

Formal characteristics of vernacular architecture in Erbil city and other Iraqi cities

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Theoretical framework

The Concept of Vernacular Architecture and its Form

According to Paul Oliver:

“Vernacular architecture comprises the dwellings and other buildings of the people. Related to their environmental contexts and available resources they are customarily owner- or community-built, utilizing traditional technologies. All forms of vernacular architecture are built to meet specific needs, accommodating the values, economies and ways of life of the cultures that produce them.” (Oliver, 1997, p.ii)

In another definition Oliver gives a description about the context of vernacular architecture:

“Within the context of vernacular architecture it embraces what is known and what is inherited about the dwelling, building, or settlement. It includes the collective wisdom and experience of a society, and the norms that have become accepted by the group as being appropriate to its built environment.” (Oliver, 1997, p.ii)

In his book (House Form and Culture), Amos Rapoport makes a comparison between the buildings that belong to the grand design tradition and those of the folk tradition. (Rapoport, 1969,p.2)

According to Rapoport, the monument- buildings of the grand design tradition- are built to impress either the populace with the power of the patron, or the peer group of designers and cognoscenti with the cleverness of the designer and good taste of the patron. The folk tradition, on the other hand, is the direct and unself-conscious translation into physical form of a culture, its needs and values – as well as the desires, dreams, and passions of a people. It is the world view writ small, the “ideal” environment of a people expressed in buildings and settlements, with no designer, artist, or architect with an axe to grind (although to what extent the designer is really a form giver is a moot point). The folk tradition is much more closely related to the culture of the majority and life as it is really lived than is the grand design tradition, which represents the

culture of the elite. The folk tradition also represents the bulk of the built environment. **(Rapoport, 1969,p.2)**

In his book (*Design Strategies in Architecture*), Baker makes a definition for the vernacular architecture as follows:

In vernacular architecture, the process of evolution using a model continues with adjustments and variations. The dwelling is now built by tradesmen. Vernacular architecture does not have theoretical or aesthetic pretensions and models develop in accordance with regional, climatic and economic factors. **(Baker, 1996, p15)**

In (*Archi-Speak*), which is a guide for architectural terms prepared by Tom Porter and other distinguishable contributors, the term vernacular architecture has been defined as follows:

Vernacular refers to the language or dialect of one's native country, while its use in architecture is concerned with everyday, ordinary buildings rather than their monumental counterparts. Vernacular describes a traditional language of building, usually of unknown authorship, constructed from local materials to suit their native setting, indigenous climate, and specific local needs. Being built from locally available materials, such as stone, clay, timber and thatch, vernacular buildings make little reference to mainstream style or to any prevalent theories of architecture. **(Porter, 2004,p.203)**

Also Bruce Allsopp, in the book (*A Modern Theory of Architecture*), gives a definition of vernacular architecture, as follows:

Vernacular architecture is a generalized way of design derived from folk architecture. It may be seen as the development of the 'natural' architecture of a region which is definable in terms of climate, culture and materials. Of its own nature, however, vernacular architecture is limited to that which can properly be expressed 'in the vernacular'. It can be used for spiritual, monumental and utility buildings but limits of propriety are set taste and judgment. Scale is a crucial factor. Vernacular architecture is congenial to people and sympathetic to environment. **(Allsopp, 1977,p.8)**

In order to derive the factors of the vernacular architecture which are more related to the subject of form, the research analyzes these approaches according to a set of factors that have been derived from the definitions. The research highlights and adopt the agreed upon factors and naturalize and neglect the points of disagreement, this will lead to a group of factors that represent basis for comparison. See table (1)

Table 1

The items of vernacular architecture form that the definitions concentrate on them

The definition of vernacular architecture by	The regional forms, materials, technology	Forms that reply specific needs of humans	Vernacular as a culture of the majority of people	Forms that reply the values, economics, way of life of certain culture (people)	Vernacular forms as norms that have been accepted by people	Variation in models and few types	Vernacular architecture with no theoretical background	Vernacular dwellings
Oliver								
Rapoport								
Baker								
Porter								
Allsopp								

According to table 1, the research finds that the above studies agree on some items concerning the subject of vernacular architecture form and disagree in others, so the most agreed items are discussed in the following:

- The regional forms, materials and technology.
- Forms that reply to specific needs of human.
- Forms that reply to the values, economics, and way of life of certain culture (people).
- Dwelling buildings as the major representation of vernacular architecture.

These items determine forms characteristics to be used in sample selection in the next step of the practical part.

Analysis of studies concerning the vernacular houses forms

To derive the main items of the practical part, the research will describe three studies, each of them is studying the elements and composition of forms of the vernacular houses in a certain culture, and each of these studies follow a certain method for research in this subject.

