



How Architecture Responds to Humans: A Study of the First Unitarian Church

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Abstract. There have been numerous architectural designs throughout world history, each of which has a significant relationship to its era and human culture. In the study of contemporary architecture, it is essential to contemplate the characteristics of historical architecture. This literature review will examine the methods of shaping architecture and how it responds to humans by interpreting Louis Kahn's First Unitarian Church in terms of institution, matter, and light effects.

Keywords: First Unitarian Church, Institution, Matter, Light, Human

1 Introduction

The First Unitarian Church was founded in the year 1829, serving as an exemplary non-denominational religious institution located in Rochester, New York¹. The construction of the new church was undertaken with the intention of replacing a preexisting place of worship, thereby serving the needs of the broader community and offering them a paradigm of modern architectural design¹. The institution's design, encompassing its physical structure and lighting elements, is influenced by the specific social context and cultural attributes of the local area¹. This design approach aims to shape a suitable urban environment and contribute to the contemporary understanding of architectural principles. This essay aims to examine and evaluate recent academic studies pertaining to the First Unitarian Church, while also providing an overview of its design elements. The objective is to make a meaningful contribution to the field of architectural interpretation.

2 Institution: Respond to the social background

Louis Kahn (1990) believes that an institution is essential to the advancement of a great city because the character of the institution belongs to a realm of ideas that transcends the architect's private interests. The incorporation of institution is a crucial aspect that architects ought to contemplate during the design process, as it facilitates the transmission of information and the dissemination of culture within the framework of society².

In the realm of architectural design, it is imperative for designers to take into account the prevailing societal conditions and address pertinent social concerns.

The First Unitarian Church has served as a venue for diverse social activities since the 19th century, including advocacy for women's rights and provision of assistance to disadvantaged children. Kahn's engagement in the field of architectural design did not commence until the year 1959. During the 20th century, individuals were confronted with a disconcerting societal erosion that engendered a sense of bewilderment and existential uncertainty. Therefore, within the framework of the coexistence of religion and science, Kahn provided an illustration of the architectural model by presenting a sketch depicting various 'forms'. The auditorium is almost round, with a circle of corridors outside and classrooms on the periphery of the corridors³ (Figure 1). The corridor constitutes a closed spatial configuration, functioning as a transitional element that establishes a connection between the church and the surrounding exterior area. The educational institution symbolises the acquisition of knowledge, serving as a space for active engagement in listening, critical thinking, and emotional experiences. Conversely, the auditorium embodies a sense of divine authority, functioning as a site that fosters collective faith and spiritual unity. The corridor serves as a circular bridge, facilitating the reduction of collisions and conflicts, while delicately connecting the realms of science and faith (see Figure 2). Simultaneously, the corridor functions as a mediator, augmenting the building's capacity to accommodate the humanities. This enables the church to transcend its exclusive role of catering solely to the faithful, as individuals are not required to adhere to religious tenets in order to access the premises. This form facilitates the exercise of personal agency among a diverse spectrum of individuals, challenging deeply ingrained notions pertaining to religion and upholding a progressive stance towards matters of spirituality. Furthermore, the ecclesiastical structure exemplifies the prevailing ethos of embracing immigrants in the United States during the post-World War II era, with the aim of fostering cultural and technological advancements (see Figure 3).

