The role of aesthetic inputs in the sustainable Beauty of Baghdad House

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Abstract. This research attempts to explore the aesthetic inputs of the Baghdadi House, which for many years has become a symbol of Iraqi architecture and its shape has evolved as a result of the skill of Iraqi sculptors and architects in the use of wood and bricks and the adaptation of these materials to give a special aesthetic to the Baghdadi House made it aesthetically sustainable. The problem of the research was the existence of a knowledge gap about the factors that contributed to enrich the details of the Baghdadi House to give it the required aesthetic sustainability. Therefore, the research adopted hypothesis (that the aesthetic of Baghdadi House results from the interaction of sustainability factors and local materials that enrich the details of the house among them in addition to that experience the Iraqi architecture added another aesthetic dimension to him) the research adopted the descriptive approach on the concept of beauty and the application of beauty levels on the elements of the Baghdadi House as well as adopted the analytical approach through the effective indicators on four different samples of houses The aim of the research is to know the aesthetic sustainability of the house by using local materials in the implementation of the Baghdadi. the results of research there is aesthetic sustainability through two indicators are architectural aesthetic and micro climate has given Interaction of the central courtyard with parts of the Baghdadi house

1. Introduction
The Baghdad houses are contained a high historical value, they are distinguished as archaeological. Most of them were built in the nineteenth century, and their historical value is in the heritage they carry [1] These houses are the result of years of Iraqis architect development With its experience and knowledge of climate conditions and construction style, its historical value lies in creativity in design to employ what is simple to create the best possible efficiency of the house, this creativity led to the provision of aesthetic for the Baghdad house through its interdependent aesthetic elements that are aesthetic sustainability of the house

2. The meaning of aesthetics & beauty
The ward aesthetics means a pleasing appearance or effect (beauty) by Merriam Webster: a work of aesthetic value ,while The word beauty is a term used to describe things that have distinct characteristics capable of reaching emotions through the senses and able to create an effect in the souls as it facilitates the eye mirrors and relaxes the soul. The beauty of things in the extent of their consent to us or is good or useful or is sometimes in our souls. The beauty of things is in the characteristic that the artist adds to these things in the spirit that realizes beauty. Beauty may consist in balance, proportionality, harmony and a system that combines sundries, or is in perfection and clarity and may
be a correct mathematical relationship, and there are sometimes two beauty, free beauty is pure beauty and beauty by extension.[2].

3. General principles of aesthetic formation

Parker points out a number of general principles that determine the aesthetic composition of any work of art and these principles are more influential in giving the aesthetic form of things, but the other principles are similar with them or cases characteristic of them [2].

3.1. The organic unity: this principle is prepared by Parker which represented the basic law of the aesthetic form, saying that each element in the work of art is necessary for the value of this work, in the sense that this work does not contain unnecessary elements and all the necessary work of the necessary value be present and that the value of this work depends on the interrelations between its elements.

3.2. Theme in any work of art complex shape or color or a line or a model or a sense of a sense in which the concentration of the characteristic value of all that work is the dominant property.

3.3. Thematic Variation the repetition or repetition of the pattern that occurs in the lines or shapes or methods in architecture and in the arts in general, and this repetition should not be repetitive abstract boring, but includes a change in the site format, for example, the same form of The work can be shown in another place and in another color or texture. In architecture, for example, the shape appears and repeats in different sizes and repeats in the elements of the building, doors, and windows.

3.4. Balance, according to Parker's view of the balances of the opposite or contrasting elements and the elements of the aesthetic unity, although the elements that are in balance are opposed, each of them needs the other and all are all and that the antagonism is inherent to the balance but contrast only gives an aesthetic conviction, because the opposing elements should complement each other so that they balance. The balance is usually horizontal, vertical, radial or diagonal, and in architecture, there is a balance between the parts on the right and on the left or at the top or bottom.

3.5. The hierarchy which is a sort of organization of elements in coordination, balance, and evolution, and the organization of these elements is sometimes important or as necessary.

3.6. The dominance of an element here is a relative thing that the importance of the elements in all, as the elements are arranged according to their importance.

