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How influencing factors govern the planning of Greek Architecture

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Abstract: *The architecture style of Greece was coined by the Hellenic people. They expand their culture powerfully. It extends it wings starting from Asia Minor to Italy for a period from about 900 BC up until the 1st century AD with prior lifelong architectural works came into being in from around 600 BC. Temples are the best-known examples to recognize the architecture style of Greece. But out of those temples few of the temples are still there in existence but most of them were in the form of ruins.This paper talked about the factors that governed the whole of Greece in terms of geography, geology, climate, religious, historical, and social characters. Under which few of the corrections that had accomplished. In this paper, the clear elaboration of order of architecture has introduced with some best examples with respect to the architecture and structure of Greece. Such as the processional entrance, which is termed as Propylon, the public plaza or square is there, which is termed as an agora surrounded by storied colonnaded structure termed as stoa, the town council building is happening in the name of bouleuterion, the public monument as a monumental tomb termed as a mausoleum and the stadium is also there.*

Key Word: *Architecture buildings and structure of Greek Architecture, Climatic factor, Corrections in column, Geographical and Geological factor, Historical factor, Optical illusion, Order of architecture, Religious factor, Social factor.*

I.INTRODUCTION

The temples are the most eminent ones in Greek architecture. And all other building types were getting derived from characters used in the temples of Greek architecture. The Greek temples were considered as the living place to the deities for whom all the ceremonies were conducted by priests. And it was not considered as a place of congregation prayers. The main material for the construction of the monumental buildings in Greece until the archaic period were from wooden timbers and clay bricks. Then further stone blocks came into existence during the archaic period and then it is being carried out by the same material. Marble was considered as the finest material of all; when other varieties of stone were used, they were often coated with marble.

II.GEOGRAPHICAL FACTOR

Sea is considered as the main source of communication as Greece is being surrounded by sea from three sides. So it had a link for trade and commerce with Asia minor, cyprus, palestine, syria, egypt,italy and sicily. Greece is surrounded by sea from three sides. Greeks became bold and adventurous. It was expanded the domain on colonies.

III.GEOLOGICAL FACTOR

Greece is rich in different kinds of building materials. Such as marble is the material which is abundance in nature near Athens. They have used marble to prepare beautiful sculptures. Sun-dried bricks, Stucco-powdered marble for plastering and color decoration which reflects like mirror and used in Greek temples and palaces, Limestone used for most of the large rectangular blocks of Greek buildings.

IV.CLIMATIC FACTOR

Greeks preferred an outdoor life because of the moderate climate. So, this is the reason why they have constructed buildings to suit the outdoor life such as-

- An Agora.
- The Theatres.
- The Administrative buildings.

They constructed portico and colonnades which is the characteristics features of Greek style due to the hot sun and showers of rain.

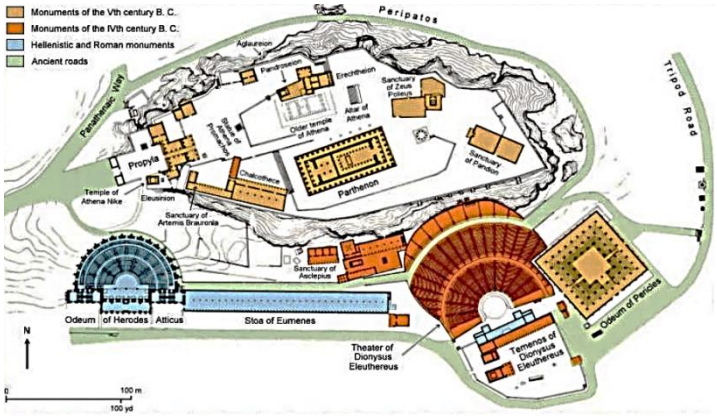
V.RELIGIUOS FACTOR

Greeks worshipped their deities in the temples. The temples were colonnaded in characteristics. It was designed in such a way that the whole area is visible. Arrangement of the deities were set according to movement pattern of the sunrays.

VI.SOCIAL FACTOR

Greeks followed the democracy as in their government system. As they are democratic in nature so, women also played a major role in social life. Greeks encouraged the outdoor activities such as games, literature, music, and drama.
They constructed-

- Stadium
- Theatre
- Hippodrome
- Basilica
- Agora



VII.HISTORICAL FACTOR

If we have to categorize Greek Architecture, then we need to bifurcate it into two main periods-
Hellenic Period: Greek architecture was simple in appearance. It was essentially columnar and trabeated style evolved from wooden hut. Greeks used timber in the beginning for columns, but they started using marble later. The same timber forms were imitated in the marble column. Greek Architecture is called as Carpentry in marble. The construction of walls was in masonry from rubble stone to fine ashlar with absence of mortar. Marble stucco were used as a plastering agent in the complex. Exterior of the buildings were designed with colonnades (row of columns). The doorways were square and rectangular. Timber sloped roofs were covered with marble/ terracotta tiles. Greeks practiced 'optical illusions' in buildings.
Three orders of architecture evolved during this period- *Doric, Ionic, Corinthian columns*.

