

Exploring the intersection between landscape and Arab-Islamic architecture: The courtyard of the Damascene House as a case study

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ABSTRACT (10PT)

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The courtyard in a Damascene house exemplifies the intersection of landscaping and Arab architecture, serving as a central element in Islamic architectural design. Integrating environmental and architectural principles, it provides a shaded and ventilated space that enhances thermal comfort and privacy. Situated in the historic heart of Damascus, the courtyard reflects environmental sustainability and cultural heritage, offering both aesthetic and functional benefits. This study explores the historical evolution of courtyard design in Damascene houses, its cultural and environmental significance, and its implications for contemporary urban planning. A historical research methodology, combining qualitative and descriptive approaches, was employed. The study analyzed historical sources, architectural blueprints, photographs, and case studies of traditional Damascene houses to illustrate key aspects of courtyard landscaping and design. The findings emphasize the courtyard's role in climate control, social interaction, and architectural organization. Essential elements such as fountains, greenery, and open spaces enhance its environmental efficiency. The study also highlights the potential for integrating modern functional and aesthetic features while preserving the courtyard's core



Keywords

Arab architecture;
courtyard design;
Water culture;
Sustainability in architecture;
Islamic gardens.

identity. Furthermore, the courtyard acts as a multi-functional space, balancing private and communal areas, and adapting to daily and seasonal climate changes. In conclusion, the courtyard in a Damascene house represents a valuable model for sustainable urban design. Its principles offer insights into enhancing contemporary urban spaces while preserving cultural and architectural heritage. This study contributes to a deeper understanding of the Damascene house and its relevance to modern environmental and urban planning practices

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Introduction

Landscaping and Arab Architecture in the Courtyard of a Damascene House

The courtyard in a Damascene house exemplifies the intersection of landscaping and Arab architecture, serving as a central element in Islamic architectural design. Integrating environmental and architectural principles, it provides a shaded and ventilated space that enhances thermal comfort and privacy. Situated in the historic heart of Damascus, the courtyard reflects environmental sustainability and cultural heritage, offering both aesthetic and functional benefits. Landscaping and Arab architecture share a unique intersection in the design and layout of the courtyard within a Damascene house (Tabbaa, 1987). The courtyard, a common feature in Islamic architecture, serves as the central focal point that seamlessly blends the natural elements of landscaping with the architectural structures of the house. The courtyard of a Damascene house combines the principles of Islamic architecture with the beauty and functionality of landscaping, creating a harmonious and serene space within the confines of the home (Othman et al., 2015).



1.1.1 Historical Evolution of Courtyard Design

This study explores the historical evolution of courtyard design in Damascene houses, identifying key influences that have shaped them over time. Additionally, it investigates how these courtyards reflect cultural and environmental values and their contribution to contemporary urban planning.

1.1.2 Cultural and Environmental Significance

The Arab architectural identity is shaped by a profound understanding of the natural surroundings, where environmental factors play a crucial role in determining the form and function of structures. In the case of the Damascene house, situated in the heart of the historical city of Damascus, the design of the courtyard reflects a meticulous integration of environmental elements. According to Rihawi (1986), the traditional Damascene courtyard serves as a microcosm that encapsulates the essence of environmental sustainability, offering a cool and shaded retreat from the scorching sun prevalent in the region. This demonstrates the careful consideration given to climate and natural conditions in the architectural decisions of the Arab world. The interplay between environmental design and Arab architecture, therefore, emerges as a testament to the adaptability and responsiveness of the built environment to the ecological context, resulting in structures that are not only aesthetically pleasing but also functionally optimized for the well-being of their inhabitants and the surrounding environment (Taleb & Abumoeilak, 2020).

1.1.3 Functional and Social Roles

The courtyard serves as a link between the interior and exterior spaces, creating a transition zone that allows inhabitants to connect with nature while maintaining privacy (The Courtyard Houses of Syria - Muslim Heritage, 2010). This integration of landscaping and architecture in the courtyard design of a Damascene house not only enhances the aesthetic appeal but also serves functional purposes. The landscaping elements within the courtyard provide shade, cooling effect, and natural ventilation, making it a comfortable outdoor space in hot climates (Sun et al., 2021). Furthermore, the courtyard serves as a versatile space for social gatherings and family activities. It is a place where people can relax, enjoy the fresh air, and connect with nature while being surrounded by the beauty of the architectural design and landscaping. The courtyard is often considered the heart of the house, as it is the central space that connects the different rooms and living areas.

1.1.4 Cultural and Historical Significance

In addition to its functional and social roles, the courtyard of a Damascene house also holds cultural and historical significance. It reflects the traditional way of life and architectural heritage of Damascus, which dates back to ancient times. The intricate designs and patterns used in the courtyard's construction are a testament to the skilled craftsmanship of the local artisans and builders.

