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# Sustainability of architectural heritage elements“An Applied Study of the Basra City Corniche from the Establishment to the Present”

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**Abstract.** Heritage represents the cultural and intellectual treasures of peoples. The urban heritage is an important material treasure because it represents the knowledge reached in the field of construction and urbanization. The research deals with the area of the urban heritage of the city of Basra because it represents an important architectural and architectural significance. It differs from the rest of the Iraqi cities because of its special urban construction. The area adjacent to Shatt al-Arab is identified locally as the Basra Corniche because of its urban and cultural importance heritage in the memory of people. In addition to the importance of buildings built on the Corniche, whether existing at present or not and the lack of architectural studies that dealt with the Basra Corniche and its urban character and scarcity. The gap of knowledge was the absence of architectural studies of Basra city Corniche. For this reason, the research has developed a methodology characterized by the distinction of architectural elements used in the design of the buildings located on the Corniche of Basra. Therefore, the research studies the Corniche of Basra city from the foundation to the present and clarifies the most prominent buildings there. The research assumes that the design elements are inspired by the heritage elements despite the different functional use of the building. The aim of the research is to study the design elements of the buildings on the Corniche of Basra and to show the sustainability of these architectural elements in the urban environment of Basra. A methodology has been developed to achieve the objectives, conclusions and recommendations of the research.

## 1. Introduction

During the last period of the present century, there have been some orientations that deviate from the cultural and architectural heritage of many countries. On the other hand, some designers worked to find ways to preserve the heritage, urban and cultural values in their design products through the use of many techniques and methods, Heritage elements in new forms and methods aimed at reviving the values of these elements and finding ways to connect with the architecture of orhart or near to extinction within new design frameworks. The city of Basra is full of buildings with a heritage character rich in urban details and what these buildings represent of an important value in the visual society based on the age of buildings or through the connection of these buildings to events or a particular job, and the street of the Corniche of Basra Urban and urban importance in the city of Basra, And the most important buildings have been signed on them. Therefore, the emergence and composition of the Basra city corniche will be studied in order to extract the design elements used in the design of these buildings and the sustainability of these elements after The change that took place in most buildings Corniche Street because of the aging of these buildings or the desire to remove them for the purpose of extending the streets or because of misuse, and will be the study and inventory the functional and physical character in the area



mentioned, and extract the building elements used in these buildings and compatibility with what is in. In the present time, the research reached many conclusions and recommendations regarding the sustainability of the urban elements in the Corniche Street of the city of Basra.

## **2. Studies of River Ranges**

The study tackles the previous studies and theses related to the river façade, including the study of (Hanqawi and others) [1] The study examined the importance of rivers in urban form according to the urban patterns presented by the study. (Mohammed) [2] dealt with the form and composition of the architectural and its effects on the riverfront and the impact of the water surface on the formation of architectural buildings, through the criticism of previous studies became clear concepts of the general research problem, The architectural elements of the river façades of the cities. The research studies on the Corniche of Basra were limited to the study of (AL-Samarai) [3] and the study (Rajab) [4] focused on the historical aspects of the Corniche of Basra and the historical period of 1941 the opening phase of the Corniche Street and partially overlooking some buildings on the Corniche of Basra. The study (Max) [5] was conducted to survey the buildings on the Corniche Street and put ideas to develop the Corniche Street and the construction of buildings as in the museums that linked Corniche Street through the bridges, but not implemented After the criticism of previous studies it became clear that there is a gap of knowledge and lack of studies in addressing your mother. The intention of the sustainability of urban heritage elements on the one hand and on the other hand, applied on the Corniche in the city of Basra on the other hand, as represented by this research problem, which prompted the search.

## **3. The research problem**

The problem was that there are no concepts of sustainability of heritage elements in the Corniche of Basra.

## **4. The hypothesis of research**

The possibility of sustainability of urban heritage elements within multiple levels in contemporary urban production.

## **5. Limitations of the research**

The city of Basra was chosen for the most important reasons, the lack of architectural and urban studies of the city in general and the corniche of the city of Basra in particular, the area of research was determined by the buildings located on the Corniche of the city of Basra from Asad Babel square (the beginning of the Corniche) to the river Khorrah (the end of the old Corniche). The time period was divided in the first two phases of the year 1919 – 1941, from the opening to the Corniche Street, From 1941 to 2018 in which the most important changes took place on Corniche Street.

