

Light in Architecture as an Inspired Theme

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Abstract. The theme of the article is to highlight the important role of natural light in architecture. Natural light, or solar radiation absorbed by our sense of sight was a strong inspiration from ancient times. Originally constituted as a link between heaven and earth. It played a major role in shaping the places of worship, such as even Stonehenge. In the church architecture it was and still is the guiding element, the main matrix around builds an architecture narrative. Over the centuries, the study of the role of light in architecture, and in fact chiaroscuro, led to the culmination of solutions full of fantasy and “quirks” in the Baroque era (Baroque with Italian *barocco*: strange, exaggerated). Enamored of carved body and the use of multipurpose ornament topped was the discovery of a concave-convex façade *parete ondulata* created by Francesca Borromini. Conscious manipulation of light developed, at the time, to a maximum of the art illusion and optical illusions in architectural buildings. Changing the perception of privilege in detail and introduce the principle of “beauty comes from functionality” in times of modernism meant that architects started to look for the most extreme simplicity. Sincerity of forms, and thus the lack of ornamentation, however, did not result in a lack of interest in light. On the contrary, the light became detail, eye-catching element against a smooth surface of the wall. The continuation of this concept of creating a strong password exposing Mies van der Rohe’s „less is more” took over the architecture created in the current minimalism. To minimize the detail with the introduction of large glazing resulted in strengthening the effect of opening the flow of light and penetrating the interior to the exterior. The principle of deep reflection on the light is certainly used in the design of monumental buildings, such as galleries, museums. It could be used more widely in the common architecture, noting the heritage and experience gained in the different architecture styles in working with natural light.

1. Introduction

Nowadays, when light is a quantifiable matter, during an architecture creation process, we do not pay attention to emotional elements always accompanying the play of light and shadow in relation to a structure. Architectural spaces, illuminated too evenly and deprived of a sublime play of lights, are flattened and with lack of expressions. Juhani Pallasmaa in his deliberations considers scattered light and shadow stimulating imagination and dreams but he also thinks that bright, evenly distributed light overwhelms them [1]. It is like in the world of architecture, as in the media world, the era of “ideologists” has ended and the era of “imaginists” has started [2]. Architecture more often seduces us with flat images than spatial expressions. It is often overlooked that the architecture we can experience in daily life should have a concept – something that should create a real atmosphere of architecture.



The following text is a try of a selective analysis of a natural light concept in architectural spaces. The starting point is Le Corbusier's reminder for architects: "Our eyes are constructed to enable us to see forms in light" [3].

2. Searching for understanding the light

Light, as sunlight, perceived by our sight perception has been a source of inspirations since ancient times. Initially it was a connection between heaven and earth. In the Stone Age, light and its relation to a structure became an element of human emotions and beliefs because of human thought-out actions [4]. It played a main role in shaping spaces of worship places, like Stonehenge in England [5].

In the Ancient Times a great Athens philosopher, Plato, introduced a new symbolic meaning of light. In his VII book titled *The Republic*, using reasonable metaphor, he tells a story of people trapped in a cave with a wide entrance, turned to light. The people in the cave can only see shadows made on a wall by objects carried by people walking above the cave [6]. After some time, the prisoners consider the world of shadows real. In this allegory that can be analysed in many ways, Plato divides reality into a carnal world and a world of conceptual ideas. The carnal world (the reality of shadows) is not the genuine reality. The only genuine reality is the world of conceptual ideas and prototypes – an ideal, constant world, worth discovering [cf. 7]. So, a real, good world is outside the cave, but it can be seen only by "the enlightened".

Over the centuries as civilisation developed many architectural styles were discovered. Various factors played roles in introducing changes in various epochs but it was light what was the constant common element of all. But shaping structures and a role of light were different every time. For example, even in so different architectural styles like Baroque and Modernism the common concept can be found and it is light formation developing. According to Le Corbusier: "Architecture has nothing to do with various »styles«. (...) Architecture being the masterly, correct and magnificent play of masses brought together in light (...)" [8].

