Jurnal Arsitektur Zonasi

Journal homepage:
https://ejournal.upi.edu/index.php/jaz



Evaluation of Biophilic Architecture Application and User Perception: A Case Study of Tanatap Ampera Cafe, Jakarta

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ABSTRACT

The rapid urbanization of Jakarta has reduced the availability of green open spaces, increasing the need for architectural approaches that reconnect urban communities with nature. Biophilic architecture has emerged as a promising strategy to improve users' spatial experience and psychological well-being within commercial environments. This study aims to evaluate the implementation of biophilic architectural elements at Tanatap Ampera Café, Jakarta, and examine their influence on users' spatial experience and revisit intention. A quantitative associative approach was employed using observation, documentation, questionnaires, and semi-structured interviews. The implementation of the 14 Patterns of Biophilic Design was assessed through observations conducted in eleven spatial zones, while users' perceptions were collected from 38 active visitors using purposive sampling. Descriptive statistical analysis and Spearman's Rank Correlation were applied to evaluate the relationship between biophilic architectural elements and spatial experience. The results indicate that Dynamic and Diffuse Light (mean = 4.71), Visual Connection with Nature (mean = 4.42), and Biomorphic Forms and Patterns (mean = 4.33) were the highest-rated biophilic patterns. Spearman's analysis revealed a significant positive correlation between biophilic architecture implementation and users' spatial experience (r_s = 0.393; p = 0.029), indicating that improvements in biophilic design contribute to enhanced physical comfort, psychological restoration, and environmental perception. This study provides empirical evidence that the systematic integration of biophilic design principles not only enhances environmental quality but also strengthens users' emotional attachment and behavioral responses.

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ARTICLEINFO

Article History:
Submitted/Received 17 June 2026
First Revised 27 August 2026
Accepted 1 October 2026
First Available online 1 Feb 2027
Publication Date 1 February 2027

Keywords:
biophilic architecture,
spatial experience,
user comfort,
communal space,
revisit intention.

1. INTRODUCTION

The massive development of the Jakarta metropolitan area and its surroundings over the past few decades has driven a radical transformation of the urban physical landscape. The dominance of infrastructure development oriented toward economic efficiency and linear building mass densification has resulted in the progressive erosion of green open spaces and urban natural ecosystem pockets. This phenomenon of de-naturization causes urban society to experience spatial alienation from natural elements within the rhythm of their daily activities, which in the long run triggers an increase in psychological stress burdens and a decline in the quality of life. In response to these urban challenges, biophilic architecture has emerged as an important design approach that seeks to reconnect humans with nature through the integration of natural elements into the built environment. Previous studies have shown that the incorporation of vegetation, natural lighting, natural ventilation, water features, natural materials, and organic forms can improve environmental quality while supporting users psychological well-being and overall spatial comfort (Bungawali & Satwikasari, 2024). In the midst of this rigid and artificial urban architecture, the existence of commercial communal buildings—specifically the third place in the form of cafes—has undergone a significant shift in role. Contemporary cafe spaces in metropolitan areas no longer function conventionally merely as venues for culinary commodity transactions; instead, they have transitioned into informal co-working spaces, hubs for social interaction, and even artificial oases for psychological restoration (restorative environments) for productive workers. This typological dynamic demands architectural practitioners to conceive a design approach that does not solely fixate on visual aesthetics, but is responsive to fulfilling holistic comfort, cognitive health, and the psychological well-being of spatial users.

As a response to the challenges of urban environmental degradation, biophilic architecture emerges as a design paradigm that seeks to engineer the built environment by systematically reintegrating natural elements. This approach is deeply rooted in the biophilia hypothesis introduced by Zare *et al*. (2021), which posits an innate biological tendency and evolutionary bond of humans to constantly seek closeness with the natural world. Zhong *et al*. (2022) operationalize this concept into measurable architectural design dimensions, categorizing the human-nature relationship into the direct experience of nature, the indirect experience of nature, and the experience of space and place. These parameters were methodologically reinforced by Yao *et al*. (2021) through the formulation of the *14 Patterns of Biophilic Design* by Terrapin Bright Green, which maps the natural criteria of built environments ranging from visual-auditory connections, thermal variations, and organic materiality, to the manipulation of spatial geometries that are challenging yet safe (risk/peril). Various critical literature reviews and global empirical experiments have proven that the fulfillment of biophilic patterns within buildings significantly contributes to the reduction of mental anxiety, improvement of micro-air circulation quality, enhanced concentration, and the optimization of building energy efficiency (Zhong et al., 2022; Zakaria et al., 2024).