## **6. The study aims**

To study the buildings located on the Shatt al-Arab Corniche at different time periods to determine their design properties and their architectural features before the year 1941, and then study the changes in the functional nature of the buildings and the urban construction in the Corniche Street in Basra after 1941 and its characteristics and urban characteristics. The sustainability of its heritage elements, and for this purpose the research is systematic.

## **7. The methodology of the research**

The research was based on the analytical method and descriptive, because most of the buildings located on the Corniche Street have been removed and not kept well. Therefore, the researcher was forced to use pictures and historical description of the buildings to show the most prominent architectural features through vocabulary on urban levels. Both structural elements of facades, structural techniques and structural materials, and to measure the sustainability of architectural elements in modern buildings in the Corniche city of Basra, as the research reached many conclusions and recommendations for research (Appendix A).

### 8. The historical background of Basra Corniche ( Shatt al-Arab Street )

The historical pictures of Basra show the city is surrounded with a wall. The Corniche area at the entrance to the river Ashar has its own wall. Therefore, there is a fortress within these walls known as the Gardalan castle in 1677 as shown in Figure 1. Shatt al-Arab provides natural protection in addition to the walls so that this castle is protected from the four sides, while the rest of the areas were not only farms and reached the river Serraji, changed the features of the Corniche in the period between the end of the Ottoman rule and the beginning of the English occupation of the city, specifically for the period between 1919 to 1929 Appendix B. Which has been able to obtain field surveys of the types of buildings located Corniche, between the functional and diverse use and new functional patterns that are not common in local architecture, as shown in Figure 2. And found that the buildings located on the Corniche of the city of Basra are individual buildings surrounded by The open spaces that have been used as green spaces, gardens and playgrounds, are in contrast to the old fabric of the city, which is characterized by a compact and harmonious texture with an inner courtyard that strengthens its orientation towards the inside.

The design of the Corniche Street was completed on 4 August 1940, when the report was submitted by the municipal engineer Najib Nawras, which included the road to be constructed from the Asad Babel square on the right banks of Ashara river and along the Shatt al-Arab to the river al-Khawra River and the Gazi Bridge along the Shatt al-Arab [6]. And was proved vulnerable on the map (25 meters), the municipal council took the decision in 1941 to carry out the implementation work after the appointment of specialists included Haj Abdulrahman Al-Salman Al-Bader, Haj Abdul-Razaq Al-Issa and architect Haj Alwan Al-Shrad and architect Mr. Kazem Nujaifi to estimate the allowance of what is decided from the buildings and the establishment of trees and crops, Roads and Buildings [7] opened in 1941.

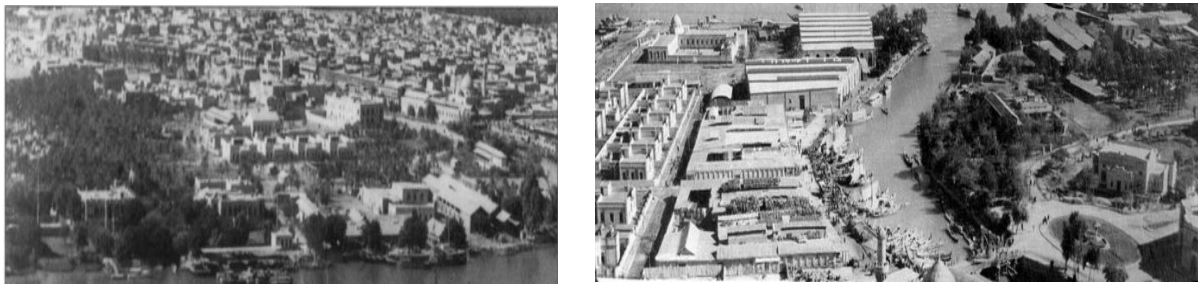


**Figure 1.** Picture showing the area of the public or the so-called castle of Gordelaan (showing the walls and castles at the entrance of the public and the Cornish in 1677

Ref:[https://commons.wikimedia.org/wiki/File:AMH-5342-](https://commons.wikimedia.org/wiki/File:AMH-5342-NA_View_of_Basra_and_%27Gordelaan%27_castle.jpg?uselang=en)

