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The planning and Architecture of the Ziyada House in Mosul during the Ottoman Period

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Abstract:

This study, entitled The Design and Architecture of the Ziyada House in Mosul during the Ottoman Period, addresses one of the most significant types of Islamic architecture − a cornerstone of its built heritage − that fulfills daily human needs through architectural methods meeting environmental and social requirements.

The research attempts to examine a residential house that stands as one of the most important examples representing the form, image, and layout of domestic architecture during the Ottoman period. Islamic architecture, through its planning and decorative elements, had a direct impact on both the public and private spheres of individuals and communities, as it was deeply rooted in the heritage and traditions of ancestors. The Holy Qur'an expresses the importance of the dwelling clearly in the verse:

"And Allah has made for you from your homes a place of rest and made for you from the hides of animals tents which you find light on the day of travel and when you stop, and from their wool, fur, and hair furnishings and goods for a time."

These architectural forms varied from one region to another depending on climatic conditions and inherited architectural and cultural traditions. The evolution of form and function over time is also observable as circumstances changed.

Keywords: Islamic Architecture, Bab al-Bayḍ , Planning, Houses, Residential.

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تخطيط وعمارة دار زيادة في مدينة الموصل ابان العصر العثماني

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الملخص:

يتناول بحثنا الموسوم أحد اهم انواع العمارة الاسلامية وركن من اركانها ليغطي بها حاجة من احتياجاته اليومية عن طريق اساليب عمارية، ولتحقيق متطلبات بيئية واجتماعية.

سنحاول في بحثنا هذا استعراض دار سكني كان من ضمن اهم النماذج التي نقلت لنا الشكل والصورة والتخطيط للدار السكني في العصر العثماني، كون العمارة الاسلامية بعناصرها التخطيطية والزخرفية ذات تأثير مباشر على الوضع العام والخاص للشخص والمجتمع بسبب ارتباطها الوثيق بأرث وتراث الاباء والاجداد، وقد عبر القران الكريم تعبيراً واضحا عن أهمية دار السكن كما في قوله تعالى " واللَّه جعل لَكُمْ مِنْ بُيُوتِكُمْ سَكَنًا وَجَعَلَ لَكُمْ مِنْ جُلُودِ الْأَنْعَامِ بُيُوتًا تَسْتَخِفُّونَهَا يَوْمَ ظَعْنِكُمْ وَيَوْمَ إِقَامَتِكُمْ وَمِنْ أَصْوَافِهَا وَأَوْبَارِهَا وَأَشْعَارِهَا أَثَاثًا وَمَتَاعًا إِلَى حِينٍ"[١] واختلفت تلك العمائر من منطقة لأخرى تبعا للمناخ وللإرث العماري والحضاري السابق في المنطقة، كذلك نرى تطور الشكل والوظيفة عبر الزمن وبتغير الظروف المختلفة.

الكلمات المفتاحية: العمارة الإسلامية، باب البيض، التخطيط، الدور، سكني.

Introduction:

(Ziyada House)[2]

Architecture is the mirror of civilization, and civilization represents the intellectual and artistic output of the architect materialized on the ground. The architect's focus is to create a sufficient space for human life within the available area, while environmental conditions play a decisive role in shaping the design of the dwelling. This influence is manifested in the externally closed yet internally open form, which allows the inhabitants to live in complete freedom, balancing privacy and openness in harmony.

The Ottoman period was among the eras that had a profound effect on the character of residential architecture and house construction in the city of Mosul. The houses of that period varied in scale — large, medium, and

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small — yet the house under current study stands out for its considerable size. It is located near the city walls, in the district of Bāb al-Bayḍ [3] and dates back to approximately 1869 CE [4].

House Layout

The Ziyada House is situated in one of the oldest quarters of Mosul, namely Bāb al-Bayḍ, bordered on the south by the main street and on the east by a winding alley that leads toward the Khazraj [5] and al-Mayyāsa quarters. Facing the street is the al-Zaywānī Mosque, known until recently as the Mosque of al-Ghurabāʾ [6].

(Plan 1).

Architectural Description

The house was constructed on an area of approximately 530 m², centered around a planted inner courtyard. The main entrance lies on the eastern side, preceded by a vaulted passage (qanṭara) roofed with two-centered pointed arches crafted from marble. The architect employed this type of arch due to its suitability for spanning large spaces and its ability to bear heavy loads.

