

The semiotics study of Al-Ahdhar Mosque architecture using the trichotomy of Charles Sanders Peirce

Taufiq Widodo, Primi Artiningrum*

Department of Architecture, Faculty of Engineering, Universitas Mercu Buana
Jl. Raya Meruya Selatan Kembangan 11650 D.K.I. Jakarta, Indonesia



ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received June 02, 2022 Received in revised form June 25, 2022 Accepted July 26, 2022 Available online August 01, 2022</p> <p><i>Keywords:</i> Interpreter Mosque architecture Object Representamen Semiotics</p> <p>*Corresponding author: Primi Artiningrum Department of Architecture, Faculty of Engineering, Universitas Mercu Buana, Indonesia Email: primi@mercubuana.ac.id</p>	<p><i>Semiotics is a science of signs, which is found daily in public spaces, print media, literary works, and buildings. A building can convey value, story, philosophy, and meaning through signs expressed on its architectural elements. These signs are in form of shape, spatial arrangement, building ornaments, colors, patterns, textures, or other elements. Therefore, this study aims to determine the meaning and message expressed by the architectural form of the Al-Ahdhar Mosque based on Charles Sanders Peirce's Semiotics, which consists of three aspects, namely Representant, Object, and Interpretant with the concept of trichotomy. It was carried out using a descriptive qualitative method to determine more about the observed phenomena. The meaning and messages of the case study were conveyed in form of signs and symbols through architectural elements. The data obtained through observations, interviews, and documentation were translated using Charles Sanders Peirce's Trichotomy semiotics. The modern-style design of the Al-Ahdhar Mosque showed that the forms and architectural elements carry a certain meaning. The results also showed that Charles Sanders Peirce's Trichotomy semiotic theory can be used to reveal meaning through signs. This indicated that signs on building elements have a meaning, and the relationship of meaning, sign, and symbol is from a correlation between signs and omens, which is called the semiosis process.</i></p>

Introduction

Mosque architecture in Indonesia began with the entry of Islam from the Arabian Peninsula, which spread across various continents and oceans (Rochym 1983). From the Islamic perspective, humans are khalifatullah on earth, whose duty is to realize the message of Islam, namely rahmatan lil 'alamin, and worship God (Wirakusumah 2022). This can be interpreted as a human activity both internally and physically in their relationship with God, humans, and the universe (Ismail 2017).

In the Islamic Empire era, the Hindu-Buddhist heritage still existed and was maintained as a

cultural treasure that needed to be preserved as a historical development symbol of civilization in the archipelago (Arita, Budiwuono, and Saliya 2021). This is one of the reasons for the harmony of Islam with local culture that continuously exist in current society, which still respects and maintains local traditions (Tjandrasasmita 2009). During the Islamic Empire, the building of worship houses began to develop, namely the mosques as a place of worship and da'wah. These mosques were built by considering the structure of the local culture. Therefore, they do not become an "arrogant" building in a Hindu-Buddhist culture but seem to "mingle" with its environment (Adiputra and Salura 2021).



The mosque was built by responding to local culture and the challenges of the climate in the archipelago, which has a tropical climate with much sunlight and significantly high rainfall (Mintaredja, Salura, and Fauzy 2021). This gives rise to differences in the architectural form of mosques in the archipelago and the Middle East. According to Abror, in a study on the Pathok Negoro Mosque, it was reported that mosques have cultural values such as Mustaka, Tumpang Roof, Pond, Beduk, Lawang Endek, Saka Kayu Jati, Gate, Undak-undak, and Graves, where each has a symbolic meaning (Abror 2016).

