

PAPER • OPEN ACCESS

Unity in diversity: a comparative study of new mosques in Ajman, United Arab Emirates (UAE)

To cite this article: Jihad Awad and Julaihi Wahid 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **452** 012003

View the [article online](#) for updates and enhancements.

You may also like

- [Identity of the architecture of mosques in Russia in the late XX-early XXI century \(as exemplified by Tatarstan\)](#)
Khanifa G. Nadyrova and Dilyara A. Nadyrova
- [Efficiency on artificial lighting energy: dome, pyramid and flat shaped - ceiling mosque](#)
Aisyah, TH Pandjaitan, AD Ismoyo et al.
- [The architectural transformation of historic mosques in Javanese rural settlements](#)
R Hidayati and W Setiawan



ECS The Electrochemical Society
Advancing solid state & electrochemical science & technology

241st ECS Meeting

Vancouver, BC, Canada. May 29 – June 2, 2022

ECS Plenary Lecture featuring
Prof. Jeff Dahn,
Dalhousie University

Register now!

Unity in diversity: a comparative study of new mosques in Ajman, United Arab Emirates (UAE)

Jihad Awad¹ and Julaihi Wahid²

¹Architectural Engineering Department, Ajman University, UAE

²Architecture Department, Faculty of Built Environment, University Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia.

Email : j.awad@ajman.ac.ae ; dr_jihadaa@yahoo.com; wjulaihi@unimas.my

Abstract. Ajman is the smallest emirate in the UAE. Changes in the feature of urban areas in Ajman started in 1980 with the petrodollar economy. The upsurge of the global economy led to the construction of new buildings. Many mosques were built during the last few years in Ajman. The design of the mosques is distinctive in many aspects exhibiting differences in architectural style and form. Although there are some general rules and specifications for the new mosques suggested by the General Authority of Islamic Affairs & Awqaf (GAIA), nevertheless, it is not fully pursued. Therefore, it is important to address the issues of unity and identity through the physical image. According to our research, there are some purely modern mosques; others are a combination of traditional and modern styles. This paper will evaluate the different types of mosques that were built recently in Ajman. Similarities and differences between the various mosques will be analyzed and highlighted. The research was based on primary data conducted during the fieldwork in addition to drawings obtained from the GAIA. Despite the trend towards having diverse mosque designs, this study reveals that there is still a kind of unity among the new mosques.

1. Introduction

Ajman City is located in Ajman, the smallest of the seven Emirates composing the United Arab Emirates (Figure 1.0 a). Although Ajman is considered a small city compared with other cities like Abu Dhabi, Dubai, and Sharjah, it has witnessed significant urban development at an increasing pace during the last decade [1]. New conurbation in several districts were developed for housing and amenities for the growing populations (Figure 1.0 b). The influx of migrant workers from Asia, G.C.C and East Asian countries seeking for a better life with a promising future led to the demand for housing and other services.

In the last few years, Ajman City has witnessed a remarkable increase in the number of mosques that have been built, in addition to the rebuilding, expansion, and renovation of older mosques since 2000. This is an insightful concept of the Emirate of Ajman and the GAIA in paying attention to building more mosques. The design of the new mosques emphasizes on developing contemporary architectural forms that attempt to combine traditional styles and modernism. This paper aims at presenting and analyzing the new forms of mosques' architecture in Ajman. It highlights the differences and similarities among these mosques that have been built after 2000. The study posits that there is a kind of unity in planning and spatial organization among these mosques despite the diversity in appearance and external architectural styles. The



objective of the study attempts to answer questions such as; what kind of unity one can find among the new mosques, and what are the features? Can these mosques be classified or categorized into different typology? Is there a specific dominating typology? What are the main characteristic features of Ajman's new mosques? The following explanation of the paper will exemplify the above questions.



Figure 1. (a) Location of Ajman (Source: www.Google.ae, 2018) [2]



Figure 1. (b) Ajman City Map (Source: www.Google.ae, 2018) [2]

2. The methodology of the study

This paper employs a survey technique supplemented with observation, photography, mappings [3] and informal interviews with the Imams. The data was gathered during the fieldwork in 2016. The technique of visual analysis enabled the researchers to comprehend the inside and outside details of the floor plan layout as well as the ornamental articulation of the façade. The mosques were visited, analyzed, and compared. The analysis was based on the printed materials from the Municipality & Planning Department and GAIA, who provided the document of regulations and requirements for building new Mosques in Ajman [4].

The fieldwork was conducted in summer of 2016 in Ajman: out of 150 mosques visited 105 of these mosques were built after the year 2000. Architectural drawings, especially building plans were obtained for 45 new mosques. The mosques in different parts of the city are selected according to their sizes, areas and location; “*Masjid's*” (small mosques that are not for Friday prayer) and “*Jami's*” (large mosques for Friday prayer) are identified from the interview. It is observed that the mosques have a diversity in architectural forms, despite their location either on the major streets or situated at the inner roads inside the residential areas. The date of the construction and the typology of the architecture were also recorded.

