

# Light and shadow in buildings construction essay



**ASSIGN  
BUSTER**

Winston Churchill states how we first construct our buildings and later the building moulds our thoughts and perceptions. Architecture has the power to inspire and transform our day to day experience. (Steven Holl, 2006, p40)

A building is never experienced all at once or from a distance. The journey through the building influences the perception of the user. Among all the arts, architecture engages the most with our sensory perceptions. The complete experience of architecture can be gained only when elements like colour, texture, material, detail and light and shadow are incorporated. Architecture speaks through the silence of perceptual phenomena. (Steven Holl, 2006, p41). The sensations and the perceptions of the user are controlled by the various elements like light, colour and sound.

Perception is the process or method of gaining or gathering information through the various senses. At times, an object could even be perceived in a different way because of the pre conceived notion the person has about the object. In the case of visual perception, the decision on how the space is perceived is left on the mind of the occupant. Every time we move or act, the environment around us keeps changing and hence our perception about the environment also changes. (Mireia Verges, 2007, p18)

Architecture could be perceived in many different ways through the various senses. In architecture, visual perception is the most important as sight is the most dominant sense which helps us to appreciate the minute distinctions. (William M. C. Lam, 1992, p11) One may conceive a space as a ‘container’ of material objects whose framework needs to be filled, but this

conception may differ from person to person because of their experience within the space.

Morning 10a. m Afternoon 2p. m Evening 7p. m

The images above are just an example of how one space could be perceived in a span of one day from morning to night. Does the perception of this space change? The answer is no. The perception of this room remains the same throughout the day as there are no changes that occur within this space which leads to the lack of dynamism within the space. The lack of dynamism in a space makes the space monotonous after a point. Dynamism can be created within the space by incorporating elements like colour and material and also by changing the layout of the furniture. All of these elements can be changed over a period of time to maintain the dynamism within the space but not for a very long time. How often could the colour of the wall, the material of the furniture or the placement of furniture be changed? Hence the perception of this room remains the same throughout the day due to the lack of dynamism. With the introduction of light and shadow in the space, the perception of the space can be changed each moment which would leave the user of the space with a unique experience every time.

According to Tadao Ando, there are three elements which best describe architecture and they are material, the volume and nature. The most important one being nature which includes light, sky and water. (William J. R. Curtis, 2000, p11) Architecture is best perceived in the presence of light as light brings out the diverse qualities of a space like colour, texture, volume

and form. (Mireia Verges, 2007, p9) Even though light is considered as an immaterialist element, it is successful in giving identity to architecture. Light has been declared as the origin of all beings as it greatly affects our lives and makes life possible on Earth. (Jin Baek, 2009, p115) The physical world is best negotiated in the presence of light. The relationship between man and its environment is enhanced in the presence of light.(William M. C. Lam, 1992, p10) Light has the ability to reveal architecture and create a connection between what people see and what they perceive it as.(Cesar Portela, n. d, p63)

Light and shadow can create dynamism within a space by giving the space a meaning which is beyond function. The atmosphere of a space is greatly influenced by the element of light. The value of light should not be underestimated as it is a powerful and strong vehicle of expression. It is very important for us to realise how important light is in the well being of humans and hence we should gain an appreciation of how light influences and affects our lives. (Mireia Verges, 2007, p18) Extra depths of experience can be achieved within the space by the interplay of light and shadow. Light and shadow influences the spatial context and helps to transform the atmosphere within the space (Henry Plummer, 2009, p6)

With the correct consideration of light and shadow, atmospheres can be created which are beyond function and most of these constructions are religious in nature. It is believed that natural light is considered as a link between God and man. Light forms the basis of creating a divine presence for the believer in the place of worship. A wide range of beliefs and values cannot be expressed with the material form and hence light is introduced

within the space in a manner in which it reveals dramatic variations. (Henry Plummer, 2009, p6)

The quality of the natural light varies and differs throughout the day and also through the various seasons. As the sun moves from the east to the west, shadows are created which convey a sense of time. The movement of shadows carries with it the movement of place which leads to dynamism within the space. (Robert P. Taylor, 2007) In the words of the Swiss architect Peter Zumthor “ how much light does man need and how much darkness?” Both of these aspects are important in creating balance in a space which leads the space to be dynamic. (Mireia Verges, 2007, p10)

Hence light and shadow are essential in achieving dynamism within a space and changing the perception of the space.

#### LIGHT: THE ORIGIN OF ALL BEINGS

The perception of architecture is determined by light as in the presence of light, the diverse qualities of space like the colour, texture, volume and form can be appreciated. What is around us can be defined by light. Light changes the perception of the things or bodies on which it falls and also the space that contains them. (Cesar Portela, n. d, p63) Hence light has been declared as the origin of all beings. (Jin Baek, 2009, p115) Light has a great affect on our lives and makes life possible on earth. Life would be unthinkable without light. (Mireia Verges, 2007, p16) Light has the largest impact on all aspects of creative lives, hence the harmony between the light and the life environment should be considered when designing. Visual acuity is

enhanced with the help of light and also the physical world can be negotiated.