Study No. 1

(Iraqi house in Baghdad and other Iraqi cities), by Oscar Reuther, 2005

This study describes the following factors and elements of the traditional houses elevations. Note that the bold factors will be adopted by the research:

- ❖ There are two kinds of elevations in the traditional courtyard houses, street elevation and courtyard elevation. **Here the research adopts the street elevation.** The street elevation having the following characteristics:
 - **Ornaments and decorations** are used in the entrances.
- ❖ The used elements of the elevations are:
 - **Main entrance (variety forms and different scales).**
 - **Windows (size and height from the ground level).**
 - **Shanashil.**
 - **Arches, two types (structural arches and ornamental arches).**

Study No.2

(Oriental Houses in Iraq), by Subhi Hussein Al-Azzawi, 1978

This study describes the following factors and elements of the traditional houses elevations and plans. Note that the bold factors will be adopted by the research:

- ❖ The used elements of the elevations are:
 - **Main entrance**_(bent type that provides privacy for the courtyard).
 - **Windows (size and height from the ground level).**

Windows (few number in each elevation)

Study No. 3

(Influences of Different Ages and Cultures on Each Other From Architectural Point of View: Examination of Historical Buildings in Trabzon/Turkiye), by Aysha Sagsoz, Omer Iskender Tuluk, Suleyman Ozgen, 2005

The houses examined in this study belong to Anatolian Greek–Greek (Roman–Byzantine) Architecture and Ottoman–Turkish architecture (a total of 30 houses). Because the weight of this study is on the facades of the buildings, the planning typology was ignored. **In the Method section, the sample houses were shown in a table in two main groups as General Characteristics and Facade Elements. The general characteristics consist of: the number of**

floors, and symmetry. Façade elements consist of: horizontal-vertical bands, eaves, entrance positions, bay windows, and windows.

	GENERAL CHARACTERISTICS		FAÇADE ELEMENTS					
	Number of Floors	Symmetry	Horizontal-Vertical Bands	Eaves	Entrances			
					Below the Open by Window	Below the Closed by Window	On the Flat Surfaces	
1								
2								
3								
4								
5								

	FAÇADE ELEMENTS						
	Bay Window				Window		
	Closed	Open	Position	Width	Above-Bay Window Form	Rectangle	Arch
1							
2							
3							
4							
5							

Figure (1) Analysis of the general characteristics and façade elements of Trabzone historical buildings

Reference: Aysha Sagsoz, Omer Iskender Tuluk, Suleyman Ozgen, 2005

According to the previous studies, the research recognizes the following factors that will be used in the coming steps in the practical part:

- ❖ The elements of the elevation.
- ❖ Composition of the elements regarding the whole elevation.
- ❖ Patterns and ornaments.

The practical part

Analysis of the formal elements of vernacular houses elevations and their compositions

The practical part of the research includes a case study in Erbil city and other Iraqi cities. The main path of the practical part process includes:

- Sampling process, which includes:
 - Sample of the study area locations according to Erbil city map.
 - Selecting samples of the houses, this includes two kinds of houses, traditional vernacular houses and contemporary vernacular houses.
- Surveying process, which includes:
 - Surveying the elevation of the selected samples by using photos, and also the measuring process by the researcher.
- Statistical calculations for the results of the survey.
- Findings of the surveying process.
- Analysis of the findings of the survey.
- The final findings.

Sampling

The process of sampling has two main paths:

- Sampling of the study area according to Erbil city map. For this purpose, two quarters are selected in Erbil for the study, Arab and Taajil quarters, this selection was according to:
 - ❖ The physical condition of the houses including their heritage value which are better protected in Arab and Taajil quarters than the houses of the citadel and Khanaqa quarter (which are two other traditional locations) in Erbil city.
 - ❖ The samples are matching the characteristics of the vernacular houses forms that have been discussed in the theoretical part.

