpowering and there must be balance between built and unbuilt, covered and open.

Gurukul focuses on simple living , high thinking and moderate lifestyle. Focusing on needs and not wants. And thus the design of spaces should be simple,uncluttered and sustainable. Pause points , covered and uncovered spaces will play a important part making learning an experience. Presence of nature and natural elements increase our potentials and bring our body and mind in harmony. Thus a learning space should by greatly supported by nature. Trees and plants not only increase the capabilities but also enhances enviromental quality of the place. Using simple passive cooling and heating aids will help cater climatic needs of the place.

Some organizations like isha foundation, art of living etc have already have formed centers which educate young generation through Indian knowledge system in a very holistic manner. Providing learning along with physical and mental strengths through skills like meditation, Indian martial art with the sansktrit and vedic knowledge. The set up provided is sustainable in terms of environment , living and also architecture.

With the government interventions like plans for creating Vedic boards and creation of Indian knowledge system -an innovating cell under ministry of education to promote Indian traditional knowledge and culture, gives strength for reviving the Indian culture and knowledge at various levels. Ancient Indian knowledge sources, Vidyas and Kalas are sources of new ideas and innovation And thus gurukul is a new typology of learning institutes evolving in country. This study thus tries laying a guiding outline for architectural development of Gurukuls.

CHAPTER 7
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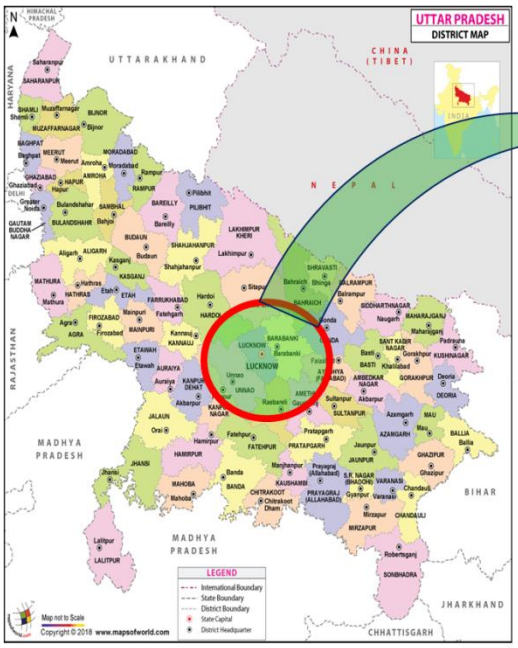
DESIGN

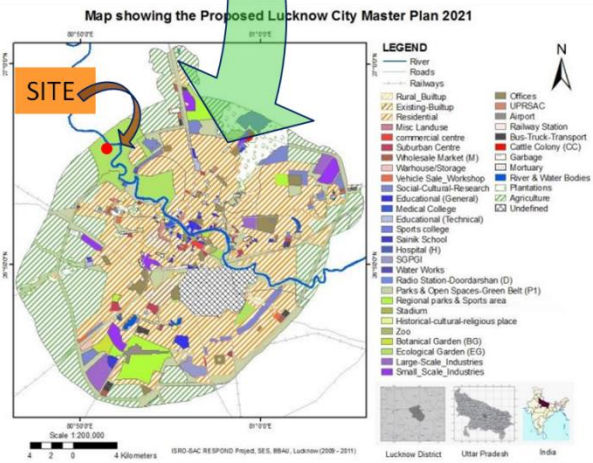
Manifestation of spaces in Gurukul system of education.

An Example of

SHRI KAPILESHWAR VEDIC GURUKULAM , Lucknow



The Kapileshwar Vedic Gurukul is proposed on outskirts of Lucknow in Gopramau village attached to Jetha mall road. The site is adjacent to river gomti . with agricultural fields around



SITE-, Shri Dhaam Gopramau, Landmark Raniamau border Lucknow, Uttar Pradesh 226104

