

# MOSQUE ARCHITECTURE AS A SUSTAINABLE BUILDING IN URBAN (Case Study: Al Markas Al Islamic Mosque Makassar)

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## Abstract

Mosque Architecture is a part of Islamic architecture. Mosque should be fused with elements of nature because its function as a place to pray to God who created the universe. Al Markas Al Islamic Makassar mosque is used as a center of Islamic aspirations of the people and the government to accommodate all the activities of moslems in Makassar. Through this function, the provision of Al Markas Al Islamic mosque began from the desire of Islamic societies in Makassar, which wants the Islamic center to be equipped with facilities and infrastructure as well as architectural, monumental buildings and structures that can be last for hundreds of years (continuous), blend with the environment, and also can be used by the public. Having regard to the function of a mosque especially at the Al Markas Al Islamic Makassar mosque, then the problem that arise is how the Al Markas Al Islamic mosque can be survived/sustainable in order to function as a place of worship and as a center of Islam. This research is a descriptive qualitative research that is trying to generate data in the form of systematic and accurate picture of the object of study. The sustaiprophetlity of Al Markas AL Islamic mosque can be known through the concept of Islam in accordance with the view of Islam as well as the sustaiprophetlity of the buildings that seen in the spatial pattern of the mosque, appearance, natural lighting, natural ventilation, and user behavior of the mosque.

**Keywords:** mosque architecture, sustaiprophetlity, view of Islam

## Abstrak

Arsitektur masjid merupakan bagian dari arsitektur Islam. Bangunan masjid sebaiknya dapat menyatu dengan unsur alam karena masjid difungsikan sebagai wadah dalam bersujud/sembahyang kepada Allah SWT yang menciptakan alam semesta ini. Masjid Al Markas Al Islamic Makassar merupakan kompleks kegiatan Islam yang digunakan sebagai pusat aspirasi masyarakat dan pemerintahan yang dapat menampung seluruh kegiatan umat Islam di Makassar. Melalui fungsi inilah maka pengadaan masjid Al Markas Al-Islamic bermula dari keinginan masyarakat Islam di kota Makassar, yang mana menginginkan pusat kegiatan Islam yang dilengkapi dengan sarana dan prasarana juga bangunannya monumental yang secara arsitektur dan struktur bisa bertahan sampai ratusan tahun (berkelanjutan), dan menyatu dengan lingkungannya serta dapat digunakan oleh masyarakat luas. Dengan memperhatikan fungsi masjid terutama pada masjid Al Markas Al Islamic Makassar maka permasalahan yang muncul adalah bagaimanakah arsitektur masjid Al Markas Al Islamic dapat bertahan/berkelanjutan agar dapat difungsikan sebagai tempat beribadah dan sebagai pusat kegiatan Islam. Penelitian ini merupakan penelitian deskriptif yang bersifat kualitatif yaitu penelitian yang berusaha menghasilkan data berupa gambaran yang sistematis dan akurat dari objek kajian. Keberlanjutan masjid Al Markas Al Islamic dapat diketahui melalui penyatuan konsep masjid Al Markas Al Islamic sesuai dengan pandangan Islam serta keberlanjutan dilihat pada bangunan yakni pola tata ruang masjid, penampilan, pencahayaan dan penghawaan alami serta perilaku pemakai masjid.

**Kata Kunci :** Arsitektur masjid, keberlanjutan, pandangan Islam

## INTRODUCTION

Architecture of the mosque is a part of Islamic architecture. Islam is generally derived from the word "Salima" which means submission, submissive and obedient to obtain greetings that means safety and peace. While the concept of Islamic philosophy

is submission and obedience to the commandments of God that exists in every creation of nature, so nature and its contents, the law, and the common sense exist in human beings as part of creation<sup>1</sup>. The mosque is functioned as a place of worship and to glorify Allah in the morning and evening for people

who are not neglected by any activities, remembrance of Allah, establish regular prayer, pay zakat and fear on the day of judgment.

Mosques are used as a place in prostration to God who created the universe, so the mosque should also be fused with the elements of nature. The mosque was built to meet the religious needs of Moslems. Its function and role is determined by the environment, space, and the age when it is established<sup>2</sup>. Al Markas Al Islamic Makassar mosque is used as a center of Islamic aspirations of the people and the government to accommodate all the activities of moslems in Makassar. Through this function, the provision of Al Markas Al Islamic mosque began from the desire of Islamic societies in Makassar, which wants the Islamic center to be equipped with facilities and infrastructure as well as architectural, monumental buildings and structures that can be last for hundreds of years (continuous), blend with the environment, and also can be used by the public. Having regard to the function of a mosque especially at the Al Markas Al Islamic Makassar mosque, then the problem that arise is how the Al Markas Al Islamic mosque can be survived/sustainable in order to function as a place of worship and as a center of Islam.

