



PERIODICAL EVOLUTION OF TYPOLOGY IN ARAB CITIES HOUSINGS AND INFLUENCE OF MODERNISM: BAGHDAD CASE STUDY

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Abstract

This paper follows the investigation and the analysis of the improvement of lodging types as far as the inner changes of lodging and the effect of modernity on them in four primary districts in the city of Baghdad, and they are :AL-Adhamiya - AL-Bataween - Palestine Street – AL-Zaafaraniya. The examination looks at the advancement of the sorts of lodging during the recent two centuries in Baghdad, It was dissected and contrasted with the remainder of the examples of other private periods, in light of exhaustive plans, pictures and illustrations. The investigation strategy was contained examination of (the plans, the sorts and mass, the facade, the horizontal and vertical movement , the zoning and Privacy, in addition to the integration spaces investigation with utilized the space structure technique). The principle goal of this paper is to distinguish the procedure of change in the sort, spatial and optical style of the house through the utilization of similar assessment of various periods and to demonstrate the effect of modernity on the disturbance or improvement of the house in Baghdad so as to examine the progression of these examples or ruptures among them. The conclusion is made to stress contemporary difficulties, while projections of future lodging models are exhibited in the chose city of Baghdad and other Iraqi urban communities.

1. INTRODUCTION

Lodging changes worldwide because of the effect of real statistic and demographic changes, as well as due to the technological innovative and sociopolitical intercessions. As for the vernacular settlements, lodging has frequently been a lineal articulation of the condition of finesse construction strategies, accessible nearby development materials and neighborhood climatic and social conditions [1]. Traditional and modernism are two differentiating esteem frameworks that exist together in Middle Eastern culture. The violent battle among old and new is an outcome of the Middle Eastern countries' familiar contact with Western societies through imperialism, the foundation of new political belief systems and developments, and aspirant projects of modern improvement embraced by then independent states [2].

The problem of these papers is the need to detail a lot of rules for plan arrangements and structure choices for contemporary design in Baghdad, particularly lodging structures with respect to the capability of vernacular advancements in current lodging and take the thoughts from standards of the conventional Baghdadi House. This study looks at the development and change of lodging typologies from the viewpoint of the people's understanding and perception into a meaningful production of space.

It talks about the creation of private models all through the various periods as many exercises molding their spatial arrangement. The motivations behind this study produce a hypothetical and handy structure of investigation Iraqi convictions about the lodging plan of Baghdad. This structure has been utilized to examine the contemporary status of plan in the places of Baghdad.

2. MATERIAL and METHOD

Research methodology incorporates, 8 Samples of Baghdad habitations. They have been taken inside various segments and along the time scale of the research. The imperceptible division of these examples as indicated by the political changes of the country in view of their immediate effect on the appearance of innovation to the city of Baghdad. They have been grouped into four stages in four fundamental districts in the city of Baghdad, and they are the phase of the late Ottoman rule from 1880-1917: the traditional houses (Al-Adhamiya district), the Phase of the British Mandate and the monarchal government 1917 – 1958: the hybrid houses (Al-Bataween district), the Phase of Republican era. 1958-2003: the villa types (Palestine Street area), the Phase of Parliamentary era after 2003 until this moment: the prolonged houses (Al-Zaafaraniya district).

Likewise, research methodology incorporates deciding the spaces of every period, recognizing the new spaces dropped in the abodes of every period, determine the quantity of sorts of connections that the house is connected to in Baghdad inside its different components, which are connected inside the bigger framework by use space construction. The analysis strategy was incorporated investigation of the plans, the sorts, mass, the façade, the level movement, and the zoning, in addition to the coordination spaces analysis with utilizing the space structure technique. This paper methodology will do authentic and historical analysis of eight houses in Baghdad from four phases utilizing relative analysis.

3. Historical periods of housing Typologies

Modernity main characteristics are the underestimation of acquired and inherited socio-cultural qualities. Such modernity has constrained the effect of privacy, protection, and opening social spaces to the outside, and giving boundless visual to get to indoor social settings [3]. Modernity influences the ordinary states of Iraqi society through the decimation of the casual systems of social bonds, and shares obligations supplanting them by an exceptionally formalized authoritative framework [4].