Site area- 9acers

Coordinates

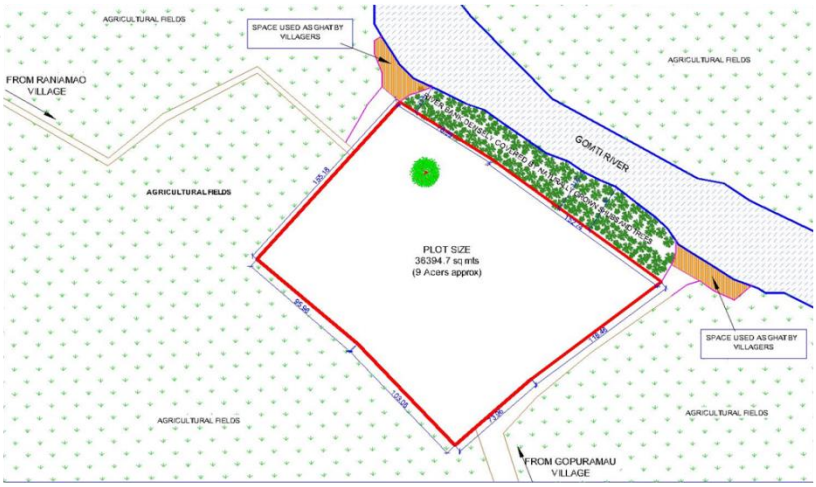
Latitude = 27.03663

Longitude = 80.69762

Climate – composite

Status – unbuilt

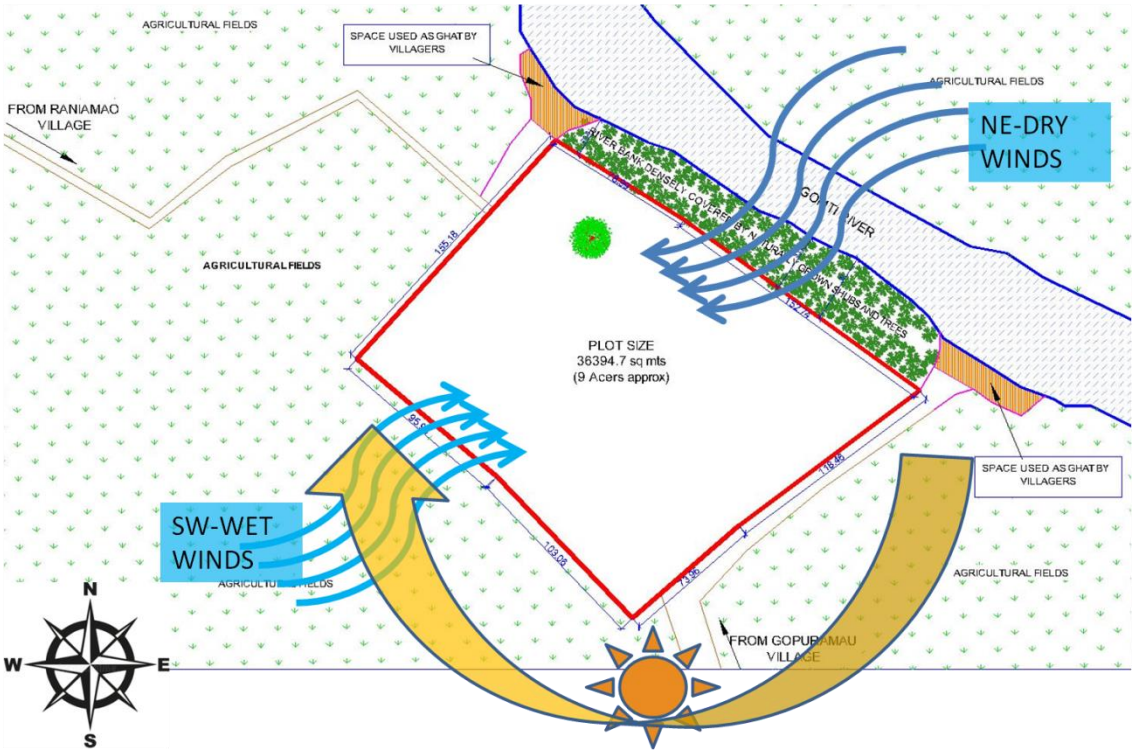
Locality Name : Gopramau (गोपरामऊ)
Block Name : Kakori
District : Lucknow
State : Uttar Pradesh
Division : Lucknow
Language : Hindi and Urdu, Awadhi
Elevation / Altitude: 129 meters. Above Seal level

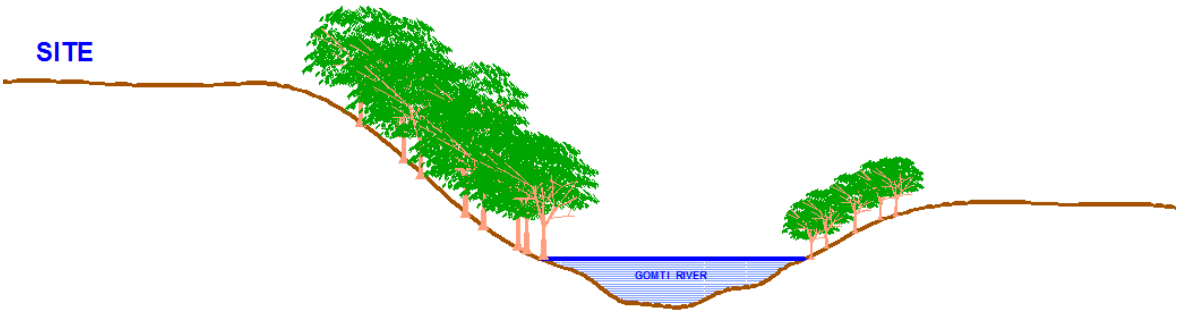


Approach

- The nearest Railway station – Dilawarnagar
- Charbagh railwaystation -25 km
- Nearest Airport -Chaudhary Charan Singh International Airport -30 km
- Distance from main mall road is 3km

SUN MOVEMENT AND WIND DIRECTION ON SITE





Site section

The site level is 118 m on gauge where as the high flood level of gomti river is 111m in 1741 (flood year of lucknow

Lucknow city. Subsequently, flood protection works in form of embankments were constructed along both the banks of river upstream of the Gomti barrage.

The annual maximum flood, recorded at Hanuman Setu gauge site by Central Flood Forecasting Unit of C.W.C, are available from 1969 to 2011 and given in Table 1. During the period 1969 to 2011, the maximum annual flood = 3085 m^3/s was recorded on 11.09.1971 (Fig. 2).

Table 1 Annual maximum recorded flood at Hanuman Setu

Year	Maximum gauge at Gaughat (m)	Date of maximum discharge	Gauge at D/S of Hanuman Setu (m)	Discharge (cumecs)	Discharge (cusecs)
1969		03.10.69	106.575	568.190	19865
1970		01.09.70	107.585	583.480	20581
1971	112.49	11.09.71	110.850	3085.000	107053
1972		16.09.72	106.496	433.760	16710
1973		11.10.73	107.072	648.840	22880
1974		12.08.74	106.405	436.490	15396
1975		10.08.75	107.018	613.000	21622
1976		26.08.76	107.315	712.290	25124
1977		27.08.77	106.603	479.950	16929
1978		14.09.78	106.845	646.640	19281
1979		25.07.79	105.730	129.060	4584
1980	110.61	26.07.80	109.305	1816.790	64880
1981	108.00	03.10.81	107.745	595.330	21015
1982	109.92	07.09.82	108.640	1311.610	48771
1983	108.54	29.09.83	107.330	988.830	34920.2
1984	106.08	04.09.84	105.380	229.960	8117
1985	110.88	20.09.85	109.780	2106.540	74361
1986	106.10	25.08.86	105.500	249.240	8807
1987	106.80	04.09.87	105.640	265.000	9364
1988	107.69	31.08.88	106.390	415.000	14664
1989	106.88	22.08.89	105.610	262.000	9258
1990	107.35	22.08.90	106.060	506.460	17896
1991	107.14	12.09.91	105.880	406.640	14369
1992	105.44	16.09.92	105.460	290.060	10249
1993	105.67	28.09.93	105.285	83.720	2958
1994	106.80	01.09.94	104.490	201.090	7106
1995	106.65	15.09.95	105.135	364.170	12868
1996	106.30	04.09.96	106.040	262.100	9252
1997	107.59	19.09.97	105.210	382.430	13500
1998	108.17	10.09.98	107.020	612.000	21600
1999	106.04	05.09.99	105.480	246.740	8710
2000	106.76	13.09.00	105.490	248.030	8758
2001	106.22	19.08.01	105.810	247.010	8722

2006	109.50	19.06.06	106.290	434.300	15331
2007	109.16	05.09.07	105.640	265.000	9355
2008	110.00	29.08.08	109.010	986.000	34805.80
2009	108.05	17.10.09	106.700	585.520	20668.85
2010	107.65	28.09.10	106.310	416.000	14684.80
2011	107.5	28.09.11	106.100	510.450	18018.80