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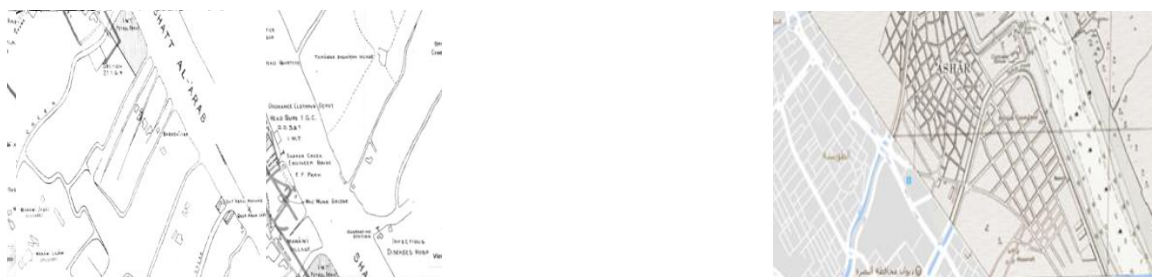
A committee was set up to complete this road. The first work of this committee included the acquisition of land on this road. The second achievement was the establishment of an anchor on the Shatt al-Arab with a stone imported from Kuwait. He was referred to the municipal engineer on 15-4-1942 [8].



**Figure 2.** shows the buildings located on the Corniche Street in 1940 from the yard of Babylon to the British consulate

Ref: Iraq 1941 battles for basra, habbaniya, and Baghdad, robertlyman, illustrated by Howard Gerrard, united kingdom, 2006.

The third achievement is the street lighting as the street lights turn to Mr. W. J. Kuxer [9] In 1941 and 1942, the municipality began to complete three casinos. The first casino was rented to Mr. Yousef Hanna. The second casino went to Hanna William, and the municipality started to build a third casino in 1942. Only Mohammed Ben Ali submitted the work (Figure 3) [10].



**Figure 3.** The Functional Character of the Shatt al-Arab Corniche in 1919 From the river Al-Ashar to the other river of Khorrah from the river Al-Khorrah to the River Al-Saraji

Ref: Qatar National Library Archive: Map of 1929, projected on a modern map of Basra, showing some sites along the Shatt al – Arab Source (Archive of the British Library).

## 9. Changes in Basra Corniche after the advent of 1941

- The municipality of Basra demolished the building (brick bricks) designed as military barracks and castles of the coastal artillery and was replaced by a nightclub known as (Basra Palace).
- The establishment of the company Androir rectangular architecture to be the headquarters of its trade.
- Construction of the building of the Central Bank of Iraq in the early seventies.
- The Municipality of Basra and the tourism and archeological institutions destroyed the building of Strik's house, a rectangular building with attractive capitals and columns built in Indian style.
- The destruction of two house Abdul-Muhsin al-Shuaibi and Ahmed al-Naqib for the establishment of Sheraton Hotel Basra.
- The opening of the Fayhaa Club (for the Christian community) in 1950.
- The opening of the Casino of 14 July by the owner of Mr. Kassim Laazim.
- Building the casino of Shatt al-Arab at the entrance to the Khorrah, designed by architect Hani Mukh.
- Linking the Corniche of Basra to the new Corniche, which was opened in the late 1970s by a small bridge on the River Alkhoura [11] .
- The names of the Corniche of Basra varied according to the different time periods. It was named Abdullah Street (King Faisal II) and was named Al-Hurriya Street after the July 14 Revolution[12]. In the year 1948, the municipality decided to extend the Prince Abdul-Halah



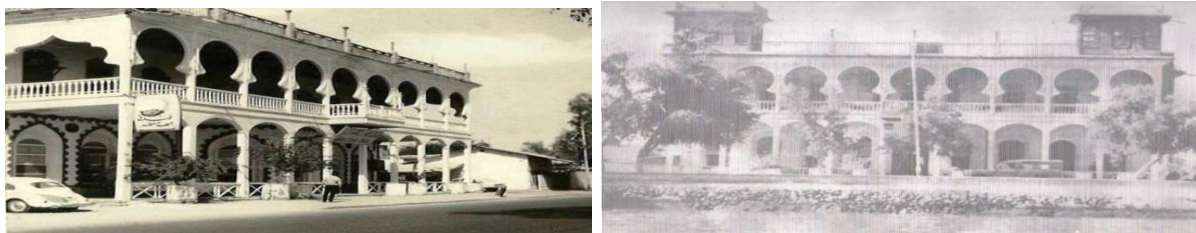
Street to the Al-Seraji river to join the Al-Ashar road to the southern side of the Khoura River and to build an iron bridge on the river. The most common name of the public is Corniche Street [13] the site of Al-Aga Jaffar Palace and the establishment of Al-Saraji Park [14]. There have been many changes to the functional character of the Corniche Street, at the present time, where the buildings have a functional character that differs from what existed in the past in many respects, including the buildings located on the Corniche of Basra, according to their historical sequence.