It is noteworthy that most parts of this vault have developed cracks and fissures caused by moisture within the walls. A second entrance opens into a small courtyard, from which one enters a secondary vestibule (rahra) [7], adjacent to a staircase leading to the main courtyard. Additionally, a third entrance, now blocked, lies on the eastern side, beside the bathroom and service rooms used within the house.

(Plan 2).

On the eastern side of the courtyard stands a two-story arcade, accessed by a stairway leading up to the upper floors and the roof [8]. The southern side includes a suite consisting of a basement (sirdāb) surmounted by an iwan, flanked by two rooms and additional chambers used for storage and sleeping.

The walls of these rooms are adorned with floral decorations of intertwined branches, executed in painting that covers the entire ceiling. The architect did not confine ornamentation to a single form — in addition to the relief decoration embellishing the iwan walls, which were covered with marble cladding (farsh), the interiors of the rooms were richly decorated with water-based painted motifs, applied by brush in a specific sequence of geometric frames enclosing floral ornamentation. These designs were adapted and modified according to the spaces and functions of the rooms and chambers alike.

The eastern wing of the house contains a basement (sirdāb) extending halfway beneath the courtyard, above which are located rooms and a kitchen. The western side features a vestibule (rahra) topped by an iwan flanked by two rooms.

The Entrance

The entrance represents one of the essential architectural elements—or spatial components—through which entry to the house is achieved. However, its shape, dimensions, and architectural role vary according to the nature of the building, whether residential, service-oriented, or military, since the entrance forms a transitional space between the house and the external environment, and is influenced by climatic factors [9].

The Ziyada House contains three main entrances, suggesting that the building was likely used for the trade of sheep and livestock, an occupation practiced by the owning family.

The main entrance is located on the eastern side, measuring 2 × 1.20 m, and preceded by a vaulted passage (qanṭara).[10] (Plate 1). Its layout differs from many other vaults typical of Ottoman architecture due to its bent ground plan, which resembles the bent entrance used in fortified castles. This configuration provided enhanced protection, confusing attackers and increasing the building's defensibility through architectural concealment and reinforcement.

Above the vault rises a barrel-vaulted ceiling, supported by four semicircular arches with convex surfaces—an engineering solution frequently used by Mosuli architects for this type of structure [11]. The entire vault is clad in Mosuli marble, with its columns integrated into the adjacent walls, rising about 4 meters above the ground, while the main doorway lies between the first and second arches (Plate 2).

Environmental and Structural Role of the Qanṭara

Beyond its defensive role, the qanṭara also fulfilled a significant environmental function. By shading the alleyway, it created an air pressure differential that facilitated air circulation and temperature moderation within the building [12]. Air entered through the entrance into the courtyard and from there into the surrounding rooms, forming a pathway for cool breezes that improved interior comfort.

This feature became an essential ventilation mechanism, allowing moderate winds to circulate, transferring the thermal load accumulated in the courtyard (exposed to direct sunlight) to cooler zones. Structurally, the qanṭara also served as a space-expanding element: by constructing over the alleyway, architects were able to extend the upper stories of the house, linking adjacent homes—particularly those belonging to the same family—and enabling movement between them away from public view [13].

The qanṭara of the Ziyada House is among the few in Mosul with a bent layout, resembling a corridor (dihlīz). This design provided protection during wartime, obstructing visibility and shielding inhabitants from direct attack. Architecturally, the vault consists of a half-cylindrical barrel vault supported by four circular columns, dividing the space into three sections. Its northern part opens directly to the main entrance, while to the east, it overlooks the city's main wall.

During the period of ISIS control over Mosul, this section of the house suffered complete destruction (Plates 3–4) and was later restored by UNESCO.

The Secondary Entrances

The second entrance leads to a small courtyard with an adjoining staircase that connects to the main courtyard. Architecturally, it does not harmonize with the rest of the building, suggesting that it was either a later addition or an emergency exit for the family. Another possibility is that it was used for bringing livestock into the house, as the family were animal traders. However, given the narrow dimensions of this doorway, this explanation seems unlikely [(14)], since an entrance used for livestock—especially cattle—would require a much wider opening. The door's current dimensions permit only human passage (Plate 5).

The third entrance, located on the eastern side, has disappeared, leaving no visible trace [(15)]. The multiplicity of entrances is characteristic of Ottoman domestic architecture, reflecting security considerations in a period marked by political unrest and arbitrary arrests of city notables. Furthermore, the family's livestock trade necessitated multiple entryways to facilitate animal movement and management.