## LITERATUR REVIEW

### The Mosque in Islamic Architecture

The emergence of Islamic architecture was when the Prophet Muhammad emigrated to Medina. The society of Medina was known to be more mild-mannered when Prophet Muhammad received symbols. Before the Prophet's hijrah to Medina, the obligatory prayer is only done in private homes while they lived in Mecca (makiyah), and the residents could not accept the religion brought by the Prophet Muhammad. The mosque that served as a congregational prayer was first built in the village of Quba, on the way emigrated to Medina, the Prophet and Ali Bin Abi Talib set up a very simple mosque.

The building consists of a rectangular with a six colonnaded portico. The first mosque in Islam socialization is merely a place to prostration, prayer hall and shelter from the hot sun. Recorded in history that the mosque was built in the early 12 Rabiul Awal, Hijri year. In the Prophet's mosque was also the first to perform Friday prayers. The early emergence of milestone of Islamic architecture was the residence of Prophet which also functioned as a mosque and a gathering place for friends to listen to a sermon of Prophet Muhammad. The building is nuanced Arabic in 622 AD, open square with a length of 56 m<sup>2</sup>. The emphasis was on the subject of simplicity and tranquility in everyday life of the Prophet. The building is spacious and covered almost plain, wall covering along the inside wall facing the Qiblat, and called zulla, or shelter, with a field of palm trees and the leaves serve as the roof plastered with grass.

In early days of Islam, Islamic architecture further highlight the simplicity and more simple. It can not be separated from the lifestyle of Rasulullah that was very simple and understated. The prophet's family residence is a shelter and also was used as a place to broadcast the message of Islam<sup>3</sup>. Islamic architecture in general terms:

- a. Islamic architecture is a product of the Islamic world in his time laden with the values of the order of spirit (soul) and have the Islamic gauges within Islam itself as well as multi-dimensional matrices in the world of architecture in general.
- b. Islamic architecture is the arrangement of space, the building, and is a reflection of the cultural roots of the transformation products of conception, outlook on life, the tradition of the Moslems themselves who live and obey guided Al Qur'an and Al-Hadith.
- c. Islamic architecture is the art science building, including planning, designing an engineered arrangement of urban areas, neighborhoods, landscapes group of buildings, building systems building style character trait structure, space, facilities and equipment in the building and loaded with soul Islamic faithful and devoted to God Almighty .

### The Concept of The Mosque in The Islamic View

#### 1. Common understanding of the mosque

The word comes from the Arabic mosque, the "sujudan" with the verb 'sajada' which means he has bowed down. Derived from the Arabic mosque is sajada which means the bow or worship Allah SWT<sup>4</sup>. Hadits of the Prophet Muhammad which states "have become for us the earth as place of prostration and clean condition. From the Hadith, it is clear that the notion of a mosque is a place of prostrating and worshiping Allah, other than that contained in the sense that the worship of Allah, Moslems are not bound by space, this is in accordance with the letter An Nuur:

*"Hymn to God in the mosques that have been ordered to be glorified and called his name in it, in the morning and evening, men are not done by commercial and not (also) by the sale of the remembrance of Allah, and (of) establish worship, and (from) to pay zakat. They fear that one day (in the day) heart and vision to be shaken. "(QS. An Nuur: 36-37)<sup>5</sup>.*

#### 2. The Meaning of Mosque

The Capacity of mosque essentially covers two basic meanings, namely: besides as a place of worship to Allah SWT, the mosque is also significant as the Islamic culture, as the center of cultural activities and religious teachings of Islam as a manifestation of the godly<sup>6</sup>.

### 3. The Status and the Missions of Mosque

The mosque has a status as a property of Allah mentioned in the Qur'an: mosques belong to Allah, so do not call anything with God ". (QS. Al-Jinn: 18)<sup>7</sup>. Has the meaning of the verse:

- a. All mosques have standing before Allah Almighty.
- b. A mosque is not a property of individuals, the state or certain groups.
- c. A mosque is for all Moslems, the faithful to worship and prostrate to Allah alone.

### 4. The Function of Mosque

The function of the mosque in the teachings of Islam as taught by Prophet Muhammad, is the place to carry out a credible form of worship and *muamalah*.

- a. The function of the mosque as a place of worship and *muamalah*
  1. Place of execution of obligatory prayers and other sunnah prayers
  2. Place of execution of obligatory *zakat fitrah* division during the holy of Ramadhan month
  3. Place of supporting the implementation of obligatory fasting during the holy of Ramadhan month, which is to *tarawih* pray in the evening, *Itikaf* (staying in the mosque for prayer and remembrance).