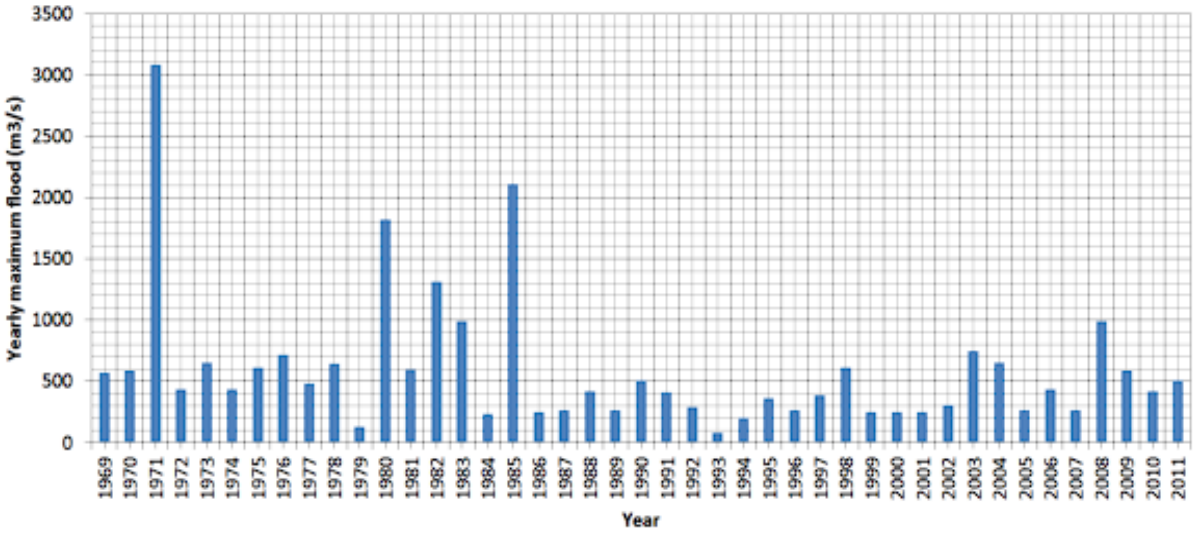


Figure 2 Annual maximum recorded flood at Hanuman setu in period 1969 to 2011

The Gomti barrage was designed for flood discharge of 4252 m^3/s. Other salient points of Gomti Barrage are

Catchment area	= 8725 km^2 (3408 Sq Mile)
Design discharge	= 4252 m^3/s (150000 cusecs)
High flood level	= 111.60 m (in 1960)
Pond level	= 105.50 m
Top of abutment	= 114.40 m
Sill level	= 100.80 m
Number of span	= 10 Nos.
Width of each span	= 18.00 m
Size of gate	= 18.00 × 4.95 m
Abutment to abutment width	= 202.50 m
Silt factor	= 1

During the period 1923 to 2012, the ever maximum recorded flood was 3564.81 m^3/s (125890 cusecs) in year 1960 and corresponding HFL at Gomti Barrage was 111.6 m.

S.W.O.T. ANALYSIS OF SITE

STRENGTH

- The site is located on the outskirts of city which is an ideal condition for calm envirnment of gurukul
- The site is along river gomti which is a spiritual , religious and climatic advantage for the site.
- The dry summer wind gets the direction from the river which humidifies the air helping in lowering of the site temperature.
- The soil is fertile.
- There is a big mango tree in on site which can be used as a potential

Weakness

- The site is almost 3km from the metal road.
- Right now, the approach road is still not developed.
- No government facilities like electricity, sewerage , water supply is yet not available

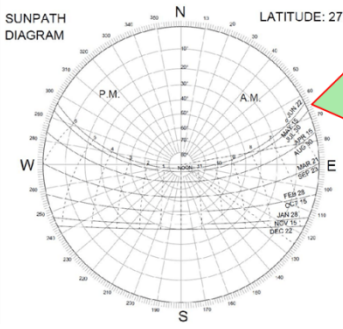
Opportunity

- The site has already worked it's sustainable options like solar panels, septic tank and handpumps for fulfilling its basic needs.
- Approach from two villages will make it easily accessible in future.

Threats.

- Though the site is kept at distance more than 20m away (as per the directives) from the river edge still there is threat for flooding in extreme conditions.

CLIMATE



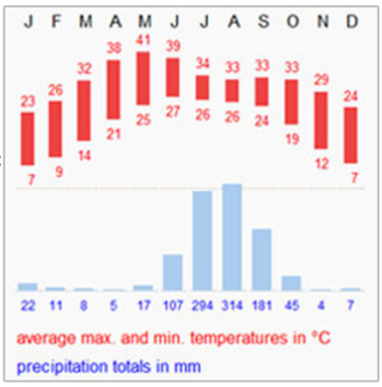
SUN PATH DIAGRAM

CLIMATE ZONE: COMPOSITE

MAX.SUMMER TEMPERATURE :44°C

MIN. WINTER TEMPERATURE: 5°C

ANNUAL AVERAGE RAINFALL: 1010MM



Temperature and rain fall variation

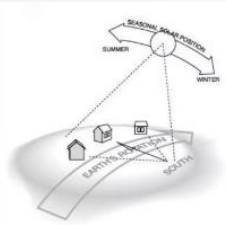
CLIMATE

It has a warm humid subtropical climate with cool, dry winters from December to February and dry, hot summers from April to June. The rainy season is from mid-June to mid-September, when it gets an average rainfall of 1010 mm (40 in) mostly from the south-west monsoon winds. In winter the maximum temperature is around 25° Celsius and the minimum is in the 4° to 8° Celsius range. Fog is quite common from late December to late January. Summers are very hot with temperatures rising to the 40° to 45° Celsius range.

CLIMATE DETAILS

- Summer temperature : 32-45 ºC (daytime), 27-32 ºC (night time)
- Winter temperature : 10-25 ºC (daytime), 4-10 ºC (night time)
- Precipitation : varies b/w 500–1300mm/year
- Relative humidity : 20–25% in dry periods 55–95% in wet periods.

CLIMATIC CONSIDERATIONS



- ORIENTATION:

The orientation of the houses should be such that, penetration of the sun rays maximum in winter and minimum in summer. Proper orientation also helps in receiving natural light and ventilation.

