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Explaining the Components of Western Architecture on the Physical Design of Tall Residential Buildings in Tehran from the 1961s to the 2010s

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ABSTRACT

Tall residential buildings as a demographic solution for vertical development and creating diverse housing were a response to population growth in cities that arose following modern Western architecture. This research is aimed at extracting the components of the western intellectual trends after entering Iran and shaping the Tall residential buildings. The question of this research is, which are the components of western architecture that are effective in the physical design of Tall residential buildings and which of them is more effective in their formation. As a result, the research method is a kind of quantitative and qualitative research and used a mixed qualitative and quantitative method to explain the components of western architecture on the physical design of Tall residential buildings after the Islamic revolution. To extract the components, a semi-structured interview was conducted with 46 people. The results are entered into ATLASTI software and have been subjected to data reduction with coding. At the end, the results of the components were extracted and compiled in the form of a questionnaire and provided to 384 space users. Then the data was analyzed with descriptive and inferential statistics in JMPSAS software. The results of the research show that in the group of designers, the highest factor share is related to late modern architecture with a value of (0.955) and the lowest factor share is related to deconstruction architecture with a value of (0.121). In the group of users of deconstruction architecture, with a value of (0.225), the lowest factor share is related to postmodern architecture with a value of (0.923).

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Introduction

The rapid development of urbanization along with the emergence of new building technology in the second Pahlavi period gradually caused the formation of a new face in the cities of Iran. Due to the excessive growth of the population, the country immediately faced a big problem called housing. Before the Islamic revolution in 1978. Five development programs were implemented in Iran. The first and second development plans, which were approved between 1949 and 1962, were inspired by the developments of modern societies such as the United States of America and Western European countries. The main focus of both programs was on defining an infrastructure framework for social, economic and cultural growth and development. The third development plan, which was implemented between 1963 and 1967, looked at the housing problem from the perspective of general economy and social development. The fourth development plan, which was approved between 1968 and 1972, emphasized the use of special construction materials, architectural styles, and neighborhood renovation. This program also encouraged the construction of apartments and residential complexes. The fifth development program -the program written between 1973 and 1978- marked a turning point in the history of Iran. The stunning increase in oil revenues prompted the government to increase the amount of investment up to five times. In this program, the construction of 30,000 residential units per year was planned. The first period in the 1950s, 1960s and 1970s. Before the Islamic revolution, the first examples of Tall buildings were built with a functional approach. In these years, the architecture of Tall buildings is more influenced by modern international architecture and architects of developed countries. After the Islamic Revolution of Iran, in the 1960s. Due to the imposed war, there is no Tall construction, but in the third period, which was in the 1970s. There are examples of Tall buildings built based on the principles of postmodern architecture.

Tall buildings are presented as a product of the modern world after entering the country as a population solution; which can accommodate a large population and cause the vertical development of the city. This eclectic product can contain various features of modern architecture in the form of component application.

By reviewing the articles and researches done so far in relation to the existing Tall buildings, it is concluded that these buildings have different views and social approaches such as social interactions and sense of belonging, structural approaches such as passive defense, climatic approaches such as heat island, etc. They have been analyzed; and it is only a superficial and mere import of a form from western Tall buildings, while the methods and methods of design and even its construction methods have not been examined in detail, thus the fundamentals of thinking have been neglected. In the contemporary era, it is necessary and necessary to define the transformation, its beginning and completion and the components that create it precisely. This research aims to extract the components of modern architecture in the form of different styles and

tries to extract the most factor contribution related to them and tries to answer the question that which are the components of western architecture effective in the physical design of Tall residential buildings and which of them are effective More is in their formation.

Theoretical Foundations:

Modern architecture developed in the first half of the 20th century and gradually gained a global aspect; thus, the international school was formed. A new tradition was being formed, a tradition that had to be broken by the explicit decree of modernity, even though it was called modern (Aghajari, 2010: 37). However, modern architecture underwent a transformation after several decades due to cultural and social aspects not being considered.

The characteristics of modern architecture that separate it from the ancient and traditional architecture are shown in (Table 1).

Table 1. Characteristics of modern architecture from the perspective of foreign and Iranian thinkers

Characteristics of modern architecture		Theorist
Modern architecture was born with a change in the definition of architectural beauty. According to Peter Collins: ...all that is added to the Vitruvian Trinity - stability, efficiency and beauty - is that space is a positive architectural quality, and this is the life of modern architecture. (Bani Massoud, 2014: 17)		Peter Collins
Modern architecture is the architecture of breaking previous molds and frameworks. Rejection of the past as a source of inspiration for works of art and the use of technology in a pure way are among the topics of attention of modern architects. (Bani Massoud, 2013: 19)		Ernst Borden
Applying the industry with an aesthetic approach and expanding its facilities	Early modern	
Functionalism, paying attention to car aesthetics, urban issues, production and construction, etc.	Superior modern	
Getting rid of purely functional restrictions, expanding form-oriented features, dealing with symbolic analogies (Bani Masoud, 2011: 115)	Late modern	
The language of modern architecture includes: the list of functions, non-perspective, anti-perspective, breaking the box, architectural structures; Membrane, sheath, space in time, building in the city (Bani Massoud, 2013: 115).		Bruno Zoey
Formalism and functionalist thinking, "radical break" from history, "honest" expression of materials and structure (Haghiqi, 2013, 21).		Kit Nesbiat
Removal of decorations, complete abandonment of history and historical elements, a free plan from the constraints of classical geometry, special attention to the function of the building, combination of simple and pure geometric volumes such as cubes, cylinders, cones, etc., and finally building a building that can answer all Humans should be of different cultures and races (Saremi, 1995: 58).		Ali Akbar Sarmi
Renewing the construction and design processes, rejecting traditional environments and following the principle of universality, following the same principles in construction, having a wise and practical order, using new materials of glass, concrete and steel, avoiding unnecessary decorations (Bani Masoud, 2013, 277).		Amir Bani Massoud
An end to historicist architecture and looking to the past, inventing new and emerging forms		Vahid

and emphasizing performance and compliance with new science and technology and observing geometric and mathematical proportions and optimism towards logical and scientific solutions (Haghiqi, 2013, 21).	Qobadian
Modern architecture is based on innovation, depends on time and breaks the pattern. Philosophically, it is subject to modern thought and philosophy (modernity), benefits from advanced techniques and materials, and is constantly changing and evolving. Relying on new technologies, this architecture does not consider itself obliged to adapt to the conditions and use environmental resources and can be established in various environmental conditions. Modern architecture appears in the West as an original phenomenon and in other lands as an imported and alternative phenomenon (Hojjat et al., 2018, 104, 105, 108).	Isa Hujjat
Eschewing history, reduction based on the simplest elements, concentrating the spatial entity to the main core, uniformity of all components by reaching a simpler form, avoiding decorations and the use of even a redundant form, reaching forms to show the main function of the building, brevity, functionalism and extremes in simplicity (Haghiqi, 2013, 22).	Mustafa Kayani

In the second half of the 20th century, modern architecture underwent a transformation in its ideals and attitudes, so that even pioneers such as Le Corbusier presented designs that were different from the early versions of modern architecture, which were often called box modern by critics. had These trends became a platform for the emergence of postmodern architecture (Hojjat et al., 2018). In the postmodern era, there is an emphasis on the practicality of building parts such as modern architecture, however, in the style of postmodernism architecture, architects are more creative and away from rigid and idealistic modern rules that emphasize simplicity, abstraction and Simple forms are encouraging (Bani Massoud, 2011). In postmodern architecture, a variety of architectural elements and motifs from arts and crafts, classicism, neoclassicism and many other different styles of architecture can be seen, so not only a building preserves the rich history and culture of its region. Rather, it will show off with an attractive appearance (Rahnama and Razzagian, 2012: 47).

