



## **Integration of Neo-Vernacular Architectural Values in the Design of Rental Apartments in Makassar City**

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### **ABSTRACT**

**Purpose of the study:** This study aims to analyze and formulate the integration of neo-vernacular architectural values derived from Bugis–Makassar traditional architecture into the design concept of rental apartment buildings in Makassar City in order to create culturally contextual and functional vertical housing.

**Methodology:** This study used a qualitative research approach with architectural design analysis. Data were collected through literature study, documentation study, and site observation in Makassar City. The analysis employed descriptive qualitative analysis to identify Bugis–Makassar architectural elements and integrate them into contemporary apartment design concepts.

**Main Findings:** The results show that Bugis–Makassar architectural elements such as traditional roof forms, spatial hierarchy, ornamental motifs, and environmental adaptation can be transformed and integrated into modern apartment design. The proposed design combines cultural identity, environmental responsiveness, and functional efficiency through façade adaptation, zoning systems, natural ventilation strategies, and contextual building mass composition.

**Novelty/Originality of this study:** The novelty of this study lies in the conceptual integration of Bugis–Makassar neo-vernacular architectural values into vertical residential design. This research demonstrates how traditional cultural elements can be transformed into modern apartment architecture while maintaining functional requirements and strengthening local cultural identity in urban housing development.

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## **1. INTRODUCTION**

The growth of population in major cities in Indonesia continues to increase along with economic development and urbanization. This condition has led to a growing demand for adequate housing, especially in urban areas where land availability is limited. Makassar City, as one of the main development centers in Eastern Indonesia, has experienced rapid urban growth in recent decades [1]. The increase in economic activities and population mobility has significantly raised the demand for residential spaces. Therefore, alternative housing solutions are required to optimize land use in urban environments.

The limitation of land in urban areas makes horizontal housing development increasingly difficult to implement effectively. This condition creates various spatial planning problems such as dense settlements, reduced open spaces, and insufficient supporting facilities. In Makassar City, the increasing population and the influx of workers from different regions and abroad further intensify the demand for strategic and comfortable housing [2]. However, the existing housing supply has not fully accommodated these needs efficiently. Consequently, a housing concept that addresses spatial efficiency while considering environmental and socio-cultural aspects is necessary.

One possible solution to overcome land limitations in urban areas is the development of vertical housing such as rental apartments. Rental apartments can serve as an efficient residential alternative because they are able to accommodate a larger number of residents within a limited land area. In addition, apartment buildings can be designed with supporting facilities that enhance residents' comfort and daily activities. In the design process, it is important to consider the characteristics of the surrounding environment and local culture in order to maintain the identity of the region [3]. The neo-vernacular architectural approach offers a concept that integrates traditional values with modern architectural needs.

Several previous studies have discussed the application of neo-vernacular architectural concepts in various building types. These studies generally highlight how traditional architectural elements can be adapted into modern building designs without eliminating local cultural values. Some research findings indicate that the neo-vernacular approach can strengthen regional architectural identity while improving building comfort through adaptation to local climatic conditions [4]. In addition, the incorporation of traditional elements can enhance the aesthetic value of contemporary buildings. Therefore, the neo-vernacular concept has strong potential to be applied in the design of vertical housing in urban areas.

However, most previous studies have focused on the application of neo-vernacular architecture in public buildings, tourism facilities, or cultural buildings. Research that specifically examines the application of this concept in vertical residential buildings such as apartments remains relatively limited. Furthermore, the integration of Bugis Makassar traditional architectural elements into modern apartment design has not been widely explored [5]. This situation indicates a research gap regarding how local architectural values can be integrated into modern and functional vertical housing. Therefore, further research is needed to explore the integration of neo-vernacular architectural values in the design of rental apartments in Makassar City.

This study offers novelty by examining the integration of Bugis–Makassar neo-vernacular architectural values into the design concept of rental apartments. The novelty of this research lies not only in the application of traditional forms and ornaments but also in how local cultural values are translated into spatial concepts, structural systems, and building mass composition [6]. This approach is expected to produce a vertical housing design that is not only functional but also reflects a strong cultural identity [7]. As a result, the proposed apartment design can represent a harmonious combination of modern architecture and local wisdom. This contribution is important for the development of contextual architectural design in urban environments.

This research is important because the development of vertical housing in large cities often neglects local cultural values. In fact, the integration of cultural elements in architectural design can strengthen city identity while preserving traditional values [8]. Through the neo-vernacular approach, apartment design can adapt to modern developments without losing its regional architectural character. Moreover, this study is expected to contribute to the development of more contextual and sustainable vertical housing design concepts. Therefore, the purpose of this study is to analyze and formulate the integration of neo-vernacular architectural values in the design of rental apartments in Makassar City.

