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# DESIGN TRANSFORMATION AS A TYPOLOGICAL STUDY OF BA'ANJUNG AND BALLA HOUSE

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**Abstract:** The phenomenon of the Indonesian capital relocation has shifted the development focus from Java Island towards the central part of Indonesia. The islands of Kalimantan and Sulawesi are preparing to carry out an entirely new planned city, including the modernization of these two islands, while their current condition is relatively traditional. The problem includes marginalized, threatened, eroded local culture and natural environment as the move would have grave repercussions for the entire region, such as deforestation, global cultural influences, and instantaneous modernization. Conservation and preservation of local architectural DNA have become urgent research; this paper presents a design idea as a study based on two representatives' local architecture. The research objective is to study the various potency of two tribal houses' typological transformation, they are called Ba'anjung (Kalimantan) and Balla (Sulawesi), as alternative variations to embrace modernized tradition. It aims to promote its genetic structure as the arch-type for present-day development. Typology is utilized to study morphological formations, demonstrating the design process while investigating the two-house types as the case studies. Research steps include 1) Typological study, 2) Module Configuration, and 3) Design transformation. The outcome is a typo-morphological study based on unit design transformation. The novelty is a unit variation of forms Ba'anjung and Balla.

**Keywords:** Ba'anjung, Balla, Morphology, Transformation, Typology.

**Abstrak:** Fenomena pemindahan ibu kota Indonesia telah menggeser fokus pembangunan dari Pulau Jawa ke wilayah Indonesia bagian tengah. Pulau Kalimantan dan Sulawesi tengah bersiap untuk melaksanakan tata kota terencana yang sama sekali baru, termasuk modernisasi kedua pulau tersebut, sementara kondisinya saat ini relatif masih tradisional. Permasalahan tersebut meliputi budaya lokal dan lingkungan alam yang terpinggirkan, terancam, dan terkikis karena pemindahan tersebut akan berdampak buruk bagi seluruh wilayah, seperti penggundulan hutan, pengaruh budaya global, dan modernisasi yang terjadi secara tiba-tiba. Konservasi dan pelestarian DNA arsitektur lokal menjadi urgensi penelitian; makalah ini menyajikan ide desain sebagai kajian yang didasarkan pada arsitektur lokal dari dua perwakilan. Tujuan penelitian ini adalah untuk mempelajari berbagai potensi transformasi tipologi dua rumah adat, yaitu Ba'anjung (Kalimantan) dan Balla (Sulawesi), sebagai variasi alternatif untuk merangkul tradisi modern. Tujuannya adalah untuk mempromosikan struktur genetiknya sebagai tipe lengkung untuk pembangunan masa kini. Tipologi digunakan untuk mempelajari formasi morfologi, menunjukkan proses desain sambil menyelidiki dua tipe rumah sebagai studi kasus. Tahapan penelitian meliputi: 1) Kajian tipologi, 2) Konfigurasi modul, dan 3) Transformasi desain. Hasil yang diperoleh adalah kajian tipomorfologi berdasarkan transformasi desain unit. Hasil baru berupa variasi unit bentuk Ba'anjung dan Balla..

**Kata Kunci:** Ba'anjung, Balla, Morfologi, Transformasi, Tipologi.

## INTRODUCTION

The move of the Indonesian Capital, known as *Nusantara*, from Jakarta to Kutai Kertanegara, East Kalimantan, has shifted the development focus from the Southern part of Indonesia to the centre of this archipelago country. The main aim of reducing development inequality is concentrated in Java, especially Jakarta's burden as the former capital city. With the new capital, the heart of the archipelago, represented by Kalimantan and Sulawesi islands, may soon experience major changes. Modernization is unavoidable, to a great degree, accompanied by

globalization and internationalization in both islands with the three major countries' investors such as China, Japan, and the United States (Lianto, Husin, Thedyardi, Choandi, & Trisno, 2021). With this immediate shifting, transformation is one of the most demanded options (Shtepani & Xhexhi, 2023); architectural adaptation is expected to include both tradition and modernization, resulting in a completely different fabric while preserving cultural significance (Husin, Prijotomo, & Sugiharto, 2021).