The influence of western architecture on the contemporary architectural styles of Iran

Examining many sources related to the modern architecture of Iran, the modern period of Iranian architecture is considered from the beginning of the Qajar period (1786), especially during the Qajar period, contact with Europe made Iranians familiar with Western painting and decorations, which had a direct effect on laid architecture examining the historical period of contemporary Iranian architecture divides it into four parts (Abbasi, 2016):

1. The first Pahlavi era
2. Second Pahlavi era
3. The era after the victory of the Islamic Revolution

The first Pahlavi era coincides with the early stages of Iran's industrialization. The influence of the industrial era's architecture can be seen with the construction of roads, bridges, and examples such as railways, etc. These are examples of the emergence of the modernism school in Iran. The emergence of the modernism school in Iran was due to reasons such as the prevalence of western

patterns in various fields, changes in the structure of social classes, the expansion of western goods and industry, new activities, the intellectual tendencies of western educated people, new materials and new systems. (Falamaki, 1992: 94). If the first Pahlavi period can be called the emergence of modern Iranian architecture, the second Pahlavi period can be considered the period of development and popularization of modern Iranian architecture. This is for several reasons (Qobadian, 2004: 93):

- Establishment of modern educational institutions such as the Faculty of Fine Arts
- The spread of international style in Europe and America after World War II
- Promotion of European American culture in Iran
- Rapid growth of urbanization
- Economic-social development

During this period, buildings with modern functions such as airport, hotel, stadium, parliament, etc. were built. The main approaches in this era are (Abbasi, 2016: 47):

- Freedom of form and plan as a result of using modern structural systems
- International modern architecture and the metaphorical perception of Iranian past architecture

Also, in the first Pahlavi period, there was a neoclassical style. Neoclassical architecture, which was referred to as foreign architecture in the Qajar era, continued in this period as well. But there were two major differences compared to the previous period. During the Qajar era, neoclassical architecture was a style mainly for the design of the palaces of nobles and nobles, which was used in their gardens and estates (Karimi, 2015: 113) but in this period, this style of architecture was mostly used for extroverted buildings in the urban body, especially government buildings. Administration and services such as governorates, municipalities and hotels were used. Another difference, considering that these buildings in the recent period were often of public use, therefore the dimensions of the buildings were bigger and wider than the previous period. In this period, Baroque Revival and Romantic symbols are also observed in the buildings of this style. (Samsami Hosseini, 2011)

In the second Pahlavi period, in this period of traditional architecture, it still included a part of the country's architecture. Mosques, bazaars, old schools, baths and some houses were built in this way and with traditional execution methods. (Qobadian, 2012). Of course, government buildings and buildings with new functions, followed by a number of noblemen's houses, were designed and built using new styles and methods (Rahnama and Razzagian, 2012). From the beginning of the Pahlavi dynasty, modern materials such as; Beams, rebars and cement were imported to the country to build factories, bridges and road and railway networks. This issue was gradually used in important government buildings and prominent buildings of nobles and courtiers (Omidvar, 2010: 92). This gradually led to the marginalization of traditional technology

and materials, and modern technology and materials and new designs replaced the previous methods. But at the same time, buildings were built in Iran whose design was traditional, but with new materials and technology, and sometimes for new governmental and social institutions and organizations. The style of traditionalism began in the first Pahlavi period (Baman, 2012). The difference between traditional architecture and traditionalism is that traditional architecture is designed and implemented in continuation of past architectural methods (Bani Massoud, 2014: 24). In other words, the general principles, the shape and design of the building and its implementation are related to the previous periods, which have been passed down from generation to generation. In traditional architecture, techniques, methods, decorations and building forms have always been implemented following the way and methods of the ancestors and in its perfection; In other words, the source of inspiration in traditional architecture is the legacy of the past (Anabastani et al., 2015: 17). On the other hand, the architecture of traditionalism has the design and symbols of traditional symbols. But for its implementation, modern technology and materials are used. Buildings of this style are designed for modern or traditional functions (Farqani et al., 2019: 215).

During the second Pahlavi period, communication with the outside world, especially with Western countries, expanded. As a result, modern construction materials and technology were imported to Iran more than in the past, and also a large number of workshops and factories were built in Iran to produce modern construction materials (Karimi, 2014). Modern architecture was considered as the only avant-garde style at the international level. Therefore, in this period more than the previous period, traditional designs and traditional methods and materials were marginalized and modern designs and new technology replaced tradition; But all these conditions did not cause the removal of tradition in the architecture of this period (Shahrokhifar, 2015: 46).

The reign of the Pahlavi II was approximately parallel to the late modern architecture in 1945-1972. At this time, modern architecture was considered the dominant and avant-garde style in all parts of the world, including in Iran. A large number of important buildings in Iran were designed and implemented in the style of modern architecture during this period. Transcendent and late modern architecture has many styles, as this architecture in the first Pahlavi period was summarized as art deco and international style, but in the second Pahlavi period, other late modern architectural styles were also considered. Art Deco style is related to the period of sublime modern architecture and it was close to its end with the beginning of the Second World War, but still a number of master architects of the previous period were engaged in this style and created valuable architectural works in the country (Alavi et al., 2017: 873).

Research Background

Eslami and Alborzi in 2021, the article "Investigation of the evolution and influence of modernism on the architecture of residential apartment complexes in Iran and Uzbekistan" have been done comparatively and with a qualitative approach with the help of documentary studies, in which the method of historical-interpretive research in the section Collection of theoretical-historical bases and descriptive-analytical research method have been used in the field of architectural investigation of residential complexes. The statistical population includes all the apartment complexes that were built in the modern architectural style in Iran during the second Pahlavi period and at the same time in Uzbekistan.

In 2019, in the article "Analysis of the effects of high-rise construction on the urban form of Mashhad metropolis", Farqani et al. conducted an analysis of the spatial distribution of high-rise buildings built in Mashhad metropolis (during the decade of 2017-2018) and its effect on the urban form of Mashhad metropolis are the research is of applied type and in terms of method, it is a survey and it has used descriptive-analytical analysis method. For this purpose, available statistics and information, spatial autocorrelation model and geographic information system were used. The results show that the high-rise buildings of Mashhad during this time period had a spatial autocorrelation pattern and it can be considered as a cluster pattern. The study of the effects of these buildings on the urban form also shows a multi-centered pattern with a dominant centrality in the central core (around the Holy Shrine) with commercial and residential use, which has reduced the role of the main core by creating several sub-cores, and considering the main advantage and distribution of the cluster Various activities at the level of the city have a positive relationship with the stability of the urban form, because through its multi-center distribution, many problems and issues surrounding the border core of the city and the complete single-border pattern have been reduced.