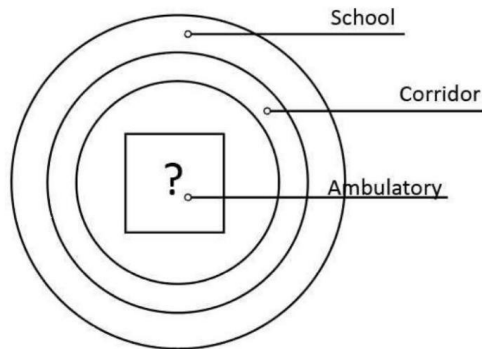


Fig. 1. Initial Form

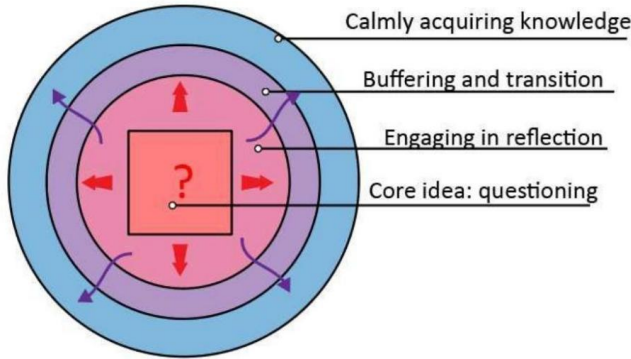


Fig. 2. Area Connections

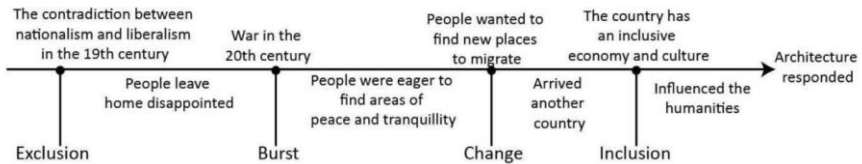


Fig. 3. Changes in Social Background

Moreover, the adoption of the central layout approach facilitated the emancipation of cognitive processes. Kahn espoused the notion that the modality of engagement within the ecclesiastical setting ought to centre around inquiries. The individual depicted a question mark at the focal point, serving as a symbol for the pursuit of veracity through inquiry, as well as embodying the inquisitive and receptive disposition of individuals towards matters of faith. In its capacity as a central hub, it operates in an outward manner, advocating for a paradigm that challenges established norms. In addition, it fosters an alternative perspective on the global landscape. This affords individuals the opportunity to engage in introspection and seek solace in matters of spirituality, all the while actively pursuing empirical scientific theories⁴. Consequently, as illustrated in Figure 4, the progression of human cognition is facilitated by the architectural arrangement pattern, thereby fostering a progressive and liberating inclination that aligns with contemporary societal developments³.

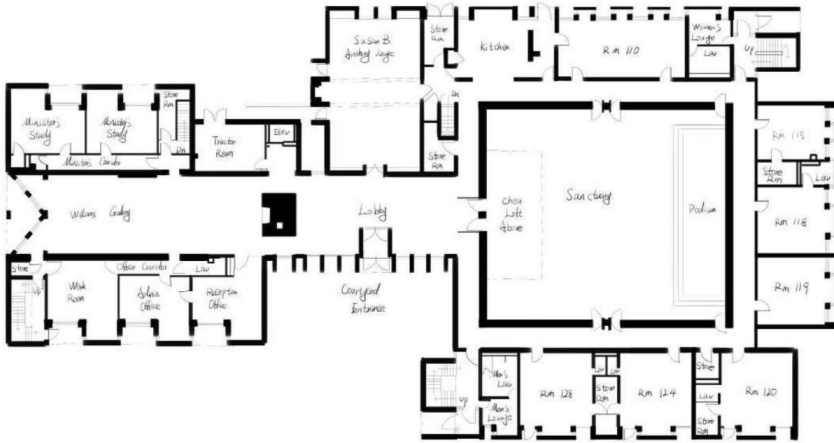


Fig. 4. Ground Floor Plan

3 Matter: Respond to history

Respecting the integrity of the materials, the ornamentation is able to connect the emotional profundity to the past⁵. The interior of the First Unitarian Church is primarily composed of concrete and wood. Kahn believes architecture should be straightforward. In order to respect the diversity of the materials, First Unitarian Church retains only the natural appearance of the materials, without any embellishments or more than a few thin layers of protection. Because the materials themselves possess aesthetic qualities, eschewing adornment for the time being and focusing solely on the construction of the building enables it to be finely shaped and charming in a sober state⁶. For instance, one of the primary materials, concrete, is characterised by a noble simplicity. According to Kahn (1997), concrete is a molten stone with a consciousness⁵. It possesses a rigidity and warmth that resonates with human senses as well as the spirit. The church's grandeur can be effectively conveyed by minimising human intervention during its construction, thereby allowing the material itself to dictate the emergence of its design. According to Vincent Scully, the church is affected by the external light, causing the concrete to acquire a silver hue⁷. Additionally, the weighty and substantial slabs of the church emit a sound reminiscent of the divine as they are raised above one's head. Despite the absence of opulent architectural forms or richly coloured glass, the church emanates silvery rays that imbue its worshippers with a profound sense of divine presence, fostering a deep inner contentment. The diagram depicted in Figure 5 illustrates... This architectural style deviated from the uncritical veneration of ornamental design, thereby challenging established secular laws and institutions⁸.