The Northern Wing

The northern wing of the Ziyada House consists of a portico (rāwāq) supported by four semicircular arches, each approximately 3.75 m in height and 2.75 m in width. These arches are framed with Mosuli marble cladding (farsh), and their façades are covered with lime plaster (malāṭ). Between each arch runs a horizontal marble strip ending with a triple-lobed leaf motif, serving both decorative and visual unification purposes.

Within the eastern section of this portico lies an opening that leads to the second entrance, which connects directly to the main courtyard. Adjacent to it is a doorway measuring 1 × 1.80 m, leading upward to the roof, where it branches into corridors accessing the rooms of the eastern wing.

On the western side, there is another entrance measuring 1 × 2 m, which serves as the kitchen doorway used by the household (Plate 6).

Architectural and Functional Notes

This section demonstrates the Ottoman architect's balance between functionality and ornamentation. The use of marble and lime plaster is characteristic of Mosuli craftsmanship, which prioritized durability, climate adaptability, and aesthetic integration.

The arched portico provided both circulation and environmental regulation, mediating airflow between the courtyard and interior spaces. Additionally, the combination of decorative marble bands and repetitive vegetal motifs illustrates the influence of late Ottoman aesthetic tendencies, where geometric precision was harmonized with stylized natural forms.

The Southern Wing

The southern wing comprises a semi-rectangular iwan flanked by two rooms, one of which connects to a smaller chamber [16]. The iwan measures approximately 4 m in width and 6 m in length, preceded by a marble arch of four-centered pointed design. On each side of the arch are spandrels (ashkhīm)[17] and keystones (akbāsh)[18] (Plate 7).

This architectural style, known as the Ḥīrī type with double spandrels, is derived from the form of the tent, allowing the space to filter sunlight and ventilate dusty air—features particularly suitable for dry and desert climates [19].

The interior surfaces of the iwan were clad from top to bottom with Mosuli marble (farsh), while its façade overlooking the courtyard was richly ornamented with multiple niches and windows, each measuring 1.60 × 0.90 m. The window openings are topped by flattened arches adorned with three decorative bands—the central one pointed and the two lateral ones semicircular.

Above these are two additional windows and a niche, decorated with two ornamental medallions (jāma) representing a stylized four-lobed leaf with internal veining emerging from the stem, surrounded by a series of circular forms radiating from the same vegetal base—repeated rhythmically across the decorative surface (Figure 1).

The eastern façade of the iwan exhibits similar architectural and ornamental elements—windows, niches, and geometric compositions—with the exception of the upper room windows located above the iwan on the same axis.

Functional and Aesthetic Aspects

The architect's deliberate inclusion of blind niches (ṭāqāt ṣammāʾ) along the façade and sides of the iwan served dual purposes:

1. Structural: to reduce the wall's static load and relieve stress.
2. Aesthetic: to break monotony and introduce rhythm in areas lacking elaborate ornamentation.

Before entering the iwan, it is important to note that these blind niches acted as air deflectors, redirecting light- to medium-speed winds across the façade into various sections of the courtyard. The resulting temperature differential between sunlit and shaded areas generated air circulation, as hot air (being lighter) rose and was replaced by cooler air, creating a continuous ventilation system that naturally cooled the space [20].

The iwan ceiling was constructed using the ''iqāda' technique (vaulted brick bonding), though its upper surfaces were left undecorated, unlike many Ottoman residential iwans. The lower section, however, featured four blind wall niches (mishkawāt) measuring 0.70 × 1 m, topped with flattened arches echoing the decorative motifs used on the room windows facing the courtyard.

The Adjacent Rooms

On each side of the iwan are two rooms, their wooden doors decorated with floral carvings derived from natural motifs. Each wall includes three windows matching the design and ornamentation of those previously described.

The western room measures 3.85 × 4.25 m, its ceiling built using the ʿiqāda system, rising to the same height as the iwan. It connects to a second room of 3 × 4.12 m through a doorway in the western wall, where a high window in the southern wall provides ventilation and daylight.

The eastern room, measuring approximately 3.75 × 4.88 m, features two windows overlooking the courtyard and several wall recesses used for storing valuable objects. The architect lowered its ceiling level compared to the iwan, enabling the construction of a small upper chamber (‘ʿuliyya’) accessed from the upper floor. This solution, common in Mosuli domestic architecture, provided additional storage or children’s sleeping space near the parents’ quarters.