With Forest Archipelagic Country (*Bahasa: Nagara Rimba Nusa*) as the design concept for the overall master plan. The capital city's architecture shall be

designed for sustainability, encouraging walking, cycling, and public transportation as well as renewal of energy together with self-sustained food production. Although the critics have included many concerns about wildlife and forest protection, the impact of modernization may not include the regeneration of local architecture and cultural heritage as the strategy for sustainable development (Salura, Clarissa, & Lake, 2020). In this sense, regenerative efforts need to be encouraged to stimulate modernization based on local DNA (Lake & Jeraman, 2023). By including the importance of its architectural genetics in design transformation, not only conservation can be achieved, but a gradation may also help residents with familiarity and an amicable approach (Lianto, Husin, Thedyardi, Choandi, & Trisno, 2021).

Developed on a poetic site, this new capital has filled its topography by bringing pieces of soil from various significant places in Indonesia, most of them from Kalimantan and Sulawesi yet includes Nusa Tenggara, Sumatera, and Java as a symbol of unification. The recent development of IKN concentrates on major structures and infrastructures (Charleson, 2005). As the most fundamental element of the city, since 2022, the ministry has set a major design and construction progress toward the vice-presidential palace, the legislature's office complex, the judiciary's office complex, and public worship next to a grand lake, called Pancasila. Following the development of major accommodations like hotels owned by Swissôtel, Accor Group, and Sembcorp in collaboration with *Perusahaan Listrik Negara* (PLN) for the city's electricity. By seeing that, the typological structure shall become the most fundamental aspect of city design to securely implement the basic building typology in this capital city (Ariffin, Rashid, & Salleh, 2013).

## THEORETICAL APPROACH

### Design Transformation.

Design transformation is the process of making significant changes or evolving a design to better address emerging needs, goals, or contexts (Skeat, 1993). It involves reimagining and adjusting design principles, strategies, aesthetics, and technologies to keep pace with shifts in user expectations, technological progress, market trends, or organizational objectives. An interdisciplinary process potentially creates a sustainable change in terms of form to promote a greater system and organizations (Frampton, 2021). This human-centred approach has a multi-phase, consecutive processes to build from individuals to large and complex systems (Fricker, Kotnik, & Piskorec, 2019). Although applying design transformations is a non-traditional act, critiques suggest the results often demonstrate a conventional output. In this sense, a project created based on a design transformation frequently shows a similar structure through sets to suggest new roles, policies, organizations, and systems (Ashby, 2022). On the other hand, design transformation promotes a related change by showing closer genetics based on logical and straightforward variation. Hence,

diagrammatic illustrations often explain a transformation to display the origin and result, as familiarity and closeness may be obtained smoothly based on inspirational objects.

### Building typology.

It is a study and interpretation of types based on the classification, selection, and categorization of the building structures (Skeat, 1993). The science of building typology is constructed based on documentation, archived, and collection of buildings' physical characteristics. The focus of typology is to collect and separate various buildings based on their form, style, and function, formally forming groups according to their shape, scale, and site while identifying their traits according to their compositional structures (Ariffin, Rashid, & Salleh, 2013). Based on a form, building typology possesses a logical explanation of the scientific reason behind a transformation; it may refer to a process, timeline, system, or physical changes in the design (Husin & Komala, 2024). That is why in design transformation, building typology becomes the most effective instrument to detect building structural systems and formal organization (McDonald, 2001). It tends to simplify building appearance by showing the most fundamental aspects and principles of their main skeleton and structure (Charleson, 2005). Beyond typology, morphology is often suggested to understand a broader environment; a pattern language is a unique formal typological classification, not only for classifying complex buildings based on typology but also breaks down buildings into their components and elements to understand the overall patterns of adaptation (Ariffin, Rashid, & Salleh, 2013).

### *Ba'anjung and Balla*

*Ba'anjung* is a common name for Banjar and *Dayak Bakumpai* traditional house. A typical platform house with an iconic 46-degree high-pitched roof from Kalimantan, having two wings for rooms (Seman, 1982). *Ba'anjung* main building part is in the middle, where the steep roof is located; it is the most powerful place in the house and represents its residential (Yuniar, Saputri, & Widyaswari, 2022). The front room serves as a place for visitors, while the last room, located in the rear, is utilized for kitchen-like cooking, dishwashing, and laundering. On the other hand, *Balla Lampoa* is a Bugis-Makassar traditional house design (Purnamasari, 2019) and is one of the most prominent palaces of Gowa Kingdom (Asmulyani & Amalia, 2019). *Balla* often represents the South Sulawesi traditional house archetype, a coastal region near East Borneo. The platform house has an elevated floor more than 2 meters from the ground (Manor, 2024). It is served by a ladder, to reach its terrace. Typically, the house has an open and long layout, with 2 wings to accommodate bedrooms (Raodah, 2012). The front is considered more public, allowing neighbours and residents to mingle, while the back functions as a service area (Rachmah, 2018). The most common material construction is ironwood, with fabrics, natural objects, metal, and glass for ornaments and decorations (Purnamasari &