In 2019, Latif Aghili et al., in the article "Analysis of Spatial Justice Indicators in Gorgan high-rise Buildings" conducted on the existing high-rise buildings that have seven floors or 20 meters above the ground according to the master plan in Gorgan city. The research method of this research is documentary studies, survey method and questionnaire distribution. The questionnaire created by the researcher included 322 questionnaires among the statistical community formed by the supervisors of 1900 residential units, and its reliability was 97% using Cochran's method and Cronbach's alpha; Statistical analysis was done in an inferential and descriptive way in the SPSS software environment and the results of the studies showed that there is a significant relationship between the components of spatial justice and the satisfaction of citizens living in high-rise buildings. The results of the hypothesis test in both hypotheses show that due to the inappropriate access of the residents of high-rise buildings and the decrease in the quality of services, their level of satisfaction will decrease.

In 2018, Hojjat et al., in the article "Explanation of qualitative parameters and evaluation criteria of the interaction between form and structure in today's architecture of Iran" seeks to explain the criteria for evaluating buildings in terms of the interaction of form and structure and by examining examples of today's architecture. Iran should provide solutions to improve it. Based on this, qualitative research method, content analysis is used. In this way, firstly, the buildings are classified into three groups of self-presenting structures, compatible with the form, and forgotten in the form, based on the relationship between the form and the structure. Then, based on the needs of the structure and the form and the characteristics of each group, the qualitative parameters of this interaction include the participation of the form in the higher efficiency of the structure, honesty in expressing the elements of the structure, understanding the behavior of the structure in the form, the suitability of the structure with the functional and semantic needs of the form, and the suitability of the form with the construction needs of the structure. (time, economy and quality considerations) are presented. The results of this research include providing solutions to improve today's Iranian architecture in the interaction of form and structure.

In 2018, in his master's thesis entitled "Designing a high-rise building with residential use with the aim of revitalizing the Iranian courtyard" in 2018, Ghorban Niad Delavar investigated the effect of high-rise construction on the loss of open space (yard) in contemporary buildings. The results obtained in the design of a high-rise residential building in the 22nd district of Tehran on a site near the Persian Gulf Lake are presented as a practical example.

Unlike the Art Deco style, whose flourishing in the West is related to the period of transcendental modern architecture, the international style was also considered as an important style in the West during the period of late modern architecture. This style is considered one of the most important styles of late modern architecture. Many buildings in the west and other parts of the world, including Iran, were built in this style. But three new styles were introduced in modern and late architecture in the West, which had an impact on Iran's architecture as well. These three are called sculpturalism, brutalism and minimalism (Vahdat, 2015: 299). Sculptorism is a style in which concrete, like sculpting paste, is used to design and implement the body of buildings. In the buildings of this style, the concrete surface is often visible and the building is displayed as a beautiful sculpture. The Brutalism style, which was popular in the West from the 1950s to the mid-1970s, is a style that in the works made of it; The rough surface of the concrete is displayed. Sometimes the grooves of the wooden molds are visible on the concrete surface and usually the dimensions of the beams and columns are exaggerated (Alavipour, 2015: 142). On the other hand, the motto "Less is more" which was proposed by Mies van der Rohe, is the main idea of the minimalism style. In this style, straight and elongated lines, smooth and polished surfaces and cube-shaped volumes are used. The execution of the building and its components is done with

great beauty and precision. In this style, the decorations of diagonal and curved lines and any additions that are not needed are avoided (Rahnama and Razzagian, 2012: 52).

Organic architecture, organic architecture is considered one of the branches of modern architecture, with the difference that if modern architecture was based on science and technology, organic architecture was nature-oriented and considered nature as the main idea in its designs. Organic architecture was formed in America in the 19th century by Frank Furness and Louis Sullivan (Bani Massoud, 2014: 29). The heyday of this theory can be seen in the writings and designs of Frank Lloyd Wright in the first half of the last century. Wright's name is synonymous with organic architecture more than any other architect (Latif Aghili et al., 2019: 128). The goal of organic architecture is to combine spaces, materials and artificial environment with natural environment. In such a way that the architectural effect is mixed with the surrounding natural environment and they interact with each other. In organic architecture, materials are displayed naturally and as they are. In this regard, Wright states that glass should be used as glass, stone should be used as stone, and wood should be used as wood. Some examples of this architecture in Iran can be seen in the past or in a phrase in the native architecture of Iran (Farqani et al., 2019: 213). Native architecture, especially in villages, was built in harmony with its natural environment. This architecture was not a combination that was imposed on nature, but was complementary to the context and conditions in which it was placed. Masoleh village in Gilan province can be called as one of the best examples of organic architecture in Iran (Abbasi, 2016). The body of the village, which is located on the slopes of Talash mountains, has been expanded as a series of row buildings parallel to the ground level. All the buildings have their backs to the slope of the land and the sunset, the valley and the river. The beautiful view of nature has an eternal effect in front of all the spaces and buildings of the village (Karimi, 2015). Unlike the first Pahlavi period, when no organic style buildings and indicators were observed in Iran, in the second Pahlavi period, a number of buildings and parks were designed and implemented, which have benefited from the characteristics of the organic style; That is, their homogeneity with nature, natural materials, or the use of curved and curved lines in the design (which originates from the famous slogan of the architects of this style, that is, no straight line can be found in nature), is often seen in these works.

Postmodern Architecture

Although traditional architecture was gradually marginalized since the arrival of western architecture in Iran, but there has always been a look to the past and inspiration from historical architecture in contemporary Iranian architecture. In the second Pahlavi era, in the designs of a number of renowned architects of that period, this look at the past and its integration with the current conditions was proposed (Jehanbeglu, 1995: 51). The tradition used on their facades is outside the subject of this architectural style, but the buildings and a type of architecture where

the two topics of tradition and modernity are parallel to each other in the physical plan of the building are included in the framework of this architectural style (Bemanian, 2016). Hoshang Seyhun can be called the founder and theoretician of this type of architecture. He says the following about the integration of modern architecture with historical architecture in this period. In the work of modern architecture in Iran, there were some people, like myself, who paid attention to the fact that the color, smell and continuity of the past architecture should be preserved. We should somehow be reflected in modern architecture (Anabastani et al., 2015: 13). It should be said that perhaps before the postmodern issue started in Europe or America, modernism had emerged in Iran in the buildings that were built 30 to 50 years ago. And it smells like postmodernism. Anyway, if we want to translate modernism into Persian, it means modernism. Indeed, our thought and our knowledge should be in the service of architecture, which answers our past and present in terms of the artistic form of the moods that people live in (Bani Masoud, 2003). With the support of Farah Pahlavi's office, in September 1970, the first international congress of architects was held in Isfahan in the name of exploring the possibility of combining traditional architecture with modern construction methods. In this conference, eighteen of the most famous architects in the world at that time, such as "Louis Kahn", "Paul Rudolph", "Buckminister Fuller" and "George Kandelist" were involved (Aghajari, 2010: 38). The most famous architects from Iran including "Mohsen Foroughi", "Nader Ardalan", "Hoshang Seyhun", "Kamran Diba" and "Ali Sardar Afkhami" were present. Understanding the maintenance and combination of this wealth of civilization and culture with the current context of Iranian society and its physical and material environment is inevitable. In the course of Iran's social developments, special attention should be paid to the preservation and renewal of the regional and urban values of existing models and systems. The topics raised in this congress were about the tradition of technology and modernity, which were addressed by Iranian architects and prominent American architect Louis Kahn. The recommendations of the congress expressed the vision of the Iranian avant-garde architects in the late 1940s, and at the same time, these topics are the framework of avant-garde architecture, or in other words, postmodern architecture. explained Iran until the time of the Islamic Revolution (Farqani et al., 2019: 214). Amir Bani Massoud writes; A trend parallel to the atmosphere of modern Iranian architecture, which was mainly supported by Iranian educated architects both abroad and Tehran University graduates, was formed between the 1960s and 1970s, which was strongly influenced by the atmosphere of Iranian intellectual currents in the aforementioned decades. Of course, we should not forget that the flow of Iranian architecture that was formed in the 1960s and 1970s was the same modern architecture that was mutilated between international styles and nationalism. Most of the national writings consider this current to be influenced by the ideas and discussions raised in post-modern Europe and mainly the discussions raised in postmodern architecture; But according to the opinion of many experts, the atmosphere formed in Iran in the 1950s cannot be equated with the

