

Biological values of aesthetical and geometrical elements in heritage buildings

Monitoring the concept of sacred architecture and its biological effects

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Introduction:

Over the ages, man handled the building as a living thing that affect users and affected by them, thus choosing the location of the building was never easy, it was a sacred mission only given to a selected few who were considered sacred priests for the ancient Egyptians, then conveyed to Greeks and Ptolemais.

The hypothesis that the architectural space has an impact on the vital activities of the inhabitants is not new to architect, there are several studies that analyzed the great pyramid that speculate that the pyramid as a building has various effects over everything inside.

Thus, this research is adopting the hypothesis that the aesthetical and geometrical elements of the architectural space affect the biological functions of the users. Especially with the growing number of researches varied between proving the effects of the basic geometrical figures on the vital activities to the psychological effects on the inhabitants.

Research importance:

The importance of this research stems from its perspective as it studies the impact of the structure of the architectural void on the biological functions of the users. As we can benefit from it by applying the ratios and figures that have a biological effect on the spatial formations of the various designs in order to raise the efficiency of the functions of architectural spaces in the organizational, educational and therapeutic buildings and that to reach the best performance from employees and students and better therapeutic efficiency for patients.

Research problem:

Since the beginning of the modern sciences evolution in the last century, scientists are becoming less interested in qualitative aspects of the phenomenon and concentrated on the quantitative aspects that led to the shortage in interpreting various phenomenon.

Research goal:

This research aiming to bind the energetic sciences with the modern quantitative sciences on the one hand and with the architects on the other hand, through finding the common factor between them, by analyzing the sources of specific energy in some of the ancient architectural figures, and study it's source, then test all that in a scientific experimental method to rationalize those phenomenon.

Research methodology:

In order to prove the hypotheses right or wrong the research will adopt an inductive method to study the sacred architects and the golden ratio, as well as some theses that claims that there are certain ratios and geometrical relations that have biological impact on humans. Then the

research adopt analytical method for those studies to conclude a group architectural designs that's based on analysing those studies and theories. After wards the research also adopts an experimental method to test those figures by a set of laboratorial investigations to study their biological effects on a group of simple living organisms that can be planted inside those designs.

1- sacred architecture

Although it's a weird notion but it's an ancient one that stands for a group of buildings with unique nature that's dedicated for religious rituals or related to cosmic metrics. This research will highlight the notions of this architecture.

Concept of sacred architecture;

To put a definition for the term sacred architecture, which holds several interpretations, as it may mean the buildings or monuments that was used as a religious structure. Through their designs it can attract people to the religious and spiritual values. As the spiritual values is defined as the vital active part of the soul and it doesn't hold a specific figure, but it's the core through which the cosmic meanings is interpreted, this core is usually invested in figures that flood spiritual energy that reflects the sacredness.

Sacred architecture also is a kind of architecture that's connected with the cosmic measurements, the most popular example is the great pyramid as its position is in the centre of land, also its astronomical guidance for stars also its height in relation with the earth's dimensions and the sun.

Sacred architecture throughout history:

In the history of architecture the cultures of east and west developed a group of that sacred figures like the circular mandala in India that is related Hinduism. Also the Islamic culture came out with many sacred figures. Usually those figures based on dividing the circle into four that combined together in one figure to symbolize the four main directions or the four seasons or the four main elements of the universe (water, air, earth, fire) sometimes it's divided into 12 part to symbolize the 12 astrological constellation.

Attributes of sacred architecture:

The dimensions, measures and the structure are the distinguishing factors of the sacred architecture; it's a common symbolic language between the various civilizations. Those figures were invented when those civilizations were discovering the cycles of the sun, moon, and planets to come up with the calibration, and they integrated the geometric figures and numbers as well as the ratios they discovered in their architecture as there were many temples to worship different planets.

All the old civilizations agreed on one metric measure (the canon) as it was driven from the astrological ratios. The Egyptians used the 50 yrs. Cycle to harmonize between the moon cycle and the sun's , so every 50 sun years there will be 618 moon cycle , this ratio is the most popular ratio in architecture and art and is called the golden ratio ($0.618-1.618\div 1$)

The Golden Ratio:

Although the first who wrote about it was Martin Ohm in 1835, but the geometrical notion of the golden ratio go back to Euclid .the pentagram and the five Platonic solids were sacred figures to Pythagoras and Euclid as they hold the golden ratio in their structure.