1.1.5 Research Objectives

The aim of this paper is to explore the intersection of landscaping and Arab architecture in the context of the courtyard of the Damascene house. It examines the historical evolution of courtyard design and layout



in Damascus houses, identifying the key influences that have shaped them over time. Additionally, the study investigates how these courtyards reflect cultural and environmental values and their contribution to contemporary urban planning. By analyzing specific case studies of Damascus houses, the paper highlights particular aspects of courtyard design and coordination, drawing practical lessons for real-world applications.

1.2 Methodology

1.2.1 Research Approach

A historical research methodology, combining qualitative and descriptive approaches, was employed. This involved a meticulous analysis of primary and secondary historical sources spanning from the Umayyad period (661–750 CE) to the Ottoman era (1516 CE). The study utilized archival documents, architectural blueprints, photographs, and scholarly articles pertinent to the subject matter.

1.2.2 Case Study Approach

Additionally, the research incorporated a case study approach, delving into specific examples of Damascene houses such as the Sibai House and other notable residences. These case studies served to illustrate various facets of landscaping and architectural features within the courtyards of these historical residences. By adopting a historical methodological framework, the paper aimed to uncover the evolution and influences that have shaped the design and landscaping of Damascene house courtyards throughout different historical periods.

1.2.3 Time Frame of the Research

The study focused on historical periods ranging from the Umayyad dynasty to the Ottoman era, analyzing how cultural and environmental factors influenced the design and functionality of courtyards in Damascene houses.

2. The Fundamental Concepts and Principles of Islamic Architectural Design and Garden Coordination

The architectural and garden arts in Islamic civilization embody religious and philosophical values. Islamic architectural design is characterized by a unique artistic style, showcasing meticulous architectural engineering and culturally significant symbols. For example, the integration of Byzantine mosaics and Sassanian arches into Islamic architecture during the Umayyad period reflects the cross-cultural influences that shaped Islamic art (Grabar, 1987). Additionally, garden coordination in Islamic architecture draws inspiration from Persian gardens, such as the Chahar Bagh design, which emphasizes symmetry and water features (Watson, 2003).

2.1. Key Elements of Islamic Architectural Design

The Umayyad Caliphate (661–750 CE) was the first major Islamic dynasty, established after the death of the Prophet Muhammad. The Umayyads made Damascus their capital and expanded their empire from the Iberian Peninsula in the west to the borders of India in the east (Kennedy, 2016). This period is



considered formative for Islamic art and architecture, as it saw the integration of various cultural influences, including Byzantine and Sassanian elements (Grabar, 1987).

The Umayyad dynasty was marked by significant political and cultural achievements. Under their rule, the Islamic empire expanded rapidly, and this expansion facilitated the exchange of artistic and architectural ideas. The Umayyads were known for their patronage of the arts, which led to the development of a distinctive architectural style that combined elements from the various cultures within their empire. For example, the use of Byzantine mosaics in the Dome of the Rock in Jerusalem reflects the integration of Roman and Byzantine artistic traditions. Similarly, the Sassanian influence is evident in the use of arches and vaults in early Islamic architecture, such as in the Great Mosque of Kairouan. (Creswell, 1989).

2.2 Garden Coordination in Islamic Civilization

Horticultural Engineering: Gardens are an integral part of Islamic design, playing a significant role in achieving a balance between nature and architectural engineering. Garden coordination is characterized by green spaces and fruitful trees (Al-Sallami, 2015). For example, the Alhambra Gardens in Granada exemplify luxurious Islamic gardens, consisting of fountains, pools, flowers, and trees. These gardens were inspired by Persian Chahar Bagh designs, which emphasize symmetry and water features. The concept of dividing the garden into four quadrants, symbolizing the four rivers of paradise, was a fundamental principle in Islamic garden design. This principle can also be observed in the Taj Mahal gardens in India, reflecting the widespread influence of Persian garden traditions (Barrucand & Bednorz, 1992).

Geometric Patterns in Gardens: Geometric patterns are repeated in the design of Islamic gardens, whether in the layout of flowers or the design of pathways, symbolizing harmonious communication between humans and nature (Damluji, 1998). For instance, the Shah Gardens in Iran are an example of geometric Islamic gardens, following a chessboard pattern in arranging trees, flowers, and water features.

Interaction and Impact: Islamic architectural design and garden coordination interact harmoniously, with beautiful gardens enhancing architectural spaces and providing a comfortable environment inspired by nature. This contributes to achieving a unique balance (Necipoğlu, 2005). For example, the Al-Azhar Mosque in Cairo is an example of interaction between architecture and gardens, with green spaces surrounding the massive mosque, creating a beautiful contrast between green and white colors (Behrens-Abouseif, 2007).

