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The Islamic art and design elements applied in the Islamic city

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Abstract

It is supposed to have three art components by giving an Islamic identity: geometric, floral, and Islamic calligraphy. Putrajaya is created to present the Islamic city in Malaysia. The Islamic art components are highly applied to the buildings' motif and ornamentations. However, the element of calligraphy is missing in the overall features of the Islamic city patterns. Therefore, this study aims to identify the Islamic components in Putrajaya's administrative public buildings. Then, to analyze the Islamic decorative elements and highlight the importance of calligraphy in determining the building's character and identity as one of the main elements that should be applied to Putrajaya's administrative public buildings. This paper analyses a few important buildings in the city of Putrajaya. Most of the required data were collected by doing photographic documentation and on-site studies besides semi-structured interviews with the government. The researcher chose Putrajaya city to be the selected research area, focusing on the public and administrative buildings. The researcher had picked a few examples of public buildings for the study. In each building, the researcher recognizes the applied Islamic element that can be found in it. These buildings are the Moroccan pavilion, Putra Mosque, The Ministry of Finance, Masjid Tuanku, Mizan Zainal Abidin, and Complex Islam Putrajaya. The analyses determine several types of elements and components with the tangible and intangible qualities that articulate their compositional order. Each type of component carries a special meaning and symbolization of Islamic culture. It is essential to apply calligraphy to represent the complete form of Islamic heritage. Further research is essential to create a guideline to help the designers and architects by providing the Islamic city's best image.

Keywords: Islamic elements, Calligraphy, Administrative building, Putrajaya

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Graphical Abstract



Astaka Morocco, the Islamic calligraphy element

Source (illashanahila, 2017)

Introduction

Islamic architecture encompasses a diverse range of secular and religious forms, having influenced the design and development of buildings and structures in Islamic civilization and beyond since Islam's inception. The word Islamic architecture or Muslim architecture has a variety of definitions, but in general, the term refers to the architectural traits that Muslims use to identify themselves. Islamic architecture styles include the mosque, the tomb, the castle, the fort, the school, and urban structures. Islamic architecture evolved a vocabularily rich vocabulary that was frequently applied to all of these minor structures, such as public baths, fountains, and home architecture (Saoud 2002).

Arabic calligraphy is an artistic form of handwriting and calligraphy based on the Arabic alphabet. That (Arabic: خط), which is derived from the terms 'line', 'plan', or 'building'. It was associated with a variety of fields within the Arab culture, including religion, sculpture, architecture, education, and handicraft, all of which had a significant role in its growth. Calligraphy is used to decorate religious and secular structures in a variety of mediums, including pottery, glass, carpets, gems, woodcarving, and metalwork (George 2017). The calligraphy style is determined by the text's content, the shape of the surfaces, and the purpose for which it is intended. Thus, each script took on a variety of forms and materials depending on its location (Fragment 2018).

Putrajaya city in Malaysia was created to be an administrative center of the country where diversity of powers from different ethnicities came together. It was needed

in the colonial era representing the trend of borderer's development in Southeast Asia. Putrajaya puts religious issue, identical nations as well as globalization into a city scale (Moser 2010).

The first phase of the Putrajaya Islamic Complex was completed in October 2011 in Precinct 3, Putrajaya. The building was completed in July 2016 and operations began on 1 December 2016. Properties constructed the Putrajaya Islamic Complex on a 2.21-hectare land. The Putrajaya Islamic Complex is comprised of four blocks, namely Blocks A, B, C, and D. It is inspired by modern Islamic architecture. This facility houses nine religious organizations that fall under the Religious Affairs portfolio of the Prime Minister's Department. Blocks A, C, and D are joined via a bridge located on each block's second floor. Additionally, the structure features an underground amphitheater that seats approximately 773 people (Ghani 2018) (Fig. 1).