Mosques in the Middle East are synonymous with a hemispherical roof, commonly called a "dome". Their architecture in the archipelago, specifically on Java Island, has the shape of a pyramid roof or tajug with several stacks, which have a philosophical meaning and make it a characteristic of traditional mosques in Java (Paramitha and Salura 2020). For example, the Great Mosque of Demak has three stacks of tajug, which have symbolic meaning in each structure. The top tajug symbolizes the nature of Ihsan, which means a Muslim needs to always be a good person. The second roof represents the pillars of Islam as a sign that Muslims need to carry out. Meanwhile, the third tajug symbolizes faith. In Islam, there are pillars of faith that are the basis for every adherent to believe in the faith concept (Marwoto 2017). The science of architecture also gives color to the changing shape of the mosque. Due to a large number of worshippers and the need for a greater worship place, the shape of the dome roof is widely adopted into the form of mosques in Indonesia. Subsequently, it becomes a characteristic that distinguishes mosque buildings from other structures (Huldiansyah and Subroto 2020).

There is a development of the mosque's architecture through modern concepts. This concept is evident in the reduced details of mosque ornaments, simple forms, and prioritized functions. Meanwhile, mosques are no longer marked with a dome on top because recent structures are built without domes or minarets. This indicates that the definition of a mosque as a house of worship is not just through a dome. Al-Irsyad Mosque in Padalarang, West Bandung, is a modern architectural mosque built without a dome. Another example is the Grand Mosque of Al Azhar Summarecon Bekasi (Suhendar, Fatimah, and Trisno 2020).

Modern mosques are increasingly developing by exploring forms, materials, and design concepts that seem to "break" the general grip of the buildings. This made the meanings implied in architectural design an interesting challenge. This is the same as classical mosques, which have the charm of high philosophical value, symbolized by architectural faces and ornaments full of meaning. Therefore, this study aims to explore the meaning of architectural design in a modern mosque, namely the Al-Ahdhar Mosque in Bekasi.

Semiotics is used to analyze these meanings, namely Charles Sanders Peirce's semiotics. According to Peirce who was a philosopher and logician, signs are tools used by humans to reason. Peirce also stated that logic is the same as semiotics, which can be applied to various types of signs (Tinarbuko 2008).

Moreover, semiotics is the science of signs, symbols, and symptoms of human life. A sign spreads around with a specific purpose and meaning in form of words, sentences, colors, shapes, sounds, tones, and others. From these, how a sign system affects human interaction, psychology, views, and moods can be stated and described. This showed that a complete picture of a sign of human life can be identified.

Several investigations have been carried out on architectural semiotics. These include the Jamik Mosque Sumenep-Madura (Atthalibi, Amiuzza, and Ridjal 2016), the Jakarta Islamic Center Mosque (Muktiono 2019), the Great Mosque of Banten (Nur 2017), Semiotic Analysis on the Ancient Mosque of Kaujon Banten (Mulyani 2020), as well as Roland Barthes at the Buton Palace Mosque (Bahri 2020), the facade of the Al Markaz Al-Islami Mosque Makassar (Nurjannah, Fatimah, and Marwati 2019), and the Ornament of the An-Nur Mosque Pekanbaru (Anfa 2017). However, these case studies were not a mosque with a modern design. Investigation of Modern Mosque Architecture by taking the object of the Istiqlal (Hasbi and Nimpuno 2019) and Al Irsjad Mosques (Suhendar, Fatimah, and Trisno 2020) also did not discuss semiotics. For example, the design of Masjid Raya Al Azhar Sumarecon Bekasi (Nugraha, Anisa, and Ashadi 2020) and Al-Irsyad Satya Mosque (Nugraha and Ashadi 2020) showed the meaning of the shape based on denotative and connotative semiotics (Adinda 2018).

This study examines the semiotics of architectural elements in the Al-Ahdhar Mosque with a modern design, which has not been

previously discussed. The mosque was selected as a case study because of its unique shape and differences, raising questions about what message lies behind the architectural form. Generally, the Charles Sanders Peirce's Trichotomy method explores the implied meaning of the building form. Therefore, this study aims to reveal the meaning of architectural elements in mosques with modern designs by examining Charles Sanders Peirce's Trichotomy semiotics. The results are expected to benefit the development of architectural science related to those carrying certain messages.