The observer of Arab horticultural production finds its close connection to vocabulary and concepts that have been influenced by social and cultural factors. This influence is notably apparent in religious texts and Arabic poetry. The descriptions of paradise in the Quran, mentioned in about a hundred and forty places, have inspired the vocabulary and concepts used in the design of courtyard spaces in Arab architecture. Among the most significant of these vocabulary and concepts are:

2.2.1 The Necessity of Water Elements in Courtyards or Gardens:

The Quran emphasizes the presence of water elements in paradise, describing it with phrases like 'Gardens beneath which rivers flow' in multiple verses (Quran, Surah Al-Kahf, 18:31). This is reflected in Arab courtyards and gardens through the use of rectangular and octagonal basins, intersecting or axial channels, and an intricate network for irrigation (Ruggles, 2008). Water also appears in the form of



cascades from animal-shaped sculptures or circular and tiered fountains, a feature commonly found in Islamic gardens (Blair & Bloom, 1994).

2.2.2 Abundance of Crops and Fruitful Plants:

The Quranic descriptions of paradise's crops and fruits, such as grapes, pomegranates, lote-trees, tamarisks, basil, and corn, highlighted their abundance, shade, closeness, and sweetness (Quran, Surah Ar-Rahman, 55:68-70). This inspired the cultivation of fruit-bearing trees, palms, and aromatic plants in palace courtyards, mosques, city streets, and the widespread planting of shaded trees, fragrant plants, and medicinal herbs (Watson, 2003).

2.2.3 Architectural Masses:

Paradise is also described with architectural elements such as houses, palaces, layered rooms, roofs, stairs, doors, and decorations in the Quran (Quran, Surah Al-Insan, 76:12-22). The hadith further elaborates on the transparency and levels of paradise (Sahih Muslim, Hadith 7518). This was reflected in Arab gardens through the presence of architectural masses surrounding courtyards, central buildings in large gardens, or focal points in tiered gardens (Necipoglu, 1992).

2.2.4 Geometric and Floral Decorations:

Geometric and floral decorations, known as plastic arts, became a distinctive feature in Arab horticultural art (Grabar, 1992). These repeatable motifs, arranged symmetrically around an axis or two axes, replaced sculpture and painting in non-Arabic art. The aim was to lighten the weight of sculpted masses and planar surfaces by adding details that impart agility, lightness, and cultural depth (Hillenbrand, 1999).

2.2.5 Scarcity of Pictorial Arts and Abstraction of Living Images:

Arab courtyard arts were characterized by the limited presence of sculpted statues or painted images of living beings due to differing opinions on their acceptance (Ettinghausen, 1972). Such artistic elements were not given the importance they received in other cultures. Their presence was restricted to some royal courtyards, far from the realistic depiction of living beings (Blair & Bloom, 1994). Instead, sculptures were adorned with plant and geometric forms.

In summary, the vocabulary and cultural concepts shaping Arab courtyards and gardens are deeply rooted in religious texts and poetry, influencing the design elements, water features, abundance of crops, architectural masses, and decorative patterns. This integration of cultural and religious values has contributed to the unique and harmonious character of Arab horticultural art.

2.3 Historical and Contemporary Examples

The Holy Mosque in Mecca: The Holy Mosque in Mecca is considered one of the prime examples of Islamic architectural design, featuring a massive dome and unique decorations (Creswell, 1979).

Erfan Gardens in Iran: Erfan Gardens in Iran serve as an example of Islamic garden coordination, consisting of green spaces with beautiful geometric designs (Alizadeh, 2010).

The intersection of Islamic architectural design and garden coordination can be observed in numerous historical and contemporary examples, showcasing the integration of natural and architectural elements to create harmonious spaces inspired by Islamic values and concepts. For instance, examples include the Nabulsi House in the Al-Qanawat neighborhood, the Hourani House in the Qaymariyah area, and the Sanjakdar House in the Bab Touma district. These houses are renowned for their architectural precision and integration of landscaping elements. The Damascus Courtyard symbolizes this intersection, combining



Islamic architectural precision with garden aesthetics in a central space that reflects the identity, culture, and environment of Damascus (Rihawi, 1986).

The courtyard of a Damascene house is a significant aspect of Arab architecture, representing a harmonious blend of environmental design and architectural engineering. This traditional feature holds cultural, historical, and aesthetic significance, instinctive architectural elements include intricately decorated windows, ornate arches, and lush interior gardens. The use of geometric patterns in wood carvings and gypsum decorations further enhances the aesthetic appeal of these spaces, reflecting the influence of the natural environment, cultural traditions, and social evolution on Arab architecture (Saleh, 2000).