### 10. Buildings located on the Corniche of Basra

The buildings that are removed or not currently in existence will be described and analyzed in order to extract the most important elements of the design and characteristic of structural properties and construction techniques to get a clear perception of its features and architectural features.

#### 10.1. Hotel Side of the River

the owner of Salman Haddad [15], located opposite the casino Al- Badr, and one of the staff at the reception is Habib Hanna, and the advantage of the building in a pattern of arches in the form of the Persians of wood material, The style of the arches is similar to that found in the central preparatory building in the public and different construction material, In addition to the wood, the façade has a wooden balcony overlooking the Shatt al-Arab. The façade also has three doors, one for the restaurant on the left and the other for the store, in front of the middle door Figure 4.



**Figure 4.** front river located on the Corniche of the city of Basra  
Ref: (Samurai, Ihsan Wafik, Journal Afaq Arabia, No. 1-2 / 2000, p. 90).

#### 10.2. Gray MacKenzie Co.

a foreign company founded in Basra in 1840, representing the British Indian Company for Commercial Ships. Lynch Brother Ltd. Is a river shipping company in Tigris and Gray McKenzie has other interests in trading dates, grains and horses, And the supply of machines from Europe, and it has a large fleet of naval vessels, and a fleet of other boats and ships and river vessels, and had in the public large factory maintenance and repair of ships, opened in 1920. The company (Gray McKenzie) is the maritime agent in Basra for the company (BI), Which owned the best passenger liner known for its regular flights between India and Basra through the ports of the Arab Gulf, and this company has dozens of great ships to transport passengers and mail across the seas and oceans and all the world's ports of ships, the first nucleus of the founding of the company (P&O) as of 1972, the letters (BI) it means: BRITISH INDIA STEAM NAVIGATION COMPANY. It was built in the Ottoman era, part of the property of the East India Company. Figure 5.



**Figure 5.** 1906 The British Consulate and the Lange Company showing the boats carrying 4,000 tons of goods sent to Baghdad by General Wilfred Milson – destinations of the British Consulate (Presidency of the University of Basra)

The building was designed to be a building for the British Embassy and then changed its function to change the use of the building to the building of the presidency of the University of Basra and then moved to the presidency of the university to another site, as the building became a museum of the natural history of the province of Basra after it was carried out a lot of the restoration of a good torch for this job, In the 1970s, as a museum continued until 2003, the building area is about 500 square meters. The building's physical character does not differ from the buildings in Basra Governorate [16]. The building is surrounded by balconies, columns and arches. The floor is furnished with laminated wood and its roof is covered with wood and its old Indian gardens, where the University of Basra tried to preserve its old character and create a museum of aquatic life and a building for a private library [17]. At present, the building has been converted into a home for families.

The museum is characterized by the existence of a number of halls, as in the Marine Fish Hall, the Whale Hall, one of the largest halls was a whale made of iron and Burke length of more than 12 m, the marsh hall and a length of 12 meters, and contains different animal models (Figures 6 and 7) [18].



**Figure 6.** Screenshots of the British Consulate building (Museum of Natural History) at present  
Ref: (the researcher)



**Figure 7.** Screenshots of the building of the British Consulate (Presidency of the University of Basra) at present  
Ref: (the researcher)

### 11. Description and analysis of buildings for the period from 1919 to 1941:

The urban aspect: The relationship of buildings with the ocean showed a number of characteristics of the relationship of buildings with the external environment, was the adoption of the principle of the building alone in the drive (surrounded by outer space from all sides), and thus characterized these buildings as a difference of traditional urban fabric, which characterized buildings as a compact and adjacent , Including many of the palaces belonging to the known figures in Basra, such as the house of Sheikh Abdullah Al-Mubarak and the house of Ahmed Al-Naqib, which was characterized by being individual palaces within its urban context, and it seems that the impact of the site and functions of buildings and ownership affected the appearance of this property to sign buildings individually within the context of Urban. As for the roads leading to the buildings there was no road linking the buildings from the Corniche, but it was based on the back roads to reach the buildings, which made the buildings in direct contact with the river bank. As for the architectural aspects, which consisted of single buildings, the function of the building as it is noticeable the emergence of functional patterns that were not known in traditional architecture, including many tennis courts, desalination sites, ship repair areas, the Indian Club, the British Consulate and the Indian Consulate, Working in the city of Basra, either on the level of elements and formal treatments in the facades has been based on the columns and arches that formed the formality of these interfaces and a systematic repetition as these elements gave the characteristics and structural characteristics enabled the designer part of the first floor as a balcony overlooking the Al-

Shanashil used the facades as functional elements with aesthetic values, as is common in traditional architecture, and the materials were the technical factors (structural).

