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# BUILDING NEW HERITAGE FOR THE FUTURE: INVESTIGATING COMMUNITY ARCHITECTURE PARADIGMS IN CONTEMPORARY ARCHITECTURE OF IRAN (1978–2020)

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**Abstract.** Contemporary Iranian architecture in the last forty decades has been influenced by different currents and trends, from modern trends to postmodern and kitsch and attention to regionalism in recent years. Yet, there have been fewer participatory approaches in design and especially community architecture. As an approach, participatory architecture has not been a suitable approach for many architects because they believe the user interference leads the project to a wrong path, and it is a time-consuming process. On the other side, some governments make seductive participation for some political aims. Many recourses in this field talk about the user's direct participation in the design process, and also many of the cases are not outstanding in contemporary architecture literature. So just a seduce participation occurs during design. Some methods used in this kind are questionnaires, workshops, interviews, etc. Some cases consider involvement during the project's construction phases (especially in developing countries). Assessing different successful Iranian projects in four recent decades shows a little kind of participatory methods in CA of Iran. The lack of usage of community architecture paradigms leads to not being too good architecture practices. Some projects with a successful appearance made community design principles in the design process. Combining regionalism and community design approaches make responsible and sustainable projects for the future. In this study, by using the PAR research method, the typology of participatory architecture in contemporary Iranian architecture has been analyzed. Seven typologies of participation in the design process show different levels and conditions of participation for users and architects. Some typologies such as interpretive and regional participation consider more values, costumes and user behaviors, and they are more indirect. In the next step, using the case study research method and qualitative analysis by the ATLAS.ti software, the relationship between the concepts of community architecture and its impact on the formation of Iranian architecture has been discussed. Different typologies of participation in architectural cases are wide ranges of successful methods of participation that if far from previous typical involvement consideration in social mobilization and questioner's procedures. Today, questionnaire participation and social mobilization are named seduce participation (also, in some cases, may be useful). In recent years, the tendency towards participatory design with interpretive and regionalism approaches has increased. Studies show the use of three branches: 1 – Elements of traditional Iranian-Islamic architecture (29 codes), incorporation with the environment (23 codes), use of natural light (17 codes) are the most important reasons for the formation of today's Iranian architecture. In recent years, by combining the concepts of community architecture (29 codes) with emphasis on identity (4 codes), transparency (4 codes), attention to user needs (3 codes), privacy, sense of belonging, sense of ownership, and sense of unity have become the main criterion of architectural formations. Today, assessing the contemporary architecture of Iran (recent decades) shows the usage of responsible typologies of participation in the design process have a good impact on the built environment, and it also improves the condition of life for user and respects values, culture, costumes, needs and ideas, literature survey and recommends a sustainable future. The most influential factors in contemporary Iranian architectural ideas in recent years include topics such as the Usage of Iranian-Islamic traditional elements, harmony with nature, and natural light. Combining Iranian-Islamic traditional architecture elements (such as courtyards, Koushk, etc.) with community design architectural concepts with solutions such as social spaces, flexibility, platform spaces, courtyards are the most important features of the formation of today's architecture. Central courtyard, Eyvan, and the Persian garden have been the three main elements of today's Iranian architecture.

**Keywords:** community architecture, participatory types, contemporary architecture of Iran, new heritage, regionalism, sustainability.

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## Introduction

The dialogue about the contemporary architecture of Iran after the 1979 revolution can be studied in different fields and can be addressed with different purposes. Due to the significant impact of political events over the last 40 years, related issues have strongly influenced architecture. There was practically no attention paid to architecture until the early '90s and due to the Iran-Iraq war. Only other pervasive needs had overshadowed architecture, but from the '90s onwards, architectural currents gradually appeared.

The transformation of international relations influenced the emergence of architecture, and the migration of some influential figures of Pahlavi architecture also had a significant impact on this process. Iranian architects strive to reconcile extremist traditionalists with the contemporary world (In other words, modern): postmodern face painting and facade – kitsch movements.