The variation in room dimensions and vertical layering—horizontal and superimposed—reflects the architect’s effort to maximize functional use of available space, similar to the multi-level residential layouts seen in later urban housing.

The Subterranean Chamber (Rahra)

Beneath this wing lies a subterranean hall (rahra) measuring 15 × 5 m, entered through a 1 × 1 m doorway located at the southeastern corner. The entrance arch is flattened, adorned with five decorative semicircular bands, and the ceiling rests on Mosuli marble columns with octagonal shafts and square capitals. The vault rises about 1.25 m above the main courtyard level.

Its light openings, square in form and covered with handcrafted iron grilles, are characteristic of Ottoman-era houses (Plate 8). These openings not only admit light but also facilitate airflow, creating natural ventilation and reducing humidity and mold—essential for preserving stored food supplies, such as dairy, grains, and fats, which were often kept in these cool underground spaces.

The Eastern Wing

The eastern wing of the Ziyada House is distinguished by its sequence of five semicircular arches, forming a vaulted portico (rāwāq muqabbab) overlooking the courtyard, structurally similar to the portico of the northern wing.

At the center of these arches lies a main passageway (majāz), which serves as the primary connection between the entrance and the central courtyard. To the north of this passage, two parallel rooms are located.

The first room, measuring 3.6 × 6 m, contains two windows overlooking the courtyard and a third window on its northern wall (Plate 9). The eastern

wall of this room contains four wall niches (khazānāt) used for daily storage purposes.

The second room, situated parallel to the first, measures approximately 5.18 × 7.40 m, and is elevated about 0.5 m above the courtyard level. Its southern wall shows a slight angular deviation, an intentional architectural adjustment designed to align the external façades while concealing irregularities in the interior layout—a sophisticated technique often employed by Mosuli architects to maintain geometric coherence without compromising functionality.

The Upper Story

Above the portico, four rooms are situated, centered around a semi-rectangular iwan of slightly lower height than the one below. The iwan measures 4.70 × 5.40 m, with an elevation of approximately 14.65 m. Constructed from marble, its arch is decorated with pendant motifs (dalāyāt) shaped as tripartite vegetal leaves, each terminating in floral buds. The back wall of the iwan (its ṣadr) is marble-clad up to about 3 m in height and features four recessed niches (mishkawāt) within its eastern wall.

To the north of the iwan, two parallel rooms are found. The first room, measuring 3.70 × 5.40 m, has its doorway positioned beneath a semicircular arch, with two windows opening onto the iwan and four overlooking the courtyard. These openings are fitted with metal lattice screens from the outside and topped by elliptical vaults, a common element in Ottoman Mosuli architecture.

The second room connects directly to the first and opens onto the courtyard. Measuring 3.80 × 4.50 m, it is adorned with windows crowned by flattened arches, decorated with an ornamental frieze (zakhrafa) and a rectangular panel (jāma mustaṭīla).

The frieze frames the upper lintel and continues upward, featuring tripartite leaves from which spiral branches emerge, extending outward into small leafy tendrils. The rectangular panel, positioned centrally, contains a large stylized leaf surrounded by circular tendrils, with a five-lobed leaf at its center. Additionally, several recessed wall cabinets (khazānāt) were built into the walls for storage.

Architectural and Decorative Character

The eastern wing, with its superimposed iwans and rooms, demonstrates a clear vertical organization within the Ottoman domestic structure of Mosul. The integration of functional decoration—where floral and geometric motifs coincide with structural components—illustrates the Mosuli approach to architectural unity, emphasizing visual rhythm, climatic adaptation, and social privacy.

The use of marble (farsh) for both decorative and structural purposes further highlights the aesthetic sophistication and material richness of 19th-century Ottoman Mosul dwellings, where light diffusion, ventilation, and

symbolic symmetry were interwoven in a harmonious architectural language.

The Western Wing

The western wing of the Ziyada House consists of a semi-rectangular iwan located on the western side of the courtyard, measuring approximately 4.10 × 4.35 m. It is preceded by a pointed marble arch, and its spatial orientation makes it an ideal winter sitting area, being situated opposite the northern winds and thus receiving sufficient solar radiation to provide natural heating (Plate 10).