- b. The function of the mosque as a place of *muamalah* activities

Mosque functions as a place for *muamalah* activities. for example, serves as a place for teaching and learning, administer endowments of goods, the reception of foreign delegations of war strategy and weaponry, perform weddings, lodging for travelers, practicing and performing arts and others. At the time of Prophet Muhammad SAW or in the later, the mosque became the center of activity or central moslems. Activities in the field of government, including ideological, political, economic, social, judicial and military, discussed and resolved at the mosque institution. Mosques also serves as a center for the development of Islamic culture. Some of the functions included in the mosque:

1. The mosque is a place of worship to Allah SWT.
2. The mosque is where moslem does the *itikaf*, washed to obey and foster inner awareness and inner experience/religion that has always maintained a balance of body and soul as well as the integrity of the personality.

3. Righteousness mosque where Moslems consulted to solve problems that arise in the community.
4. The mosque is where Moslems consulted, filed difficulties, ask for help and assistance.
5. A mosque is a place to foster unity and bond of cooperation pilgrims in realizing common prosperity.
6. Mosque with *taklim* assemblies can improve the intelligence and science of Moslems.
7. A mosque is a place of coaching and developing leaders of the cadres.
8. The mosque is a place to raise funds, aberrant share.
9. Mosque is a place where implementing social setting and supervision.

The functions are actualized in operational activities in line with the development program.

### 5. Relationship with the surrounding environment of mosque

Linkage mosque and the surrounding environment, both physical and non-physical, namely:

- a. The effect of the mosque to the congregation as a premier institution in Islam that will unite people in accordance with nature and constantly bowing before Allah Almighty for the salvation of the world and the hereafter.
- b. The effect of the congregation of the mosque is that a mosque supports activities that supports the mosque prosperity
- c. The influence of the physical environment of a mosque as a center of worship and *muamalah*, also as a center of worship and religious symbols of Islam, and unite the *ummat*. The mosque is also a "landmark" for environment
- d. The influence of the physical environment of the mosque, namely the appearance and shape, physical appearance that the mosque should be more considerate and refers to the surrounding environment, according to the Al Qur'an.
- e. The effect of the mosque to worship other religions, impartiality or influence each other.

### Sustainable Building

The scope of sustainable development is closely connected with the development of urban communities that can support a country's economy and politics. Sustainable development is development that is basically able to meet the needs

of the present without undermining the ability of future generations to meet their needs<sup>8</sup>. Sustainable development also leads to physical functioning buildings and facilities that support the building in order to last a long time and do not adversely affect the development of the times and technology.

The basic concept of sustainable development are<sup>9</sup>:

1. A life can survive due to support some aspects related to their own lives and the environment.
2. Ecosystems and parts of them composed of many living beings that can adapt to the development environment.
3. Part of the ecosystem is a complex system of energy change that is limited to the energy input.
4. For a long time any man's physical needs must be met by using goods that are not replaceable or through recovery.
5. All life is a highly adaptable, yet psychological and physical needs of the ecosystem/environment.
6. Humans are the generation that adapt to their environment and there from 200 up to 20,000 years ago to adapt physically from made of perception and behavior, linked with the social environment.
7. Relationship between humans and their environment, that human values and environmental harmony to give shape.
8. Humans can adapt to a wide scope, but adaptations are temporary and can result in a chronic stress.

Sustaiprophetlity is the preferred social, economic, equity, energy and the environment. The concept of sustainable development includes almost all aspects of human life, ranging from policy, government, business and to lifestyle. Therefore, in the realization of a complex ecological sustaiprophetlity must implement interdisciplinary system. So sustaiprophetlity can be seen from the 3 (three) main aspects, namely social progress, economic growth, ecological balance (environment). In addition to the above definition, according to the UNEP (United Nations Environment Program), ecological sustaiprophetlity is the way of progress in achieving sustainable development taking into account the quality of the environmental, socio-economic and cultural issues. Specifically this involves issues such as design, management of buildings, materials, quality of construction operations, the consumption of energy and natural resources.

## METHODS

This research is a descriptive qualitative research that is trying to generate data in the form of systematic and accurate picture of the object of study. The research location is in downtown Makassar, precisely in Al Markas Al Islamic mosque.

Sample area is a neighborhood mosque and the interior of the mosques. The research variables are the spatial patterns of the mosque, circulation, lighting and natural ventilation of the mosque, and the social and economic development around the Al Markas Al Islamic mosque. Types and sources of data needed are the primary data (survey building on the site) and secondary data (documents, articles, etc.). Analysis of the data is data that is qualitatively described with words then categorized to the conclusion<sup>10</sup>.