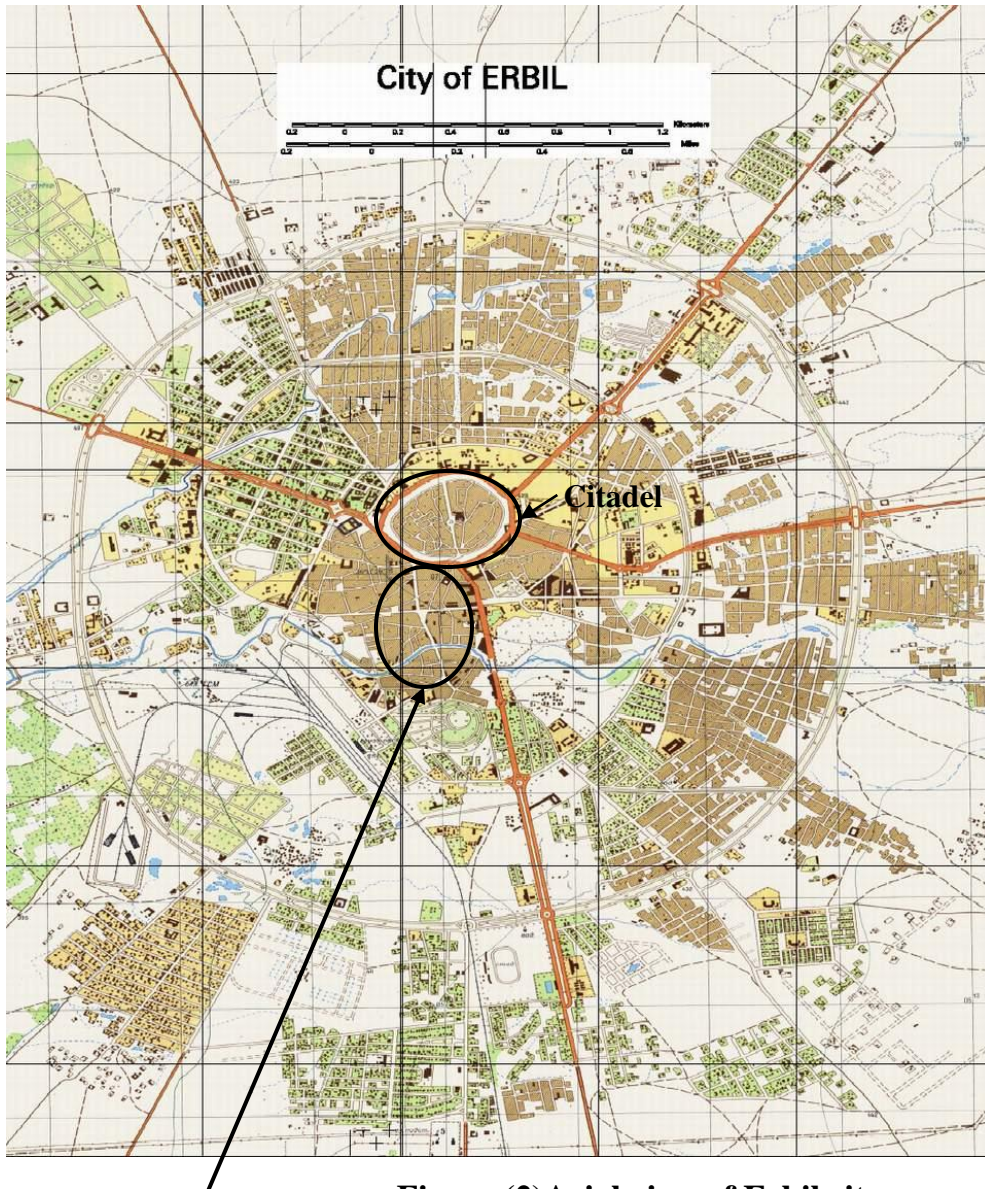


Figure (2) Aerial view of Erbil city

**Arab and Taajil
quarters**

Surveying

The process of surveying includes taking photos for the elevations of 25 samples and also taking the necessary measurements for the elements of the elevations.

The main items of the surveying table are:

- ❖ A photographic photo for the elevation of the sample.
- ❖ General information about the sample, that consists of:
 - Sample number that is randomly listed.
 - Type of the building.

- Categorization.
- Location according to their quarter (these quarters names are fixed by the municipality registrations).
- ❖ Name of the element.
- ❖ Form of the element.
- ❖ Composition of the element regarding the whole elevation.

Elements of the elevations

In the vernacular elevation samples, the following kinds of elements can be recognized as with special treatment:

- Entrance.
- Window.
- Shading parts and that include:
 - Canopy.
 - Balcony.
 - Shanashil (overhang).
 - Parapet (the vernacular term “sitara”).
 - Patterns and ornaments.

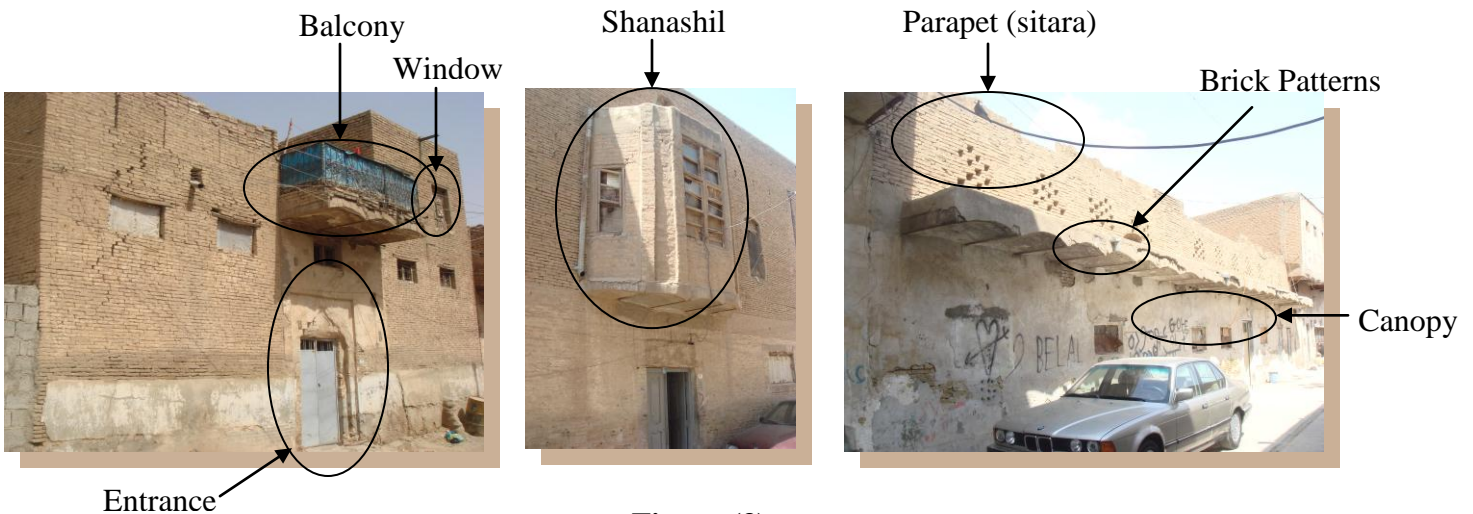


Figure (3)