In this study, the general layout, the configuration, spatial organization, and the major elements as well as architectural features of the mosque are emphasized. Old mosques built before 2000 were excluded because it has witnessed many changes and transformations. Several renovations that took place over the years have affected its original layout and altered the design.

3. Literature

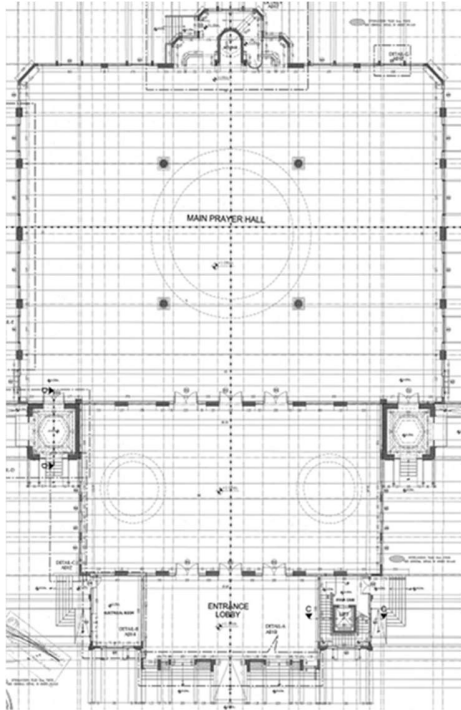
The congregational necessity and regional tradition determined the form of mosque architecture. From the Ottoman era, mosque design focusses on spatial configuration and obey the tenets of the Quran and Hadith [5]. Subsequently, in the UAE, the official authority known as GAIA is responsible for the construction of mosques in the Emirate of Ajman. By August 2016; a total of 305 mosques (including *Jami's*) in addition to more 15 new mosques were built in Ajman. It follows the regulations and requirements from GAIA, out

of which more than one third (136 mosques) have been built after year 2000 [6]. These requirements address: the general location, orientation, site layout, the general architectural plan, and style. Additionally, the accommodation of the staff (*Imam* and *Muazzen*); as well as the places of ablution and washrooms are part and parcel of the facilities. The size and area of the mosque depend on several factors such as the area of the plot on which the mosque will be built, the setting of the mosque, the population. The budget, and type of donation, as well as the number and proximity of other mosques in the same area are also considered. As a result, Ajman mosques are classified according to the capacity of the prayer: either it can be used for Friday prayer or not. The small mosques (*Masjid*) are not for Friday prayer while large-size mosques (*Jami'*) can accommodate more than 600 people on Friday. The agreement bestowed by the GAIA in collaboration with the municipality and the donors determines the selection of location of the mosque to be constructed. Concurrently, the design of the mosque is the responsibility of the donor, who is requested to submit all necessary drawings prepared by engineers and other consultants for the approval of the GAIA together with all the requirements as per the GAIA's conditions.

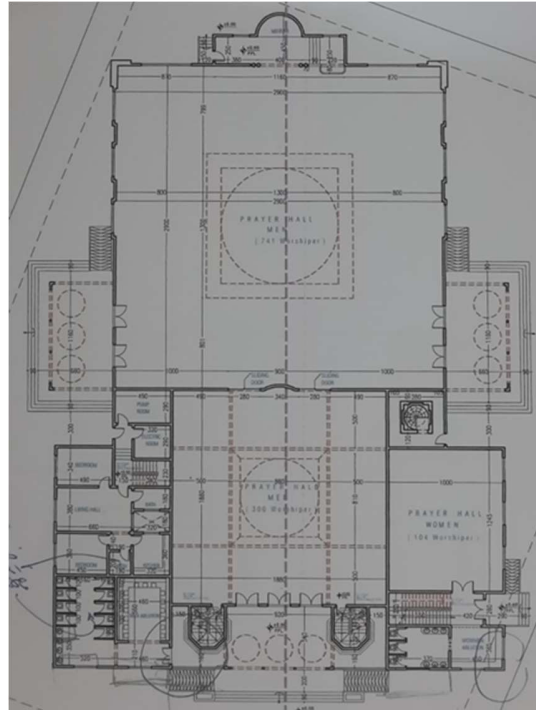
3.1. The design and planning requirements and conditions

There are no rules within Islam regarding the form of the mosque. Architectural elements of the mosque are not prescribed except for the requirement that worshippers pray facing Mecca, and that the surface they pray on be clean [7]. "Islamic architecture thus promotes unity in diversity, that is, the unity of message and purpose, and the diversity of styles, methods and solutions" [8].