The passion of making structures similar to sculptures and using various forms of ornaments caused developing as many as possible artistic solutions full of fantasies and "eccentricities" in the Baroque epoch¹. Studies on perspective rules were accompanied by thorough studies on chiaroscuro, illusions and optical illusions. Light gained a new meaning in the architecture, it became a tool for shaping perspective plans, illuminations and displays of details. In the interiors, there was scenographic lighting using streaks of light and lack of space continuity (sudden changing one space into another space). The culmination point was, among others, discovering a new technique of designing facades of buildings: concave and convex facade - *parete ondulata*. This type of designing facades was made popular by Francesco Borromini and consisted of using contrasting concave and convex elements placed horizontally and vertically [10]. The architect used such a technique when building San Carlo alle Quattro Fontane church in Rome. Concave and convex elements, cornices and columns create much chiaroscuro and make the facade of the church look dynamic but they also form interesting spatial effects seen from the perspective of a narrow street.

Changing the prerogative in perceiving details, fascination with technology, abandoning any stylisation had the effect of a new avant-garde approach in modern architecture designing. The slogan "form follows function" created by the American architect Luis Sullivan [11] became one of the first Modernism postulates. The Modernism epoch is a time of searching for the most extreme (!) simplicity. Sincerity of a structure and thus lack of ornaments – did not cause indifference to light. Quite contrarily, light became a detail and an element drawing attention on smooth wall surfaces. "Nature (...) will stamp its lesson in the heart of the architect" [12] Le Corbusier announced and then he searched for architectural lyricism, among others, in light [12].

The continuation of this creation concept with exposing the postulate of Mies van der Rohe "less is more" was adopted by architecture using a minimalism trend. Minimising use of details with introducing

¹ *Baroque*, a word of unexplained origins, originally meant eccentricities and irregularities in art. For example, in Italian *barocco*: strange, eccentric, and excessive.

huge glazings caused strengthening the structure opening effect, light flow and inter-relation between interiors and exteriors. Filtered light has a potential of seeing and understanding things in another way, as John Pawson [13] writes in his diary, the British representative of a minimalism trend, what in modern world full of images can create a space for our own interpretations and conclusions.

3. Cases study – searching for moods in the shade of architecture

It should be considered like Mario Praz said that architecture is a kind of “guide art”, because as he observed: “Architecture and costume, being the arts which are closest to everyday life, offer the clearest indications of the temper of an age. Painting, sculpture, music, even literature, prominent as they are, and important as embodying the chief expressions of artistic genius, have a relatively limited appeal (..)” [14]. Every day impacting of common architecture. So, in architecture not only the correctness of functional solutions and neatness of a structure are crucial but also creating moods and an atmosphere. Peter Zumthor in his meditations states: “[Architecture] (..) has a special physical relationship with life. (...) [It is] as envelope and background for life which goes on it and around it, sensitive container (...)” [15]. If it is so, our daily experiences and standstill depend on architecture moods. [cf. 16].



Figure 1. Turner Contemporary Gallery. (2011) Margate, England, Great Britain. Source: [18]

Insightful play of the structure and light is one of the elements building architecture mood. Surely, the rule of serious reflection on light concept is used in designing monumental buildings like churches, memory places... But it could be used in a more common way, in common architecture, as continuity of gained experience and achieved heritage in work with natural light. The author’s intention was to attract, in particular, attention to a role of natural light in the context of modern architecture.

3.1. Turner Contemporary Gallery

Turner Contemporary Gallery in Margate in England opened in 2011 and designed by David Chipperfield is a kind of experiment performing use of natural light in a building intended for art exhibitions. Dedicated to the memory of William Turner, it was built in a place, which was visited by the precursor of impressionism just because of light „Light is therefore colour” [17], Turner said. The architect’s intention was to design the structure of the gallery in a way that allows for feeling a connection between visitors and Turner [17] owing to the natural light effect. The gallery space intended to resemble an artist’s studio than a traditional museum [18] (that often is tended to make overwhelming impression).