post-modern debates, which are called postmodern. (Bani Masoud, 2014) In the post-modern era, post-modern architecture was proposed since 1967, with the book "Robert Venturi" called "Complexity and Contradiction in Architecture", and it took on a global form mainly since the late seventies (Qobadian, 2012). Seyhun and Bani Masoud consider the combination of traditional and modern architecture in Iran to be unrelated to postmodern architecture before. Bani Masoud calls this type of architecture in Iran, which he considers to be influenced by the intellectual movement of that period in Iran, as "historical modern" given (Bani Masoud, 2014). By examining the buildings built during the 37-year period of Pahlavi II, a total of 28 landmark buildings, which have been intended to integrate the historical architecture of Iran and the modern architecture of the West in their physical plan, have been identified and their physical characteristics will be investigated in the upcoming research (Karimi, 2015).

The theoretical and intellectual principles of this style were based on the fact that the original Iranian architecture should be combined with the modern styles common at the time and the new construction methods and technologies, and this integration is not only the interference of the shells in appearance, but also the penetration of the integrity of the form in such a way that their separation to damage the nature of the building from each other (Bani Masoud, 2014). Although the aim and goal of Iranian modernism architecture is similar to postmodern architecture in the West, in both modern era architecture is designed with regard to history and the past. According to the above explanations, the integration of historical and modern architecture in Iran started in 1945 and therefore could not be influenced by postmodern architecture which started in 1967 (Giddens, 2001: 12); therefore, Seyhun and Bani Massoud's opinion about the lack of connection between these two architectural styles is correct. In this way, even before the postmodern architecture spread in the west and finally in other countries, a type of modern Iranian architecture that paid attention to the civilization, culture and history of Iran grew in the country. Therefore, for this type of architecture, the name of modern Iranian architecture can be chosen in the buildings of this style. The style can be seen on the one hand, the characteristics and innovations of the modern era, and on the other hand, the continuity of Iran's past architectural methods is clearly and artistically manifested in the physical form of the building. After the Islamic Revolution in 1978, most of the designers of these buildings went abroad. The idea of this architectural style is not seen. Therefore, the year 1978 can be called the year of the end of Iranian postmodern architecture (Omidvar, 2010: 29).

Hi-tech Architecture

A year before the announcement of the death of modern architecture by Charles Jenks, the successor of this hi-tech style architecture emerged in Paris. In conventional buildings, building technology is usually hidden in the inner layers of the building, but one of the characteristics of high-tech buildings is the display inside and outside the building (Armstrong & Mir, 2008). And

naked is seen (Pourmohammadi, 2015: 18). Single architectures represent the achievements of the modern era. Modern science and technology are one of the key achievements of this work (Armstrong and Mir, 2006). In this architecture, the advancement of the construction profession using modern technology is artistically designed and exposed (Saremi, 1995: 59), after many studies about this style in the second Pahlavi period, see It was found that due to the emergence of single architectures in the second Pahlavi period, only three works of this style were identified in the country (Talebi, 1996: 57). One is Tehran's "Takhti Stadium" by Jahangir Darvish, which is due to the covering of two openings (two high columns) at a distance of 247 meters from each other, with a concrete roof due to components and tension cables, and the other is the Kermanshah Regional Museum by Mehrazan Consulting Engineers, which is due to Having a transparent body and visibility of the structure are among the best examples of technology styles in the country (Shahrokhi Far, 2015).

The contemporary architecture of Iran after the Islamic revolution, in 1978, has had many challenges from the imposed war, the post-war era and the need for rapid reconstruction to coincide with the postmodern trends in the West (Samsami Hosseini, 2001).

Green Architectural Style

Climate since the 70s and sustainable architecture since the 90s have been among the most important topics in the field of architecture, and these two styles have been called green architecture. In western countries and in Iran, due to the reduction of oil reserves, environmental pollution and endangerment of the environment of the planet, green architecture becomes more important (Alavipour, 2015: 143).

Folding Architectural Style

Architects of this style are opposed to Tall vertical buildings. Most of the buildings built in this style have a horizontal shape. Perhaps this is one of the reasons why this type of building is rarely seen in the new architecture of Iran. Each space in a folding style building is like a layer (Leilian et al., 2009). These layers are sometimes parallel and sometimes twisted. Layering is one of the most obvious features of this style and can be seen in almost all buildings of this style (Qobadian, 2012). Bahram Shirdel pays special attention to the relationships between spaces and space, as a result, according to the evolution of his architecture, he can be seen as similar to John Hidek, whose main concerns are spatial and volumetric relationships. According to his critics, until the fourth decade of his life in Jirga, he is considered the world's leading architect, especially in the folding (architectural) approach (Leilian, 2009: 52).

The trend of deconstruction or deconstruction was brought up in Iran during the years 2004 to 2011 and during the events of contemporary western architecture. Above all, philosophical-

theoretical approaches in architecture were mentioned. In Iran, continuing to pay attention to current trends in architecture, attention was paid to the category of deconstruction and its related approaches, which started in the discourse and discussions of architecture in the translation of a number of related books or articles and in a number of architectural projects, both in the professional environment and in the academic environment. They found the possibility of emergence (Qobadian, 2012: 53). There are also some examples built in the private sector, which unfortunately indicate the emergence of a false de structuring trend based on the superficial and apparent imitation of Western architectural examples rather than a deep understanding of what de structuring in architecture suggests. Many architects who spread this view in Iranian architecture by resorting to certain arguments, they try to connect the theoretical foundations of this tendency with some philosophical, mystical and religious fields of Iran. Perhaps this tendency can find legitimacy and validity in the contemporary architecture of Iran (Farqani et al., 2019: 52).

Populist Trend

The possibility of mechanical reproduction on the one hand to produce ridiculous works of art and on the other hand to expand the spectrum of consumers of works of art and decline the taste of works and as a result of producing a trend in architecture that can be called populist trend. The populist tendency is an emotional and sentimental tendency whose purpose is to satisfy the consumer and the people. The most important feature of this trend is its market orientation (Omidvar, 2010: 57).

The trend of favorable factors from 2013 until now. This trend, which in fact uses the simplest and most trivial tastes and mental ideas of people in order to create works, is formed based on characteristics such as hypocrisy, luxury, consumerism. In fact, the populist trend is not a trend that adheres to a specific model and form and seeks to simply imitate styles and combine them with each other without any clear rules and order (Qobadian, 2012). The dead and alive of the previous era, especially those that arouse the nostalgic feeling of the consumer (Çizgen, 2012). As an example, he uses the color similarity of white cement and stone and tries to show cheap materials instead of expensive materials. Most of the buildings that are built today in Tehran and of course in other parts of the country fall under this architectural trend (Bemanian, 2016: 69).

