

## THE WALL AS ARCHITECTURE SPACE ENHANCING THERMAL AND LIGHTING EFFICIENCY FROM TRADITIONAL TO MODERN BUILDING

*Dr. Abdulfattah Yahya*

*Department of Architecture, Cairo University, Yemen*

### **ABSTRACT**

*The architectural wall is a space, rather than a separation between two spaces or a separator between the inside and the external environment. The buildings with the bearing walls, which are based on natural building materials such as clay and stone, use walls as extremely thick of one and a half meters and are even used in multi-story buildings as the mud buildings of Shibam Hadramout and the stone buildings of the city of Yafi in Yemen, So the objective of the research is to take full advantage of the traditional buildings by the process of design in spaces of the traditional buildings and the emergence of economic and environmental importance in order to return to the building styles while taking advantage of modern technology, The researcher assumes that the design treatments for the interior spaces of the traditional buildings achieve maximum benefit in terms of the thermal and lighting environment Thus, the problem is the lack of full awareness of the environmental benefits of the walls, especially in the traditional buildings (clay, stone, wood). The architectural wall in these buildings is important. Can we deal with it as a space? And exploitation of internal loads in order to deal with the horizontal projection as a block and can unload it as need Secondly, neglecting the design treatments for the internal space, The comparative analysis between the architectural wall of a space in a stone building for the city of Yafi and the other in a modern building with the same size and dimensions were studied. The effect of light and heat was studied on the Design builder and the deluxe programs. The efficiency of the old buildings was calculated in thermally and the lighting was not appropriate in contrast to the modern buildings, the thermal beaver of the wall as an architectural space in bearing buildings is important architecturally, functionally, environmentally and constructively taking into account the improvement of lighting.*

**KEYWORDS:** Wall-Space-Bearing Buildings-Thermal Efficiency-Lighting Efficiency

---

### **Article History**

**Received: 14 Aug 2021 / Revised: 20 Sep 2021 / Accepted: 24 Sep 2021**

---