



HOLISTIC DESIGN STRATEGIES FOR ADAPTIVE REUSE OF RAJWADA ARCHITECTURE INTO A HERITAGE RESORT: A MAHARASHTRIAN TRADITIONAL INTERIOR APPROACH

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Abstract: The adaptive reuse of heritage structures has emerged as a critical strategy for preserving cultural identity while addressing contemporary functional demands, particularly within the context of Maratha history. This research explores the transformation of the Ichalkaranji Rajwada in Kolhapur into a heritage resort, focusing on the integration of traditional Maharashtrian architectural and interior design principles characterized by climatic responsiveness, spatial hierarchy, and intricate craftsmanship. By examining the challenges of neglect and inappropriate modifications facing such monuments, the study investigates adaptive reuse as a sustainable conservation approach guided by the principles of minimum intervention, reversibility, material authenticity, and contextual compatibility. Through a comparative analysis of case studies like Fort Jadhav Gadh and Taj Lake Palace, the research develops spatial planning frameworks that reinterpret traditional courtyards and halls into modern guest accommodations, dining areas, and wellness facilities. Furthermore, the study proposes a design theme rooted in local materials and spatial narratives to enhance cultural authenticity while discreetly integrating modern services. Ultimately, this research demonstrates how transforming static monuments into living heritage environments ensures their economic viability, environmental sustainability, and long-term preservation as immersive cultural landmarks.

Index Terms - adaptive, reuse, structure, design, resort.

1. INTRODUCTION

Heritage structures represent the cultural identity of a region, reflecting its history, traditions, and socio-political development. In Maharashtra, Rajwada's (royal residences) are significant architectural examples that embody the lifestyle, governance, and artistic expression of the Maratha period. With features such as courtyards, wooden structures, intricate carvings, and hierarchical planning, they demonstrate climate-responsive and culturally rooted design.

Today, many Rajwadass face challenges due to urbanization, changing needs, and lack of maintenance. As their original functions become obsolete, they are often underutilized or modified without sensitivity, leading to loss of architectural integrity and heritage value.

The Ichalkaranji Rajwada is one such structure, currently used for institutional purposes. While this ensures occupancy, it does not fully respect or utilize its architectural and cultural significance, often resulting in alterations that conflict with its original spatial character. Despite this, the Rajwada offers strong potential for adaptive reuse due to its robust construction, spatial organization, and historical importance. Its courtyards and large spaces can be effectively reinterpreted for new functions.

Adaptive reuse provides an opportunity to revive such heritage structures by integrating modern needs while preserving their essence. Converting the Rajwada into a heritage resort can promote cultural tourism, ensure economic sustainability, and create an immersive experience of traditional Maharashtrian architecture. This approach aims to balance conservation with contemporary use, bridging the gap between tradition and modernity. Heritage structures like Maharashtra's Rajwadass embody Maratha history through climate-responsive, hierarchical design. However, urbanization and neglect now threaten their integrity. The Ichalkaranji Rajwada, though preserved through institutional use, suffers from insensitive modifications. Converting it into a heritage resort offers a sustainable adaptive reuse strategy, balancing modern tourism with authentic cultural conservation.

2. LITERATURE REVIEW

2.1 Adaptive Reuse in Architecture

Adaptive reuse is the process of transforming an existing building for a new function while retaining its historic, architectural, and cultural significance. In the context of this thesis, it involves converting the Ichalkaranji Rajwada from its current institutional use into a heritage resort.

This approach is particularly relevant for heritage structures like Rajwadās, where the original residential or administrative functions are no longer viable in today's context. Instead of demolition or insensitive alterations, adaptive reuse allows the building to remain active and economically sustainable.

For this project: Existing residential and institutional spaces can be transformed into guest rooms and suites. Large halls can function as banquet or cultural spaces. Courtyards can be adapted into open dining or leisure areas. Adaptive reuse also supports sustainability by reducing construction waste and conserving embodied energy. More importantly, it preserves the cultural identity of the structure by allowing users (guests) to experience the heritage in a functional and immersive way. Thus, the Rajwada is not treated as a static monument but as a *living heritage space*.