Tall Buildings

The height of a building is a relative matter and various definitions for Tall buildings have been presented from different aspects:

Urban planners and designers often call buildings with 10 floors or more as Tall buildings (Yeang, 2007) and consider the characteristic of a Tall building to be at least A designed facade should represent the number of its multiple floors (Kunstler and Salingaros, 2001). In other

words, an exhibition, factory or any building with a high height does not fit into this definition (Niu, 2003). Buildings against fire, the minimum number of floors of a Tall building is 8 floors. (Tavakoli and Sabetan, 2022: 8). However, due to the advancement of equipment and facilities, this number of floors can be increased to 12 floors. Also, based on the text of the rules and regulations for the construction of buildings with 6 floors and more in Tehran, which is considered as a guideline for Tall buildings in Tehran, wherever Tall buildings, Tall buildings and Tall buildings are mentioned, it means buildings with 6 floors and more (Khalvati et al., 2022: 16). According to all the mentioned cases, a high-rise building can be called a building with at least 10 floors, which falls within the scope of all the above definitions (Pourmohammadi, 2015: 119).

Also, Tall buildings in Iran are defined as buildings above 6 floors based on the rules and regulations of the Supreme Council of Architecture and Urban Planning of Iran approved in 1998, but this definition is applied to buildings above 12 floors based on the comprehensive plan of Tehran, approved in 2007. A high-rise building is a building that is multi-story and high-rise and usually has a residential, commercial or office-residential or multi-use use, and it differs from a skyscraper in height. A high-rise building with a residential use is called a residential complex, an apartment block, and a tower. Regarding the minimum height of a high-rise building, there is no single and standard definition, but most of them agree on a building with a minimum height of 23 meters. A high-rise residential building is a single high building whose height is higher than the diameter of the enclosing circle of the plan (Karimi, 2015: 28). This is while Bemanian considers a high-rise residential building to have a height of more than 10 floors and about 32 meters (Bemanian, 2016). In 2003, Barney defined high-rise residential buildings as 15 and 16 floors and very high-rise residential buildings as 30 to 40 stories (Barney, 2003). Saeed nia calls high-rise apartments with more than 10 floors as towers (Samsami Hosseini, 2011: 49).

In 2014, Anabestani et al., in the article "Comparative comparison of multi-criteria decision-making methods in the optimal location of high-rise buildings (case study: District 9 of Mashhad Municipality)" this research analyzed the results of the widely used Analytical Network Model (ANP) and Analytical Hierarchy Model (AHP). It is based on the fact that research data and information were collected through a questionnaire by 25 expert experts. The results of the research showed that in the ANP method, the criteria of compatibility and land price with a coefficient of 0.143 are in the first place, and per capita services and population density are in the second place, while in the AHP method, the distance from the fault is in the first place with a coefficient of 0.255 and the slope of land is with a coefficient of 234. 0/0 is ranked second. After preparing the zoning map of suitable areas for the construction of high-rise buildings, a space between 439 and 449 hectares has been determined to be completely suitable in the ANP and AHP methods, respectively. Finally, among the eight high-rise buildings under construction in

the studied area, according to the ANP method, none of them are located in completely suitable areas, while in the AHP method, two buildings, Armitage and Mania, are located in completely suitable areas.

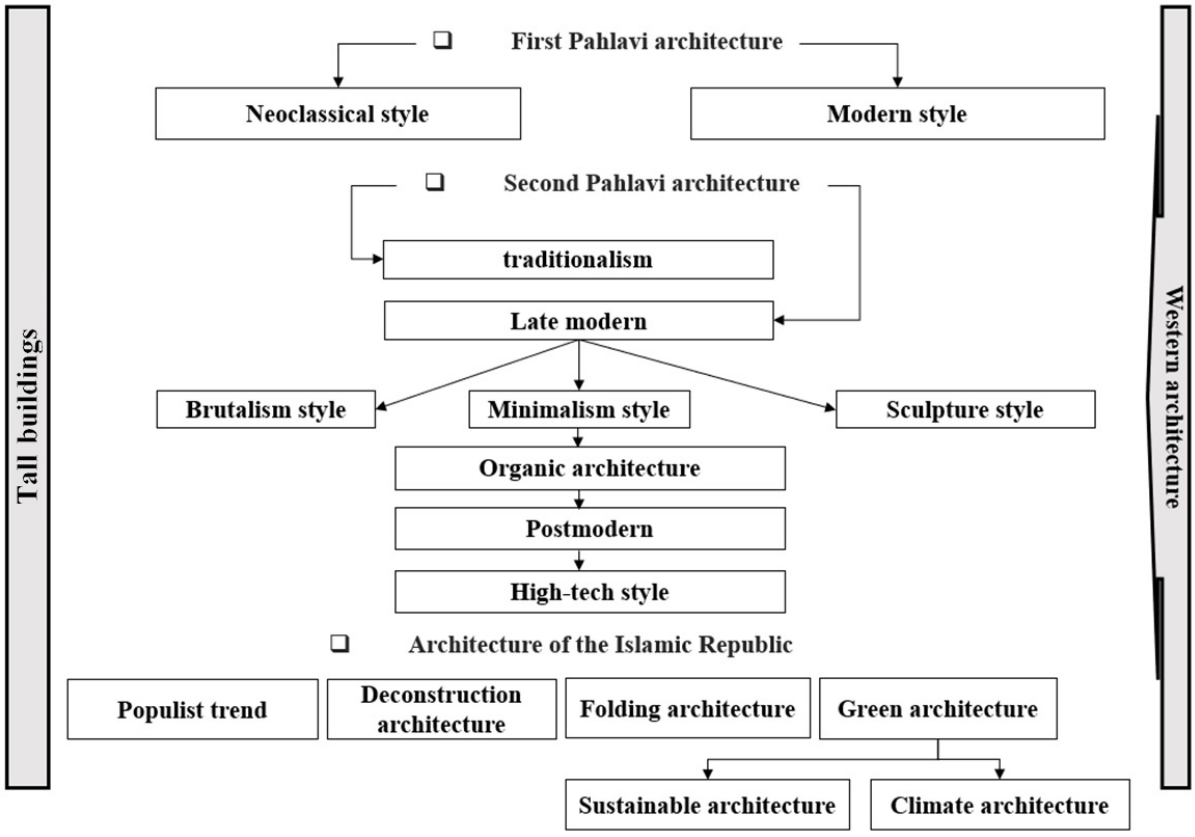

Figure 1. Summary diagram of the architectural styles of the West influencing the contemporary architecture of Iran from the theoretical foundations and background of the research (Source: Authors)

Research Methodology

In this research, due to the difference between the components of the theoretical field and the measuring range, it is necessary to refine a variable based on the selected range. Based on this, the mixed research method is qualitative and quantitative. First, the concepts based on the theoretical fields in connection with the introduction of the western architectural components effective in Tall design are extracted with a systematic review system and the qualitative stage begins. Semi-structured interview questions, definitions and concepts are compiled and provided to academic experts. The questions are based on the extraction of western architectural components that are effective in the design of Tall residential buildings in the target area. The interviews are entered into the ATLASTI software and begin to be labeled with a coding system based on description and interpretation. The results are presented in the form of a conceptual

spider diagram in the form of introducing the components. The stage of data reduction is based on open and axial coding and by relating categories. In this stage, the sample size selected from the statistical community of experts is 31 people who were selected with the snowball system, and the results reach saturation from the 24th person onwards. The sampling method is snowball. In the next step, the quantitative approach begins. The components are placed in the form of a questionnaire with a Likert scale. Space is randomly distributed among users. The sample size is selected based on the highest value of the Morgan table. The results are entered into JMPSAS software and analyzed with inferential statistics. For this stage, analyzes involving causal relationships, such as regression and correlation, and corresponding pre-tests are chosen. The validity of the questionnaire was obtained with the CVR formula for 21 experts, whose value was 0.749, and Cronbach's alpha was calculated for reliability, which was 0.831.

