



ARCHITECTURE AND DESIGN RESEARCH:

CATHEDRAL ARCHITECTURE

NATURAL LIGHTING

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Abstract: questions of lighting have fascinated architects from antiquity to nowadays attesting to the many buildings in which lighting solutions show sensitivity and ingenuity. What is the reason? Intuition itself or solid education in dealing with the matter? This research sought an answer to this question and concluded that there are no records, in the most distant periods in time that approach the architect's education in subjects related to lighting, but rather evidence that the profession at that time demanded erudition, like today, and this is an important clue.

I. INTRODUCTION

The history of architecture is rich in good examples of the use of daylight to light up building interiors. In the past, for reasons of a religious or aesthetics and in the present, for aesthetic, functional, environmental, economic and of human health, such appropriation has always taken place – and continues to take place – due to the triad intuition

1.2 AIM

To study and analysis the various aspects of cathedral architecture in base of natural lighting

1.3 OBJECTIVES

In pursuing this investigation, the study addresses three major objectives. First is to identify the characteristics of natural light visible inside these spaces. Second is to understand the use of natural light to illuminate different spaces. Third is to explore the relation between the characteristics of natural light to the overall perception of the space.

1.4 METHODOLOGY

- The research approach will be as follows:
- Case study and data collection on portable housing.
- Definitions, explanations on cathedrals.
- Natural lightning in the cathedral in various nations.
- Analysis of data and inference.
- Conclusion.

1.5 SCOPE

An analysis into some of their well-known projects can bring out underlying characteristics of natural light that to the design of a built space.

1.6 LIMITATION

Limitations of the study

- The lack of references and live projects on portable architecture in our country is a critical limitation to this study.
- The lack of awareness about the topic among migrants and other citizens may have an impact on the project's execution.
- Lack of knowledge on the availability and construction details of portable housing.

2.1 BRIEF HISTORY OF ARCHITECTURE AND ITS TEACHING. ANY LIGHT?

This chapter makes a succinct rereading of the teaching of architecture, from its origins, when learning took place essentially at the construction site, until reaching the rupture and transformation initiated by the School of Fine Arts in Paris

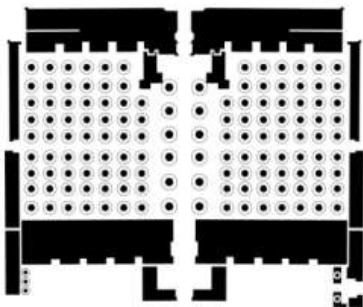
2.2 MASTERS AND APPRENTICES. THE CONSTRUCTION SITE AS A SCHOOL

2.2.1 ANCIENT EGYPT

The prestige achieved by Imhotep was such that he ended up securing privileges to the architects who came after him; all held high positions in the religious hierarchy of the empire and were priests, to whom the whole education of the youngest.

2.3 QUESTIONS OF LIGHT IN ARCHITECT TRAINING

However, it is not known how the proportions and shapes of openings were determined to illuminate the interior of your buildings, not even the most important ones, as is the case of the Hypostyle Room, or the columns, of the Great Temple of Amun-Ra, the Sun god, built at Karnak around the year 1530 B.C.

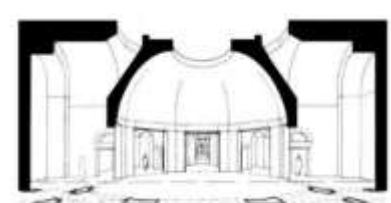
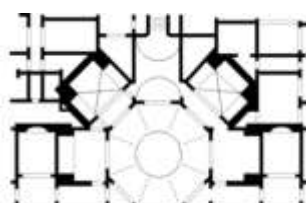
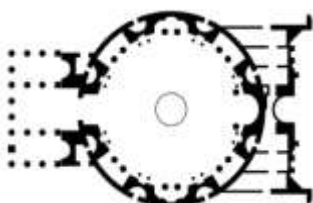


2.3.1 CLASSICAL GREECE

The architecture of the classical period of Ancient Greece (750 to 350 BC), which was influenced by Egyptian architecture, both in the shape of the plants and in the use of columns, evolved and acquired its own personality.

