

Strengthening the architectural identity of Makkah Al-Mukarramah's buildings: an assessment of the impact of laws and regulations

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Abstract

The Kingdom of Saudi Arabia's future vision (Vision 2030) focuses on the enhancement of the urban and architectural identity of cities, where in (2022) King Salman Charter for Architecture and Urbanism was issued to improve residents' quality of life through the establishment of architectural environments that emphasize cultural and environmental heritage while also simulating future developments. Makkah Al-Mukarramah is distinguished by its religious uniqueness being the ground of the Holy Mosque and a set of natural factors, all of this influenced the formation of its distinctive architectural identity over time, However, for the sake of development projects, and expansion of the Haram Al-Sharif, demolition of many of Makkah's old neighborhoods occurred leading to declining the city's historical urban fabric, this development was governed by regulations and rules that focusing only on organizational aspects without considering the architectural identity. This crystallizes the research problem in two main points: "What are the regulations and legislation that led to Makkah losing its distinctive architectural identity?" "What function may legislation and laws possibly play in the long-term rehabilitation of Makkah's distinct architectural identity?" The purpose of this research is to define the architectural and urban identity, as well as the major factors that influence them. Also, investigate the impact of the urban development of Makkah on the city's architectural identity. And the extraction of design requirements for the control of architectural identity. The research uses a theoretical approach to understand the principles of architectural identity and character, as well as to measure the influence of laws and regulations on preserving and enhancing the architectural identity. a descriptive-analytical approach to analyze the laws and regulations related to the architectural identity of several selected cities; to come at a set of criteria that contribute to preserving the identity, following that, a questionnaire is developed for the opinion of academic architects as well as engineers specialized in this field, to try to find the flaw that caused the loss of character and to make some recommendations to correct the flaws caused by lack of attention to architectural identity.

Keywords Architectural identity · Architectural character · Makkah Al-Mukarramah · Architectural regulations · Laws · And regulations

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1 Introduction

Architecture is influenced by natural variables such as climate and geographical location, as well as human variables such as religious and social concerns. These aspects serve as the fundamental foundation for the establishment of norms that contribute to the formation of architectural identity in various parts of the world at various times [15].

1.1 Identity and heritage

In linguistics, identity refers to the same thing and its reality, however in philosophy, identity refers to the reality of something that separates it from others [6], and some specialists describe it as the possession of a thing with a special essence. Identity is a broad, holistic term that can be characterized as an intellectual state that develops in a person through a series of affiliations that reflect his connection to his society, culture, and civilization. It can be characterized as a process of production and formation that is influenced by people's cultural and social circumstances. Some experts believe that there is a connection between tradition and identity. This is because tradition is one of the most fundamental axes that explain the notion of identity, and it plays a significant part in determining the scope that it expresses [1].

The relevance of architecture is demonstrated in showcasing the identity of civilizations by interpreting and expressing them through edifices and buildings that express the importance of the place's identity. As a result, the architectural identity is produced via the use of certain features that express it, and architecture is an efficient means of showcasing the community's identity and distinguishing it from other cultures [1].

Some specialists defined architectural heritage as facilities and buildings that have stood the test of time and proven their originality in the face of various continuous factors of change, earning them a high moral value until they became a witness to the era that chronicles the place

and connects the human being with his environment, emphasizing the importance of architectural heritage as a constant reference. It motivates architects, property owners, and researchers to develop better buildings and environments [5].

1.2 Character

The urban character is the functional and visual arrangement of the place, and urbanization takes on its particular character and shapes through the peripheral experience of space, and the character of cities distinguishes them from one another [3].

Architectural character is influenced by the surrounding environment; therefore, buildings take on a shape that corresponds to the surrounding environment, and via these cultural and spatial influences, a collection of distinguishing traits that comprise the architectural character is produced [3].

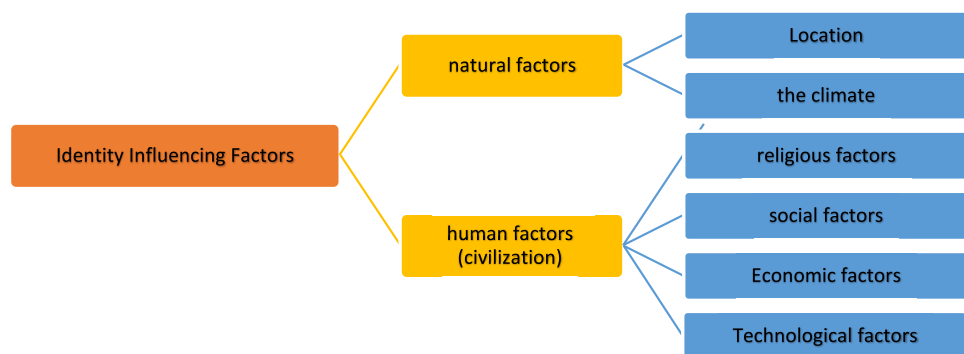
1.3 Factors affecting architectural identity

Different towns and regions' architectural forms have traits and language that differentiate them from one another and constitute their unique architectural character. Many influencing variables impact the character, which is split into two categories: natural causes such as "temperature and the basic shape of the site" and "civilized" human factors such as "religion, politics, and social factors" [17] (Fig. 1).

1.4 Hijazi architectural identity

The western region's architecture is distinguished by the diversity of functions, the use of stone and brick in construction, and the use of light in finishing the building [2]. Hijazi architecture is further distinguished by the use of architectural terminologies such as rawashin and shwa-beer, as well as geometric and botanical inscriptions on woodwork or light etching [13].

Fig. 1 Illustrates the variables influencing Architectural identity (researchers)



1.5 Makkah Al-Mukarramah's architectural identity

Makkah was honored as the Prophet's birthplace, the landing spot of revelation, and the home of peace. Makkah is rich in distinct and authentic architectural and urban history since it comprises various historical places related to Islamic identity [16]. The use of native materials like stone, bricks, wood, and clay, as well as the utilization of light, is one of the most distinguishing features of Meccan architectural identity. Finishing and decoration work, as well as architectural treatments owing to the area's terrain, such as building on many stories and employing exteriors instead of courtyards, as well as architectural treatments connected to the climate, such as the use of brushes in apertures and flanges in roofs [14].

The research gap symbolizes the lack of specific norms or requirements that support the architectural character of the location and maintain the architectural legacy in Makkah, which resulted in two problems: The first is those earlier construction initiatives in Makkah resulted in the loss of a substantial portion of the region's architectural fabric, This resulted in the deterioration of the place's architectural identity and the loss of many historic buildings with distinctive character, and the second is that modern constructions lack standards that support the architectural character and unity of the site.

The purpose of this research is to establish some theoretical ideas such as architectural and urban character and identity, as well as the fundamental variables influencing them. Also, investigate the impact of urban development in Makkah on the city's architectural character. And to control the architectural character through achieving architectural design needs. And an attempt to identify flaws in architectural criteria relating to the character of Makkah. And make recommendations that help to correct the flaw caused by a lack of attention to architectural character.

2 Materials and methods

The research methodology used the descriptive approach to study and describe the architectural identity of Makkah and the architectural requirements in Makkah and case studies, then the analytical method by studying the building requirements in several locals, regional, and global regions, by studying the requirements related to the exterior components of the building, which are:

- Entrance.
- The building's boundary is surrounded by corridors.
- Interfaces and openings.
- Awakening and recoiling.
- Bloc.

- Finishes and colors.

This is done to derive design criteria for facades that may be used to gauge the level of interest in the architectural character in the study model, as well as basic criteria for setting requirements that preserve the architectural character in the study model. A criterion for selecting cities to be studied has been established: they must have documented, specific, and published requirements for buildings and high-rise buildings both locally and in the regional and international environment.