Method

Masjid (Mosque)

The origin of the word "Masjid" is *sajada*-prostration word that means obedient and respectfully submissive. According to Sharia, prostration is the act of a person kneeling with the forehead and both hands close to the ground. This action is performed by Muslims when performing prayer. A mosque is a building where Muslims perform the prayer through the act of prostration, as a symbol of obedience, submission, and respect to Allah SWT. Therefore, this building is called a mosque which means a place of prostration (Shihab 1997).

The mosque has a deep meaning in the lives of Muslims. Physically, it is a place of worship, and spiritually, as a symbol of the human relationship with God. The origin of the word 'masjid' is *sajada-yasjudu-masjidan*, a place of prostration (Harahap 1996). From the physical meaning, a mosque is a place made and determined for humans to perform congregational prayers, for worship Allah SWT. According to fiqh experts, the general definition of 'masjid' is a land area not owned by an individual and used specifically for prayer and worship activities (Al-Fauzan 2018). Therefore, it can be summarized that a mosque is a place for Muslims to carry out worship such as prayer, which signifies obedience, submission, and prostration to Allah SWT. The mosque carries physical and spiritual meanings.

Semiotics

Linguistically, semiotics originates from the Greek word "Simeon," which means "sign". From a linguistic perspective, it is defined as the study of things and events in culture as symbols.

According to Van Zwist, it is the science of signs and other related components, including their ways, functions, relationships, senders, receivers, and uses (Sobur 2001). Therefore, semiotics is the scientific study of signs, where social phenomena in society and culture are assumed to be signs or symbols. It also studies the systems, rules, and norms that make these signs meaningful.

Semiotics Sanders Peirce

The semiotic theory proposed by Charles Sanders Peirce is known as the "Grand Theory". This is because the idea is comprehensive and known as the triadic model and the trichotomy concept, as follows:

1. A representant is a physical form that the five human senses can accept as representing something other than its form.
2. An object is something that refers to a sign, which is shown by a representation associated with a mold.
3. An interpretant is a sign contained in the mind of a human being about the object to which a sign refers.

Peirce's semiotics is practical because signs are not structures but cognitive activities that the human senses can feel. According to Peirce, a sign is 'something that represents something'. The first 'thing' or 'concrete' is representant, although 'thing' in cognition is called object, the relation process from representation to object is called semiotics (Ashadi 2018).

In the meaning of symbols, the symbolization procedure has not been completed because another process that continues is called the interpreter (interpretation process). Therefore, the process of symbolization is a form that leads to the general meaning of symbols. This process occurs from concrete symbolization to human cognition in society. Semiotics is related to three aspects, namely symbols, objects, and interpretations, with the process called trisection theory or trichotomy. Furthermore, Peirce's semiotic trichotomy model is shown in figure 1.

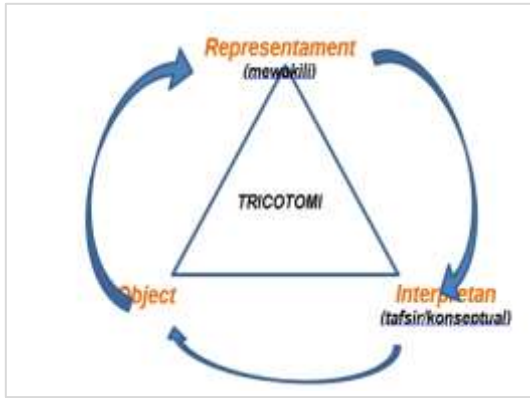


Figure 1. Charles Sanders Peirce's semiotic trichotomy model

In studying the object, everything is seen from the three trichotomy concepts, as stated below:

- A. Sign (representant) is anything that can be absorbed by the senses and refers to something. The first trichotomy is divided into three, as follows:
1. Qualisign is a sign based on its nature. For example, the color red is a qualisign because the nature of this color can be a sign of love, danger, or prohibition.
 2. Sinsigns are signs based on individual form or speech. A scream is a sinsign because it can be interpreted as an expression of wonder, pleasure, or pain.
 3. Legisign is based on a general rule, norm, convention, or code. It is found in language signs because language is a code. In legisign, there is a sinsign, a generally recognized regulatory sign.