3.1. Housing Typology during the Late Ottoman Rule from 1880-1917: The Traditional houses (Al-Adhamiya District)

The traditional houses of Baghdad have been erected as one or two floors. One-floor houses comprise of courtyard rectangular or square yard encompassed by Ewan's, rooms and all houses contain cellar to has been utilized during the hot atmosphere. In the two floors houses the primary floor contains a couple of passageways (tarma or corridor), basement, nourishment store, and the kitchen. The second floor comprised of associated rooms with one another is by (tarma or corridor) and have outer openings for ventilation and lightening [3]. Traditional residences are internally oriented, with external walls at pedestrian eye-level which are blank. Windows that face the street are built higher than street-pedestrian level and are frequently accompanied by (Shanashil or wooden mashrabiyas :wood lattice screens) to ensure one way view, whereby ladies could see outside, yet passers-by, particularly men couldn't see inside [2]. Al-Adhamiya has been picked as a contextual investigation for the primary period (traditional houses). The explanations behind choosing the examination zone (Al- Adhamiya), bemuse it elucidates the conventional Baghdadi houses of

its tight winding avenues. Houses with central yard and (Shanashil or Wooden mashrabiya) overlooking the alley going back to the start of the city of Baghdad in the middle of the ninth century.



Figure 3. 1. Photos of Al-Adhamiya area of Baghdad, by the researcher

3.2. Housing Typology during the British Mandate and the Monarchal Government 1917 – 1958: the hybrid houses (Al-Bataween District)

Changes in the urban texture and local architecture of Baghdad started gradually after the First World War and expanded speedily after the Second World War. Since Baghdad is the capital city and focal point of intensity, it encountered urban change. The presentation of new compositional styles before other Iraqi urban areas [5]. Such obliteration and rectifying of old road designs and execution of network plans changed the formats of houses and the general character of urban life. The avenues turned out to be increasingly open, and privacy diminished houses opened outward with enormous glass windows [6].

Al-Bataween region has been picked as a case for investigation for the second period. The explanations behind picking Al-Bataween as a contextual investigation for the second stage are the arise of the region during period after the British control of Iraq and the development of the city of Baghdad from the south towards the territory of Al- Bataween.



Figure 3.2. Photos of Al- Bataween area of Baghdad, by the researcher.

3.3. Housing Typology during the Republican era. 1958-2003: The villa types (Palestine Street area)

Two types of private units have been presented as modern models, a villa (huge house) and flats. The villa has been presented first by the government as a standard lodging typology for local people. As opposed to the customary typology for people, the insides spaces of a modern villa have been situated outward towards the encompassing yards or open air spaces. The greater part of the villa models are a couple of high story and are put in the focal point of the plot encompassed by opened spaces in which vehicle stops and gardens excites. A tall divider has been added to ensure the family confidentiality and to characterize the private space. The course of action of inside spaces has been saved the conventional spatial association somewhat. The visitor rooms have been yet situated in nearness to passageway spaces to empower a partition between private family life and guests [1].

The idea of family, social space as the fundamental multifunctional movement space has been decreased through dividing the inner area of the house into discrete shut spaces is showing explicit functions [4]. The Palestine Street zone is picked as a case study for the third period. The purposes behind picking Palestine street for the third stage are it's arise after the Republican Government of Iraq and the expansion of the city of Baghdad from the east towards the area of the Palestine street.



Figure 3.3. Photos of The Palestine Street Area of Baghdad, by the researcher.

3.4. Housing Typology in the Parliamentary Era after 2003 till now: The Prolonged Houses (Al-Zaafaraniya area).

After the war in 2003, noteworthy radical changes have been occurred in the city. Many open spaces, parks, plantations. The green territories have been taken away by the Municipality of Baghdad and they are currently erected regions. Roads have been broadened to the detriment of walkways and pedestrian ways. Numerous urban squares have been changed to traffic intersections or bridges. The quick, progressive financial, and political changes in Iraq over the most recent three decades. Particularly after 2003 and Iraq's entrance into another transitional phase of social, religious, and scholarly transformative clashes have influenced individuals' social and social qualities. The related mental and conduct angles to cling to contemporary standards of the home condition. The segregation in layers of Iraqi society has been affected by the variable classifications of socio-social and religious components. Every one of these progressions influence the structural properties of the house as long as the physical and spatial course of action of the house. The utilization of the social space are analogies for the imperceptible picture of the cultural and social estimations of society [4].

Al- Zaafaraniya zone has been picked as a contextual investigation for the fourth period. The purposes behind picking are the arise of the region within a historical period after the war Iraq in 2003, and the expansion of the city of Baghdad from the south towards the area of Al-Zaafaraniya.