BYELAWS FOR CONSTRUCTION ON AGRICULTURAL LAND

The agricultural land can be converted into institutional land and the bye laws then followed are

- Maximum permissible ground coverage is 35%
- Allowed FAR is 1.2
- Maximum allowed height is 10m
- Setback- 15m front, other side 9m
- Minimum 50% of the area should be under cultivation / plantation

- Site area – 45805.4 sq mts i.e. 11.3acers
- Maximum permisible ground coverage is 35%= i.e.= 16031.9 m2
- Allowed FAR is 1.2 so total area allowed is 54966.4 m2
- Maximum allowed height is 15m
- Setback- 15m front, other side 9m
- Minimum 50% of the area should be under cultivation / plantation i.e = 18189.3 m2

About the client

SHRI KAPILESHWAR VEDIC GURUKULAM
VEDIC GYAN SANRAKSHAN TRUST

Realizing the need of a better education system and perseverance of India's ancient vedic knowledge, Vedic Gyan Sanrakshan (Trust) started Shri Kapileshwar Vedic Gurukulam to provide a **blend of modern and vedic education so that children can have the best of both the worlds – spiritual and material.**

OBJECTIVE OF GURUKUL

- To empower children with vedic as well as modern education.
- To provide young, multi-talented, well-aware, well-educated and dynamic intellectuals to society who can easily adapt to any environment, industry, profession and can become ideals in their respective fields
- To become a benchmark of educational institutions.
- To become a channel (medium) of vedic-knowledge flow for all seekers.
- To preserve and make accessible the learnings of Ved, Upnishads etc.
- To empower Vedic Scholars with modern education.

ACTIVITIES OF THE TRUST

- VEDIC SCHOOL
  - Run a Vedic Gurukul or school where children can get vedic as well as modern education simultaneously.
- SHORT TERM COURSES
  - Run short term courses on Veda, Sanskrit etc. for common people.
- YOG WORKSHOPS
  - Organising Yog workshops and increase health consciousness amoung people.
- TRANSLITERATIONS
  - Translate Veda and other scripts into various languages.
- CONTENT PUBLICATION
  - Publishing content for offline and online audience,
- EVENTS
  - Organise events and debates on Vedic learnings.
- **Shri Dhaam**, an upcoming Ashram, is a dream project of Vedic Gyan Sanrakshan Trust.
- Campus for **Shri Kapileshwar Vedic Gurukulam**,
- **Shri Laxmi Temple**
- Campus for short-term and higher vedic education.
- **Research, Yog-dhyaan and Meditation Center**
- Shri Dhaam will be constructed in stages with public support.
- The first and foremost task is to start campus of Shri Kapileshwar Vedic Gurukulam inside Shri Dhaam Ashram

KNOWLEDGE COVERED IN GURUKUL FOR HOLISTIC DEVELOPMENT OF STUDENTS

- KNOWLEDGE OF VED
- MODERN EDUCAION
- MULTI LINGUAL
- YOGA
- MUSIC
- KARM KAND
- PERSONALITY DEVELOPMENT
- GENERAL AFFAIRNESS
- SELF DEFENCE
- SPORTS

Gurukul requirements

Gurukul need to be designed for 200 students.

Course of 7yrs

Resident achrya 20-25

Achrya – students ratio is 1:10

- Student's residence,
- teacher's residence
- normal adhyan kaksh (for 10-15 students)
- a/v Class rooms (for 30-40 students)
- Kitchen
- Dining hall
- Computer Room,
- Library,
- Conference hall,
- Store rooms,
- Office room,
- Working staff rooms,
- Utilities,
- Gaushala,(for 50 cows)
- Gaushala stores,
- Agricultural land for Cow chara and more.

Maharishi Sandipani Rashtriya Vedavidya Pratishthan

- Maharshi Sandipani Rashtriya Ved Vidya Pratishthan (MSRVVP), under the Ministry of Education, for the preservation, conservation and development of Vedic Studies by establishing and supporting Ved Pathshalas.[1][2][3] It has around 450 institutes across India where students spend seven years memorising the Vedas as well as studying subjects like Sanskrit, English, Maths and Social Science.[4] MSRVVP also runs the Maharshi Sandipani Rashtriya Veda Sanskrit Shiksha Board (MSRVSSB), a national-level school education board which grants the Veda Bhushan (10th) and Veda Vibhushan' (12th) certificates recognised by the AIU and AICTE.
- Govt of India has granted legal authority to MSRVSSB to affiliate and recognise vedic and sanskrit schools run by other organisations. Since August 2022.
- Association of Indian Universities (AIU) & AICTE (All India Council for Technical Education) formally recognise the 10th and 12th certificates from MSRVSSB as equivalent to those issued by other 10th and 12th education boards in India.
- streamlining of nearly 5,000 gurukuls in the nation by creating an interchangeable system for enabling gurukul students to move to formal schooling
-

MSRVVP GUIDELINES FOR VEDA PATHSHALA

- MINIMUM NEEDS-
- for two stream of veda
- class room of 10’ x 14’ , 8 in number
- Veda adhyapak : student ratio= 1:10

PASSING STANDARDS

वेद संहिता

कण्ठस्थीकरण	स्वर सञ्चालन	उच्चारण की स्थिति
पूर्णांक - १००	पूर्णांक - १००	पूर्णांक - १००
न्यूनतम प्राप्ताङ्क - ६०	न्यूनतम प्राप्ताङ्क - ६०	न्यूनतम प्राप्ताङ्क - ६०

सहयोगी विषय -

संस्कृत भाषा	गणित	अंग्रेजी	सामाजिक विज्ञान
पूर्णांक - १००	पूर्णांक - १००	पूर्णांक - १००	पूर्णांक - १००
न्यूनतम प्राप्ताङ्क - ४०	न्यूनतम प्राप्ताङ्क - ४०	न्यूनतम प्राप्ताङ्क - ४०	न्यूनतम प्राप्ताङ्क - ४०

COURSE STRUCTURE- VEDA BHUSHANA
(1st to 5th Year)

Sl No	Course	Marks

LANGUAGES

	English	100
	Sanskrit	100

CORE SUBJECTS

	Veda	100
	Veda	100
	Veda	100

MODERN SUBJECTS

	Social Science and Science	100
	Mathematics	100

Source- MSRVVP documents

COURSE STRUCTURE- VEDA VIBHUSHANA
(1st to 2nd Year)
OLD VEDA VIBHUSHANA (6st to 7th Year)