Most buildings used local building treatments as well as the use of blocks as a structural unit , decorative formations in the façades and the use of wood, and the use of sheet metal as building materials. As for the structural systems used are represented by non-structural systems based on the brick walls and the thickness of the cup relatively, also used iron decorations used in the church building, as well as buildings and warehouses scattered on the Corniche in the city of Basra has reached the height of a two-story buildings. Most of the buildings on the city's Corniche were owned by private families or local foreign companies, except for the bricks and the headquarters of the commander of the Ottoman navy, The effect of the type of land acquisition is not to open a road parallel to the Corniche for this period because the land is a private property and not a public property.

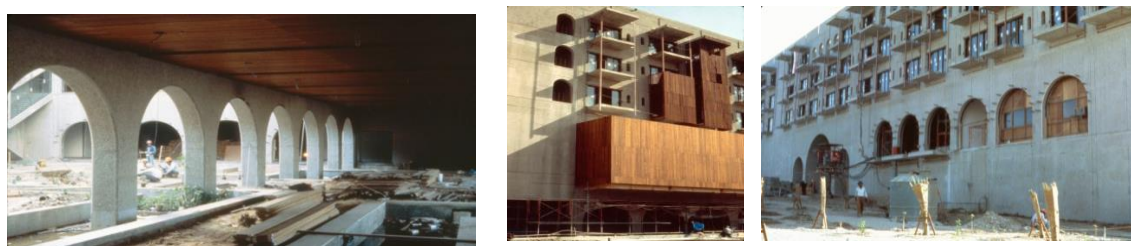
## 12. Some buildings for the period from 1941 to present:

### 12.1. Sheraton Hotel Basra

The demolition of the house of Abdul-Mohsen al-Shaabi, which was the Basra Oil Company by the club for the oil club (British club) and the house of Mr. Hamed al-Naqib to build the Sheraton Hotel Basra only replaced to encapsulate the facades overlooking the Shatt al-Arab with new wooden models instead of the old Oriental wood of shannashel as an imitation of the shape Using the rows of wooden surfaces and retinal motifs Figures 8 , 9 , 10, and 11.



**Figure 8.** Two pictures of the Sheraton Hotel Basra one of them outlet and the other for a miniature model of the building, Ref: (<https://archnet.org/sites/324>)



**Figure 9.** Sheraton Hotel in Basra under construction in 1981

Ref: (<https://archnet.org/sites/324>)



**Figure 10.** Interior decoration of the Sheraton Hotel Basra under construction in 1981

Ref: (<https://archnet.org/sites/324>)





**Figure 11.** Sheraton Hotel during the burning 2003

Ref: (<https://www.dailyherald.com/article/20130320/news/703209753>)

The building was designed by Hisham Munir and Jalil Akla, 1981 with The Architects Collaborative-TAC [19]. The hotel was under construction by Taisei Corporation in 1981 and a number of hospitals in Iraq, and carried out interiors by a Philippine company working for the company Taisei Japanese hotel under construction in 1980-1979. The hotel consists of five floors opens on a central courtyard. The hotel was renamed after the opening and was named the Basra International Hotel and is still locally known as the Sheraton Hotel in Basra. Figure 12.



**Figure 12.** Sheraton Hotel after the reconstruction and replacement of the wooden Schnachil glass panels with packaging

Ref: (<http://hikersbay.com/asia/iraq/hotel/iq/basra-international-basra.html?lang=sv>)

### 12.2. The Iraqi Dates Association

The Andrower Company has built a large rectangular building to be the center of the date trade overlooking the bank of river Ashar. The company was founded in 1905 and monopolized the date trade in Iraq, between Iraq and various countries, and it had a large number of ships that were shipping dates and grains to Europe, America and other countries [20] Figure 13, 14.



**Figure 13.** Iraqi dates association in 1954 of rare pictures of the building

Ref: (Amin Lotfi, Basra Guide, First Edition, Al-Khobar Newspaper Press in Basra, 1955-1954, p. 304 )



**Figure 14.** Iraqi Dates Authority in 2010

Ref: ( The researcher )

### 12.3. The Central Bank of Iraq Branch of Basra

The building was designed by one of the Iraqi architects Medhat Ali Mazloum, built in the seventies, created the place of Abdullah Al – Mubarak Palace tried to stick to the visual architecture in the design of the bank and shows that in the main entrance, that the designer did not stop in the simulation character [21]. The electrical engineer, Huhsen, the construction contractor, is Zaki Haj Daoud Faydi. 1968-1970. The construction cost is 750,000 Figure 15.



