

# LIVING HERITAGE AND SUSTAINABLE INNOVATION: ADAPTIVE BAMBOO ARCHITECTURE IN BALI

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## ABSTRACT

*This research explores the integration between living heritage and sustainable innovation through the development of adaptive bamboo architecture in Bali, which combines the preservation of traditional cultural values with modern technology to create environmentally friendly architectural solutions. Bamboo architecture has been an integral part of Balinese building traditions that reflects the philosophy of Tri Hita Karana - harmony between humans, nature, and the spiritual world, where bamboo as a material with tensile strength comparable to steel and superior sustainability properties offers solutions with negative carbon footprint. Technological innovations in Balinese bamboo architecture, as seen in projects like Green School and Green Village by IBUKU, have achieved breakthroughs through modern techniques such as the use of adaptive sensors, algorithmic optimization for bamboo element placement, and boron treatment for long-term durability. Adaptive bamboo architecture combines traditional Balinese craftsman expertise with modern engineering techniques, maintaining traditional aesthetic principles such as open spatial layouts and natural ventilation while integrating innovations in connection systems and construction technology. This study demonstrates that the living heritage approach in adaptive bamboo architecture in Bali has the potential to become a global model for sustainable development that respects cultural heritage, bridging the originality of the past with future sustainability through innovative solutions applicable in various global contexts.*

*Keywords: living heritage, bamboo architecture, sustainability, adaptive innovation.*

## 1. INTRODUCTION

Cultural heritage often referred to as living heritage has become an essential focus within the global discourse on sustainable development, particularly regarding how traditions and cultural values can be integrated with modern technological innovations to address contemporary environmental challenges. The concept of living heritage, defined as heritage sites that remain authentic, maintained, and developed by a core community while preserving values that are continuously transmitted across generations, offers a conservation approach that bridges the originality of the past with the sustainability of the future. (Safitri & Ikaputra, 2024).

Amid the increasingly urgent global environmental crisis, sustainable architecture has emerged as a critical response to ecological degradation caused by excessive resource exploitation. The construction and building sectors contribute significantly to environmental damage, making efforts to minimize negative impacts through environmentally friendly design approaches a necessity. In this context, sustainable materials such as bamboo offer innovative solutions with remarkable ecological

advantages, including rapid renewability, tensile strength comparable to steel, and a negative carbon footprint (Kurniawan & Indrawan, 2024).

Bali, a region rich in cultural heritage and the philosophy of *Tri Hita Karana*, the harmony between humans and God (*Parhyangan*), humans and fellow humans (*Pawongan*), and humans and nature (*Palemahan*), has long utilized bamboo as an integral material in its architectural traditions. The *Tri Hita Karana* philosophy, which governs spatial organization and traditional Balinese architecture, reflects a profound understanding of ecological balance and environmental sustainability. However, in this era of rapid modernization, there is a significant challenge in preserving these traditional values while embracing contemporary construction technologies and practices.

The integration of living heritage and sustainable innovation is not only relevant to the local context of Bali but also holds global implications in supporting the achievement of the Sustainable Development Goals (SDGs). As a sustainable material, bamboo contributes to several SDGs, including poverty alleviation, sustainable economic growth, resilient infrastructure development, sustainable cities and communities, and terrestrial ecosystem preservation. A holistic approach that combines cultural heritage preservation with eco-friendly technological innovation can serve as a model for sustainable development, one that honors local wisdom while addressing global challenges.

The significance of research on adaptive bamboo architecture in Bali lies in its potential to contribute to the global discourse on how communities can integrate their living cultural heritage with innovative solutions for environmental sustainability. The living heritage approach in adaptive bamboo architecture not only preserves traditional aesthetic principles such as open spatial layouts and natural ventilation but also integrates innovations in joint systems and construction technologies that can be applied in diverse global contexts. Thus, the study of adaptive bamboo architecture in Bali offers valuable insights into how tradition and innovation can synergize to create a more sustainable future.