Table 1. Elements of representament

Classification	Description	Example
Qualisign	Quality of a sign	Intonation of words spoken by someone can indicate the mood of the speaker
Sinsign	Actual thing or event as a sign	The word "murky" in "murky river water" indicates that there is rain upstream of the river
Legisign	Law or norms within a sign	Traffic signs, indicating traffic regulation, that are understood by the interpretant

Source: (Wibowo 2020)

B. Objects, where signs are classified into icons, indexes, and symbols

1. The icon is a sign that is similar to the object it represents, which has

characteristics similar to what it means. For example, the same map with the geographic area, photos, and others;

2. The index is a sign whose nature depends on the existence of a denotation, therefore, according to Peirce's terminology index is a secondness. The index is a sign that is connected or related to what it represents;
3. The symbol is a sign of which the relationship with its sign is determined by a general rule or mutual agreement.

Table 2. The elements of object

Classification	Description	Example
Icon	The relationship between the signifier and the signified is the same or has similarities	Photograph, map, miniature.
Index	Indicates the existence of a natural relationship between the sign and the signified which is causal (causal relationship)	Smoke as a sign of fire. The sound of sirens is a sign of an ambulance
Symbol	Indicates the natural relationship between the signifier and the signified, but this relationship is based on community conventions (agreements, understandings)	Nation flag

Source: (Wibowo 2020)

C. Interpretant, where the sign is divided into rheme, dicisign, and argument

1. Rheme is when the symbol is interpreted and the meaning of the sign can still be developed;
2. Dicisign (dicentsign) is when there is a true relationship between the symbol and its interpretation;
3. An argument is when a sign and its interpretation have a general nature (being thirdness).

Table 3. Interpreting elements

Classification	Description	Example
Rheme	Signs that allow people to interpret by choice	People whose eyes are red can indicate that the person has eye pain, has just cried, or has just woken up
Dicent sign/decisign	Signs according to reality	"Careful! Slippery road" indicates a slippery road caused by something, such as an oil spill, oil, or sand flakes so that a hazard sign is installed
Argument	Signs that directly give reasons about something. Contains an assessment or reason why something happened	The sign "No smoking" in the gas station area. The sign is installed because smoking can cause fires or explosions in the gas station area

Source: (Wibowo 2020)

Implementation of Charles Sanders Peirce Semiotics on architectural objects

Logic is the basis of Peirce's semiotics because it requires reasoning. This makes people think through signs to communicate, interact with each other, and give meaning to what is displayed by the universe.

Semiotics in architectural works is closely related to the architect's way of thinking. Architects think it is motivated by knowledge, experience, and observations in social interactions or the environment. An example of this explanation is presented in figure 2.

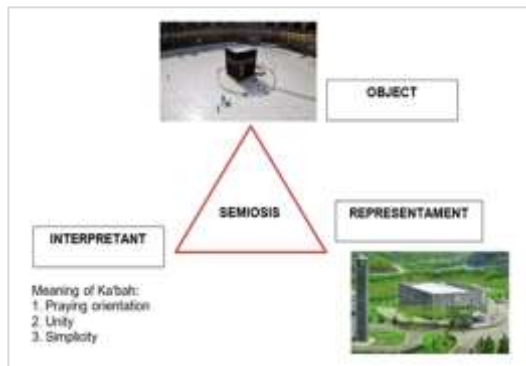


Figure 2. An example of Peirce's Semiotic analysis of the architectural object of Al Irsyad Mosque

The method used in the semiotics study of Al-Ahdhar Mosque is descriptive qualitative, which is carried out by in-depth observation of

buildings. Therefore, these buildings can be described systematically, factually, and accurately as existing phenomena (Cevilla. 1993).