Arab architecture has evolved over the ages, influenced by various artistic and environmental design elements. Visual arts and environmental design have played a crucial role in shaping Arab architectural styles, with a focus on creating spaces that are both functional and aesthetically pleasing (Archnet > Publication > Urban Form in the Arab World - Past and Present, 2016).

The Arab architectural identity is shaped by a profound understanding of the natural surroundings, where environmental factors play a crucial role in determining the form and function of structures. In the case of the Damascene house, situated in the heart of the historical city of Damascus, the design of the courtyard reflects a meticulous integration of environmental elements. According to Rihawi (1986), the traditional Damascene courtyard serves as a microcosm that encapsulates the essence of environmental sustainability, offering a cool and shaded retreat from the scorching sun prevalent in the region. This demonstrates the careful consideration given to climate and natural conditions in the architectural decisions of the Arab world. The interplay between environmental design and Arab architecture, therefore, emerges as a testament to the adaptability and responsiveness of the built environment to the ecological context, resulting in structures that are not only aesthetically pleasing but also functionally optimized for the well-being of their inhabitants and the surrounding environment (Taleb & Abumoeilak, 2020).

The seamless integration between garden landscaping and architectural engineering in the courtyard of a Damascene house represents a meticulous interaction that reflects both aesthetic beauty and functional precision. The courtyard, as a vital center within the home, combines elements of nature and architecture to create a harmonious space that enhances the quality of life for its residents. This integration requires attention to various aspects, from water sources to plants and decorations, with a focus on sustainability and cultural history. The courtyard provides a unique blend of beauty and functionality, fostering a connection with the surrounding environment and reinforcing the Arab identity in architectural design.

3. Historical and Cultural Importance of Damascus Courtyard Design:

The city of Damascus, also known as "Al-Sham" in Arabic, is located within the geographical confines of Syria, extending along the latitude of 33 degrees and 30 minutes north, with an elevation of 700 meters above sea level. Notable landmarks in the city's surroundings include the fertile area known as "Al-Ghouta," Mount Qasioun, and the eastern mountains of Lebanon situated to the northwest. The elevated regions surrounding Damascus reach peaks exceeding 3000 meters (Bosworth, 2007), leading to the obstruction of clouds and sea breezes, resulting in a desert climate where rainfall predominantly occurs during the months of December to February.



Damascus is influenced by a geographical environment that characterizes it with a hot climate, featuring clear skies, minimal rainfall, and generally dry weather. Despite the harsh climatic conditions, the city remains a hub of urban life.

Historically, Damascus witnessed significant influences from the Hellenistic Greek civilization, starting around 333 BCE. Cities, as mirrors reflecting population dynamics and cultural structures, played a pivotal role in the development of Damascus under the influence of the Greeks, who adopted their urban and architectural style. The ancient Greek city, enclosed within the current city walls, serves as an example of Greek urban and architectural structures, with houses constructed based on recommendations from Aristotle to allow sunlight into the homes (Smith, 2005).

In this context, Greek houses typically featured a central courtyard surrounded by housing units, and there was often a columned pathway. Additionally, there were houses with courtyards or verandas close to the street or at the rear of the house, contributing to the diversity of the infrastructure and urban layout of Damascus during that period (Jones, 2010).

In the modern era (64 BCE - 395 CE), after the defeat of the Greeks by the Romans, Damascus became a part of the Roman Empire, contributing to the enhancement and expansion of the city both urbanistically and architecturally. The Roman Empire improved the Greek network system of public infrastructure such as baths, theaters, temples, and markets. When constructing new houses, the Romans inherited Greek building techniques but introduced changes in design, ornamentation, and coverage. These new houses were integrated into a cultural context that retained its original Greek style, with technological advancements such as opening windows for comfort and protection against noise and dust.

During the Islamic period (661 - 1516), with the advent of Islamic rule in the Levant, Damascus became the capital of the Umayyad Caliphate, witnessing a flourishing period of civilization, culture, and science. Numerous magnificent buildings were constructed reflecting Islamic architectural traditions, with the Umayyad Mosque standing as one of the greatest Islamic monuments and the oldest mosque in history. Islamic houses were influenced by modern houses in their use of dining rooms as a central element but with variations in size, design, and function.

In the Ottoman era (1516), Damascus added a new layer to its architectural character, blending the previous architectural style with Ottoman style to create a unique urban and architectural fabric (Bakir, 2021). Despite the Ottoman Sultans' focus on public facilities and mosques, they also showed interest in residential buildings and their development. Public baths and palaces underwent significant transformations during this period, with architects working on enhancing interior decorations and courtyards. Nevertheless, external facades remained simple and modest, while interior decorations became more elaborate and extensive.