The golden ratio was used to build several ancient temples, it's shown in the Parthenon in Greece and the Great Pyramid in Egypt, Persepolis in Persia.

It also appears in a relatively much modern buildings like the Notre-Dame Cathedral, Taj Mahal and also much recent buildings like the UN and CNTower. The golden ratio is also used in art works such as the famous Mona Lisa.

The Great Pyramid – as one of the applications of sacred architecture with biological effects:

When we studied the pyramid we were told that it was the tomb of the Pharaoh and along the academics studies architectural student's don't get further information than it's constructive value, it's massive scale, and the burial chambers' planes.

On the other hand the Egyptologists all over the world studied the pyramid's ratios, angels, dimensions and the astrological relations and the way of building and searched if it was a royal tomb or an observatory, or is it an artistic work that ancient Egyptians kept all their secrets in, specially that the physical laws are not applicable inside the pyramid, the meat doesn't decompose inside it, the metals' crystals are reordered when they are placed inside , along with several other phenomenon and biological effects for that building .

As this point is the core of this research, thus this architectural model will be studied amply.

One of the most important studies that were made to prove the biological effects for the pyramid, a germination experiment for bean seeds under pyramids figures and compare it with a standard group under cubic figures with the same size, and the same circumstances for five days , after which the length of the sprouts are measured. The pyramidal and cubic figures were made from mirror glass with the dimensions of 10 inches for the pyramidal base and 6.36 inches height, while the cube was 6.8 inches for each side.

In the same context Flanagan made 11 experiments comparing between the biological and chemical changes happening inside and outside the pyramidal shapes on the one hand, and under the cubic shapes on the other. In the first, second, and fifth experiments he measured the sprouts growing for the seeds germinated inside the pyramid shaped figure and compared the results with those germinated outside. The third experiment he compared fresh meat decomposition inside and outside the pyramid. The fourth, seventh, and ninth compared the bacterial growth on alimentary mediums inside and outside the pyramid. The sixth and eleventh he measured some physical changes to solutions inside and outside the pyramid. The twelfth experiment measured the pyramidal effect while sleeping on some vital activities as pulse and temperature.

2- Experimental study:

Based on the theoretical studies, there seems to be a common factor between all the sacred architect patterns, the most important are the angels and the recurrence. Basically this research will study the angels of the pyramid as one of the most important forms of sacred architect, with the recurrences of 5-7 which are the most popular at the sacred architect. The effect of of those forms will be tested on the growth of the Escherichia coli bacteria in controlled environment and the growth will be measured by measuring the rates of turbidity. All the solid shapes are made from PVC with leaser cut and covered with glass with the same shape of the base.

The results of that experiments showed that the standard sample form was the maximal for bacterial growth , while the other forms were less except the pentagonal form with the angle of 42 degrees, which were higher than the standard sample by one measuring unit, as for the rest tested angels it showed a suppressed biological activity for the bacterial growth . The highest percentage of effect was to the figures of the angle 58.3 degrees which is one of the angels of the pyramid as well as being the angle of the golden ratio, it affected the bacterial growth with a percentage reached 75%, and also it was not affected by the recurrence angels, although all other forms were affected by that.

Conclusion:

There is some evidences that the dynamic ether's energy that surround us is affected by the two dimensions geometrical forms as well as the three dimensional solids. Although the mechanism of that effect a mystery for most people, because their inability to understand the nature of the ether around us and the nature of the universe as a whole.

In the Hindu traditions the prayers have certain sounds (vibrations) that they call "Mantra" they believe that there are vibrations in the geometric figures that intersect with the prayers vibrations which they refer to as "Yantra".

Certain geometric figures either painted on paper or engraved on wood or stone have a massive effect on regaining the energy balance. This fact is not confirmed by theories, but proved through practical application. There are lots of geometric figures engraved or painted in monuments that was thought to be for cosmetic reasons but turned out to be a way to interact with the cosmic energy.

The scientific base for the effects of those figures is that the geometric pattern for each of them produce certain vibrations of ethereal energy, we can benefit from these applications in various fields like health, agriculture or protection from negative energy.

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