Putrajaya represents several Islamic elements in the decorative exterior envelopes and its impressive interiors. The usage and installment of the Islamic architectural elements differ based on the type of the building and the number of occupants that can host (Ibaiyeye 2016; King 2007; Morris et al. 2016). There are two Islamic decorative elements applied in Putrajaya city: the floral motif and geometrical design patterns. Those elements gave Putrajaya the name of the brand-new Islamic town inspired by the Middle East's sophisticated designs and taken from a diversity of sources as Ottoman, Safavid, Central Asian, Iraqi, Persian, Moorish, and Mughal architecture, resulting in an eclectic assortment of

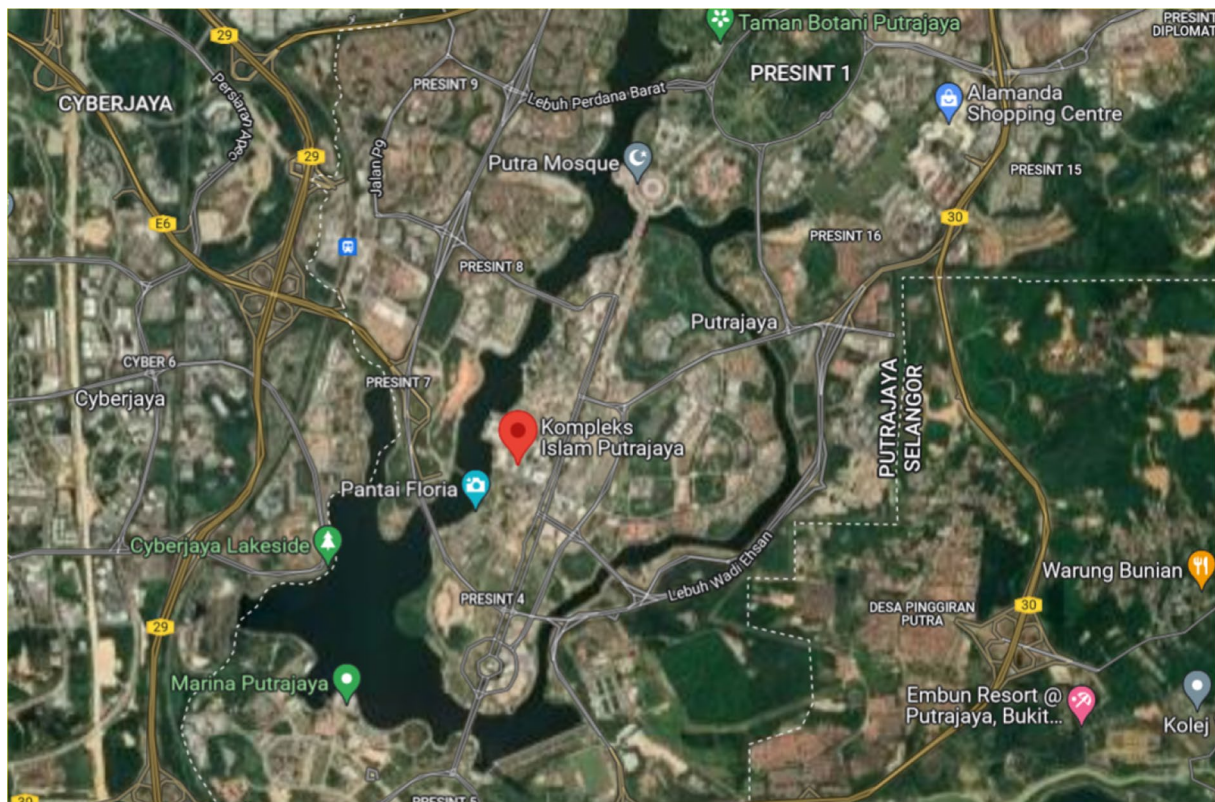


Fig. 1 Aerial image of Putrajaya

recognizably "Islamic" architecture and urbanism (Moser 2010). Putrajaya is designed entirely in-house, creating a local functional character with an aesthetically appealing Islamic building.