## 2. RESEARCH METODOLOGY

This research employs a qualitative approach using descriptive and case study methods to gain an in-depth understanding of the integration between living cultural heritage and sustainable innovation in adaptive bamboo architecture in Bali. This approach was chosen for its ability to explore the meanings, values, and practices underlying the relationship between tradition and modern technology within the sociocultural context of Balinese society.

The research focuses on adaptive bamboo architecture projects that represent the synergy between traditional values and sustainability principles, such as the Green School, Green Village, and various locally initiated bamboo-based buildings across different regencies in Bali. The research subjects include architects, local bamboo craftsmen (*undagi*), contractors, and building users who are directly involved in the design and construction processes.

Data collection was conducted using three main techniques. First, in-depth interviews with stakeholders were carried out to gain an understanding of the philosophy, design principles, and technological innovations applied. Second, direct on-site observations were conducted to document building morphology, construction techniques, joint systems, material use, and adaptation to the tropical climate. Third, documentation studies were undertaken by reviewing various written sources, such as academic papers, technical archives, field photographs, and project reports, to strengthen the validity of the empirical data.

The data analysis process employed a thematic approach focused on identifying patterns of relationships between the principles of *Tri Hita Karana*, aspects of sustainability, and innovations in bamboo structures. The analysis was conducted

systematically through the stages of data reduction, data presentation, and conclusion drawing. Data triangulation was applied to ensure the validity and reliability of the research findings by comparing the results of interviews, observations, and documentation.

Through this approach, the research is expected to provide an in-depth understanding of how the concept of living heritage can serve as a foundation for the development of bamboo-based architecture that is both adaptive and innovative, while remaining deeply rooted in Balinese cultural values oriented toward ecological and social balance.

### **3. LITERATUR REVIEW**

#### **A. Living Heritage Theory**

The concept of living heritage has become an important paradigm in the discourse of cultural heritage preservation since the adoption of UNESCO's 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions. Living heritage is defined as a heritage site that remains authentic, maintained, and developed by the core community residing at the site, while embodying values that are continuously passed down from generation to generation. The key characteristic of living heritage is the concept of continuity, which encompasses the continuity of a building's original function, the continuity of its connection with the core community, the continuity of both material and immaterial expressions, and the continuity of maintenance through traditional or well-established methods (Safitri & Ikaputra, 2024).

The living heritage approach differs fundamentally from the values-based conservation approach, which places greater emphasis on discontinuity and the preservation of historical conditions in a static state. In the context of living heritage, change is instead accepted as an inherent aspect of the living nature of the heritage site, rather than something to be minimized or mitigated. This approach bridges the originality of the past with the sustainability of the future, focusing conservation efforts on managing continuity and change through decision-making processes that actively involve the core community (Wijesuriya, 2018).

UNESCO emphasizes that living heritage encompasses knowledge and practices rooted in local communities, providing a source of resilience against changing climatic conditions and helping to protect the environment. The integration of living cultural heritage and sustainable development has become a key focus of academic research, particularly in understanding how living heritage can promote more equitable economic and social models, as well as more responsible ways of interacting with the environment.

#### **B. Adaptive Reuse Theory**

Adaptive reuse is a conservation approach that repurposes a building for a different function from its original use without eliminating its original form or historical value. This approach aligns with the concept of sustainable development, which applies the 3R principles (Reduce, Reuse, Recycle), emphasizing that reusing buildings is preferable to demolishing them. According to Cantell (2005), the application of the adaptive reuse concept can serve as a solution for conserving historic buildings by introducing new functions while minimizing the impact on the existing heritage's historical value and significance (Susanto et al., 2020).

Adaptive reuse must preserve a building's physical character and historical value, even when the spatial functions are transformed to meet contemporary needs. This approach not only maintains the continuity of historical values and revitalizes spatial functions but also strengthens the identity of heritage areas and provides financial benefits for building maintenance. In the global context, adaptive reuse

has been recognized as a key strategy in reducing the development of new built land and supporting the environmental sustainability of urban areas (Fanaya et al., 2025).