And a questionnaire was created to measure opinion as a primary tool for finding answers to the study's problem by presenting it to a subset of the target groups. There were also several limitations to the research, such as geographical spatial determinants, where the study will be limited to the part located within the central region or on one of the main axes of Makkah, or both, and the qualitative determinant of the function of the building, which is whether the building is a hotel or intended for pilgrim housing.

3 Results and discussion

3.1 Architectural vocabulary in Meccan architecture

See Table 1.

3.2 An analytical study of the architectural requirements related to character



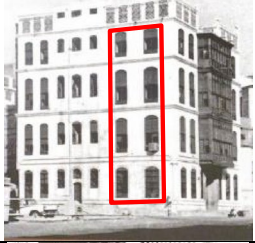
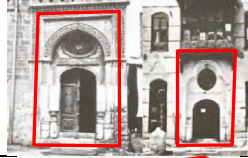

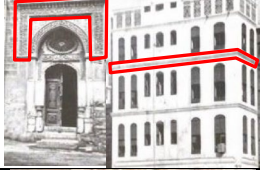

This area of the research focuses on the study of construction requirements in various local, regional, and worldwide regions, including the requirements linked to the outside components of the building:

- Entrance.
- The building's boundary is surrounded by corridors.
- Interfaces and openings.
- Awakening and recoiling.
- Bloc.
- Finishes and colors.

3.2.1 Entrance

- Madinah's center area, where the construction handbook for the neighborhoods of Madinah's central area stipulates that the main entrances be emphasized so that pedestrians may clearly distinguish them. This may be seen in the design of the facades as well as the horizontal planes. 1432 [7].

Table 1 Shows the architectural features that contribute to the development of the Meccan edifice [12]

No	Element	Description	photo
1	Entrance	It is composed of a variety of materials, most notably wood, and iron, and it comes in a variety of sizes, with the size reflecting the importance of the building or its usage. It is also embellished with floral or geometric motifs, and it is frequently accompanied by a necklace adorned with inscriptions and embellishments made from the inflorescence's material.	
2	Rawashin	It is made of wood and is an architectural element that sticks out from the building's boundaries. It comes in a variety of shapes and sizes and is decorated with a variety of geometric and plant designs and motifs.	
3	windows	It is built of wood and has an increase in height relative to its breadth, and its end is arched or flat, and it often has a set of flaps that can be manipulated to provide air and daylight, as well as geometric shapes and floral motifs.	
4	Arches	They come in a variety of shapes and sizes, including triangular, pointed, semi-circular, and compound knots, with the pointed knot being the most widely employed.	
5	Al-Shwabeer (Al-Sutrah) (Rooftop boundary)	It is constructed of brick (a substance used to create bricks) and is located at the top of the building (Al-Sutrah). Its purpose is to allow air to flow while protecting the privacy of the surface. It is painted in a variety of colors to create geometric shapes that add to the beauty and distinction of the facade.	
6	ornaments	They are botanical, geometric, or textual inscriptions and motifs used to embellish the building's exterior or one of its vocabulary components. They are composed of a variety of materials, the most prominent of which are light and wood.	
7	Muqarnas	They are geometric embellishments that are typically made of stone and are carved and combined to make noticeable and hanging geometric shapes. They are made up of stalactites and stalagmites that seem like beehives and are organized in layers one on top of the other. They can be found in columns, domes, arches, and other buildings.	

- The core district of London (Canada): the requirements verified that regression from the facade line is permitted in the case that building entrances are given. individual construction [8] (Fig. 2).

3.2.2 The building’s boundary is surrounded by corridors

- To ensure pedestrian path continuity, the building manual for the neighborhoods of Medina’s [7] core area calls for covered pedestrian walkways in front of the facades viewing the streets, which are linked to the pedestrian paths of nearby buildings. Except for the arches of the main entrances and the entrances to the part designated for parking, the arches on the front of the pedestrian corridor are complete, and it is not accepted to build part of the arch with the unification of the shape of the arches in a semi-circular shape, and the unification of their heights as well. Corridors are next to multiple buildings so that the oldest is the reference while preventing electrical or plumbing installations or false ceilings to guarantee that the overall appearance of the corridors is not compromised (Fig. 3).

3.2.3 Interfaces and openings

- The criteria in the central district of London (Canada) [8] stressed attention to aesthetic features in the design of the facade such as (Corniche lines, colors, and windows), stressing its autonomous individuality, and its complements and does not overpower the buildings surrounding it. The percentage of glass used in the facade of the stores should be between 40 and 50%.
- Concerning the basement floors, the building is required to be constructed with a height of 4.5 m on the ground floor, and a relationship is taken into account in the height of the ground floor from the base and the ground floor in the adjacent residential buildings, and the height of the base of the building is parallel to the height of the base in the neighboring buildings if any, and in the absence of its presence The constructed building adheres to the minimum height between 3 and 5 floors, and if the building is on a corner, the height of the base in the streets must change according to the neighboring buildings on each street (Table 2).



Fig. 2 Shows examples of the application of the entrance requirements in Medina’s central region (researcher)



Fig. 3 Shows models of the standards’ application in contiguous covered corridors (researcher)

3.2.4 Awakening and recoiling

- The criteria in the central area of the city of London (Canada) [8] indicate that the setback of the center area of the building shall not be less than 3 m from the mass of the base; it shall not be less than 12.5 m from the midway line and the side and rear land boundaries.
- The requirements of the National Organization for Urban Harmony [18] are confirmed in the Zamalek area of Cairo (Egypt), that in the event of adding new roles to heritage buildings or buildings of outstanding value; the current roof must be preserved and retracted so that its appearance is not distorted, and Fig. 4 illustrates the problem that the brochure hopes to avoid in the future.

3.2.5 Bloc

- The standards for building mass in the core district of London (Canada) [8] stressed the distribution of the

building’s mass to include the whole facade line. Large gaps of more than 10 m are not recommended, and any gaps must be covered with artificial facades or natural walls at the same construction level as the building.

- If the site is on a corner, the building’s block must be on the corner, and in the case of tower buildings, the highest block should be in the corner, and if the building is located on a large angle, the building is closer to the wide street, and in the case of tall buildings, the building is divided into three parts (base, middle, apex), and adhere to the base of what was mentioned above in the construction line confirmation (Table 3).

3.2.6 Finishes and colors

- In the Zamalek district of Cairo (Egypt) [18], it was underlined in the building criteria that the finishing of new buildings close to heritage buildings should take into account the manner of completing them to fit with and not clash with the heritage buildings. To

Table 2 Analytical table of interface and opening requirements (rephrased by the researcher) [8]

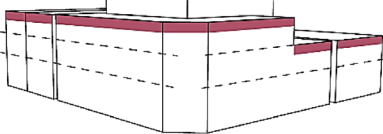
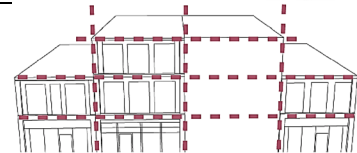


NO	Photo	Description
1		In tower buildings, the lines of the base floors must be parallel to one another, and if the building is at an angle, the height of the base must be modified to be parallel with the neighboring buildings on each street.
2		Floor and cornice lines in neighboring buildings must be coordinated, taking into account the parallelism of the baselines in the windows.
3		The height of the floors in the surrounding buildings must be united with the commercial ground floors, taking into account that the percentage of glass in them should not be less than 40% to 50%.
4		It should be noted that the proportion of glass on the upper floors should not be less than 30%.