Makmur, 2022). Both *Balla* and *Ba'anjung* show similarities and uniqueness as coastal, naval, and maritime characteristics are represented by their platform type. However, the composition and proportion of their structural elements demonstrate a completely different appearance as they are located on different islands (Lianto, Husin, & Trisno, 2025).

METHODOLOGY

The research methodology combines a case study and bibliography, comparing precedent with a theory based on design transformation (Lianto, Husin, & Trisno, 2025). The research instrument is an architectural diagram illustrating the most fundamental aspects of structure, such as visualization (Charleson, 2005). The research was conducted from June 2024 to December 2025, achieving research precedent with actual observation in Kalimantan and Sulawesi. Different drawing sources have been superimposed to extract their modulation and later used as the design principle for the transformation (Ariffin, Rashid, & Salleh, 2013). The research respects the ideology of genetic typology in architecture by considering dominant and recessive types in the structure composition of the house (Husin & Komala, 2024).

RESULT AND DISCUSSION

*Ba'anjung* consists of 9 chambers with the number 8 as a twin, showing 300, 500, and 700 cm modules arranged in a symmetrical cross manner (Figure 1). It is a rigid aggregate, with zoning areas so-called public (1, 2), semi-public (3, 4), private (8), semi-private (5, 6), and service (7) (Table 1). The chamber separation is physically defined by partition: forming a long semi-open public room with straight and continuous space, with levelling defining the hierarchy of the rooms. At the same time, bedroom locations are differentiated as its wings. The strata are clearly illustrated by the gradation of the facade in the elevation (Figure 2). From the mass composition, *Ba'anjung* shows a frontage area illustrated by room 1, while the back is represented by room 7. Rooms 1 to 7 act as transitional, continuous, flexible, collective rooms of the house; they are the axis that formalizes the design and gesture of the house. This transitional area does not only function as a connector but also as a backbone of the house connecting, integrating yet defining uniquely public to service area while serving the whole house. While the most private area of the house, the hearth is defined by the twin bedrooms displayed by 8 and emphasized by the tallest level and highest roof. Despite showing a conventional cross-type as the configuration, *Ba'anjung* demonstrates a strong collective characteristic, an extended space as a house to embrace communal participation while presenting an unusual zoning gradation and securing private space as its wings. To suggest the opposite design transformation, a variation is made to propose an informal composition while maintaining similar characteristics as the original. Consisting of monotonous configuration yet repetitive modulation,

the design suggests transforming centralized composition into organic and flexible living while providing a strong axis and compactness, resulting in a more dynamic and flexible space configuration (Figure 3).