Primary data collection methods were carried out through observation, recording using photos, sketches, and in-depth interviews with key informants, who were the mosque administrator. Subsequently, the data were analyzed and interpreted using Peirce's semiotic Trichotomy model. From the results of these interpretations, conclusions can be drawn.

The study case is the Al-Ahdhar Mosque building on Boulevard St., B-3 Housing Green Park Jatimelati, Pondok Melati Bekasi, West Java 17446. This mosque stands on an area of 1,800 m² with a building area of 700 m². This two-story mosque has a capacity of 450 worshipers. It was inaugurated by the mayor of Bekasi Rahmat Efendi on February 11, 2018.



Figure 3. Al-Ahdhar Mosque



Figure 4. Map of the Al-Ahdhar Mosque location

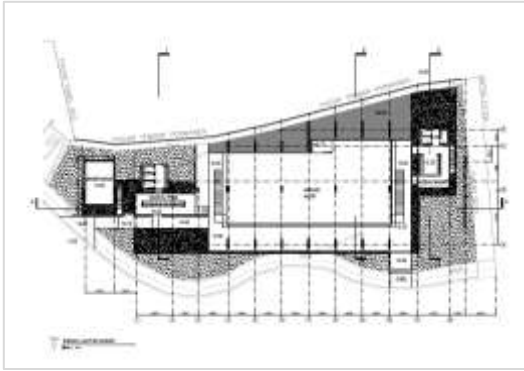


Figure 5. The plan of the worship room on the 1st floor of Al-Ahdhar Mosque Bekasi

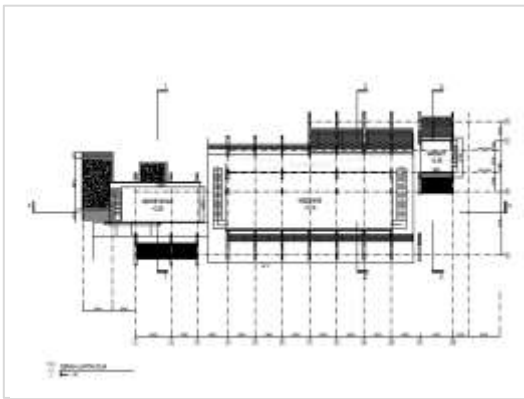


Figure 6. The plan of the worship room on the 2nd floor of Al-Ahdhar Mosque Bekasi

Result and discussion

Field observation results

The architectural consultant appointed to design the Al-Ahdhar Mosque is Studio Nataneka Architect, and Jeffrey Sandy is the architect. The initial consideration in its design was to make a modern mosque with the concept of returning to nature, blending into the environment, and harmonizing with the concept of this Green Park housing. This is realized in form of a design proposal, which the development committee will approve for the construction to be implemented.

Plan concept

The concept of the building mass shape is an analogy to the prostration position in prayer. Therefore, the slope of the roof and the columns are not symmetrical between those facing forward and backward. The formation is repeated as the main structure of the mosque building, which is also an analogy of the shaft in prayer.



Figure 7. The position of prostration in prayer



Figure 8. Shaf prostrates in prayer

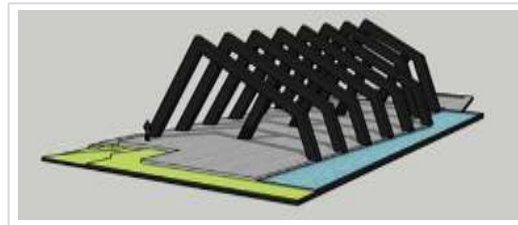


Figure 9. The series of structural elements of the Al-Ahdhar Mosque



Figure 10. Al-Ahdhar Mosque design

Interior concept

The interior of the Al-Ahdhar Mosque is dominated by natural colors such as black and wood. The concept of a building that blends in with its environment is realized using glass as a wall. This is carried out to make the inner room blend with the trees and gardens around the building.