However, according to Giulia Annalinda Neglia, the emergence of the final urban structure of Damascus was during the Ottoman rule (Negila, 2012). Ottoman architects worked on enhancing interior decorations and courtyards during the Ottoman period, making interior decorations more elaborate and extensive, while keeping external facades simple and modest. These enhancements to the interior and courtyards added richness and intricacy to the overall design of Damascene houses. The Ottoman influence brought about a fusion of styles, as seen in the ornate details of the interior spaces and courtyards, blending seamlessly with the traditional elements of Arab architecture (Al-Sabbagh, 2012).

The incorporation of water features, such as fountains and pools, within the courtyards became a distinguishing characteristic of Ottoman-influenced Damascene houses. These elements not only served a



practical purpose by providing a cooling effect but also added a sense of tranquility and beauty to the outdoor space (Oweis, 2016).

Furthermore, the intricate tile work and geometric patterns that adorned the courtyards and interiors reflected the skilled craftsmanship and the cultural and artistic influences of the Ottoman era. These decorative elements added a touch of opulence to the courtyards, creating a captivating ambiance that complemented the natural surroundings (Sheikhi, 2019).

The evolution of Damascene houses through Ottoman architectural contributions showcases a continuation of the principles of environmental design and architectural engineering, further enriching the cultural and historical significance of these architectural marvels.

The enduring legacy of the Ottoman influence on Damascene house courtyards is a testament to the dynamic nature of Arab architecture, where the fusion of diverse cultural and artistic elements continues to create timeless and enchanting spaces (Yasser, 2017).

authority.

4. Importance of the Courtyard:

The open courtyard is a traditional architectural design that appeared in many pre-Islamic religious and civic buildings. This is evidenced by the various terms referring to the courtyard in both ancient and modern languages (Al-Sahimat, 1997). The use of courtyards became widespread during the Islamic period, to the point that finding a building without a central open courtyard in its architectural plan became rare. Various opinions exist to explain the frequent use of the open courtyard in Islamic architecture, including its role in providing visual communication with the sky and addressing environmental conditions.

4.1 Visual Communication with the Sky:

Some argue that Arabs were keen on introducing a permanent visual connection with the sky. This element accompanied them during constant travels in the desert. Hence, the idea of the cosmic symbol was incorporated into the architectural planning of buildings used by them (Al-Sahimat, 1997).

4.2 Philosophical Perspective:

From a philosophical standpoint, the courtyard is considered the soul of the body, infusing life, activity, and movement. The structure represents the enveloped body for that.

On the other hand, some architects and archaeologists believe that the use of the courtyard is limited to two main reasons: firstly, the courtyard helps address environmental and climatic conditions by mitigating weather intensity, and secondly, the importance of the courtyard in providing complete comfort and privacy for the architectural unit. However, the courtyard holds significant importance in various religious, environmental, health, psychological, and social aspects (Hattamlah, 2003).

For instance, in Islamic architecture throughout time and space, the open courtyard has been a constant and distinctive element in various types of Islamic buildings, whether religious or civic. The courtyard represents a connection or a fixed element of Islamic structures in their diverse forms. The courtyard holds a religious significance in terms of its role as a means of constant visual connection with the sky, aiding in astronomical observations and prayer times. Moreover, the courtyard is closely associated with



fundamental aspects of Islam, such as prayer and fasting. Archaeological evidence, like the sundial found in many mosques, confirms the importance of the courtyard in determining prayer times accurately (Al-Wali, 1993).

In educational institutions, the courtyard plays a central role, serving as a space for social, religious, and educational activities. Similarly, in hospitals, the central courtyard provides necessary ventilation and lighting, contributing to improved health and psychological conditions for patients. In markets, the courtyard serves as a service area for the organization of movement, entry and exit, as well as facilitating commerce activities. In homes and residences, the courtyard is a private space for various religious and worldly activities, shielding the house from the harsh desert environment and providing a sense of privacy, clarity, and security (Al-Maliki, 2011). Overall, the internal courtyard is the core nucleus in the design of Islamic buildings, irrespective of their types and functions. It serves as the primary organizer of movement within the building, purifier of air to prevent dust entry, and mitigator of external noise in Islamic structures. The courtyard also acts as a window from which an individual can gaze at the sky (Abu Al-Ala, 1990).

The environmental importance of the courtyard in significantly reducing temperature is evident, especially during moderately cool nights when the courtyard floor is cooler. It is known that cold air is denser than hot air, so cool, moderate air accumulates in layers within the courtyard. This cool air then gently flows into the interior rooms, aiding in temperature reduction. During the daytime, the courtyard floor becomes hotter due to sunlight, causing the air near the courtyard floor to rise and replace the cool air shaded by the courtyard's walls. Consequently, the movement of hot and cold air within the courtyard significantly maintains a moderate temperature throughout the day (Al-Marzaqi, 2010).

