Influences of Intangible Needs on the Architectural Expression of Tangible Culture Heritage: Comparative Study between Mosque and Church

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Abstract

The architectural buildings are the mirror which the cultures reflect the interiority in tangible form. This study clarifies the dialectic of the differences between Islamic and Western architectures and interior design, especially in the way of expression of religious needs. Moreover, it focuses on the heritage buildings that included religious performances. The study's problem is: "There is a gap of knowledge and unclear image of the influences of intangible heritage on the architectural and interior outcomes". Literature focuses on the Islamic and western architecture themes, including architectural identity, building typology, and architecture and interior elements. The research question of the current study is: "What are the differences between mosque and church in terms of the influences of intangible cultural heritage". Therefore, the study aims to determine the intangible factors of the Mosque and the Church's architectural and interior design. The qualitative approach is adopted to reach the study's aim, via visual observation and interview. The case study justification follows the criteria of place, age, and heritage value. Experts in architecture, culture, and religion are the focuses of the interview. The data analysis applies formal analysis for the visual data, while the textual data applied content analysis. The results showed that religion needs and cultural value are the main intangible factors that influence architectural expressions, which affect the architectural and interior design elements with three levels of influenced tangible needs, interior, exterior, and layout of the buildings.

Disciplinary: Architecture, Religion & Believe, Heritage Study.

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1 Introduction

The intangible influences are categorised into two main types: cultural values and religion needs, which are integrated to represent these influences physically. The architectural and interior design of the religious buildings have a role in presenting religious needs. The needs can be in the form of function, spiritual, and aesthetic. The study investigated the visible elements in the religious buildings that reflect the needs of the religion. Each religion has special processing to reflect the religious needs in visible form. Therefore, this speciality creates assorted patterns of architecture and interior design. However, the differences in each religion's needs also create diversity in religious building types. The Mosque and Church are the most important functional patterns in which religious' needs are represented. Researchers explained general lines in the differences between the impacts of Islam and Christian religion on the buildings. However, most of the researchers discussed the results depending on the original buildings related to the age before 1400 years. The current study is trying to develop influences of religion on architecture and interior design in the contemporary era, inspiring the designers to achieve religion, culture, and function.

The research objectives are

- To determine the intangible needs of the Architecture and interior design of the Mosque and Church.

- To find out the architectural and interior design elements linked to religious values.

- To find out the way of expression by the tangible elements in the Islam and Christian religion that represent the intangible needs

2 Literature Review

The influences of religion on architectural design and form reflected the spiritual, religious, and cultural needs (Falakian & Falakian, 2013). Mohammed (1994) mentioned that praying, holding seminars, Friday speeches, and teaching are essential to recognise the Mosque buildings. Okuyucu (2016) explained that the mosque included functions and physical elements, representing the tangible form's needs. Grabar (1974) discusses Islamic architecture's cultural needs, which buildings need to present Islam's reality physically, recognised from the surrounding buildings. Islam applied the principles of scale and form in the Mosque buildings to show the monumentality (Grabar, 1974). Rasdi (2017) mentioned that the mosque's architectural language is related to the Mosques' function, which is praying. The researcher argued that the mosque should be in a simple square pattern, a genuine form to support praying (Rasdi, 2017). The religious, spiritual, and cultural needs in the Christian religion are mentioned by Tkach (2011) and' Ayar (2004). The church's six functions are; Worship, spiritual disciplines, Discipleship, Fellowship, Service, and Evangelism, which should have a place in the building.