Putrajaya's unique ceremonial space and the architecture's symbolism have drawn upon diverse influences resulting in impressive 'Malaysian-Islamic' buildings in character and universal in outlook (Ibaiyeye 2016).

Recently, cultural values became the focus for the identical and sustainable modern buildings, giving a special effort to apply the Islamic decorative elements in the design of the administrative and public buildings in Putrajaya. Strong visual images borrowed for public art in Putrajaya help to facilitate a unique structure and give the city its identity (Bunnell 2002; King 2007). This paper discusses the application of the Islamic decorative elements in chosen public administrative buildings in Putrajaya and the percentage of elements usage in Putrajaya overall. Therefore, this research aims to analyze the Islamic decorative elements and highlight the importance of calligraphy in determining the character and identity

of the building as one of the main elements that should be highly applied to the public buildings in Putrajaya.

Literature review

This section analyses several buildings decorations in Putrajaya regarding the three Islamic decorative elements: floral design, geometrical design, and calligraphy, with more focus on Islamic calligraphy as one of the main elements of the Islamic building design (Bunnell 2002; Moser 2010). This section contains relevant recent researches and studies that support the subject area and its analysis. In the meanwhile, the paper aims to spot the light on the research gap in this research field.

Arabic calligraphy definition and meaning

The dissemination of Arabic calligraphy dates all the way back to the Phoenician Empire, which was divided into Aramaic, Greek, Hamiri, and Hebrew languages (Gacek 2009). Aramaic calligraphy evolved into Tigris, Indian, Persian, Phahlawi, Hebrew, Murabah, and Syriac. Later on, Syriac handwriting evolved into two distinct styles:

Hamari and Nabataean calligraphy (Waterman 2009). Arabic calligraphy evolved from Nabataean calligraphy. Thus, Arabic calligraphy evolved from the Nabataeans, Arabs who lived in the northern Arabian Peninsula's capital Petra (George 2009). As a result, Arabic calligraphy evolved from Nabataean calligraphy (Gacek 2009).

Islamic components of architectural buildings

Islamic buildings are covered with types of decorations and colors (Kamarudin et al. 2020). They are usually ornamented from their exterior and interior, while the building's internal part got more decoration than the exterior. The external decoration can mostly be seen on the structural element, such as the domes, arches, and gates. There are three different components of Islamic design (King 2007). These three components include calligraphy that comes with different scripts, organic or floral patterns that come into vegetal abstract patterns, and geometric design in an angular and linear form for repeated patterns. All three types of designs are usually distinguished from the arabesque, a term used to describe decoration in Islamic Art (Moser 2013). These components started to be used in mosques and architectural buildings as art and appreciation of Islam as a religion and culture. They were applied as decoration and expression elements with other various purposes such as shading or breathing envelope. Hence, the three Islamic art components are significant to be utilized to create a complete cultural and Islamic identity for the buildings of Putrajaya.

Islamic artistic traditions rely heavily on the utilization of geometric, floral, and calligraphy patterns because the Prophet Muhammad warned from adding figurative art which is against Allah worship (Moser 2010). This is understood as a prohibition of using animal and human forms in texts, textiles, and architecture.

The floral design of the Islamic decoration is representative of nature. It was the Muslim artists' focus where they invented different motifs inspired by the shapes and colors of flowers and trees to decorate art pieces and architectural envelopes and interiors. European and Persian floral art was the most famous art developed into various art types around the world (Kamarudin et al. 2020; Yahya and Embi 2013).

Floral design is a smooth decorative element that is applied on the surfaces creating a beautiful intricate decoration. It can come along with the geometric element or can come separate but framed with geometry (Ibaiyeye 2016). Floral design was also heavily applied in Putrajaya, especially at the roundabout landscape, Fences shape, Lamps form, outdoor benches decoration, building concrete Blinds, and most of the building interior, especially masjids and public spaces (Fig. 2).