The interior walls of the iwan are clad with marble up to a height of about 3 m. The western wall contains three recessed niches (mishkawāt) measuring 1.25 × 0.70 m, each topped with a flattened arch, above which lies a rectangular decorative panel (jāma). The panel features two opposing squares set on their corners, enclosing a smaller central square. The artist skillfully filled the spaces between the squares with five-lobed floral motifs, from which spiraling tendrils emerge, ending in single-lobed winged leaves.

This panel is framed by a carved ornamental band, followed by a row of small connected squares, each similarly decorated. The arches above the niches are adorned with series of pointed arches intersecting at their vertices, and at the center of each is a vegetal motif with a central projection (Plate 11; Figure 2).

Windows and Illumination

The walls of the rooms adjacent to the iwan feature two windows per wall, consistent in shape, size, and ornamentation with the previously described mishkawāt. Alongside these are paired lateral niches (0.30 × 0.20 m), built into the western wall, designed to hold lighting instruments such as oil lamps.

The doorways to these rooms measure 1.90 × 1 m, located at the front of the iwan arch, and constructed entirely of marble. Each doorway is surmounted by a flattened arch and a rectangular decorative panel, framed with an engraved ornamental strip featuring three connected squares resting on their corners. The spaces between the squares are filled with stylized foliage, giving rise to wing-like tendrils. Above this band lies a series of five decorative arches, each adorned with vases (zuhariyyāt) from which five-lobed leaves sprout.[21]

The upper parts of these arches display circular motifs resembling eyes, an artistic influence traceable to Samarra's three decorative styles, incorporating almond-shaped protrusions and eight-petaled rosettes. Between the arches are triangular vegetal compositions, where paired winged leaves converge beneath small circular "eye" motifs, reflecting symbolic and ornamental continuity [17].

The Side Rooms

The right-hand (northern) room is rectangular, measuring 3.90 × 6.29 m, with several built-in wall cabinets (khazānāt) along its western wall. Three windows open onto the courtyard, each fitted with handcrafted iron grilles and glazed wooden frames on the interior, surmounted by flat arches decorated with raised rhombic geometric motifs.

The left-hand (southern) room is similar in design, differing only slightly in size (3.50 × 6.50 m).

This architectural unit—comprising the iwan and flanking rooms—was constructed above a rectangular subterranean chamber (rahra) with a vaulted ceiling (ʿiqāda bayḍawiyya) supported by semicircular arches resting on rectangular and octagonal marble columns. The chamber is accessed through a doorway in the northern section of the wing.

The eastern wall of the rahra contains five circular windows covered with spiral iron grilles, designed to admit light and air while maintaining privacy. The upper parts of the walls are decorated with rectangular panels (jāmāt) containing multilobed geometric motifs centered around star-shaped rosettes, all engraved with chiseling techniques, surrounded by four-lobed leaves and triangular floral elements (Plates 12–13).

Below this wing lies another subterranean rahra, measuring 13 × 4 m, with an entrance overlooking the courtyard, surmounted by a flattened arch, its floor 1 m below courtyard level. The rahra windows open onto the courtyard at a height of 0.95 m, enclosed by handcrafted iron columns (Plates 12–13).

Architectural Significance

The presence of interconnected subterranean chambers (rahrāt) beneath the house's wings exemplifies the Mosuli architect's ingenuity in maximizing space utilization. These chambers served multiple storage and thermal functions, helping to regulate indoor temperature and preserve supplies such as grain, fuel, and dairy products.

Built primarily of stone and gypsum, locally available in Ottoman Mosul, the structure reflects both regional adaptation and aesthetic refinement. The richly decorated interior façades, particularly those covered in Mosuli marble (farsh), testify to the high level of artistic and technical skill achieved by Mosul's master builders.

Thus, the Ziyada House—and Mosul's heritage architecture as a whole—stands today as a living architectural treasure, embodying the cumulative experience, craftsmanship, and intellectual heritage of Iraqi builders who successfully reconciled religious, environmental, and social dimensions in their domestic architecture.