Figure 11. Interior of Al-Ahdhar Mosque prayer area



Figure 12. Interior of Al-Ahdhar Mosque prayer room

Peirce's semiotic trichotomy analysis on Al-Ahdhar Mosque architecture
 Building form

It was previously discussed that the shape of the Al-Ahdhar Mosque is an analogy of the prostration position in prayer. Therefore, it can be understood that the relationship between the shape of the building and the analogy of the prostration position shows a semiotic relationship according to Peirce's theory, as follows:

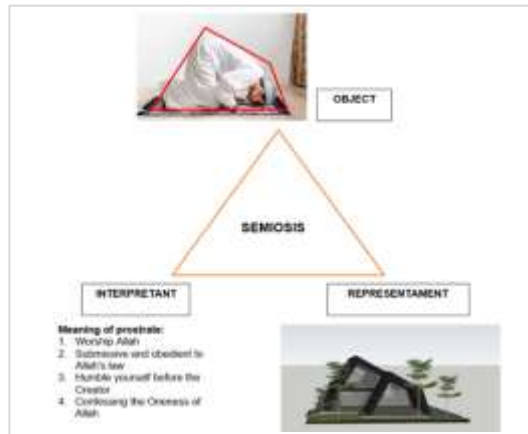


Figure 13. The semiotic relationship in the basic form of the Al-Ahdhar Mosque

The semiotic relationship from the analogy of the prostration position describes it as an object, where the element contained is a symbol, which means a sign that allows people to interpret according to their understanding. Therefore, the Architect understands the meaning of prostration

as an interpreter with elements of legisign, namely norms, philosophy, and the sign. These elements are visually analogized in a connecting line that forms a pattern.

Building structural elements

The structural element of the Al-Ahdhar Mosque consists of 7 main pillars designed to represent the congregational prayer column. This semiosis relationship can be described as the prayer line as an object, and the meaning contained interpretation. The relationship is shown in figure 14.

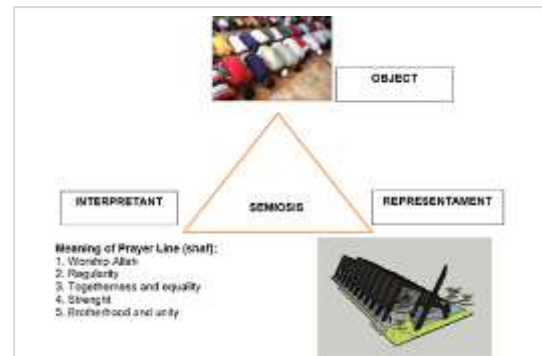


Figure 14. Semiosis relationship on the structural elements of Al-Ahdhar Mosque

The 7 structural columns are taken from the number of verses in Surah Al-Fatihah, which means the opening is the first/opening letter in the Qur'an. Therefore, it is expected that the presence of the Al-Ahdhar Mosque is the beginning, opening, and first step of the welfare of the people, brotherhood solidarity, and success.

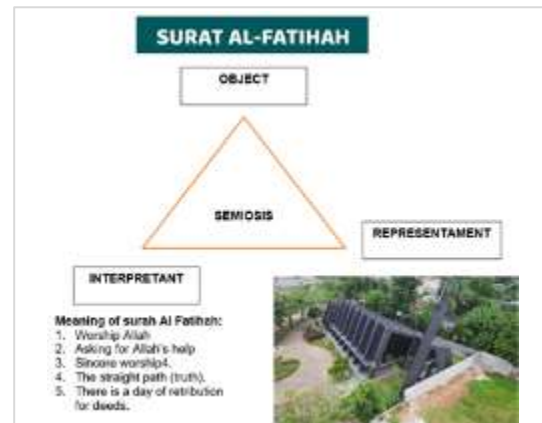


Figure 15. Semiosis relationship on structural elements with Surah Al-Fatihah. Minaret (tower) of Al-Ahdhar Masjid Mosque

Al-Ahdhar Mosque has one tower that symbolizes the Oneness of Allah, with a tower height of 17 meters, representing the number of rak'ahs of prayer 5 times a day and night.