Although the trend of adopting biophilic architecture in commercial buildings in Indonesia is growing rapidly, its implementation in professional practice is still frequently trapped in a reductive conceptual gap. Most contemporary urban cafe designs merely apply natural elements as architectural cosmetics or complementary decorative instruments to respond to the demands of pop culture and social media photographic aesthetics (*Instagrammable*). The presence of vegetation, exposed materials, or transparent openings is often applied partially and symbolically, without a mature understanding of multi-sensory functionality. Consequently, the essence of biophilic architecture as a formative component of a holistic spatial atmosphere has not been empirically tested against the internal

DOI: http://doi.org/10.17509/jaz.v10i1.103485
p- ISSN 2621-1610 e- ISSN 2620-9934

psychological responses and actual behaviors of spatial users. Yet, the success of a built environment fundamentally relies on the quality of the resulting spatial experience. As posited by (Barbiero & Berto, 2021) in the theory of multi-sensory architectural perception, spatial quality is not determined by the dominance of vision alone, but through the simultaneous engagement of all five senses—including tactile, auditory, and thermal—which evoke emotions, orientation, and deep memory of a place. From a consumer behavior perspective, the emotions and positive perceptions of comfort left in the user's memory hold strategic economic value. Based on the behavioral loyalty theory by Rather, (2021), deep sensory satisfaction in a place will stimulate favorable future behavioral intentions, such as the emergence of revisit intention and the willingness to voluntarily recommend the venue to others through word-of-mouth.

The case study object, Tanatap Ampera Cafe in South Jakarta—designed by Antonius Richard Rusli through the architectural firm RAD+ar—was selected because it represents a radical manifesto of semi-open architecture through the "Ring Garden" concept. The building's structure boldly integrates commercial functions with an immersive, multi-level circular green space that blurs the circulation boundaries between indoor and outdoor areas. An initial qualitative study by Rosyada and Mutiari (2023) confirmed strong indications of biophilic principles applied to the physical-visual aspects of this building. Nevertheless, this prior research was limited to an inventory of existing architectonic elements and did not address the post-occupancy behavioral evaluation or psychological perceptions of the visitors. To the extent of the scientific literature review conducted, no structured quantitative evidence has yet mapped the direct causal influence of biophilic architectural elements (Variable X) on the quality of visitors' physical-psychological spatial comfort experience (Variable Y as an intervening variable), and its manifestation in forming revisit intention (Variable Z as the final dependent variable).

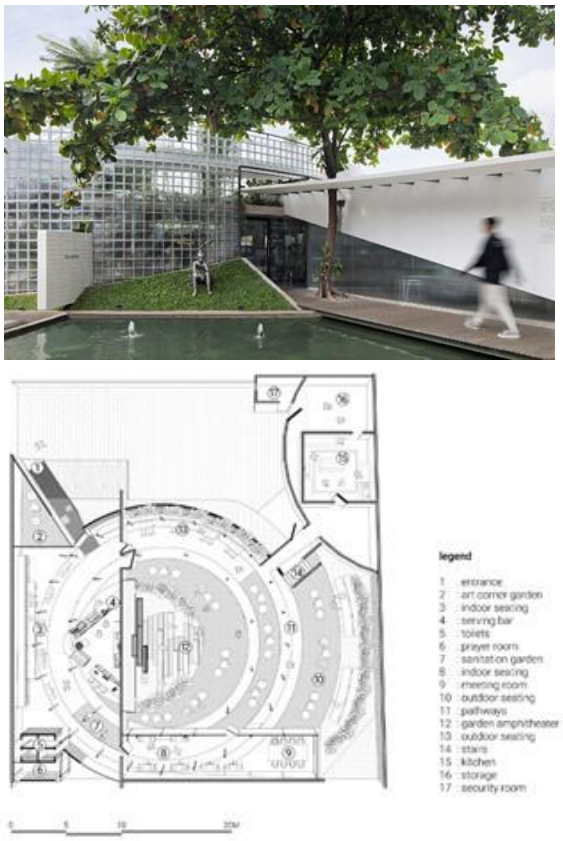


Figure 1. Tanatap Ampera, South Jakarta
(Source: Photograph by Liandro N. I. Siringoringo, *Manual*, ArchDaily, 2021)

DOI: http://doi.org/10.17509/jaz.v10i1.103485
p- ISSN 2621-1610 e- ISSN 2620-9934

Based on this research gap, this functional post-occupancy study is directed to empirically and objectively examine the causal relationships between these variables. The novelty of this research rests on the transformation of Terrapin Bright Green's conceptual *14 Patterns of Biophilic Design* parameters into a technical criteria instrument based on a descriptive-associative quantitative questionnaire drawn directly from the perceptions of active spatial users, within a research design target constraint of 30–50 samples and a realized data collection of 38 respondents. Through the formulation of objective findings from the Tanatap Ampera case study, this study is expected to provide a theoretical contribution that enriches the treasury of built environment psychology, while simultaneously offering practical criteria recommendations for architects and commercial business operators in organizing communal spaces that are genuinely oriented toward the mental restoration and well-being of the spatial users.