2.2 Heritage Conservation Principles

The adaptive reuse of the Rajwada must follow established conservation principles to ensure that its historical integrity is not compromised. According to guidelines by UNESCO, the following principles are critical and directly applicable to this project:

2.2.1 Minimum Intervention

The primary objective of the adaptive reuse is to ensure that any design intervention remains minimal, treating the Rajwada's existing structure with the utmost reverence. This approach dictates that the structural walls, internal courtyards, and intricate wooden elements are not just preserved, but serve as the definitive guide for the new spatial layout. Rather than forcing a modern floor plan onto the historic building, the resort's functions must adapt to the original configurations; for instance, a former grand hall might become the *Diwan-khana* or a signature suite without moving a single load-bearing wall. By respecting the established geometry and the rhythm of the façade, the project maintains its historical authenticity while proving that heritage and hospitality can coexist without structural compromise.

2.2.2 Reversibility

A critical pillar of the restoration strategy is the principle of reversibility, which ensures that all contemporary additions are "guest" elements within the historic "host" building. New partitions, modern service conduits, and built-in furniture should be designed with non-invasive joinery and independent framing systems that do not rely on the original masonry for support. This "plug-in" methodology allows any modern intervention to be removed or upgraded in the future without leaving permanent scars on the 18th-century fabric. By treating the HVAC ducts and plumbing stacks as modular, secondary layers, the design secures the long-term preservation of the Rajwada, allowing future generations the freedom to see the structure in its purest form.

2.2.3 Respect for Original Materials

Respecting the original material palette is essential to maintaining the Rajwada's tactile and visual soul, requiring a commitment to stone masonry, timber columns, and lime plaster. Rather than substituting aged surfaces with modern cement or synthetic finishes, restoration should utilize traditional techniques and local craftsmanship to heal the building. When timber or stone requires repair, the new material should match the old in type and density to ensure structural and thermal compatibility. This dedication to authentic materials prevents the "museum-like" coldness often found in modern restorations, instead fostering a warm, breathable environment that honors the heritage of Maharashtrian construction.

2.2.4 Compatibility of New Additions

For the resort to be functional, modern amenities like specialized lighting, climate control, and luxury furniture must be integrated with a focus on aesthetic and technical compatibility. Contemporary lighting can be designed to echo traditional oil-lamp motifs or hidden within architectural recesses to highlight the texture of stone walls without exposing modern fixtures. Similarly, HVAC vents and plumbing can be concealed within custom-designed cabinetry or false wooden ceilings that mimic historical patterns, ensuring that the "machinery" of the resort remains invisible. This thoughtful blending ensures that while the guest enjoys 21st-century comfort, the visual narrative remains firmly rooted in the traditional character of the Rajwada.

2.2.5 Rajwada Architecture in Maharashtra

Rajwadās are an important part of Maharashtra's architectural heritage and provide a strong foundation for designing a culturally immersive resort. Their planning and design are inherently suitable for hospitality functions due to their spatial organization and climatic responsiveness. Furthermore, the rhythmic arrangement of timber-framed galleries (*Malavad*) and deeply recessed verandas offers a unique spatial template for private guest suites, providing an intimate connection to history without compromising modern comfort. By leveraging these existing structural hierarchies, the transition from a stately residence to a boutique resort becomes a seamless narrative of "living history," where the architectural fabric itself acts as a primary storyteller.

2.3 Key Features and their Relevance to Thesis

2.3.1 Courtyard Planning (Chowk System):

Courtyards act as the central organizing elements of Rajwadās, providing light, ventilation, and social interaction spaces. In the proposed resort, these can be adapted into open-air dining areas, performance spaces, or relaxation zones, enhancing guest experience.

2.3.2 Wooden Columns and Brackets:

These elements provide both structural support and aesthetic richness. In the resort design, they can be highlighted as key interior features, reinforcing the traditional character.

2.3.3 Intricate Carvings and Detailing:

Decorative elements reflect local craftsmanship and cultural identity. These can be preserved and enhanced through lighting design and interior styling, creating a unique heritage ambiance.

2.3.4 Thick Stone Walls:

These walls provide thermal insulation, making the structure naturally climate-responsive. This reduces dependency on mechanical cooling systems, supporting sustainable design strategies.

2.3.5 Hierarchical Zoning (Public to Private):

The spatial organization of Rajwadas aligns well with resort planning:

- a. Public areas → Reception, restaurant
- b. Semi-private areas → Lounges, activity zones
- c. Private areas → Guest rooms

This natural zoning reduces the need for major structural changes.

2.4 Space planning requirements for Adaptive Reuse of Rajwada into Resort

2.4.1 Arrival & Public Zone

A. The Grand Entrance and Orientation

The Arrival & Public Zone serves as the primary gateway, leveraging the grand historical scale of the original structure to create an immediate sense of wonder. By utilizing the Main Courtyard (Arrival Chowk) as a central focal point, you establish a natural sense of orientation and ventilation, while the Reception and Lobby offer a sophisticated transition from the public realm to the guest experience.