4. Aesthetic judgment in form:

There are two main groups of personal judgment (Subjective) and (Objective) The first group depends on the resident person, the person looking at the aesthetic work assessed by experience and potential. The aesthetic group deals with the qualities of the subject itself or the abstract form. The aesthetic levels in architecture often deal with the merits of beauty in architecture, such as the formal foundations that do not concern me with clarifying the most factors. Subjective perception in the aesthetic in architecture as a work of aesthetic be holistic, is not seen as an architectural work as a single embodiment of all the aesthetic experience, but that a large part of the aesthetic experience is reflected in the relationship of this architectural part with other parts and levels are:

4.1. The first aesthetic level (general anesthetic) This level depends on the existence of objective laws governing the architectural form such as laws of balance, rhythm, proportionality, harmony and consistency is a departure from the purest cases of the aesthetic value of the architecture and sparkle creates an aesthetic appearance in the architectural building through the presence of these balance relationships that share to form a formal organization characterized by clarity and simplicity and this level is achieved through:
4.1.1. **Visual Perception:** The primary assessment process by which the external environment can be intercepted by individual optical devices [4], there is a significant difference in understanding the image perceived by the recipient. This is particularly influenced by the cultural level of the individual and is an aesthetic principle that is important in the formation of the unit for aesthetic work.

4.1.2. **Harmony** is a relationship between two asymmetrical objects in the architectural work. It represents the basic aesthetic relationship that constitutes the damage. The psychological comfort occurs as a result of the aesthetic homogeneity between the different parts and expresses the compatibility as the fourth manifestation of the external beauty and it results from qualitative differences.[10], but these differences appear to be a uniform unity in which the recipient shows all the parts composed of them and the content is all in one position and theory of Gestalt expressed the same principle with the phrase (all more than the sum of parts)

4.1.3. Proportion is an aspect of the aesthetic phenomenon that works to send internal receptive stimuli to the recipient that proves admiration and acceptance [11]. The proportions that link the measurements of certain parts of the building should be easy to perceive. This building is connected to each other by these proportions and should therefore be expressed in small numbers such as (1/1), (1/2), (2/3) and so that what raises the aesthetic mental pleasure rhythms inherent in the proportions and not the same proportions, There are many factors that change the true proportion of architectural work, for example, the existence of a number of lines used The value contained within the work increases the apparent length of this work towards the extension of the lines horizontally and vertically, and here we say that the building is vertical or that the building is horizontal and according to the direction of the lines specified in the proportions. The common proportions in the architecture is the golden ratio, which is the most used and aesthetic. In the field of architecture and plastic arts and illustrated in the method of the Golden Ratio (also known as the Golden Section, Divine Proportion exists when a line is divided into two parts and the longer part (a) divided by the smaller part (b) is equal to the sum of (a) + (b) divided by (a), which both equal (1.618) for the production of aesthetic unity between the various divisions, and in Islamic architecture was a ratio (1 √2) is the percentage used by Arab architecture based on this ratio the basis of the relationship between the length of the rib and its tendon length (1 / 1.14) or ( 1√2) , Figure 1.

![Figure 1](image-url)  
**Figure 1.** (1√2) ratio of the central courtyard in the Baghdadi house.
4.1.4. Spaces of Baghdi Hous: Most of Baghdad's houses are contained the Haram, which is the women's residence, and the second section is called (Diwan), which is the outside of the house to receive the friends of the people of the house. The house also consists of two floors, the first of which includes the entrance of the house. and a central courtyard is one of the products of the civilization of Mesopotamia and Sumerian civilization. often have many wood columns around it.

There is a room called (Al-Tarar), which is a rectangular room with a front facing the courtyard of the house, and its ceiling is usually raised with ribbed wooden columns and carved head where the family members represent the hall (Hol) in modern houses and there is a room called ( Karar) and where the tools and furniture surplus need The enlightenment is built in the kitchen, the basement is the summer room and is lower than the level of the house in the lower half floor, while the ventilation will be mediated by the Badkir.

The ( Takhta) is a room the same size as the basement and is directly above it. The floor of all rooms and the basement built by (brick) and the floor of the house and the basement is washed daily after the completion of cooking lunch to cool it. Baghdad houses are generally in square shape and around (Tram) collection (Tarma) second floor be (quarry) It is a barrier made of wood and iron shish and its cover of wood, where some decorations work in four corners (quarry) be spherical shape.

All Baghdadis houses are subject to the basic law is opening inward in the presence of a central courtyard planned on the basis of the rest of the house, that is The first thing the designer puts in his account is done on the basis of a lesson The rest of the spaces of the house are shed, and on this basis the shape of the courtyard is regular regardless of the shape of the irregular house Figure 2.

![Figure 2](image-url) The basement relationship with the middle courtyard.

The central courtyard is the main space. It represents the basis of movement and cannot move from one space to another in the house without interacting with monsters either. The interaction was visual or actual movement through it. Notice of the designs of Baghdi House isolation sharply between the privacy of the house and the generality of the street, each house is isolated from the surrounding high walls deaf where there is a high contrast with life in the street, we also see the design of the house that there is the use of roads and make them surrounded by monsters from four sides, which enabled The inhabitant has access to all the spaces of the house within the space of a roof, Figure 3.
On this basis, we can divide Spaces in the house to (monsters - roof - Altarm - Arsi - Kabashkan - Iwan - Talar - basement) as well as the bathroom, kitchen and specialized spaces for functional performance such as the entrance and the store.