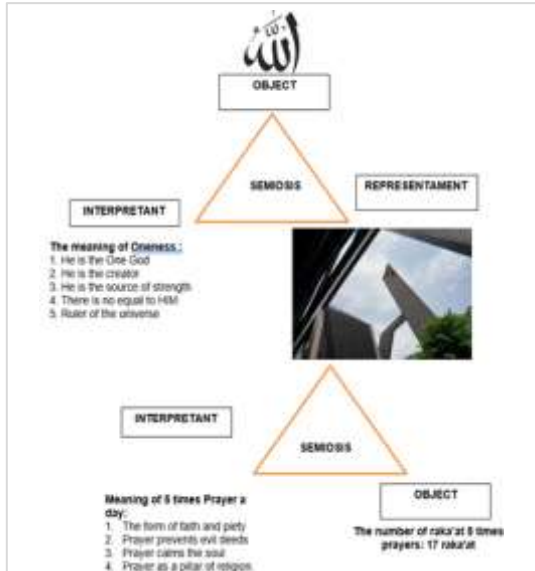


Figure 16. Al-Ahdhar Mosque minaret semiosis relationship

Analysis of the sign classification application in Al-Ahdhar Mosque architecture

The shape of the building that takes the analogy of a person who is prostrating is an unusual form for a mosque building to people. Therefore, the classification of signs (representations) in building forms can be classified as sinsign, which is the actuality of an object to a sign but has not yet functioned. Al-Ahdhar Mosque, with an uncommon shape, is an object or sign that has an existence and can be considered as a representation but has not yet functioned as a sign.



Figure 17. The shape of the building is a representation but has not yet functioned as a sign

Tower

The minaret of the Al-Ahdhar Mosque is an element of the index sign that has a relationship between signs, namely a causal relationship. It serves to spread the sound of the call to prayer as a warning that the prayer time has arrived. Moreover, the tower can also be entered into the element of symbols, where the presence of a tower is a sign of the mosque's existence.



Figure 18. Analysis of the index and symbol of the Al-Ahdhar Mosque tower

Entrance

In the entrance area of the mosque, there is signage in form of writing the name of the Al-Ahdhar Mosque. This sign can be classified as an index, which indicates that it is the front and the entrance area of the mosque. This relationship is causal; therefore, the sign can be classified as an index.



Figure 19. Signage of the Al-Ahdhar Mosque name as a sign of the Mosque entrance area

Calligraphy ornaments

Kufi calligraphy ornaments at Al-Ahdhar Mosque as a classification of symbols imply Allah's name is pronounced. This lafadz is located in the main column of the mosque along the hall, which strengthens the building as a sign (representation).



Figure 20. Calligraphy ornaments as a symbolic representation that strengthens the Mosque building as a sign

Conclusion

This study analyzes the architecture of Al-Ahdhar Mosque using the semiotic method of Charles Sanders Peirce's Trichotomy. The results showed that the mosque has a modern architectural design and an uncommon shape, which was designed to carry a certain message and meaning. The basic form of the Al-Ahdhar Mosque building is a sign taken from the position when prostrating, and the direction of the "prostration" leads to the Qibla, which is the orientation of the building. The composition of the masses, an analogy to the position of prostration at prayer time, means to humble oneself, obey, and respect Allah SWT.

The structure of the building, which consists of 7 main columns in a row, is a representation of the prayer rows, representing the 7 verses of Al-Fatihah, as the opening letter (surah) in the Qur'an, which is very important for Muslims. Moreover, this shows that Charles Sanders Peirce's semiotic theory can be used as a reading tool to explore the meanings of architectural forms. This study can also be continued to determine public perceptions of the meanings contained in the architectural design of the Al-Ahdhar Mosque or other buildings.

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Author(s) contribution

Taufiq Widodo contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.

Primi Artiningrum contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.