Fig. 4 Shows the problem before the demand and the necessity to solve it [18]

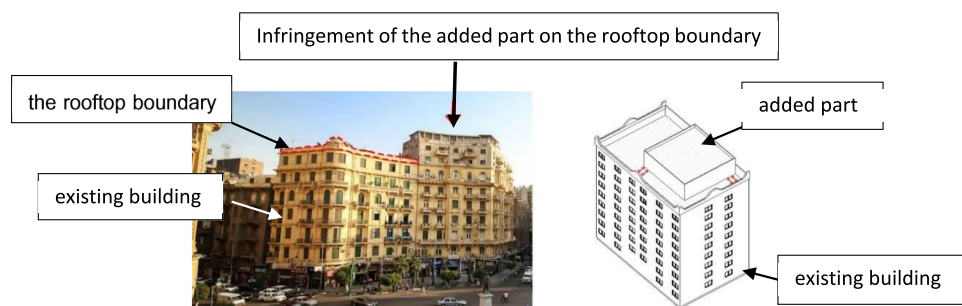
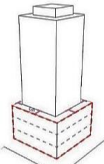
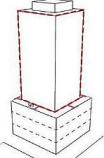
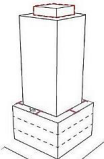


Table 3 Showing high-rise building block division

NO	Description	Photo
1	The lowest section of the block is known as the "base of the building," and it consists of the ground floor and service floors. It is dedicated to construction as near to the building line as feasible to retain the continuity of the traffic lanes that surround it.	
2	The middle section, which includes the remaining floors up to the roof, must retreat from the base mass by at least 3 m.	
3	The summit is the upper part of the building, and it must be designed to contribute to the aesthetic of the area's skyline.	

match the heritage buildings, wooden windows were used instead of aluminum windows. In addition, mirror glass, stainless steel, and industrial fittings for air conditioning are not permitted.

- Several major factors were emphasized in the choosing of facade materials in the architectural needs of the central district of London (Canada) [8] namely:
 - a. Choosing high-grade materials to help improve the region's quality.
 - b. The building materials that are suggested for use (cut stone, brick, concrete, curtain glass).
 - c. Choosing non-reflective materials to protect birds from collisions with large buildings.

3.2.7 Conclusions of an analytical study of the architectural requirements related to character

See Table 4.

3.3 Makkah Al-Mukarramah: case study

3.3.1 The current state of architecture in Makkah's Holy City

The city of Makkah suffers from the fading of most historical features as a result of contemporary development and the formation of development projects in Makkah inside and beyond the city's central zone [9, 10]. The classification results in the loss of a large part of the distinctive urban fabric of Makkah, as well as the loss of the majority of architectural monuments within the central region,

due to the policy of removal and replacement to maximize economic return, but this policy results in the loss of the distinctive historical character of Makkah's heart (the central region) [11].

3.3.2 By reading the regulations, it becomes clear [4]

- The following rules govern the shape and character of the building:
 - The maximum percentage of construction on the ground floor is 50% of the land area.
 - The project may surpass the maximum number of roles allowed, as long as it does not exceed double (other than service roles).
 - Design innovation and creativity, as well as highlighting the characteristics of Islamic and local architecture and the project's urban features.
- There is no definition or concept of what constitutes Islamic or local architecture, and this is left to the discretion of the Secretariat's Distinguished Projects Committee.

3.3.3 Analytical study of chosen architectural models in Makkah Al-Mukarramah

- Model selection criteria:
 - That the model is positioned inside the spatial boundaries established by the research (within the

Table 4 Shows the criteria derived from the analytical study





Character	Standards
Entrance	<ul style="list-style-type: none"> • Highlighting and differentiating the entry block so that passersby can see it
The building’s boundary is surrounded by corridors	<ul style="list-style-type: none"> • Demanding that contracts be used to adorn basements
Interfaces and openings	<ul style="list-style-type: none"> • Using local architectural vocabulary (Meccan) • Considering the parallelism of the baselines in neighboring buildings’ windows • Taking into account, as much as practicable, the similar heights of service levels in nearby buildings
Awakening and recoiling	<ul style="list-style-type: none"> • Allow architectural vocabulary like the rawashin to emerge from the building, with the greatest protrusion determined by the width of the street from which it protrudes
Bloc	<ul style="list-style-type: none"> • A continuous building line that is not built before or after another • Buildings are divided into three sections (base body crown) • Considering the design of the tops of buildings in a way that contributes to the attractiveness of the city’s skyline • If the buildings are adjacent to each other, the heights must be harmonized, with the oldest building serving as the reference
Finishes and colors	<ul style="list-style-type: none"> • Encourage the use of natural materials in the completion of buildings whenever possible, and if this is not possible, materials with a comparable character are utilized • In the case of adjacent buildings, the colors of the finishes must be constant while still allowing each structure to have its personality • Glass materials must be united in the same building, with low reflecting coefficient glass being used • Choosing a set of materials and colors to be utilized in finishing, and if they are not available, using alternative materials that are similar in texture and color • The use of a maximum of four finishing materials in the same structure must be considered, as must the consistency of the materials used in the same building



central region or on one of the main axes of Makkah or both).

- The form should be placed on a major thoroughfare.

- The building’s height should be greater than ten stories.
- The building should be used as a hotel or to house pilgrims.

Model No. 1 analysis: A hotel building on the immigration road		
		<p>The bloc: The foundation was completed with imitation marble, reflective glass was used to clad the apertures, and the remainder of the building was clothed with reflecting glass that differed in color and proportions from the glass used in the base block, with the simple use</p>
<p>Location: The building is located near Umm Al-Qura University for Girls in Al-Zaher on Al-Madinah Al-Munawara Road.</p>	<p>Entrance: The entrance was distinguished by a pointed arch that was wider than the other archers on the front, encircled by geometric inscriptions, and flanked by two columns crowned with stalactites. The entry was further confirmed by an arch above it, which ran from the second to the eighth recurring floor.</p>	

		of aluminum as a formative element.
Interfaces and openings: the service levels are ornamented with three-story-high pointed arches split by rectangular frames and capped with one-story-high interlaced tapered arches.	Awakening and recoiling: The lower levels of the building withdraw about 5 meters from the street, and there is a protrusion of about a meter in part of the repeated floors, and there is no architectural vocabulary noticeable from the building.	Finishes and colors: The finishes were made from three different materials (GRC in beige and black on the service floors and artificial marble on the repeated floors, and the openings were covered with black reflective glass).
Model No. 2 analysis: Al Kiswah Towers Hotel Building		
		
Location: The building is situated at the crossroads of Al Madinah Al Munawara Road and Al-Hikmah Street.	Entrance: The entrance is enclosed by a two-story-high rectangular frame that is identical to the frames that run along the building's exterior but does not differentiate the entrance.	The bloc: The base was polished with imitation marble, and the apertures were covered with reflective glass. The remainder of the building was clad with reflecting glass that differed in color and proportions from the glass used in the foundation block, with minor usage of aluminum as a formative element.
Awakening and recoiling: The lower levels of the building withdraw about 5 meters from the street, and there is a protrusion of about a meter in part of the repeated floors, and there is no architectural vocabulary noticeable from the building.	Interfaces and openings: There are no distinguishable facade characteristics or language in a smooth facade with window openings, save for the geometric inscription at the top of the frames that surround the base of the building.	Finishes and colors: The building's base is completed with artificial marble, while the rest of the building block is made of precast concrete, with blue reflective glass covering the openings.
Model No. 3 analysis: Hotel apartment building.		
		

