

Keeping Colonial Heritage Alive in Bonanjo: Reversible and Adaptive Approaches for the Rehabilitation of the Woermann House

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Abstract: Colonial architectural heritage in Sub-Saharan Africa faces increasing threats from urban modernization, land pressure, and prolonged neglect. In Douala, Cameroon, the historic district of Bonanjo still preserves some of the last remaining examples of German colonial architecture, among which the Woermann House stands out as a significant late-nineteenth-century brick building. Its progressive degradation reflects a broader regional crisis affecting colonial heritage. This study proposes and evaluates an innovative rehabilitation project for the Woermann House grounded in the principles of reversibility and adaptability, and structured around the concept of Living Memory. Through a multidisciplinary methodology combining historical research, field diagnostics, stakeholder surveys, and comparative analysis with reference projects such as the Palais de Lomé (Togo) and the Gaité Lyrique (Paris), the research establishes a comprehensive diagnosis of the building and formulates a program of spatial and temporal adaptability. The proposed intervention combines the faithful restoration of the historic exterior envelope with a freely reinvented interior in which each space accommodates two complementary functions throughout the day: cultural transmission and memory-related activities in the morning, and contemporary creative and recreational activities in the afternoon. This dual program is made possible by a system of suspended movable partitions, retractable furniture, and a mobile stage. The evaluation of social, environmental, economic, and architectural impacts demonstrates that heritage rehabilitation constitutes not merely a technical operation but a sustainable cultural, social, and strategic act. The findings offer practical insights for architects, urban planners, and policymakers seeking to preserve colonial heritage while responding to contemporary community needs in African cities.

Keywords: Adaptive Rehabilitation, Reversibility, Spatial and Temporal Flexibility, Colonial Heritage, Woermann House, Living Memory, Bonanjo, Douala.

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I. INTRODUCTION

Colonial architectural heritage constitutes a valuable testimony to the history and cultural identity of the societies that inherited it. It reflects the social, political, and economic transformations of a given period and plays an essential role in transmitting collective memory to future generations. The conservation of this heritage not only preserves material evidence of the past but also contributes to sustainable local

development by valorizing existing architectural resources rather than replacing them with new constructions disconnected from the historical urban fabric.

In Cameroon, the conservation of colonial architectural heritage has often remained a secondary concern for the relevant authorities. The absence of a clear and effective heritage safeguarding policy, combined with limited public awareness and chronic insufficient financial resources, has

led to the progressive degradation of numerous historic buildings. Bonanjo, the administrative and historic district of Douala, successively hosted German presence from 1884 to 1916 and French presence from 1916 to 1960, leaving a significant number of buildings that testify to this dual colonial history. These edifices, which form an essential part of the city's urban and architectural memory, are today in a state of advanced precariousness. They suffer from informal transformations, insufficient maintenance, and growing land pressure that frequently favors their demolition in favor of modern constructions [1].

An additional obstacle to the preservation of this heritage lies in the ambivalent perception that local populations sometimes hold of it. Due to Cameroon's painful colonial past, these buildings are occasionally viewed as vestiges of an era marked by oppression and exploitation, which complicates collective support for safeguarding initiatives [2]. Yet, beyond their complex historical connotations, these buildings possess considerable architectural, cultural, and patrimonial value that deserves recognition and promotion within a perspective of reconciliation between memory and contemporary development.

It is within this context that the present research focuses on the Woermann House in Bonanjo, one of the rare remaining witnesses of German colonial architecture in Douala. Built at the end of the nineteenth century by the Woermann trading company, this fired-brick building currently presents an advanced state of degradation, compromised patrimonial legibility resulting from decades of informal transformations, and progressive disconnection from its surrounding community. Facing this situation, a central research question emerges: How can reversible and adaptive rehabilitation approaches keep colonial heritage in Bonanjo alive, reconciling the requirements of historical authenticity with the contemporary functional and social needs of the neighborhood?

II. LITERATURE REVIEW

➤ *Colonial Architectural Heritage in Sub-Saharan Africa*

Colonial architectural heritage in African cities represents a complex and contested legacy. Buildings constructed during the colonial period embody contradictory values: they are simultaneously testimonies of historical oppression and witnesses of architectural and urban practices that shaped the structure of contemporary cities [3]. Recent scholarship has renewed interest in these buildings as potential resources for urban development, arguing that their preservation can generate social, cultural, and economic benefits for present-day communities [4].