“ Architecture is the masterly, correct and magnificent play of masses brought together in light”.

-Le Corbusier

The quote mentioned above states the importance of the play of light in architecture. A form or mass can only be appreciated when light strikes on its surface bringing out the outline of the form, gathering shadows and depth. The characteristics of a space cannot be appreciated in complete darkness. (Mireia Verges, 2007, p12) Objects obtain their individual form along the borders of light and shadow which also leads to the discovery of interrelations between objects. (Jin Baek, 2009, p115) Light enables to create links and combine one area to another.

The most important relationship which light creates is that of enabling man to be in touch with its environment. . (William M. C. Lam, 1992, p10) The relationship between the exterior and the interior spaces is affected by the light which creates a connection between them. (Mireia Verges, 2007, p12) With the help of light and shadow, the relationships among beings can be articulated in a certain space at each moment. An empty space can be filled with different reverberations with the interplay of light and darkness. (Jin Baek, 2009. p115)

## AN ATMOSPHERE BEYOND FUNCTION

“ Light transcends function and creates atmosphere”

<https://assignbuster.com/light-and-shadow-in-buildings-construction-essay/>

-Kaoru Mende

Light and shadow are not used as a necessity only. The inclusion of light and shadow within a space gives a certain meaning to the atmosphere within the space. The atmosphere of a place is greatly influenced by the element of light. (Kaoru Mende, 2000, p14) The value of light should never be underestimated as it has a profound effect on our emotional well being. Not only does light cater to the biological needs of people, it also fulfils the psychological needs of people as it has the power to move people. Light creates an atmosphere which is beyond the function of the space. (Kaoru Mende, 2000, p14) By incorporating the correct quality of light in the space, refreshing atmosphere can be gained within the space which adds on to the experience of the user.

Architecture is considered not only as a shelter but architecture is also expected to appear alive rather than dead, to be emotionally satisfying and to also change our perception. (Henry Plummer, 2009, p6) A good architecture could unconsciously take us from one emotion to another within the building. All these extra depths of experience can be achieved by the interplay of light and shadow. (Henry Plummer, 2009, p6)

The correct illumination can change the outlook towards the way we see things. It can lift our spirits or depress us, excite us or soothe us, alarm us or make us feel safe and secure. (William M. C. Lam, 1992, p11) Light is the means by which such valuable distinctions are conveyed. By creating pools of light and shadow within a space, a certain sensual quality is added in the atmosphere of the space along with vitality.

Light and shadow influences the spatial context and transforms the atmosphere within the space to either agreeable or disagreeable sensations, mysterious or spiritual sensations or to sensations which make the space look bigger or smaller. Most importantly light enables to make the space more comfortable, more agreeable, more suitable for living and more visible. (Cesar Portela, n. d, p63)

With the correct consideration of light and shadow, atmospheres can be created which are beyond function and most of these constructions are religious in nature. It is believed that natural light is considered as a link between God and man. In the religious spaces, light is used in a way such that it arouses the feeling of spiritualism and is successful in conveying the holiness and sacredness of the place. The religious role of light in a sacred and spiritual space is to transform that which is material to something that is immaterial. (Jin Baek, 2009, p112) Light forms the basis of creating a divine presence for the believer in the place of worship. The worshippers or the visitors are taken into a phase of meditation and peace by the harmonious divine light. (Henry Plummer, 2009, p6) In a spiritual space, light does not stay at the margin of the body of the perceiver but it fills one with the brightness, lightness and intensity by penetrating through it. (Jin Baek, 2009, p117) A wide range of beliefs and values cannot be expressed with the material form and hence light is introduced within the space in a manner in which it reveals dramatic variations. (Henry Plummer, 2009, p6)

The presence of light allows architecture to rise above its physical limitations and transform and display signs of life. When light flows through a room, the



deadened masses come to life, a mood is created within the atmosphere of the space which changes the perception of the space.

## A SENSE OF TIME

Natural light has always played a vital role in the history of architecture. The quality of the natural light varies and differs throughout the day and also through the various seasons. Light is never stagnant, it changes constantly in different seasons, at different times of the day (William M. C. Lam, 1992, p11). As the quality of light keeps changing within the architecture, the perception of the architecture also changes due to the alter in the colour and material and also the form. The space changes with the movement of the source which is the sun. The change in time makes dramatic impressions on the user of the space. Depending on the quality of the illumination, the same volume can be interpreted in a different way. As the sun moves from the east to the west, shadows are created which convey a sense of time. The movement of shadows carries with it the movement of place. (Robert P. Taylor, 2007)

One of the most important uses of shadows is that it creates a contrast which leads to a dramatic atmosphere and further creating dynamism within the space. As the source of light is not constant and it keeps moving and changing character, dynamism in the space is created. Just as time changes, the eyes of the users of the space constantly moves to appreciate the space and thus the experience of the user keeps changing with the changing time and leads to a new perception every single time.