<p>Location: The building is situated at the crossroads of Al Madinah Al Munawara Road and Al-Hikmah Street.</p>	<p>Entrance: The entryway is two floors high and entirely made of glass, making it easily identifiable.</p>	<p>The bloc: The building block is a simple rectangular shape, with a protrusion after the mezzanine floor, and the lower stories have less glass than the rest of the floors.</p>
<p>Awakening and recoiling: The third story of the building protrudes by about a meter, and this protrusion extends to the end of the building.</p>	<p>Interfaces and openings: Some vocabulary from Islamic architecture was used on the facade, such as the pointed contracts on the service floors and the triangular contracts in the upper stories, as well as basic geometric inscriptions on the service floors.</p>	<p>Finishes and colors: Artificial marble was used to finish the ground and mezzanine floors. Prefabricated GRC facades were used on the remaining floors, and blue reflective glass was used to encase the apertures.</p>
<p>Model No. 4 analysis: Meydan Hotel Building</p>		
		
<p>Location: The building is located on Prince Sultan Abdul Aziz Road, just after the Shaab Amer Tunnel, on the way to Aziziya.</p>	<p>Entrance: The entry is not distinguishable from its surroundings, but the apertures from the mezzanine floor above it have been modified to indicate its location.</p>	<p>The bloc: To sustain the mass of the hull, the base was finished with artificial marble and ornamented with a group of marble columns. The apertures were wrapped in reflecting glass, while the rest of the building was covered in reflective glass and imitation marble, with GRC serving as a formative feature.</p>
<p>Awakening and recoiling: There is a distinct protrusion of less than a meter from the tower at the base.</p>	<p>Interfaces and openings: The facade alternates between solid and open elements, although the ground level and solid mezzanine dominate, while the other stories are mostly open.</p>	<p>Finishes and colors: Artificial marble was used to finish the ground and mezzanine floors. The remaining floors were finished with imitation marble and ready-made GRC, with blue reflecting glass cladding the openings.</p>

3.4 A questionnaire for professionals and academics on Makkah Al-architectural Mukarramah’s identity

This questionnaire was created to be a primary instrument for creating answers to the study’s problem, and it is an

electronic questionnaire designed on the Google Forms platform to ease distribution to the study population. The statistical analysis was completed around two months ago to arrive at the questionnaire results.

3.4.1 Study limitations

This study was directed to two samples represented:

- Form No. (1) addressed to (for employees of secretariats, municipalities, and engineering offices specialized in issuing building permits).
- Form No. (2) directed at (academic architects, students, and graduates of architectural specialties).

with a period for participation ranging from 10/13/1442 AH to 30/11/1442 AH.

3.4.2 Governing elements

This questionnaire was created with a set of control elements that govern its orientation in mind. This questionnaire is divided into two sections:

- The first section attempts to identify the significance of architectural character, ascertain the research problem, identify the reasons for this problem, and the relevant solutions; this section includes 11 questions; 9 required multiple-choice questions and two optional open-ended questions.
- The second half of the questionnaire is made up of ten mandatory questions with a multiple-choice method. This section tries to incorporate the two groups' perspectives on a set of criteria and specified requirements for upgrading the architectural character.

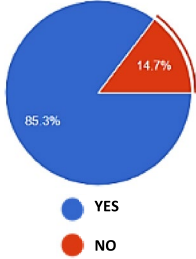
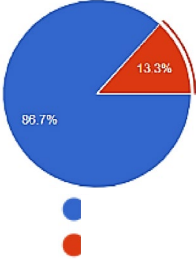
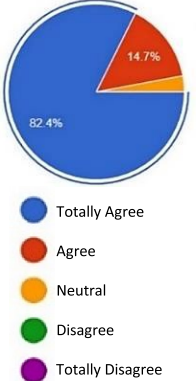
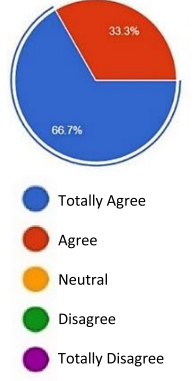
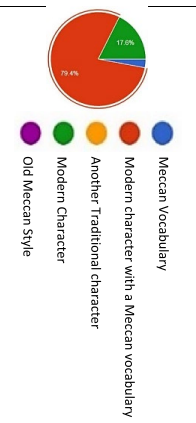
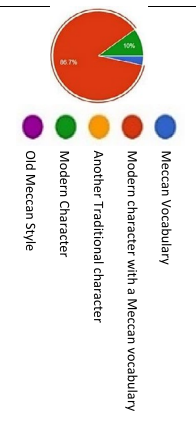
3.4.3 Mechanisms of the questionnaire

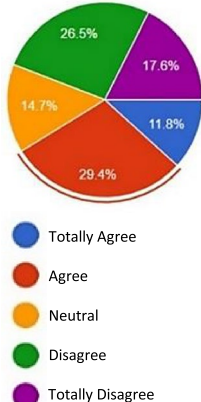
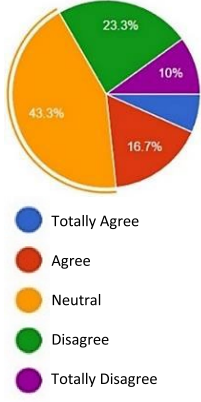
The researchers followed the following procedures to carry out this study:

- 1- Preparing the theoretical framework: a review of numerous past studies relating to the subject of the inquiry.
- 2- Developing a set of questions and then refining and decreasing them depending on the importance of the question, its relevance to the topic of the study, the clarity of its wording, as well as the question's shortness and ease of resolution.
- 3- The initial form was provided to a group of specialists in the field of research to form an initial sample to test the compatibility of the form's content to the study sample.
- 4- The re-audit and modification stage: the study instruments were updated based on the results of the initial sample and the opinions of the specialists, and the final form of the form was obtained as a result.
- 5- Application of the study tools: in their final form, on the study's main sample.
- 6- Conducting statistical analyses: obtaining numerical findings that directly convey the viewpoint of the study sample and concluding.
- 7- Discussing and interpreting the study's findings.
- 8- Deriving and composing the proposed recommendations.

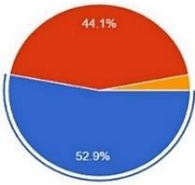
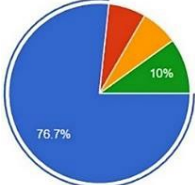
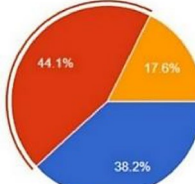
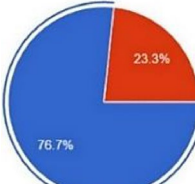
3.4.4 The questionnaire's first section

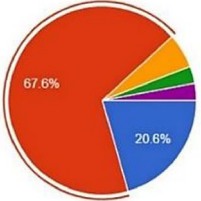
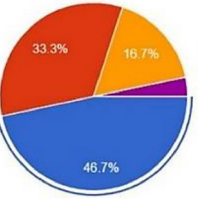
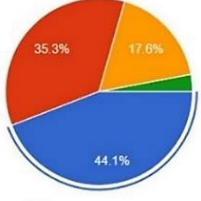
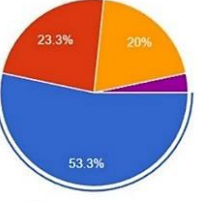
The answers to the first section of the questionnaire for Model No. 1 and Model No. 2 will be displayed in a graph under this title.

A table showing the answers to the questions of the first section of Form No. 1 and Form No. 2.			
1	Question No. 1: Do you live in Makkah, the Holy City?		
	<p>Form No. 1</p> <p>85.3 % of those polled responded (yes) 14.7 % of those polled responded (no)</p>  <p>● YES ● NO</p>	<p>Form No. 2.</p> <p>86.7 % of those polled responded (yes) 13% of the participants responded (no)</p>  <p>● YES ● NO</p>	
2	Question No. 2: Do you think any city must have a particular architectural character?		
	<p>Form No. 1</p> <p>We understand that the most popular response is 82.4 % agree, followed by 14.7% agree, followed by Neutral of 2.1 %, indicating the importance of a specific architectural identity for any community.</p>  <p>● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree</p>	<p>Form No. 2.</p> <p>We see that the most popular response is 66.7 % fully agree, followed by 33.3 % agree, indicating the importance of a distinct architectural character for any community.</p>  <p>● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree</p>	
3	Question 3: Which one do you choose if you want to build?		
	<p>Form No. 1</p> <p>We observe that the most preferred answer is the modern character, with the usage of Meccan terminology; where 79.4 % of participants prefer it, 17.6 % prefer the modern style, and 3.3 % prefer the Old Meccan style.</p>  <p>● Old Meccan Style ● Modern Character ● Another Traditional character ● Modern character with a Meccan vocabulary ● Meccan Vocabulary</p>	<p>Form No. 2.</p> <p>We will see that the most popular option is the modern character with Meccan vocabulary; it is picked by 86.7 % of the participants. While 10% prefer modern construction, while only 3.3% favor the Old Meccan style.</p>  <p>● Old Meccan Style ● Modern Character ● Another Traditional character ● Modern character with a Meccan vocabulary ● Meccan Vocabulary</p>	