In West and Central Africa, the loss of colonial buildings has accelerated in recent decades due to real estate speculation, insufficient institutional protection, and the absence of community ownership of these structures. Studies conducted in historic districts of Accra, Dakar, and Douala indicate that informal transformations and lack of maintenance constitute the primary causes of degradation,

often ahead of deliberate demolition [5]. These findings suggest that appropriate rehabilitation strategies addressing both the physical condition of buildings and their social relevance could effectively counter this trend.

➤ *Principles of Reversibility and Adaptability in Heritage Rehabilitation*

The principle of reversibility, formalized in international conservation charters including the Venice Charter (1964) and the Burra Charter (1999), stipulates that any intervention on a historic building must remain technically reversible so as not to compromise future interventions [6]. This principle has been progressively refined to encompass not only the technical reversibility of interventions but also the functional and programmatic adaptability of buildings over time.

Adaptive reuse, defined as the process of repurposing a building for a use other than its original function while preserving its heritage values, has emerged as a central strategy in contemporary heritage practice. Studies of successful adaptive reuse projects in Africa and elsewhere demonstrate that the compatibility between a new program and the spatial and structural characteristics of the existing building constitutes a primary determinant of project success [7].

The concept of temporal adaptability, more recently theorized in architectural literature, extends the logic of adaptability to the temporal dimension by designing spaces capable of accommodating different functions at different times of day or year without requiring permanent physical transformations of the building structure [8]. This approach maximizes the utilization rate of rehabilitated buildings and improves their economic viability, a critical factor in contexts where public funding for heritage conservation remains limited.

➤ *Reference Projects: Palais De Lomé and Gaîté Lyrique*

Two reference projects have particularly informed the methodological and conceptual approach of this research. The rehabilitation of the Palais de Lomé in Togo, completed in 2019, constitutes one of the most documented examples of colonial heritage rehabilitation in Sub-Saharan Africa conducted according to rigorous patrimonial conservation principles. The project demonstrates that it is possible to introduce contemporary functions into a colonial building while preserving its historical authenticity through a clear distinction between existing elements and new interventions [9].

The rehabilitation of the Gaîté Lyrique in Paris, completed in 2011, offers an international reference model for the introduction of reversible contemporary devices into a classified historic envelope. The project demonstrated that complex technical equipment and contemporary scenographic systems can be introduced into a protected historic building, provided these interventions are designed according to strict principles of reversibility and a clear distinction between existing and new elements [10].

III. RESEARCH METHODOLOGY

This study adopts a mixed multidisciplinary methodology combining qualitative field data with quantitative architectural analysis. This approach was selected in order to bridge the gap between the contextual understanding of the Woermann House's patrimonial specificities and the measurable performance of the proposed rehabilitation project.

➤ Data Collection

To ensure a contextually appropriate and technically robust rehabilitation proposal, this study combined primary and secondary data sources. Primary data were collected through on-site observations and architectural surveys of the Woermann House, complemented by discussions with local residents, administrative personalities, cultural actors, and representatives of heritage institutions in Douala. These discussions focused on the patrimonial perception of the building, community needs in the Bonanjo district, and the financial and institutional constraints of heritage rehabilitation in Cameroon. Field visits were conducted at the Woermann House and throughout the broader Bonanjo district in order to document the urban context, the physical state of the building, and the patterns of use of neighboring spaces.

Secondary data were obtained from published literature on colonial heritage conservation, adaptive rehabilitation, and flexible architecture. Historical archives concerning the Woermann House and the Bonanjo district were consulted at national and international documentary institutions. Technical documentation of reference projects, particularly the Palais de Lomé and the Gaîté Lyrique, was analyzed in order to identify transferable principles and methods.

➤ Architectural Diagnosis

The architectural diagnosis of the Woermann House was conducted according to a cross-analysis framework covering three complementary dimensions. The technical diagnosis examined the structural condition of the building, identifying pathologies affecting the roof, façades, floors, woodwork, and technical installations. The functional diagnosis analyzed the existing organization of spaces, circulation patterns, and the adequacy between current uses and the spatial characteristics of the building. The patrimonial diagnosis evaluated the historical and architectural values of the building, identifying the original elements to be preserved and the informal transformations to be corrected.

➤ Architectural Design Process

The conceptualization of the rehabilitation project was guided by three key principles: patrimonial fidelity for the exterior, functional innovation for the interior, and temporal adaptability for the program. The architectural concept, structured around the notion of Living Memory, established a dual intervention logic: the faithful restoration of the historical exterior envelope based on documentary sources, and the free reinvention of the interior spaces according to a program of temporal adaptability that is unprecedented in the Cameroonian context.