Dhannoon (2014) identified the influenced elements: Almoslaa, Almihrab (niche), Alminbar, Courtyard, Alzula, Fence, Doors and minaret. Khakpour and Kateb (2017) introduced the important elements of the Mosques, classified according to the physical shape, such as; Entry, Apron,

Seraglio, Verandah, ablution chamber, Dome, Sanctuary, the chamber for calling to prayer, Porch, Trough. Salimi et al. (2016) highlighted the relationship between religion and architecture. The study hypothesised that religion influences the architectural elements in religious buildings. The influences of religion are recognised in the architecture and decoration elements, which artwork in the interior and exterior is a sample of relationship (Salimi, 2016). The physical elements of the church are; Porch, Entrance, people's place, Chanter's place, place for VIP and clergymen, Sanctuary, Heritage House, Bell Tower, baptism pool, nave, Church pulpit, Church Bishop Chair, Holy of Holies, altar, painting, and ornaments. Ornaments are classified as the most influenced elements in the church (Ayar, 2004; Khakpour & Kateb, 2017; Salimi et al., 2016).

Husni (2005) explain how art represents the image of Islamic religion, although some Islamic views forbid the use of art, specifically painting. The Islamic spirit and function are reflected in the use of art as a visual form. Islamic architecture applied geometric, organic, and abstracted shapes in the decoration, elements, and painting. The humane and animal figures were not used in the buildings because of Islam's rule that forbade the figuring, especially in the religious buildings. In Islamic vision, the forbidden of figuring and using pictures inside the mosques and religious buildings will probably take the prayers' attention.

Moreover, the use of these elements, especially the pictures and paintings, shows the Prophets and iconic Islamic persons' figures, leading to the worship of these elements (Husni, 2005). Khakpour and Kateb (2017) compared expression in the architectural and interior design in the Church and Mosque. Church buildings applied figurative art to emphasise Jesus Christ as religious needs. In Islamic architecture, the formal homogeneity used, produced the essential differences in physical and visual arts elements, such as; shape, colour, and content. In Churches, the scared images are painted on the wall, including the human face as an expression of human nature (Jesus). The Christian religion used embodiment as a way of expression to show divinity in human form. While the Islamic viewpoint is to use the prophetic traditions, it further maintains that the simulation is reprimanded because it is manipulation in God's production. Muslim architects believed that the art of imitation is permissible as long as it is not a complete imitation (Khakpour & Kateb, 2017). Salimi et al. (2016) mentioned that textual ornamentations in the interior and exterior design are the only way to show the values of Islam artistically by using the inscriptions, which included words from the Qur'an directly. Makhlina (2014) and Ibragimov (2011) explained the differences between expressions in using arches in Islamic and Christian buildings. Arches considered the main interior and exterior elements that reflect Islam's image of Christianity as a physical, tangible element. Orientation, type, and angles of the arches have a deep expression in Islamic and Christian buildings.

Most of the related studies identified religious architecture levels, which is mostly mentioned in the Church and Mosque buildings details. Dhannoon (2014) identified four levels of expression in the mosque building, such as plan, component, construction system and building materials, facades and decoration. Ayar (2004), Khakpour and Kateb (2017), and Salimi et al. (2016)

referred to three levels that contained the influenced physical elements of the interior and exterior design in Mosque and Church buildings, which are exterior, interior, and layout levels.

3 Research Design

This study applied a special methodology to cover the visual and textual data, which included two phases; the first phase is to collect data from various sources (open lens observation). The second one is the techniques of analysing these data.

3.1 Methodology

This paper used a qualitative approach adapted to collect two types of data (visual and textual).

3.1.1 Observation

This method is used widely in qualitative researches. The collected data is accurate and abstract to the objectives of qualitative researches (Creswell, 2014). In this study, two types of observation were used to collect two kinds of data:

a. Visual observation: the visual observation method used to collect data from the case study (Mosques-Churches). The observation process focuses on the components, function, elements, ornamentation, exterior design, and interior design using an observation sheet.

b. Textual observation: documents and literature observed to collect data to support the case study and variables used to reach the study's objectives.

3.1.2 Interview

Semi-structured interview questions are designed to collect in-depth data from experts in Islamic and Christian architects, clerics, and thinkers. Five experts were interviewed according to the theoretical purposeful sampling strategy. The questions included two parts; the first part is to collect the information about the interviewee. While the second part included four main questions, and each one has an in-depth sup-question (Table 1).