4	Question 4: Do you think there is a distinct architectural feature that distinguishes Makkah?	
	<p style="text-align: center;">Form No. 1</p> <p>29.4 % said they agreed, 11.8 % said they fully agreed, 26.5 % said they disagreed, 17.6 % said they disagreed, and 14.7 % said they agreed with Neutral.</p> 	<p style="text-align: center;">Form No. 2.</p> <p>We can also see that 43.3 % chose (Neutral), while 23.3 % chose (I do not agree), 10% chose (completely disagree), 16.7 % chose (agree), and 6.7 % chose (disagree) (totally agree).</p> 
5	Question 5 (Optional): If you answered (I don't agree or fully disagree) to Question 4, what are the indications of architectural character loss in your opinion?	
	<p style="text-align: center;">Form No. 1</p> <ul style="list-style-type: none"> • People's lack of knowledge of the architectural character's aspects, as well as the cost of the Meccan character's vocabulary due to a lack of working hands on it, as well as the quoting of some aspects from the West and their application without regard for Makkah Al-architectural Mukarramah's identity. • There is no common denominator across similar buildings (for example, family residences and motels). A common architectural character must be created for the architecture as a whole; it should be in areas or neighborhoods, with the need for all formations to have a common spirit, and it should be in line with the spirit of the place and its original, ancient architectural character while making this available and obligating everyone to do so. • The vast majority of buildings, especially neighborhood buildings and public streets, do not convey any initial impression of any character or identity that could construct a mental image of the city as a whole. • While there are no limits that apply to all citizens while building and no clear picture of identification are supplied for all engineering offices, as well as when there are no stringent regulations that prevent them from building 	<p style="text-align: center;">Form No. 2.</p> <ul style="list-style-type: none"> • The lack of laws governing architectural orientation, as well as a general public awareness of the necessity of each city having a particular identity. • Corruption of urbanization by developing surrounding the Haram, and it would have been more useful to leave the Sacred Land as God has forbidden, and to extend the development beyond the Haram's bounds, as well as to supply non-polluting electrical specifications. • Yes, there was a distinct and magnificent architectural character in the past. At present, the building owners have tended to the modern character, leaving the city's identity and architectural character intact. • Introducing parts of the modern business structure, which some say is more cost-effective on the surface. • Orientation toward modernity that is incompatible with the surroundings or the specific character of Makkah's Holy City. • Makkah lost its urban and natural identity as a result of the removal of its houses and mountains.

	<p>on their own (violating the secretariats' considerations).</p> <ul style="list-style-type: none"> • The community's proclivity to build traditionally, as well as their ignorance of the fading of the Meccan character in construction. • The vast number of towers in Makkah, without regard for the architectural character, created full pandemonium in the city. 																	
6	<p>Question No. 6: If the response to question No. 4 is (I disagree or disagree fully), what are the indications of architectural character loss in your opinion? (You may select more than one solution.)</p>																	
	<p style="text-align: center;">Form No. 1</p> <p>26.1 % of those who do not believe in the existence of character believe that the inappropriateness of the character to the conditions of the times is one of the reasons for the absence of character, and 87 % believe that the lack of laws that preserve this character is one of the reasons for the absence of character, and 73.9 % believe that the lack of sufficient awareness among people is one of the reasons for the absence of character. One indication of character loss is the importance of character.</p> <table border="1"> <caption>Data for Form No. 1</caption> <thead> <tr> <th>Reason</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Character inadequacy in relation to the circumstances of the time</td> <td>26.1%</td> </tr> <tr> <td>There are no laws in place to protect this character</td> <td>87%</td> </tr> <tr> <td>People's lack of understanding of the significance of character</td> <td>73.9%</td> </tr> </tbody> </table>	Reason	Percentage	Character inadequacy in relation to the circumstances of the time	26.1%	There are no laws in place to protect this character	87%	People's lack of understanding of the significance of character	73.9%	<p style="text-align: center;">Form No. 2</p> <p>21.1 % of those who do not believe in the existence of character believe that the inappropriateness of the character to the conditions of the times is one of the reasons for the absence of character, and 73.7 % believe that a lack of laws that preserve this character is one of the reasons for the absence of character, and 78.9 % believe that a lack of sufficient awareness among people is one of the reasons for the absence of character. One indication of character loss is the importance of character.</p> <table border="1"> <caption>Data for Form No. 2</caption> <thead> <tr> <th>Reason</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Character inadequacy in relation to the circumstances of the time</td> <td>21.1%</td> </tr> <tr> <td>There are no laws in place to protect this character</td> <td>73.7%</td> </tr> <tr> <td>People's lack of understanding of the significance of character</td> <td>78.9%</td> </tr> </tbody> </table>	Reason	Percentage	Character inadequacy in relation to the circumstances of the time	21.1%	There are no laws in place to protect this character	73.7%	People's lack of understanding of the significance of character	78.9%
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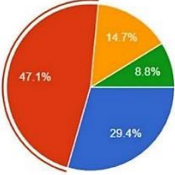
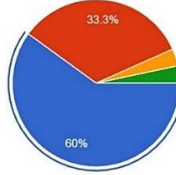
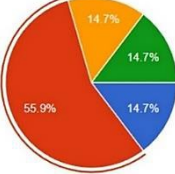
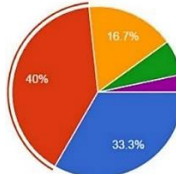
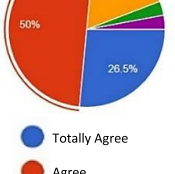
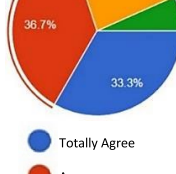
7	Question No. 7: Do you feel that interest in archaeological buildings has an impact on the preservation of the city's architectural character?						
	Form No. 1		Form No. 2				
<p>The majority of participants believe that interest in old structures has an impact on the preservation of the architectural character of the city, with 52.9 % responding (absolutely agree), 44.1 % responding (agree), and 3 % responding with Neutral.</p>		 <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 		<p>Most participants believe that interest in historic buildings has an impact on the preservation of the city's architectural character; 76.7 % answered (totally agree), % answered (agree), and 10% do not agree that interest in archaeological buildings has an impact on the preservation of the city's architectural character, while % answered with Neutral.</p>		 <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	
8	Question No. 8: Do you think that lack of municipal norms and requirements contributed to the loss of Makkah Al Mukarramah's architectural identity?						
	Form No. 1		Form No. 2				
<p>The majority of participants felt that the lack of municipal norms and requirements contributed to the loss of Makkah Al Mukarramah's architectural identity, with 44.1 % responding (agree), and 38.2 % responding (completely agree), and 17.6 % responding with Neutral.</p>		 <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 		<p>All participants agree that the lack of municipal norms and requirements contributed to the loss of Makkah Al Mukarramah's architectural identity. 76.7 % said they completely agreed, while 23.3 % said they disagreed (agree).</p>		 <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	