Feeling and light quality in rooms seem to be unique. ”At times when you look into the corner, there is almost no shadow and it disappears, creating a strange sense of perspective.(...)Whilst one can’t categorically prove it, the quality of light coming off water feels different and I think people do appear to sense that. I think they also understand that daylight is different to artificial light in a gallery context” [18], explains Chipperfield which during design works cooperated with light engineers from Arup company. Daylight -which creates unique atmosphere and mood- causes every visit in the gallery differing from another one, such as day after day and season after season.

It is perverse, how huge impact on light quality has our perception of what we see and feel. A blurred, concave corner in the gallery interior became a desired object. Some indistinctness of a space perception should make visitors feel a materiality of light. The same analysis on light but searching for a quite different effect – making an ejected corner created by two planes look clearer - was described by Steen Eiler Rasmussen in “Experiencing Architecture” in 1959 [19].



Figure 2. El Petit Comte Kindergarten. (2010) Besalú, Girona, Spain. © Hisao Suzuki. Image Courtesy of Pritzker Architecture Prize. Source: [20]

3.2. *El Petit Comte Kindergarten*

A kindergarten designed by RCR Arquitectes², looks like a box full of colourful crayons, cleverly put between hills in Besal, in Girona district in Spain. Opened at the top, it created its own inner introverted space in which the outside world of the central courtyard penetrates the spaces of internal rooms. The flow of natural light and spaces goes through huge, floor-to-ceiling glass panels shaded at the top with glossy arcades, which are supported by irregularly placed steel posts. There are also transparent and half-transparent pipes made of plastic. Additionally, parts of the courtyard were shaded at the top with delicate, transparent and sliding panels.

The whole project is a result of thorough observation made by the designers, their perception of light and shadow, various colour plays, reflections in used materials. The world of the children became a world of constant penetration and imposition, light interaction filtered with various colours. It's a magical, fairy-tale world of fantasies and shadows [20,21,22].

In the designing process the authors search for something between wisdom and uncertainty – “the wiseness of uncertainty to be certain. (...) In this context, the word »uncertainty« goes hand in hand with another, which is »complexity« (...)” [23], Ramon Vilalta explains. He also adds: “(...) the world of ideas – that's what moves us” [23].