Architectural design of the courtyard ensures a continuous airflow within the building, contributing to thermal comfort. The courtyard design offers several advantages, creating a serene and comfortable atmosphere both inside the building and within interior rooms without compromising privacy (Al-Marzaqi, 2010).

Furthermore, the courtyard provides another feature contributing to temperature reduction, namely, the shadows cast by the walls surrounding the inner courtyard. The continued presence of shadows during the day significantly aids in maintaining cold air currents. Additionally, various architectural elements in the courtyard, such as fountains, trees, plants, and flower gardens, enhance its thermal efficiency (Jamal, 2017).

The courtyard also delivers significant environmental benefits to humans, particularly in arid regions prone to sandstorms. Dust resulting from sandstorms can cause discomfort and irritation to the eyes and nose. An indoor courtyard with high walls prevents dust from entering while allowing for the enjoyment of fresh air and sunlight. Dust particles cannot rise more than one meter above the ground, even during strong winds (Ibrahim, 2011).

Health-wise, the courtyard facilitates the entry of sunlight into the building, ensuring continuous air renewal within the architectural unit. This aids significantly in eliminating stale air continuously. Sunlight entering through the courtyard purifies the indoor air from bacteria and germs (Al-Sheikh, 1995).

In addition to the above, the exposed central courtyard achieves an essential feature: changing perspectives, lighting levels, and shadow movement within the building, especially as one moves between different parts of the structure.



Additionally, the courtyard holds significant psychological importance. Humans consistently interact with environmental elements such as the sun, moon, sky, clouds, and green spaces, positively impacting their mental well-being. The courtyard allows individuals to harmoniously engage with surrounding environmental elements without compromising privacy. Consequently, gazing at the sky through the courtyard, whether in religious or civil structures, leads to increased levels of psychological comfort. In religious buildings, it contributes to serenity and humility during prayer, while in residential settings, it fosters tranquility and peace for the occupants (Hilal, 2008).

From a social perspective, the courtyard plays a crucial role at the heart of architectural units, connecting all their elements and enhancing social ties among individuals within the facility. In religious buildings, the courtyard accommodates large numbers of worshippers, creating a sense of unity and cohesion. In residential structures, the courtyard facilitates a connection between architectural elements, providing residents with a sense of familial and social cohesion (Hassan, n.d.).

Moreover, in the Islamic understanding, human relationships necessitate a balance between social interaction and the necessary privacy for family members. Therefore, the uncovered courtyard in Islamic architecture is a key element in achieving this balance. The courtyard, as one of the most dynamic spaces within the structure, is traversed by both interior and exterior occupants. It accommodates various activities, reflecting the diversity between religious and civil buildings—all achieved without compromising the tranquility, serenity, and necessary privacy required (Hassan, n.d.).

5. Analysis of the inner courtyard in the Arab-Islamic house:

The courtyard can be designed to promote environmental sustainability. The integration of rainwater harvesting systems can be implemented, reducing water consumption and improving environmental sustainability efficiency (Al-Sabbagh, 2012).

5.1 The House of Sibai's (1769 AD)

The house is located in old Damascus in the neighborhood of Minaret Al-Shahm in Damascus in the neighborhood of Al-Daqatin Avenue Nassif Pasha, and its construction dates back to the late eighteenth century, and it is surrounded by ancient archaeological dimensions, and it is one of the houses that contain three and a main courtyard and another secondary surrounded by spaces, various elements and functions.

Description of the Sibai House: The area of the house is approximately 500 square metres, and the house consists of 17 large rooms distributed over two floors, and three halls characterized by marble inlaid with colored stones and mother-of-pearl. The house has three entrances and also includes two inner courtyards. The smaller courtyard is located in the southern part, with a small water pool in the middle. It includes a