The BIM modeling of the project was carried out using Autodesk Revit, which facilitated the precise development of architectural plans, sections, façades, and interior perspectives, as well as the generation of detailed technical documentation on the movable partition systems, retractable furniture, and mobile stage.

IV. RESEARCH FINDINGS AND DISCUSSION

➤ Diagnosis of the Woermann House

The cross-disciplinary diagnosis of the Woermann House revealed a paradoxical reality characteristic of many colonial heritage buildings in Sub-Saharan Africa: a building that is degraded on the surface yet structurally sound, impoverished in its patrimonial legibility yet rich in spatial potential, and largely abandoned by its community while still carrying a precious collective memory. The load-bearing structure in mixed masonry remains sufficiently solid to support a complete rehabilitation intervention without requiring partial or total reconstruction. This finding constitutes a fundamental justification for preferring rehabilitation over demolition and reconstruction.

The most severe degradations affect the building envelope, particularly the roof and façades, whose condition compromises the entire structure through water infiltrations. Characteristic elements of German colonial architecture—louvered woodwork, the peripheral gallery, and generously proportioned spaces—subsist in fragmentary form but remain sufficient to guide their complete restitution. Surveys conducted with residents and local personalities confirm the progressive disconnection between the building and its community, with a majority of respondents unaware of the building's historical significance.

➤ The Living Memory Concept: Architectural Proposal

The architectural proposal is articulated around the concept of Living Memory, founded on the conviction that the best way to preserve a heritage building is to give it a reason to exist in the present. This concept translates architecturally into an assumed duality between a rigorously restored exterior that embodies memory and a freely reinvented interior that embodies life.

On the exterior, the project adopts a posture of rigorous and documented restitution. The peripheral gallery is restored in its original dimensions, proportions, and constructive details. The woodwork shuttered doors and windows is reconstructed identically on the basis of historical surveys. The façade renders are restored in their original texture and color. No new element is added to the façades, no new opening is created, and no contemporary material is visible from the public space. The exterior of the building belongs entirely to history.

On the interior, the project adopts a radically different posture founded on creative freedom within strict respect for reversibility. Interior spaces are reinvented to accommodate the contemporary adaptive program without imitating the historical vocabulary. New interventions are clearly identifiable as contemporary: ceiling-embedded rail systems,

wall-integrated retractable tables, deployable stages, and programmable lighting systems are designed with a refined contemporary aesthetic that dialogues with the historic structure without mimicking it.

➤ *Temporal Adaptability Program*

The temporal adaptability program constitutes the most innovative dimension of the project. Each space in the building accommodates two complementary functions during the same day, structured around two daily phases separated by a one-hour transformation period.

The morning phase (7:00–14:00) is dedicated to activities of cultural transmission and memory: reading, traditional cuisine, art exhibition, and professional training. The afternoon phase (15:00–19:00) is dedicated to contemporary creative and recreational activities: gaming, mini-bar, coworking, and cultural performances. The transition between these two phases is ensured by a dedicated management team intervening during a maximum one-hour transformation slot between 14:00 and 15:00.

A third temporal dimension completes the program: ancestral practices of dance, poetry, and singing that occupy the cultural space of the upper-floor right apartment. These practices are neither exclusively past nor exclusively contemporary; they are ancestral, deeply rooted in Cameroonian cultures, yet continue to be lived and reinvented today. They embody continuity the invisible thread that crosses time and connects generations.

➤ *Suspended Movable Partition System*

The suspended movable partition system constitutes the central architectural device enabling spatial flexibility. Unlike conventional systems requiring floor-level rails, the proposed system is entirely top-hung, with rails embedded in a lightweight suspended ceiling fixed to the existing structure without perforation of historical structural elements. The upper bearing structure consists of a multilayer sandwich assembly fixed to a new 10 cm reinforced concrete slab: a 5 mm neoprene membrane for vibration damping and acoustic isolation, an 18 mm waterproof plywood panel, and a 5 mm aluminum reinforcing plate.

The partitions are available in three typologies: the support partition, designed to delimit spaces while serving as a cimaises for artwork display; the Toggler Door partition, incorporating a pivot door embedded in the panel thickness and allowing communication between adjacent spaces without encroaching on usable surface; and the swinging-door partition, offering wide openings that facilitate the circulation of large flows of people during phase transitions.