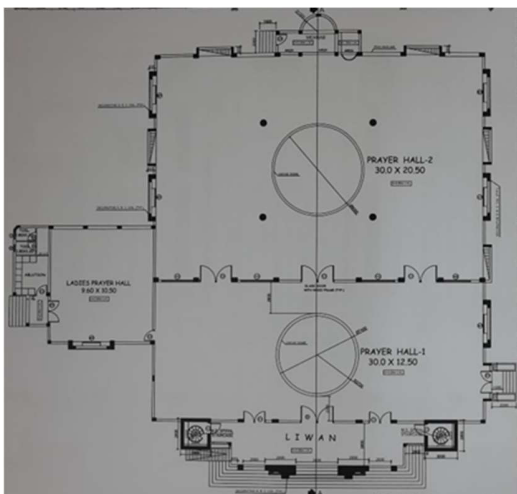
Conversely, in the UAE the essential requirement specified by the GAIA in this regard is the elements of "Islamic Architectural Style" to be considered in the design which is part of the movement in the UAE today. The meticulous detail stated by the GAIA Document for the Prayer Hall is calculated as per one square meter per person. There should be provided with one water closet (WC) for every 100 worshippers, and one ablution area for every 30 worshippers. Other elements to be integrated in the design is the entryway of the mosque known as "*Liwan*" that is a shaded area for the prayers (Figure 2). This transition area is the entrance as well as an exit after the mass. The design should not exaggerate on the ornamentation or elaborated decorations. The interior space should be moderate and furnished only with rugs and furniture without extravagance.



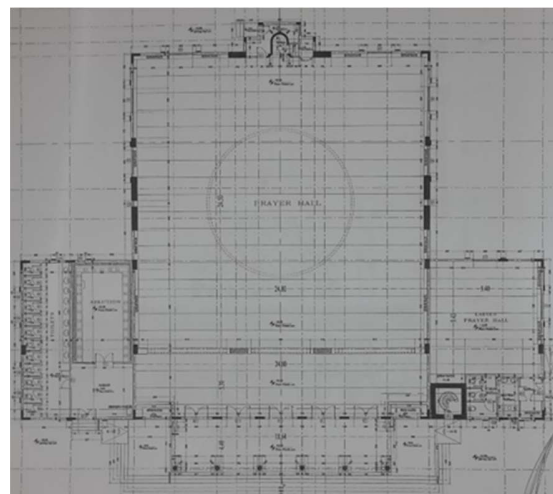
(a) 3. Othman bin Affan (2013).



(b) 294. Shamsah bint Humaid Al-Hamrani (2016).



(c) 190. Hamad bin Ghanem Al-Shamsi (2010)



(d) 278. Fatimah Ahmad Al-Saeedi (2013)

Figure 2. Front Hall or *Liwan* (Mosque's number, Name, Date)

The prayer hall should take on a rectangular or square shape to keep the straightness (alignment) of worshippers' rows. Inside the prayer hall, it is recommended to reduce the number of columns as much as possible, so as not to interrupt the rows. In the Friday mosques, the Imam enters through the *Mihrab* (niche). A separate praying area for women is provided; separated from the main men's prayer hall. It has its own entrance provided with ablution area. Other facilities and services can be added, such as teaching rooms, meeting room, Quran memorizing room, and library.

The washrooms preferred to be separated from the mosque unless limited space within the plot of land. The orientation of the *Qiblah* (direction of Mecca) is the most significant in the design of the mosque, and there are some facilities have to correspond to its orientation. The washrooms, for example, should not be in the direction of the *Qiblah*. If it is of the facilities in the building, it should not be attached to the wall of the prayer hall and separated from the mosque building. The space between mosque and the ablution area must be dry and clean. The ablution places and washrooms for handicapped are also provided without any difficulties to the user.

Maintenance and regular call for *Muazzen* is compulsory for the sustenance of the mosque. The *Imam* and the staff for *Muazzen* are provided with accommodations, each should have not less than two bedrooms, bathroom, kitchen, and a *majlis* (guest room) and should be accessible from the street. The accommodation is secured by fenced and an adequate outdoor area as a yard is provided. Additionally, for mosques with a capacity of more than 1,000 prayers, a guard room is added.

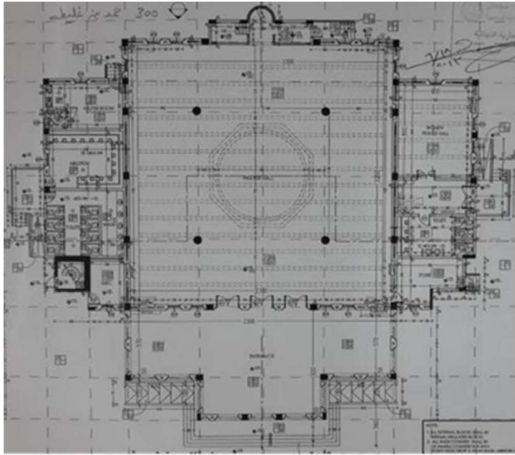
3.2. The findings: major elements and features of new mosques in Ajman

3.2.1. *Prayer hall*. The findings show that almost 90% of these mosques have the main prayer hall either a square or slightly rectangular shape. According to the analysis in a rectangular shape plan, the longer side of the prayer hall is always the *Qiblah*. However, the floor plan, such as octagon, eight-corners-star, circular, or irregular, do exist in a few cases (Figure 3 and Figure 15).