4. Analysis of Housing Typology in Baghdad

The descriptive stage of this paper incorporates a portrayal of the truth of the houses in Baghdad, with photos of the plans and the facades of houses, and the analytical stage including examination of the houses in an all its aspects. These aspects are: investigation of typology, and examination of space syntax. Space Syntax is a method for describing and analyzing the relationships between spaces of urban areas and buildings. The idea assumes that most people and most of the time will take the simplest route to their destination. That route tends to involve the fewest changes of Direction. The more changes of direction and more complex the system, the more ineffective or inefficient the network design becomes [7].

4.1. Analysis of Housing Typology during the Late Ottoman Rule from 1880-1917: The Traditional Houses (Al-Adhamiya District)

Saad AL-JUBURI house and Sami AL-TUHAFI house have been chosen to be examined in the paper. The sort of the houses in this period goes back to the Ottoman rule of Iraq and the top features of Baghdadi architectural design. They bear the highlights of the arranging of Arab Islamic engineering which are receptive to the climatic and financial prerequisites from one viewpoint, religious convictions, social and cultural traditions on the other.



Figure 3.4. Photos of Al-Zaafaraniya Area of Baghdad, by the researcher.

Analysis of typology

These houses have been recognized by the existence of the central courtyard encompassed by the remainder of the house. The house is oriented into the inside and (shanashil or Wooden mashrabiyyas) with its excellent embellishment on the first floor. There is a broken entrance to accomplish the security of the house from outsiders. In addition, the existence of basement as an essential part of the conventional traditional Baghdadi house. These type of the houses has been disappeared after the British colonization of Iraq. There are developments of new western ideas in the customary Baghdadi type.

Analysis of space syntax

It has been observed through the sketches of the traditional conventional houses, which have been chosen in this period of Baghdad, that the traditional houses comprise principally of the patio that most incorporated spaces. Where the highest integration value recorded in the courtyard and the lowest integration value have been recorded in the basement (table 4.1).



Figure 4.1. A map of Al-Adhamiya show the traditional houses in Baghdad (a), façade of Saad Al-JUBURI house in Baghdad (b), façade of Sami Al-TUHAFI house in Baghdad.

4.2. Analysis of Housing Typology during the British Mandate and the Monarchal Government 1917 – 1958: The Hybrid Houses (Al-Bataween District)

Sajad AL-SHAMERI house and Ahmed AL-HASAN house have been chosen to the investigation in the paper. These houses have unmistakable arranging urban which has been perceived by the system plan. Boulevards are wide, straight and spaces of huge lodging. It has been described by the utilization of (terraces) which are belong to the western style

Analysis of typology:

The type of these houses in this period has been impacted by the leverage of Western trending because of the British colonization of Iraq on the native architecture. The arise of new structure styles that are not recently known (the hybrid houses types). The central courtyard and facades with windows overlooking the outside. The building goes outward instead of closing inward and the emergence of (window) on the ground floors and the upper. In addition, there is a replacement of (Shanashil or Wooden mashrabiya) with (balconies). Also, the survival of the courtyard. Sometimes, changing of the central position into a back garden. As well as the disappearance of the (Iwan) has been replaced by the reception room of guests. Another changing is the disappearance of (kabshkan or Entresol) has been replaced by a room (store) which is affected by designs of the West Houses. There are new development strategies and materials, for example, steel structures (Shelman) have been utilized. The cellar stayed in certain houses and vanished from others as per the desires of the proprietor. Finishing with the finish of the 1950s with the foundation of the Republic of Iraq in 1985.

Analysis of space syntax:

It has been observed through the sketches of the houses chosen in this period of Baghdad that the houses comprise principally of the courtyard that most integrated spaces like the former phase. Where the highest integration value recorded in the courtyard, and the lowest integration value recorded in the balcony (table 4.2.)



Figure 4.2. A map of Al-Bataween show the hybrid houses in Baghdad (a) Façade of Ahmed Al-HASAN house in Baghdad (b) Façade of Sajad AL-SHAMERI house in Baghdad (c).

4.3. Analysis of Housing Typology during the Republican Era. 1958-2003: The Villa Types (Palestine Street Area)

Omer AL-TAEY house and Sawsan AL-KHAFAJI house are chosen to examination in the paper. The sort of these houses in this stage is villa; it contains the traits of modern architecture, which bears the highlights of the ideas of western designs.