The elements of the vernacular elevation samples

Composition of the element regarding the whole elevation

In this part, the composition of the element in relation with the whole elevation will be recognized. For this purpose three concepts have been chosen to find out this relationship:

Centralization

Regarding the location of the entrance in the whole elevation composition, Ching determines that an entrance can be centered within the frontal plane of a building or be placed off-center to create a condition of local symmetry about its opening. (Ching, 2007,p.251)

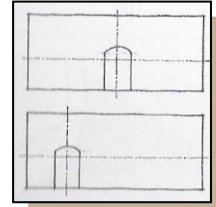


Figure (4)

Centralization (Reference: Ching)

Continuity with the elevation line

For this concept, Ching declares that entrances may be grouped formally into the following categories: flush, projected, and recessed. A flush entrance maintains the continuity of the surface of a wall and can be, if desired, deliberately obscured. A projected entrance forms a transitional space, announces its function to the approach, and provides overhead shelter. A recessed entrance also provides shelter and receives a portion of exterior space into the realm of the building. (Ching, 2007,p.251)

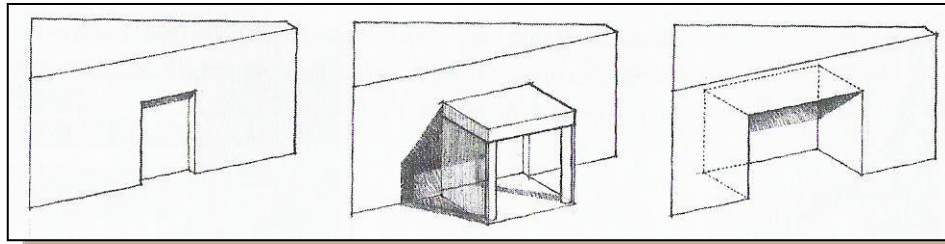


Figure (5)

Continuity with the elevation line (Reference: Ching)

Position according to the public domain

This concept declares whether the element is parallel or perpendicular to the main street.

Table (2) Samples photos

19		10		1	
20		11		2	

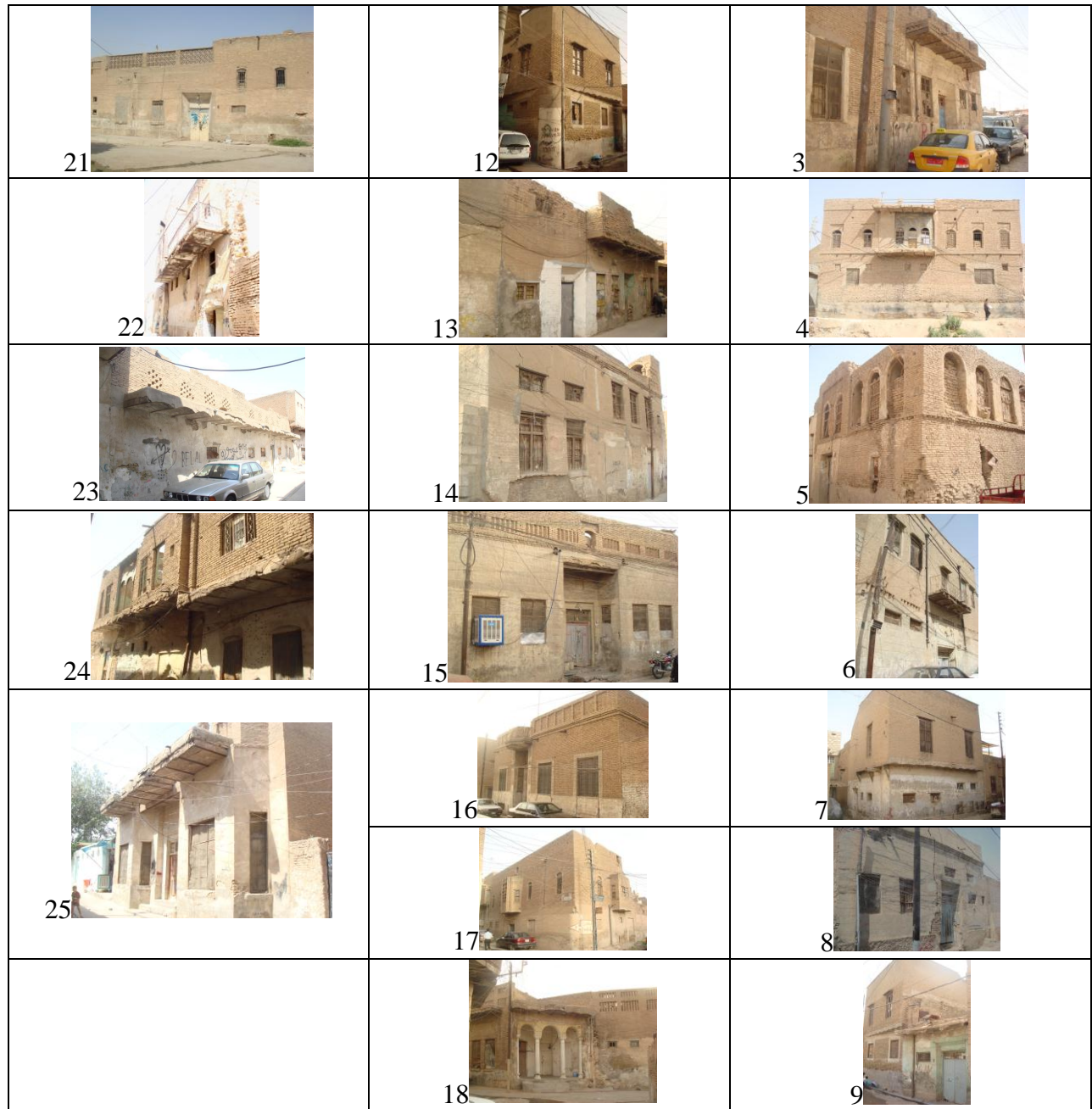
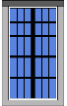