## DISCUSSION

### Al Markas Al Islamic Makassar

Al Markas Al Islamic mosque is located in the settlement region of the northern part of the city of Makassar. The mosque is one of the biggest landmarks in the city of Makassar. It was built in 1994 which aims to accommodate the religion activities, and this is in accordance with one of the functions that make the mosque as a place of worship, preaching, meetings, lectures, and economic processes in the surrounding communities.

In general, the mosque is a place of worship for the community<sup>11</sup>. The mosque is a sacred building which has the direction to bow before the Almighty.

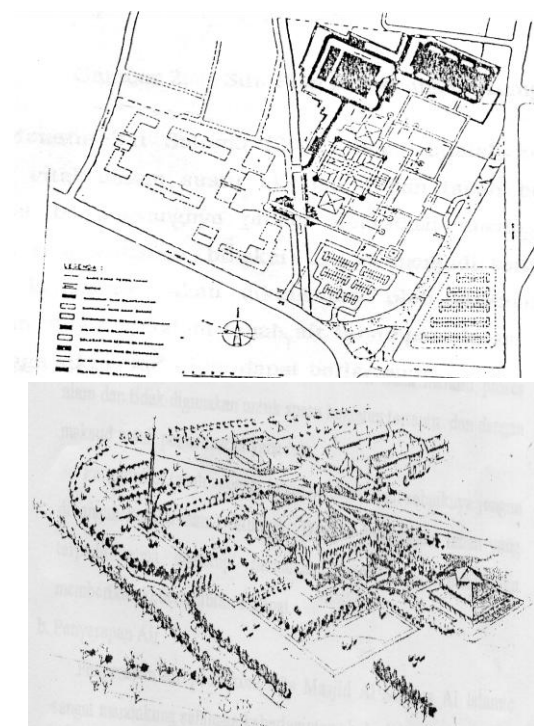


Figure 1. the Situation Complex of Headquarters of Al Markas Al Islamic

The concept of the mosque can not be separated from Islam, which is how people worship or submit to Allah SWT. The mosque comes from the word "prayer rug" which means prostration. While

the worship itself is divided into two, namely direct human relationship with the Creator and the relationships among humans. From figure 1 can be seen that the situation and the site plan of the mosque shows the Headquarters of Al Islamic at every level or stage of construction, ranging from plan, until the building construction process is running. Ecological sustainability at the Al Markas Al Islamic Makassar mosque is able to respond the emotional and psychological needs of people by providing positive environmental stimulation, increasing awareness of the important values of life, inspire the human spirit and strengthen social relationships, communities and the environment<sup>12</sup>.

### The Concept of Al Markas Al Islamic in a View of Islam

These days, the mosque is not just a place of prayer but also as a forum for various activities of the congregation. The construction of the Al Markas Al Islamic mosque in Makassar had a goal as the integrity and identity of Moslems who reflect the values of Moslem. The significance of the Al Markas Al Islamic mosque (viewed from the building function) includes two main things that are essential, namely:

1. As a center of worship (prayer) or a place of worship to Allah SWT.
2. As a point of Islamic culture or broadcasting center and symbols of Islam in the city of Makassar.

the Al Markas Al Islamic mosque then pay attention towards diversity and the pursuit of operational excellence activities such as places of Islamic education, meetings, weddings and others. The operational of Al Markas Al Islamic in the view of Islam, among others:

#### a. *Hissiyah* aspects (Building)

The form of Al Markas Al Islamic mosque should be determined based on the main functions of the mosque. From here the function of the Al Markas Al Islamic mosque is truly adapted to its main function as a place of worship for Moslems in the city of Makassar, while the other functions are around the mosque constitute that support Islamic activities can be accomplished. Islamic activities around the main building Al Markas Al Islamic mosque in the form of:

- The Islamic education which is equipped with a library,
- Part of the building of the Al Markas Al Islamic mosque is a trade area where moslems selling Islamic books and open a canteen. While in the holy of Ramadhan month, there is a night market in the complex of Al Markas Al Islamic mosque.
- On the right side of the building of the Al Markas Al Islamic mosque, there is also a ballroom that can be functioned as a wedding venue.

- To the terraces of mosque is used as the Al Markas Al Islamic meeting places for moslems

The variety of activities that can be done at the Al Markas Al Islamic mosque may be the Makassar city landmark and is also supported by the location of the mosque which is in the midst of urban settlements Makassar region. With the diversity of activities at the Al Markas Al Islamic mosque, then it should not be redundant, this is in accordance with the hadist "built magnificent mosques, but deserted from the implementation of the instructions of God"<sup>13</sup>.

#### b. *Maknawiyah* aspect (destination)

This aspect is the purpose of the construction of the Al Markas Al Islamic mosque was built on the basis of Islamic piety involving the mosque as a center of worship and congregational coaching centers / Moslems in the city of Makassar.