B. Diwan-khana and Guest Services

The Grand Lounge (Diwan-khana) should be treated as a re-imagined historic living space, preserving original proportions and intricate details while integrating modern comfort for lounging. Placing the Concierge Desk and Public Restrooms adjacent to the lobby ensures high operational efficiency and accessibility without detracting from the aesthetic heritage of the entrance.

2.4.2 Food & Beverage (F&B) Zone

A. Restaurant & Dining Area

The Food & Beverage Zone requires a delicate balance of modern hospitality standards and the preservation of the existing architectural shell. The Fine Dining Restaurant and Bar/Lounge benefit from being housed in historic chambers where original arches, stone, or woodwork can be showcased, creating a unique atmosphere that modern builds cannot replicate.

B. Café & Outdoor Seating Area

The inclusion of an Outdoor Terrace Seating area acts as a vital extension of the indoor restaurant, allowing guests to experience the exterior facade and the local climate firsthand. Meanwhile, the Private Dining Room offers an exclusive, intimate environment for events, ensuring the F&B zone remains versatile enough for both high-traffic dining and specialized celebrations.

2.4.3 Guest Accommodations

The Guest Accommodations are the core of the adaptive reuse strategy, specifically the Signature Suites which should occupy the most architecturally significant historic chambers. These spaces focus on high-end restoration, blending antique features with luxury bathroom upgrades and separate living areas to justify their larger, prestigious footprint.

2.4.4 Wellness & Recreation

Holistic Health and Functional Layouts

The functional layout of the Treatment Rooms and Yoga/Meditation Studio must prioritize a seamless flow between the Spa Reception and the Changing Rooms. This compact but efficient zoning allows for a premium wellness experience that feels expansive and serene, despite being integrated into the existing structure of the Rajwada.

2.4.5 Back-of-House (BOH) & Services

A. Kitchen & Storage Area

The BOH & Services zone is the operational engine of the resort, requiring discreet placement to avoid interfering with the guest's visual experience. The Main Kitchen and Storage areas must be positioned for easy delivery access while remaining directly linked to the F&B zones for efficient service and temperature-controlled food logistics.

B. Staff, Utility Area

The MEP/Utility Room is critical in adaptive reuse, as it must house modern HVAC, electrical, and plumbing systems without damaging the historic fabric. Staff areas, including Lockers and Administration Offices, should be clustered to create a dedicated hub for personnel, ensuring that housekeeping and laundry operations run smoothly behind the scenes.

3. CASE STUDY

3.1 Fort Jadhav Gadh, Pune, India.

The adaptive reuse of Fort Jadhav Gadh into a heritage resort is a notable example of transforming a historic Maratha fort (often referred to as a Rajwada-type fortified residence) into a contemporary hospitality space while preserving its architectural identity. Originally built in the 18th century, the fort is historically associated with the Maratha noble Pilaji Jadhav, a trusted commander under Chhatrapati Shahu Maharaj. The restoration and conversion into a luxury resort were undertaken by the hospitality group Kamat Hotels India Limited under the brand Gadh Heritage Hotels. The design and conservation approach involved collaborative efforts by conservation architects and interior designers, focusing on retaining authenticity rather than imposing a completely new design language.



Architecturally, the fort reflects traditional Maratha military planning with thick basalt stone walls, fortified bastions, narrow entrances, and internal courtyards that organize spatial movement. The original layout has been largely preserved, maintaining its hierarchical progression from the main gateway (*Maha Darwaza*) to inner chowks. The adaptive reuse strategy followed minimal intervention, where structural elements such as ramparts, stone masonry, and circulation pathways were conserved. Instead of altering the built form, the design adapts existing spaces into functional zones like guest rooms and public areas, ensuring that the historical spatial character remains intact.

From an interior design perspective, the project emphasizes a balance between heritage aesthetics and modern comfort. The interiors incorporate traditional materials such as wood, stone, and metal, along with restored doors, columns, and exposed beams to maintain authenticity. Antique furniture, artifacts, and curated displays enhance the narrative quality of the space, giving it a museum-like experience. The original cellular rooms have been adapted into guest accommodations, each retaining unique architectural features like thick walls and small openings, which contribute to thermal comfort and spatial character. Lighting design plays a key role, using warm tones to highlight textures and create an immersive historical ambience.