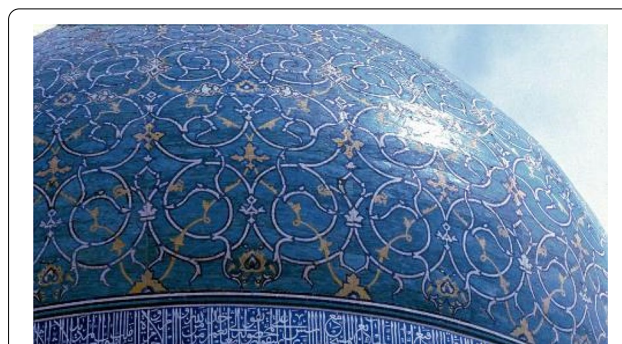


Fig. 2 Exterior of the Dome at the Royal Mosque, Isfahan, Iran (Wade 2020)

Another architectural element in Islamic architecture is the use of geometrical patterns. The patterns vary in complexity from simple to highly sophisticated designs.

This mode of decoration relies heavily on the art of repetition and symmetry to generate patterns. The architects skillfully integrate geometrical shapes to produce unique patterns and symbols used in buildings (see Figures 7, 9). Geometrical patterns facilitate connectivity between different sections of a building (Moser 2010). They also add an aesthetic value to the structure. Geometry is also believed to be the source of calligraphy patterns; the geometrical design is another Islamic architectural element. It can be applied in a simple form as well as in a richly complicated design. Geometric patterns contain several repeated geometric elements, they are designed to be in two dimensions, and they are always characterized as having a background and foreground pattern (Baydoun 2017). As the geometrical designs are conspired to be the frame of the floral calligraphy design, they are not designed to be fit within a frame (Ibaiyeye 2016). The geometrical designs commonly come into symbolic forms and unique patterns of repeated pointed stars based on the usage philosophy and its concept. The shapes also vary in different textures and patterns, creating high flexibility in its application in construction and building design. It connects all building parts in an envelope; for that reason, geometry is highly used in Putrajaya building structures as one of the richest Islamic design components; it acts as double skin blinds for the buildings to filter light welcome the breezes.

Calligraphy played an essential part in Islam, mainly because of its use in writing the Quran. Under this role, it is regarded as one of the most critical elements in Muslim art (Blair 2006; George 2017). Calligraphy is used to make a simple inscription on the wall's Muslim buildings such as palaces, mosques, and domestic houses. The descriptions often carry religious messages sourced from the Quran or Mohammedan teachings. Scholars