Tall Buildings under Study

In this research, the area under study is the city of Tehran, due to the existence of more multiplicity and different types, and an attempt is to select a number of selected samples from among them in a purposeful way shown in (Table 2).

Table 2. Targeted examples of Tall residential buildings

Name of the building	Designer/design group Manufacturer/Owner	Year of construction	Property	Image
Tehran International Tower	Setec Batiment	2005	Tehran International Tower is the most Tall residential tower in Iran with a height of 162 meters and 56 floors. This tower has 3 wings and 220,000 square meters of infrastructure, which consists of 572 units, including 43 suite apartments, 172 two-bedroom apartments, 313 three-bedroom apartments, 16 four-bedroom apartments, 11 triplex penthouse apartments, and 17 commercial units on the ground floor. Tehran International Tower is located between Hakim Gharb, Kurdistan and Sheikh Bahai highways and in the north of Amirabad neighborhood of Tehran.	

Third Millennium Tower or Millennium Tower	A group of shareholders in two helicopter hangar housing cooperatives and Millennium Iranian construction and trading company.	1996	Third Millennium Tower or Millennium Tower is one of the towers with a height of more than 100 meters in Tehran, which is located on Sheikh Bahai Street and near Tehran International Tower. This 34-story tower is built on a land of 15,200 square meters and with an infrastructure equal to 123,000 square meters, residential and commercial use, and the height of the tower structure is 110 meters from the ground level, and considering the helipad and truss, the height of the tower reaches 118 meters.	
Sattarkhan residential towers	National Construction Company	1975-1980	The 360-unit complex of Sattar Khan was built in 3 towers with 21 floors. The contract for the mentioned project was concluded in February 2014 between Maskan Waqt and National Construction Company for the execution of the work in 36 months. The 360-unit complex of Sattar Khan was built in 3 towers with 21 floors. The contract for the mentioned project was concluded in February 2014 between the Housing Organization and the National Construction Company for the implementation of the work in 36 months.	
Taj Tehran	French contractor (S.A.E. company)	1975-1989	18 towers and 54 villas The towers are in three classes A including buildings 17 to 21, class B including buildings 1 to 14 and class C including building 16. Currently, the number of residential units in Omid town is equal to 1946 units. It was designed for the residence of	

			royal military families and army officers, officers and emirs. After construction, these units were handed over to the families of the 21st Hamza Division of the Ground Forces of the Islamic Republic of Iran.	
Known as the three buildings of Sattar Khan	Armeh company manager	1974-1978	This complex included three blocks named Damavand, Alvand and Dana (later renamed to a-b-c towers), which were 27, 22 and 19 floors, respectively, including the basement floors. Of course, the initial naming of buildings. The construction of these towers lasted for about four years due to various problems, and while it was close to completion, it was stopped during the days of the revolution and was finally completed after the revolution in 1980.	
Omid town	Italian company - (Archi Test) design and preparation of executive plans Elevator contractor: Japanese company called (Mitsubishi) Made by: Ati Saz Company	1976-1990	Including 23 towers from 12 to 31 floors, it has been built in three phases. Phase one includes 9 towers of 12 to 22 floors with a floor area of 12,3335 square meters including 690 residential units built by 1988. The second phase includes 9 towers of 12 to 26 floors with an area of 134396 square meters and 832 residential units, and the third phase includes 5 towers of 28 floors with an area of 117104 square meters and 768 residential units. The construction of new blocks in Complex area for financial profitability.	
Before the revolution called Farhanaz town	Iran Saman Construction Company)It was formed by the government under the management of Ahmad Ali Ebtehaj and Abdul Majid Aalam) Designer: Abdulaziz Farman farmaiyan	1968-1970	Two 20-story blocks, the purpose of forming the company was to introduce Tall residential buildings and practical test of the law of ownership of apartments. Each with three floors of parking and a business unit. The first block, which has more infrastructure than the second block, and each floor has	

			between four and seven units, and according to the 600-meter area of each floor in these towers, the first and last floors are built as duplexes. At first, the first block was commercial, but later it became residential. But the second block has been residential from the beginning. This complex has an old commercial center as well as a mosque that was established after the revolution.	

Findings

Qualitative Findings

In the qualitative phase, after the interviews, the data is entered into ATLASTI software and coding begins. The coding approach using description and interpretation was used for them. Among the components of western architecture, there are 8 core codes including late modern architecture, traditionalism architecture, organic architecture, single architectures, folding architecture, popular architecture, deconstruction architecture, green architecture, organic architecture, postmodern architecture.

Based on this, the results showed data repetition and theoretical saturation in the 35th interview. The most frequent is related to the components derived from late modern architecture and related to the non-use of traditional decorations with a prominence of 18, and the least related to deconstruction components with the number of overlapping volumes and suspended surfaces in an artistic combination with a prominence of 6. The following (Table 3) shows the codes.

Table 3. Components taken from western architecture used in Tall residential buildings

The use of simple geometric volumes such as cubes, pyramids, cylinders in combination with contrasting and bright colors. Attention to natural light in interior architecture Use of symbolic form Appropriate and correct use of architectural space elements Creating a desirable architectural space as a result of very disciplined and precise thinking and reasoning Creating a basic system for learning, recognizing, creating and understanding spatial messages Discovering the space to better understand the messages of the architectural space Applying geometrical order and axial symmetry in the design of the building ٩Use of brick or stone in the facade	**Postmodern architecture**	According to the Euclidean geometry, the form is often in the form of a rectangular cube Using smooth surfaces and straight lines Not using traditional decorations Covering the facade with stone, glass, metal plates and sometimes bricks Using materials, structures and modern technology Flat roof Using concrete to create new and innovative objects Dividing building spaces into service spaces and serviced spaces and separating these spaces from each other	**Late modern architecture**
Minimal interference with the natural environment Integration of the artificial environment with the natural environment Using native materials and displaying them in a natural way Adjacency of natural and artificial materials next to each other Homogeneity and integration of parts together and with the whole Existence of multifunctional spaces Playing with light and color Designing open and semi-open spaces for proper lighting A combination of intangible and mental factors with objective factors	**organic architecture**	Dominant views and symbols in the plan of the building Introverted plan of religious buildings The plan of buildings with a new outward-looking function Brick facades with tiling decorations Glazed, turquoise tiles with Slimi, Khatai and Chinese knot designs The roof of the buildings is often in the form of convex arches and domes Using new technology Structure of the load-bearing wall or metal or concrete frame Inspiration from historical architectural styles of Iran Existence of spatial hierarchy in the interior of the house	**Traditionalist architecture**