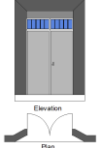


Table (3) Form of the elements

Symbol	Form of the window	Symbol	Form of the window	Symbol	Form of the entrance	Symbol	Form of the entrance
W10		W1		E10		E1	

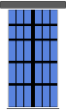

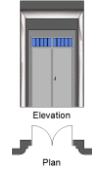

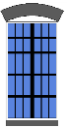
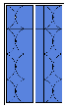
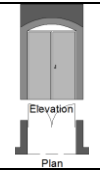
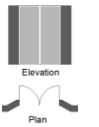
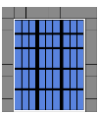
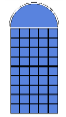
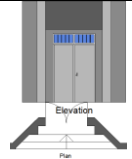
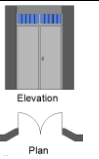

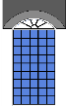
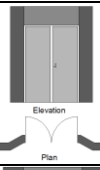
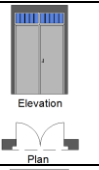

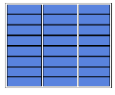
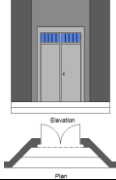
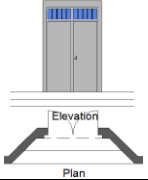


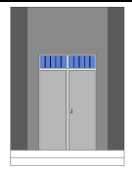
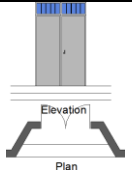
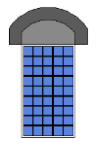

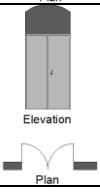
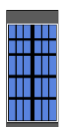
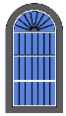
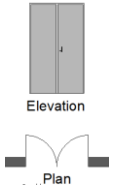
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W12		W3		E12		E3	
W13		W4		E13		E4	
W14		W5		E14		E5	
W15		W6		E15		E6	
W16		W7		E16		E7	
W17		W8				E8	
W18		W9				E9	

Table (4) Form of the elements

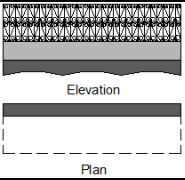
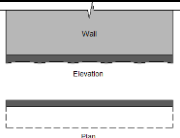
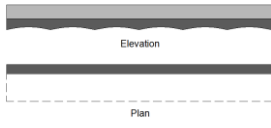
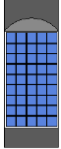
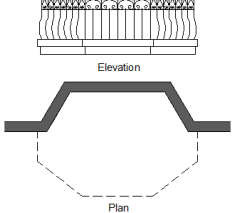
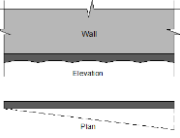
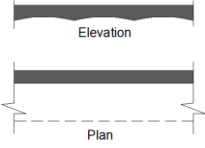

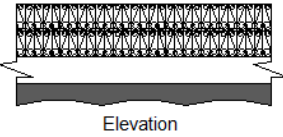
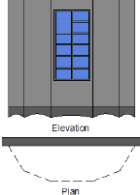
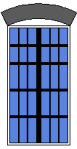
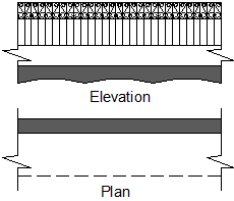


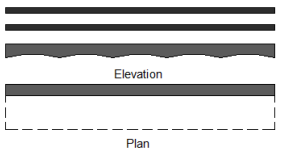
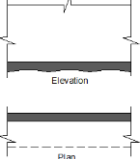
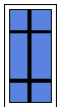
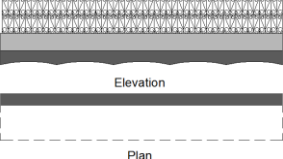