Table 1: a semi-structured interview with experts

Interview-code			
Name		Affiliation	
Date		Time	
Q1	To what extent do you think religion has a role in formulating the building		
Q2	I am interested to know the relationship between the practising of religion and the building.		
Q3	What are the religious needs of the building?		
Q4	How religion express religious values in a tangible form?		

3.2 Data Analysis

The visual data analysis used formal analysis, including recognising and classification the visual components, translating to textual outlet data. The interview data were analysed using content analysis, including four themes following the objectives of the study. The representations of data from observation and interviews used the word-cloud and word-tree types using qualitative software analysis (Nvivo 11).

4 Practical Study

4.1 Case Study

The study focused on the type of the buildings as functional, spiritual, and religious buildings more than architecture style or period of construction, but considering the buildings as a symbol reflecting the needs of religion. However, Mosque and Church building were selected randomly to observe and determine the two types of buildings' components. The selection of the samples represented the general case of the Mosques and Churches.

4.1.1 Mosques

According to criteria of place, age, and heritage value, three mosques have been selected, see Table 2.

Table 2: Selected cases of Mosques.

Case No.	Mosques name	Place	Year	Image
M1	The Umayyad Mosque	Syria-Damascus	705	
M2	Um Altura	Iraq-Baghdad	2001	
M3	Alsulimania	Turkey	1550	

Source: Photos Captured by Researchers

4.1.2 Churches

Three churches selected from Iraq, Germany, and Italy reached the criteria of selection. Table 3 shows the information about the cases that have in-depth information from the documents and literature. Additionally, the cases included symbolic values of the Churches and Mosques.

Table 3: Selected cases of Churches.

Case No.	Churches name	place	Year	Image
C1	San Giovanni Laterano	Italy-Rome	319	
C2	Cathedral of Cologne	German-Cologne	1248	
C3	Cathedral Notre Dame	France- Paris	1160	

Source: The researchers, Photos Captured by Researchers

4.2 Interview

Five experts were interviewed face-to-face (30-45 minutes). Expert#1, a specialist in the history of Islamic and Christian architecture, is interviewed in the architecture department, University of Mosul. Expert#2, a thinker, researcher, and writer in Islamic civilisations, including the Islamic arts, is interviewed in his office in Erbil, Iraq. Expert#3 is interviewed in Dortmund, Germany, a pastor in Pauluskirche Church in Dortmund. Expert#4 is interviewed in Amman, Jordan, which is a specialist in Islamic and traditional architecture. Expert#5 is interviewed in Dohuk, Iraq, which is clerics. All interviews were recorded by the audio recorder and transcribed to textual form.

The analysis of the text data used the thematic and coding techniques following the objectives of the study. Therefore, three themes were used to analyse the interview data (See Appendix A). Table 4 shows the way of coding the textual data.
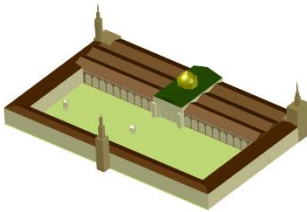
Table 4: The thematic and coding analysis of the content analysis of textual data.

	Church			Mosque		
Themes1	Intangible needs					
Notes	Religion-Needs	Spiritual-Needs	Cultural-Needs	Religion-Needs	Spiritual-Needs	Cultural-Needs
codes						
Themes2	Influenced Elements					
Notes	Exterior	Interior	Layout	Exterior	Interior	Layout
codes						
Themes3	Way Of Expression					
Notes	Exterior	Interior	Layout	Exterior	Interior	Layout
codes						

4.3 Observation

Visual observation was conducted for visual data from the document, literature, and site visit using an observation sheet designed by the researchers (Table 5). The researchers reported most of the architectural, interior elements, and layout that expressed the intangible needs. Six cases were observed, representing the general case from Islamic and Christian buildings, the cases were selected according to the study's criteria. Three observation levels were used to classify the visual data (exterior, interior, and layout). Table 5 shows a sample of the visual observation sheet that represents the Umayyad Mosque's visual data (Great Mosque of Damascus).