large hall rich in Persian carpets. On the south

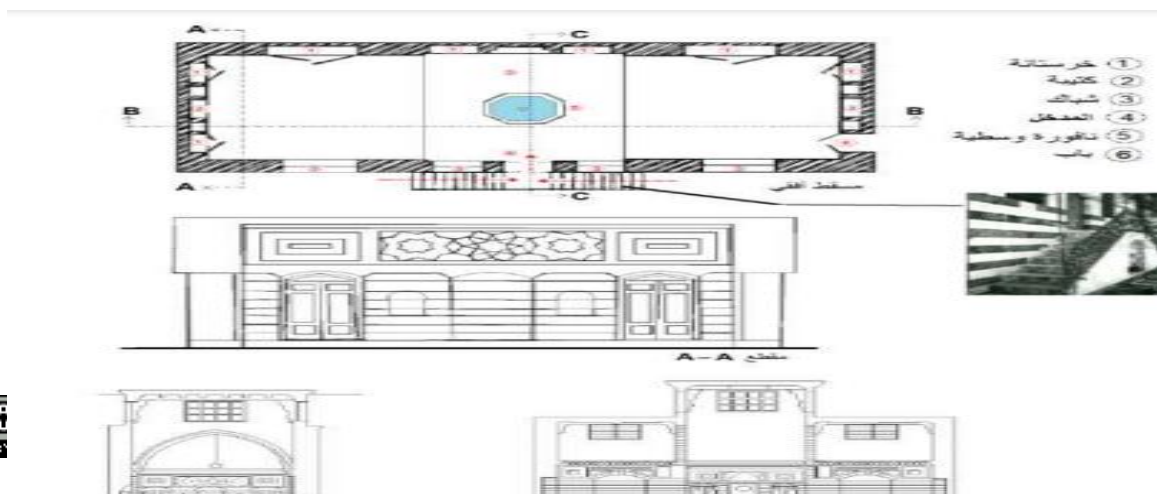


Figure 1 : The main western hall of two styles/Al-Siba'i House. Source: Ministry of Culture, Syria

ern side of the house, the house also includes a small, low-height iwan whose ceiling is decorated with colorful drawings in eye-catching colors, while the walls of the courtyard are covered with Damascene jasmine bushes that are arranged along the walls upwards (Syrian Archaeological Annals, 1985). The western hall, located in the Haramlik courtyard, is the largest hall in the house, Figure No. (1). It is ascended via several facing stone stairs. The hall's ornate wooden door is topped with a ceiling decorated with geometric inscriptions that include the names of the Rightly Guided Caliphs. The hall consists of two facing styles separated by a threshold. It is medium in size, with a small water lake in the middle, and its walls are covered with ornate wood.

As for the iwan, it is slightly high, with a colorful Persian ceiling, and its walls are covered with floral and geometric decorations and engravings, and it includes two

wooden doors to adjacent rooms, Figure No .(2).



Figure 2: The interior decorations of the iwan of the Sibai house A representation of traditional Damascene architecture generated using AI tools.

In the western corner of the courtyard there is a stone staircase that leads to a basement and to the former horse stables, while the courtyard includes a large marble water pool in its middle. Figure No. (2) surrounded by many trees, the most important of which are narwhals, whose flowers exude a distinct scent in the spring, in addition to lemon trees. Citron, rose, and jasmine, which are types with wonderful scents that are unique to Damascus homes.



Figure 3: The courtyard and its central area/Al-Sibai's house. A representation of traditional Damascene architecture generated using AI tools.

The House of Al-Sibai contains three huge halls, the most distinctive of which is the main spacious hall, which consists of a threshold containing what is called a “snake”, which is specific to the movement of air, especially in the summer.

5.2 Analysis of the dimensions of the courtyard of Al-Sibai's house:

The house consists of two courtyards, one of which is the main courtyard, the Haramlek Courtyard, rectangular in shape, with horizontal dimensions (13.60*10.50) and a ratio of openness to the sky (12.50), and a secondary courtyard (the Salamlek Courtyard), smaller in size than the main courtyard, with horizontal dimensions (79) and a ratio of openness to the sky (11.25).

The main courtyard of the house has a rectangular shape surrounded by two halls connected to each other by a doorway above a stone arch. There is a staircase that leads to the halls of the upper floor, then the main hall, then the laundry and toilet room, then the supply house. The main western hall is of two styles that...

It is ascended through a double staircase: the kitchen, then a staircase leading to the second part of the house, then a hall, and finally reaching the iwan, which is located on the southern side of the main courtyard, Figure No. (4).