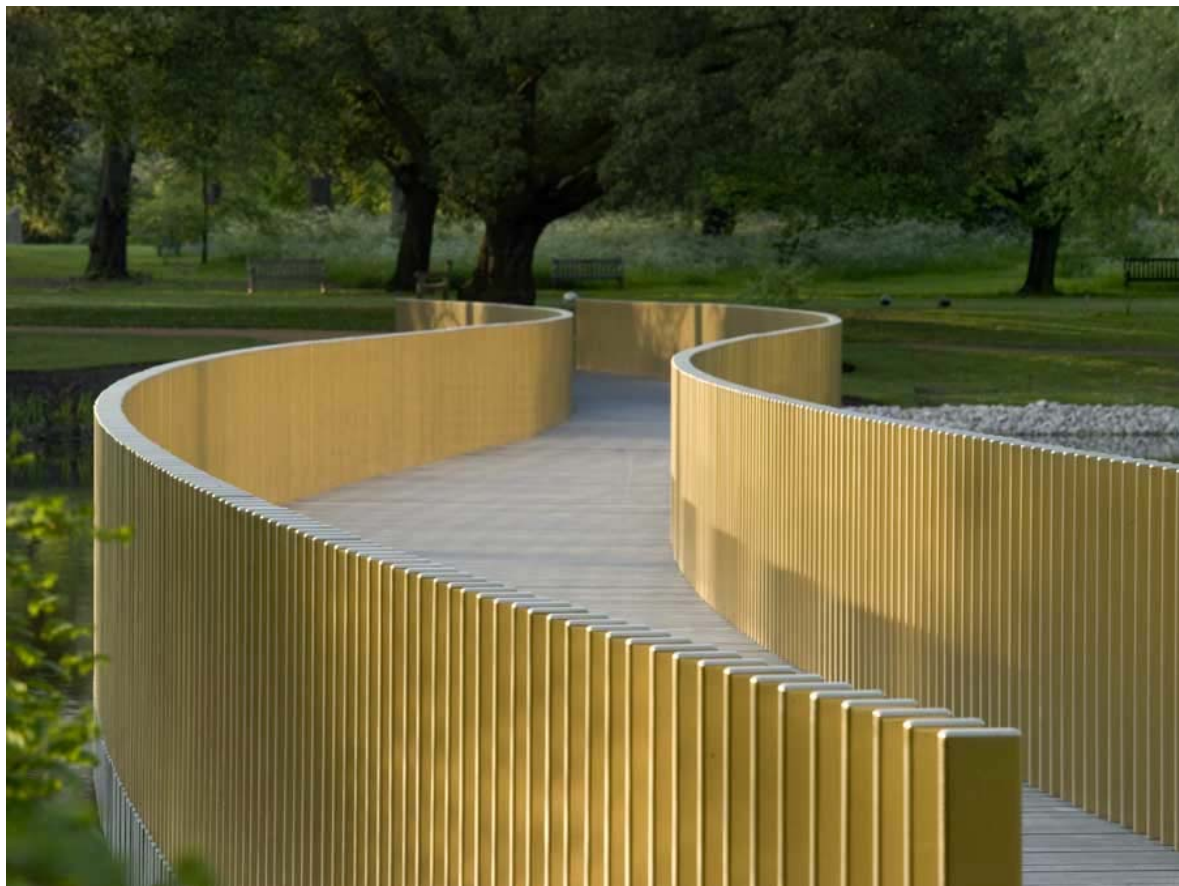


Figure 3. Sackler Crossing. (2006) Royal Botanic Gardens, Kew, London, Great Britain. Source: [25]

²The author of the kindergarten project is RCR Arquitectes in collaboration with Joan Puigcorb . Implementation of project - 2010. RCR Arquitectes: Rafael Aranda, Carme Pigem and Ramon Vilalta are laureates of the Pritzker Architecture Prize 2017.

3.3. Sackler Crossing Kew Gardens

Winding, 70-metre-long pathway across a lake w Royal Botanic Gardens in Kew, one of suburban districts of London, is the work of architect John Pawson and was built in 2006. Captivating in its simplicity, “shimmering, serpentine, bronze ribbon of a bridge” [24] is, with no doubt, an ideal element of the precious landscape of historical gardens.

The walkway is built only with two visible materials: a granite deck and a balustrade made of a row of bronze uprights. The fact that supporting construction is not visible and light reflections may be seen in glossy bronze make an effect of sculptural abstraction attracting mystique sunlight. The impression is strengthened by the reflections of „S curve” on the water surface [26,27,28]. Here ascetic architecture gives a way to light. “It does not leap across water, showing every straining sinew. Instead it seems to float, a supple, unemphatic ribbon” [24], the essence, the bridge idea captured by Deyan Sudjic, director of Design Museum in London.

4. Conclusions

Art has emotional background, which, according to Read, is not caused by “any recognizable reminiscence or suggestion (...)” [29]. Primitive human thought that presenting some event in a symbolic way he will be able to make that event real. It is understanding of art in the most fundamental way “and the elementary is always the most vital” [30]. One of the basic aims of art is to provide authenticity and independence of human experience [31]. In architect’s work when the detailed architectural design is created, the effort and concentration on graphical presentation of the object may cause that the designed object will be unreal. The presentation itself may be an object of desire. Peter Zumthor reminds us what is important in creating designs – the promise of a mood. He brings his designs to the stage of subtle layout, not to lose unique features of the designed (sought) building [32]. Light is only one of elements creating moods and building emotions in architecture. Creating architecture is a process of listening and making actions, as Zumthor wrote: “I hold spaces, materials, textures, colours, surfaces, and shapes up to the light of the sun; I capture this light, reflect it, filter it, screen it off; I think it out to create a luster in the right spot” [33].

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