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## **DE - CODING THE FOUR ELEMENTS OF ARCHITECTURE – GOTTFRIED SEMPER**

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### **Abstract:**

*Gottfried Semper was one of the most influential theorists of the early 20th Century. The aim and purpose of this paper are to highlight Gottfried Semper's ideologies and arguments related to interiors and the origins of design with the help of contemporary examples with regard to interior design. The analysis of the German architect's ideas and work presents the main aspect of this work, including the four elements of architecture, polychrome architecture and structure, colour, and vertical enclosures. The prime example of Semper's details is examined with respect to Lilavati Lalbhai Library, based in Ahmedabad, India.*

**Keywords:** *Gottfried Semper, Enclosures, Architectural Theories, Colour, Roof, Space, Architectural Elements.*

### **Introduction:**

Gottfried Semper was born in 1803 in Germany, Europe. He was an Architect, theorist, art critic, and professor. He travelled in and around Italy, Paris, and Greece extensively in order to study Architecture and Designs. He had a deep desire to understand and get inspiration from the little things of nature and also the most inescapable part of nature – The human body. And so, later in 1851, he published a book called “The Four Elements of Architecture”. In this book, he talks about the origin of Architecture through the lens of Anthropology – developed from the history of early human life to aesthetics, which were slowly disintegrated in the 20th century due to rapid industrialization. He puts forth the argument that “Architecture is divided into four basic elements” and as human society started evolving continuously based on climate, relationships, ideologies, and more, the technical skills of a man started organizing around each element. (Semper, 1869)



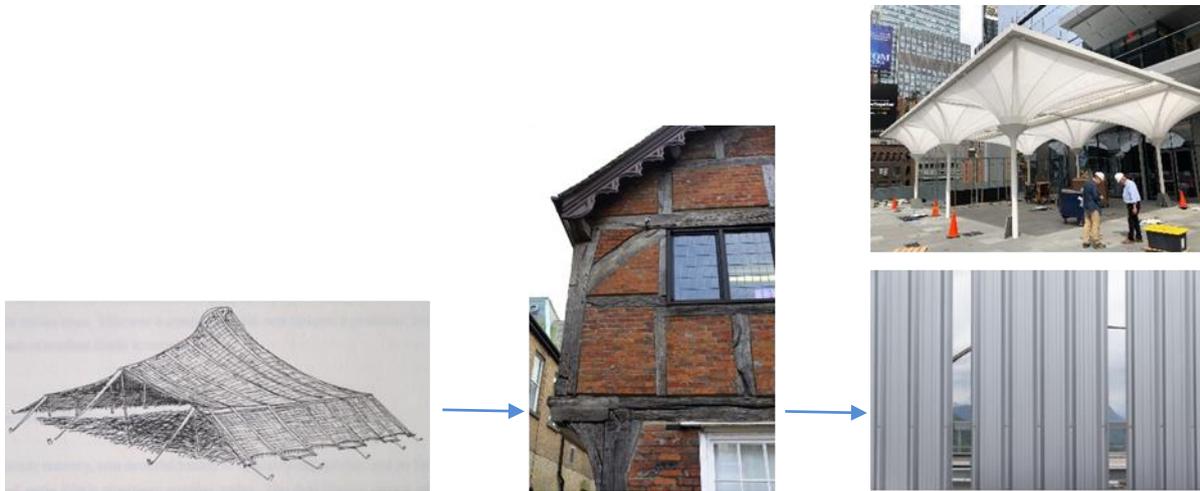
### Elements - Technical skills

- The **Hearth** – ceramics, and metallurgy
- The **Roof** - carpentry
- The **Enclosure** – weaving, and textile
- The **Mound** – earthworks

These primordial motives are responsible for generating any kind of Architectural form according to Semper, anywhere in the world.

Earlier, (Semper, 1834) published an essay on, “*Preliminary Remarks on the Polychrome Architecture and Sculpture in Antiquity*”, establishing the interrelationship between polychrome architecture, sculpture, and textile which has more than one importance: **Firstly, the definition of the Space** - for example, primordial man protect himself from the climate by covering himself, hence, covering (animal skin, big leaves, fabrics) is the oldest Architectural detail. Later, a man started spreading the fabrics on the ground and also hung around to accommodate more people thus, the main Architectural element “Enclosure” began. However, fabrics can’t hang themselves thus the beginning of the rigid supports. And so, Semper’s central thinking involved an understanding of Architectural form through the human culture and its needs. (Loos, 1898).