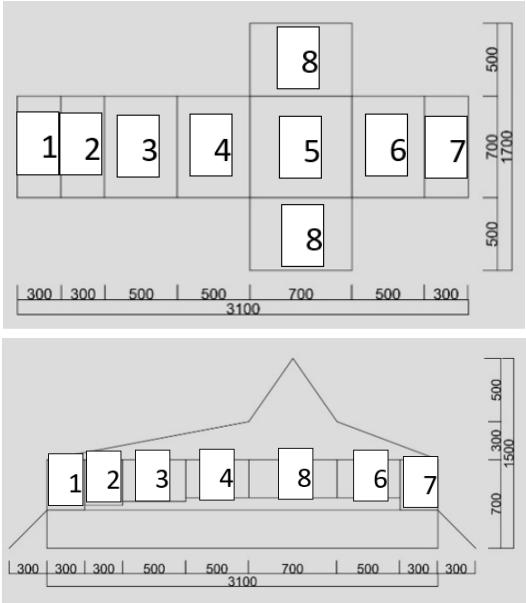


Figure 1. *Ba'anjung* Layout and Elevation Module

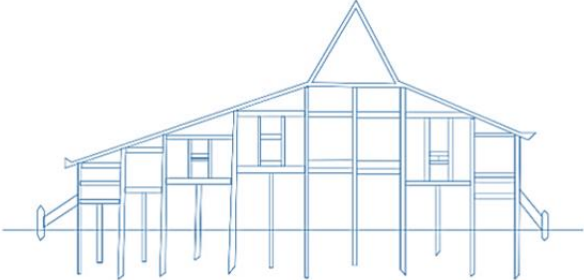
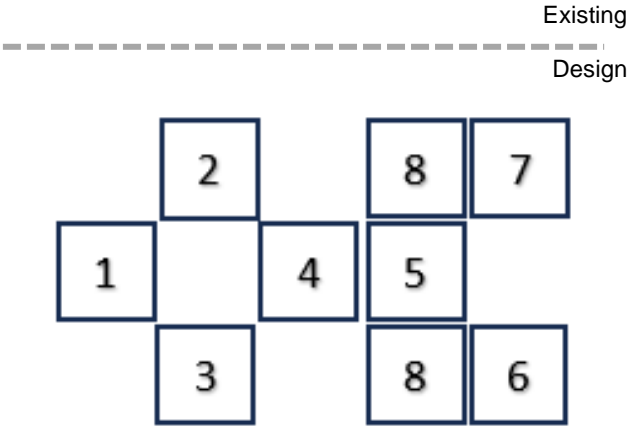


Figure 2. *Ba'anjung* Elevation  
Table 1. Module Dimension of *Ba'anjung*

No.	Room	Dimension (m)
1.	<i>Palatar</i>	7x3
2.	<i>Panampik Kacil</i>	7x3
3.	<i>Panampik Tengah</i>	7x5
4.	<i>Panampik Basar</i>	7x5
5.	<i>Palidangan</i>	7x7
6.	<i>Panampik Dalam</i>	7x5
7.	<i>Padapuran</i>	7x3
8.	<i>Anjung</i>	7x5



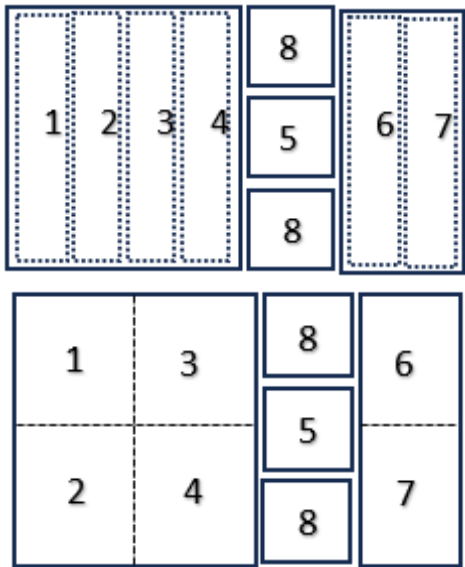


Figure 3. Ba'anjung's Design Transformation

On the other hand, *Balla* consists of 8 chambers, showing steady modules between 200, 300, 400, and 500 cm wide modules, arranged in a steady diagonal manner or zigzag (Figure 4). It is a loosely bounded aggregate, with zoning areas so-called public (1, 2), semi-public (3), private (4, 5, 6), semi-private (7), and service (8) (Table 2). The chamber separation is physically defined by partition, forming a quasi-semi-open room while maintaining connectivity and flexibility between rooms. The continuity is clearly illustrated by the long and congruent facade in the elevation (Figure 5). From the mass composition, *Balla* shows a frontage area illustrated by rooms 1 and 2, while the back is represented by rooms 6, 7, and 8. Rooms 2, 3, and 7 act as transitional, connecting and stitching all the rooms in the house. This transitional area serves not only to function as a connector but also as a buffer, a centre and a server for the triangulation of the house. At the same time, the bedrooms are displayed by 4, 5, and 6. Despite showing an organic and informal composition, *Balla* demonstrates fluidity, avoiding frontality while maintaining a seamless connection. To suggest the opposite design transformation, a variation is suggested to propose an adjustable formal composition while maintaining similar characteristics as the original. Understanding the strong nucleus yet scattered configuration, the design suggests a transformation of decentralized composition into compact configuration to improve collective living while providing the alternative of firmer zoning between the core and its service area, resulting in more steady and stable aggregates (Figure 6).