2. RESEARCH METHODOLOGY

This research employs a quantitative approach with an associative method to analyze the relationship between biophilic architectural elements, user spatial experience, and revisit intention at Tanatap Ampera Cafe, Jakarta. The quantitative approach was chosen because the study aims to objectively identify and measure the influence between variables based on the perceptions of spatial users (Sugiyono, 2016). The research object is Tanatap Ampera Cafe, located in South Jakarta. The site selection was based on the building's characteristics, which implement various biophilic architectural elements, such as vegetation, natural lighting, natural ventilation, the use of natural-toned materials, and a strong visual connection between the indoor spaces and the outdoor environment. The implementation of these architectural elements is expected to influence users' behavioral responses and spatial perceptions, as the quality of the built environment plays an important role in shaping human experiences and interactions within a space (Ardelia, 2023). These characteristics make Tanatap Ampera relevant as a case study to evaluate the impact of biophilic design implementation on user spatial experience.

The research stages initiate with problem identification and a literature review on biophilic architecture, spatial experience, and user behavior. Subsequently, the research variables and indicators were formulated based on biophilic theories, which were then transformed into a questionnaire instrument. The research process continued with field data collection through observation, documentation, and the distribution of questionnaires to visitors of Tanatap Ampera Cafe. The obtained data were then analyzed to determine the relationship between biophilic elements and the spatial experience perceived by the users.

The workflow of this research was systematically designed through sequential stages following the research process proposed by Saunders, Lewis, and Thornhill (2019). The initial phase began with the identification of spatial problems and a literature review on biophilic architecture, spatial experience, and user behavior, which were subsequently transformed into observational criteria and questionnaire indicators. The process continued with primary data collection through field observations, documentation, and questionnaire distribution using method triangulation across selected observation zones at Tanatap Ampera Cafe. Finally, the collected data were compiled through descriptive recapitulation and analyzed to evaluate the implementation of biophilic architectural elements and their implications for users spatial experience. Meanwhile, the determination of the sample size was based on the targeted design boundaries for a single-case commercial study, which ranges between 30–50 samples. During the field data collection process, the actual sample of active visitors successfully gathered validly met this minimum threshold, totaling 38 respondents ($N = 38$).

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p- ISSN 2621-1610 e- ISSN 2620-9934

The operationalization of variables in this study is divided into three main groups to provide measurable testing boundaries:

1. **Independent Variable (X) – Biophilic Architectural Elements:** Measured through 14 physical-spatial criteria developed from the *14 Patterns of Biophilic Design* parameters by Terrapin Bright Green (Ryan et al., 2014).
2. **Intervening Variable (Y) – User Spatial Experience:** Measures the post-occupancy internal perception of visitors at Tanatap Ampera Cafe, broken down into three main indicators: sensory comfort (Y1), spatial layout quality (Y2), and psychological response (Y3).
3. **Dependent Variable (Z) – Revisit Intention:** Measures the manifestation of consumers' future behavior, projected through two indicators: a strong desire to revisit in the future (Z1) and a willingness to voluntarily recommend the venue to others (Z2).

The data collection techniques employed in this study include observation, documentation, questionnaires, and interviews. According to Creswell (2018), these four techniques are utilized complementarily to obtain comprehensive data regarding the implementation of biophilic architectural elements and user spatial experience at Tanatap Ampera Cafe, Jakarta.

1. **Observation** Observation was conducted directly at the research site to identify the implementation of biophilic architectural elements found within Tanatap Ampera Cafe, Jakarta. The observation focused on the presence of vegetation, natural lighting, natural ventilation, the use of natural-toned materials, the visual connection with the outdoor environment, and the spatial configurations that support user interaction with natural elements. This provided an overview of the physical condition of the building and the implementation of biophilic principles within the investigated communal spaces.
2. **Documentation** Documentation was used as supporting data to reinforce the field observation results. The documentation was carried out by taking photographs and gathering architectural drawings related to the building's physical condition, the applied biophilic elements, the spatial layout, and the environmental atmosphere at Tanatap Ampera Cafe. The documentation data assisted the researcher in conducting a visual identification of the biophilic elements while serving as empirical evidence supporting the analytical process of the study.
3. **Questionnaire** A questionnaire was used to obtain data regarding the perceptions and spatial experiences felt by the visitors of Tanatap Ampera Cafe. The research instrument was structured based on biophilic architecture indicators developed from the literature review and presented in the form of closed-ended questions using a Likert scale (Ryan et al., 2014). The questionnaires were distributed to visitors who had utilized the cafe's facilities, enabling respondents to provide assessments based on their direct experience of the perceived spatial quality.
4. **Interview** Interviews were conducted as a supporting technique to obtain deeper information regarding the design concept and the application of biophilic architectural elements at Tanatap Ampera Cafe. Semi-structured interviews were conducted with parties who possess a thorough understanding of the research object, ensuring that the acquired information could be used to strengthen the observation results and the interpretation of the questionnaire data. Semi-structured interviews provide sufficient flexibility to explore participants' experiences while maintaining consistency with the research objectives (Kallio *et al*. 2016). Through these interviews, the researcher could understand the correlation between the design objectives, the implementation of biophilic elements, and the user experience shaped within the space.

