Abstract

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Double-skin facades in Egypt between parametric and climatic approaches

Daylight is a crucial element for indoor environment quality. Office buildings commonly use fully glazed façades to reflect a luxurious appearance and to maximize natural light at the expenses of high energy consumption due to cooling/heating. Double-skin façades are one of the solutions that improve the building efficiency while maintaining good natural lighting. This paper studies the impact of various perforated outer skins for non-sealed double-skin facades on light quality in prototypical office space in Egypt using parametric design. A traditional solution for light such as the Mashrabiya is taken as an inspiration for this study to generate different forms of perforated screens. The cases were analysed using light simulation tool and sorted by a genetic algorithm to show best 30 solutions offered by the design criteria. A methodology to achieve these objectives was suggested in this paper to reach better light quality in indoor spaces.