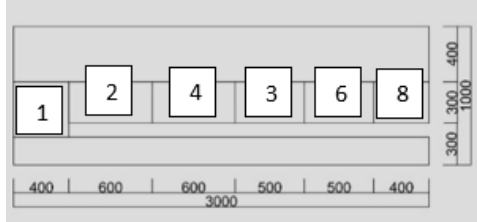
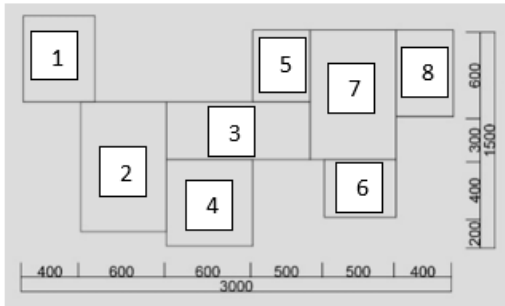


Figure 4. Balla Lampoa Layout and Elevation Module

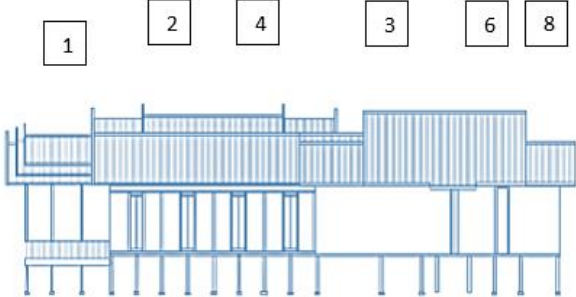


Figure 5. Balla Lampoa Elevation

Tabel 2. Module Dimension of Balla Lampoa

No.	Room	Dimension (m)
1.	Baruga	6x5
2.	Sitting Room	9x6
3.	Family Room	10x4
4.	Master Bedroom	6x6
5.	Middle Bedroom	5x4
6.	Bedroom	5x4
7.	Dining Room	9x6
8.	Kitchen	6x4

Existing  
Design

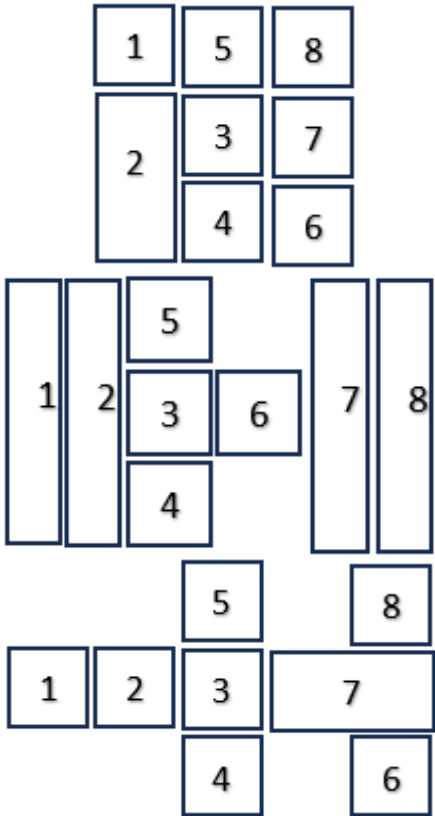


Figure 6. Balla's Design Transformation



## CONCLUSION

The study of design transformation shows that both *Ba'anjung* and *Balla* demonstrate a strong tendency for cross-type characteristics, with a platform structure with the roof as the most iconic feature yet indicating the heart of the house. Albeit equivalent, while *Ba'anjung* shows a centralized configuration as conventional, *Balla* highlights a decentralized organizational system with a tendency of longer zig-zag public areas. The two present a contrasting composition as the formal and informal configuration that is adjustable to be created as the opposite as they possess flexible and loosely bounded aggregates. Both existing *Ba'anjung* and *Balla* demonstrate different space proportions and compositional features, thus showing different modes. The finding shows the two displays a typical grid as the main structural units, it is replicated throughout the whole building. Both have wings as the main residential location, the frontage as the public area, and the back is used for service. The novelty of the research suggests that the building grid may present a set of tools to proliferate the building design while preserving the most fundamental organizational aspects; however, to present a better feature of the building, a golden rule may be developed to present a compositional feature aspect to mimic similar appearance to the traditional ones.

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