Analysis of Typology: The type of the houses of this period is the large houses (villas) encompass by gardens from all sides and the opening of the house outside. This period has been characterized by a break from previous periods influenced by the movement of modern architecture that emerged before this time in the rest of the world. Which has been encouraged by the political, social, economic change, improved building techniques, and the expansion of its area. This has led to the removal of architectural elements such as (courtyard, Iwan). The addition of new architectural elements such as (balconies, terraces and garages), is led to a change in the relations among the elements. In addition, there is emergence of multi-story buildings (residential buildings). The appearance of this type is noticeable after the emergence of the republican regime and the end of the monarchy in Iraq at the end of the 1950s.

Analysis of Space Syntax:

It has been observed through the sketches of the villa houses chosen in this period of Baghdad that the houses comprise essentially of the hall that most integrated spaces. Where the highest integration value has been recorded in the hall, and the lowest integration value recorded in the roof and parking (table 4.3.).



Figure 4.3. A map of the Palestine Street shows the villas in Baghdad (a) Façade of Omer Al-TAEY house in Baghdad (b) Façade of Sawsan Al-KHAFAJI house in Baghdad (c).

4.4. Analysis of Housing Typology in the Parliamentary Era after 2003 until now: The Prolonged Houses (Al-Zaafaraniya area).

The Qais AL-MAAMORY house and the Abdul AL-RASHEEDY house have been selected to analysis in the paper. The type of these houses in this phase is an extended type with small areas, because of the division of large houses into small houses; also, it bears the features of the design and ideas from the others countries.


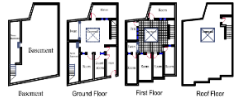




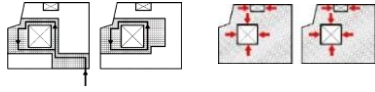



Analysis of Typology: The type of houses in this period has experienced numerous progressions from the homes of past periods due to the perplexity that happened in the structure of Iraqi society because of the difference in the Iraqi government. After 2003 and the monetary and social changes that went with it, which have been mirrored on the residential units and the urban scene of the local location. This period witnessed the phenomenon of the transformation of residential units and their fragmentation. These political and economic changes affected the urban laws such as the issuance in 2004 of a law allowing the construction of a third floor for the residential role. In addition to the emergence of a negative indicator in the method of construction and cutting of housing units in very small areas 50, 75, 100 m², on demand, which causes a change in the urban landscape of the city. Many residential parks have been transformed into small residential houses. From the aftereffects of the division of the enormous lodging units into small residential units. The common design of residential units with elongation (extension house type) is the design that depends on the sequence of spaces from the general into the private and sequential sequence. The different regions overlap with each other because of the transition through penetrated spaces and reducing the spaces of movement, which overlap with the rest of the spaces. Therefore, entering begins from the entrance space to the kitchen and from it to the living spaces, which lead to the showers and sleeping rooms.

Analysis of Space Syntax: It was observed through the sketches of the modern houses chosen in this period of Baghdad that the houses comprise essentially of the spaces of movement that most integrated spaces like the former phase. Where the highest integration value recorded in the hall or spaces of movement, and the lowest integration value recorded in the balcony and roof (table 4.4.).



Figure 4.4. A map of the Al-Zaafaraniya show the modern houses in Baghdad (a), Façade of Qais AL-MAAMORY house in Baghdad (b), Façade of Abdul AL-RASHEEDY house, in Baghdad (c).

Table 4.1. Analysis of typology and space syntax in the traditional houses of Baghdad, during the late Ottoman rule from 1880-1917: The traditional houses.

The Name of Analysis	Analysis of typology in Saad AL-JUBURI house in Baghdad, during the late Ottoman rule	Analysis of typology in Sami AL-TUHAFI house, during the late Ottoman rule
Analysis of Plans		
Analysis of the Mass		
Note: The black color represents the mass of the house and the white color represents the space surrounding the mass.		
Analysis of the Façade		
Analysis of the Horizontal Movement		
Note: The black arrow indicates the horizontal movement coming from outside the house into the house, and the red arrow indicates the direction of the house towards the courtyards, and it was focus on the ground floor and first floor, to show movement inside the house		
Analysis of the Zoning		
Note: The yellow color represents a space for guests, and pink color represents the private space of the family, and it was focus on the ground floor, to show the separation of the guest space from the family space		