Overall, the adaptive reuse of Fort Jadhav Gadh demonstrates how a Rajwada-style fort can be successfully transformed into a resort through sensitive architectural conservation and context-driven interior design. The project highlights the importance of preserving original materials and spatial organization while integrating modern services discreetly, making it a relevant case study for interior design research focused on heritage reuse.

3.2 Taj Lake Palace, Udaipur, India.

The adaptive reuse of Taj Lake Palace is a significant case study in transforming a historic Rajwada into a luxury heritage resort while preserving its architectural and cultural essence. Originally built in 1746 by Maharana Jagat Singh II as a summer palace for the royal family of Mewar, the structure is located on Lake Pichola. The palace exemplifies Rajput architecture, characterized by white marble construction, intricate jharokhas (overhanging balconies), cusped arches, courtyards, and symmetrical planning. Its placement in the middle of the lake enhances its visual grandeur and climatic responsiveness, as the surrounding water helps regulate temperature and creates a serene spatial experience.

The adaptive reuse of the palace into a heritage hotel was undertaken by The Indian Hotels Company Limited (Taj Group), which converted the royal residence into a luxury hotel while retaining its original spatial and architectural identity. The intervention followed a conservation-based approach, ensuring minimal alteration to the structure. The original layout, including courtyards, terraces, and ceremonial spaces, was preserved and repurposed into guest rooms, dining areas, and public hospitality zones. This approach reflects the principle of adaptive reuse, where the building's historic character is maintained while its function is updated.



Architecturally, the palace retains its defining features such as marble façades, columned corridors, fountains, and open courtyards that enhance ventilation and daylighting. The spatial hierarchy—from semi-public reception areas to private royal chambers—has been adapted into a hotel layout without disrupting the original planning. Circulation paths, including narrow passages and interconnected courtyards, create a sequential spatial experience, reinforcing the sense of royal movement through the palace.

Modern services such as plumbing, electrical systems, and climate control have been carefully integrated within the existing structure to maintain visual authenticity.

From an interior design perspective, the Taj Lake Palace successfully bridges heritage aesthetics with modern luxury. The interiors preserve original elements such as inlay marble work, decorative ceilings, arches, and traditional motifs, while incorporating period-

style furniture, rich textiles, and handcrafted décor. Each room is uniquely designed, reflecting the individuality of royal chambers rather than a standardized hotel format. The use of silk fabrics, carved wooden furniture, and ornamental detailing enhances the opulent character of the interiors. Additionally, artifacts, paintings, and historical references are integrated into the design, creating an immersive cultural experience.

Lighting and ambience play a crucial role in the interior transformation. Natural light is maximized through courtyards, terraces, and large openings, while artificial lighting is designed to accentuate the reflective quality of marble surfaces and highlight intricate details. Soft, warm lighting enhances the sense of luxury and intimacy, especially during evening hours when the palace appears to float on the lake. Water reflections further contribute to the dynamic visual quality of interior and exterior spaces.

4. CONCEPT JUSTIFICATION AND IMPLEMENTATION STRATEGY

4.1 Contextual Relevance and Site Integrity

The selection of a Maharashtra Traditional Theme for the Ichalkaranji Rajwada is a context-driven response to the region's deep historical ties with Maratha heritage. By rooting the design in the local cultural narrative, the project avoids the imposition of generic aesthetic styles and instead strengthens the site's historical identity. This thematic choice ensures that the resort serves as an authentic extension of the Kolhapur region's heritage, enhancing the storytelling potential of the site and creating a meaningful connection between the guest and the local historical landscape.

4.2 Theoretical Alignment and Compatibility

The proposed traditional theme is fundamentally compatible with the existing architectural language of the Rajwada. Because the structure already features quintessential elements such as carved timber columns and hierarchical spatial organization, the design intervention focuses on enhancement rather than transformation. This strategy strictly adheres to the conservation principle of visual and material compatibility. By utilizing a traditional design vocabulary, the intervention highlights the craftsmanship of the original builders while ensuring that new additions feel like a natural evolution of the building's history.

4.3 Immersive Interior and Experience Design

The implementation of the interior design strategy centres on a multi-layered approach that bridges tangible and intangible heritage. Spatially, the traditional hierarchy is respected, with the entrance Darbar serving as the reception and the inner chowks becoming cultural hubs. Materially, the palette utilizes local stone, timber, and lime plaster to maintain visual continuity. The interior styling incorporates regional crafts, such as Ilkal and Paithani textiles, alongside a color palette of ochre, brick red, and indigo. This immersive environment is further bolstered by cultural integration, where landscape elements like Tulsi Vrindavans and traditional lighting fixtures create a holistic experience of Maratha-era luxury.