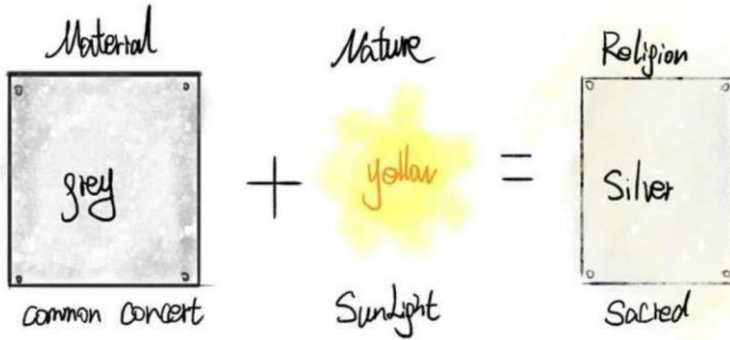


Fig. 5. A collision of light and material

Kahn emphasises the significance of the spiritual encounter that arises from the interaction between tangible and intangible components. Simultaneously with the architectural development of the First Unitarian Church, Louis Kahn was also entrusted with the task of designing the Sanctuary of the Mikveh Israel Synagogue. In contrast to its predecessor, the design incorporates hollow columns as the primary structural elements instead of solid concrete walls, thereby enabling individuals to experience an immersive environment within the illuminated hollow columns⁵. Utilising matter as a means to shape individuals' experiences is a highly efficacious approach.

Moreover, it is worth noting that distinct characteristics define each era; however, it is important to acknowledge that simple ornaments remain unaffected by the prevailing influences of their respective time periods⁹. As societal, historical, and human influences evolve over time, the embellishments applied to a structure will transition from being extraordinary to becoming commonplace⁷. In stark contrast to the ornate embellishments characteristic of Baroque architecture, the First Unitarian Church stands out for its unadorned aesthetic and intricate geometric design, which will undoubtedly endure the test of time, evoking profound emotions and sensibilities. The building has been influenced solely by nature and its constituent elements, resulting in a lasting impact⁸. These rustic materials convey a timelessness and authenticity that has been impregnated with history to ensure its monumentality.

4 Light: Respond to the spirit

Light and shadow are intertwined, and their connection to the exterior form of architecture creates what architect Louis Kahn termed "silence and light." According to Kahn, silence contains the desire to learn and accomplish, a condition of bliss, whereas light is the physical manifestation of the realm of concepts. Silence represents the urge to create, which is the essence of existence. Light refers to the light that sustains life as well as the light that empowers silence to act. Structure, space, and light are intertwined in Kahn's designs¹⁰. It implies that light can be used as a medium for sculpting the

building's volume, complementing shadows and thereby adding new value to the surrounding architecture. The alternating projections and depressions of light on its two outer planes, for instance, cast shadows on facades with multiple layers. They balance each other out to create both positive and negative manifestations. These shadows and walls intertwine and manifest themselves differently in each dimension. As a consequence, the contour lines of the facade have multiple layers under the influence of light and shadow, evoking a sense of enduring strength (Figure 6). This, according to Kahn, is a desire for expression. The vitality given to the architecture from light makes it an independent entity, which is not the result of a process. Therefore, the design process that indicates independence adopts a plain and understandable form on the elevation of the church, thus allowing light to enter it also becomes an important factor⁹.