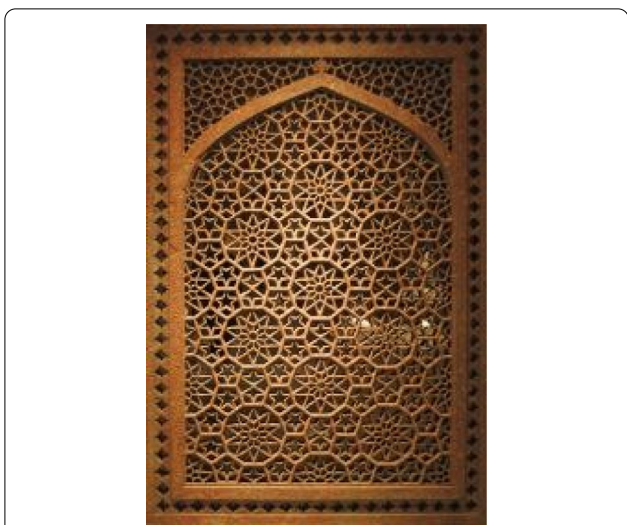


Fig. 3 A latticework of Mughal at the Metropolitan Museum of Art, New York

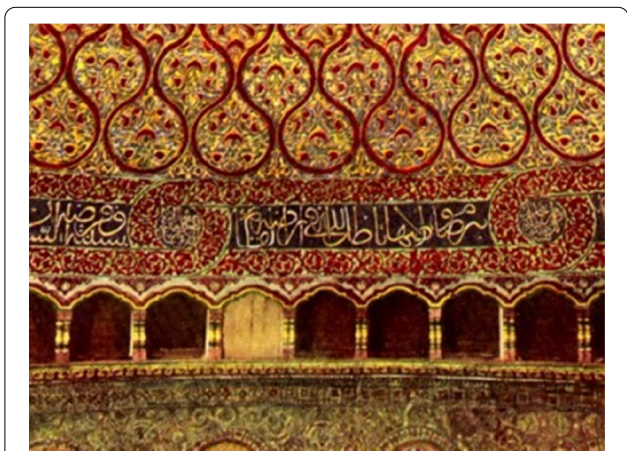


Fig. 4 Interior view of the Dome of rock

link calligraphy to the geometrical style of art that was common with Islamic decorations (Ahmad 2016). The symbols are often inscribed on the main sections of the building, whether they are visible to many people. Repetition is often used to produce a pattern on the wall (Fig. 3).

Calligraphy has a great role in defining Islamic art due to its existence as the Quran’s language. Calligraphy was utilized to decorate palaces, mosques, and houses of Muslim society (Coleman 2013; Hamzah 2012; Kamarudin et al. 2020). Calligraphy mostly comes from pure geometry; every geometric design starts from the circle to frame calligraphy art and floral motifs. The main sections of the building are the most decorated parts to be seen by viewers easily. The produced patterns of the Islamic elements got repetition as the main principle. Many calligraphic inscriptions from Quran verses and Hadith are featured in the Dome of the Rock interior, demonstrating the sacristy of calligraphy (Fig. 4).

Methods of research

This paper is to examine a few analyses about the city of Putrajaya. Most of the required data were collected by doing photographic documentation and on-site studies besides semi-structured interviews with the government. The aim of conducting documentation on-site was for determining the predominant structure that can be easily noticed on the buildings, which contains one or more Islamic elements in its design such as floral patterns, geometrical patterns, and calligraphy. The researcher chose Putrajaya city to be the selected research area, focusing on the public and administrative buildings. In this paper, the researcher had picked a few examples of public buildings for the study; in each building, the researcher focuses on recognizing the applied Islamic element that can be found in it. These buildings are the Moroccan pavilion, Putra Mosque, The Ministry of Finance, Masjid Tuanku, Mizan Zainal Abidin, and Kompleks Islam Putrajaya.

Table 1 summarises the types of the Islamic architectural decorative elements found as screening or gateways, or window-like panels of the public and administrative buildings regarding the building name, location, placement, function, and element type.

The researcher in this study had identified the most used Islamic elements in Putrajaya by conducting a pictorial analysis. The study held a semi-structured interview

Table 1 Types of the Islamic architectural decorative elements

Name	Exterior/Interior	Precincts	Type
Moroccan pavilion	Both	Presint 1	Floral, geometric, calligraphy
Putra Mosque	Both	Presint 1	Floral
The Ministry of Finance	Exterior	Presint 2	Geometric
Masjid Tuanku Mizan Zainal Abidin	Exterior	Presint 3	Geometric
Kompleks Islam Putrajaya	Exterior	Presint 3	Geometric

with the government to support the research with official design documentation. Besides that, the government helps to verify data obtained from the on-site survey. The researcher will be analyzed the government's support and permission and listed down the Islamic components to be revealed throughout the site visit and the focus of the interview and documentation.

Results, findings, and discussion

According to the analysis of Putrajaya's master plan, Putrajaya is divided into 20 precincts. Most of the precincts are used for commercial and residential buildings. Few precincts like 1, 2, and 3 are specified for governmental buildings. According to the authority of Putrajaya, the Islamic city concept does not include the residential and commercial areas (Ibaiyeye 2016). Still, it covers the present one as it can be noticed that buildings built as Islamic buildings. The architecture is similar in the design of the Islamic city concept.