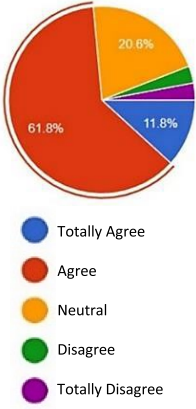
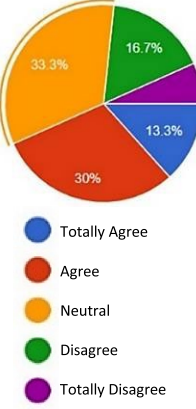
9	Question No. 9: Do you believe that enforcing architectural character standards in a specific region of the city (a central area or a central route) is more possible than enforcing them throughout the city?			
	<p style="text-align: center;">Form No. 1</p> <p>The popular participants believe that implementing architectural character requirements in a specific area of the city (a central area or a central road) is more feasible than implementing them throughout the city; where 67.6 % answered (agree), 20.6 % answered (totally agree), 2.9 percent answered (do not agree), 2.9 % answered (totally disagree), and 5.9 % answered with Neutral.</p>	 <p style="text-align: center;"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree </p>	<p style="text-align: center;">Form No. 2</p> <p>The majority of individuals believe that imposing architectural character requirements on a specific area of the city (a central area or a central road) is more feasible than imposing them on the entire city; 46.7 percent responded (totally agree), 33.3 percent responded (agree), 3.3 percent responded (totally disagree), and 16.7 percent responded with Neutral.</p>	 <p style="text-align: center;"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree </p>
10	Question No. 10: Do you see the point in implementing rules that help to develop the specific architectural character of Makkah Al Mukarramah?			
	<p style="text-align: center;">Form No. 1</p> <p>The majority of participants agree that implementing legislation that assists in enhancing the specific architectural character of Makkah is beneficial. Whereas 44.1 % responded (completely agree), 35.3 % responded (agree), 2.9 % responded (completely disagree), and 17.6 % responded with Neutral.</p>	 <p style="text-align: center;"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree </p>	<p style="text-align: center;">Form No. 2</p> <p>The participants agree that implementing rules that assist in developing Makkah Al-specific Mukarramah's architectural identity is beneficial. Whereas 53.3 % responded (completely agree), 23.3 % responded (agree), 3.3 % responded (absolutely disagree), and 20 % responded with Neutral.</p>	 <p style="text-align: center;"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree </p>
11	Question No. 11 (Optional): If the response to Question No. 10 is (Fully Agree/Agree), what are the recommended laws that could contribute to restoring Mecca's architectural character?			
<p style="text-align: center;">Form No. 1</p> <ul style="list-style-type: none"> • Assigning the matter to specialists and reviewing the laws of issuing licenses for 		<p style="text-align: center;">Form No. 2</p> <ul style="list-style-type: none"> • To begin, promote public knowledge and clarify the answers provided by conventional 		

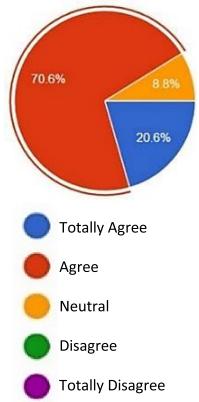
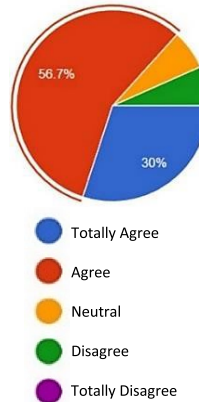
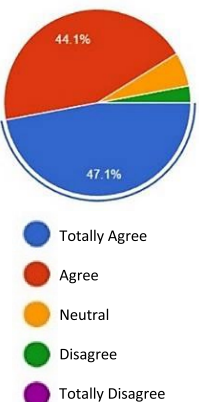
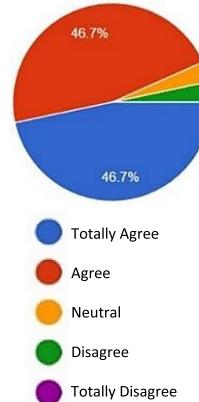
<p>towers without identity to the city, with the largest example being a large number of towers around the Haram, including the Clock Tower, which greatly impacted the spirituality of the Haram and caused the Haram's identity to be blurred.</p> <ul style="list-style-type: none"> • The licensing payments are reduced for those who retain the Meccan architectural identity, or the duration is extended to 5 years instead of 3 years, among other options. • Setting rigorous laws in the implementation process and establishing a guiding reference for all engineering offices. • Developing unified technological models that will be followed in each location. • Improving the facades of historic buildings in stages to give the city a sense of character. • The presence of clear and binding evidence to support the identity. • The municipality is being monitored, and fines are being imposed on individuals who break the approved maps. • Using new materials that can be shaped and adorned to replace Meccan forms in the architectural facade. 	<p>architectural design. Because our society is saturated with imported and wondrous ideas, and does not understand the importance of architectural identity; it is necessary to establish a social awareness first, then to put the laws appealingly, meaning that they do not have many conditions and violations, and then to simplify their proposal to be close to society's awareness.</p> <ul style="list-style-type: none"> • The design should be influenced by Makkah Al-architectural Mukarramah's character, as well as the architectural style with its nuances, not just as facades, but as a whole architectural form. • External building colors and degrees should be uniform, and entire glass facades that do not reveal any identifying details should be avoided. • Creating regulations for government structures and services. • Recruiting volunteer teams to undertake building renovations based on Makkah's architectural heritage. • Seeking parties that support the preservation of old neighborhoods based on Hijazi architectural characteristics. • Encourage and support citizens who embrace this character; Motivate the rest of the population. • Traditional architectural components in major governmental and commercial structures may be required to enhance the matter.
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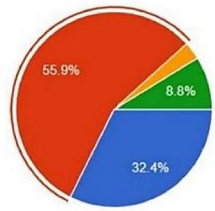
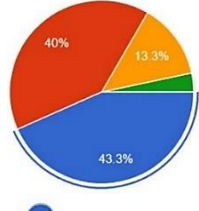
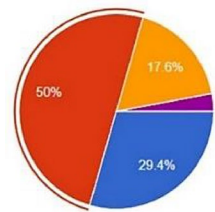
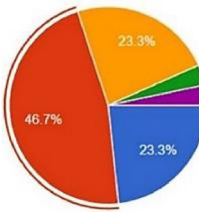
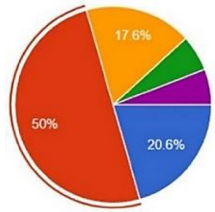
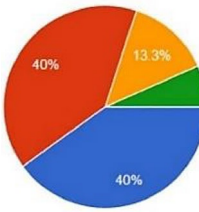
3.4.5 The questionnaire’s second section



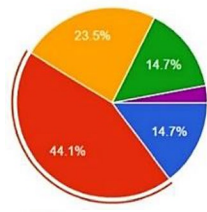
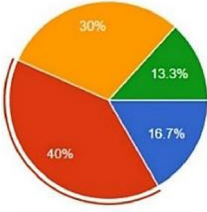
A table containing the answers to the multiple-choice questions on the second section of Forms Nos. 1 and 2. (Researcher)