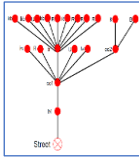
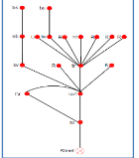
<p>Analysis of space syntax in Saad AL-JUBURI house in Baghdad</p> <p>Syntactic calculations:</p> $11 \times 4 = 44$ $6 \times 3 = 18$ $1 \times 2 = 2$ $1 \times 1 = 1$ $1 \times 0 = 0$ <hr/> 65  <p>$MD = \frac{65}{(22-1)} = 3,523$ $RA = \frac{2(3,523-1)}{(22-2)} = 0,252$</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Space</th> <th>TD</th> <th>MD)</th> <th>(RA)</th> </tr> </thead> <tbody> <tr><td>M</td><td>Majaz</td><td>54</td><td>2.571</td><td>0.157</td></tr> <tr><td>co</td><td>Courtyard</td><td>36</td><td>1.714</td><td>0.071</td></tr> <tr><td>U</td><td>Ursi1</td><td>56</td><td>2.666</td><td>0.166</td></tr> <tr><td>iw</td><td>Iwan1</td><td>56</td><td>2.666</td><td>0.166</td></tr> <tr><td>R</td><td>Room1</td><td>56</td><td>2.666</td><td>0.166</td></tr> <tr><td>co2</td><td>Courtyard2</td><td>52</td><td>2.476</td><td>0.147</td></tr> <tr><td>K</td><td>Kitchen</td><td>72</td><td>3.428</td><td>0.242</td></tr> <tr><td>B</td><td>Bathroom</td><td>72</td><td>3.428</td><td>0.242</td></tr> <tr><td>kb</td><td>Kabashkan1</td><td>58</td><td>2.761</td><td>0.176</td></tr> <tr><td>ro</td><td>Roof</td><td>58</td><td>2.761</td><td>0.176</td></tr> <tr><td>U</td><td>Ursi2</td><td>58</td><td>2.761</td><td>0.176</td></tr> <tr><td>bs</td><td>Basement</td><td>90</td><td>4.285</td><td>0.328</td></tr> <tr><td>nb</td><td>Neem basement</td><td>72</td><td>3.428</td><td>0.242</td></tr> </tbody> </table>	Code	Space	TD	MD)	(RA)	M	Majaz	54	2.571	0.157	co	Courtyard	36	1.714	0.071	U	Ursi1	56	2.666	0.166	iw	Iwan1	56	2.666	0.166	R	Room1	56	2.666	0.166	co2	Courtyard2	52	2.476	0.147	K	Kitchen	72	3.428	0.242	B	Bathroom	72	3.428	0.242	kb	Kabashkan1	58	2.761	0.176	ro	Roof	58	2.761	0.176	U	Ursi2	58	2.761	0.176	bs	Basement	90	4.285	0.328	nb	Neem basement	72	3.428	0.242	<p>Analysis of space syntax in Sami AL-TUHAFI house in Baghdad</p> <p>Syntactic calculations:</p> $2 \times 5 = 10$ $8 \times 4 = 32$ $4 \times 3 = 12$ $2 \times 2 = 4$ $1 \times 1 = 1$ $1 \times 0 = 0$ <hr/> 59  <p>$MD = \frac{58}{(18-1)} = 3,470$ $RA = \frac{2(3,470-1)}{(18-2)} = 0,308$</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Space</th> <th>TD)</th> <th>MD)</th> <th>(RA)</th> </tr> </thead> <tbody> <tr><td>M</td><td>Majaz</td><td>43</td><td>2.529</td><td>0.191</td></tr> <tr><td>co</td><td>Courtyard</td><td>30</td><td>1.764</td><td>0.095</td></tr> <tr><td>Gr</td><td>Guestroom</td><td>44</td><td>2.588</td><td>0.198</td></tr> <tr><td>U</td><td>Ursi1</td><td>46</td><td>2.705</td><td>0.213</td></tr> <tr><td>iw</td><td>Iwan1</td><td>42</td><td>2.470</td><td>0.183</td></tr> <tr><td>R</td><td>Room1</td><td>46</td><td>2.705</td><td>0.213</td></tr> <tr><td>R</td><td>Room2</td><td>46</td><td>2.705</td><td>0.213</td></tr> <tr><td>K</td><td>Kitchen</td><td>46</td><td>2.705</td><td>0.213</td></tr> <tr><td>B</td><td>Bathroom</td><td>46</td><td>2.705</td><td>0.213</td></tr> <tr><td>ro</td><td>Roof</td><td>46</td><td>2.705</td><td>0.213</td></tr> <tr><td>iw</td><td>Iwan2</td><td>47</td><td>2.764</td><td>0.220</td></tr> <tr><td>bs</td><td>Basement</td><td>72</td><td>4.235</td><td>0.0404</td></tr> <tr><td>nb</td><td>Neem basement</td><td>55</td><td>3.235</td><td>0.279</td></tr> </tbody> </table>	Code	Space	TD)	MD)	(RA)	M	Majaz	43	2.529	0.191	co	Courtyard	30	1.764	0.095	Gr	Guestroom	44	2.588	0.198	U	Ursi1	46	2.705	0.213	iw	Iwan1	42	2.470	0.183	R	Room1	46	2.705	0.213	R	Room2	46	2.705	0.213	K	Kitchen	46	2.705	0.213	B	Bathroom	46	2.705	0.213	ro	Roof	46	2.705	0.213	iw	Iwan2	47	2.764	0.220	bs	Basement	72	4.235	0.0404	nb	Neem basement	55	3.235	0.279
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Table 4.2. Analysis of typology and space syntax in the houses of Baghdad, during the British mandate and the royal government 1917 – 1958: The hybrid houses.