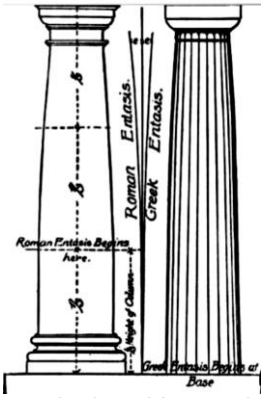


FIG.2OPTICAL ILLUSION I

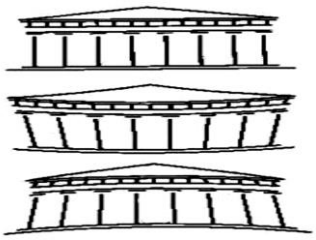


FIG.3OPTICAL ILLUSION II

Optical Illusion 1: - The long horizontal feature such as steps; beams appear to sag in the middle. This has been corrected by forming the steps, beams with slight convex outlines in the center.

Optical Illusion 2: - The vertical columns appeared to curve inward. This has been corrected by sides of the column in a convex manner (entasis) made in the column.

Optical illusion 3: - The letters of inscriptions were made larger in the upper lines than in the lower so that all appear to be of same size when seen from ground level.

Hellenistic Period:

The architecture in this period is more religious in character. Public buildings began to appear. Urban sense of planning developed, and more importance was given to town planning. Columnar and trabeated style was being followed. Arches started appearing on wall openings. Corinthian order was more popularly used Doric and Ionic orders.

VIII.ORDERS OF ARCHITECTURE

Order: - An order in classic architecture consists of upright column or support and the horizontal beam.
The column consists of -

- Base
- Shaft
- Capital

The beam consists of –

- Architrave
- Frieze

The orders that they have introduced are as under:

- Doric order
- Ionic order
- Corinthian order

FIG.4TYPICAL ELEVATION OF A GREEK TEMPLE

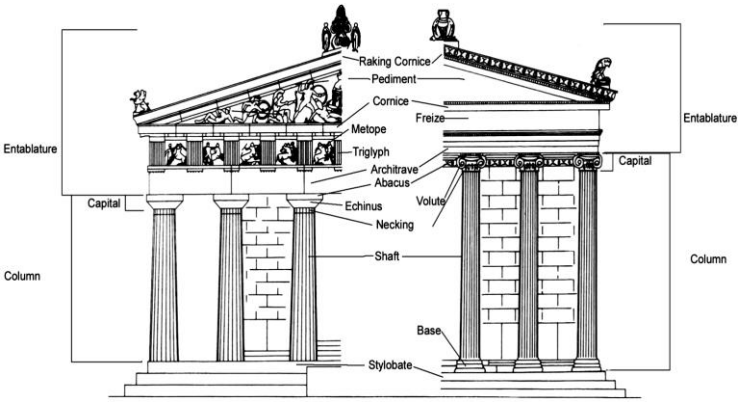


FIG.5GREEK ORDERS

IX.BUILDINGS AND STRUCTURE IN GREEK ARCHITECTURE

Order - An order in classic architecture consists of upright column or support and the horizontal beam.

Acropolis - 'Acro' means upper and 'polis' means city. It is an upper city with temple complexes. It is a fortified city which was built on top of a giant hill which is in limestone, and somehow, we can critic it as if it is dominating the city of Greece. And Parthenon is supposed to be the world's famous examples in classical architectural styles.

Propylea – An imposing entrance gate to acropolis or upper city where the world's famous buildings were built by Greeks.

Erectheum – It is an ancient Greek temple on the northern side of the Acropolis.

Stadiums - Greek games were celebrated at stadiums, like chariot-racing, horse-race, running, long-jump, wrestling, e.g; Stadium at Delpi.

Theaters - Open structures containing:

- Auditorium
- Orchestra
- Stage with skene- Back stage
- Greek theatres

Palaestra - It was used as wrestling school (or) a sport centree.g; Gymnasia at Olympia.

Stoa - A long colonnaded building as shelter at religious shrines or covered walkway or as porticos for public use.

Odeion - Like theatre where musicians carried their performance. They were smaller in size, compared to a full- size ancient Greek theatre.