12	<p>Question No. 12: The emphasis should be on displaying the entrance and making it noticeable to visitors.</p>	
	<p style="text-align: center;">Form No. 1</p> <p>The majority of participants believe that the entrance should be highlighted and visible to passersby, with 47.1 % responding (agree), 29.4 % responding (totally agree), 8.8 % responding (do not agree), and 14.7 % responding with Neutral, confirming</p> 	<p style="text-align: center;">Form No. 2</p> <p>The majority of participants believe that the entrance should be emphasized and made visible to passers-by, with 60 percent responding (totally agree), 33.3 percent responding (agree), 3.3 percent responding (do not agree), and 3.3 percent responding</p> 
	<p>the importance of the entrance and the need to highlight it as a formative element in the building.</p> <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	<p>with Neutral, confirming the importance of the entrance and the need to highlight it as a formative element in the building.</p> <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree
13	<p>Question 13: The height of the entry block must be proportional to the height of the building block, and it cannot be less than two stories high.</p>	
	<p style="text-align: center;">Form No. 1</p> <p>The participants believe that the entry mass and height should be proportional to the building mass and that the entrance block should not be less than two stories high; 55.9 % agreed, 14.7 % agreed, 14.7 % disagreed, and 14.7 % answered Neutral.</p> 	<p style="text-align: center;">Form No. 2</p> <p>The percent of participants believe that the entrance mass and height should be proportional to the building mass and that the entrance block should not be less than two stories high; 40 % responded (agree), 33.3 percent responded (totally agree), 6.7 % responded (do not agree), 3.3 % responded (totally disagree), and 16.7 % responded with Neutral.</p> 
	<ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	<ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree
14	<p>Question 14: Determining a building start line (a building start line on the bottom level, before or after construction, is not permitted) improves the character of the area and the visual coherence of the corridors.</p>	
	<p style="text-align: center;">Form No. 1</p> <p>The majority of those people believe that having a building start line on the ground floor that cannot be built before or after it contributes to improving the character of the place and the visual continuity of the corridors; where 50% answered (agree), 26.5 percent answered (totally agree), 2.9 percent chose (disagree), 2.9</p> 	<p style="text-align: center;">Form No. 2</p> <p>Most of the participants believe that having a building start line on the ground floor that it is not permissible to build before or after it contributes to improving the character of the place and the visual continuity of the corridors; Where 36.7% answered (agree), 33.3% answered (totally agree), 6.7% chose</p> 
	<ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	<ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree

<p>percent said (totally disagree), and 17.6 percent chose Neutral.</p>		<p>(disagree), and 23.3% chose Neutral. Most participants believe that having a building start line on the ground floor that cannot be built before or after it contributes to improving the character of the place and the visual continuity of the corridors; where 50 percent answered (agree), 26.5 percent answered (totally agree), 2.9 percent chose (disagree), 2.9 percent said (totally disagree), and 17.6 percent chose Neutral.</p>																									
<p>15 Question No. 15: In high-rise buildings or buildings (both residential and commercial), the structure must be divided into portions (base - hull - crown), with design controls that match it and identify it from others.</p>																											
<p>Form No. 1</p>		<p>Form No. 2</p>																									
<p>The majority of participants feel that high-rise buildings or structures (both residential and commercial) should be separated into sections (base - hull - crown). Each part has design controls that complement it and set it apart from others. Whereas 61.8 % selected (agree), 11.8 % selected (completely agree), 2.9 % selected (disagree), 2.9 % selected (absolutely disagree), and 20.6 % selected Neutral.</p>	 <table border="1"> <caption>Data for Form No. 1 Pie Chart</caption> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Totally Agree</td> <td>11.8%</td> </tr> <tr> <td>Agree</td> <td>61.8%</td> </tr> <tr> <td>Neutral</td> <td>20.6%</td> </tr> <tr> <td>Disagree</td> <td>2.9%</td> </tr> <tr> <td>Totally Disagree</td> <td>2.9%</td> </tr> </tbody> </table>	Response	Percentage	Totally Agree	11.8%	Agree	61.8%	Neutral	20.6%	Disagree	2.9%	Totally Disagree	2.9%	<p>The mainstream of participants agrees that high-rise buildings or buildings (both residential and commercial) should be divided into components (base - hull - crown), with each part having the design controls that match it and differentiate it from others. Whereas 30% chose (agree), 13.3% chose (completely agree), 16.7% chose (disagree), 6.7 % chose (absolutely disagree), and 33.3 % chose Neutral.</p>	 <table border="1"> <caption>Data for Form No. 2 Pie Chart</caption> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Totally Agree</td> <td>13.3%</td> </tr> <tr> <td>Agree</td> <td>30%</td> </tr> <tr> <td>Neutral</td> <td>33.3%</td> </tr> <tr> <td>Disagree</td> <td>16.7%</td> </tr> <tr> <td>Totally Disagree</td> <td>6.7%</td> </tr> </tbody> </table>	Response	Percentage	Totally Agree	13.3%	Agree	30%	Neutral	33.3%	Disagree	16.7%	Totally Disagree	6.7%
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16	<p>Question No. 16: It is vital to encourage the usage of Meccan architecture vocabulary such as "Rawashin, Shwabeer, Arches, etc."</p>	
	<p style="text-align: center;">Form No. 1</p> <p>The proportion of respondents believe that it is vital to encourage the usage of Meccan architecture language, such as "Rawashin, Shwabeer, Arches, etc."; 70.6 % answered (agree), 20.6 % said (completely agree), and 8.8 percent chose Neutral.</p> 	<p style="text-align: center;">Form No. 2</p> <p>The majority of users believe that it is vital to encourage the usage of Meccan architecture language, such as "Rawashin, Shwabeer, Arches, etc."; 56.7 % answered (agree), 30 percent answered (completely agree), 6.7 percent chose (disagree), and 6.7 percent chose Neutral.</p> 
17	<p>Question No. 17: Encourage the use of natural materials from the local environment in the completion of structures whenever possible, and if this is not possible, materials with a comparable character are utilized.</p>	
	<p style="text-align: center;">Form No. 1</p> <p>Most participants support encouraging the use of natural materials from the local environment in the finishing of buildings whenever possible, and using materials that have a similar character if this is not possible; 47.1 percent answered (fully agree), 44.1 percent said (agree), 2.9 percent chose (disagree), and 5.9 percent chose Neutral.</p> 	<p style="text-align: center;">Form No. 2</p> <p>Most participants support encouraging the use of natural materials from the local environment to finish buildings as much as possible, and if this is not possible, materials with a similar character are used; 46.7 percent answered "Fully agree," 46.7 percent "Agree," 3.3 percent chose "Disagree," and 3.3 percent chose Neutral.</p> 

18	Question No. 18: In the event of nearby buildings, the uniformity of the finish colors must be observed while keeping in mind that each structure has its distinct character.	
	<p style="text-align: center;">Form No. 1</p> <p>The participants believe that the colors of the finishes in adjacent buildings should be consistent, while still allowing each building to have its distinct character; 55.9 percent answered (agree), 32.4 % said (totally agree), and 8.8 % chose (disagree), and 2.9 percent chose Neutral.</p>  <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree 	<p style="text-align: center;">Form No. 2</p> <p>The majority of participants believe that the colors of the finishes in adjacent buildings should be consistent, while still allowing each building to have its distinct character; 43.3 percent answered (fully agree), 40 percent said (agree), 3.3 percent chose (disagree), and 13.3 percent chose Neutral.</p>  <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree
19	Question No. 19: Glass materials in the same building should be consistent, with low-reflective glass used whenever possible.	
	<p style="text-align: center;">Form No. 1</p> <p>The majority of participants believe that glass materials should be standardized in the same structure, with low-reflective glass being used; 50 % answered (agree), 29.4 % (completely agree), 2.9 % chose (absolutely disagree), and 17.6 % chose Neutral.</p>  <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	<p style="text-align: center;">Form No. 2</p> <p>The majority of participants believe that glass materials should be standardized in the same building, with the use of low-reflective glass in mind; 46.7 % chose (agree), 23.3 % chose (totally agree), 3.3 % chose (totally disagree), 3.3 % chose (disagree), and 23.3 % chose Neutral.</p>  <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree
20	Question No. 20: Choosing a set of materials and colors to be utilized in finishes, and if they are not accessible, using substitute materials that are similar in texture and color.	
	<p style="text-align: center;">Form No. 1</p> <p>Most respondents agreed that a set of materials and colors should be chosen for use in finishes and that if they are not available, alternative materials that are similar in texture and color should be used; where 50% answered</p>  <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree ● Totally Disagree 	<p style="text-align: center;">Form No. 2</p> <p>Most participants feel that a set of materials and colors should be chosen for use in finishing and that if they are not accessible, substitute materials that are similar in texture and color should be utilized. Where 40%</p>  <ul style="list-style-type: none"> ● Totally Agree ● Agree ● Neutral ● Disagree

