



ORNAMENTAL ART IN UZBEK ARCHITECTURE: TILEWORK, PATTERNS, MUQARNAS, AND GANCH CARVING STYLES

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Abstract:

Ornamental art in Uzbek architecture represents one of the most profound and enduring achievements of Islamic civilization in Central Asia, manifesting the synthesis of spirituality, craftsmanship, and aesthetic refinement. This study examines the four principal styles of decorative art—tilework (koshinkorlik), patterns (naqsh), muqarnas, and ganch carving—through their historical development, stylistic characteristics, and cultural significance within the broader architectural heritage of Uzbekistan. Drawing on historical sources, architectural surveys, and comparative stylistic analysis, the paper situates Uzbek ornamental art within the trajectory of Islamic art from the Timurid period through the Khanates, highlighting the technical innovations, symbolic meanings, and regional schools of craftsmanship that contributed to its global reputation. Results demonstrate that tilework in monuments such as the Registan and the Kalon Mosque served as monumental expressions of faith and dynastic power, while geometric and vegetal patterns provided both visual harmony and metaphysical symbolism. Muqarnas, employed in domes, iwans, and portals, created transitions between structural elements while embodying cosmological order, and ganch carving transformed architectural interiors into luminous spaces filled with intricate ornamentation. Discussion emphasizes that Uzbek ornamental art was not static but dynamically integrated influences from Persia, India, and the wider Islamic world, while preserving a distinctive regional identity. The conclusion underscores the enduring relevance of these traditions for contemporary Uzbek culture and their recognition as part of world heritage, particularly through monuments inscribed on the UNESCO World Heritage List.



Keywords: Uzbek Architecture; Tilework; Patterns; Muqarnas; Ganch Carving; Islamic Ornament; Central Asian Heritage.

Introduction

The ornamental art of Uzbek architecture constitutes one of the most remarkable contributions of Central Asia to the world's cultural and artistic legacy, embodying the synthesis of functional architecture with the symbolic and spiritual dimensions of visual expression. From the medieval flowering of the Timurid Empire in Samarkand, epitomized by the dazzling façades of the Registan ensemble and the Shah-i Zinda necropolis, to the later periods of the Bukhara Emirate and the Khiva Khanate, the decorative arts of tilework, patterns, muqarnas, and ganch carving played a central role in transforming architecture into a medium of identity, devotion, and power. Tilework (koshinkorlik) in the form of glazed mosaics and polychrome ceramic revetments became synonymous with Uzbek monumental architecture, while patterns (naqsh), expressed through geometric, vegetal, and epigraphic motifs, articulated the Islamic worldview of divine order and unity. Muqarnas, the three-dimensional stalactite-like ornament that adorned domes, arches, and iwans, introduced structural elegance and cosmic symbolism, while ganch carving, using gypsum plaster, transformed interior spaces into radiant environments of delicate reliefs and filigree detail. These ornamental forms were not merely decorative but imbued with meaning, integrating spiritual metaphors, cosmological models, and social identities into built form. The introduction of each technique reflected both technological mastery and the dialogic relationship between local artisans and broader Islamic artistic traditions extending from Iran, Anatolia, and India to Central Asia. This paper seeks to analyze these ornamental traditions through a historical-architectural lens, situating them within the broader trajectory of Uzbek architectural heritage and exploring their significance as part of both national identity and world heritage.

Methods

The methodological approach adopted in this study combines historical research, architectural analysis, and stylistic comparison to investigate the ornamental traditions of Uzbek architecture, with emphasis on the four principal forms: tilework, patterns, muqarnas, and ganch carving. Archival and textual sources, including



chronicles, travelers' accounts, and modern scholarship on Central Asian architecture, provided the historical framework for understanding the evolution of these decorative practices. Architectural surveys and photographic documentation of key monuments in Samarkand, Bukhara, Khiva, Shahrisabz, and the Fergana Valley were examined to identify stylistic features, construction techniques, and regional variations. Comparative stylistic analysis was employed to situate Uzbek ornamental practices within the wider Islamic art tradition, including Persian, Ottoman, and Mughal influences, highlighting both continuities and local adaptations. Special attention was given to the technical processes of each ornamental form: tile glazing, mosaic assembly, geometric design principles, structural transition in muqarnas, and the carving, casting, and polishing of ganch. The methodology also incorporated heritage studies perspectives, analyzing the preservation challenges of ornamental art under conditions of weathering, restoration, and tourism. By integrating historical, artistic, and technical dimensions, the study aimed to provide a comprehensive understanding of the cultural and aesthetic significance of ornamental art in Uzbek architecture.