4.2. Second aesthetic level (rhythmic:) includes architectural complexity, can be defined as the collection of interrelated objects in a synthetic order [12], and rhythmic harmony.

4.3. Third aesthetic level (diverse) This level is rhythmic harmony with the value of aesthetic brilliance in a harmonious relationship to produce a high level of aesthetic principles, as this level reveals the consistency between the form, lines, colors and elements dynamically balanced, and contains this The level of diversity and complexity involves an internal harmonious relationship, and this relationship between diversity and style escalates and increases with the presence of many balancing trends in the building.

5. Indicators of sustainable beauty active in drawing the aesthetic image of Baghdadi house:

5-1 Architectural indicators include the basic vocabulary of the works of art in general and architectural in particular and include:

5-1-1 Compatibility models: It is evident in the Baghdad Chinchuls¹ that appear in the front of the house and impart its own atmosphere inside the house where the interrelationships between the components of a single Chinchul and give a sense of the sobriety and harmony of this part and confer the second level of aesthetic Chanchul through his total visual unit.

5-1-2 Building Materials Compatibility: The availability of brick material in the construction of Baghdadi House made it the most used in producing distinctive engravings and different geometric forms, as well as its small units scale which gives a sense in harmony with the human scale (human scale), which gives the first level of beauty.

5-1-3 Balance between the elements of the design: The balance shows the strongest and most visually appropriate, as the distribution of rooms around the central courtyard in a balanced manner, as well as the size of the openings overlooking it, and shows the principle of balance in the design of the house, and this property is used to modify the forms Plots of land, especially the corners of the piece by adding Chinchuls towards the side that is tilted to be adjusted on the first floor.

¹ Chinchul is cantilever in upper level of the house made from wood.
5-1-4 Proportionality in Baghdadi House: Controlling the quality of space and controlling its dimensions and characteristics is the aim of what the architectural designer aspires to include: Enclosure or the feeling of closure due to the presence of mural elements in the Baghdadi house because of its openness around the central courtyard. And strengthen the sense of openness through the use of wood column overlooking the courtyard, which is a complete adaptation of wood material to achieve a special aesthetic.

5-2 Climate Indicators: These indicators were as follows

5-2-1-The climate response where elements in the Baghdadi house were used to adapt the house to the climatic conditions in terms of ventilation and protection from sunlight, which in turn added a special aesthetic, was the inner courtyard open to the sky to which all rooms and spaces allow the flow of cold air during The night from the bottom of the courtyard to cool the building during the day, as well as air ponds (pedicure) interior of the rooms or basement to enter the cold wind and circulate inside the space and the hot air out, the protection from the sun was done by balconies used to shade windows and achieve the possibility of Vision and added ventilation.

Effective indicators extracted from the theoretical part of the research were applied to four samples of Baghdad houses and the results were extracted by means of questionnaires distributed to a number of specialists in the field of traditional architecture for each specialist four different samples of these houses and analysis of the results of the forms statistically and by percentage, Where the results of the questionnaire are listed in Table 1.

| Questionnaire on Baghdadi House | House I Backyard without roofing | House II Backyard with roofing | House III Front yard without roofing | House IV Backyard with roofing |
|--------------------------------|---------------------------------|--------------------------------|-----------------------------------|------------------------------|
| 1-Does the presence of the yard affect the aesthetic sustainability of the house | %70 | %44 | %32 | %10 |
| 2-What is the impact of local building materials on the heat transfer inside the house | %65 | %55 | %67 | %20 |
| 3-Wood use gives aesthetic sustainability to the home from the inside. | %90 | %66 | %66 | %45 |
| 4-Does afforestation somehow affect the local climate inside the house | %82 | %43 | %53 | %12 |
| 5-Proportionality of the yard and its effect on the aesthetics of space | %63 | %70 | %54 | %23 |
| 6-Does the diversity of coordination in the Baghdadi House give it the first aesthetic level | %77 | %73 | %67 | %43 |
| 7-Does the compatibility in the Baghdadi Braik have the property of sustainability | %80 | %65 | %65 | %54 |
| 8-Does the house of Baghdadi Brake have brilliant aesthetic properties | %84 | %82 | %63 | %32 |

The research reach from Table 1 the house with a central courtyard is characterized by the aesthetic level of the first type through the indicators of architectural, sustainable and climate, while the house with the peripheral courtyard was the aesthetic level of the second type, while the house with the front yard was The aesthetic level of the third type, while the fourth type did not achieve any level of beauty Figure 4.
Figure 4. The results of the four Baghdad houses according to the questionnaire.