### **C. Sustainable Architecture Theory**

Sustainable architecture is an applied concept in the field of architecture that supports the preservation of natural resources to ensure their longevity, relating to the lifespan of vital natural and human ecological resources. *Sustainable architecture* encompasses nine key principles: urban ecology, energy strategy, water management, waste management, materials, environmental community, economic strategy, cultural preservation, and operational management (Hidayatullah & Anisa, 2022).

Sustainable architecture promotes the responsible management of natural resources and protects public health, safety, and well-being through conscientious approaches to creating the built environment. The primary goal of sustainable architecture is to reduce energy consumption, carbon emissions, and waste in building construction, operation, and maintenance. These principles include efficient land use, energy efficiency through optimal building orientation, the use of biodegradable or recyclable materials, and flexible, context-sensitive design that harmonizes with the surrounding environment (Febriadi & Afgani, 2023).

## **4. RESULTS AND DISCUSSION**

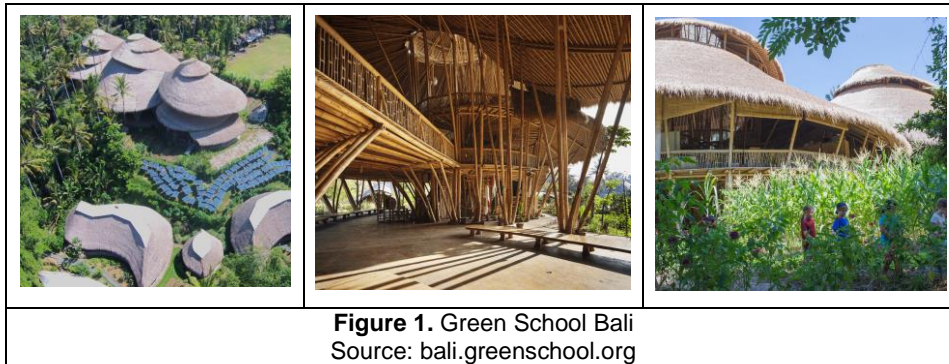
### **A. Overview of the Research Object**

The general overview of the research object focuses on the characteristics of adaptive bamboo architecture in Bali by examining three main case studies: Green School Bali, Green Village Bali, and Hideout Bamboo House in Karangasem. These three examples represent the successful integration of Balinese cultural heritage, technological innovation, and ecological sustainability principles in contemporary bamboo architecture practice. In selecting the objects used as case studies in this research, several considerations were taken into account, namely:

- Based on Balinese cultural philosophy and ecological awareness, particularly the principle of balance in *Tri Hita Karana*, which serves as the fundamental idea for spatial planning and building orientation.
- Designed by professional teams through collaboration between modern architects and local communities, especially traditional Balinese bamboo craftsmen.
- Integrates bamboo structural technologies and innovations, such as grid shells, anticlastic joints, and bamboo lamination systems, to achieve structural strength suitable for tropical conditions.
- Serves as a global icon of contemporary bamboo architecture, demonstrating the successful synergy between aesthetics, culture, and sustainability as a manifestation of Bali's living heritage that continues to evolve dynamically.

#### **1) Green School Bali**

Green School Bali is located in Sibang Kaja Village, Abiansemal District, Badung Regency. The school occupies a 7.5 hectare site along the Ayung River Valley and was designed by the IBUKU architectural team under the guidance of John and Cynthia Hardy since 2006. The entire building complex uses bamboo, thatch (*alang-alang*), and clay as the primary construction materials. The main building, Heart of School, features a 60 meter long structure with massive bamboo arches reaching a height of 14 meters, supporting a naturally spiraled roof form.



The main characteristics of Green School Bali lie in its application of bioclimatic design and sustainable architectural principles, including natural ventilation, passive lighting, and an independent water management system. The school functions not only as a formal educational facility but also as a living laboratory for sustainable design experimentation, embodying the *Tri Hita Karana* philosophy by harmonizing the relationship between humans, nature, and local spirituality.