**Figure 15.** Central Bank of Iraq Branch of Basra

Ref: (The researcher )

### 12.4. Monuments of Iraqi soldiers

They were built between the River of Al-ashar and the river of Al-khora 99 platform for the statues of princes and commanders in the Iraqi army and named Corniche Street in that period Shuhada Street. The arrangement of these platforms was based on three patterns: one-sided and three-sided. The octagonal shape of the bases of these statues was adopted as the other gradual forms of the bases, which are the structure of a pedestal interpreted by some as a cochlea freely, while others saw it as a geometric abstraction of the palm to its geometrical lines. The other view is that it is a stripping of the column of the houses in the visual heritage. From different interpretations that these rules are still present at the moment after restoration. The height of the statues is 2.5 for the two orders, 3.5 for the commanders. On the street in the 1980s, the Martyrs Street was called, in comparison to the presence of the soldiers' statues along the Corniche Street [22].



**Figure 16.** Corniche Street in the 1980s

Ref (The researcher)



### 12.5. Badr Shaker Al-Sayab Statue

The artist (Neda Kadhim) was commissioned by the Ministry of Information to complete the memorial statue. The site was chosen as a coffee shop known as the Abbas façade for the creation of the statue in 1970 [23]. The statue was opened in 1971. The statue was carried out several rehabilitation and restoration operations, the latest of which was by the sculptor he created, the artist Nada Kadhim, which was inaugurated after the rehabilitation on 1-2-2018. Figures 16 and 17.



**Figure 17.** Statue of Badr Shaker Sayab in the implementation phase in 1971.

Ref (The researcher)



**Figure 18.** Statue of Badr Shaker Siyab after the last restoration by the sculptor Nada Kadhim in 2018.

Ref (The researcher)

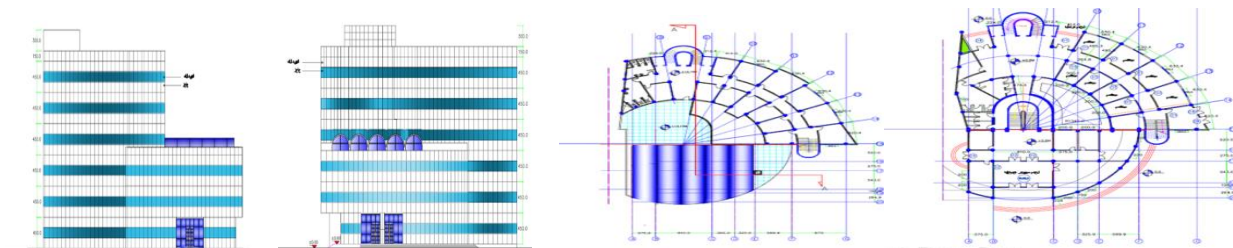
### 12.6. Building The Presidency of the Basrah University

Rashid General Contracting Company supervised the construction of the building designed by the architect Asad Ghaleb Asadi, showing the different stages of implementation and design, using the packaging aluminum and glass in the facades of the building on the banks of the Corniche, was under construction in 2010. Figure (19), (20).



**Figure 19.** Building of the Presidency of the University of Basra between design and implementation

Ref (The researcher)

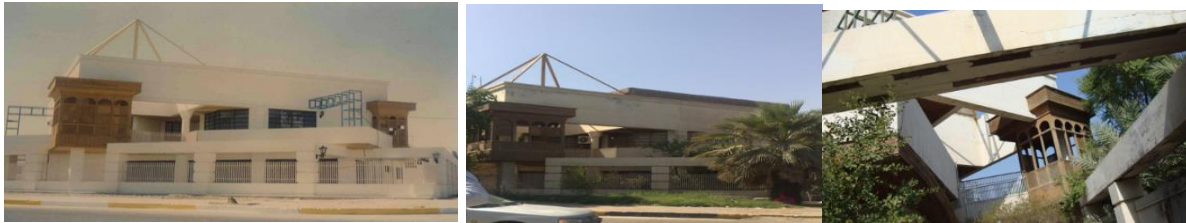


**Figure 20.** plans and interfaces of the Presidency of the University of Basra .

Ref ; of Engineering Affairs

### 12.7. The National Security Building

Designed by the architect Basil al-Bayati, it is characterized by a clear blend of heritage features in Basra. The schnnashiel was used with white concrete with pure surfaces painted in white colors and modern structures. Figure (21).