2.3.2 ROMAN EMPIRE

Roman architecture was heavily influenced by classical Greek architecture. The Doric, Ionic and Corinthian orders, borrowed from the Greeks, were adapted, embellished and reinterpreted. While in Greek architecture the column was the most important element, in Rome it became a more decorative element, giving way to the wall as a structural element.



2.4 ROZESTRATEN, IN TURN, CONSIDERS THAT

Although he does not give details, Vitruvius makes it clear that, in some cases, reduced-scale models can come very close to what occurs in the real building, as can be read in the excerpt transcribed above

2.5 PALEO-CHRISTIAN AND BYZANTINE ARCHITECTURES

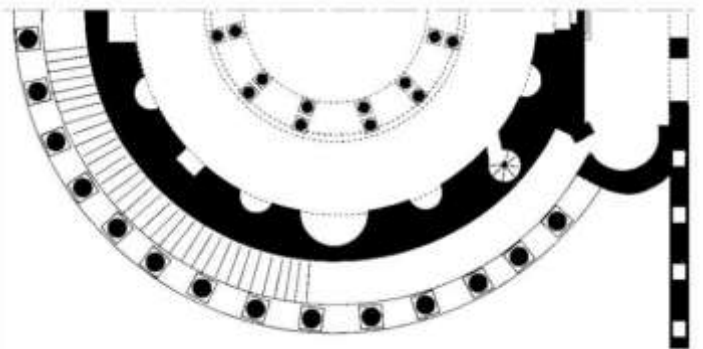
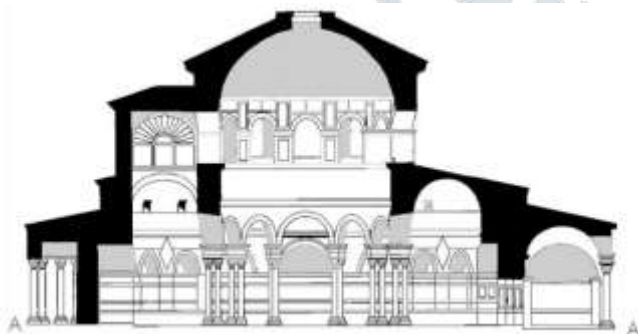
The Roman Empire reached its apogee between the 1st and 2nd centuries AD, a period in which its architecture was the most dazzling, and in which its famous baths represented the ultimate expression of their culture. In them, issues of natural lighting and orientation solar were studied and always carried out to a successful conclusion.



Such splendor, however, gradually lost its vigor as a result of the decline of the Empire²⁴ and its transformation from a pagan to a Christian state, under the of Constantine (306 to 337) who, converted, instituted Catholicism as a religion empire official.



In addition to the basilica form, the early Christians also made use of the central plan, round, octagonal or square, inspired by royal mausoleums and a typology of a pagan building called heroes, which was dedicated to the deeds of a deity or a deceased member of an important family.



In 330 AD, to try to prevent the dissolution of the Roman Empire, which suffered from invasions and rebellions, fruits of his own gigantism, Constantine decides to transfer the capital of the empire, from Rome to Byzantium

2.5.1 MIDDLE AGES

The term middle Ages refers to the period of European history between the fall of the Roman Empire in 476 AD and that of Constantinople in 1453. In the fifth and eighth centuries, the absence of a central government on the continent resulted in a great economic stagnation, with reflexes even in the production of architecture



2.5.2 REBIRTH

The Renaissance originated with the 15th century Italian humanists who, "proud of their flourishing urban culture (and their urbanity), decidedly set out to match the intellectual and artistic achievements of classical antiquity. (ROOTH, 2012, p. 341, our translation).