The main guideline that inspires the architects in designing the Islamic city of Putrajaya is the al Hambra palace due to the three Islamic architectural elements' existence in its interior and exterior design (Yahaya & Mohd 2013). Putrajaya's Moroccan pavilion, with its floral and geometrical designs and motifs, is the strongest proof of Putrajaya being an Islamic city. A great effort was exerted in it to include the whole Islamic elements and details. From that point, Putrajaya has started to apply the Islamic motifs richly in any modern or traditional government building. Putrajaya's architecture is full of Islamic signs, which can be embodied in the arches, domes, and geometrical patterns (Kamarudin et al. 2020) (Fig. 5).



Fig. 5 Astaka Morocco, the Islamic calligraphy element. Source (illashanahila 2017)

Putra Mosque (Persiaran Persekutuan) is one of the most prominent buildings that showcase the floral and geometric patterns on its interior and exterior, the Dome as a very dominant element composed with detailed ornamentations showing the Islamic architectural elements (Moser 2010). The geometrical pattern is applied respectively on the porous seamless pointed arches along the masjid's walls, acting as a shading and environmental control screen. Geometrical design is also applied to the creation of stained-glass openings and playful natural light penetration in an artistic shade. Furthermore, the landscape around the masjid is also designed by the shape of a flower. The need for calligraphy is quite important in Putra mosque, defining the building's identity and proving its Islamic base. Having calligraphy in integration with both geometrical and floral can offer a better design to give the principles of unity, rhythm, symmetry, multiplicity, as well as the principle of eternity (Figs. 6, 7).

Ministry of Finance Putrajaya is one of the prominent buildings in Putrajaya, the detailed repeated indication of contemporary Islamic Malay geometric pattern is applied to the main façade design. It involves the Islamic geometrical patterns and arches mimicking the Moroccan pavilion that is inspired by Alhambra, calligraphy as an important element presented by the Islamic concept will add an identical touch to the building referring to the Islamic design (Figs. 8, 9, 10).

At present, 3, Masjid Tuanku Mizan Zainal Abidin is an example of Islamic architecture. The green and organized landscape and the Islamic geometrical patterns on the domes and walls of the masjid building emphasize architects' role in the application of the Islamic city concept in Putrajaya. The pointed steel arches and the semi-transparent spiral mesh in a rectangular shape represent the Islamic strength through the masjid design. Yet, Islamic calligraphy is applied



Fig. 6 Exterior view of Putra mosque (Erin Tracy 2019)



Fig. 7 Floral and geometric integration at the interior and exterior decoration (Erin Tracy 2019)



Fig. 8 Exterior of the Ministry of Finance (GDP web, 2020)



Fig. 10 Geometric pointed star at the ministry of Finance entrance (GDP web, 2020)

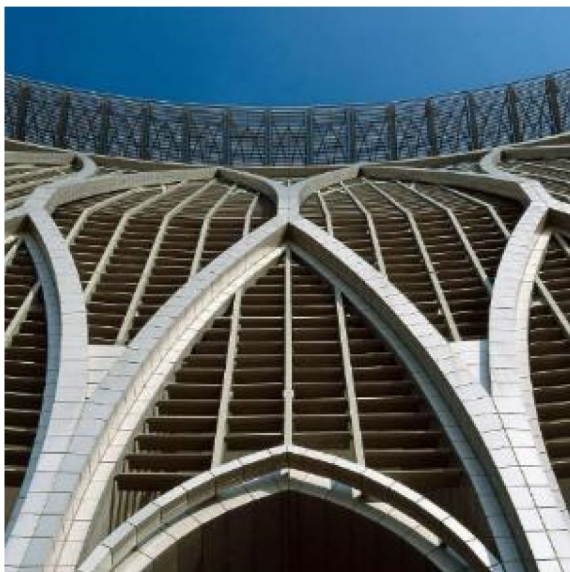


Fig. 9 Detailed geometrical arches at the main facade (GDP web, 2020)