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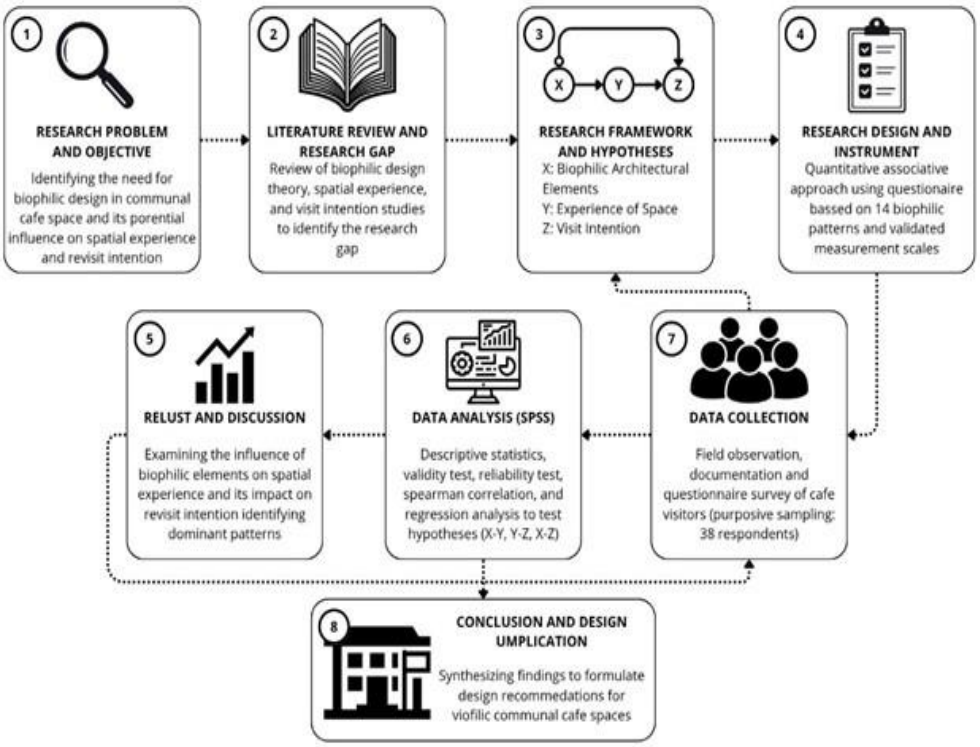


Figure 2. Chart of research methods and stages
(Source: Data processed in 2026)

3. RESULTS AND DISCUSSION

1. GENERAL OVERVIEW OF TANATAP AMPERA

Architectural Consultant	:	RAD+ar (Research Artistic Design + Architecture)
Location	:	Ampera, Jakarta, Indonesia
Project Type	:	Restaurant and bar
Area	:	750 m²
Project Year	:	2021

Tanatap Ring Garden Cafe, located in Ampera, Jakarta, is a unique and innovative design project by RAD+ar that creatively blends architectural and landscape elements. The building serves as a prototype for a multi-level green space comprised of several terraced platforms that form a circular pattern. The cafe's design prioritizes an immersive, dynamic experience, utilizing green platforms that not only create spatial complexity but are also rich in vegetation and landscape elements. These platforms are connected by a terraced amphitheater, providing spaces for relaxation and social interaction within a park-like atmosphere. The cafe connects to an expansive garden area, with a primary focus on the seemingly 'floating' amphitheater surrounded by lush green vegetation, which encourages interaction and collective activities. Privacy is maintained through the use of glass blocks, allowing natural diffused light to enter the space without compromising a sense of intimacy. The artistically designed 'hidden' entrance provides visitors with a poetic experience of blurring the boundaries between indoor and outdoor spaces, while guiding them into the core of the cafe, creating a more intimate and welcoming atmosphere.