## 2) Green Village Bali

Green Village Bali is located along the Ayung River, about a 15-minute walk from Green School. The project was developed by architect Elora Hardy and the IBUKU team as an extension of the Green School concept, designed as an ecological residential community that embraces an artisan craftsmanship approach and sustainability principles.

Each villa in Green Village is uniquely designed and constructed almost entirely from bamboo from the main structure to the interior elements, stairs, and railings. The design follows the natural contours of the river valley landscape, creating a sense of harmony with nature without altering the surrounding ecological structure. Its design principles emphasize the balance between luxury and sustainability, demonstrating that bamboo can be used to create modern, aesthetically pleasing living spaces while maintaining environmental responsibility.

Green Village also stands out for its adoption of Balinese local philosophy that honors nature and its strong communal approach, making it a model for sustainable green communities as well as a world-renowned architectural tourism destination focused on ecological education.



## 3) Hideout Bamboo House, Karangasem

Hideout Bali was established in 2014 in Selat Village, Karangasem Regency, at the foot of Mount Agung. This small-scale bamboo accommodation employs a natural design system that fully adapts to the tropical environment.

The building structure uses locally sourced bamboo from the mountains of Karangasem, grown at an altitude of 800 meters above sea level, giving it high density, low sugar content, and natural resistance to termites. The bamboo treatment process involves smoking techniques and non-toxic materials, reinforcing a commitment to sustainable building principles and environmental safety. Hideout Bali stands out for its organic and minimalist architectural approach, creating an immersive living experience in harmony with nature without excessive use of artificial infrastructure or energy. Its existence reflects a tangible form of adaptive bamboo architecture that combines the artistry of local craftsmanship, material sustainability, and a contemporary green lifestyle.



**Figure 3.** Hideout Bamboo House  
Source: [hideoutbali.com](http://hideoutbali.com)

## **B. Implementation of the Living Heritage Concept in Bamboo Architectural Design**

The implementation of the living heritage concept in bamboo architecture in Bali is reflected through the continuity of cultural values embodied in the practices of design, construction, and building management. As a form of living cultural heritage, bamboo architecture in Bali is not merely physical or material in nature but also encompasses spiritual, social, and ecological dimensions that are continuously passed down and adapted to contemporary needs.

### **1) Preservation of the Tri Hita Karana Philosophy in Spatial Layout and Building Orientation**

Green School Bali applies the *Tri Hita Karana* philosophy comprehensively as the foundation of its sustainable architectural design concept. This philosophy embodies three essential aspects of life balance harmony with God (*Parahyangan*), harmony with fellow humans (*Pawongan*), and harmony with nature (*Palemahan*). The implementation of the *Parahyangan* concept is expressed through spatial layout arrangements and floor level hierarchies that consider spiritual orientation and the vertical relationship with the Creator. The *Palemahan* aspect is realized through the use of natural, renewable, and environmentally friendly materials such as bamboo, wood, natural stone, and thatch. Meanwhile, the *Pawongan* aspect is manifested by considering social interaction, accessibility, user needs, and the impact of design on space users.

The site layout of Green School Bali reflects a deep respect for the existing natural ecosystem. During the construction process, only a few trees were cut down and later replanted elsewhere, while several others were left to grow through the roofs, becoming an integral part of the building structure. The buildings were designed to follow the natural contours of the land, minimizing soil filling and demonstrating an adaptive approach to the site's

geographical conditions. More than 60% of the 4.55-hectare area is dedicated to green open space, far exceeding the built-up area allowing learning activities to take place without disturbing the surrounding natural ecosystem.

## 2) Cultural Adaptation Mechanisms to Modern Needs

The living heritage concept enables Balinese bamboo architecture to adapt to modern needs without losing its traditional values. In Penglipuran Village, the preservation of bamboo forests is carried out through physical measures (*sekala*), such as maintaining supported bamboo populations and observing taboos against harvesting bamboo carelessly. Through spiritual actions (*niskala*), the community performs the *Tumpek Pengatag* ritual regularly to honor God in His manifestation as the protector of plants. The people believe that bamboo must be harvested at the proper time, as harvesting on inauspicious days will result in decreased bamboo quality.