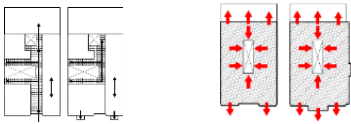
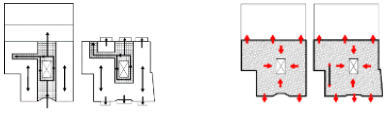






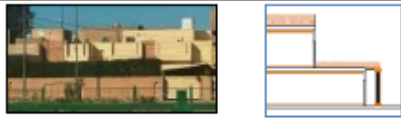
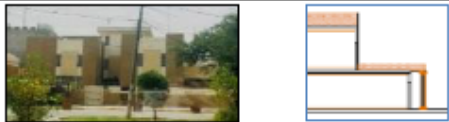
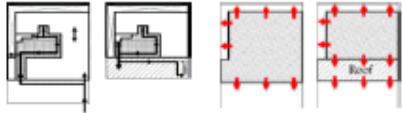



The Name of Analysis	Analysis of typology in Ahmed AL-HASAN house Baghdad, during the British mandate and the royal government	Analysis of typology in Sajad AL-SHAMERI house , during the British mandate and the royal government																																																																																																																								
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<table border="1"> <thead> <tr> <th>Code</th> <th>Space</th> <th>(TD)</th> <th>(MD)</th> <th>(RA)</th> </tr> </thead> <tbody> <tr><td>M</td><td>Majaz</td><td>73</td><td>2.607</td><td>0.119</td></tr> <tr><td>Gr</td><td>Guestroom</td><td>74</td><td>2.642</td><td>0.121</td></tr> <tr><td>co</td><td>Courtyard</td><td>50</td><td>1.785</td><td>0.058</td></tr> <tr><td>Sz</td><td>Service zone</td><td>73</td><td>2.607</td><td>0.119</td></tr> <tr><td>R</td><td>Room1</td><td>77</td><td>2.75</td><td>0.129</td></tr> <tr><td>K</td><td>Kitchen</td><td>77</td><td>3.08</td><td>0.173</td></tr> <tr><td>R</td><td>Room 2</td><td>75</td><td>2.678</td><td>0.124</td></tr> <tr><td>bk</td><td>Balcony</td><td>89</td><td>3.178</td><td>0.161</td></tr> <tr><td>ro</td><td>Roof</td><td>75</td><td>2.678</td><td>0.124</td></tr> <tr><td>g</td><td>Garden</td><td>77</td><td>2.75</td><td>0.129</td></tr> <tr><td>bs</td><td>Basement</td><td>77</td><td>2.75</td><td>0.129</td></tr> </tbody> </table>	Code	Space	(TD)	(MD)	(RA)	M	Majaz	73	2.607	0.119	Gr	Guestroom	74	2.642	0.121	co	Courtyard	50	1.785	0.058	Sz	Service zone	73	2.607	0.119	R	Room1	77	2.75	0.129	K	Kitchen	77	3.08	0.173	R	Room 2	75	2.678	0.124	bk	Balcony	89	3.178	0.161	ro	Roof	75	2.678	0.124	g	Garden	77	2.75	0.129	bs	Basement	77	2.75	0.129	<table border="1"> <thead> <tr> <th>Code</th> <th>Space</th> <th>(TD)</th> <th>(MD)</th> <th>(RA)</th> </tr> </thead> <tbody> <tr><td>M</td><td>Majaz</td><td>99</td><td>3.193</td><td>0.146</td></tr> <tr><td>Gr</td><td>Guestroom</td><td>100</td><td>3.225</td><td>0.148</td></tr> <tr><td>co</td><td>Courtyard</td><td>69</td><td>2.225</td><td>0.081</td></tr> <tr><td>Sz</td><td>Service zone</td><td>110</td><td>3.548</td><td>0.169</td></tr> <tr><td>R</td><td>Room1</td><td>100</td><td>3.225</td><td>0.148</td></tr> <tr><td>K</td><td>Kitchen</td><td>126</td><td>4.064</td><td>0.204</td></tr> <tr><td>R</td><td>Room 