**Secondly, Colour plays an important role in the formation of space.** It acts as a human joy. Earlier in the tents, the fabric had a varied weaving pattern of coloured threads, either to merge with the surroundings or to stand out. It acts as a symbolic representation of occasion, customs, or maybe religious purposes, or as a decorative surface to express emotion. Later, as human beings evolved, the primary motive of the enclosure underwent a transformation when textiles characteristics were symbolically transferred to the tiles, mosaic, wall panels, brick during Mesopotamian civilizations and again to the thin layers of paints, stucco, plasters during the ancient Greek Civilization on the monuments and the motifs with natural pigments like saffron and metal oxides. **Hence, Semper argued that there is a bond between Construction and Colour.** Thus, the understanding of materiality developed and refined over the decades, and the idea of aesthetics and the function of cladding was introduced.



**Ancient time**

Enclosure: Thin Fabric

**Classical time**

Enclosure: Brick, stone, tiles.....

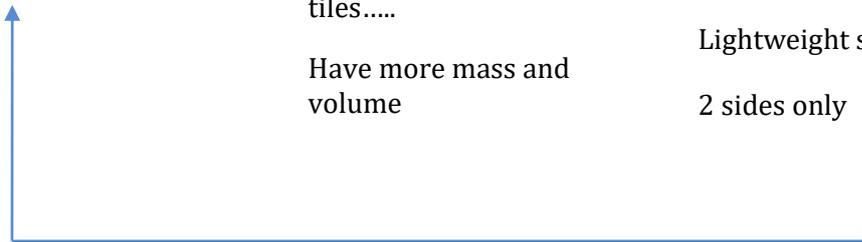
Have more mass and volume

**Present time**

Enclosure: Tensile fabric, polycarbonate sheet, glass, .....

Lightweight structure and volume.

2 sides only



Semper's formulated theory can be more understand through a contemporary building example: *Lilavati Lalbhai Library*, Ahmedabad-Gujarat, India, by RMA Architects in 2017 within the CEPT (Centre for Environmental Planning and Technology) University Campus which is designed by B.V. Doshi.