Modern adaptation is also evident in the development of productive economic institutions such as bamboo farmer groups and cooperatives owned by traditional villages. In several villages across Bali, bamboo weaving artisans have even established cooperatives to organize the sale and distribution of their products. Educational programs on bamboo craftsmanship in various villages not only help preserve cultural heritage but also create opportunities for younger generations to explore their creativity by combining tradition with innovation.

The Green School and Green Village projects demonstrate a more advanced form of adaptation by integrating the knowledge of traditional craftsmen (*undagi*) with modern engineering technologies developed by professional architectural teams such as IBUKU. This collaboration has led to innovations in bamboo joint systems, lamination techniques, and curved structures capable of supporting large-scale buildings such as 'The Heart of School', which spans 60 meters with bamboo arches reaching 14 meters in height.

## 3) Community Participation in Development and Preservation

The involvement of local communities in the design, construction, and preservation processes of bamboo architecture is a key element of the living heritage approach. In the context of Green School Bali, local community participation is evident through the use of local labor in construction, bamboo craftsmanship training for nearby residents, and the integration of local knowledge regarding suitable bamboo species for building. *Bambu petung*, used as the primary construction material, is a strong and widely available bamboo species in Indonesia, selected based on local understanding of its characteristics and durability.

Bamboo education workshop programs held in various tourist destinations, such as bamboo forests, provide opportunities for visitors to learn directly from local artisans about weaving techniques, the making of traditional musical instruments like the *angklung*, and bamboo decoration. These activities are not only enjoyable but also serve as a medium for knowledge transfer and the preservation of local culture through interactive and hands-on experiences.

#### **4) The Impact of Living Heritage Preservation on Ecological and Economic Sustainability**

The implementation of the living heritage concept in bamboo architecture has had a significant impact on the ecological and economic sustainability of Balinese communities. Ecologically, the preservation of bamboo forests in Penglipuran Village has proven effective in maintaining water sources and preventing soil erosion along the slopes. The existence of bamboo forests also protects local flora and fauna, creating a balanced and sustainable ecosystem. The integration of spiritual, social, and ecological values within Balinese bamboo architectural practices demonstrates that the living heritage concept is not merely about preserving the past, but also about shaping a sustainable future through the continuity and adaptation of living cultural values.

#### **C. Technological Innovation in Adaptive Bamboo Architecture**

Technological innovation in adaptive bamboo architecture in Bali is evident in the application of bamboo material engineering and modern construction techniques to enhance strength, durability, and design flexibility. Engineered bamboo products such as laminated panels and composite materials have been applied in projects like Green Village Bali, enabling the creation of more complex, long-lasting, and eco-friendly structures while preserving the beauty and natural character of bamboo as a core element of sustainable architecture. In addition, the use of modern jointing techniques (bolts, metal plates, and knock-down systems) allows for faster and stronger construction processes, supporting adaptive modular building systems that are easy to assemble and disassemble, and accommodating future design changes or spatial needs.

On the other hand, adaptive bamboo architecture has also embraced digital and automation technologies through the integration of smart home concepts, such as temperature sensors, automatic lighting, and energy control systems for efficient electricity use. Advances in bamboo processing techniques—such as non-toxic preservation and specialized coatings—ensure greater resistance to tropical weather, termites, and extended material lifespan. All these innovations demonstrate that Balinese bamboo architecture continues to evolve, not only as a traditional heritage but also as a resilient, beautiful, and sustainable solution for contemporary construction.