## 2. RESEARCH METHOD

This study employed a qualitative research approach with an architectural design analysis method. The qualitative approach was chosen to explore and interpret the integration of neo-vernacular architectural values in the design of rental apartment buildings. The study emphasizes the identification and interpretation of architectural elements derived from Bugis–Makassar traditional architecture and their adaptation into contemporary apartment design. Through this approach, the research aims to develop conceptual design guidelines that integrate local cultural values with modern architectural needs [9]. The qualitative method also allows a comprehensive understanding of spatial, cultural, and environmental aspects in architectural design.

The research was conducted in Makassar City, South Sulawesi, Indonesia. Makassar is one of the major metropolitan areas in Eastern Indonesia and experiences rapid urban growth. The increasing population density and urban development create a high demand for vertical housing such as apartments [10]. The selection of Makassar as the research location is also based on its strong cultural identity, particularly the Bugis Makassar architectural tradition. These characteristics provide a relevant context for exploring the integration of neo-vernacular architectural values in contemporary residential design.

Data collection in this study was carried out through several techniques, including literature study, documentation study, and site observation [11]. Literature study was conducted to obtain theoretical references

related to apartment design, neo-vernacular architecture, and principles of architectural planning [12]. Documentation study was used to collect supporting data such as maps, photographs, planning documents, and spatial planning policies related to Makassar City. In addition, site observations were carried out to analyze the physical conditions of the planning area, including land use, accessibility, environmental conditions, and surrounding infrastructure [13]. These data were used as the basis for developing the design concept of rental apartments.

The data analysis technique used in this research was descriptive qualitative analysis. The analysis process began with identifying problems related to housing needs, urban land limitations, and the relevance of neo-vernacular architecture in contemporary design [14]. The collected data were then categorized and interpreted to determine the main factors influencing the design of rental apartments. Furthermore, the analysis focused on integrating elements of Bugis Makassar vernacular architecture such as building form, spatial organization, ornaments, and environmental adaptation. The results of this analysis were used to formulate the conceptual design framework for the rental apartment project.

Table 1. Neo-Vernacular Architectural Analysis Parameters

Aspect	Traditional Element	Design Adaptation in Apartment
Building Form	Traditional Bugis roof shape	Adapted to modern roof geometry
Spatial Hierarchy	Public – Semi private – Private	Zoning system in apartment layout
Ornament	Bugis decorative motifs	Applied on façade and interior
Climate Adaptation	Natural ventilation	Cross ventilation and shading
Cultural Identity	Symbolic architectural elements	Integration into building mass concept

The architectural design process in this research was carried out through several stages. The first stage involved site analysis, which examined the physical characteristics of the site, including land use, climate conditions, accessibility, and surrounding environmental context [15]. The second stage involved conceptual design development by translating neo-vernacular architectural values into modern apartment design principles. The third stage focused on spatial organization, building mass composition, structural considerations, and utility systems [16]. The final stage involved producing architectural design outputs such as site plans, floor plans, building elevations, and conceptual design illustrations. These stages ensured that the resulting design integrates functional requirements with local cultural identity.



Figure 1. Design stages

### 3. RESULTS AND DISCUSSION

The results of this study indicate that the demand for vertical housing in Makassar City continues to increase along with rapid population growth and urban development. This condition encourages the development of alternative housing solutions that can utilize limited urban land more efficiently through rental apartment buildings. Based on site analysis and user needs, the apartment design was developed by considering functional aspects, spatial comfort, and accessibility to urban facilities [17]. In addition, the design also incorporates cultural considerations through the application of neo-vernacular architectural principles. Therefore, the proposed apartment design not only functions as vertical housing but also reflects the local cultural identity of Makassar.



Figure 2. Site Location and Environmental Context



Figure 3. Sun orientation

The design analysis reveals that the architectural values of Bugis-Makassar traditional architecture can be integrated into modern apartment buildings through the transformation of form, façade elements, and spatial organization [18]. Elements such as traditional roof forms, local ornamental patterns, and hierarchical spatial concepts were adapted and reinterpreted in the building design. These elements were not directly replicated but were modified to suit the functional requirements of modern multi-storey buildings [19]. The design also considers tropical climate conditions by maximizing natural ventilation and daylighting. As a result, the neo-vernacular approach produces a residential building design that is environmentally responsive while maintaining a distinctive local architectural character.

Table 2. Integration of Bugis-Makassar Architectural Elements

Traditional Element	Modern Architectural Adaptation	Function
Traditional roof	Modified roof geometry	Cultural identity
Wooden ornaments	Decorative façade panels	Aesthetic value
Raised floor concept	Podium building design	Ventilation and circulation
Spatial hierarchy	Apartment zoning system	Privacy and functionality

The findings of this study are consistent with several previous studies which state that neo-vernacular architecture can serve as a strategy to preserve cultural identity in contemporary building design. However, most previous studies have primarily focused on public buildings, tourism facilities, or cultural centers rather than residential high-rise buildings [20]. This situation indicates a research gap regarding the application of local architectural values in vertical housing development in urban areas. Therefore, this research attempts to address this gap by examining how traditional architectural values can be integrated into the design of rental apartments. Consequently, this study contributes to the development of culturally responsive design approaches for urban residential architecture [21].