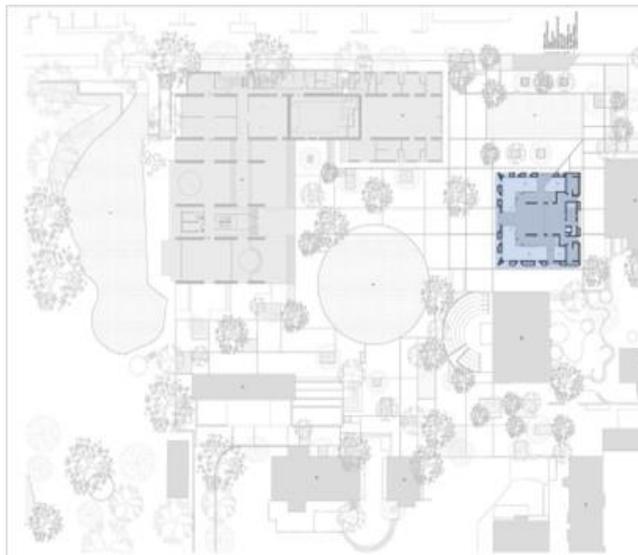


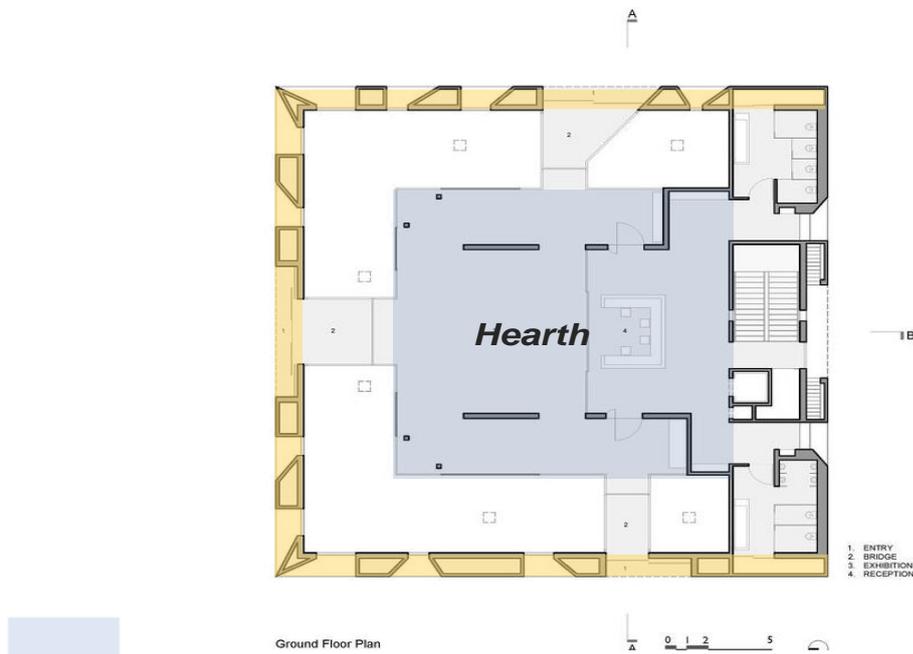
The theory of four elements of Architecture, which is based on the artistic motives of the semper as mentioned above in first paragraph; hearth, roof, enclosure, mound is evident in the library.

### **Background of the Area:**

The city – Ahmedabad has hot and dry climate on majority days of the year. CEPT Campus is in the centre of the city and is surrounded by other major universities as well.

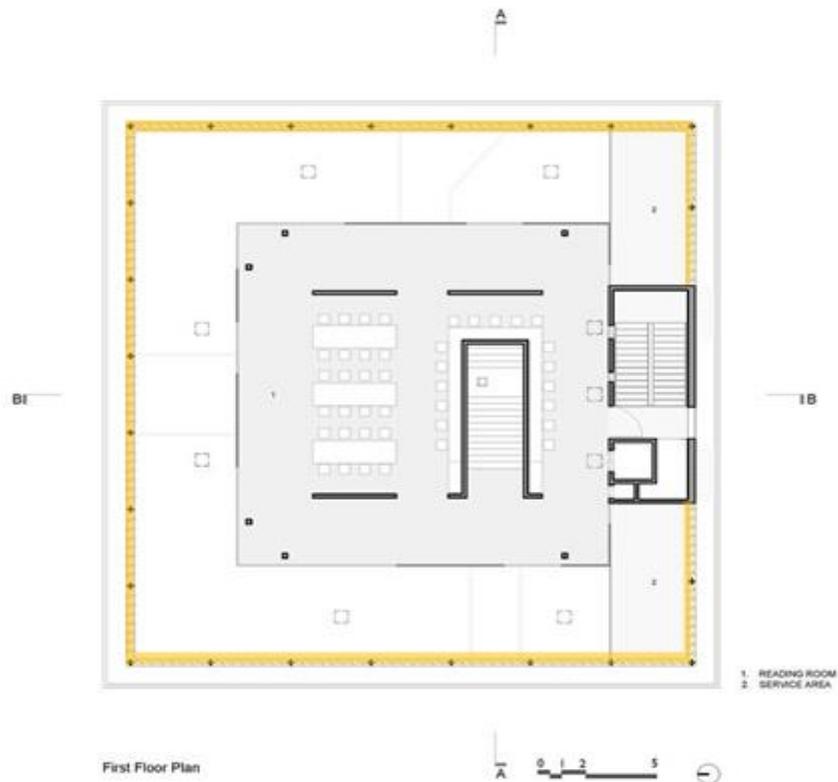
The library building sits in the centre of the built area of campus and weaves into the narratives of the pre-existing structures of campus.