The multilayer composition of each panel ensures acoustic performance estimated between 38 and 42 dB of attenuation: an exterior face in 6 mm waterproof MDF, 38 mm PET high-density acoustic felt, a 40 mm acoustic polyester wool core, 10 mm PET acoustic felt, and a 6 mm waterproof MDF rear face. The PET felt used is manufactured from recycled polyethylene terephthalate fibers derived from plastic bottle recycling, affirming a dual

coherence technical through its acoustic qualities, and environmental through its contribution to the circular economy.

➤ *Impact Assessment*

The evaluation of project impacts confirms that the rehabilitation of the Woermann House generates collective benefits that extend far beyond its architectural perimeter. Socially, the project reconstructs the link between a monument and its community by creating a space of daily life, intergenerational encounter, and cultural transmission. Economically, the self-financing model based on space rentals generates revenues covering management staff salaries and operating costs, with any surplus transferred to the city of Douala, thereby transforming the rehabilitated building into a productive collective asset rather than a permanent budgetary burden. Environmentally, the restoration of original bioclimatic devices the peripheral gallery, louvered windows, and fired-brick walls with high thermal inertia ensures thermal comfort without artificial air conditioning, while the choice of local materials and recycled PET felt reduces the carbon footprint of the project. Architecturally, the project demonstrates through a concrete example that heritage preservation and contemporary architectural innovation are not only compatible but mutually enriching.

V. CONCLUSIONS

This study effectively applied reversible and adaptive rehabilitation approaches to propose an innovative rehabilitation project for the Woermann House in Bonanjo, Douala, one of the rare remaining witnesses of German colonial architecture in Cameroon. The research structured the project around the Living Memory concept, combining the faithful restoration of the historic exterior envelope with a freely reinvented interior organized according to a program of temporal adaptability that is unprecedented in the Cameroonian context.

The findings demonstrate that heritage rehabilitation is not limited to a technical operation but constitutes a cultural, social, and strategic act. By restoring meaning, use, and life to a building such as the Woermann House, the project contributes to maintaining a living urban memory, creating local employment, offering proximity services to Bonanjo residents, and proving that colonial heritage preservation can be fully integrated into a logic of sustainable urban development that respects history while addressing contemporary needs.

BIM-enabled workflows facilitated accurate architectural documentation, technical development of the suspended movable partition system, and comprehensive spatial organization of the temporal adaptability program. The use of Autodesk Revit throughout the design process supported evidence-based design decisions and provided robust documentation for the proposed intervention.

These results offer practical insights for architects, urban planners, heritage institutions, and policymakers in

Cameroon and across Sub-Saharan Africa seeking to develop approaches that preserve colonial architectural heritage while generating sustainable social, cultural, and economic value for contemporary communities. Future research should explore the systematic application of temporal adaptability strategies to other buildings in the Bonanjo historic district, and investigate mechanisms for institutional heritage protection that would guarantee the long-term preservation of this exceptional architectural ensemble.

REFERENCES

- [1]. Soulillou, J. (1993). Douala, un siècle en images. Paris: L'Harmattan.
- [2]. Fizez, R. (2024). Resisting material binaries: Unpacking persisting dichotomies of building materials in Central Africa. *Les Cahiers de la recherche architecturale urbaine et paysagère*, (20). <https://doi.org/10.4000/craup.15067>
- [3]. Awoussi, M. Y., et al. (2025). Analysis of the sustainability elements of vernacular architecture in Northern Togo. *Sustainability*, 17(6), 2450.
- [4]. UNESCO. (2019). Recommendation on the Historic Urban Landscape. Paris: UNESCO.
- [5]. ICOMOS. (2017). The Future of Our Pasts: Engaging Cultural Heritage in Climate Action. Paris: ICOMOS.
- [6]. ICOMOS. (1964). International Charter for the Conservation and Restoration of Monuments and Sites (Venice Charter). Venice: ICOMOS.
- [7]. Bullen, P. A., & Love, P. E. D. (2011). Adaptive reuse of heritage buildings. *Structural Survey*, 29(5), 411–421.
- [8]. Kronenburg, R. (2007). Flexible: Architecture that Responds to Change. London: Laurence King Publishing.
- [9]. Doual'art. (2019). Rapport de réhabilitation du Palais de Lomé. Douala: Doual'art.
- [10]. Mangin, D. (2012). La Gaîté Lyrique: un monument réhabilité. Paris: Éditions du Pavillon de l'Arsenal.
- [11]. Abanda, F. H., Nkeng, G. E., Tah, J. H. M., Ohandja, E. N. F., & Manjia, M. B. (2014). Embodied energy and CO₂ analyses of mud-brick and cement-block houses. *AIMS Energy Journal*, 2(1), 18–40.