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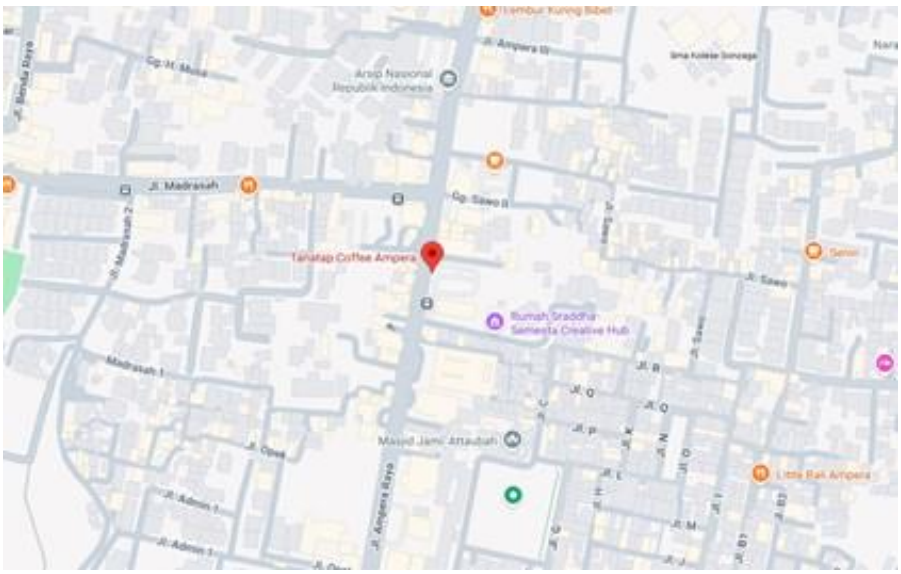


Figure 3. Location Map of Tanatap Ampera
(Source: Google Maps)

2. OBSERVED ZONES

Observations were conducted in spatial zones selected purposively to represent the various spatial functions within the communal building. These zones encompass indoor spaces, outdoor spaces, and circulation spaces, which served as the observation locations for evaluating the implementation of the *14 Patterns of Biophilic Design*. This zoning approach was adopted to ensure that the observation captured the diversity of biophilic design applications across different spatial settings. Previous studies have emphasized that biophilic design can be integrated into various components of the built environment through the incorporation of natural elements, natural analogues, and spatial configurations that strengthen the relationship between humans and nature (Hanafi & Maharani, 2024). The list of the observed spatial zones is presented below:

Table 1. Objective Physical-Spatial Observation Zone

Code	Nama Zona	Spatial Mass Characteristics	Respondents' Dominant Activities
LT 1	Indoor seating	Transparent enclosed indoor area, mechanical micro-circulation.	Commercial seating, dining, formal working (*laptop*).
LT 1	Sanitation garden	Green transitional open space, natural landscape connection.	Walking through, visual orientation toward vegetation.
LT 1	Meeting room	Private interior space, solid boundaries, high level of intimacy.	Formal meetings, group discussions.
LT 1	Outdoor seating	Open outdoor space, free air circulation integrated with the landscape.	Relaxing, dining, informal social interaction.
LT 1	Pathways	Horizontal circulation paths for transition between zones.	Walking/moving, spatial orientation shifting.
LT 1	Stairs	Outdoor vertical circulation, organic circular shape.	Moving up and down floors, kinesthetic exploratory movement.
LT 2	Garden Amphitheater	Terraced open communal seating area, dominated by vegetation.	Gathering, casual discussions, community activities.
LT 2	Outdoor Seating	Open cantilevered floor, expansive view (*vista*) to the landscape.	Enjoying the scenery, selfies, visual relaxation.

Source: Processed by the authors based on field observation results (2026)

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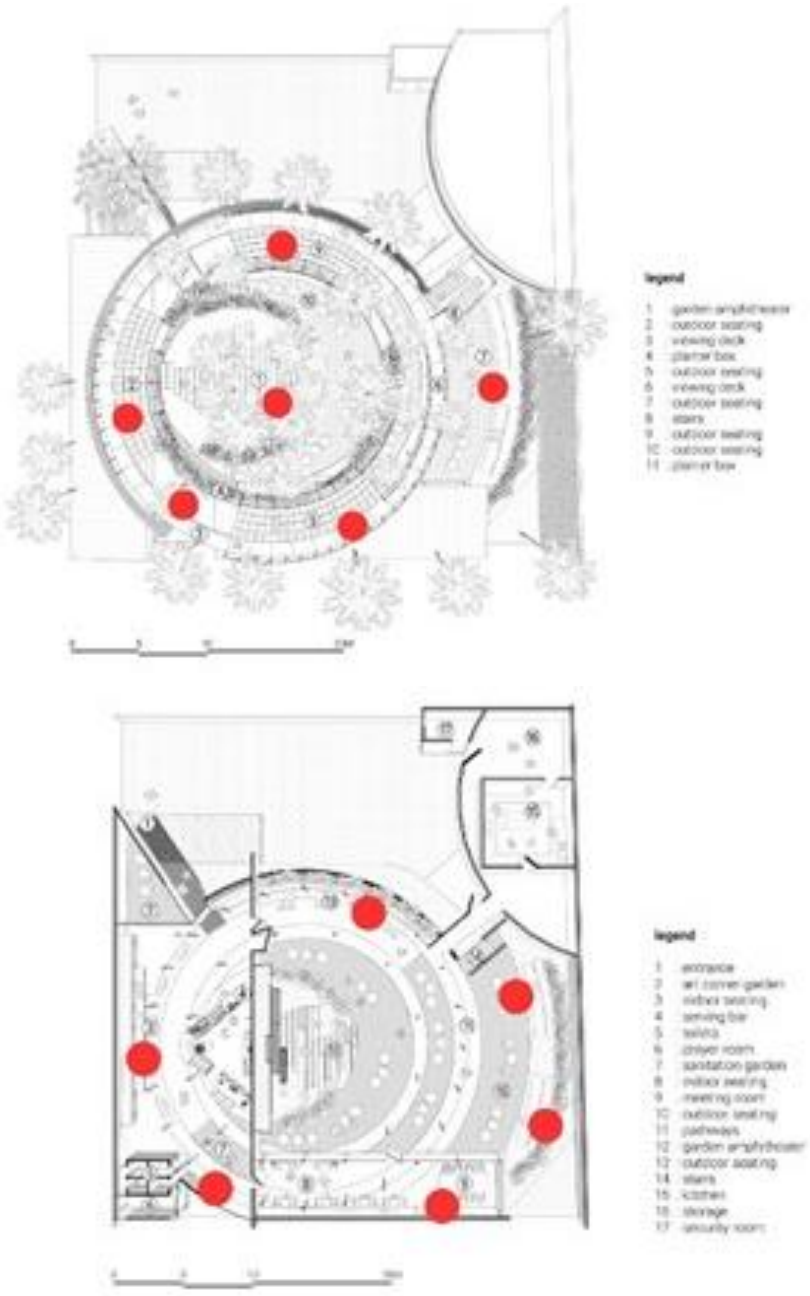