Sl No	Course	Marks

LANGUAGES

	English	100
	Sanskrit	100

CORE SUBJECTS

	Veda	100
	Veda	100
	Veda	100

MODERN SUBJECTS

	Social Science and Science	100
	Mathematics	100

In addition to this course content, students under go training in

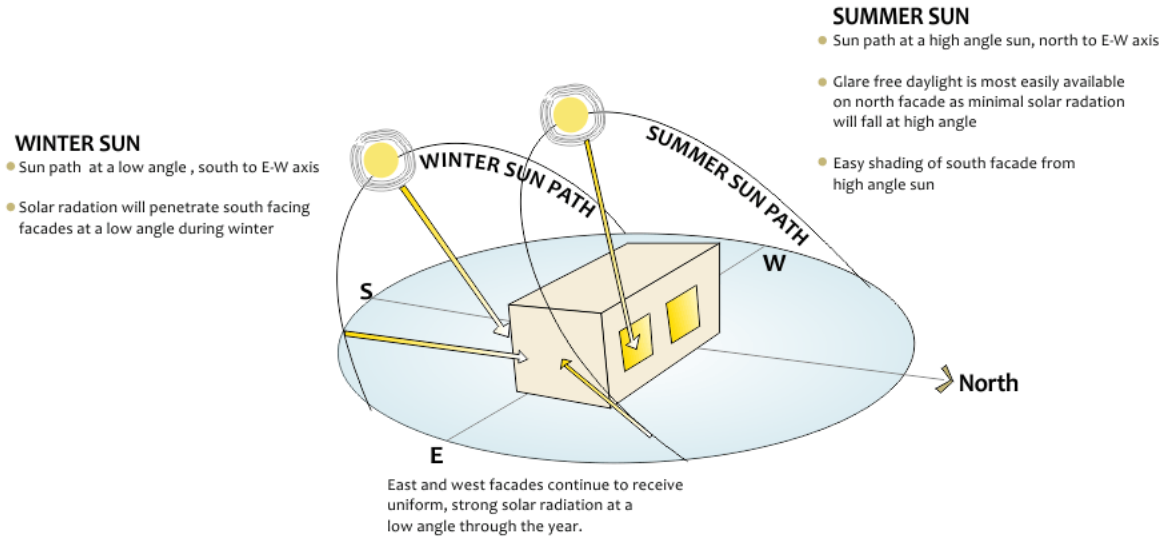
- **Computer Applications as per the Vidyalaya time table**
- **Yoga, Dhyana and Meditation**
- **Spoken Sanskrit**
- **Language Communication**
- **Skill, Socially Productive and usewful work and**
- **Environmental education.**

Concept -The endless knot

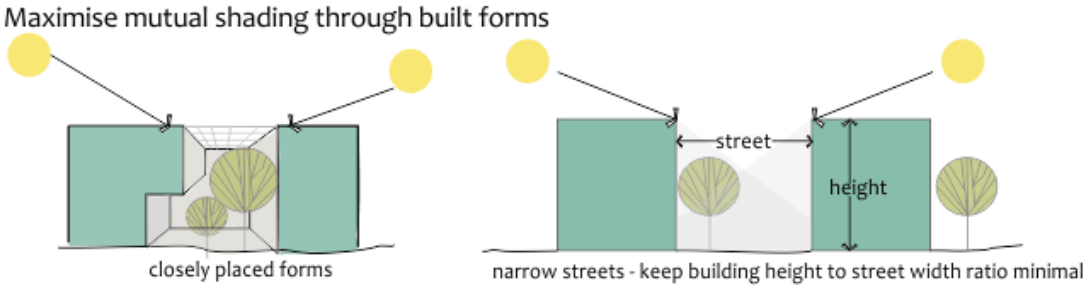
- The Endless Knot is a universal symbol of **peace and enlightenment** influenced by Buddhism's Eight Auspicious Symbols .
- **The endless knot is a single cord that weaves in and out of itself, forming a continuous loop.**
- It has **no beginning and no end** - just like the cycle of life itself.
- Hence, the name endless knot.
- The endless knot is also called the infinity knot, eternal knot, mystic knot, lucky knot, and glorious knot.
- **Where Did the Eternal Knot Originate?**
- The endless knot is an ancient symbol that has been used in various cultures for centuries.
- Its precise origins are unknown, but it's believed to appear on clay tablets from the **Indus Valley Civilization. It dates back to 2500 BC.**
- From there, it spread to Tibet and China where it was adopted by Buddhism.
- Now, the eternal knot is often seen in Buddhist art and architecture.

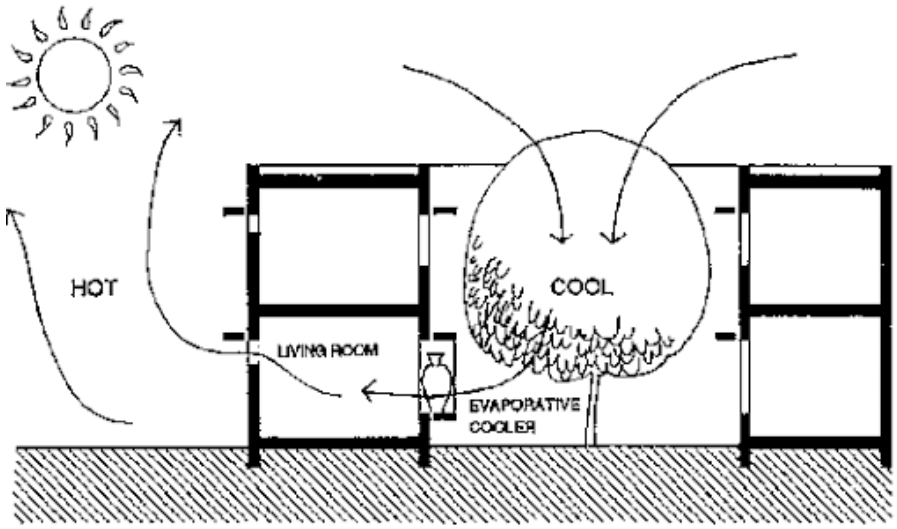
- **Endless Knot Meaning**
- As we mentioned, the eternal knot is a symbol of the **endless cycle of life**.
- It's a symbol of birth, death, and rebirth.
- It also represents the **interconnection of all things** and how everything is connected to one another. It represents the cause and effect of our actions as **interconnected beings**, which is the concept of karma.
- The endless knot is also a symbol of **wisdom** because it has no beginning or end, just like the infinite knowledge of the Buddha.
- It's also a symbol of the **connection between wisdom and compassion**. Just like the knot, these two are also interwoven and inseparable.

the endless knot is placed such that the orientation of the endless knot is along the cardinal axis , this will facilitate the sun and wind penetration into the building.