#### **D. Application of Sustainable Architectural Principles**

The application of sustainable architectural principles in bamboo architecture in Bali, such as at Green School and Green Village, places strong emphasis on the use of locally sourced, eco-friendly, and renewable materials, with bamboo serving as the primary construction material. Bamboo is chosen for its rapid growth, carbon absorption capacity, strength, and flexibility, all of which support the concept of green building. In addition to bamboo, the designs optimize natural lighting, cross ventilation, and green open spaces to create thermal comfort while minimizing artificial energy consumption and reducing ecological impact throughout the building's life cycle.

At Green Village Bali, the implementation of sustainable architecture is evident in the design choices that harmonize with the natural landscape contours, the use of responsibly harvested materials, and construction processes that account for durability against tropical weather and pest resistance. Bamboo materials not only provide natural aesthetics and structural functionality but also make a tangible contribution to reducing carbon footprints and raising public awareness about the importance of environmentally friendly development. In practice, this project

promotes a replicable construction model as a future solution for housing and public buildings that support the circular economy and local sustainability.

## **E. Social, Economic, and Ecological Impacts of Bamboo Architecture**

### **Social Impact**

Bamboo architecture in Bali has brought significant social impacts by strengthening the sense of togetherness and the identity of local communities. Bamboo structures such as the Green School and Green Village not only serve as spaces for activities but also as venues for social interaction, education, and artistic and cultural expression that reinforce community cohesion. The construction process, which involves local communities, particularly traditional craftsmen and *undagi* (Balinese master builders), encourages intergenerational knowledge transfer and empowers communities through creative collaboration rooted in local wisdom. This makes bamboo architecture a living cultural symbol that binds social relationships among residents and strengthens solidarity in preserving sustainable architectural heritage.

### **Economic Impact**

Economically, the use of bamboo as the primary material has created a value chain involving farmers, artisans, and sustainable tourism industries. Local bamboo production in the regions of Bangli, Gianyar, and Karangasem supports rural livelihoods while reducing dependence on imported materials. The development of projects such as Green Village and Hideout Bali also opens new entrepreneurial opportunities, ranging from crafts and culinary industries to ecological architectural tourism popular among international visitors. Through a bamboo-based circular economy system, communities gain not only economic value from construction but also from derivative activities such as craft training and community-oriented ecotourism.

### **Ecological Impact**

From an ecological perspective, bamboo architecture plays a crucial role in climate change mitigation and environmental conservation through the use of natural, renewable materials with a negative carbon footprint. Bamboo can absorb up to 35% more carbon dioxide than typical trees and regrows within 3–5 years, making it an exceptionally efficient resource for sustainable development (Fina Astuti & Nabila Shania, 2024). In addition, bamboo forest systems in Bali, such as those in Penglipuran, function as groundwater retainers and erosion preventers, maintaining the balance of local ecosystems. Through the implementation of bioclimatic design and green open spaces, bamboo buildings support energy efficiency, reduce construction waste, and reinforce Bali's role as a natural laboratory for environmentally friendly architecture worldwide.

## **5. CONCLUSION**

Adaptive bamboo architecture in Bali demonstrates that the integration of local wisdom, technological innovation, and sustainability principles can produce a holistic, harmonious, and functional development model. Through the implementation of the living heritage concept, Balinese cultural values such as *Tri Hita Karana* are revitalized in architectural designs that are not only aesthetically pleasing but also ecologically and socially functional. Projects such as Green School, Green Village, and Hideout Bali provide concrete evidence that bamboo has great potential as a future material that is not only environmentally friendly and economical but also rich in cultural and spiritual significance for Balinese society.

Engineered bamboo innovations, modern jointing systems, and the integration of smart home technology have expanded the application of bamboo architecture from traditional contexts to globally recognized sustainable modern construction. Its impact is felt not only ecologically through carbon footprint reduction and resource

conservation but also socio-economically through the empowerment of local communities, increased income, and the preservation of bamboo forests that support both human and natural life. Thus, adaptive bamboo architecture in Bali represents a tangible example of the *sustainable living heritage* approach, connecting the past, present, and future within a harmonious and sustainable life system.