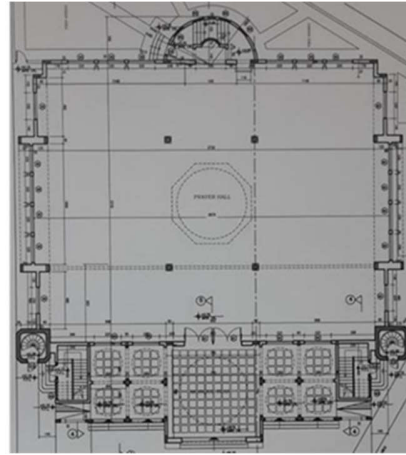
In most modern mosques, especially for the Friday prayer, the main prayer hall is preceded by a hallway or *Liwan* (Figure 2). This hallway is usually the same width of the main prayer hall and is mainly used for the daily prayers. However, the main prayer hall is only for Friday prayer.

Most mosques have entrances only in the front side (opposite to the *Qiblah* side), however, in some cases, there might be secondary side entrances to the prayer hall. These side entrances are usually adjacent to the front lateral to the entry of the prayer hall, to avoid the *Jemaah* to access from the middle of the prayer.

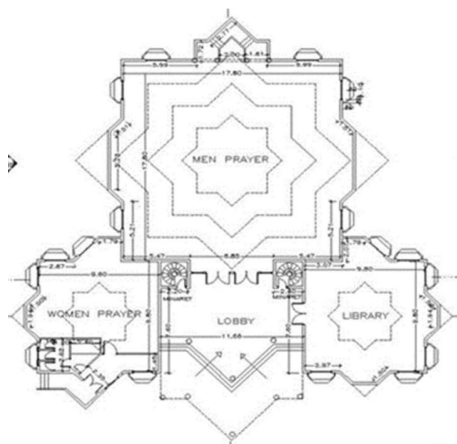
In new mosques, reducing the number of columns inside the prayer hall has been taken into consideration to avoid interruption of worshippers' rows. In some cases, there are no columns inside the main prayer hall, and if there are any, mostly four in numbers located in the center to carry the load of the dome.



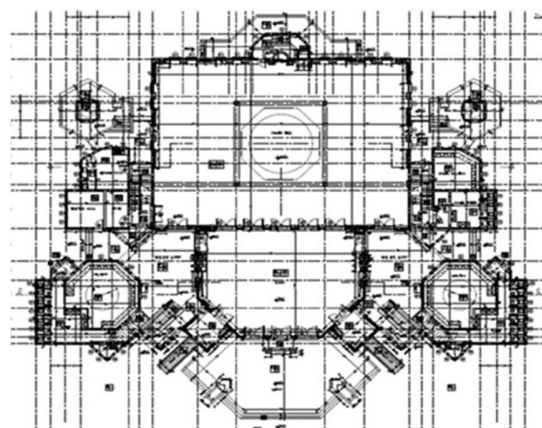
(a) Hamad bin Ghlaitah (2016).



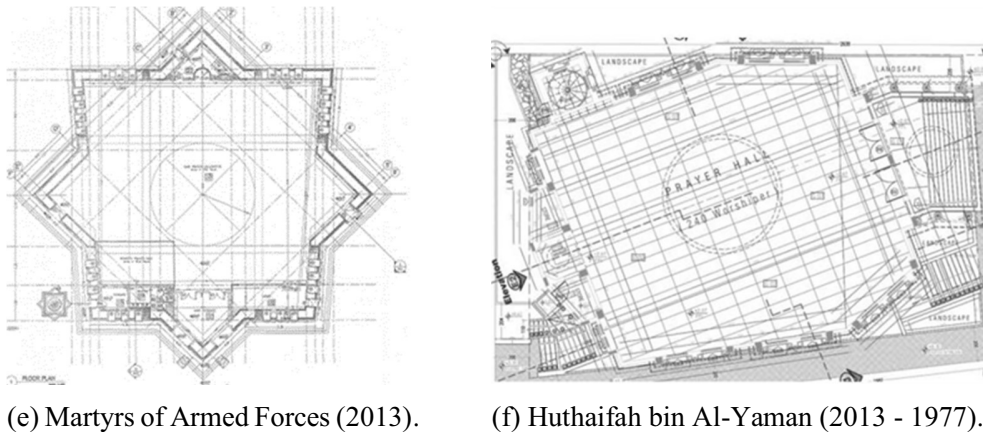
(b) Abu Hanifah Al-Numan (2009).



(c) Zainab bint Jahsh (2000).



(d) Fatima binti Ali Al-Nuaimi (2003).



(e) Martyrs of Armed Forces (2013).

(f) Huthaifah bin Al-Yaman (2013 - 1977).