Using the climate to provide human comfort inside the building Reducing energy consumption, especially fossil energy in the building Reducing the creation of pollution and waste in the environment Updating traditional elements and functions to ensure human comfort Use of technological materials and green or optimal facilities Choosing the field of green building materials	**green architecture, sustainable architecture**	Showing the structure, facilities and circulation system Making the body and parts of the building transparent Using shiny metalic materials or exposed concrete on building surfaces Using light tensile components Not using historical symbols and decorations In this style, the structure is not hidden, but the essential elements are used meaningfully and clearly. The form serves the function of the building Using minimal style, simplicity Not using unnecessary and luxurious details Use of metal structure for these buildings Failure to hide connections and structures Creating a tough and impenetrable outer shell in buildings Creative placement of prefabricated industrial parts Use of glass walls in buildings Lots of internal open spaces and easy access to all floors according to the use of the building	**High-tech architecture**
Creating a feeling of suspense, instability and dynamism Using diagonal and slanted surfaces and lines The juxtaposition of unrelated symbols next to each other Interference of suspended volumes and surfaces in an artistic composition Placement of symmetrical and asymmetrical volumes next to each other The existence of smooth or flat lines and broken or crushed irregular and disproportionate volumes Lack of coordination, linearity and continuity Absence of right angles or 90 degrees Rejection of Euclidean symmetry and geometry Fragmented volumes	**Deconstruction architecture**	The influence of the building form on the surrounding and internal conditions of the project The fluidity of the body, surfaces and lines Soft and flexible movement of the body depending on the site Using curved and malleable lines Emphasis on horizontal lines and divisions in the facade Rejection of verticalism, spatial classification and hierarchy Balanced homogeneity of layers in terms of shape, color, materials and texture Coordinating semi-fluid forms with container and physical bed Combining unrelated factors in a continuous mixture	**Folding architecture**
The facades of buildings are a sign of distinguishing a person from other social groups Reading history in a selective manner, having familiar motifs, glamorous, magnificent and luxurious and reminding and pointing Dependence on decorations The form is unrelated to the context Form variety Imitative use of classical architectural signs without paying attention to proportions, symmetry, and composition, etc., many elements used in popular, false, and decorative architectural facades Terraces hidden behind the windows to maintain the symmetry of the facades and columns Making it look important by changing the scale of windows and columns with two-story height and using multiple vertical elements. Using elements and materials related to collective memories Using signs outside the time and place of their cultural system			**Deconstruction architecture**

Descriptive Statistics

In this section, one question has been formulated for each variable. The questions are based on the Likert scale, which has answers from very high to very low. To convert them in the JMP software, they are given a range of 1 to 5 points. The statistical population for this research, at this stage, are space users and residents, and Morgan's table is used to find the sample size. 384 people are selected as the sample size. The results show that 37% of the participants are women and 63% are men. The most age group of the participants in this research is 47% between 18-22 and 26% between 22-26 and 27% between 26 and 30. The highest frequency is related to visual diversity with a value of 1906 and the lowest is related to contrast with a value of 1285. The support of the moving average of the data distribution shows the correctness of the instrument's measurement method, and the answers are correlated with each other and can be predicted with the fitting diagram shown in (Figure 2). In the group of designers, the highest frequency is related to postmodern architecture with a value of 1879 and the lowest is related to deconstruction with a value of 635. In the group of beneficiaries, late modern architecture with a value of 1821 is the highest and deconstruction architecture with a value of 503 is the lowest.

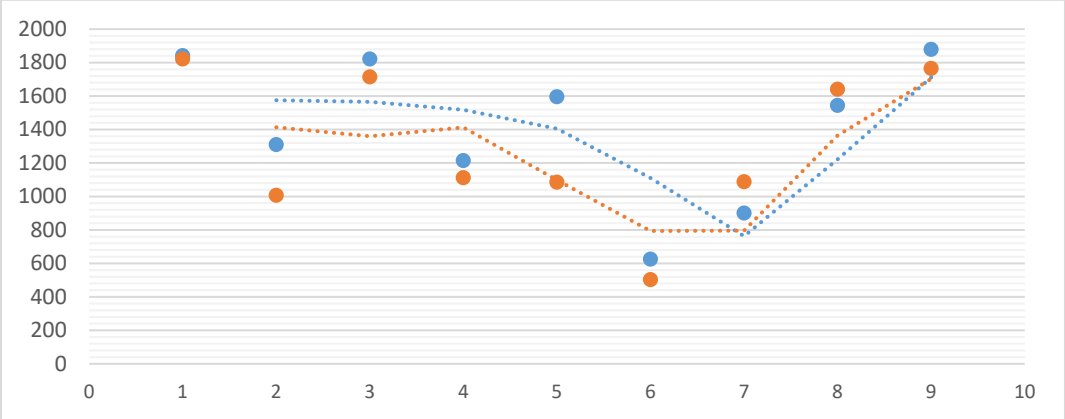

Figure 2. Data distribution frequency diagram of various western architectures

Inferential Statistics

Correlation

Two-Sample Kolmogorov-Smirnov Test is used to check the parametric and non-parametric type of data.

Table 4. Kolmogorov Smirnov test to check the normality of western architecture components affecting the body of Tall residential buildings

p	Z Kolmogorov Smirnov	The standard deviation	Average	Variable
0.281	0.798	228/3	25/44	Western architectural components on physical design

As can be seen in (Table 4), the Kolmogorov-Smirnov test is not significant (p=0.281) and therefore the components of western architecture on physical design are not normally distributed and non-parametric analysis can be used for them. Based on the data correlation results, it is clear that in the group of designers, the highest correlation coefficient is related to single architectures with a value of 0.843 and the lowest correlation coefficient is related to popular architecture with a value of 0.274. In the group of users, the highest value is related to the components of post-modern architecture with a value of 0.835 and the lowest is popular architecture with a value of 0.114 as shown in (Table 5).

Table 5. Spearman's correlation coefficient of western architectural components affecting the body of Tall residential buildings

Beneficiaries			Designers		
Significance level (Sig)	The correlation coefficient	Variable	Significance level (Sig)	The correlation coefficient	Variable
0.004	0.675	Late modern architecture	0.000	0.735	Late modern architecture
0.007	0.681	Traditionalist architecture	0.010	0.781	Traditionalist architecture
0.011	0.543	Single architectures	0.014	0.843	Single architectures
0.010	0.545	Folding architecture	0.012	0.482	Folding architecture
0.012	0.114	Popular architecture	0.016	0.274	Popular architecture
0.014	0.217	Deconstruction architecture	0.008	0.374	Deconstruction architecture
0.012	0.825	green architecture, sustainable architecture	0.006	0.721	green architecture, sustainable architecture
0.007	0.354	organic architecture	0.007	0.421	organic architecture
0.002	0.835	Postmodern architecture	0.005	0.735	Postmodern architecture

Regression

To use the linear or multivariate regression type, the internal correlation matrix diagram of the variables is used (Figure 3). After drawing the correlation matrix diagram, it was found that the factors have no linear relationship, so it is correct to use multivariate regression. The results show a multilinear relationship with a high amplitude, which is the best suggestion for using multivariate regression.