Figure 4. Layout of Observation Zones at Tanatap Ampera
(Source: ArchDaily, 2021)

3. RECAPITULATION OF OBSERVATION RESULTS ON THE IMPLEMENTATION OF BIOPHILIC ARCHITECTURE

Based on the objective physical–spatial investigation across the eleven observation zones, the physical manifestation of Terrapin Bright Green's 14 Patterns of Biophilic Design was systematically evaluated according to their presence within each spatial setting. The assessment focused on identifying observable biophilic attributes embedded in spatial characteristics, architectural forms, and environmental elements. This approach is consistent with Ratnasari and Putra (2024), who emphasized that the implementation of biophilic architecture should be reflected through the integration of spatial characteristics, architectural forms, and natural elements that collectively strengthen the relationship between humans and the built environment.

DOI: http://doi.org/10.17509/jaz.v10i1.103485
p- ISSN 2621-1610 e- ISSN 2620-9934

The findings from the recapitulation of the existing biophilic physical data at Tanatap Ampera are summarized in the following table:

Table 2. Recapitulation of Physical Findings in the Field Application of Biophilic Patterns

No	Biophilic Architectural Pattern	Implementation Status	Main Findings
1	Visual Connection with Nature	Found	Visual connection with vegetation.
2	Non-Visual Connection with Nature	Found	Natural sounds, aromas, and textures.
3	Non-Rhythmic Sensory Stimuli	Found	Ephemeral natural sensory stimuli.
4	Thermal & Airflow Variability	Found	Variations in natural temperature and airflow.
5	Presence of Water	Found	Water elements in specific areas.
6	Dynamic & Diffuse Light	Found	Dynamic natural lighting.
7	Connection with Natural Systems	Found	Interaction with vegetation and ecosystems.
8	Biomorphic Forms & Patterns	Found	Forms and patterns that resemble nature.
9	Material Connection with Nature	Found	Use of natural materials.
10	Complexity & Order	Found	Ordered and diverse spatial patterns.
11	Prospect	Found	Open views to the environment.
12	Refuge	Found	Areas that provide a sense of protection.
13	Mystery	Found	Pathways and spaces that trigger exploration.
14	Risk/Peril	Found	An element of challenge that remains safe.

Source: Field observation results, processed by the authors (2026).

4. INTERVIEW RESULTS WITH THE DESIGN ARCHITECT OF TANATAP AMPERA

The semi-structured interview results with the design architect team from RAD+ar reveal that the central idea behind the "Ring Garden" concept at Tanatap Ampera is a manifesto to decentralize communal green spaces into urban commercial functions. The architects explained that they deliberately blurred the physical circulation boundaries between indoor and outdoor spaces through a terraced flooring configuration and the use of a transparent facade. This design strategy was consciously implemented to stimulate visitors' senses multi-sensorially, thereby compelling them to interact directly with a dynamic micro-ecosystem of tropical plants amidst the dense area of South Jakarta.

5. QUESTIONNAIRE RESULTS: USER RESPONSES TO BIOPHILIC ARCHITECTURAL ELEMENTS

After the physical presence of all 14 biophilic patterns was validated through field observations, the subsequent stage was to examine how visitors perceived these elements through the questionnaire results. The assessment was conducted to filter which biophilic patterns generated the strongest responses and to observe their impact on the user's spatial experience.