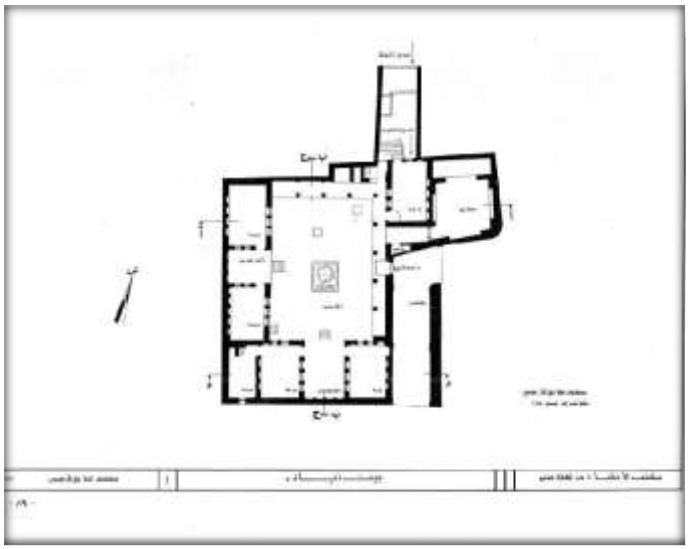
Conclusions:

After completing the present study on the Ziyada House, several significant conclusions have been reached:

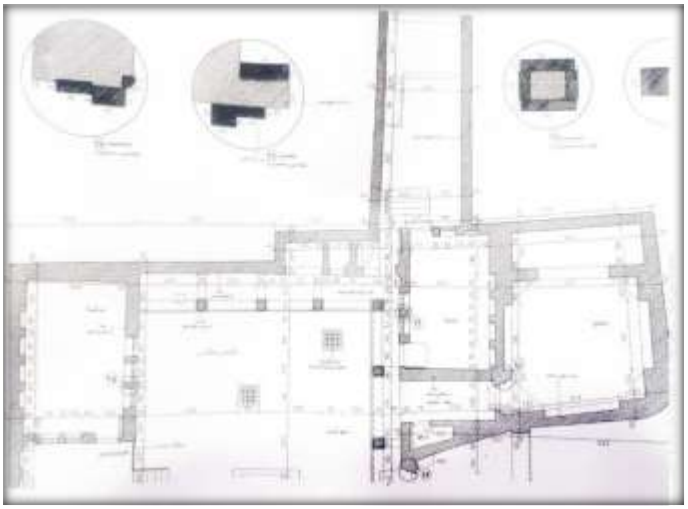
1. Unified yet flexible residential planning:
   Most residential houses in Mosul followed a specific architectural layout, though the plan was often modified according to the owner's needs and occupation during construction. This flexibility reflects the personal and functional character of Ottoman domestic architecture.
2. Architectural and environmental importance of the Qanṭara:
   The Ziyada House is among the most important historical residences in Mosul because it includes a vaulted passage (qanṭara) preceding the main entrance. This architectural element performed a dual role:
   - Environmentally, it cooled the air entering the house by creating shaded airflow corridors.
   - Spatially, it expanded the usable area of the dwelling by being built over the alleyway, allowing the architect to add extra rooms and increase the interior volume of the house.
3. The central role of the Iwan in Ottoman houses:
   The research demonstrates that the iwan was a dominant architectural element throughout the structure, serving both environmental and social functions. It moderated the indoor climate by channeling cool air currents from the courtyard into the rooms, providing comfort during the hot summers and cold winters of Mosul.
4. Integration of decoration and structure:
   The architect and artisans did not neglect ornamentation in any part of the house. Decorative programs appeared on:
   - Iwan façades and room entrances,
   - window arches, and
   - room ceilings.

     The decoration combined stone carvings (on farsh) and painted water-based motifs, demonstrating the dual use of relief and color to enhance the spatial experience.
5. Cultural diversity and coexistence in Bab al-Bayḍ:
   The Bāb al-Bayḍ quarter, where the Ziyada House is located, has long been inhabited by Arab tribes and Christian families who settled there even before the advent of Islam. The presence of churches and monasteries in the area provides tangible evidence of religious coexistence and cultural continuity that characterized Mosul's historical fabric.

6. The role of subterranean spaces (rahrāt and sirdābs):
   As in many Mosuli houses, the Ziyada House incorporated subterranean spaces such as the rahra and sirdāb, which fulfilled storage and climatic functions. These areas were essential for families engaged in livestock breeding and trade, as they provided cool, shaded environments for keeping
   animals and dairy products such as milk, yogurt, ghee, and hides.