**Figure 21.** National Security Building at Al-Ashar Corniche  
Ref (The researcher)



**Figure 22.** Buildings located in the Corniche city of Basra, including the Department of Hajj and Umrah and the insurance of housing , housing professor Basra University.  
Ref (The researcher)

### 13. Description and analysis of buildings for the period from 1941 to present

The urban aspect: The buildings that were designed by the designers of the building emerged as a single building (surrounded by the outer space on all sides), thus distinguishing between the traditional urban fabric, which characterized the buildings as compact and close, including the building of the Iraqi Dates Association, the Sheraton Hotel and the Central Bank. Iraqi , and many other buildings. As for the roads, the road of the Corniche Street was separated and the buildings were separated from the river bank and the size of the gardens and tennis courts replaced by Corniche Street. As for the architectural aspects, all the functions of the buildings which were located on the Corniche of the city of Basra were replaced with new ones, such as residential (university professors' housing or insurance buildings), commercial or public services. Most of the land was transformed from private to public domain. A change in the functional pattern, either on the level of elements and formal treatments in the facades, where the two types of facades of the buildings on the first Corniche Street was based on the simulation of modern architecture, characterized by the facades of the buildings using sunspots vertical or horizontal or both, and this feature characteristics of destinations in the period The In addition to containing most of the buildings on the balconies as in the building of the Central Bank, the building of the date association, and the building of insurance, the other style has tried to quote from the elements of local architecture to form the facades of the buildings, as used Shenashil directly or indirectly as elements in the facades, It is one of the distinctive elements of the local architecture, such as the Sheraton Hotel, the National Security Building, the Hajj and Umrah Department. The materials are the technical factors (construction). Most of the buildings have been used as building solutions, which vary between the local and the use of bricks as a structural and structural structure. The use of wood as in the building of Hajj and Umrah, and the use of modern building materials that were not pledged by local architecture such as aluminum and glass as in the building of the presidency of the University of Basra, the use of finishing materials by glazing concrete and paint as in the Central Bank building and insurance, As for the structural systems used were represented by structural systems based on bridges and columns, and the height of buildings more than two floors.



#### 14. Conclusions

The first axis of the historical and structural study of buildings and the region:

- The fortress on the Corniche of Basra was fortified using natural factors. The Ashar River, Shatt al-Arab, on the one hand, was walled with a wall isolated from the wall of the city of Basra in the Ottoman era. It highlights the importance of choosing the Corniche site to be an important function. In the area of Manawi or what is known locally Minawi Pasha attributed to the existence of the Castle Kardalan.
- The buildings located on the Corniche of the city of Basra in the Ottoman era to 1941 as unique in the context of urban, and this style was not prevalent in the traditional local architecture and attributed to the appearance of the site to the distinctive, which called for the designer to open outward and make the building outward rather than Inside, the city of Basra Corniche was an element that represents an urban edge. This property coincided with buildings designed after 1941.
- There have been many new types of jobs that are not recognized in Basra, because of the privacy of the site and users, as well as the existence of many tennis courts, water desalination sites, including the defensive as in the arsenal of equipment, and the companies of river navigation and ship repair areas, It is important for the city that these jobs were replaced by different functions in later times, including the Central Bank, the Sheraton Hotel, the Hajj and Umrah Service, the National Security, etc.
- There were no main roads on the riverfront to connect the buildings located Corniche, and most of the roads leading to the buildings through the road (Pioneer road) relative to the presence of the judge's house on the back street of the city Corniche, due to the fact that most of the land on the Corniche city of Basra was owned Which led to the emergence of other functions to serve the public were kiosks and public cafes in addition to the statues and monuments as different in the monument of the poet Badr Shaker Siyab and sculptures and monument Others in later periods, which He pointed out the importance of Corniche Street as a cultural façade of the city.
- Structural structure and structural materials: Two types of construction systems were established between 1919 and 1941, the first is the system of retaining walls, which was in the British consulate buildings, , in front of the other style was used iron mesh as in warehouses buildings and hardware stores, And the building of the church belonging to the Association of Christian Youth, the building materials were based on the building materials prevailing for the first style of bricks used as a construction material and decorative at the same time, the other style has been used iron sheets which he did not use them spread in those Of. As for construction materials and construction systems for the post-1941 period, it is also possible to distinguish between two styles, one of which is based on the prevailing structural materials and systems (the non-structural construction: the bearing walls and the bricks), the other is based on the structural system, The buildings are designed as in the building of the Central Bank, the university building and many other buildings. The construction materials are also related to the construction materials in that period, including marble, aluminum, finishing with glazed concrete and paint, Built national security, and the central bank building.