Figure 2. As a Place of Worship and a Meeting Place

*"Do not pray in the mosque for ever. Indeed mosque founded on takamiah (Quba Mosque), the first day is over you should pray in it. In it there are people who want clean up themselves. And Allah loves those who are clean. "(QS At Taubah: 108)<sup>14</sup> [5].*

#### c. *Ijtima'iyah* Aspect (all events )

Aspects of the activities at the Al Markas Al Islamic mosque is knowable through

institutional scope of mosque. Among the institutions that associated aspect mosque activities are:

1. *Dakamiah* and social service institutions  
*Dakamiah*, social activities and community service in the Al Markas Al Islamic mosque are *taqlim* assemblies, study groups for different life, and a discussion especially during the morning prayer called. While social service activities in the mosque of Al Headquarters Al Islamic is usually carried on by teens in the mosque itself.
2. Institutions and Funds Management  
Management in Al Markas Al Islamic mosque can be seen on every friday prayer, when the holy month of Ramadhan, the Moslem feast. Where the Al Markas Al Islamic has its own priests and for the preacher to invite outside Al Markas Al Islamic mosque. It is closely related to the quality of the resources, human managers / administrators, particularly vision, religious and socio creatifity manager in turn the potential for Islamic Al Markas Al Islamic mosque.
3. Institute of Management and Jemaah  
For managers and assembly should be established an inseparable bond of any activity that takes place in the Al Markas Al Islamic mosque. Both of these components are the main pillars that allow ongoing various activities that take place in the mosque, it is already listed in QS. Al Jinn 18 and QS. At Taubah 108<sup>15</sup>.

## Sustaiprophetlity of Al Markas Al Islamic Mosque

### 1. Ecology

In terms of environmental sustaiprophetlity at the Al Markas Al Islamic mosque can be viewed from the social and economic aspects.

- Social Aspect  
The social aspect of the Al Markas Al Islamic mosque can be known of the function of the mosque as a place of worship as well as a place to do a variety of activities related to Islamic activities.
- Economic Aspect  
Economic aspects can be seen at the headquarters of Al Markas Al Islamic, that are supporting the local economy around like the presence of community efforts to support the economy surrounding communities, such as trading in the holy month of Ramadan is the night market.
- Environmental Aspect  
From the environmental aspect, the mosque's location is in a settlement in the city of Makassar so it can support the environmental of *Hissiyah* aspect in Islam.



Figure 3. The Environmental situation in the Al Markas Al Islamic Mosque

The environmental aspect also provide shade, peace and beauty of the environment/neighborhood of Al Markas Al Islamic mosque and this is in accordance with the definition of Islamic architecture, as well as revealing that Al Markas Al Islamic mosque can be unite with nature. Having regard to the element of sustaiprophetlity in ecological building then it is in accordance with the fundamental principles or guidelines that exist in the Al Qur'an as follows:

- Guidelines for the human relationship with God, it can be seen with the primary function of Al Markas Al Islamic mosque as a place of worship implementing/obligatory prayers as well as the voluntary prayers.
- Guidelines for the human relationship with yourself, by the way humans hear lectures/human mission to look inward, while one of the functions of the Al Markas Al Islamic mosque is as a place to broadcast the teachings of Islam.
  - Guidelines for human relationships with others can be stated in association with *taqlim* assemblies in the Al Markas Al Islamic mosque.
  - Guidelines for setting the human relationship with the natural environment can be seen



through the location of the Al Markas Al Islamic mosque that is in the settlement area, so the community of social relations could be established. For the relationship with nature can also be seen through the placement of parks around the Al Markas Al Islamic that can provide in terms of ecological sustainability.

## 2. Building

- a. Spatial pattern Al Markas Al Islamic mosque  
 The Al Markas Al Islamic mosque consists of three floor, where the first floor is intended to support facilities of mosques in various activities, second floor as a place of worship while the third floor functioned as a working area, and the balcony as the area of cross ventilation or natural light.

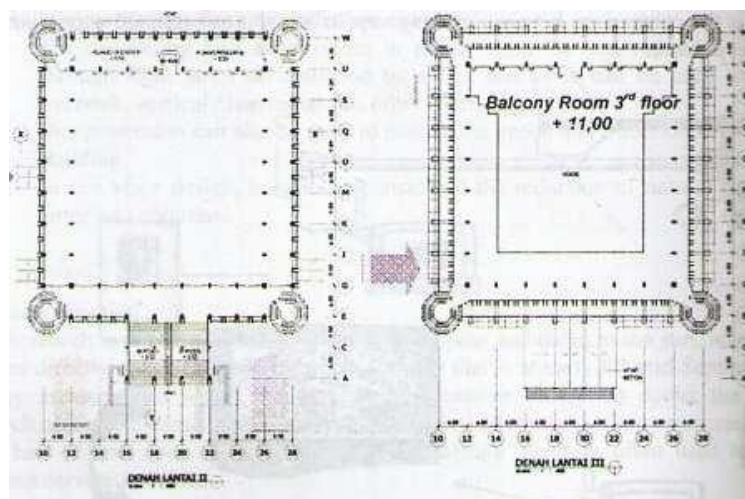


Figure 4. Plan of Second and Third Floor in Al Markas Al Islamic Mosque

Circulation patterns toward each floor accessible by stairs, while for ablution area is located to the left of the mosque with its own building, so that the distribution area

of service can be determined directly by the visitors and the community of the mosque.

