

## ABSTRAK

Penelitian ini mengevaluasi efektivitas *Shading* sirip terhadap kenyamanan visual pada Gedung Setwilda DPRD Jawa Tengah serta membandingkan pengaruh material kaca Low-E pada Gedung BPKAD yang memiliki konfigurasi fasad serupa. Metode yang digunakan adalah pendekatan kuantitatif evaluatif melalui pengukuran lapangan menggunakan lux meter serta simulasi pencahayaan alami menggunakan DIALux Evo untuk analisis intensitas cahaya (300–3000 lux) dan potensi *glare* berdasarkan metode rasio kontras dan Daylight *Glare* Probability simplified (DGPs). Tiga tipe ruang tipikal Gedung Setwilda disimulasikan menggunakan variasi dimensi *Shading* sirip. Hasil menunjukkan bahwa pada ruang kecil, *Shading* dengan panjang  $\pm 1,68$  m mampu menjaga keseimbangan antara penyediaan cahaya alami dan kontrol *glare*. Pada ruang sedang, nilai optimal dicapai pada *Shading*  $\pm 1,42$  m dengan penyesuaian plafon. Sementara itu, ruang besar cenderung membutuhkan *Shading* lebih pendek untuk memenuhi kebutuhan pencahayaan alami, selama potensi *glare* tetap dalam batas aman. Setelah redesain *Shading*, performa pencahayaan alami Gedung Setwilda meningkat sebesar 49%. Studi komparatif pada Gedung BPKAD memperlihatkan bahwa material kaca memiliki dampak lebih dominan dibandingkan *Shading* sirip. Kaca Low-E terbukti efektif mengurangi *glare* tetapi menurunkan intensitas cahaya hingga berada di bawah standar kenyamanan visual, sedangkan kaca bening meningkatkan pencahayaan namun berisiko menambah *glare*. Penerapan rekomendasi redesain pada Gedung BPKAD menunjukkan peningkatan performa pencahayaan alami hingga 70%. Penelitian ini menyimpulkan bahwa desain fasad bangunan perkantoran tropis perlu mengintegrasikan proporsi dimensi *Shading* sirip yang sesuai ukuran ruang serta pemilihan material kaca yang tepat untuk mencapai keseimbangan antara pencahayaan alami dan pengendalian *glare*.

**Kata kunci:** kenyamanan visual, *Shading sirip*, kaca *Low-E*, pencahayaan alami, *glare*.

## ABSTRACT

This study evaluates the effectiveness of fin-type *Shading* devices in improving visual comfort in the Setwilda DPRD Jawa Tengah office building and examines the influence of Low-E glass through a comparative analysis with the BPKAD building, which has a similar façade configuration. A quantitative evaluative approach was applied, involving field measurements using a lux meter and daylight simulations conducted in DIALux Evo to analyze illuminance performance (300–3000 lux) and potential *glare* using contrast ratio assessment and the simplified Daylight *Glare* Probability (DGPs). Three typical room types in the Setwilda building were simulated using various fin *Shading* dimensions. The results indicate that in small rooms, a fin length of approximately 1.68 m provides an optimal balance between daylight provision and *glare* control. In medium-sized rooms, optimal performance is achieved with fin lengths of around 1.42 m in combination with ceiling adjustments. Meanwhile, large rooms tend to require shorter *Shading* fins to meet daylight requirements while keeping *glare* within an acceptable range. After the redesign, the daylighting performance in the Setwilda building improved by 49%. The comparative study on the BPKAD building reveals that glazing material has a more dominant impact than fin *Shading*. Low-E glass significantly reduces *glare* but decreases daylight levels below visual comfort standards, whereas clear glass increases daylight availability but carries a higher *glare* risk. The application of the recommended redesign for the BPKAD building resulted in up to a 70% improvement in daylight performance. This research concludes that façade design strategies for tropical office buildings must integrate appropriate fin-*Shading* dimensions based on room characteristics along with suitable glazing selection to achieve a balanced performance between daylight availability and *glare* control.

**Keywords:** visual comfort, fin *Shading*, Low-E glass, daylighting, *glare*.