Ground floor plan No. (1) Dar Ziyada from the Engineering Construction Office



Plan No. (2) Dar Ziyada plan with wall sections from the Engineering Construction Office

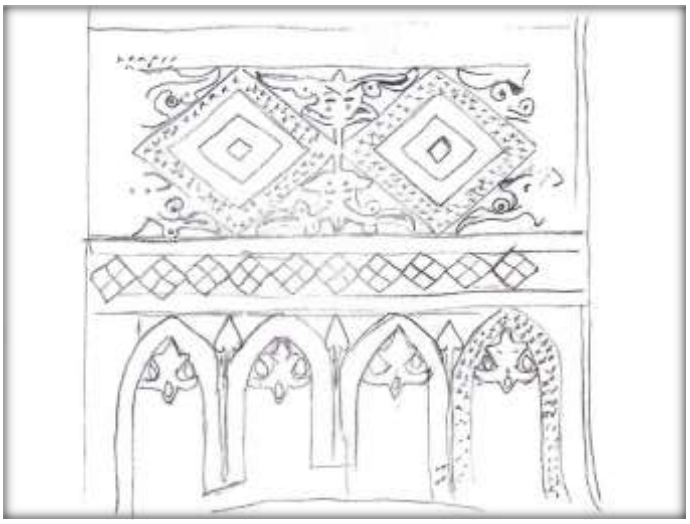


Figure No. (1) The decorations executed in Dar Ziyada (drawing by the researcher)

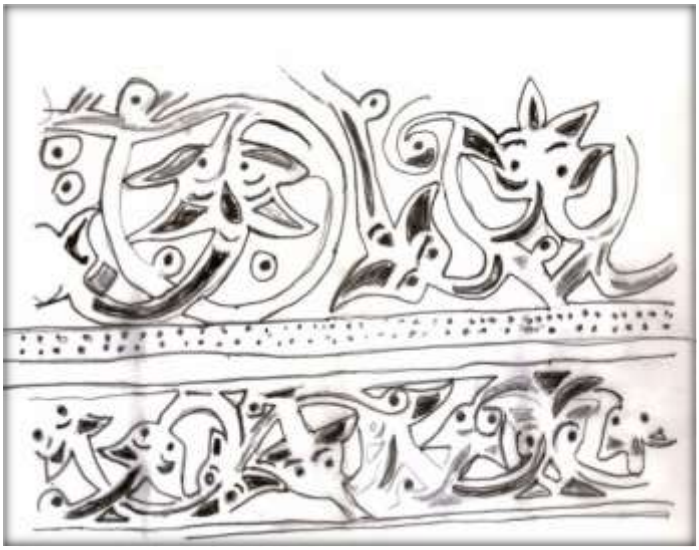


Figure No. (2) The plant decorations inside the Iwan (drawing by the researcher)

Panel
(1) The external arch and the main entrance (photographed by researcher)

Panel (2) The bridge and the main entrance (photographed by the researcher)

Panel (3) of the house after the military operations
(Photograph by the researcher)

Panel (4) of the house after the military operations, and it shows the entrance from the courtyard (photographed by the researcher)

Panel (5) The second entrance to Dar Ziyada (photographed by the researcher)

Panel (6) North Wing (photographed by the researcher)

Panel (7) South Wing (photographed by the researcher)

Panel (8) of the Rahra in the southern wing (photographed by the researcher)

Panel (9) East Wing (photographed by the researcher)

Panel (10) West Wing of Dar Ziyada (photographed by the researcher)

Panel (11) inside the hall of the western wing (photographed by the researcher)

Panel (12) Entrance to the western wing of Al-Rahra (photographed by the researcher)

Panel (13) Windows overlooking the courtyard (photographed by the researcher)

References

(1) An-Nahl. Verse: 80.

(2) Ziyada is attributed to their ancestor Ziyada bin Salih bin Haj Hussein, one of the ancient merchants of Mosul. Publications of the Engineering Construction Office, p. 74.

(3) Bab al-Bidh neighborhood: One of the oldest neighborhoods in the old city of Mosul, on its right side. One of its most famous gates, Bab al-Bidh (Bab Kinda), is located on its right side. It is surrounded on one side by the city wall, so it is called the neighborhood of al-Badan. Al-Sufi, Ahmad: Mosul Plans, Umm al-Rabi'in Press, Mosul, 1957, p. 16. For more, see Al-Ubaidi, Abdul Rahman Nashwan: The Buildings of the Bab al-Bidh Neighborhood in the City of Mosul - An Applied Study of Selected Models - Unpublished Master's Thesis, University of Mosul, 2024, p. 29. Dhiyab, Sahar: Architecture in Islam: An Analytical Study of Islamic Housing Design in Light of Contemporary Design Concepts, Journal of Engineering Sciences and Information Technology, Vol. 1, No. 3, Jordan, 2017, p. 24.