Figure 3. Different plan shapes of main Prayer Hall

3.2.2. Minarets. Eighty-five per cent (85 %) of new mosques have only one minaret located at the front of the building [Figure 4 (a) & (b)]. Some mosques have two placed on both sides of the entrance (Figure 4) However, it befitted the façade of the building and not connected directly to it. The mosques with two minarets are usually arranged on either side of the entrance façade [Figure 4 (c) & (d)]. The only mosque in Ajman with more than two minarets is the Sheikh Zayed Mosque, which has four [Figure 4 (e)].

3.2.3. Domes. Most of the new mosques have only one dome [Figure 5 (e)] or none at all. It is located in the middle of the prayer hall. In some instances where there is more than one dome, the additional domes are always smaller and are located above the entryway [Figure 5 (b) & (f)] or above the frontal praying space. The typology of the domes is often hemispherical with a circular section. Sometimes, pointed domes, onion-like domes, and to an extent pyramid-shaped forms which replaced the standard dome [Figure 5 (a) & (d)].

3.2.4. Exterior configuration and architectural style. The features in planning and spatial organization for the exteriors of the new mosques are diverse in their forms and architectural elements (Figure 6). The three categories are: i) the mosques with traditional styles, either local from U.A.E ; “imported” styles from different regions or based on different historical periods, ii) mosques with modern architectural styles and lastly, iii) a combination of both traditional and contemporary style (Figures 7-9). An extremely unique example is the Humaid bin Rashed Mosque (Figure 10), it suggests that a new traditional element in a different modern design is applied. It introduces green plants inside the prayer hall with skylights above [9].

The study also found out that a significant element of the new mosque is arched openings in the facades. It seems that a variety of different arched types are used, however, the most common one is the pointed arch in various proportions; successively, in the new mosques, the area of the main entrance has been given special attention with regards to the size and shape of the openings. It is noteworthy that the entrance openings or the *Livan* arches are odd in number, either 1 or 3 but at times 5 or 7 arches. The main emphasis is on the middle opening (usually larger than the rest) of the entrance and to keep a clear axis of the *Qiblah* direction to the *Mihrab*, without obstruction (Figure 11). This axis is symmetrically aligned with the opening at the entryway to the *Mihrab*, which is the main principle in the architectural design of the main entrance for formal building facade. As we enter the main hall, the number and size of openings in the *Qiblah* wall were reduced to avoid glare and distraction, especially for worshippers in the front rows.

3.2.5. *The accommodation of the imam and muazzen.* One of the requirements for the mosques in Ajman is the provision of accommodation for the *Imam*. It is stipulated that, this accommodation should not be less than two bedrooms and in many cases, three bedrooms. The accommodation must have complete privacy and a separate



(a) Hamad bin Ghraithah (2016).



(b) Salem bin Abdullah Al Nuaimi (2012).



(c) Saeed Abdullah Al-Saeedi (2014).



(d) Sh. Mouza bint Ali Al-Khatiri (2010).



(e) Sh. Zayed bin Sultan Al-Nahyan (2000).

Figure 4. Location and number of Minarets.
(Source : Jihad Awad, private collection)



(a) Othman bin Affan (2013).



(b) Shamsah bint Humaid Al-Hamrani (2016).



(c) Zainab bint Jahsh (2000)



(d) Al-Ghala (2010)



(e) Martyrs of Armed Forces (2013)



(f) Sh. Humaid bin Abdulaziz Al-Nuaimy 1 (2007)[10]

Figure 5. Different types of Domes.
(Source : Jihad Awad, private collection)



(a) Haneefah b. Ibrahim bin Youssef (2011)



(b) Ali Mohammad Khalifa bin Salmeen (2010)



(c) Shaikha b. Rashed Al-Nuaimi (2014)



(d) 278. Fatimah Ahmad Al-Saeedi (2013)



(e) 272. Salem bin Abdullah Al-Nuaimi (2012)



(f) 295. Al-Tawheed (2015)



(g) 103. Nabi Ayyub (2012 - 1989)



(h) 248. Abdullah Al-Rumaithy (2009)



(i) 15. Abu Hanifah Al-Numan (2009 - 1985)



(j) 66. Fatima bint Ali Al-Nuaimi (2003 - 1984)



(k) 290. Qibaa (2014)



(l) 254. Sh. Saqr bin Rashed Al-Nuaimi (2010)

Figure 6 Diversity of forms and exterior
(Source : Jihad Awad, private collection)



(a) Dar Al-Birr (2013)



(b) Thani bin Eisa bin Hareb (2014)

Figure 7. Mosques with traditional style (Source : Jihad Awad, private collection).



(a) Al-Ikhaa' (2016)



(b) ADNOC Mosque, Al Jurf

Figure 8. Mosques with Modern style (Source : Jihad Awad, private collection).



(a) Amna bint Ahmad Al-Ghurair (2013)



(b) Abdullah bin Saeed bin Ghleitah (2013)

Figure 9. Mosques combining Modern and traditional styles (Source : Jihad Awad, private collection).

