

Building simulation to determine self-shaded form for high-rise buildings

Abstract

The chapter discusses the methodology used in investigating the optimum geometric shape high-rise built form and effectiveness of self-shaded high-rise built form for hot and humid climate. The discussion is divided into two phases. Phase one consists of case study of the generic high-rise building shape in Kuala Lumpur and adaptation of self-shading strategy in high-rise built form. Three base models are developed based on the above said studies. Second phase reviews the research methodologies used by previous researchers. The justification of the selected methodology of this study is elaborated. Finally, the experimental procedures, limitations and overall sequence of the experimental method are discussed. There is lack of research on the solar radiation prevention especially in equatorial tropics. The development of self-shaded high-rise built form to achieve maximum reduction of solar isolation on its external exposed surface is crucial. Impact of solar radiation on the external surfaces of high-rise is important to determining the optimum geometric shape and adaptation of self shading strategy into high-rise building design. The shading strategy is more efficient if able to apply at the early stage of high rise building design. Since it is in the early stages, the most significant decisions are easily and appropriately made regarding sizing, form, placement and orientation of the building volume.