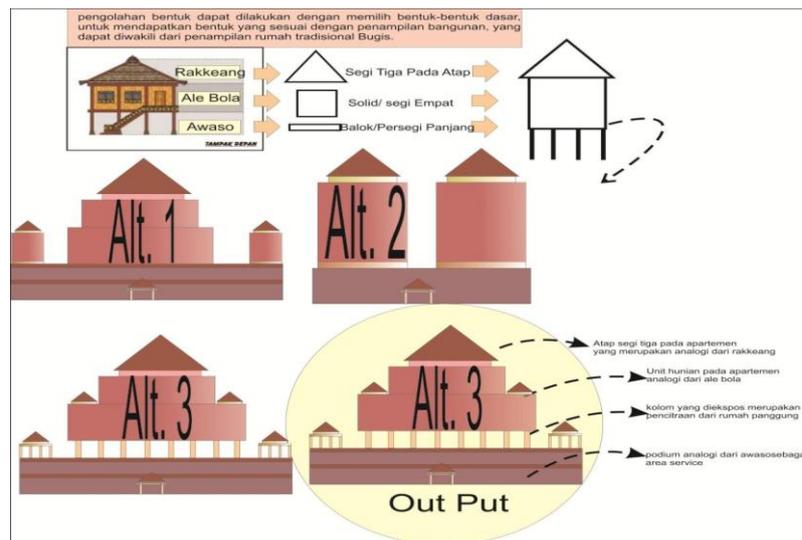


Figure 4. Building Orientation

The novelty of this research lies in the integration of neo-vernacular architectural values into the design of rental apartments in Makassar City, where modern architectural approaches generally dominate urban housing development [22]. This study emphasizes not only aesthetic adaptation but also functional integration of cultural elements within contemporary architectural design. The transformation of traditional Bugis-Makassar architectural elements into modern building components demonstrates that local cultural values remain relevant in contemporary urban architecture [23]. Furthermore, the study illustrates how vertical housing design can act as a medium for preserving local cultural identity in rapidly developing cities [24]. Thus, the neo-vernacular approach offers an innovative design alternative for contemporary apartment development.

The implications of this research suggest that the application of neo-vernacular architectural concepts in apartment design can provide added value both architecturally and culturally. From an architectural perspective, this approach produces building designs that are more contextual and responsive to local environmental conditions. From a socio-cultural perspective, integrating traditional architectural values helps strengthen the identity of urban areas that often lose their local character due to modernization. In addition, this concept can serve as a reference for architects and developers in designing vertical housing that balances economic, environmental, and cultural considerations [25]. Therefore, neo-vernacular architecture has the potential to become an important strategy for sustainable urban architectural development.

Despite its contributions, this study also has several limitations. The research focuses mainly on conceptual architectural design and does not evaluate the real-world implementation of the proposed building design. Furthermore, the perceptions and preferences of potential residents regarding the application of neo-vernacular design principles in vertical housing have not been examined in depth. Another limitation is that the study focuses on a single urban context, namely Makassar City [26]. Future studies are expected to expand this research by conducting empirical investigations and incorporating user perspectives in evaluating neo-vernacular architectural applications in urban housing.

#### 4. CONCLUSION

This study aims to analyze the integration of neo-vernacular architectural values in the design of rental apartments in Makassar City [27]. The results indicate that the increasing demand for housing in urban areas with limited land availability requires alternative residential solutions such as vertical housing [28]. Through qualitative architectural analysis, this research demonstrates that the principles of Bugis Makassar traditional architecture can be adapted and integrated into modern apartment design. The transformation of traditional elements such as roof forms, façade articulation, spatial hierarchy, and environmental adaptation shows that local cultural values can still be relevant in contemporary architectural development. The integration of these elements produces a residential design concept that is functional, culturally contextual, and environmentally responsive.

Furthermore, the application of neo-vernacular architectural concepts provides added value to apartment design by strengthening local identity while maintaining the efficiency and functionality required in modern housing [29]. This approach also supports sustainable architectural development by considering environmental adaptation and cultural continuity. The findings of this research can serve as a conceptual reference for architects, planners, and developers in designing vertical housing that integrates local wisdom with

modern architectural principles [30]. However, future research is recommended to expand the study by incorporating empirical evaluations, user perceptions, and comparative studies with other urban contexts. Such studies will further enrich the development of neo-vernacular architectural applications in contemporary urban housing.

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