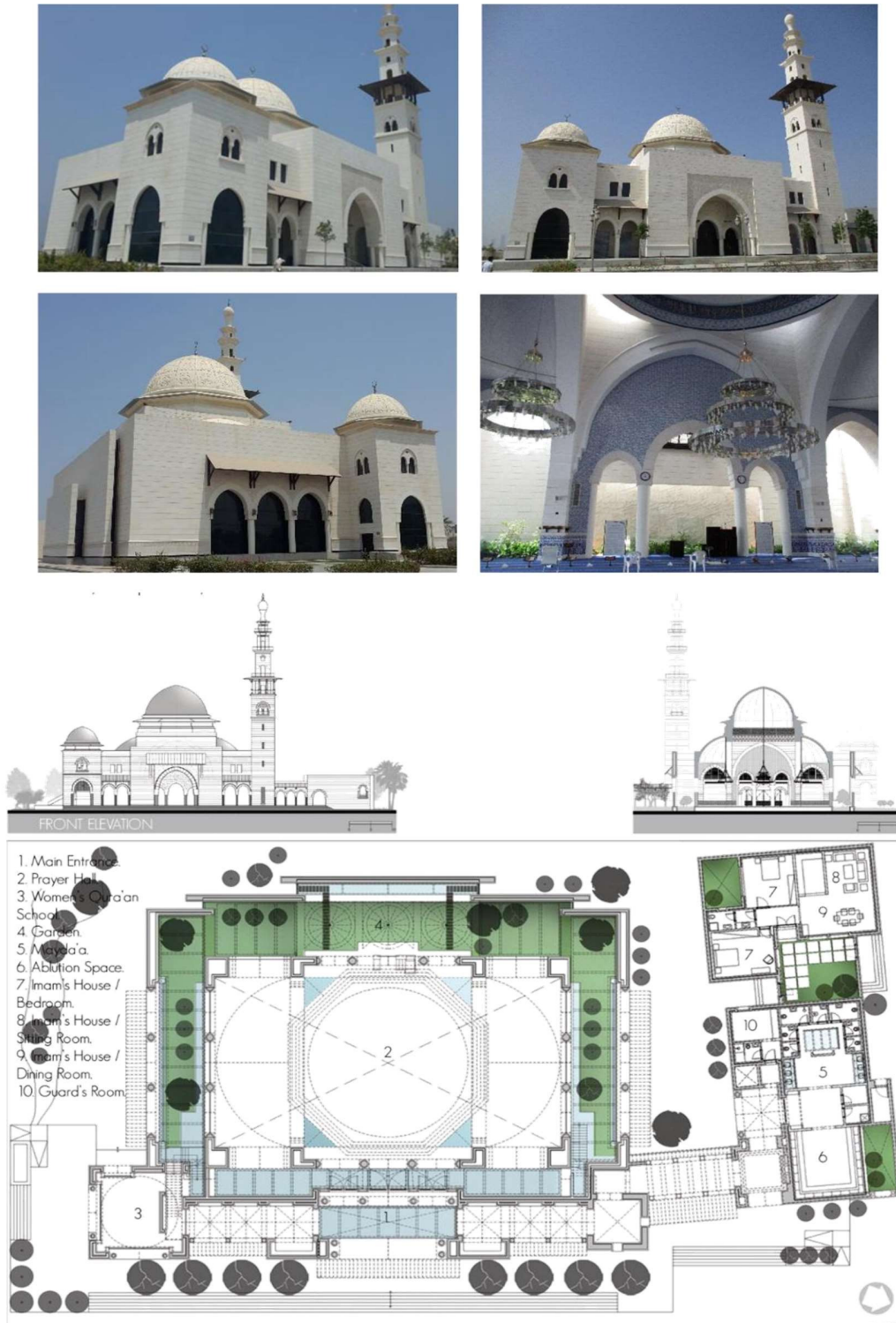


Figure 10. 275 Humaid bin Rashed Mosque (2012). [9]



(a) Sh. Abdullah bin Rashed Al-Nuaimi (2015)



(b) Hamad bin Ghanem Al-Shamsi (2010)



(c) Nabi Dawood (2013)



(d) Sheikha bint Ibrahim (2013)



(e) Amna Al-Zarouni (2015)



(f) Habeeb Ahmad Aal Ghareeb (2010)

Figure 11. Symmetry and openings in entrance façade.
(Source : Jihad Awad, private collection)

Entrance located away from the main access to the mosque. The entrance of the *Imam's* residence is preferably located at the rear, separated from the main building of the mosque. Thus, it is blended with the context of the whole design to accommodate a complete composition.

3.2.6. *Men's washrooms and ablution area.* Washrooms and ablution areas are separated from the main building of the mosque. Its location should not be in a direction parallel to the *Qiblah* axis. According to the GAIA requirements, there should be one toilet for every 100 worshippers, and one ablution place for every 30 worshippers. These provisions are appropriate with the size of the *Jemaah*.