Buildings that feature a courtyard (in climates where cooling is desired), orienting the courtyard 45° from the prevailing wind maximizes wind flow into the courtyard and enhances cross ventilation in the building.





Design

- The endless knot represent endless flow, peace and enlightment.
- The endless knot is placed with its lines alligned to cardinal axis , which enables the penetration of sun and wind inthe building .
- The shape of endless knot help creating different blocks with central spaces as courtyards, which not only adds to the passive cooling but also serves as open learning and interaction space.
- The learning spaces are kept on the ground floor, spaces like *adhyan kaksha* , AV rooms, library , conference room, open learning spaces like verandahs etc.
- The living spaces like dormitories and gurus living units area placed on first floor.
- Guru residing with families w ,
- Dormitories will also be provide with individual meditating of study cells.

SITE PLAN (1:500)

Key to type of trees			
symbol	name		
	peepal	Ficus religiosa	deciduous tree
	kadamb	**Anthocephallus cadamba**	deciduous tree
	neem	Azadirachta indica	deciduous tree
	Plumeria	**Plumeria alba / rubera**	partly deciduous tree
	oleander	Nerium oleander Yellow oleander	evergreen tree
	gulmohar	Poinciana regia	deciduous tree
	AMALTAS	**Cassia fistula**	deciduous tree
	MANGO	Poinciana regia	deciduous tree
	GUAVA	Psidium guajava	deciduous tree

Manifestation of spaces in Gurukul system of education.

An Example of

SHRI KAPILESHWAR VEDIC GURUKULAM , LUCKNOW

Dessertation by-

Ruchika Srivastava

M.arch. (PT) 2020-23

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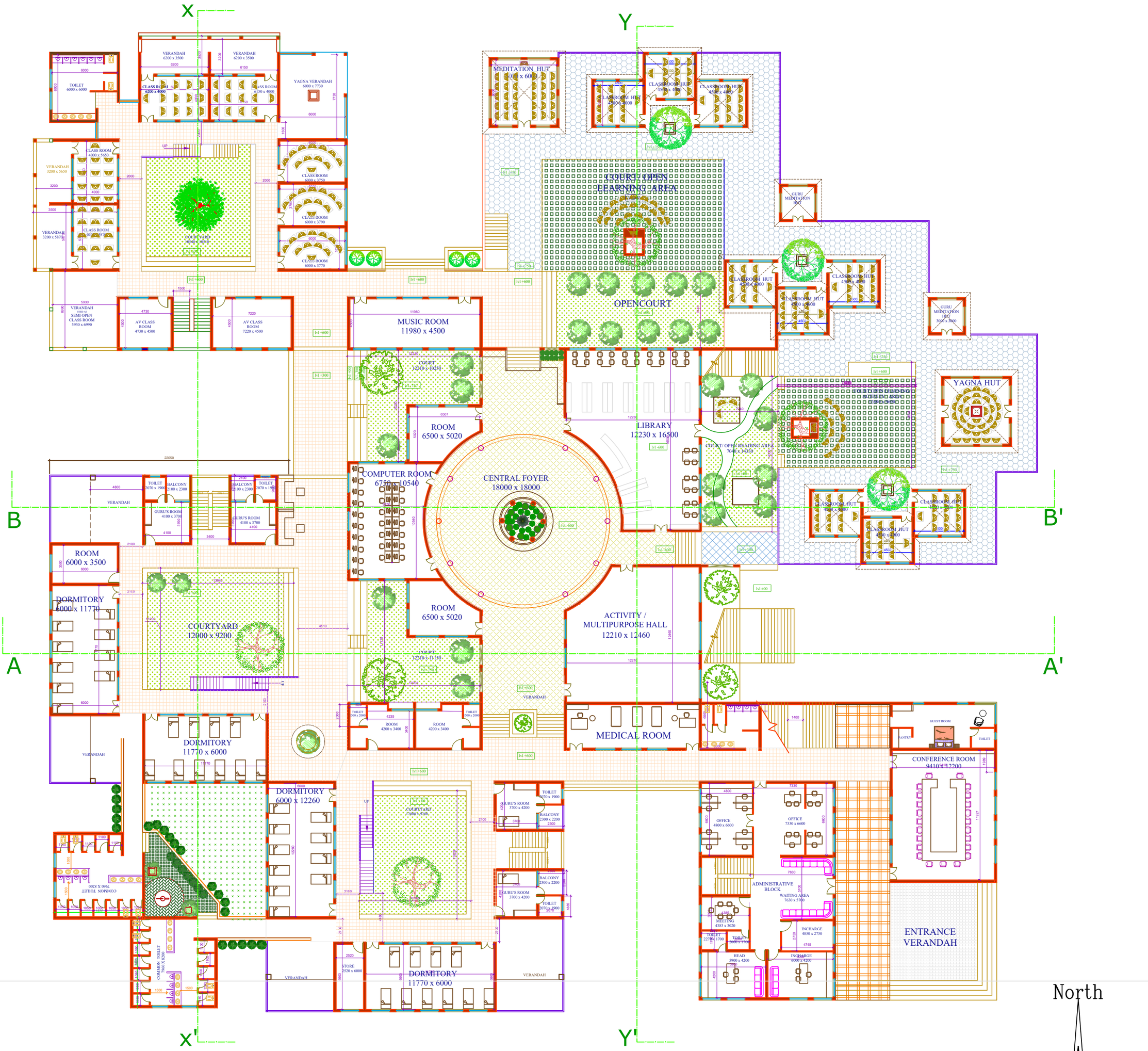
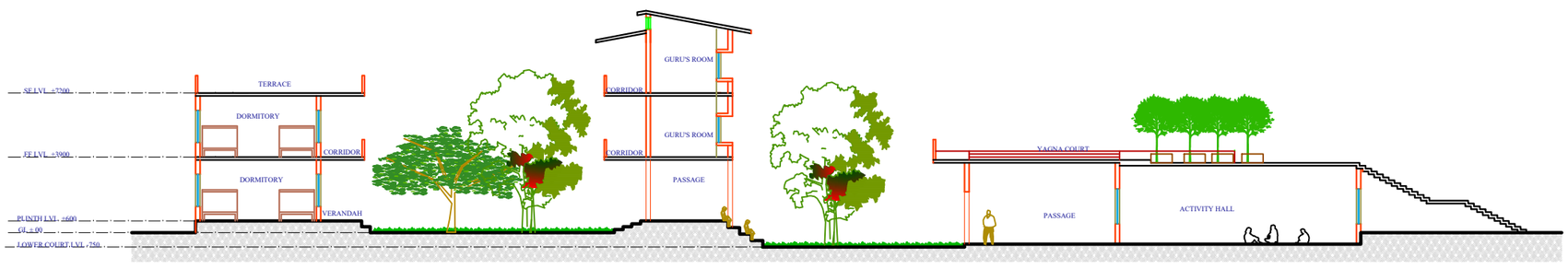
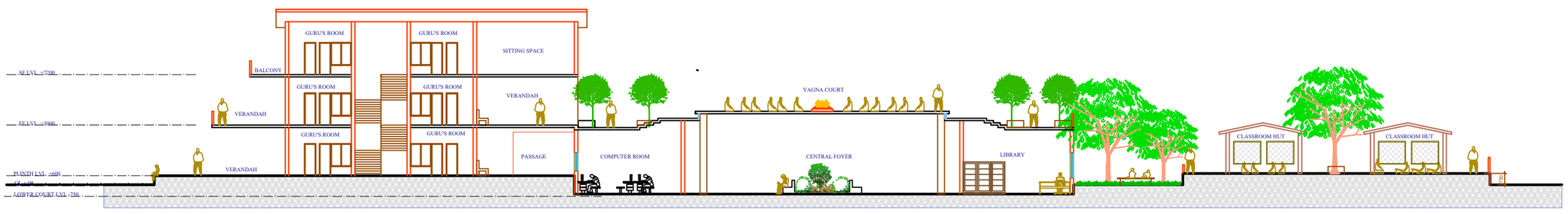