Table 5: Sample of Observation sheet for Mosques cases.

Case No.	M1	Name	The Umayyad Mosque	Address	Syria-Damascus

Levels	Exterior	Interior	Layout
Noted	triangle celling to confirm the visual direction towards the "Qiblah."	"Mihrab" a visual and functional needs	Interior space is a rectangular shape to include maximum Prayers
	panting of the trees and rivers in the façade to represent the image of a haven	"Minbar" was used by the Imam during a Friday and Eid Speech.	The use of various gates to allow the prayers to reach the praying place in time
	minarets distributed around the mosque layout for the announcing of pray	"Data" as a place for reading the Quran and repeated what the Imam sound and movement during the praying	The monumental scale used to achieve formal compatibility with differentiating the Islamic building from another
	"Maydi'a" in the middle of the courtyard used for ablution	additional "Mihrab" for practising praying for various Islamic doctrine	The outdoor area courtyard "Sahn" is used as an extension for practising the religion
	geometric pattern in the floor as an abstraction and unity sign which are from the principle of Islam	Round The interior columns, uses as a place to give a lecture and teach.	
		The coloured glass used to reflect the Simplicity of the religion.	

5 Results and Discussion

Although the results come out from various data resources, the triangulation shows the data's validity and supports the analysis of these data.

5.1 The Way of Expression

The theme of results and discussion related to the third objective by analysing two types of data and the textual results represented in word-cloud show the relationship between the aspects and variables with the size of use in the Mosque and Church design. Secondary data support the results by three main categories following expression levels (' Ayar, 2004; Khakpour & Kateb, 2017; Salimi et al., 2016). The levels are exterior, interior, and layout. The results are presented in one visual analysis for the Church, Mosque, and both buildings. However, the results showed the common and differences between churches and Mosques in expression in exterior, interior, and layout. The results showed that the way of expression in interior and exterior design in the church followed the deep and highly symbolic. Iconic and embodiment are highly applied in interior and exterior design as a way of expression. The expression of intangible needs in the layout level presented in the orientation, triangulation, cross shape plan, and vertical space of the church, which secondary data matched partially with the results. Khakpour & Kateb (2017) mentioned that the shape of the church followed the Cross-Symbol.

In the mosque, direct and abstracted symbols are presented in the ornaments, inscription, free space, and surface treatments of the interior elements. The results reflect the influences of religion on expression, confirmed by the literature (Grabar, 1974; Mohammed, 1994; Salimi et al., 2016). The layout used orientation, Simplicity, monumental, unity and diversity as a way of expression. Figure 1 (a) and (b) show the visible results of expression in the Church and Mosque buildings. The size, colour, and relationships between the words show the linking with frequency, importance, and weight of the words in the expression.

(a)Church   (b)Mosque

Figure 1: The way of expression in the Church and Mosque.

5.2 Influenced Elements

This theme answered the second objective of the study. The influenced elements of the exterior, interior and layout of the religious buildings identified in the current theme depend on the collected data from the Interview, visual observation, and observing the documents and literature.

The elements identified in the church's exterior design are; painting, Niche, Cross-Symbol, sculpture, statues, bell, and tower. While the interior elements are; painting, Niche, chairs, paths, The Baptism Basin, Cross-Symbol, Pray-House, sculpture, statues, Coloured Glass, Flexible Furniture, Red Flower Window, and Ornamentations. The church's intangible needs were; Niche, Cross-Symbol, the shape of the plan, and pray house. From the results, the effects of intangible needs are clearly and powerfully works in the interior, exterior, and layout of the religious building in the Christian religion, which reflect the nature of Christianity. The use of painting and figurations is to reflect the nature of humans. Therefore, ornaments, painting, coloured glass included the image of human faces and bodies as literature mentioned (Salimi et al., 2016; Verkaaik, 2019).

