

The functional values of glass at the organic architecture “Studying models of Frank Lloyd Wright works”

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Abstract:

Wright is considered as one of those who influenced architectural design in the twentieth century. He used glass with multiple techniques and designs to achieve the required functions. In light of the increasing global need for energy and using the sustainable and environmentally friendly sources, the glass is of great importance; as it helps to take advantage of sunlight during daylight hours. The research aims to indicate the functional values of glass, analyzing a set of Wright's works; as he used glass in various architectural functions. In private houses (villas), Wright used glass sheet or lead glass in large spaces, but he did not use the traditional decorative designs. He excelled in engineering designs, using non-coloured glass with small coloured spaces to allow the greatest amount of light to pass through. In some works, he uses coloured glass in the high part of window as a kind of shading to control the light. In villas inside cities, he used the windows above walls to protect privacy and used glass to make skylights to illuminate spaces that do not have enough windows. In multi-floor buildings, he greatly used glass in windows and used glass tubes to make walls and domes, taking advantage of their ability to pass and distribute light. He also used skylights by using glass sheet or glass tiles. In religious architecture, he used the narrow windows to create an atmosphere of reverence using dark colours for glass on the ceilings to achieve the same purpose. In another model, he used coloured glass spaces podium's background to attract the attendees' attention. Moreover, he used the glass as an essential element in architectural decoration in Peace Temple. The research concluded to illustrate the role of glass as a main material in Wright's architecture, so it was used with various techniques consistent with the design idea and achieve functional goals to take advantage of natural lighting. It is recommended that attention be paid to studying various glass techniques and its role in making use of natural lighting in architecture, along with attention to functional values in the design of artistic glass of architecture, such as leaded glass.

Keywords:

Leaded glass, Glass pipes, Sky light, Glass sheet, Glass tiles.