2</td><td>133</td><td>4.290</td><td>0.219</td></tr> <tr><td>bk</td><td>Balcony</td><td>141</td><td>4.548</td><td>0.236</td></tr> <tr><td>ro</td><td>Roof</td><td>126</td><td>4.064</td><td>0.204</td></tr> <tr><td>g</td><td>Garden</td><td>73</td><td>2.703</td><td>0.131</td></tr> <tr><td>bs</td><td>Basement</td><td>100</td><td>3.225</td><td>0.148</td></tr> </tbody> </table>		Code	Space	(TD)	(MD)	(RA)	M	Majaz	99	3.193	0.146	Gr	Guestroom	100	3.225	0.148	co	Courtyard	69	2.225	0.081	Sz	Service zone	110	3.548	0.169	R	Room1	100	3.225	0.148	K	Kitchen	126	4.064	0.204	R	Room 2	133	4.290	0.219	bk	Balcony	141	4.548	0.236	ro	Roof	126	4.064	0.204	g	Garden	73	2.703	0.131	bs	Basement	100	3.225	0.148
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The Name of Analysis	Analysis of typology in Omer AL-TAEY house in Baghdad	Analysis of typology in Sawsan AL-KHAFAJI house in Baghdad
Analysis of Plans		
Analysis of the Mass		
Note: The black color represents the mass of the house and the white color represents the space surrounding the mass.		
Analysis of the Façade		
Analysis of the Horizontal Movement		
Note: The black arrow indicates the horizontal movement coming from outside the house into the house, and the red arrow indicates the direction of the house towards the courtyards, and it was focus on the ground floor and first floor, to show movement inside the house		
Analysis of the Zoning		
Note: (The yellow color represents a space for guests, and pink color represents the private space of the family, and the green color represents a space for garden), , and it was focus on the ground floor, to show the separation of the guest space from the family space		

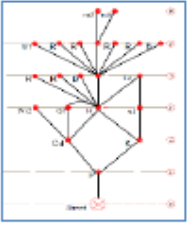
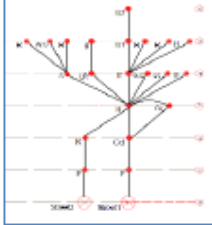
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<p>Syntactic calculations:</p> $2 \times 6 = 12$ $7 \times 5 = 35$ $5 \times 4 = 20$ $4 \times 3 = 12$ $2 \times 2 = 4$ $1 \times 1 = 1$ $1 \times 0 = 0$ <hr/> 84 $MD = \frac{84}{(22 - 1)} = 4$ $RA = \frac{2(4 - 1)}{(22 - 2)} = 0,3$	<p>Syntactic calculations:</p> $1 \times 6 = 6$ $8 \times 5 = 40$ $6 \times 4 = 24$ $2 \times 3 = 6$ $2 \times 2 = 4$ $1 \times 1 = 1$ $1 \times 0 = 0$ <hr/> 82 $MD = \frac{82}{(23 - 1)} = 3,727$ $RA = \frac{2(3,727 - 1)}{(23 - 2)} = 0,259$																																																																																																									
																																																																																																										
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Table 4.4. Analysis of housing typology and space syntax in the houses of Baghdad, during the Parliamentary Era after 2003 until now: The prolonged houses.