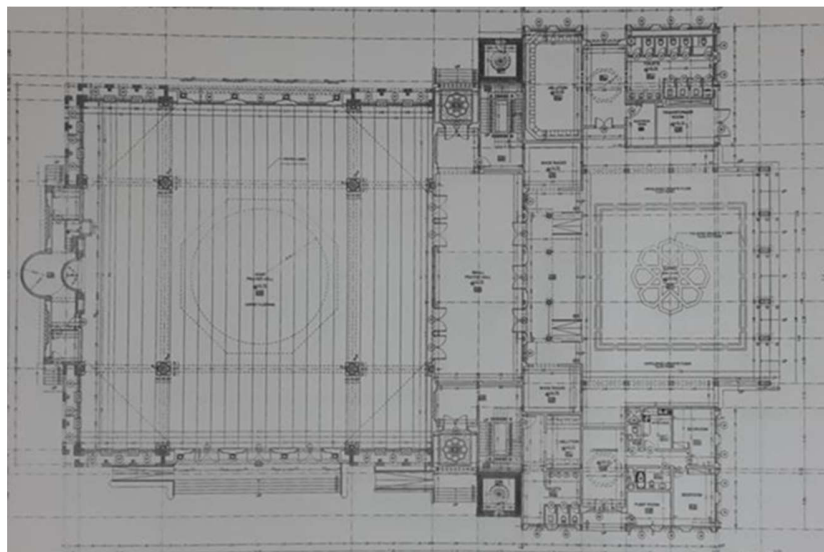
3.2.7. Women's praying area. Women's prayer halls are mostly provided for Friday mosques (*Jami's*). It is a small hall that may be connected to the main prayer hall or separated from it. Sometimes, the women's praying area is located in the upper or mezzanine floor. They always have their own ablution area with a separate entrance. Occasionally, for smaller mosques, it is separated by a partition reserved for women with proper access.

3.2.8. The Courtyard. In the past, courtyard was one of the elements for mosque design. The courtyard enabled ventilation, natural lighting, and provided additional extended space during Friday prayer. However, in the new mosque design, it is surprisingly not considered. Only three of the visited mosques in Ajman have such feature [Figure 12 (a) & (b)], in one of them it was later covered with metal roofs.

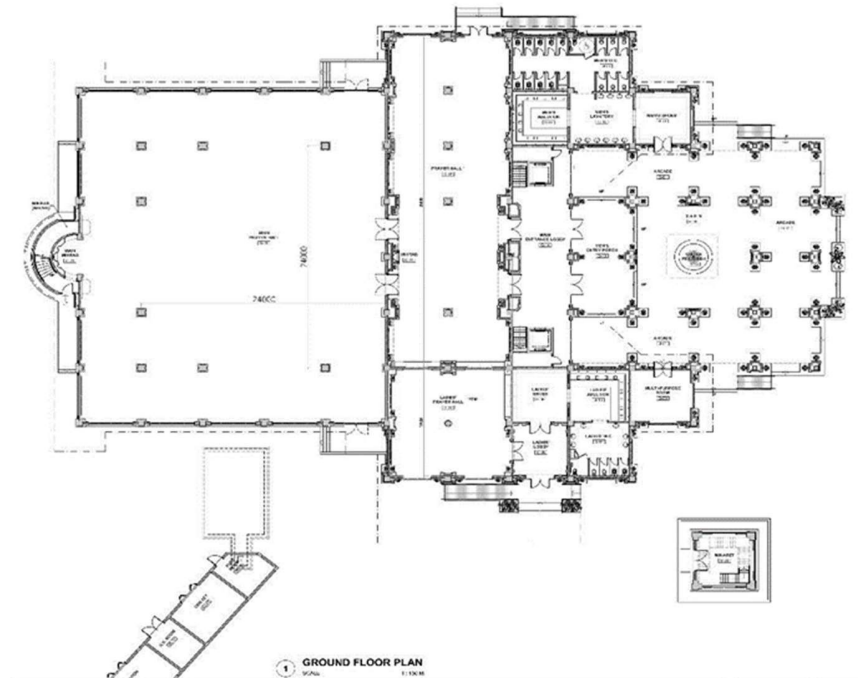
3.2.9. General observations. There are increasing efforts to develop mosques' architecture with a strong trend to combine both traditional and modern style of design. As a result, there are attempts to advance a new architectural language that represents and reflects the present time and place.

The simplicity of design and the modest usage of ornaments and decorative elements without exaggeration either internally or externally are some of the remarkable features of the new mosques. However, throughout our research, there are few new findings of mosque design in Ajman as the following:

- There are many mosques where the main frontal entryway is covered by metal roofs supported by steel columns. The covered frontage provides additional shaded area during Friday prayer, however, it distorts the whole scene of the mosque's main façade [Figure 13 (a) & (b)]. The image of the façade is totally disappeared.
- In some cases, the minaret is blocked by the high buildings in the neighborhood. It is also noted that the minaret acts only as a landmark and nullified symbol rather than having a functional purpose as that of the past.
- The new mosques are provided with adequate number of parking lots. However, the vast external areas and pedestrian passages are lacking in landscaping.