6. Conclusion
The aesthetic of Baghdadi House is a sustainable product resulting from the active indicators of the elements of the house and can be seen through
1-The presence of sustainable architectural aesthetic input represented in the compatibility of architectural styles in it as well as the compatibility of building materials and proportionality in the parts of the house (the central courtyard, living rooms, axes surrounding the central courtyard and other service areas and basement). 77%, while the proportion of engineering proportion was 63%
2-The presence of sustainable aesthetic climatic inputs to provide protection and social isolation of the inhabitants of the house, Al- Baghdadi Chinchul according to the results of the questionnaire by 80% and create a local environmental atmosphere for the house represented in the compatibility of the shape of the central courtyard with afforestation by 80% and other space plans with environmental characteristics by 84%, which It can be an effective and indirect tool in enhancing the urban image and give the house Baghdadi second level aesthetic advantages.
3-By comparing the similarity and difference with the characteristics of the model of the Baghdadi house and identifying the refined elements and perceived outwardly can prove the purity of the shape of the inner courtyard Inner openness through the historical stages and wood and brick pillars are the fixed characteristics of the evolution of the Baghdadi house while forming the division of the house into several functional parts and decorations Brackets and dealing with external facades The existence of open interior spaces are accumulated and sophisticated features throughout the historical stages of the house represented a clear reflection of the prevailing thought

Recommendations
The research recommends expanding studies related to Baghdadi House through
1-Dissemination of aesthetic culture and raise the level of aesthetic sense of generations and the level of their knowledge of the factors influencing the aesthetic of Baghdadi House by expanding the scope of academic research on this subject
2-Adoption of the proportions used in the parts of the Baghdadi house in the development of contemporary house designs and inspiration climate treatments in Baghdadi house.
3-Focus on the relationship of building materials used in the Baghdadi House aesthetic level achieved and give him the legal force to implement contemporary homes in the future

References
[1] Fathi, Ihsan and Warren, John, "Traditional Houses in Baghdad", Shorouk Press, first edition 1988.
[2] Bloomer, Kent. C & Moore Charles, "Body Memory & Architecture", Yale University Press, 1979.
[3] Ismail Azzedine "The Foundations of the aesthetic in the Arab Critique", House of Public Cultural Affairs, Ministry of Culture and Information, 1986, p. 61
[4] Weitz, Morris, "Problems in Aesthetics" McMillan Co.L.T.D. London, 1970.
[5] A reasonable luxury. "Lexicon of Psychology" Dar al-film for millions Beirut. Third Edition 1989.
[6] Mayada Fahmy Hussein, "Visual perception of the interior design and virtual image on the computer" Master Thesis. College of Fine Arts. Baghdad University. 2001.
[7] Mustafa Kamel. "Visual perception of the details of the architectural image" Master Thesis. Technology University. 2001.
[8] Ossowski, Stanislaw. "The Foundation of aesthetics". D. Reidel Publishing Co 1965.
[9] Shwan Abdul Qader. "Figure and Beauty, Master Thesis, Department of Architecture, University of Technology Baghdad, 1998.
[10] Ahmed Al-Qaisi, "Beauty and Content in Architecture", Master's Thesis, Architectural Department. The University of Technology Baghdad.
[11] AL- talib, Talib Hamid, Engineering Attitude and its Implications for Islamic Architecture, "Research Presented at the Symposium on Engineering Proportionality in Islamic Architecture, Iraqi Academy of Sciences, 1997.
[12] Smith, Peter F, George Goodwin. T. D, "Architecture & the Human", London, 1979, Graves, Maitland. "The Art of Color and Design". N.Y. McGraw Hill.

The copy of questionnaire
The current questionnaire form is for the purpose of scientific research (The role of aesthetic inputs in the sustainable Beauty of Baghdadi House) Please put (×) according to your scientific opinion with the correct spaces:

| questionnaire on Baghdadi House | House I Backyard without roofing | House II Backyard with roofing | House III Front yard without roofing | House IV Backyard with roofing |
|--------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------------|
| 1-Does the presence of the yard affect the aesthetic sustainability of the house | | | |
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| 5-Proportionality of the yard and its effect on the aesthetics of space | | | |
| 6-Does the diversity of coordination in the Baghdadi house give it the first aesthetic level | | | |
| 7-Does the compatibility in the Baghdadi house have the property of sustainability | | | |
| 8-Does the Baghdadi house have brilliant aesthetic properties | | | |
| 9-Does the diversity of coordination in the Baghdadi House give it the first aesthetic level | | | |

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