The second axis of sustainability of architectural elements:

During the study of the various architectural models of the buildings located on the Corniche Street of Basra City and for various periods of time, it emerged that most architectural models used sustainable heritage elements in the design of the buildings on the Corniche as in the inner courtyard, the use of the sunshield, the structural systems of the structural system and the traditional local building materials such as bricks and wood , In decorative and artistic structures within aesthetic formations, the use of the principle of full symmetry in the destinations, in addition to the common use of columns and arches, which evolved into balconies in later periods of time, in addition to the fact that most buildings In the context of urban and is one of the most important features that remained sustainable in the buildings located on the Corniche of the city of Basra because of the site of urban and urban significance as most of the buildings are orientated by contrast of local architecture, which designed most of the buildings on the internal guidance and emphasizes the sustainability of these elements in the formulation of contemporary architecture , As these buildings were characterized by the fact that they bear a heritage that enables the recipient to be aware of it as part of the local heritage stored in the collective memory,

and thus achieved communication with the local architecture, despite attempts to introduce some modernity by mixing traditional elements with blocks. The buildings also belong to the local architecture in the city, the city of Basra in general, and the Corniche Street in particular. The buildings were also designed to imitate the nature of the international architecture in its different periods. The structural elements used construction materials and construction systems for their periods of appearance despite the attempts of its designers to color Local to them, to the fact that they are aware of their architecture as keeping up with the time periods in which they are designed.

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**Appendix A.** vocabulary of the theoretical framework used in the analysis of models of buildings located on the Corniche city of Basra.

The function of the building	Residential	cultural	entertainment	Military
Type of ownership	Public sector	Private sector	Joint	
symmetric	symmetric	Asymmetric		
Characteristics of the mass	Openness to the inside	to the outside		
Relationship of the building to the urban context	Single building within the urban drive	Connected buildings	Semi-detached buildings	
Technical factors (construction)	Building materials	Structural system		
Height	two floors	more than two floors		

**Appendix B.** The table of the most important buildings located on the river strip of Shatt al-Arab for the year 1919 from the river Al-Ashar to the river Al-Seraji - source researcher based on the original drawings of the country library.

Sodawater factory , workmen quarters, kichen, marine transport officer storekeeper, workshop, officers quarters, motor boat reparairing shed, stores.	I.W.T R.E Mqtorrepaier dockyard
Postal staff , arab police quarters .	Chuch yard
controller native labour staff, controller office quarters and office, postal staff .	Native labour corps staff quarters
	Woolen and ice factory
	Base post office
	Drinking water post
Tennis court and garden	Gray Mackenzie and co.
Garden , H.Q.base staff, kitchen, staff Quarter	H.Q. basra
Lyanch bros. godown , military police quarters.	Lyanch bros.
Tennis court, military police quarters, base detention barracks	Strick scott and co.
	Strick scott creek farms
	Governors road
	Ordanace clothing store
	S & T offices quarters E section
	H.Q. I.G.C. and quarter for troops
Embarkartion office , Indian marine	I.W.T. Pier
	Director S & T base supply office
	Office of D.D. I.W.T. DS.T & D.R.T.
	I.W.T. OFICE
British bath room B.F., heat stoke R.F., Indian bath room R.F. , Drinking water post	Bhoosa pier

E& M Embarkation pier , E&M Ration , work and clerks , kitchen Indian quarters, E.M. British, E.M. section , E&W. officers' quarters, E&M stores , E& M. officers .	DIRECTOR OF SEA Transport & officer s quarters E& M Stores
E.F.P. pier NO.3 3 OF Ordnance Store , E.F.P. pier NO.4 Hills packing yard , godown, kichen E.F.P. pier NO.5, pumping station , timber office drinking water post, E.F.P. pier NO.6 , manawe creek	Engineer house director of works E.F.P. pier NO.1 Officers quarters E.F.P. pier NO.2 Park house office of E.F.P. Pioneer house Ordnance house office of D.D.O.S. Hills bros coy Manawe timber yard
pier NO.7	E.F.P. Khorah timber yard  I.W.T. Petrol depot Baradhiyan Bait abdul wahhab Saraji creek Qasr Agha jafar

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