(a) Sh. Humaid bin Abdulaziz Al-Nuaimy 1 (2007)



(b) Amna binti Ahmad Al-Ghurair (2013)

Figure 12. Mosques with courtyard
(Source : Jihad Awad, private collection)

4. Recommendations

Simple basic rules and regulations associated with function can achieve unity. After studying and analyzing 105 visited new mosques, and comparing them, it is clear that there is a kind of similarity and unity in the general layout and the spatial organization. The diversity in architectural forms and character of these mosques are apparent. This unity in diversity was a result of the design guidelines stipulated by the Awqaf (GAIA) that permit a wide range of variety in architectural forms while at the same time ensuring the unity of these design considerations. Another factor is the inherited unwritten rules and principles that have created by the time and again of a traditional architectural language in building mosques. Likewise, there is a limited number of consultants specialized in designing mosques, which means that scores of similar elements are repeated, in one way or another. Undoubtedly, the similar architectural plan or with slight modification will be found in different areas [Figure 14 (a) & (b)]. In other words, it confines the extension of architectural language in mosque design.

All the new mosques of Ajman consist of a prayer hall whose shape is often square or slightly rectangular with a covered front area called *Liwan*. A dome either supported by four columns, or sometimes without columns is a distinct feature of the roof for the *Liwan*. Most of the mosques have only one minaret, laterally located adjacent to the entrance facade. The openings at entryway are often in odd number to emphasize the main axis of *Qiblah*, which is also the axis of symmetrical proportion of the configuration of the mosque. The houses of the *Imam* and *Muazzen*, the washrooms and ablution areas, are all separated from the mosque building and are in a different direction than the direction of the prayer hall.

Freedom in the design of the facades has led to the consequence of diverse forms and external appearances of new mosques. Therefore, there is a need for more rules and requirements to ensure unity with diversity. The octagonal forms will result in a diminutive first row right behind the Imam (Fig. 15), hence, this practice should be avoided. People are encouraged to pray in first rows, and therefore it is recommended to make these rows longer, or at least the same length as the succeeding rows. Rules and regulations should exist to prevent replication of designs so that no replication of existing mosques is allowed.

Finally, it is suggested that there should be guided rules and requirements for transformation work especially to the frontage. Any alteration or changes to the mosque must be referred to the authorities. For example, the entryway at the main facade should be according to the original design of the mosque. The courtyard as the traditional element of mosque design that suits the arid desert climate needs to be integrated in any new design of the mosque. Align with the green aspects in architecture today, especially in the U.A.E., attention to planting design, green space, and selected vegetation should be part of the new mosque.



(a) Bin Lootah (2008)



(b) Saif Al Shamsi (2008)

Figure 13. Metal shading.
(Source : Jihad Awad, private collection)



(a) Mohammad bin Abdullah bin Fahad (2016)



(b) Al Saliheen (2017)

Figure 14. Mosques with similar design.
(Source : Jihad Awad, private collection)



(a) Al-Mugheirah bin Shubah (2001)

(b) Ali Al-Hamrani (2003)

Figure 15. Circular and Octagon mosques.
(Source : Jihad Awad, private collection)

References

- [1] Awad, J, Wahid, J, Saleh, B, and Shiqwarah, N 2017 *Developing An Image of A Place: The Case with Ajman Waterfront U A E Friendly City 4th 2017* Medan, Friendly City 4th Conference 2017 Medan (ISBN 978-60273691-9-1)
- [2] <https://upload.wikimedia.org/wikipedia/commons/4/46/The-seven-emirates-of-the-uae-1.png> (retrieved on 27 Sep 2016)
- [3] Creswell, John W and Creswell, J David 2018 *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches SAGE Publications Fifth edition USA*
- [4] Anonymous. *GAIA Document: Conditions and Regulations for Mosques' Architecture* provided by GAIA in August 2016
- [5] Pasic, A 2004 *A Short History of Mostar: Conservation and Revitalization of Historic Mostar, The Aga Khan Trust for Culture Geneva* 5-12
- [6] General Authority of Islamic Affairs & Awqaf (GAIAA)
- [7] Khan, Hasan-Uddin Mosque: Architectural Aspects *Encyclopedia of Religion* Ed Lindsay Jones 2nd ed Vol. 9 Detroit: Macmillan Reference USA 2005
- [8] Spahic, Omer: *Towards Understanding Islamic Architecture* Islamicity Oct. 2011
- [9] <https://www.islamicity.org/8620/towards-understanding-islamic-architecture/>
- [10] Awad, Jihad ed 2014 *Top International Architects – Design Concepts in Architecture Vol. I* p 95
- [11] Mosque of Sheikh Humaid bin Abdulaziz Al-Noaimy
- [12] <http://static.panoramio.com/photos/large/25385869.jpg> retrieved on March 2018 and on 6 October 2017