Table 3. Distribution Results of Mean Values for Biophilic Element Perception (N = 38)

Kode	Biophilic Architectural Pattern	*Mean*
X1	Visual Connection with Nature	4.42
X2	Non-Visual Connection with Nature	3.58

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Kode	Biophilic Architectural Pattern	*Mean*
X3	Non-Rhythmic Sensory Stimuli	3.71
X4	Thermal & Airflow Variability	3.71
X5	Presence of Water	3.42
X6	Dynamic & Diffuse Light	4.71
X7	Connection with Natural Systems	3.96
X8	Biomorphic Forms & Patterns	4.33
X9	Material Connection with Nature	3.83
X10	Complexity & Order	4.08
X11	Prospect	3.92
X12	Refuge	3.54
X13	Mystery	4.21
X14	Risk / Peril	4.17

Source: Authors' Survey, 2026

To sharpen the focus of the discussion, the entire indicator data in Table 4 was screened further to highlight the five biophilic architectural parameters that received the highest ratings and triggered the strongest impression from visitors during their stay at Tanatap Ampera Cafe, as presented below.

Table 4. Top Five Rankings of Dominant Biophilic Elements Based on User Assessment

Ranking	Code	Biophilic Architectural Pattern	Mean
1	X6	Dynamic and Diffuse Light	4.71
2	X1	Visual Connection with Nature	4.42
3	X8	Biomorphic Forms and Patterns	4.33
4	X13	Mystery	4.21
5	X14	Risk / Peril	4.17

Source: Results of questionnaire data processing (2026)

Based on the screening results of the dominant elements in Table 4, the parameter of Dynamic and Diffuse Light (X6; mean: 4.71) occupies the highest position. Spatially, this high perception is attributed to the bold decision by the architectural firm RAD+ar to massively apply glass block materials to the building's envelope walls. Functionally, the characteristics of this material are capable of softly transmitting afternoon sunlight into the interior spaces (diffuse), creating an aesthetic interplay of shadows that shifts dynamically without causing glare or excessive heat for spatial users in the indoor interior area (Zone LT 1 Indoor Seating).

This positive impression is reinforced by the parameter of Visual Connection with Nature (X1; mean: 4.42), which is manifested through the integration of a terraced tropical green central courtyard landscape that can be visually enjoyed from all angles within both the interior and semi-outdoor areas. Multi-sensorially, this visual sensory integration is proven to linearly increase the eye comfort index and the atmospheric satisfaction value within the user's spatial experience (Variable Y).

In terms of physical circulation, the architectural characteristics of Tanatap Ampera are dominated by vertical circulation consisting of organic outdoor circular stairs that wrap around the building's perimeter. This curved circulation element tangibly translates the concept of Biomorphic Forms and Patterns (X8; mean: 4.33). The winding and twisting movement path of the outdoor stairs progressively triggers cognitive stimulation in the form of the Mystery parameter (X13; mean: 4.21), wherein visitors encounter spatial transitions that arouse curiosity to explore the building deeper. This exploratory sensation culminates at the second-floor viewing deck area, which implements an open cantilevered system without supporting columns underneath. This design configuration introduces the Risk/Peril parameter (X14; mean: 4.17) in the form of a controlled height challenge.

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The study results demonstrate that the combination of natural lighting engineering, organic outdoor circular stairs for vertical circulation, along with the mystery and risk effects, does not trigger spatial anxiety. On the contrary, the integration of these functional biophilic elements successfully generates physical comfort, cognitive tranquility, and profound psychological relaxation within the users' spatial experience (Variable Y). These findings are consistent with Pasini *et al*. (2021), who reported that biophilic design strategies create restorative environments capable of reducing stress while improving psychological well-being and environmental perception. Consequently, the positive spatial experiences generated through these biophilic elements reinforce visitors' emotional attachment to the place and encourage their intention to revisit the café (Variable Z).

6. INSTRUMENT RELIABILITY ANALYSIS AND INTER-VARIABLE RELATIONSHIPS

Prior to conducting a comprehensive spatial discussion analysis, all questionnaire instrument items (N = 38) underwent validity and reliability testing to evaluate the accuracy and consistency of the research instrument. Instrument validity ensures that each indicator accurately measures the intended construct, while reliability reflects the consistency of measurement results across items (Taber, 2018). Based on the validity testing results using an item-correlation approach with a reference threshold value of 0.355 at a 5% significance level, all indicators constructing the variables were declared valid and capable of measuring the research constructs accurately.

Within the spatial experience variable, the sensory comfort indicator (Y_1) recorded a strength index value of 0.777, followed by the spatial layout quality indicator (Y_2) at 0.695, and the psychological response indicator (Y_3) at 0.734. Meanwhile, within the revisit intention variable, the indicator for a strong desire to revisit in the future (Z_1) registered the highest value at 0.918, which is reinforced by the indicator for willingness to voluntarily recommend the venue (Z_2) at 0.832. All of these calculated values sit well above the minimum threshold, thereby leading to the conclusion that the entire instrument is reliable and suitable for further analysis. Internal consistency testing using the Cronbach's Alpha method also demonstrated that all variable groups fall within the reliable criteria corridors, thus indicating that the data is consistent if reused under identical conditions.

