



Muqarnas Decorations: A Masterpiece of Islamic Architecture

Dilshod Luqmonov

Samarkand State Architecture and Construct University named after Mirzo Ulugbek

Elvira Jurayeva

Samarkand State Architecture and Construct University named after Mirzo Ulugbek 0009-0000-6256-950

ABSTRACT

Muqarnas (Arab. *mqrns*) is a type of architectural decoration; a complex shape resulting from the superposition of arched cups (cells). In architecture, it is widely used to make the upper part of mihrab, takhman, shelf, etc., with a 4/6/8 corner base, into a dome, semi-dome, the space between the wall and the ceiling of buildings, column heads, etc. At first, it had a simple shape, later it became more complex and was used for decorative purposes. Muqarnas varies in complexity depending on where it is used. The ends of the arches with a curved surface are brought forward, forming a support for the upper row. On the surface, these whorls often form an equilateral triangle, with 2 or more whorls intersecting at different angles to form calyxes.

Muqarnas is also called *giri*h (elongated *giri*h) due to its shape and appearance similar to a *giri*h. Since *Giri*h is based on a strict law, the artist cannot change the stars and other geometrical forms that form the basis of its distribution; divides the image into equal parts, and draws a duplicate copy (partition) on one part. Muqarnas in a broad sense has several forms in terms of shape: *sharafa*, *muqarnas* (in the narrow sense), *kalla muqarnas* and *Iraqi muqarnas*. The *sharafa* is formed by repeating rows of bowls in a horizontal direction. The *muqarnas* itself in the narrow sense has two forms: rows of arched bowls are formed as a result of turning 180° (in the roof, shelf, etc.) and 360° (in the dome) inwardly around the vertical axis. There is a difference between *sharafa* rows and dome and semi-dome rows, that is, in *sharafa*, the row of calyxes does not change, while in dome and semi-dome rows, the number of calyxes decreases from the bottom to the top, while the size of the calyxes does not change. As a result of turning 360° around the vertical axis, the rows of cups are facing outwards, and the skull (head) is formed. The most complex type of *muqarnas* is *Iraqi muqarnas*; In other types of *muqarnas*, the sides of the curved bowls are formed vertically, while in *Iraqi muqarnas*, they are formed obliquely. *Iraqi muqarnas* spread relatively later in the 16th and 17th centuries.

Keywords:

muqrnas, Islamic pattern, decoration, dome, *peshtoq*, *ravok*

Introduction

Muqarnas, often referred to as "honeycomb" or "stalactite" decorations, is a fascinating and intricate architectural feature that has graced the Islamic world for centuries. This unique design element combines mathematics, geometry, and artistry to create breathtaking and functional structures. In this article, we will

explore the origins of *muqarnas*, its various types, and the cases of its use in Islamic architecture.

Origins of *Muqarnas* *Muqarnas*, a term derived from the Arabic verb "qarnasa," meaning "to break into pieces," is a defining characteristic of Islamic architecture. Its history can be traced back to the 10th century, with the

earliest examples found in the region of Persia (modern-day Iran). Over time, muqarnas spread throughout the Islamic world, becoming a hallmark of the architectural style.

Types of Muqarnas Muqarnas comes in various forms and can be classified into several distinct types, each with its unique geometric patterns and aesthetic qualities. The three most common types of muqarnas are:



The muqarnas used in the mosque in Ansanbili in Shahizin

Muqarnas Domes: Muqarnas domes are among the most visually stunning and iconic features of Islamic architecture. These domes are adorned with intricate muqarnas designs on the interior surfaces, creating an awe-inspiring and mystical atmosphere within the space. Muqarnas domes are often seen in mosques, mausoleums, and palaces.

Portal Muqarnas: Portal muqarnas can be found adorning the entrances of various buildings, including mosques, madrasas, and palaces. These muqarnas designs serve both a functional and ornamental purpose, enhancing

Squinch Muqarnas: Squinches are structural elements used to transition from a square or rectangular space to a dome or other rounded structure. Squinch muqarnas are characterized by their intricate geometric patterns, typically featuring tiered stalactite-like shapes. They are often found at the corners of a room, helping to support the weight of the dome above.



Muqarnas used in towers

the grandeur of the entrance and providing support for the structure above the doorway.

Cases of Use in Islamic Architecture Muqarnas has been employed in a wide range of architectural applications across the Islamic world, serving both functional and decorative purposes. Some notable cases of muqarnas use include:

Mosques: Muqarnas designs can be found in the domes, mihrabs (prayer niches), and minarets of many mosques, creating a visually striking and spiritually significant environment for worshippers.