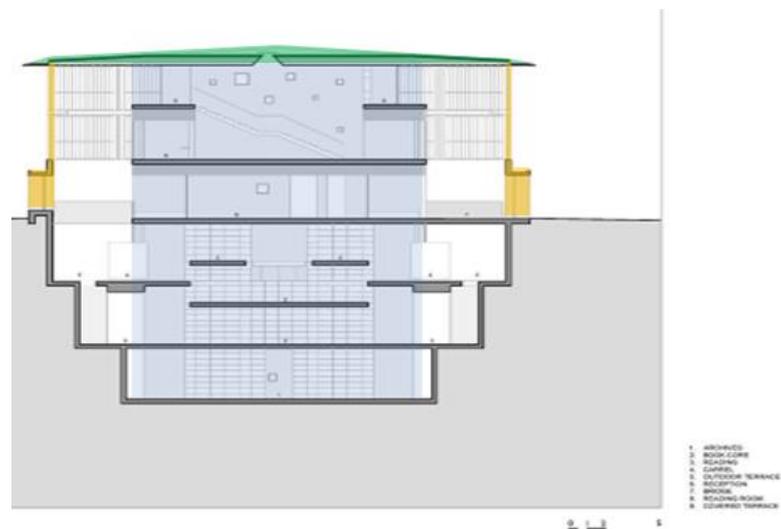


The notion of the **hearth** is attached with the moral value of the Architectural element. Such as, after the hunt, family would sit around the fire, thus, considered as a sacred point around which everything took shape and developed (Semper, 1869). As, the central space of the library building contains racks of books and so, students spend maximum time in central zone, sharing and gathering knowledge, and so it can be termed as sacred.

According to (Semper, 1869), to protect this sacred- hearth from the climatic conditions and animals, **Vertical Enclosures** gain its architectural value, dividing the inner world from the outer. Here, in the library, cavity walls are constructed on ground floor to protect the Hearth-book zone from the Heat. And also kept an enough space between the enclosure and the hearth to further reduce the transmission time of heat in walls coming inside. (Ahmedabad city is exposed to 48-50 degree Celsius in peak summers).



On first floor the enclosures volume and material have reduced, and idea of transparency and porosity of fabrics was transposed through the louvered facades which pours enough filtered natural light and keeps the building naturally cool. This supports the argument of Semper that the origin of the Architecture is not the medieval hut but the patterns of textile.





Later, Semper talks about the Roofing that it was to protect the hearth from rain and so the technical skill of the carpentry was developed from the roof. In library, the structure of the roof is very light in weight and is extended from all sides to protect from direct sunlight and rain. The roof is supported on the minimal steel + shape columns, within which the complex yet linear operatable louvred facades rests.



Semper also discusses about the Mound in his theories and stated that the skill of the masonry and water was developed around the mound and its is an area of site-marking or asserting a space on ground, where the construction shall take place. It also helps to identify the Vertical spatial relationship. Here, in the library, main core space – Archives is placed beneath the ground level to protect from sunlight and also created intermediate terrace on edges to bring in natural light and cooling system, where hot air rises above and collects on topmost area of the building and release outside naturally.





According to Semper, the definition of a space can be transformed if, the colour is used in a very thoughtful way.

As *Francis Mallgrave* stated,

*“Architecture’s denial and transcendence of its real or material basis thus became for Semper its highest ideal”* For Semper, the proper use of colour in a building would morphologically transform the material, letting it become **“pure form”**.(Semper, 1834)

As shown in figures, the library has raw concrete walls on lower floors, thus, the idea of materiality was thought while designing a structural framework which corresponds to the Semper idea :

The ideas of materiality should sprang from its purpose of warmth and comfort, not from the visual perspective only. Similarly, the wooden cladding on above floors provides good thermal and acoustic insulation along with the feeling of versatility, natural, and binding.

The most relevant element of Semper’s theory which helps in contemporary Interior Design is the enclosures. As, its purpose should be responsive to the surrounding buildings, spatial aspects, ease of technology and most important materiality. As shown in figures 1, how the enclosures have evolved from thin fabric to brick (3 sides) to polycarbonates sheets (2 sides) again.

It is a major tool to bind the entire architectural elements into one though it works only on minimum volume and flat surface. It gives the definition to the space like how to occupy, human emotions-cosy, voluminous, protection, and also the aesthetics.



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