The Name of Analysis	Analysis of typology in Qais AL-MAAMORY house in Baghdad	Analysis of typology in Abdul AL-RASHEEDY house in Baghdad																																																																																																														
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$MD = \frac{69}{(18 - 1)} = 4,058$ $RA = \frac{2(4,058 - 1)}{(18 - 2)} = 0,382$	$MD = \frac{59}{(17 - 1)} = 3,687$ $RA = \frac{2(3,687 - 1)}{(17 - 2)} = 0,358$																																																																																																															
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R	Room1	43	2.687	0.224																																																																																																												
R	Room2	43	2.687	0.224																																																																																																												
B	Bathroom	43	2.687	0.224																																																																																																												
K	Kitchen	45	2.812	0.241																																																																																																												
ro	Roof	55	3.437	0.324																																																																																																												
bk	Balcony	55	3.437	0.324																																																																																																												
P	parking	54	3.2	0.315																																																																																																												

5. RESULTS AND DISCUSSION

1. By reviewing, the types of the four stages in this paper have been observed the negative impact of modernity on the style of housing in Baghdad. Western designs that have been introduced do not serve the Baghdadi resident.
2. Baghdadi traditional house has many suitable concepts and ideas that can be adapted and redrafted in a new style and used to achieve a house in a traditional, yet contemporary style.
3. The traditional houses in Baghdad have a flexible, multi-use, multi-fusion, central courtyard, where families gather to talk, eat and watch television, unlike modern houses that have been separated by space and lack of integration between spaces.
4. The traditional houses emphasize privacy through the existence of a refracted space of the corridor. Also, emphasize privacy through the nature of the movement within the traditional house. The movement starts ranging from public space to semi-public spaces and semi-private spaces. Ending with special spaces while the nature of the movement within modern houses does not have this gradation. From the public to the private directive which reduces the privacy of the occupants inside the house.
5. The traditional houses achieves the sustainability and thermal comfort of the inhabitants by using building materials that reduce the heat of the house, while the modern homes suffer from loss of privacy and thermal comfort to the inhabitants, which leads to the consumption of a lot of synthetic energy.
6. The facades of traditional houses have been characterized by the use of wooden (Shanashil or Wooden mashrabiya) and the achievement of privacy by preventing the sight of pedestrians in the alley for the inside of the house as well as the shading of the alley overlooking while the facades of modern houses are limited to balconies that are useless except the aesthetics .

A proposal to design a house with a contemporary type

The thesis deals with a review of four types of houses in Baghdad within four historical stage. It has been noted that the traditional type is appropriate for the population in terms of social, cultural and environmental. The traditional type has many features that has been relied upon and reformulated in a modern, contemporary style to achieve a suitable housing type for the Baghdadi resident. Among them, the research proposes a set of proposals as follows:

A Proposal Plan for new house in Baghdad

Emphasizing the privacy of the inhabitants inside the house by providing a special space to prevent the penetration of sight of strangers, which paves the way to enter the house, be broken, and not direct, which achieves isolation of the family home spaces from the spaces of the house allocated to guests. In order to take full advantage of the building space, closing the house inward and directed towards the central courtyard to reduce the loss of construction space and the abolition of the outer garden space, and keep the middle courtyard the only open space towards the sky.

A Proposal faced for new house in Baghdad

Reusing the type of facades (Shanashil or Wooden mashrabiya) modern style, which provides aesthetic and remained suitable for residents or people passing outside the house. Whether overlooking the street or (Shanashil or Wooden mashrabiya) overlooking the central courtyard inside the house. Keeping away from the use of balconies that violate the privacy of neighboring houses through direct view.

A Proposal levels for new house in Baghdad

Dividing the house into several levels and not limited to two floors. Reuse the level of Kabashkan medium level overlooking the house. Reusing the level of the basement as a parking lot and space for service and storage. This division of the levels will lead to the exploitation of small areas more effectively which reduces the space required to build a modern housing with less space.

A Proposal the zoning for new house in Baghdad

The use of the central courtyard space in the design of the house in a modern style, which achieves the psychological comfort of the residents by bringing the family together in one space overlooking all other spaces.

Proposal Sustainable model for new house in Baghdad

Reusing the internal water fountain to provide suitable humidity for the inhabitants that reduce the heat of the summer air. Moreover, using building materials that are available in Baghdad and applying the principles of environmental sustainability required to reduce energy consumption such as mud, milk, and local bricks that provide thermal comfort for residents.

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