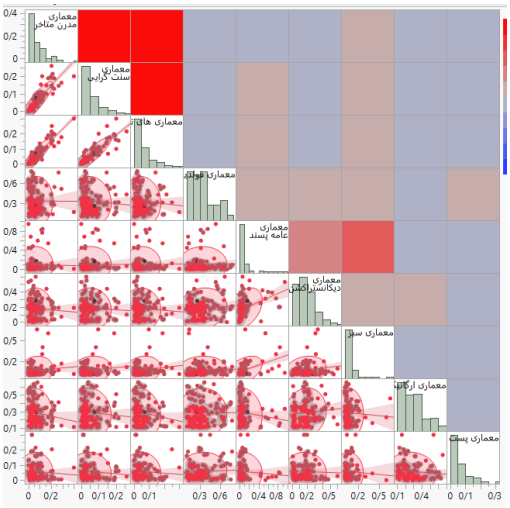

Figure 3. Internal correlation matrix of variables to identify the type of regression

Based on the results obtained from the regression model as shown in (Table 6), it is clear that in the group of designers, the highest factor contribution is related to late modern architecture with a value of (0.955) and the lowest factor contribution is related to deconstruction architecture with a value of 0.121. In the group of beneficiaries, deconstruction architecture with a value of 0.225 has the lowest factor share and the highest is related to postmodernism architecture with a value of 0.923.

Table 6. Multivariate regression in Western architecture affecting the body of Tall residential buildings

Degrees of freedom	meaningful	t	β	B	F	The coefficient of determination	Scale	group
383	0.021	581/54	0.265	1/000	501/318	0.955	Late modern architecture	designers
383	0.014	855/33	0.727	1/000	801/544	0.555	Traditionalist architecture	
383	0.022	255/31	0.331	1/000	857/369	0.714	Single architectures	
383	0.011	479/58	0.255	1/000	506/710	0.644	Folding architecture	
383	0.011	944/61	0.275	1/000	289/658	0.524	Popular architecture	
383	0.012	956/15	0.963	1/000	526/689	0.121	Deconstruction architecture	
383	0.001	712/65	0.588	1/000	314/278	0.820	green architecture, sustainable architecture	
383	0.004	632/84	0.624	1/000	586/784	0.529	organic architecture	
383	0.011	141/89	0.646	1/000	695/174	0.915	Postmodern architecture	

383	0.017	923/63	0.266	1/000	245/627	0.913	Late modern architecture	Beneficiaries
383	0.16	544/14	0.735	1/000	255/428	0.522	Traditionalist architecture	
383	0.015	488/21	0.881	1/000	383/527	0.685	Single architectures	
383	0.071	232/45	0.865	1/000	911/259	0.495	Folding architecture	
383	0.015	286/52	0.727	1/000	564/243	0.356	Popular architecture	
383	0.021	522/22	0.331	1/000	611/621	0.225	Deconstruction architecture	
383	0.038	581/54	0.425	1/000	619/872	0.706	green architecture, sustainable architecture	
383	0.002	855/33	0.823	1/000	652/349	0.723	organic architecture	
383	0.003	255/31	0.662	1/000	941/285	0.923	Postmodern architecture	

Discussion

This research follows an exploratory method to extract modern western architecture and its effective components in the design of Tall residential buildings. After coding, a number of 95 codes were extracted, which were placed in the form of 86 index codes after summarization. The core codes were predetermined in the form of a codebook, and a connection between the components was established with western architectural styles. After the interview, the experts and designers showed that the lack of using decorations as a distinct western characteristic in the association of western architecture is in the form of physical design in Tall buildings. According to them, the combination of volumes has existed in Iranian architecture since the past and the application of those volumes in an eclectic manner cannot evoke Western architecture in the mind of the audience. A questionnaire was used for the accuracy of the interviews and the development of the results to different societies.

In general, descriptive and inferential statistics have differences in the presentation of extremes, so the basis of the analysis unit should be placed in the inferential part. Based on statistics, it is clear that designers have a higher understanding of modern concepts and have placed more coefficients for them. From the experts of late modern architecture, he can make different aspects of the components of other architectural styles more modern. From the point of view of the users of the principles of postmodernism architecture, it can be adapted to their mental schemas which are derived from media images and can improve other components; as a result, based on the results of the coefficients of the regression model, it is clear that in Tall

residential buildings, the most related indicators can be He observed late modern architecture and postmodern architecture.

Based on the investigations, what can be seen in Tehran International Tower, Sattar Khan Residential Towers, Prince Park Residential Complex and Saman Twin Residential Complex is that all these four complexes follow the late modern style according to the taste of the designers. do These buildings have flat roofs. They have not used traditional decorations. These buildings have a simple shape that has nothing to do with their context and are just a vertical building.

The future building is a combination of late modern and hi-tech styles. In this Tall residential building, it is guided by a modern and minimalist style and has a glass facade and a sleek design. The unique geometric shapes and the interaction of light and shadows have created a stunning visual effect in this beautiful building that captivates the viewers. In the facade of this Tall building, according to the principles of high-tech architecture, unnecessary and luxurious details are not used. In the facade of this building, the simplicity of the windows of the same shape emphasizes the use of glass in the facade. In this tower, the body and components of the building are transparent and historical symbols and decorations are not used in any way.

In the residential building of the third millennium, it has high-tech styles. The main facade of the building, which faces west, controls the west light. In this building, there are three-paned windows from the floor to the ceiling. The glasses used are low-reflective and based on today's technology with minimal infrared transmission and very low heat exchange. The main view is one meter behind the windows inside the apartments.

In the residential buildings of Omid town, which is close to the style of green architecture, the roof of this complex is green, as well as the surfaces in the area and the terraces are considered to be green spaces in order to meet the goals of the plan, i.e. green architecture. To get closer, this Tall residential complex has private patios and balconies. In this residential complex, terraces are considered more in the rooms. As a result, the penetration of sunlight is suitable for bedrooms and living rooms. On the other hand, these terraces are a means of establishing social relations among neighbors.

Conclusion

The emergence of this type of architecture has created a variety of products in urban planning and architecture, following the advancement of technology and ease in the field of vertical growth and development of cities, one of which is the Tall residential building. The principles of modern architecture have always been used to design these collections, and these principles exist in an eclectic form in these buildings. This research showed that the effective styles in Tall construction in Iran include late modern architecture, traditionalist architecture, single architecture, folding architecture, popular architecture, deconstruction architecture, green

architecture, organic architecture and postmodern architecture. These styles were used eclectically and the opinions about the productivity of each of them in different groups seem to have differences. After its arrival in Iran, deconstruction architecture has undergone various changes and there is a consensus about not using its indicators in the design of Tall buildings.

According to the findings of the research and investigation of Tall residential buildings, the reception of late modern architecture in Tehran has been considered by the designers more according to the way of shaping the city after the revolution. Neomodern or late modern architecture is one of the famous and popular trends in contemporary Iranian architecture education. In this type of conceptual works such as changing the axis, breaking the box, etc. can be seen and recognized well. In fact, the architecture of Iran in the contemporary period has inevitably changed its shape under the influence of several factors, including the change of traditional to modern construction methods, and has moved from traditional introversion to modernist extroversion. The reason why this style is still considered by designers is that in the late modern style, freedom of action, curves and huge volumes are clearly defined and architects and designers in this style can freely implement ideas and whatever they have in mind.

Author Contributions

All authors contributed equally to the conceptualization of the article and writing of the original and subsequent drafts.

Data Availability Statement

Not applicable

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Ethical considerations

The study was approved by the Ethics Committee of the Islamic Azad University, Central Tehran Branch. The authors avoided data fabrication, falsification, plagiarism, and misconduct.

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Conflict of interest

The authors declare no conflict of interest.

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