GROUND FLOOR PLAN



SECTION AA'



SECTION BB'

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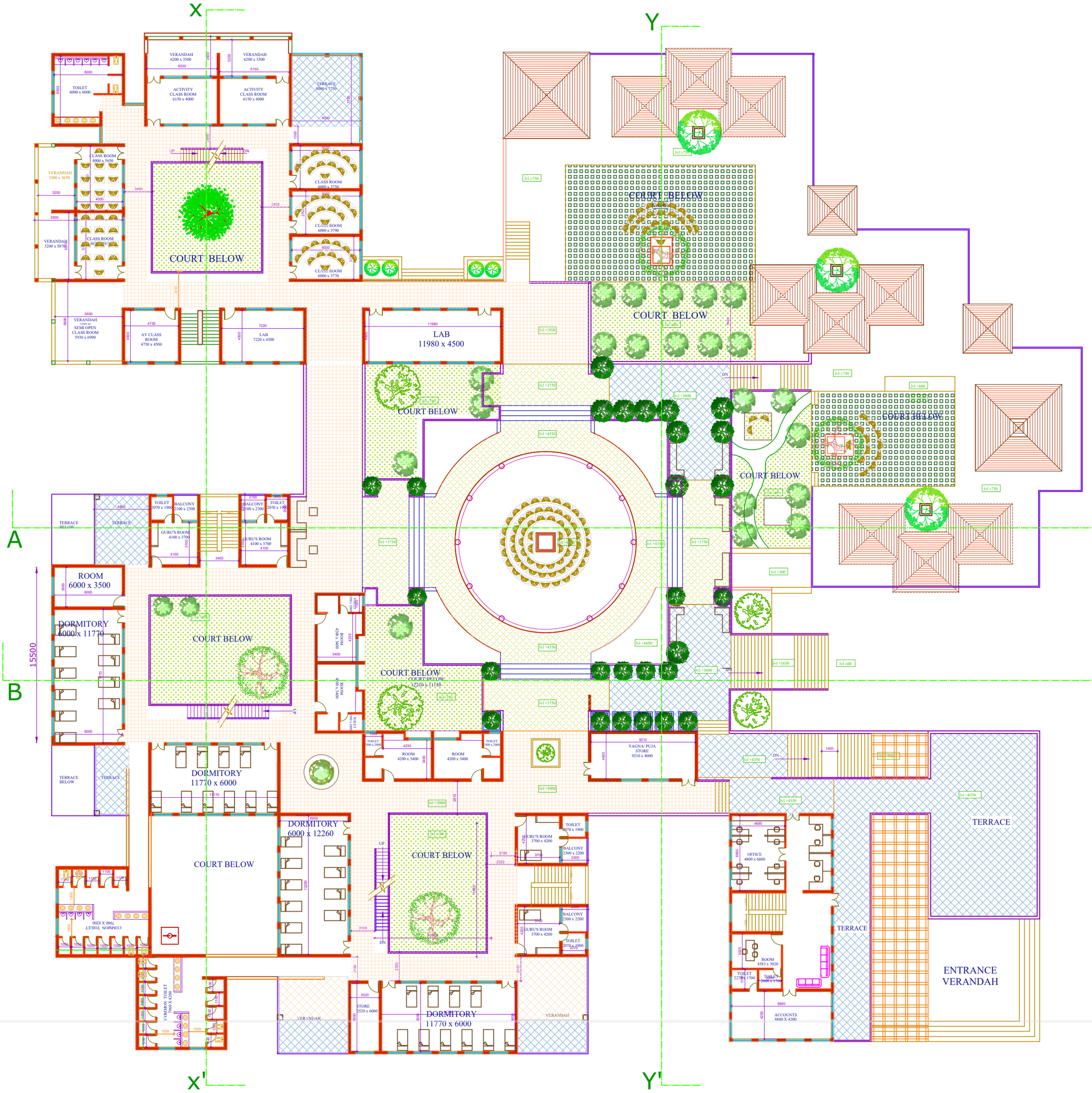
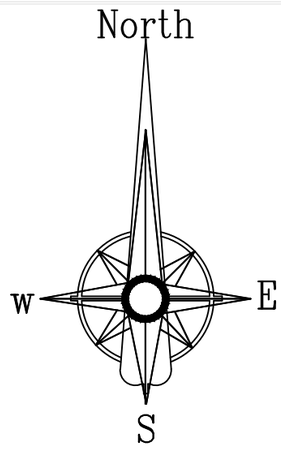
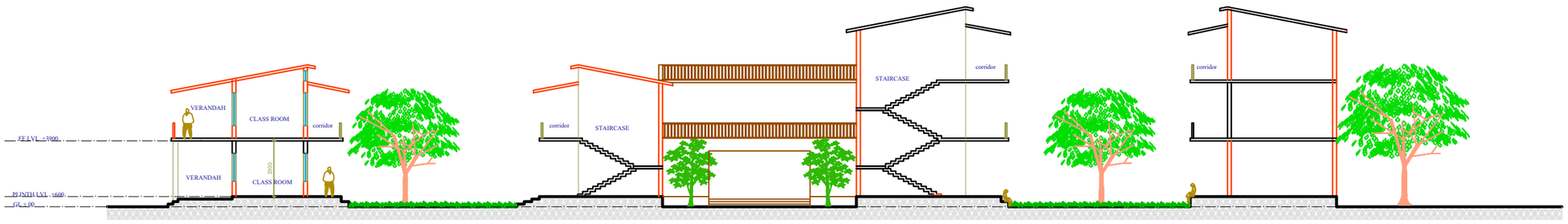