Results

The results of the research reveal that ornamental art in Uzbek architecture achieved its zenith through the creative interplay of tilework, patterns, muqarnas, and ganch carving, each contributing to the unique identity of Central Asian monuments. Tilework, perfected during the Timurid period, involved the use of glazed bricks, mosaic faience, and polychrome tiles, producing radiant façades that defined Samarkand's Registan, the Gur-e Amir Mausoleum, and later Bukhara's Kalyan Mosque. The palette of turquoise, cobalt blue, white, and occasionally gold not only conveyed visual splendor but also symbolized spiritual transcendence and divine order. Patterns, including geometric tessellations, vegetal arabesques, and Quranic inscriptions, were meticulously arranged to produce visual harmony and metaphysical resonance, embodying the Islamic principle of unity in multiplicity. Muqarnas, with its three-dimensional honeycomb structures, was widely applied in domes, squinches, iwans, and portals, serving as a transitional device while symbolizing the layered order of the cosmos; notable examples include the Tilla-Kari Madrasa and Khiva's Juma Mosque. Ganch carving, a technique involving the molding and carving of gypsum plaster, was used extensively in interior decoration, producing intricate reliefs that diffused light and created an ethereal atmosphere, particularly in



Bukhara's madrasas and Khiva's palaces. Collectively, these ornamental forms illustrate not only the technical mastery of Uzbek artisans but also their ability to encode cultural, spiritual, and political meanings into architecture. The regional schools of craftsmanship in Samarkand, Bukhara, and Khiva contributed distinctive variations, ensuring diversity within a unified ornamental canon.

Discussion

The discussion of Uzbek ornamental art underscores the dynamic interplay between tradition and innovation, local identity and global influence, spirituality and materiality. Tilework represents both a technological and aesthetic triumph, as artisans experimented with glazing techniques, color chemistry, and geometric assembly to produce durable and dazzling surfaces that defined the visual identity of Uzbek monuments. Patterns reveal the intellectual depth of Islamic art, where geometry served as a language of divine order, vegetal arabesques symbolized the garden of paradise, and calligraphic inscriptions enshrined sacred texts in architectural form. Muqarnas exemplifies the convergence of structural ingenuity and metaphysical symbolism, bridging architectural elements while evoking the layered heavens described in Islamic cosmology. Ganch carving demonstrates the artisanal virtuosity of Central Asia, as gypsum plaster was transformed into delicate reliefs, lattice screens, and ornamental panels that animated architectural interiors with light and shadow. The ornamental vocabulary of Uzbek architecture was not isolated but engaged in a dialogue with Persian, Ottoman, and Mughal traditions, adapting external influences while preserving a distinctive regional identity. The resilience of these traditions under conditions of political upheaval, including the Russian conquest and Soviet suppression of Islamic art, further underscores their cultural significance. Today, the preservation of tilework, patterns, muqarnas, and ganch carving is challenged by environmental degradation and restoration practices, yet these arts remain central to Uzbekistan's cultural identity and global heritage, as reflected in the UNESCO recognition of monuments in Samarkand, Bukhara, Khiva, and Shahrissabz.

Conclusion

This study concludes that ornamental art in Uzbek architecture—through the four principal forms of tilework, patterns, muqarnas, and ganch carving—represents a unique and enduring synthesis of artistry, spirituality, and cultural identity,



contributing profoundly to the world's architectural heritage. Tilework transformed the façades of monuments into radiant canvases of color and light, patterns provided intellectual and metaphysical symbolism, muqarnas embodied cosmological order in structural ornament, and ganch carving infused architectural interiors with luminous intricacy. Together, these forms demonstrate the technical mastery, creative vision, and spiritual depth of Uzbek artisans, situating their work within both local traditions and the broader Islamic artistic universe. The study emphasizes that these ornamental practices were not static but dynamic, incorporating influences from neighboring cultures while preserving a distinctly Uzbek identity. Their continued relevance in the modern era, through preservation, restoration, and contemporary artistic practice, highlights their role as living traditions that bridge past and present. As monuments such as the Registan, Shah-i Zinda, and Khiva's Ichan Qal'a continue to attract global admiration, Uzbek ornamental art affirms its place not only as national heritage but also as an integral component of world civilization.

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