## CASE STUDY 1

<https://assignbuster.com/light-and-shadow-in-buildings-construction-essay/>

## Church of light, Osaka, Japan

Architect: Tadao Ando

Fig. 1 Fig. 2

“ In all my works, light is an important controlling factor” says Tadao Ando.

One of the most famous works of Tadao Ando which emphasises the importance of light is the Church of light in Osaka, Japan. The Church of light is located in a residential neighbourhood in Osaka, Japan. The existing buildings and the position of the sun determined the layout of the church.

The distinct contrast between light and shadow defines the space of the church. The only natural element entering the chapel is light. The light enters the chapel through the cut in the concrete wall. This opening or cut in the wall has a symbolic significance. The cut in the wall extends vertically from the floor to the ceiling and horizontally from one end of the wall to the other. Light enters the chapel only from this cut in the wall and hence the cut in the wall is the only connection to the outside world. As the morning light falls on the slit in the wall, the cross of light is highlighted. The interior of the chapel is kept to the bare minimum hence there are no decorations on the concrete walls such that the experience of the user is not disturbed. One important design aspect in the chapel is the profound emptiness which transfers the occupant into a spiritual world. The intersection between the light and the volume in the chapel delicately dramatizes the space such that it creates an instant connection between the user and God. Through light; the space is filled with the essence of purity, spirituality and tranquillity.

(Tadao Ando, 2000, p122)

<https://assignbuster.com/light-and-shadow-in-buildings-construction-essay/>

## CASE STUDY 2

Koshino house

Ashiya, Japan, 1981/1984

Fig. 3 Fig. 4

The Koshino house located in Ashiya, Japan is a house that consists of two concrete boxes which are arranged parallel to the surrounding national park. The two concrete boxes respond to the natural surrounding and are hence buried in the slope of the national park. The natural light is filtered through the wide stairs and it forms an extension of the stage for the everyday lives. As can be seen in fig. 4 the slits are cut purposely in that particular manner such that the slits act as a filter for attaining different intersections of light and shadow. The exterior is divided into different parts by the help of light and shadow. In the Koshino house, dynamism is created by the interplay of light and shadow. (Tadao Ando, 2000, p96)

## CASE STUDY 3

Chapel on Mount Rokko

Kobe, Japan, 1986

Fig. 5 Fig. 6

The chapel on Mount Rokko overlooks the Osaka bay. The building consists of the church and a bell tower which are connected by a colonnade. Fresh air can easily flow through the colonnade as there are no walls. The theme for

the design of the chapel revolves around the idea of light and shadow.

Directly ahead of the colonnade is the altar and on the left wall there is a window. A shadow is cast in the form of a cross on the floor by the beam and column that articulate the window.

Dynamism is created within a space by introducing light and shadow and this is possible as light is not constant and keeps changing with time. Hence a space would be perceived differently every single time. As light is considered the origin of all beings, it enables to form various perceptions and atmospheres which are beyond function. Therefore, light and shadow are essential in achieving dynamism within a space and changing the perception of the space.

## **BIBLIOGRAPHY**

Blessner B and Salter L. (2007) Spaces speak, are you listening?

Massachusetts Institute of Technology

Baudrillard J. (2006) Intimus: Interior Design Theory Reader, In Structures of Atmosphere (pp. 37-41). Wiley Academy, Great Britain

Colley Ann C, 2006, Intimus: Interior Design Theory Reader, Wiley Academy, England

Norberg-Schulz C.(1976), Theorizing A New Agenda For Architecture: An Anthology Of Architectural Theory, Princeton Architectural Press, New York.

Pallasmaa J. (1986), Theorizing A New Agenda For Architecture: An Anthology Of Architectural Theory, Princeton Architectural Press, New York.

Plummer H, (2009), *The Architecture of Natural Light*, Thames & Hudson Ltd, London

Overy P, (2007), *Light, air & Openness: modern architecture between the wars*, Thames & Hudson, London

Baek J, (2009), *Nothingness: Tadao Ando's Christian Sacred Space*, Routledge, Oxon

Mende K and Lighting Planners Associates Inc., (2000), *Designing with light and shadow*, the images Publishing Group Pty Ltd. Hong Kong

#### LIST OF ILLUSTRATIONS

Fig. 1 Church of light

Fig. 2 Church of light

Fig. 3

Fig. 4