4.4 Sustainability and Socio-Economic Potential

Beyond aesthetics, the traditional theme promotes a sustainable and socially responsible design model. By engaging local artisans for wood carving and traditional masonry, the project contributes to the revival of vanishing crafts and supports the local economy of Ichalkaranji. The use of climate-responsive traditional planning reduces the resort's operational energy demands, while the unique heritage branding increases its tourism potential. Ultimately, the project demonstrates that heritage preservation, when combined with strategic adaptive reuse, can result in an environmentally sensitive and economically self-sustaining architectural model.

4.5 Concept Statement

The project envisions the transformation of the Ichalkaranji Rajwada into a heritage resort that celebrates the architectural and cultural essence of Maharashtra. By integrating modern hospitality functions within the existing historical framework, the design creates a culturally immersive, environmentally responsive, and economically sustainable destination that preserves the site's architectural identity for future generations.

5. SCOPE & LIMITATIONS

5.1 Scope

The conversion of the Ichalkaranji Rajwada begins with extensive theoretical research and site documentation. This involves aligning the project with UNESCO and INTACH guidelines while analyzing the vernacular evolution of Maratha architecture. Detailed architectural mapping and structural assessments are conducted to identify "heritage layers" and critical restoration needs, such as treating timber decay and stone masonry moisture, ensuring the building's history informs its future.

The practical transformation focuses on spatial adaptation and technical integration. A strategic zoning plan maps luxury resort functions onto the existing layout using a "minimum intervention" approach to preserve historic halls. Modern MEP services, such as HVAC and lighting, are integrated non-invasively to maintain visual integrity. The design is rounded out by a "Maharashtra Traditional" aesthetic, utilizing local crafts and sustainable materials to ensure socio-economic benefits for the Ichalkaranji artisan community.

5.2 Limitations

The project faces significant physical and data-driven constraints. The inflexible nature of thick 19th-century basalt masonry limits the ability to resize rooms or install modern elevators, while the absence of original blueprints necessitates a reliance on manual measurements. Furthermore, the structural assessment is based primarily on visual inspection rather than non-destructive testing, and certain private zones of the Rajwada remained inaccessible for full documentation during the study.

Technically and economically, the research is bounded by market and regional variables. The concealment of modern services is restricted by the hardness of the historic stone, and environmental performance data is based on theoretical simulations rather than

on-site sensors. Additionally, the study acknowledges the dwindling supply of skilled traditional craftsmen and excludes long-term hospitality operational models, focusing its architectural solutions specifically on the Maratha context of the Kolhapur region.

6. CONCLUSION

This research demonstrates that the adaptive reuse of the Ichalkaranji Rajwada into a heritage resort is both a viable and meaningful approach to heritage conservation. By respecting the building's original architectural character and spatial organization, the project successfully bridges the gap between historical preservation and contemporary functionality. The study highlights that Rajwadās, with their courtyard planning, climatic responsiveness, and hierarchical zoning, are inherently suited for hospitality functions when approached with sensitivity and strategic planning. The application of conservation principles—such as minimum intervention, reversibility, and respect for original materials—ensures that the transformation does not compromise the authenticity of the structure. Instead, it enhances its value by allowing users to experience heritage in a dynamic and functional setting. Insights from case studies reinforce the importance of maintaining spatial integrity while integrating modern amenities in a visually and structurally non-intrusive manner.

The proposed Maharashtra Traditional theme strengthens the cultural identity of the project by incorporating regional materials, craftsmanship, and design elements. This not only enriches the guest experience but also contributes to the revival of local artisan skills and promotes socio-economic sustainability. Additionally, the reuse strategy supports environmental sustainability by conserving embodied energy and reducing the need for new construction.

However, the study also acknowledges limitations related to structural constraints, lack of documentation, and technical challenges in integrating modern systems within historic fabric. Despite these challenges, the research establishes that adaptive reuse is a powerful tool for revitalizing heritage structures.

In conclusion, the transformation of the Ichalkaranji Rajwada into a heritage resort exemplifies how thoughtful design intervention can preserve the past while accommodating the present. It reinforces the idea that heritage buildings should not remain static relics but can evolve into vibrant, economically sustainable spaces that celebrate and sustain cultural legacy for future generations.

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