Fig. 11 The exterior of Masjid Tuanku Mizan Zainal Abidin (Uwe Aranas, 2013)



Fig. 12 Calligraphy along the corridors' highlighted sides (GKD, 2019)



Fig. 13 The stainless-steel spiral mesh at the back of the rectangular pattern (GKD, 2019)

along with the entry and mihrab of the masjid; it would be a good choice to invest calligraphy as a decorative and functional element on the enhancement façade of highlighting the building function as the masjid (Figs. 11, 12, 13).

Kompleks Islam Putrajaya, with its linear geometry and pointed star geometry, represents a variety of geometric design illustration. The main canopy of Kompleks Islam Putrajaya with its decorative semi-vaulting steel structure references the muqarnas, which is one of the important Islamic elements. It can also be seen that there is a lack of using Islamic calligraphy as well (Fig. 14).

The Table 2 shows an analysis of the five chosen case studies explaining their design elements applied in the design internally or externally.

After discussions and observation with authorities, and from comparing the Moroccan pavilion with the other governmental buildings, Putrajaya's designs lack the most important Islamic design element. Which is calligraphy, it exists richly in the Moroccan pavilion as a reference to its great importance in the Islamic building's elements. In short, the reviews of related researches and literature refer to the lack of calligraphy as an aesthetic architectural element used in the decoration of public buildings of the Islamic city of Malaysia Putrajaya.

Conclusion and recommendation

In this paper, the focus is on applying the Islamic architectural decorative elements in the selected public buildings situated in Putrajaya. The study results explain that both floral and geometrical designs are richly and successfully applied to Putrajaya's public buildings. The study found three basic elements that should be integrated to create an Islamic design for the Putrajaya Islamic city. These two different components are placed and applied in various forms and uses in various buildings' typologies such as religious, administrative, and commercial. According to the buildings' forms, the elements' structures are varied and harmonized into the building's envelopes and skins. In comparison, calligraphy can be noticed as a missing component in the city patterns where calligraphy takes the biggest chance to create an identical scene of the place. Findings from this research would fill in the gap of knowledge regarding the existence of geometrical and floral elements in the architecture of the public buildings and introduce calligraphy as an essential element in the design. That enriches the building's identity with high complexity and innovation in designing and stylizing with more sustainability and beautification. The main importance of Arabic calligraphy lies in its Arabic cultures and heritage; it symbolizes Islam. It is also considered a unique expression method that illustrates Islam's history and background and the stages and rules that it went through. The challenge is to invest calligraphy into the Islamic designs of Putrajaya as Arabic calligraphy plays an important part in Islamic art and architecture, with its various and different influences and categories from poetry to decorative patterns in mosques, which has evolved through time and is still meaningful.