In the mosque, the influenced elements are mostly functional elements in the interior, exterior, and layout, which reflect the Simplicity, functionality, and direct symbolic system (Rasdi, 2017) (Grabar, 1974). The mosque has influenced interior design elements are; Prayer-House, Inscription, Niche, Minbar, 'Qibla'-Wall, Ornamentation, and Textual Embodiment. The exterior elements are Inscription, Dome, Minaret, Ablution Place, Courtyard, Ornamentation, 'Hilal', Crescent Dome Symbol, and Plaster Ornamentations. The layout elements influenced by the intangible needs are; Prayer-House, Structure, Dome, Courtyard, and Hall Occasions. Figure 2 (a) and (b) shows the influenced elements in the Church and Mosque, which reflect the important elements in visual word form. The dark blue and bold words reflect the most influenced elements.
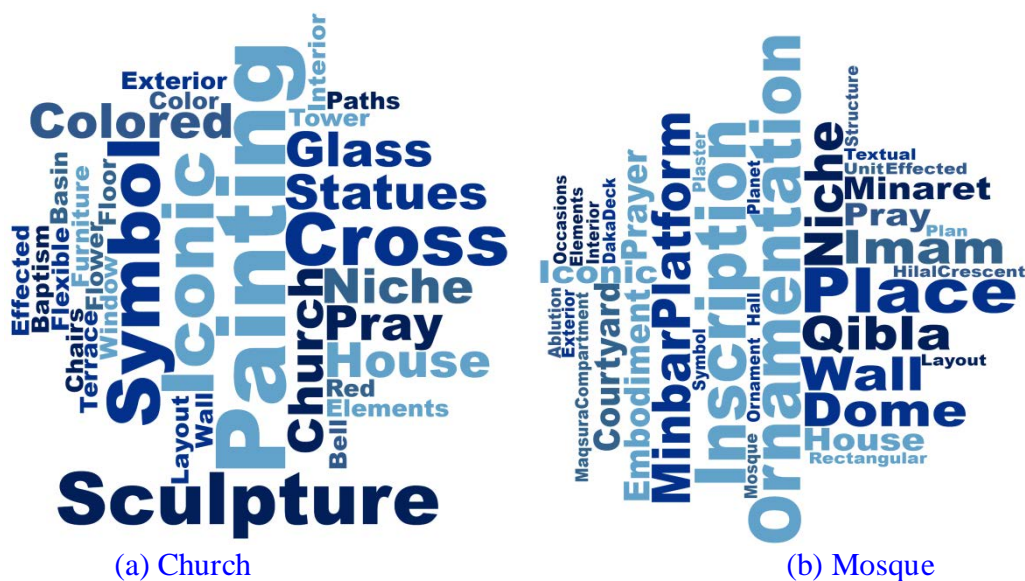
(a) Church   (b) Mosque
Figure 2: The influenced elements in Church and Mosque. (Source: By researchers)

5.3 Intangible Needs

The results of this theme answered the first objective of the study. Religion needs, cultural needs, and spiritual needs are the three types of intangible needs. These aspects are different from one religion to another depending on the nature of the religion, place, and period. The identified religious needs are; area, privacy, cross symbol, Triangulation, Numerical Coding, Painting Embodiment, axiality, and baptising. The spiritual needs are; deep and high symbolic, Openness,

relationship with outdoor, sunlight, music, and vertical direction. The church's cultural needs are; Cultural, wedding, flexibility, musical activities, and bell tones. From the results, the cultural, social, and religious activities in the church are various, which reflect the nature of the intangible needs. Although the variety in activity types, but most of these activated are related to Christianity's preforming.