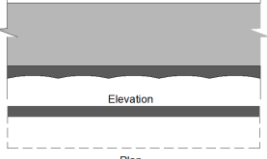

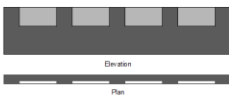
Symbol	Form of the balcony	Symbol	Form of the shanashil	Symbol	Form of the canopy	Symbol	Form of the window
B1		SH 1		C1		W19	
B2		SH 2		C2		W20	
B3		SH 3				W21	
B4		SH 4				W22	
B5		SH 5				W23	
B6						W24	
B7							

Table (5) Form of the elements

Symbol	Form of the parapet (Sitara) and patterns	Symbol	Form of the parapet (Sitara) and patterns
P8		P1	

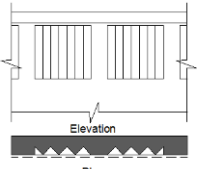
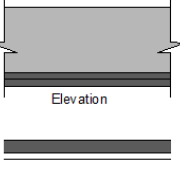
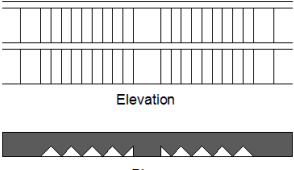
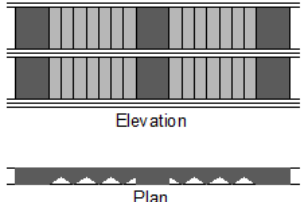
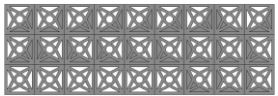
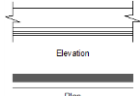
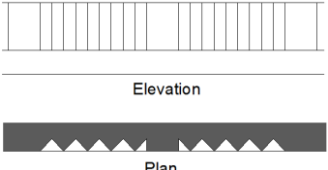
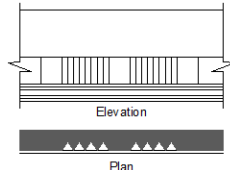



P9		P2	
P10		P3	
P11		P4	
P12		P5	
P13		P6	
		P7	

Table (6) Table shows the element that is used in the sample elevation and its composition according the whole elevation



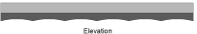
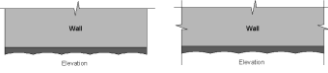



Composition of the element regarding the whole elevation							The element that is used in the sample elevation	Sample number
Position according to the public domain		Continuity with the elevation line			Centralization			
Perpendicular	Parallel	Eclipsed element	Embossed element	With the elevation line	Non-central element	Central element		
	*	E1	C1	W1	W1	E1, C1	E1, W1, C1	1
	*	E2	B1	W2, W3	W2, W3	E2, B1	E2, W2, W3, B1	2
	*	E1	C1	W1, P1	W1	E1, C1, P1	E1, W1, C1, P1	3
	*	W5	B5	W4, W5, W6, W7, W8	W4, W5, W6, W7, W8, B5		W4, W5, W6, W7, W8, B5	4
	*	E3		W1, W9	E3, W1, W9		E3, W1, W9	5
	*	E4	B6	W2, W10	W2, W10	E4, B6	E4, W2, W10, B6	6
	*	E4	SH1	W1, W2	E4, W1, W2	SH1	E4, W1, W2, SH1	7
	*	E1		W1, W2, P2	E1, W1, W2	P2	E1, W1, W2, P2	8
	*	E1	SH2	W2, W3,	E1, W2, W3,		E1, W2,	9

				W11	W11, SH2		W3, W11, SH2	
	*	E5	B7	W1	W1	E5, B7	E5, W1, B7	10
	*	E1		W12, P3	W12	E1, P3	E1, W12, P3	11
	*		SH2	W2, W3, W11	W2, W3, W11,	SH2	W2, W3, W11, SH2	12
	*	E1	B7	W2, W3	W2, W3	E1, B7	E1, W2, W3, B7	13
	*	E14		W2, W22, P4	E14, W2, W22	P4	E14, W2, W22, P4	14
	*	E15		W1, P5, P6	W1	E15, P5, P6	E15, W1, P5, P6	15
	*	E16	B2, P7	W13	E16, W13, B2, P7		E16, W13, B2, P7	16
	*		SH3, SH4	E8, E9, W14, W15, W16, W17, P8	E8, E9, W14, W15, W16, W17, P8, SH3, SH4		E8, E9, W14, W15, W16, W17, P8, SH3, SH4	17
	*		C1	E10, W2, W18	W2, W18, C1	E10	E10, W2, W18, C1	18
	*	E11, W19	C1, B3	W1, W20, P9	E11, W1, W19, W20, P9	C1, B3	E11, W1, W19, W20, P9, C1, B3	19
	*	E1		W1, P10	E1, W1	P10	E1, W1, P10	20
	*	E1		W2, W21, W22, P11	E1, W2, W21, W22, P11		E1, W2, W21, W22, P11	21
	*	E12	B4	W23, W24, P12	E12, W23, W24, B4	P12	E12, W23, W24, B4, P12	22
	*		C2	E10, W1, W2, P13	E10, W1, W2	C2, P13	E10, W1, W2, C2, P13	23
	*	E2	SH5	W1, W2	E2, W1, W2	SH5	E2, W1, W2, SH5	24
	*	E13	C2	W1, W24	W1, W24	E13, C2	E13, W1, W24, C2	25