Muqarnas used on mosque pillars

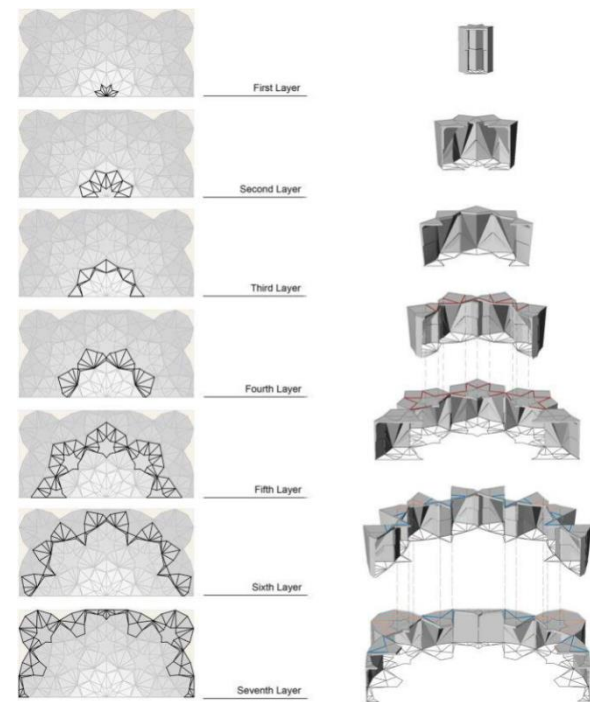
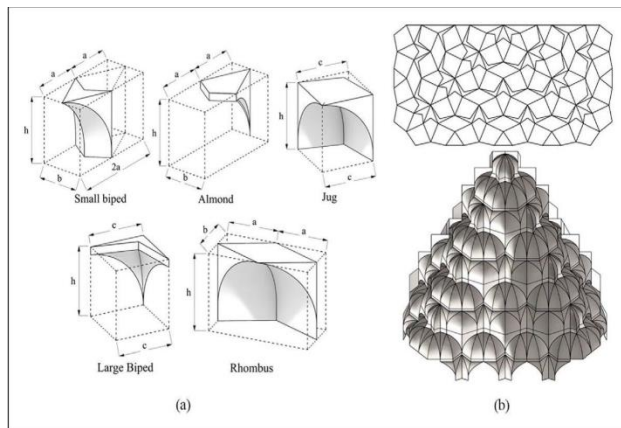
Palaces and Royal Buildings: Muqarnas has been a popular choice for embellishing the interiors of palaces and royal residences, adding a touch of grandeur and sophistication to these opulent structures.

Madrasas and Educational Institutions: Madrasas, Islamic schools of learning, have often featured muqarnas decorations on their facades and within their courtyards, emphasizing the importance of knowledge and culture.

Mausoleums and Tombs: Muqarnas is frequently used to adorn the interiors of mausoleums, creating a serene and spiritual atmosphere for those visiting the resting places of important figures.

Bazaars and Markets: In some cases, muqarnas can be found in the architecture of marketplaces and bazaars, adding to the charm and beauty of these bustling commercial hubs.

The Complexity of Muqarnas: Muqarnas is known for its intricate geometric complexity. The designs are based on a system of corbelling, where successive layers of stone or other materials are gradually stepped back, forming tiered and interlocking stalactite-like shapes. This not only creates a visually stunning effect but also serves structural functions. Muqarnas designs can distribute the weight of heavy domes or other architectural features, reducing the need for massive load-bearing walls.



The structure of the structure of muqarnas

The geometric principles governing muqarnas are rooted in mathematics and vary from simple forms to highly intricate patterns. Craftsmen and architects often employ advanced geometry to achieve the precision required for these designs. Muqarnas has been a source of fascination for mathematicians and scholars who study the Islamic art and architecture for its mathematical sophistication.

Regional Variations: Muqarnas designs exhibit regional variations and artistic interpretations. Different Islamic cultures have put their unique stamp on muqarnas decorations:

Moorish Muqarnas (Al-Andalus): In the Iberian Peninsula, the Moors introduced muqarnas with complex honeycomb patterns in the architecture of Alhambra, Alcázar of Seville, and other Andalusian landmarks.

Mamluk Muqarnas (Egypt and Syria): Mamluk architecture is characterized by ornate muqarnas domes, often adorned with intricate inscriptions and Islamic calligraphy.

Safavid Muqarnas (Persia/Iran): The Safavid dynasty in Persia created exquisite examples of muqarnas domes in Isfahan and Shiraz, characterized by floral motifs and vibrant tilework.

Ottoman Muqarnas (Turkey): The Ottoman Empire used muqarnas, sometimes in combination with Iznik tilework, in mosques like the Blue Mosque and Topkapi Palace.

Cultural and Symbolic Significance: Muqarnas transcends its architectural utility to carry symbolic and cultural significance: **Spiritual Significance:** Muqarnas features in Islamic religious architecture are intended to create a sense of awe and humility in the observer. The intricate designs are often seen as a manifestation of the divine order in the universe.

Cultural Identity: Muqarnas is an essential part of the Islamic architectural vocabulary. Its presence signifies the fusion of Islamic cultural and artistic elements, regardless of where it's found in the Islamic world.

Artistic Expression: Muqarnas has often been used as a canvas for artists and artisans to showcase their skills. The designs allow for creativity and artistic expression within the confines of Islamic architectural principles.

Historical Legacy: Muqarnas designs preserve the history and heritage of the regions they adorn. They reflect the artistic

achievements of Islamic civilizations and serve as a connection to the past.

Conclusion

Muqarnas is a quintessential feature of Islamic architecture that showcases the artistic and mathematical prowess of the civilizations that have embraced it. Its diverse applications, from supporting structural elements to creating breathtaking decorative designs, make muqarnas an integral part of the Islamic architectural heritage. The intricate geometric patterns and aesthetically pleasing structures produced by muqarnas continue to inspire architects, artists, and admirers of Islamic culture worldwide, ensuring its enduring legacy in the world of architecture and design. In conclusion, muqarnas is a remarkable architectural feature, combining mathematics, artistry, and functionality. Its intricate designs and regional variations make it a fascinating and integral aspect of Islamic architecture.

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