## REFERENCE

- Artha, K. G., & Purwantiasning, A. W. (2022). Kajian Konsep Adaptive Reuse Pada Bangunan Museum Bersejarah di Museum Bahari, Jakarta. *Journal of Architectural Design and Development*, 3(1), 17–29. <https://doi.org/10.37253/jad.v3i1.6605>
- Bernard H.P, K., & Indrawan, S. E. (2024). Pengaruh Budaya Bali Pada Desain dan Kontruksi Bangunan Bambu: Memahami Aspek Sosial dan Fungsional. *INNOVATIVE: Journal Of Social Science Research*, 4(1), 11244–11254. <https://j-innovative.org/index.php/Innovative/article/view/9010>
- Fanaya, F. S., Septanti, D., & Novianto, D. (2025). Kajian Transformasi Ruang Bersejarah melalui Konsep Adaptive Reuse di De Tjolomadoe Surakarta. *NALARS: Jurnal Arsitektur*, 24(1), 63–82.
- Febriadi, G., & Afgani, J. J. (2023). Kajian Prinsip Arsitektur Berkelanjutan Pada Bangunan Perkantoran (Studi Kasus: Shanghai Tower, Shanghai, Pudong). *PURWARUPA Jurnal Arsitektur*, 7(2), 123. <https://doi.org/10.24853/purwarupa.7.2.37-42>
- Fina Astuti, & Nabila Shania. (2024). Penerapan Prinsip Arsitektur Berkelanjutan pada Green School Bali. *Venus: Jurnal Publikasi Rumpun Ilmu Teknik*, 2(6), 01–17. <https://doi.org/10.61132/venus.v2i6.615>
- Hidayatullah, S., & Anisa. (2022). Kajian Prinsip Arsitektur Berkelanjutan Pada Bangunan Perkantoran (Studi Kasus: Gedung Utama Kementerian Pupr). *Jurnal Arsitektur ZONASI*, 5(3), 521–530.
- Kurniawan, J. C., & Indrawan, S. E. (2024). Keharmonisan budaya Bali dan kreativitas Arsitektur Bambu: suatu pendekatan terhadap pembangunan berkelanjutan. *Jurnal Arsitektur Pendapa*, 7(2), 24–32. <https://ejournal.widyamatararam.ac.id/index.php/pendapa/article/view/1372>
- Pertiwi, B., & l'annah, M. A. (2025). Penggunaan Material Bambu sebagai Bahan Utama Konstruksi pada Bangunan Green Village Bali. *Filosofi: Publikasi Ilmu Komunikasi, Desain, Seni Budaya*, 2(2), 27–35.
- Safitri, R. A., & Ikaputra, I. (2024). Living Heritage sebagai Pendekatan Konservasi: Sebuah Studi Literatur. *Sinektika: Jurnal Arsitektur*, 21(1), 49–58. <https://doi.org/10.23917/sinektika.v21i1.2450>
- Susanto, W. P., Medina, R. D., & Adwitya P, A. M. (2020). Penerapan Metoda Adaptive Reuse pada Alih Fungsi Bangunan Gudang Pabrik Badjoe Menjadi Kafetaria. *Jurnal Arsitektur TERRACOTTA*, 1(2), 124–135. <https://doi.org/10.26760/terracotta.v1i2.4019>
- Tanaka, S., & Mustaram, A. L. (2023). Strategi Penerapan Konsep Adaptive Reuse Pada Bangunan Bersejarah Olympia Plaza Medan. *Jurnal Sains, Teknologi, Urban, Perancangan, Arsitektur (Stupa)*, 5(1), 63–78. <https://doi.org/10.24912/stupa.v5i1.22604>
- Widiyani, D. M. S., & Wiriantari, F. (2022). *Concept Transformation of Dome Architecture in Bali. December*.
- Wijaatmaja, A. B. M., & Widiyani, D. M. S. (2022). *Sustainability of Traditional Architecture Through Transformation in Contemporary Balinese Housing. December*.
- Wijesuriya, G. (2018). *Living Heritage*. ICCROM.