In the mosque, the intangible need's effects mostly came from religion and performing praying such as low privacy, purity, orientation, Openness, and Simplicity spiritual needs, such as Direct Symbolic, Safety, Ornamentation, Unity and Diversity, interior environment. The cultural needs are; Structure, monumentality, educational activities, cultural and social activities, Textual Embodiment, and Civilisation Challenges. The nature of Islamic religion performing impact the mosque as a building for pure activity, some other activities performed in the courtyard or separate building, such as Occasions halls, which reflect the purity and functionality of the religious buildings (Avcioglu & Rabat, 2007; Rasdi, 2017; Salimi et al., 2016). Figure No. 3 (a) and (b) showed the commons and differences in the intangible needs influences between the church and mosque.

(a) Church   (b) Mosque

Figure 3: The intangible needs to influence the Church and Mosque buildings. (Source: By researchers)

6 Conclusion

The study concluded that the heritage and cultural values influenced the architectural way of expression in the Islamic and Christian buildings. The cultural heritage included the intangible needs that directly influence the formulating and expression system in the main three levels: exterior, interior, and layout. Each level is influenced by religious, cultural, and spiritual needs. The exterior and interior components that generated the religious buildings' layout (Mosque - Church) were influenced by the intangible need in deferent levels. In the mosque, the religious needs strongly influenced the interior design and components indirect. The findings show that the mosque's interior elements like 'Minber', 'Qibla' wall, and other interior elements created directly from the religious needs.

On the other hand, cultural needs have fewer interior design effects, such as inscriptions and textual ornamentation and the monumental scale. While the spiritual needs in interior design have significantly fewer influences than religion and cultural needs. The mosque's layout is influenced by the religious needs directly, which need to orienting toward the 'Kaaba' is a clear influence. The influences of religious needs are existed in the shape of the plan, which takes the rectangular shape, Openness, and oriented to 'Kaaba', which is fully functional required to achieve the religious needs. The cultural and spiritual have fewer influences in the layout. The mosque's exterior is highly influenced by the culture and less for religious and spiritual needs sequentially. The minaret, monumental scale, ornaments, and Hilal symbol are the clear influences in the mosque's exterior.

The church was formed by religious, cultural, and spiritual needs using the Cross-Symbol, painting, coloured glass and embodiment influence cultural, religious, and spiritual needs in interior design. The exterior is influenced by cultural needs, such as the bell tower, Cross-Symbol, dome, and symbolic and iconic system. The influences of religion and spiritual needs are less than cultural needs. The layout is influenced by cultural needs, which shape plans and vertical shapes are the main influenced. The shape plan is inherited from the Basilica plan, which after that shifted to the cross shape. The cross shape of the plan is a mixture of religious and spiritual needs.

7 Availability of Data and Material

Data can be made available by contacting the corresponding author.

8 Acknowledgement

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10 Appendix

Appendix A: Thematic and coding of the textual data collected from experts.