	(agree), 20% answered (totally agree), 5.9% disagreed, 5.9% chose Neutral.		chose (agree), 40% chose (completely agree), 6.7 % chose (disagree), and 17.6 % chose Neutral.	
21	Question No. 21: A maximum of four finishing materials may be used in the same building, and the materials used in the same building must be uniform.			
	Form No. 1		Form No. 2	
	<p>The participants believe that no more than four finishing materials should be used in the same building and that the consistency of the materials used in the same building should be considered; 44.1 % chose (agree), 14.7 % chose (totally agree), 14.7 % chose (disagree), 2.9 % chose (totally disagree), and 23.5 % chose Neutral.</p> 	<p>The percent of participants believe that a maximum of four finishing materials should be used in the same building; the consistency of the materials used in the same building must also be considered; where 40% answered (agree), 16.7% answered (totally agree), 13.3% chose (disagree), and 30% chose Neutral.</p> 		
22	A table comparing the most important factors picked by the two models in the second section:			
	Form No. 1		Form No. 2	
	<ul style="list-style-type: none"> Encourage the use of natural materials from the local environment in the finishing of buildings whenever possible, and if this is not possible, materials with a comparable character are utilized. In the case of adjacent buildings, the colors of the finishes must be constant while still allowing each building to have its personality. The emphasis should be on displaying the entryway and making it appear to pedestrians. Glass materials should be standardized in the same building, with low-reflective glass being used. Defining a building start line (a building start line on the ground floor, before or after construction is not permitted) contributes to the improvement of the place's character and the visual continuity of the corridors. 	<ul style="list-style-type: none"> The emphasis should be on displaying the entrance and making it visible to passersby. Encouraging the use of natural materials from the local environment to finish buildings as much as possible, and if this is not possible, materials with a similar character are used. In the case of adjacent buildings, the colors of the finishes must be consistent while still allowing each building to have its distinct personality. Choosing a set of materials and colors to be used in finishes, and if they are not available, using alternative materials that are similar in texture and color. Defining a building start line (a building start line on the ground floor, before or after construction, is not permitted) contributes to the improvement of the place's character and the visual continuity of the corridors. 		

3.4.6 Questionnaire findings

The Questionnaire yielded the following results:

- 1- There is no distinct general trait that distinguishes Makkah.
- 2- The lack of architectural rules that protect architectural character has directly impacted the loss of character in Makkah.
- 3- People prefer modern buildings with traditional aspects.
- 4- Focusing on and paying attention to archaeological buildings has a significant impact on conserving the architectural character of the area.
- 5- Applying the rules for conserving architectural identity to individual districts or streets is more effective and efficient than applying them to the city as a whole.

- 6- Creating specific architectural requirements for the architectural character will improve the overall appearance of the building in Makkah.

4 Results

The search yielded the following results:

4.1 General results

- 1- In the modern age, the city of Makkah has undergone considerable development. In terms of the extension of the urban area and the development of Mecca’s urban area.
- 2- Making the urban character of Makkah stand out.
- 3- Most of the buildings with a distinct traditional character in the center region of Makkah were demolished as part of development efforts in the region.
- 4- Without compromising the building’s distinctiveness, emphasis was made on respecting the overall arrangement in the building, particularly in the adjacent buildings in terms of floor heights, apertures, and color.
- 5- By evaluating and comparing the architectural requirements connected to the character in similar situations, certain criteria have been obtained that contribute to the preservation of the general character of cities, namely:

A table showing some of the analytical study’s findings and criteria

No	Element	Description
1	Entrances	<ul style="list-style-type: none"> • Highlighting and differentiating the entry block so that passersby can see it
2	Bloc	<ul style="list-style-type: none"> • A single building line that cannot be built before or after it • Buildings are divided into three sections (base body crown) • Considering the design of the tops of buildings in a way that contributes to the aesthetics of the city’s skyline • If the buildings are adjacent to each other, the heights must be harmonized, with the oldest building serving as the reference

A table showing some of the analytical study’s findings and criteria

No	Element	Description
3	Awakening and recoiling	<ul style="list-style-type: none"> • Allow architectural vocabulary like the rawashin to emerge from the building, with the greatest protrusion determined by the width of the street from which it protrudes
4	Interfaces and openings	<ul style="list-style-type: none"> • Using local architectural vocabulary (Meccan) • Considering the parallelism of the baselines in neighboring buildings’ windows • Taking into account, as much as practicable, the similar heights of service levels in nearby buildings
5	The building’s boundary is surrounded by corridors	<ul style="list-style-type: none"> • Promoting the use of contracts for basement decoration
6	Finishes and colors	<ul style="list-style-type: none"> • Encouraging the finishing of buildings with natural materials as much as feasible, and if this is not possible, materials that convey a comparable character are utilized • In the case of adjacent buildings, the colors of the finishes must be constant while still allowing each building to have its personality • Glass raw materials should be united in the same building, with low-reflective glass being used • Choosing a set of materials and colors to be utilized in finishing, and if they are not accessible, using substitute materials that are similar in texture and color • The use of a maximum of four finishing materials in the same building must be considered, as must the consistency of the materials used in the same building

4.2 The Makkah Al-Mukarramah study's results

- 1- There are no architectural requirements, as we discovered after reviewing the paper of the tentative plan for Makkah.
- 2- In terms of lands that do not satisfy the parameters of the distinctive projects, there are no architectural character requirements.
- 3- Linking the differentiated project's system to the land area resulted in unpredictability in the overall building form and evident discrepancies in the design and finishing of the facades at the level of a single place (street or area).
- 4- The emphasis on the distinguished projects resulted in a distinct difference in form between the distinguished projects and the other projects.
- 5- There is no obligation in the architectural character criteria, but rather an incentive for unusual buildings; and that is by permitting distinctive projects to exceed the region's heights by 15% in exchange for a set of regulations, including attention to character.
- 6- According to the Secretariat, there is no specification for the meaning of Islamic architecture or local architecture, rendering these terms ambiguous and open to interpretation by the accreditation committee.
- 7- Lack to articulate specific standards for the character in distinctive projects, resulting in chaos and inconsistency in the design of distinctive buildings.
- 8- Leading to a shortage of restrictions over building finishes or stipulations requiring owners to utilize materials permitted by the municipality, owners changed the finishes after approval for economic reasons.
- 5- Modifying the site regulations with the organization of distinctive projects in Makkah and the usage of domains in applying the character (a specific region or a specific street) rather than attaching the distinguished projects to the land requirements.
- 6- Using the spaces around historical buildings and the city's main axis as sites for the application of architectural regulations concerned with the architectural character of the place.
- 7- Concentrating on connecting development projects to their surroundings and ensuring that they are not isolated from them.
- 8- The secretariat must focus on strengthening architectural character, monitoring projects after approval, and ensuring that project owners do not tamper with facade design or change finishes without permission from the competent authority.
- 9- Awareness of the relevance of the architectural character of the location and the necessity to pay attention to the design of the exterior of the buildings in line with the surrounding environment among specialists from the secretariats and municipalities, as well as the staff of engineering offices.
- 10- Owners' understanding of the significance of the architectural character of the facades and their positive or negative effects on the architectural shape of the city.

5 Conclusions and recommendations

This research presents various recommendations that contribute to enriching the architectural identity of Makkah, as well as eliminating visual distortion and achieving building facade homogeneity; which:

- 1- Setting precise architectural regulations, requirements, and guidelines that contribute to the enhancement of the Meccan architectural identity.
- 2- Dedicated to the use of Meccan architectural vocabulary and the establishment of aesthetic criteria for the design of building facades.
- 3- To the greatest extent possible, natural materials from the region's environment or industrial materials of a comparable kind are used to complete buildings.
- 4- Considering the architectural character of all projects, particularly those in the core region and important

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Declarations

Conflict of interest The authors declares that there is no potential conflict of interest reported in the manuscript.

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