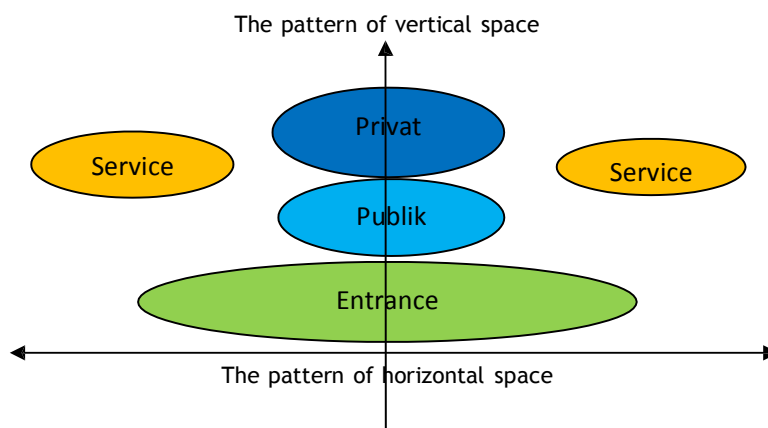


Figure 5. Spatial Pattern System in Al Markas Al Islamic Mosque.

When taking into consideration the spatial pattern in the Al Markas Al Islamic mosque is namely vertically to show how moslems can relate to the Creator Allah SWT. While the horizontal system provides guidance for humans that can relate socially between people.

- b. Appearance of buildings  
 The appearance of the Al Markas Al Islamic Makassar mosque is built with basic shapes of timpalaja house that has been a hallmark of traditional buildings. Form like this gives appeal to people directly. The concept of Al Markas Al Islamic has four physical criteria,

namely: monumental and reflecting the traditional character area. Physical criteria uses a traditional building in Makassar design for the inspiration of the mosques and halls. The modification of pyramid shape stacked with ribs arc triangle takes on the made of roof. The triangular shape appeared pad parts, window and door elements of space. Impression of the house and the stage of Baruga timpalaja, tried presented among others by placing the column in the legs of the building, the roof and terraced.



Figure 6. the Facade of Al Markas Al Islamic Makassar Mosque

The mosque building area is 10,000 m<sup>2</sup>, consists of 3 floors. The ground floor area of 4,000 m<sup>2</sup> for men's prayer room. Third floor of the museum in the form of 2,000 m<sup>2</sup> for ladies prayer room. On either side of the main mosque building dimensions 54 x 54 m<sup>2</sup> and breadth 7744 m<sup>2</sup> there are also two residential buildings covering an area of 648 m<sup>2</sup> contained ablution mosque stands behind the lobby area of 2691 m<sup>2</sup> surrounding an open plaza.

Entrance or the main entrance was inspired by the shape of Baruga placed in Sunu road while the fourth side entrance located at

the mosque. The concept of mass in the headquarters of Al Markas Al Islamic contacts inside, and there is a swimming-pool outside it. Doors and windows are placed on the inside of the box. Columnar hall is a corridor outside the box with overhang for humid tropical climate, through the use of a sheet of 6 m corridor surrounding the main prayer hall. With an open system is accessible from a variety of access from any side.

c. Natural lighting

The Al Markas Al Islamic mosque gets a good natural lighting on the first and second floor in the afternoon, because the lighting comes through the placement of doors on each side of the building as well as natural lighting is also obtained through the placement of a balcony that has a void directly to the second floor so that the reflection of direct sunlight can be enter and be accepted on the second floor, i.e the prayer room. While lighting to the first floor enter through the placement of doors and windows of buildings surrounding the Al Markas Al Islamic mosque.

Natural lighting in the Al Markas Al Islamic mosque is one of the energy savings as a priority in an effort to realize the value of sustaiprophetlity in building the Al Markas Al Islamic Makassar mosque. The energy savings that occur in the use of natural lighting and natural ventilation is processing environments that performed significantly lead to ecological sustaiprophetlity. Natural lighting system used in the mosque complex of Al Markas Al Islamic is done during the day by way of direct lighting and reflection/ transmission of an object or a surface.