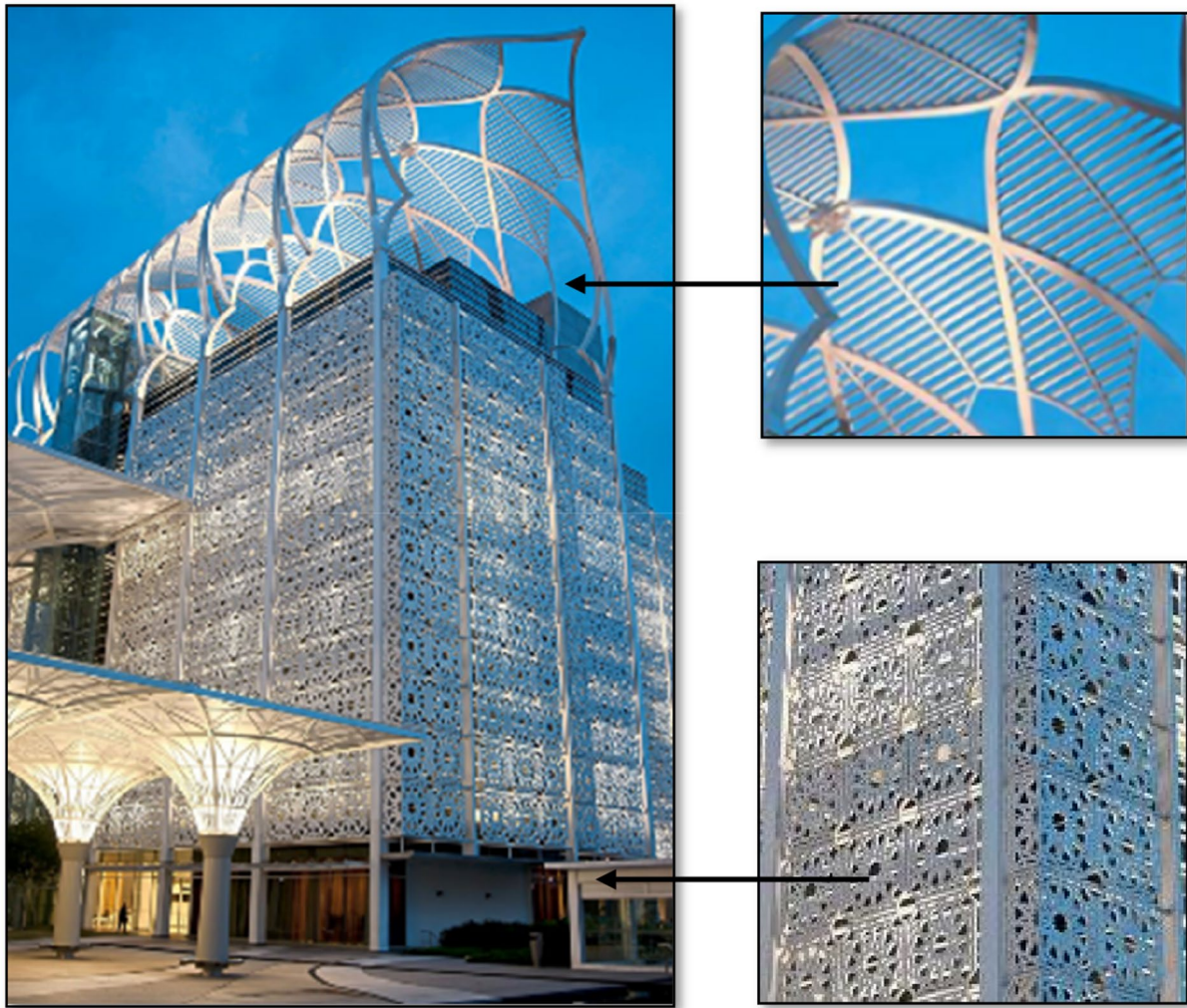


Fig. 14 Kompleks Islam Putrajaya, geometrical design

Table 2 Analysis of the five selected case studies

Name	Element type	Function	Placement
Moroccan pavilion	Floral Geometric Calligraphy	Decorative beatification religious identity symbolism stylizing	Repetitive Horizontal, vertical, focal on walls, columns, and ceilings internally and externally
Putra Mosque	Floral and geometric	Decorative beatification symbolism stylizing	The repetitive pattern on the exterior and interior of Dome, arches. openings
The Ministry of Finance	Geometric	Decorative beatification symbolism stylizing shading devices	Repetitive porous arched External skin within the structure
Masjid Tuanku Mizan Zainal Abidin	Geometric	Decorative beatification symbolism stylizing full wall shading devices	Repetitive porous arched and rectangular shape on the External skin within the structure
Kompleks Islam Putrajaya	Geometric	Decorative beatification symbolism stylizing full wall shading devices	Repetitive porous pointed stars and arches skeleton on the External skin structure

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Declarations**Competing interests**

The authors confirm that there is no conflict of interest to declare for this publication.

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