

## COVER LETTER

Feny Elsiana  
Department of Architecture, Petra Christian University  
feny.elsiana@petra.ac.id  
+62 82179217067

May 25, 2025

Dear Prof. Dr. Andi Adriansyah,

I wish to submit an original research article entitled "The Impact of the Inclination Angle of Perforated Screen Facade on Daylight Performance in the Tropics" for consideration by SINERGI.

I confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. I promise not to withdraw this article after it has been processed by the Editorial Team. If there is a withdrawal, I am willing to pay a penalty of USD 150 (IDR 2000K) to the SINERGI Editorial Team.

In this paper, I show that:

Field	:	Architecture
Topic	:	Daylighting
Brief Background	:	Daylighting is an essential component of green building strategies and offers numerous advantages for occupants, including improved energy efficiency, enhanced comfort, health, and higher economic value. The tropics have significant potential for daylight utilization due to consistently available sunlight throughout the year and relatively stable sunshine duration. However, despite the high availability of daylight in tropical climates, its utilization remains limited due to ineffective facade strategies. Fully glazed facades are commonly used in office buildings; however, they lead to excessive illuminance, uneven daylight distribution, and glare issues without proper shading devices. As a result, building occupants often cover glass openings with internal shading and rely on artificial lighting for indoor illumination. A perforated screen facade (PSF) is a widely used shading device in buildings with glass facades. PSF can reduce direct solar radiation and provide daylight and aesthetic facade while allowing a view outside. However, prior studies have not explored inclined perforated

		<p>screens, particularly in tropical climates. Given the widespread use of perforated solar screens as exterior building facades, the flexibility of PSF implementation, particularly in terms of inclination angle, requires further investigation. The inclination angle determines how effectively the PSF blocks sunlight while providing sufficient daylight for specific office tasks and minimizing glare. This study aims to evaluate the impact of PSF inclination angle on daylight performance in office buildings in the tropics.</p>
Research Problem	:	<p>Fully glazed facades are commonly used in office buildings; however, they lead to excessive illuminance, uneven daylight distribution, and glare issues without proper shading devices. A perforated screen facade (PSF) is a widely used shading device in buildings with glass facades. However, previous studies have not explored inclined perforated screens, particularly in tropical climates. Its inclination angle determines the effectiveness of PSF in blocking sunlight while providing sufficient daylight for specific office tasks and minimizing glare. This study aims to evaluate the impact of PSF inclination angle on daylight performance in office buildings in the tropics.</p>
Overview of Method	:	<p>The research method was experimental, utilizing simulation as a tool. The daylight performance of inclined PSF was analyzed using Climate Studio, an advanced environmental simulation software based on validated Radiance path-tracing technology. The accuracy of Climate Studio has been verified in previous research.</p>
Significant finding	:	<p>The study demonstrates that vertical and inclined Perforated Screen Facades (PSF) improved daylight availability and visual comfort in office buildings. The vertical PSF achieved the highest glare reduction by lowering spatial disturbing glare by 80.2%, while inclined PSF also contributed to mitigating glare at varying angles, achieving 72.6-78.5%. Additionally, PSF integration enhanced daylight availability by decreasing mean illuminance and increasing useful daylight illuminance 100-3000lx. These findings align with previous research on PSF in tropical climates and expand the understanding of how inclination angles of PSF influence glare reduction, offering valuable insights for sustainable building design.</p>

We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,



Feny Elsiana

## AUTHORSHIP STATEMENT

I wish to submit an original research article entitled “The Impact of the Inclination Angle of Perforated Screen Facade on Daylight Performance in the Tropics” for consideration by SINERGI.

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript.

<b>Author 1</b>	
Name	: Feny Elsiana
Affiliation	: Department of Architecture, Petra Christian University
Email Address	: <a href="mailto:feny.elsiana@petra.ac.id">feny.elsiana@petra.ac.id</a>

## POTENTIAL REVIEWERS

Please send 3 (three) prospective reviewers (who are not yet registered in SINERGI) to speed up the review process who are competent for the topic and have a good reputation in the field. Please ensure that **they are willing to review** this paper.

<b>Reviewer 1</b>	:	
Name	:	Prof. Ir. Prasasto Satwiko, M.Build.Sc., Ph.D.
Affiliation	:	Universitas Atma Jaya Yogyakarta
Email Address	:	prasasto.satwiko@uajy.ac.id
Scopus url	:	<a href="https://www.scopus.com/authid/detail.uri?authorId=55350593700">https://www.scopus.com/authid/detail.uri?authorId=55350593700</a>
Google Scholar url	:	<a href="https://scholar.google.com/citations?user=dLyO1LoAAAAJ&amp;hl=id&amp;oi=sra">https://scholar.google.com/citations?user=dLyO1LoAAAAJ&amp;hl=id&amp;oi=sra</a>
<b>Reviewer 2</b>	:	
Name	:	Prof. Dr.-Ing. L.M.F. Purwanto
Affiliation	:	Soegijapranata Catholic University, Indonesia
Email Address	:	lmf_purwanto@unika.ac.id
Scopus url	:	<a href="https://www.scopus.com/authid/detail.uri?authorId=57204532925">https://www.scopus.com/authid/detail.uri?authorId=57204532925</a>
Google Scholar url	:	<a href="https://scholar.google.co.id/citations?user=pU185G0AAAAJ&amp;hl=en">https://scholar.google.co.id/citations?user=pU185G0AAAAJ&amp;hl=en</a>
<b>Reviewer 3</b>	:	
Name	:	Prof. Dr. Eng. Ir. Sri Nastiti Nugrahani Ekasiwi, M.T.
Affiliation	:	Institut Teknologi Sepuluh Nopember
Email Address	:	nastiti@arch.its.ac.id
Scopus url	:	<a href="https://www.scopus.com/authid/detail.uri?authorId=54789636800">https://www.scopus.com/authid/detail.uri?authorId=54789636800</a>
Google Scholar url	:	<a href="https://scholar.google.com/citations?user=cLqxG4wAAAAJ&amp;hl=en">https://scholar.google.com/citations?user=cLqxG4wAAAAJ&amp;hl=en</a>