Findings of the survey of the samples elevations

- The most used elements in the elevations of the samples are the following forms:

Table (7) The most used form of elements in the samples elevations

Entrance	Window	Canopy	Shanashil	Balcony	Parapet
 Elevation		 Elevation	 Elevation	No mostly used form can be found	No mostly used form can be found
 Plan		 Plan	 Plan		

The following table represents the composition of the elements regarding the whole elevation for the elevations of the vernacular samples:

Table (8)Composition of the elevations for the samples

The element	Number of samples	Centralization		Continuity with the elevation line			Position according to the public domain (street)	
		Central element	Non-central element	With the elevation line	Embossed element	Eclipsed element	parallel	perpendicular
Entrance	25	10	13	4		19	23	
Window	25	1	32	32		3	33	
Canopy	25	6	1		7		7	
Balcony	25	3	4		7		7	
Shanashil	25	3	2		5		5	
Parapet	25	9	4	12	1		13	

From the above table the following cases are mostly found for the composition of the elements regarding the whole elevation:

For the entrance:

The most used factors are non-central element, eclipsed element and parallel to the public domain (street). (See fig. 6)

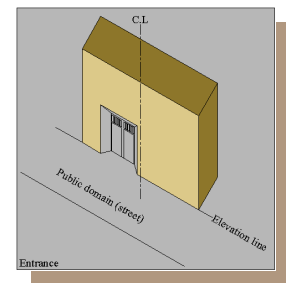


Figure (6) Entrance

For the window:

The most used factors are non-central element, with the elevation line and parallel to the public domain (street). (See fig. 7)

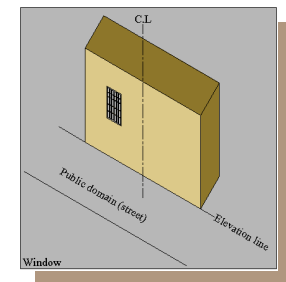


Figure (7) Window

For the canopy:

The most used factors are central element, embossed element and parallel to the public domain (street). (See fig. 8)

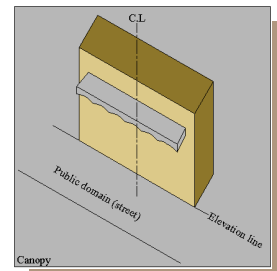


Figure (8) Canopy

For the balcony:

The most used factors are non-central element, embossed element and parallel to the public domain (street). (See fig. 9)

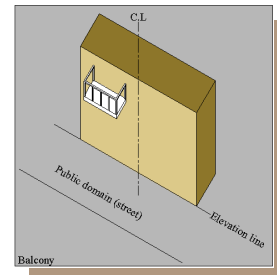


Figure (9) Balcony

For the shanashil:

The most used factors are central element, embossed element and parallel to the public domain (street). (See fig. 10,11)

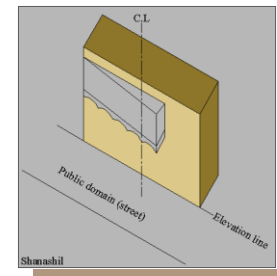


Figure (10) Shanashil

For the parapet:

The most used factors are central element, with the elevation line and parallel to the public domain (street). (See fig. 12)

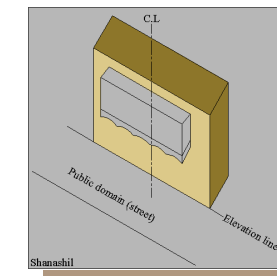


Figure (11) Shanashil

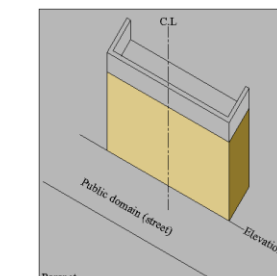


Figure (12) Shanashil

Formal characteristics of vernacular houses elevations in Baghdad

The most used elements for the elevations are the following: (see fig. 13)

- Entrance.
- Window.
- Shanashil.
- Balcony.
- Parapet.

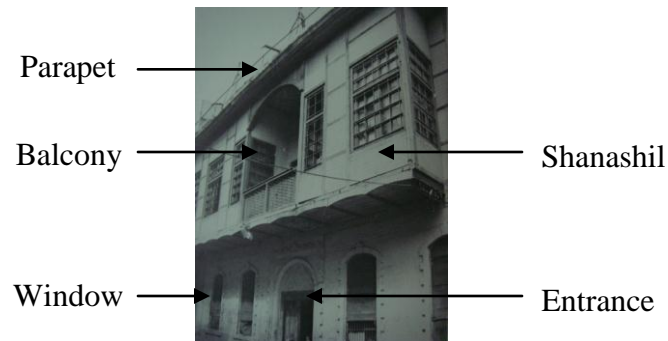


Figure (13) Elements of the elevation

The entrance:

- It is usually an eclipsed element.
- The shape of the entrance is arcade, but the door is straight, here inside the arc is filled with ornamented bricks. (see fig. 14)