(4) Publications of the Engineering Construction Office, p. 74. Kamouna, Haider: The Intrinsic Privacy of Arab Housing Design, Journal of Heritage and Civilization, No. 6-7, 1985-1986, p. 118.

(5) Khazraj: One of the neighborhoods of the old city of Mosul. It is a relatively large neighborhood inhabited by a mixture of Christians and Muslims. It was named after the Khazraj tribe. Al-Sufi: Plans of Mosul, p. 20.

(6) Al-Ziwani Mosque: Located in the Bab al-Bid neighborhood, it was named after Sheikh Muhammad al-Ziwani, who is buried there. It was built in 1104 AH/1692 AD. Nicola, Sioufi: Collection of Written Writings on the Buildings of Mosul, Edited by Saeed Al-Diouji, 1956, p. 10.

(7) Al-Rahra: The section located in the lower parts under the structural framework of the iwan or rooms. The deep section under the courtyard or courtyard is called the sardaab. Waziri, Yahya: Islamic Architecture and the Environment, Encyclopedia of the World of Knowledge, Kuwait, 2004, p. 188.

(8) There are many houses characterized by this layout, as it was prevalent during the Ottoman period, such as the House of Mustafa Al-Tutunji and the House of Numan Al-Dabbagh, among others.

(9) Abdul-Hussein, Muhammad Ali: Design Characteristics of Entrances in Islamic Architecture, unpublished master's thesis, University of Technology, Baghdad, 1993, p. 4.

(10)Al-Qantara: A passageway or structure connecting two houses, a structural approach used by Mosul architects. Al-Naimi, Rana Waad Allah: The Bridges of the City of Mosul in the Ottoman Era, unpublished master's thesis, University of Mosul, p. 11.

(11) Vaults are one of the most important types of roofing in Islamic architecture, achieving many benefits. They provide roofing for large and small rooms, and the convex surface and relative height provide adequate heat inside the building or structural unit. Hamoudi, Khaled Khalil: Baghdadi Architecture and Addressing Climatic Conditions, Proceedings of the Architecture and Environment Symposium held by the Department of Arab and Islamic Heritage, 2003, Baghdad, p. 100.

(12) Ajaj, Dawood Salim: The Role of Environmental Factors in Shaping the Mosul Character and Their Impact on the Urban Appearance of the Old City of Mosul, Mosul Studies Journal, Issue 7, Mosul, 2004, pp. 153-182.

(13) Al-Juma, Ahmed Qasim: Mosul Architecture and its Plans through the Journey of Ibn Jubayr, Research from the Mosul Symposium in the Journals of Arab and Foreign Travelers, Mosul Studies Center, Mosul, 1997, pp. 11-18.
(14) Publications of the Engineering Construction Office, Vol. 1, p. 75.
(15) This entrance has undergone maintenance and has been completely closed: Publications of the Engineering Construction Office: The previous source, Vol. 1, p. 74.
(16) The architect divides one room into a large one and a small one, the latter called the "treasure room," used for storing food, blankets, and furnishings.
(17) The ashkhim: An architectural space located between the ceiling of the rooms and the upper ceiling, ending on the side with an opening overlooking the courtyard. Al-Abou, Muhammad Khader, Residential Architecture in the City of Mosul during the Eighteenth and Nineteenth Centuries during the Ottoman Era, Unpublished PhD Thesis, College of Archaeology, University of Mosul, 2015, p. 33.
(18) The akbash: Singular ram, these are marble stones (furnished) carved in the shape of a ram's head, placed on either side of the iwan directly under the ashkhim. The akbash is called the "kwabeel," as they support the projecting balcony. Al-Abou, Muhammad Khader Residential Architecture (op. cit.), p. 24.
(19) Al-Jaafar, Zain Al-Abidin Musa Jaafar: The Iwan in Iraqi Architecture until the End of the Abbasid Era, unpublished doctoral dissertation, University of Baghdad, 2002, pp. 19, 108.
20- Ali, Turki Hassan: The Environmental Reference in the Traditional Arab City: The Impact of Urban Space Characteristics on the Local Climate Performance of the City of Mosul, unpublished doctoral dissertation, University of Baghdad, College of Engineering, 2007, p. 70.
21- For more, see Hamid, Abdul Aziz and others: Arab-Islamic Decorative Arts, Baghdad, 1982, p. 77.

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