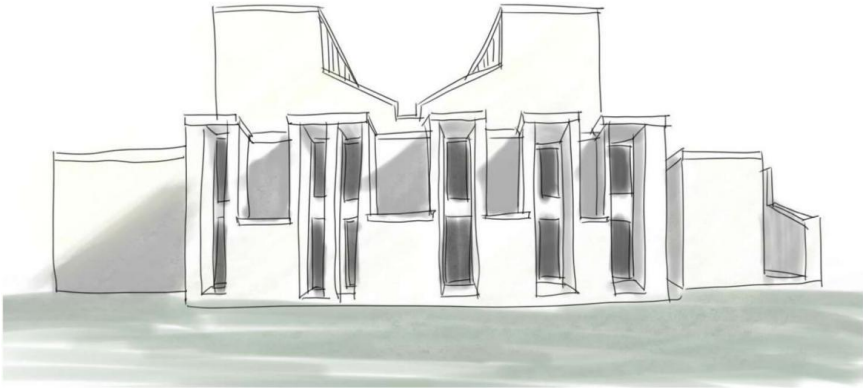


Fig. 6. Utilization of External Light and Shadow

In addition, Kahn demonstrated a strong inclination towards incorporating natural light into the interior space in an indirect manner, thereby establishing a meaningful correlation between light and the human spirit¹¹. The auditorium within the building's interior serves as a designated refuge area in times of necessity. Due to the inherent challenge of illuminating the auditorium using natural light from open windows, Kahn ingeniously integrated lighthouse-inspired structures at the four corners of the auditorium¹². This design intervention effectively addresses the issue of inadequate lighting by enabling the ingress of light from the upper to the lower regions of the interior space. In general, the presence of intense light typically results in a raw visual impact. However, the phenomenon of light bouncing off surfaces produces a diffuse effect, which in turn contributes to the creation of a spiritual ambiance within the room (Figure 7 and Figure 8). The incident light from the surroundings undergoes mutual interaction, resulting in the attenuation and scattering of the intense, unobstructed sunlight descending from overhead, thereby generating an ambient illumination characterised by a gentle quality¹². Moreover, within such a milieu characterised by shades of grey, diffuse reflections have the capacity to amalgamate the surroundings, resulting in diminished contrast and a gentle visual impact. In the context of environmental psychology, indi-

viduals tend to exhibit greater receptiveness towards transitional and cushioned environments as opposed to excessively bright or dark visual stimuli (Deniz & Akman 2012). Therefore, when the environment is more comfortable, people are more likely to pray quietly and with devotion.



Fig. 7. Interior View of Sanctuary



Fig. 8. Sacred Auditorium

Meanwhile, these vertically arranged lights fulfil the purpose of illuminating the windowless corridor. The corridor is adorned with tower-like skylights that give the illusion of light emanating from the rear of the adjacent walls, thereby blurring the delineation between the walls. Kahn argues that plan analysis involves the cultivation of intuitive understanding during the design process, followed by the rational implementation of design ideas. In architectural design, intuition and rationality are distinct and mutually influential processes. Therefore, the architectural design deliberately diminishes the contrast between the dark corridors created by the floor plan and the direct light from the skylights resembling towers¹³. This design guides the intuitive vision of the visitor, causing the light to appear to emanate from the sides¹⁴. This makes the corridor a transitional space between light and darkness and a link between the functions that serve and are served. Both approaches to interior lighting are tactful and indirect, creating a contrasting yet mutually inclusive environment. It is undeniable that this method of shaping creates a warm and reverent environment in which the spirits of people can rest in architecture. It is conceivable that architecture can provide for more than the physical needs of humans; it can also serve as a spiritual utopia.

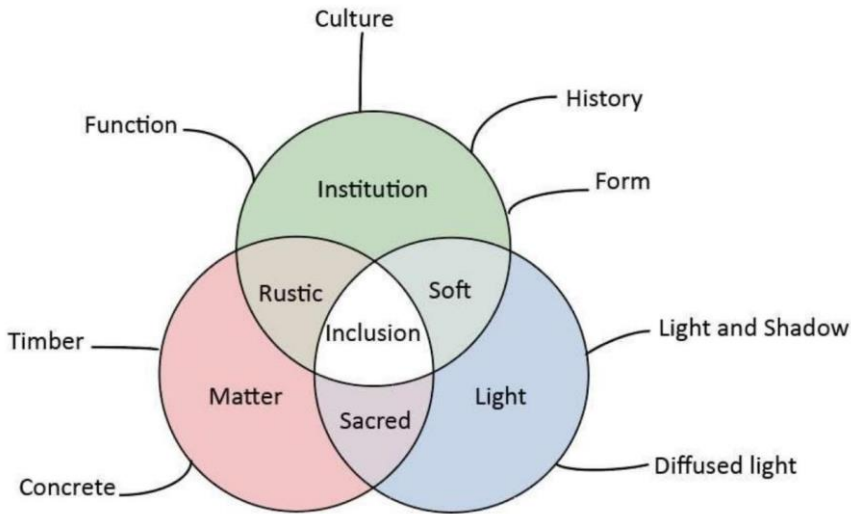


Fig. 9. Elements of the design
(REULEAUX TRIANGLE)
Matter-Institution-Light

5 Conclusion

This study provides an overview of the architectural techniques employed by Louis Kahn, as well as how his designs interacted with human culture. Kahn's primary emphasis lies in the architectural form of the building, employing sketching as a means to conceptualise an architectural establishment that is attuned to the historical context of the era. The artist employs the concept of rusticity in conjunction with the juxtaposition

of the material and immaterial elements to construct an expansive and awe-inspiring setting. Moreover, the artist integrates luminosity and shading elements into the architectural framework, in direct correlation with the human psyche. The three aforementioned elements interact with one another (Figure 9) in order to create a pleasant and all-encompassing simulated environment. Within the context of the 20th century, its inception encompasses the endorsement of autonomous cognitive processes, the facilitation of harmonious cohabitation between reason and faith, and the provision of a conducive environment for spiritual sustenance, all of which hold significant value in comprehending contemporary architectural developments.

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