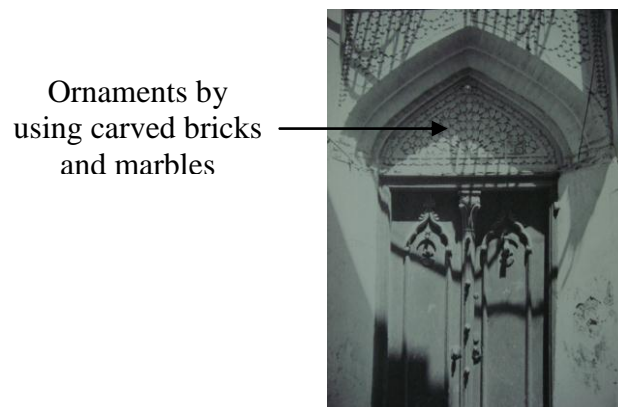


Figure (14) Entrance

The window:

- It is usually with the elevation line.
- There are two main forms of the windows, arc and straight.
- According to their location, there are two kinds of windows, windows within the wall, and windows within the shanashil.
- The window is surrounded by a decorated brick frame.

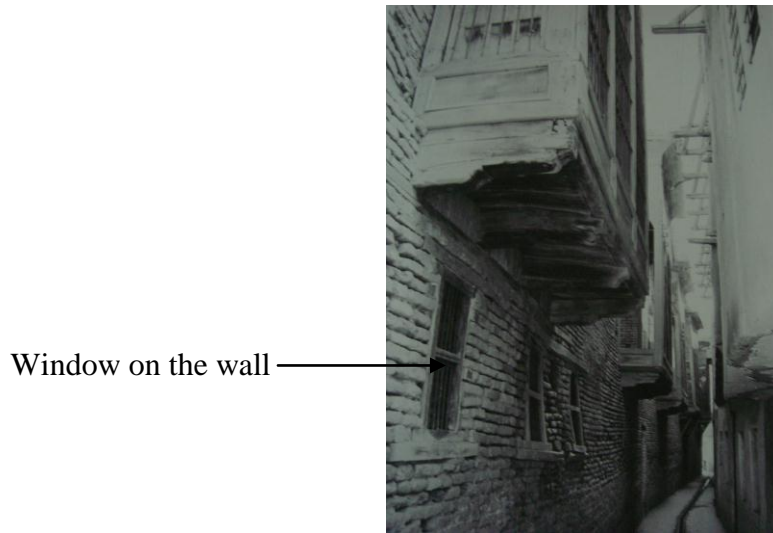


Figure (15) Window on the wall

Shanashil:

- It is usually an embossed element.
- It is a wooden structure.
- Contains windows with steel guardrails and wooden ornamented screens.
- Shanashils are different in size.

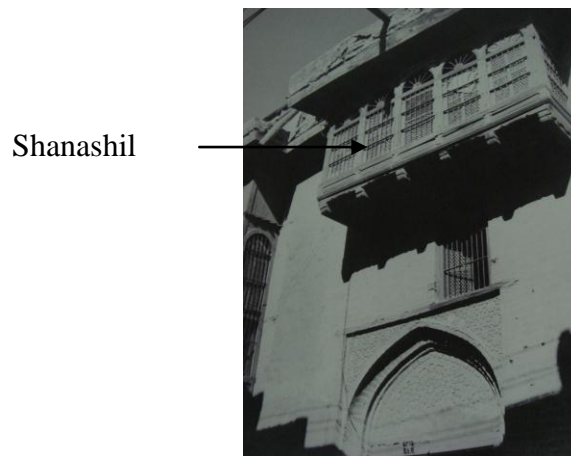


Figure (16)Shanashil

Balcony:

- The balcony here is not a separated element, it is usually within the shanashil.

Parapet:

- Vertically it is the continuity of the wall or the shanashil.
- No ornamental brick patterns can be found.

Canopy (E)	*			Masonry and I-section steel	*			*		*	
Canopy (B)											
Canopy (M)											
Shanashil (E)	*			Masonry	*			*		*	
Shanashil (B)	*	*	*	Wood	*			*		*	
Shanashil (M)											
Balcony (E)	*			Masonry with steel guardrail		*		*		*	
Balcony (B)	*			Masonry and wood	*			*		*	
Balcony (M)											
Parapet (E)	*		Brick patterns	Masonry	*		*			*	
Parapet (B)	*			Masonry	*		*			*	
Parapet (M)											

E=Erbil

B=Baghdad

M=Mosul

Findings

- Samples of Erbil and Baghdad have street elevations, but the samples in Mosul don't have street elevations, except an entrance that leads to a courtyard, here the houses are completely closed outward and opened inward.
- Canopy as a shading device is found in Erbil vernacular houses and is not found in Baghdad and Mosul vernacular houses.
- Balcony is a separated element in Erbil vernacular houses, but in Baghdad houses it is within the shanashil.

Conclusion

- The research was able to highlight a major characteristic in Erbil vernacular architecture that represent its individuality compared with vernacular architecture in other Iraqi cities that is uses brick work patterns for ornamentation instead of carving.

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