Temples - If we should have to do the case studies for Greek architecture, temple architecture is going to be the most common and prominent types in the Greek architecture. It does not limit its function as in a congregational space but apart from that it served as storage place for the treasury along with the cult of the gold and as a place for devotees of the god to leave their offerings in fulfilment of a vow, such as statues, hamlets, and weapons. Wood was considered as the first material to construct the Greek temples as it was easier to build in than in stone, built around 800 BC. They have constructed a rectangular building with a porch, and it was surrounded and supported by columns made up of tree trunks. By the end of 7th century BC, the dimensions of these simple structures were increased greatly temples with a length of 33 m. They were aware of the large span construction techniques. These temples dimension remained narrow with 6 to 10 m width but reaching more than 20 m in height (not included the roof). The basic structure of the Greek temples remains the same for decades. The Greeks limited themselves for the number of spatial components, influencing the plan, and of architectural members, determining the elevation.
In any of the Greek temples the elevation is categorized in three different levels or zones are as under:

- The crepidoma
- The columns
- The entablature

There are certain set of rules based on what these Greek temples were designed and constructed. Lower diameter of the column and the dimensions of the foundation level plays an important role in determination of the same. Paint was being used with red and blue color and it was getting contrasted with white colored building stone or stucco. The detailed figurines in the form of reliefs and pedimented sculpture were there.

X.ARCHITECTURAL SCULPTURE

Friezes-

- Enhancement of the Greek temples were often with figural decorations.
- Those friezes give an area or space for the reliefs or the relief slabs.
- In Ionic friezes the battle scenes of all types were picturized.

Pediments-

- Because of the size and the location, focused on to the decoration of the pedimented triangles.
- Intricate reliefs were found in the pediments of the buildings.
- Some free-standing sculptures were also there on the site.

XI.TEMPLE OF PARTHENON AT ATHENS

The temple of Parthenon is built on the higher ground level of acropolis. The temple is dedicated to goddess Athena. This is the best classic example to explain the Doric order. The temple plan is 71 m long and 32 m wide. It stands on a platform of 3 steps with risers of 50 cm. The temple is octa-style in plan with 8 Doric columns in the front and 17 Doric columns on the sides. The temple is oriented towards east-west direction so that the first rays of sun should fall and illuminate the statue of Athena. The temple has 'Naos' with 10 columns on either side and 5 columns on the western side. To the west is the 'Virgin chamber'. Its roof is supported by 4 ionic columns and acts as a treasury chamber. At the rear end is an 'epinaos'. Optical illusions were done in this temple.

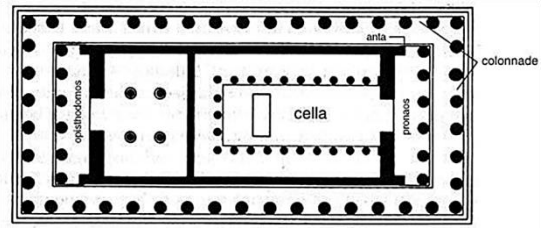


FIG.6PARTHENON PLAN

XII.THEATER EPIDAURUS [OPEN AIR THEATER/ AMPHITHEATER]

Circular orchestra- for chorus, dancing and dramatic action.
The Skene- background structure to accommodate the artist.
The proskenion- a low of one story structure which act as a back stage.
Auditorium- ring of seats cut into the hill side for the spectators.
Sight line and good Acoustics were carefully analyzed and designed in theatre Epidaurus.

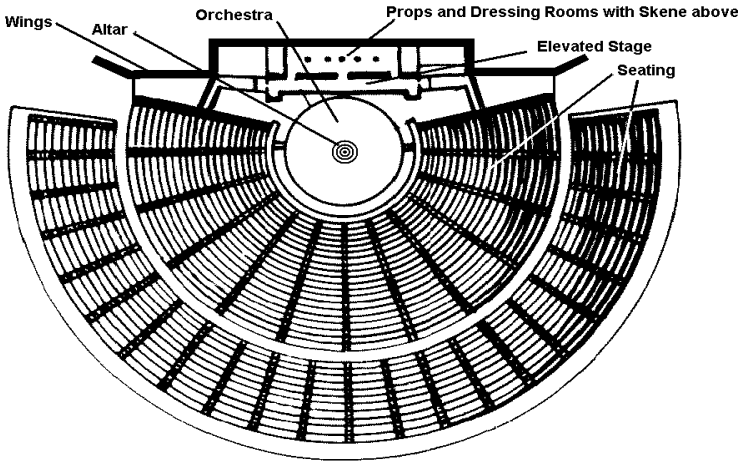


FIG.7THEATRE EPIDAURUS

XIII.CONCLUSION

These building plans are having a row of columns on all sides are practical as well as aesthetically sound too. In architectural vocabulary we can call these kinds of planning as a peripteral building design, which is surrounded by a covered passage, and providing shelter to the visitors. It is considered when a public plaza or a square is surrounded by peripteral buildings then the perimeter of the square is lineated with sheltered passages. Architects exaggerated on the basic temple plan in different ways. For an instance, an affluent effect was achieved by sum up another peristyle around the first one; this is termed as a double peristyle. As in common we can see just one-story heighted buildings in Greece. While multi storey designs (with a peristyle for each level) were not uncommon. They started up with circular plans also. And we termed it in architectural vocabulary as a tholos.

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