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Applying ASHRAE Standards on the Hospital Buildings of UAE

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Abstract : Energy consumption associated with buildings has a significant impact on the environment. To that end, and as a transaction between the inside and outside and between the building and urban space, the building skin plays an especially important role. It provides protection from the elements; demarcates private property and creates privacy. More importantly, it controls the admission of solar radiation. Therefore, designing the building skin sustainably will help to achieve optimal performance in terms of both energy consumption and thermal comfort. Unfortunately, with accelerating construction expansion, many recent buildings do not pay attention to the importance of the envelope design. This piece of research will highlight the importance of this part of the creation of buildings by providing evidence of a significant reduction in energy consumption if the envelopes are redesigned. Consequently, the aim of this paper is to enhance the performance of the hospital envelope in order to achieve sustainable performance. A hospital building sited in Abu Dhabi, in the UAE, has been chosen to act as a case study. A detailed analysis of the annual energy performance of the case study will be performed with the use of a computerised simulation; this is in order to explore their energy performance shortcomings. The energy consumption of the base case will then be compared with that resulting from the new proposed building skin. The results will inform architects and designers of the savings potential from various strategies.

Keywords : ASHREA, building skin, building envelopes, hospitals, Abu Dhabi, UAE, IES software
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