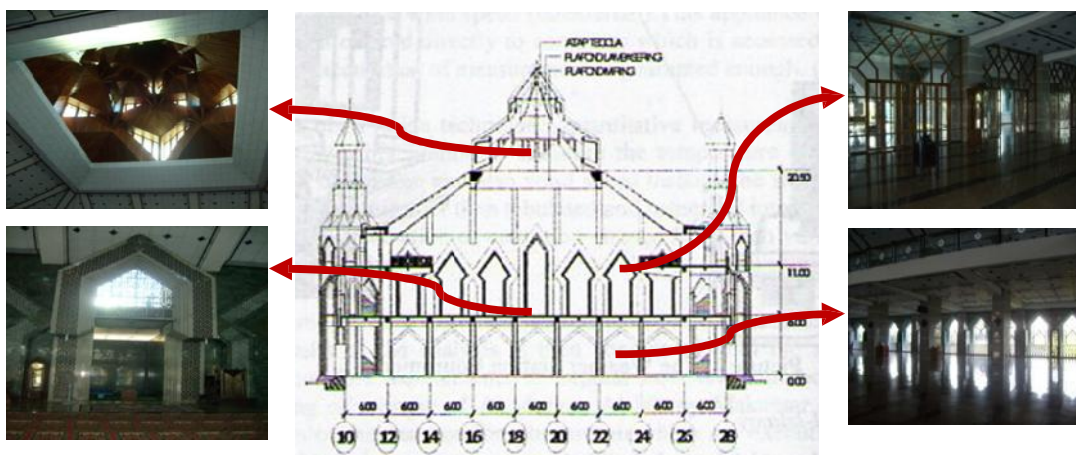


Figure 7. Acceptance of Sunlight into the Mosque



Daylighting can be obtained in two ways: direct light and the reflected light. Direct light comes from the sky, either the sun or a spotlight directly reflected by the clouds. While the reflected light is the result of reflection or refraction of light from objects that stand outside of the building and enter through the skylight into the room. The benefits of natural lighting is to provide a pleasant visual environment and comfortable with the quality of light similar to natural conditions outside the building<sup>16</sup>. With a system of openings in the walls and ceiling of the building provide natural lighting directly, it means that there are openings in the building that also gives the impression of a direct relationship between his time with the creator. The use of natural lighting during the day at of the Al Markas Al Islamic mosque can reduce the use of electricity.

- d. Natural ventilation  
 Natural ventilation on Islamic Al Markas Al Islamic is usually found on the side of the

building used the grille and window so natural ventilation of building can be felt directly.

Ventilation function is to meet the health and thermal comfort. Health's needs include providing oxygen for breathing, prevention of high concentrations of CO<sub>2</sub>, smoke and other gases that are harmful, preventing the concentration of bacteria and odor suppression. The need for thermal comfort include the transfer of heat out of the room, helping the evaporation of sweat from cooling the building structure. Thermal comfort was also obtained from the gusts of wind coming into the building. In addition to wind or air entering the building there is also the effect of solar radiation on thermal comfort<sup>17</sup>.

Acceptance into the natural air mosque is also an energy saving because Al Markas Al Islamic mosque does not use Air Conditioning, so the natural air revenue received directly. This is one of the guidelines in the Al-Qur'an that human arranges the natural environment.

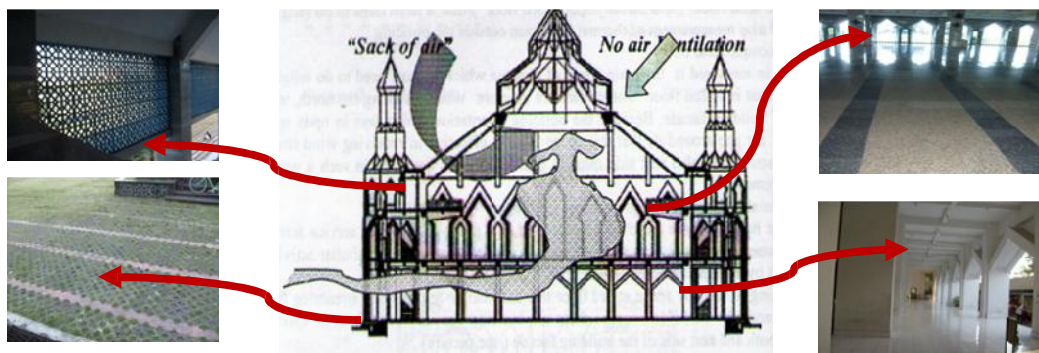


Figure 8. Temperature Revenue Sources Naturally Into Mosque

The use of material on walls, doors, grass blocks and tiles on the walls of the Al Markas Al Islamic receive and keep natural temperature into mosques. The grass block at the entrance to the park can keep the mosque cold. Thermal comfort through natural conditioning requires modification approach to natural climate, namely<sup>18</sup> [14]:

1. Planting Trees
2. Night cooling
3. Minimize heat gain (heat gain) of solar radiation on the building.
4. Maximize heat loss in buildings.

