

Srisuda Phooyam 2010: Calculating Solar Heat Gain Coefficient of Climber Shading by Image Processing. Master of Architecture (Building Innovation), Major Field: Building Innovation, Department of Technology Building. Thesis Advisor: Associate Professor Pasinee Sunakorn, M.Arch. 129 pages.

This research paper presents guidelines for calculating solar heat gain coefficient of climber shading by using Image Processing. In real environment, 3 types of climber shading were investigated. Data was collected by the pyranometer sensor. It was found that the solar heat gain coefficients of each climber were different by comparing average heat gain of $1 \times 1 \text{ m}^2$ panels and comparing heat gain through numbers of leaf layer, depending physical property of leaf, leaf area coverage and numbers of leaf layer. Leaf areas were calculated by Image processing and SHGC model was established. Comparison of Thunbergia Grandiflora shading was made between on-site data and calculated SHGC. The result was 90% accurate. In conclusion, the method of image processing can be used to record the dynamic SHGC continuously and also for other type of climbing-plant panel. The value can be used for simulating Overall Thermal Transfer Value of the building.

Student's signature

Thesis Advisor's signature