FIRST FLOOR PLAN





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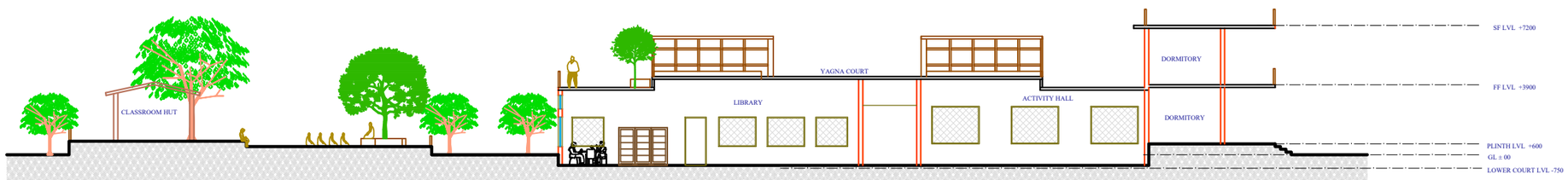

SECTION YY'

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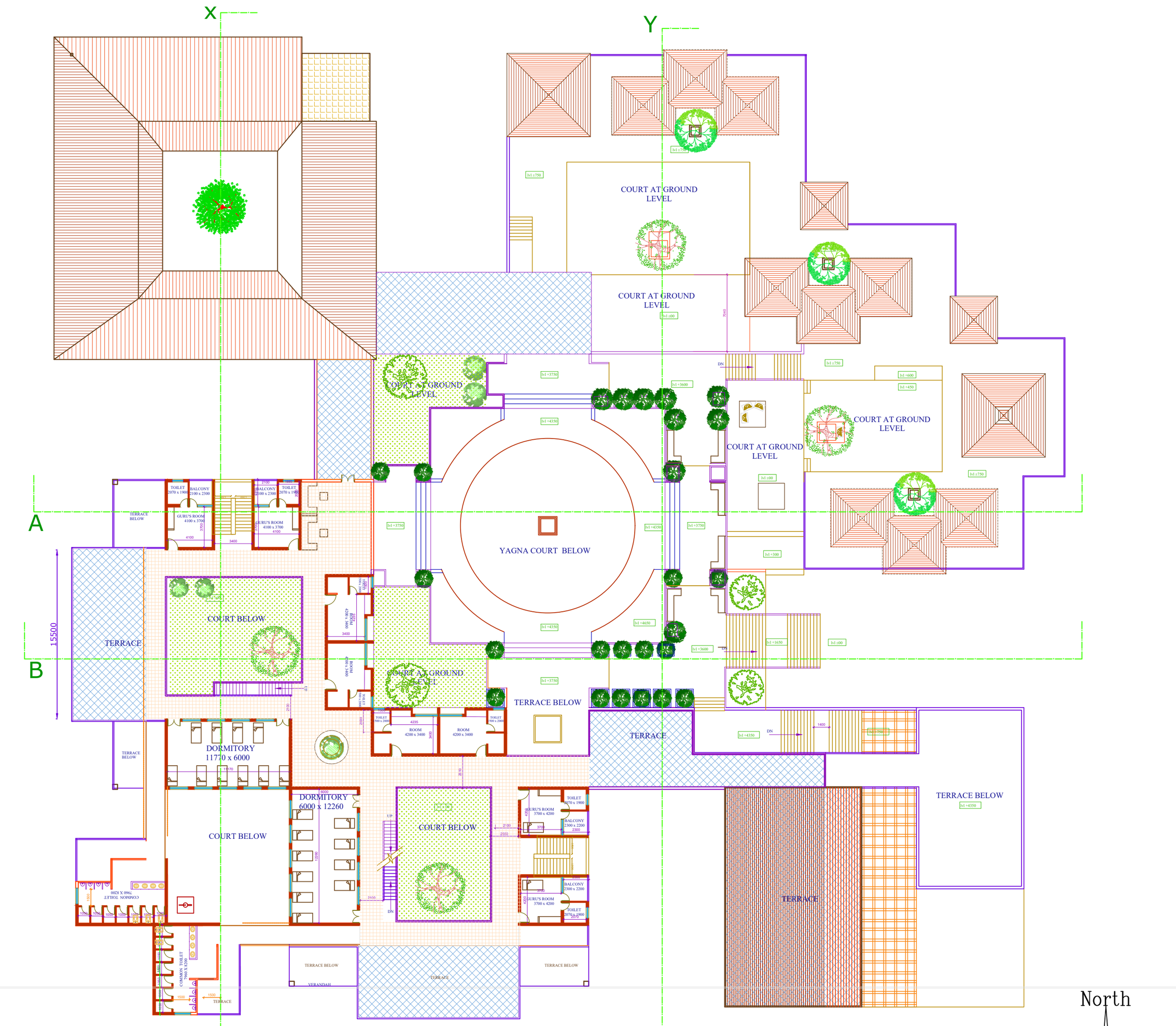
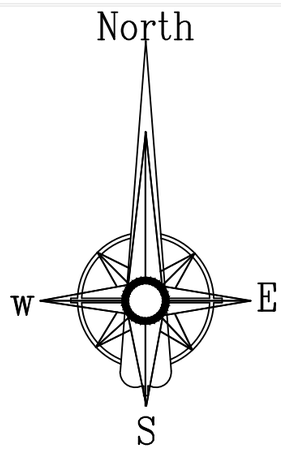


SECOND FLOOR PLAN



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