Natural ventilation through the conditioning room to get natural temperature of the mosque can be formed by means of climate

modification approach tailored to the geographic mosque. Ventilation function is to meet the health and thermal comfort. Health needs include providing oxygen for breathing, prevention of high concentrations of CO<sub>2</sub>, smoke and other gases that are harmful, preventing the concentration of bacteria and odor suppression. The need for thermal comfort include the transfer of heat out of the room, helping the evaporation of sweat from cooling the building structure. Thermal comfort was also obtained from the gusts of wind coming into the building. In addition to wind or air entering the building there is also the effect of solar radiation on thermal comfort<sup>19</sup>.

### 3. Behavior

In terms of behavior is one support the sustainability of the building. User behavior on the Al Markas Al Islamic mosque is Moslem and mosque authorities. In the implementation of the sustainability of behavior is a form of maintenance and participate in the implementation of environmental cleanliness mosque because it is in accordance with the meaning of the mosque in Islam which should have beauty, cleanliness, peacefulness so that sustainability can be implemented on a building Al Markas Al Islamic mosque.

### CONCLUSION

Sustainable architecture in Al Markas Al Islamic mosque can be attributed with Islamic viewpoint. in terms of ecological sustainability can be seen at the headquarters of Al Markas Al Islamic that contained plants or yard is overgrown by various types of ornamental plants and fruits that can be used to provide a sense of peace and close to the natural elements. Sustainability of the Al Markas Al Islamic mosque through a spatial pattern, appearance, lighting and natural temperature related to the operational system of Islamic mosques that has *Hissiyah* aspects, *Maknawiyah* aspects, and *Ijtima'iyah* aspects that is intended as a place of worship to God as well as the central place of broadcasting and *dakamiah* as the symbols of Islam.

### REFERENCES

- 1 Hasyim H, et al. *Philosophy of Culture and Islamic architecture*. Set of tasks Architecture Lecture Principles IV Faculty of Engineering Department of Architecture Moslem University Indonesia. Makassar (2004), pp 3-4.
- 2 Yulianto Sumalyo. *Architectural and Historical Monuments Moslem Mosque*. Gadjah Mada University Press . (2000). pp 1-2.
- 3 Moses Asy'arie. *Philosophy On Islamic Culture*. Yogyakarta Publisher , (1999) pp 12-14.
- 4 Assad, M. *Islam at the Crossroads*. Bandung, (1974) pp 1-3
- 5 Ibn Kathir, "*Tafsir Al Qur-an*", Al-Azhim, Mustafa Muhammad, 1365 H. pp 701-774
- 6 Gazalba Sidi. *Mosque Profile Abu City*. Jakarta (1977), pp 1-5
- 7 Ibn Kathir, "*Tafsir Al Qur-an*", Al-Azhim, Mustafa Muhammad, 1365 H. pp 701-774
- 8 Eko Budihardjo, *Sustainable City*. IKAPI.(1999) pp 17-51
- 9 Houghton Graham and Hunter Collis. *Sustainable Cities*. Jessican King Publisher-London. (1994) pp 5-15
- 10 Moleong, Lexy J. *Research Methods*. (2001) pp 2-15
- 11 Ernt's Neufert. *Data Architecture*. Grants.(1992) pp 41-42
- 12 *Construction Magazine*, May 1995 . pp 8-10
- 13 Ibn Kathir, "*Tafsir Al Qur-an*", Al-Azhim, Mustafa Muhammad, 1365 H. pp 701-774
- 14 Ibn Kathir, "*Tafsir Al Qur-an*", Al-Azhim, Mustafa Muhammad, 1365 H. pp 701-774
- 15 Ibn Kathir, "*Tafsir Al Qur-an*", Al-Azhim, Mustafa Muhammad, 1365 H. pp 701-774
- 16 G. Z. Brown, 1987. *Sun, Wind and Ligth*. Intermatra-Bandung, pp 74-80
- 17 Soegijanto, *Indonesian Tropical Building*. Directorate General of Higher Education, Department of Education and Culture Sustainable Contruction Magazine, desivative February 2008.pp 44-45
- 18 Tri Harso Karyono. *Architecture-Established Education*, Comfort and Energy Thrift. PT. Chess Libra Optima. (1999) pp. 21-27
- 19 Soegijanto, *Indonesian Tropical Building*. Directorate General of Higher Education, Department of Education and Culture Sustainable Contruction Magazine, desivative February 2008.pp 44-45