

A Study of New Window Typology for Palestinian Residential Building for More Sustainable Building

Authors : Nisreen Ardda

Abstract : Fenestrations are one of the main building envelope elements that play an important role in home social-ecological factors. They play a vital role in providing natural lighting and ventilation, visual, thermal, and acoustical comfort, and also provide weather-tightness, privacy, a feeling of openness. In most home buildings, fenestrations are controlled manually by the occupants, which significantly impacts occupants' comfort and energy use. Culture plays a central role in the Palestinians window operation behavior. Improved windows design that provides the desired privacy while maintaining the appropriate function of fenestration (natural lighting, thermal comfort, and visual openness) is becoming a necessity. Therefore, this paper proposes a window typology to achieve the social and environmental factors in residential buildings in the West Bank. The window typology and reference building were designed in Revit 2021, and natural ventilation was carried out in Design Builder 4.3.0.039. The results showed that the proposed typology provides the desired privacy and the feeling of openness without compromising natural ventilation as the existing window did.

Keywords : window design, passive design, sustainable built environment, building material

Conference Title : ICAE 2022 : International Conference on Architectural Engineering and Designing

Conference Location : Zurich, Switzerland

Conference Dates : September 15-16, 2022