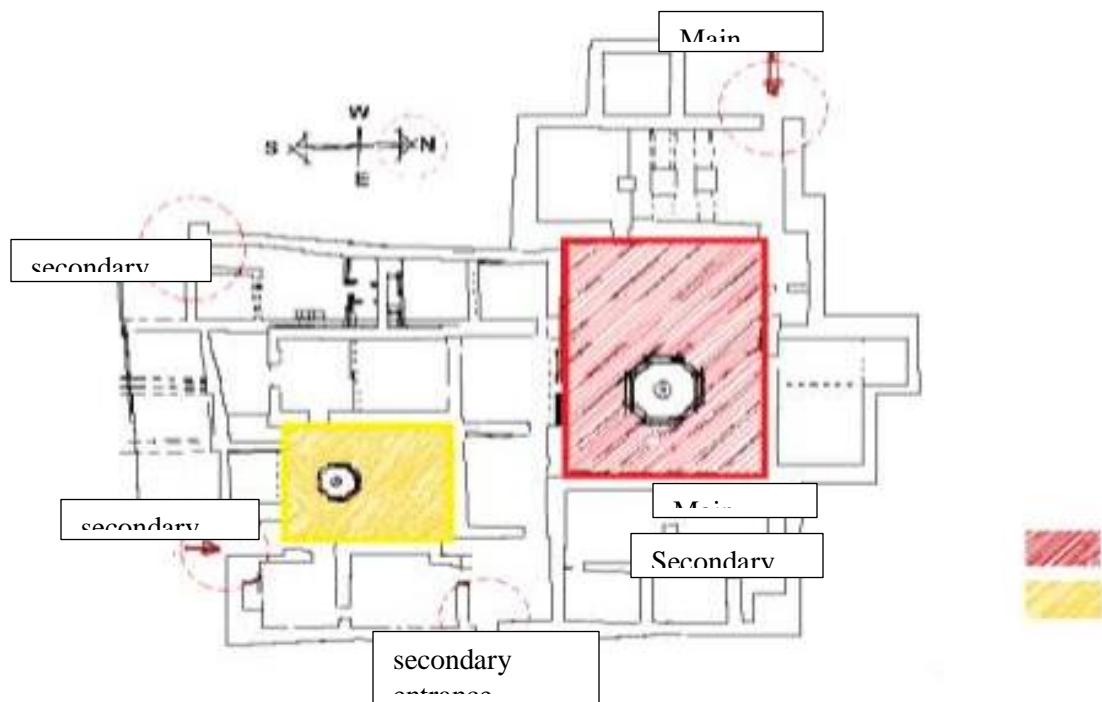


Figure 4 courtyard of Al-Sibai's house - drawing and analysis by the researcher

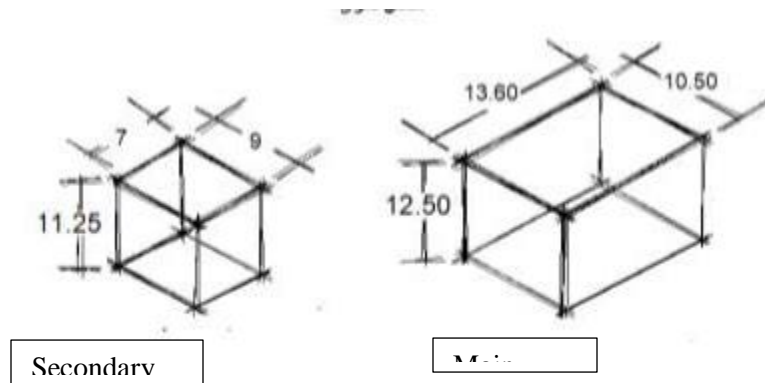


Figure 5 :Dimensions of the courtyard of Al-Sibai's house - drawing and analysis by the researcher

6. Results and Discussion

The findings of this study emphasize the critical role of courtyards in Damascene houses as a multifunctional space that balances environmental, cultural, and social needs. The courtyard design demonstrates remarkable adaptability to climatic conditions, providing natural ventilation, cooling, and thermal comfort. Essential elements such as fountains, greenery, and open spaces enhance its environmental efficiency while maintaining aesthetic appeal. The study also highlights the potential for integrating modern functional and aesthetic features into traditional courtyard designs without compromising their core identity. This adaptability makes courtyards relevant to contemporary urban planning, offering insights into sustainable architectural practices. Furthermore, the courtyard serves as a link between private and communal spaces, fostering social interaction and family cohesion. The historical analysis reveals the influence of various civilizations, including Byzantine, Sassanian, and Ottoman, on the architectural and landscaping elements of Damascene courtyards. These influences have contributed to the unique character of Islamic architecture, blending functionality with beauty. The findings underscore the importance of preserving this architectural heritage while adapting it to modern needs.

7. Conclusion

The courtyard of a Damascene house represents a remarkable intersection of landscaping and Arab-Islamic architecture. It embodies principles of environmental sustainability, cultural heritage, and social interaction, making it a valuable model for contemporary urban design. The research highlights the courtyard's role in climate control, privacy, and aesthetic enhancement, demonstrating its relevance to modern architectural practices.

By integrating traditional elements such as fountains, greenery, and geometric patterns with modern innovations, architects can create spaces that are both functional and culturally significant. The study also emphasizes the importance of preserving the unique identity of courtyards while adapting them to meet the demands of urban living. Future research should explore innovative ways to incorporate these principles into sustainable urban planning, ensuring that the rich heritage of Islamic architecture continues to inspire generations to come.

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