To test the hypothesis regarding the influence of biophilic architecture implementation on perceived spatial quality, the analysis of inter-variable relationships was conducted using the Spearman's Rank Correlation (r_s) coefficient. The selection of this method was based on the non-parametric characteristics of the field data. The statistical analysis results indicated that the correlation coefficient (r_s) between the biophilic architectural elements (Variable X) and Spatial Experience (Variable Y) is 0.393, with a significance value (Sig. 2-tailed) reaching 0.029.

The significance value, which falls below the threshold of 0.05 ($0.029 < 0.05$), empirically proves that the research hypothesis is accepted, indicating a statistically significant relationship between the implementation of biophilic architectural elements and the formation of the user's spatial experience quality at Tanatap Ampera Cafe. The positive correlation coefficient ($+0.393$) demonstrates a unidirectional relationship, wherein every optimization in the field implementation of biophilic architecture patterns will be linearly followed by an increase in the quality of physical comfort and psychological restoration perceived by the visitors. These findings are supported by Al Horr *et a*l. (2016), who emphasized that environmental design attributes, including natural lighting, ventilation, and visual quality, significantly influence occupants' comfort, health, and psychological performance.

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4. CONCLUSION AND RECOMMENDATIONS

This study empirically validates the positive relationship between biophilic architectural patterns, users' multi-sensory spatial experiences, and consumer revisit intentions at the Tanatap Ampera Cafe, South Jakarta, utilizing a verified sample of 38 active users ($\boldsymbol{N = 38}$). The post-occupancy evaluation reveals that the implementation of biophilic design triggers highly favorable responses. Based on mean scores, three patterns generate the most dominant cognitive and sensory impressions: Dynamic and Diffuse Light ($\boldsymbol{X_6}$; mean: 4.71) via glass block envelopes, Visual Connection with Nature ($\boldsymbol{X_1}$; mean: 4.42) through the multi-level circular central courtyard, and Biomorphic Forms and Patterns ($\boldsymbol{X_8}$; mean: 4.33) expressed by the organic geometry of the integrated amphitheater and perimeter staircase.

Furthermore, the inferential Spearman rank correlation analysis mathematically proves that the systematic optimization of these biophilic design patterns significantly enhances the overall quality of User Spatial Experience ($\boldsymbol{Y}$), encompassing physical sensory comfort, layout efficiency, and psychological restoration. In turn, this positive multi-sensory spatial experience ($\boldsymbol{Y}$) acts as a critical behavioral driver that directly dictates consumers' Revisit Intention ($\boldsymbol{Z}$). The resulting atmospheric satisfaction anchors long-term behavioral loyalty, manifested through the desire to return ($\boldsymbol{Z_1}$) and the willingness to recommend the venue via word-of-mouth ($\boldsymbol{Z_2}$). These findings reinforce recent evidence suggesting that the implementation of biophilic design contributes to improved users' spatial experience, psychological well-being, and environmental quality within commercial environments (Wijesooriya and Brambilla, 2021; Yin *et a*l., 2020).

Despite the positive metrics, systematic structural screening highlights three biophilic dimensions with lower mean scores that require targeted architectural retrofitting:

1. **Presence of Water (X_5; mean: 3.42):** The current static pond is strictly localized at the entrance. Integrating an active vertical water wall adjacent to the sanitation garden or beneath the circular stairs will optimize evaporative cooling and generate acoustic white noise to mask the traffic sounds of Jalan Ampera Raya.
2. **Refuge (X_{12}; mean: 3.54):** The radical interior openness leaves users at the ground floor indoor seating feeling over-exposed to pathway circulations. Incorporating modular timber slat louvers or vertical hanging greenery screens will establish semi-private protective alcoves, securing psychological safety without disrupting visual prospects.
3. **Non-Visual Connection with Nature (X_2; mean: 3.58):** The space relies excessively on visual connection. Retrofitting the outdoor metallic handrails with unpolished organic timber and populating transition pathway planter boxes with aromatic tropical flora (e.g., *Jasminum sambac*) will tactilely and olfactorily enrich the space, dynamically reducing cognitive fatigue and anchoring a deeper *genius loci*.

ACKNOWLEDGEMENTS

The authors express their deepest gratitude to the Master of Architecture Study Program at Universitas Trisakti for the continuous academic support provided throughout the execution of this research. High appreciation is also extended to the RAD+ar architectural firm and all visitors of Tanatap Ampera Cafe who kindly participated as respondents, enabling the successful completion of the data collection process for this study.

DOI: http://doi.org/10.17509/jaz.v10i1.103485
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