	Church			Mosque		
Themes1	**Intangible needs**					
Notes codes	Religion–Needs	Spiritual–Needs	Cultural–Needs	Religion–Needs	Spiritual–Needs	Cultural–Needs
	Area	Deep Symbolic	Cultural– Activity	Area	Direct Symbolic	Structure
	Privacy	Height Symbolic	Wedding–Activity	Privacy	Inscription Iconic	Environment
	Painting–Iconic	Cross–Symbol	Baptizing–Activities	Purity	SAFE	Cultural–Activities
	Niche	Angle Symbolic	Flexible Furniture	Direction	Quite	Religion–Activates
	Chairs	Wheat Symbolic	Music –Activities	Orientation	Inscription	Educational–Activities
	Paths	River Symbolic	Bell–Tones	Simple Outline	Direct Symbolic	Dome
	Ritual–Area	Music		No Visual Obstacle	Ornamentation	Roofing Methods
	Prayers–Area	Church Height		Niche	Inscription	Maqsura Compartment
	Priest–Area	Openness		Minbar–Platform	Textual Embodiment	Courtyard
	Synagogue–Area	Sunlight		Ablution Place	Unity & Diversity	Inscription
	Baptism Basin			Large Space	Interior	Ornamentation
	Painting			Niche		Surfaces Treatment
	Iconic			Dhaka Deck		Inscription
	Cross–Symbol			Minaret		Textual Embodiment
	Simple Cross			Ablution Place		Planet Embodiment
	Symbolic			Courtyard		Arabic Text
	Angle Symbolic			Area		Ornamentation Unit
	Wheat Symbolic			Abstraction		Activity
	River Symbolic			Minaret		Monumentality
	Music			Simplicity		Scale
	Sculpture			Minbar Platform		Unity, Diversity
	Statues			Niche		Civilisation Challenges
	Coloured Glass					Interior
	Fixed Furniture					Hall Occasions
	Church Bell					
	Church Tower					
	Bell Tones					
	Embodiment					
	Iconic					
	Sculpture					
	Statues					
	Painting					
	Painting Embodiment					
	Numerical Coding					
	Red Flower Window					
	Painting Coloured Glass					
	Triangulation					

Themes2 — Influenced Elements

Notes	Exterior	Interior	Layout	Exterior	Interior	Layout
codes	Painting-Iconic	Painting-Iconic	Niche	Inscription Iconic	Prayer-House	Prayer-House
	Niche	Niche	Cross-Symbol	Dome	Inscription Iconic	Structure
	Painting	Chairs	Pray-House	Minaret	Niche	Plan
	Iconic	Paths		Ablution Place	Minbar-Platform	Rectangular
	Cross-Symbol	Terrace		Courtyard	'Qibla' Wall	Dome
	Painting	Baptism Basin		Inscription	Dome	Courtyard
	Sculpture	Painting		Ornamentation	'Daka', Deck	Hall Occasions
	Statues	Iconic		'Hilal', Crescent Symbol	'Maqsura' Compartment	
	Church Bell	Cross-Symbol		Ornamentation	Inscription	
	Church Tower	Painting		'Qibla' Wall	Ornamentation	
	Iconic	Sculpture		Inscription	Inscription	
		Statues		Minaret	Textual Embodiment	
		Pray House		Plaster Ornamentation	Planet Embodiment	
		Coloured-Glass			Ornament Unit	
		Colour Wall And Floor				
		Flexible Furniture				
		Painting				
		Sculpture				
		Statues			Niche	
		Red Flower Window			Ornamentation	
		Painting Coloured Glass				

Themes3 — Way Of Expression

Notes	Exterior	Interior	Layout	Exterior	Interior	Layout
codes	Deep Symbolic	Deep Symbolic	Orientation	Direct Symbolic	Direct Symbolic	Orientation
	High Symbolic	High Symbolic	Vertical Space	Inscription Iconic	Inscription Iconic	Simplicity
	Painting-Iconic	Painting-Iconic	Triangulation	Simplicity	Simplicity	Simplicity
	Niche	Niche	Niche	Inscription Iconic	Free Space	Monumental
	Painting	Painting		Abstraction	Inscription Iconic	Scale
	Iconic	Iconic		Orientation	Abstraction	Unity, Diversity
	Symbols	Symbols		Inscription	Orientation	
	Painting	Painting		Abstraction	Crescent Symbol	
	Embodiment	Music		Simplicity	Surfaces Treatment	
	Symbols	Embodiment			Inscription	
	Sunlight	Symbols			Abstraction	
	Bell Tones	Sunlight			Ornament Unit	
	Numerical Coding	Colour Wall And Floor			Simplicity	
	Embodiment	Embodiment				
	Iconic	Iconic				
	Painting Embodiment	Numerical Coding				
	Triangulation	Painting Embodiment				
		Triangulation				

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