Principles of Modern Architecture – Postmodern and Late Modern. Revivalism – Iranian Rationalism – High-Tech Formalism. Eclecticism – Neo-Colonial (Diba et al., 2006; Kamelnia & Mahdavinejad, 2012; Bani Masoud 2009, 2020).

Thus, studies in architecture after the Islamic Revolution have been more descriptive in some ways, more stylistic, and less of an aspect of the subject. In the studies and analyses conducted in contemporary Iranian architecture, less attention has been paid to participatory approaches and their effect on the formation of contemporary Iranian architecture, especially after the Islamic Revolution. This is an essential issue because today, the discourse of partnership is related to civil rights issues and concepts such as democracy. For a country like Iran which faces challenges in this field, it is necessary to examine the role of Iranian architecture today and to find out how much architects have been interested in this approach over the last 40 years. Additionally, it is worth to see what are the components and types of community architecture in selected examples of contemporary Iranian architecture? Is there any attention to participatory movements in selected examples of contemporary Iranian architecture or not? And what are the reasons for each? To what extent and in what form has attention been paid to the characteristics of community architecture and the factors of sense of community in the selected buildings of contemporary Iranian architecture? Using a systematic research method, this research seeks to answer the above questions to do a correct analysis of the dominant currents of contemporary Iranian architecture after the revolution and its relationship to areas and participatory approaches in architecture.

## 1. Participatory and community architecture

For many people who work in the field of construction of the built environment, terms such as participatory architecture, community architecture are reminiscent of the project in which the direct involvement of users in design is used.

Usually, some experts believe that these methods cannot lead to satisfactory results because in many cases the variety and contradiction of different users' opinions create challenges, so users are not determined future plans. Lack of user awareness of specific issues such as this and their incompetency are the architectural practice of participatory methods.

On the other hand, due to improper distribution of power in society, some states do not have access to this approach by creating seduced participation or taking it away for some reasons, such as cost, time, and etc., so causing skepticism about these issues in the architectural design. This article considers successful cases in this field, especially cases named in different participatory architecture recourses. General literature on issues related to user participation in the design process announced that considering the characteristic of humans in that they failed to meet the needs (Till, 2005) of its residents in the years after World War II was a public demand (Carlo, 2005). In recent years, the role of architects (Redstorm & Grauers, 2006) that are the sole decision-making authorities for the design environment is gradually changing according to users' needs, desires, and interests in the project (Carlo, 2005) to provide opportunities for the collaboration of different people (Kamelnia, 2008).

This subject attracted more attention to the psychological needs of people, their environment and their understanding of the needs.

This resulted in a change in architectural paradigms, so they try to engage the community in design and planning categories.

There are few resources and little research in the theoretical field and the topics of participation in design after the Islamic Revolution of Iran. Three important studies in this field (in the form of doctoral thesis):

People's participation in the reconstruction of post-war settlements-1988 (Zargar, 1989). Participation in post-earthquake reconstruction – *Rudbar* and *Manjil* – 1990 (Ahmadi, 2000). Architecture and community-based paradigms-2008 (Kamelnia, 2008, 2020). The common denominator of all three pieces of research is that first, they are all related to the concept of "disaster community," and due to an unfortunate event, attention has been paid to participating in the design, and second, what they share in common is in the field of texture and their focus on user participation in construction after the incident. A few other examples are related to the reconstruction and revitalization of the village with participatory methods (such as the reconstruction of the historic village of *Esfahak* in *Tabas* in 2016 with a participatory approach) Figure 1.

Regarding the analysis of participatory approaches in the field of a single building, no research has been done. On the other hand, paying attention to the features and the theory of community architecture in selected buildings of contemporary Iranian architecture requires careful and systematic study and analysis.

Figure 1. A participatory design process: *Village of Esfahak* (source: Emaratkhorshid, n.d.)

## 1.1. Participatory and community based design process

Despite extensive studies in the field of design processes, there are few models about the participatory design process. Participatory design processes have been proposed in various ways; for example, Sanoff (2000) refers to the following stages of a participatory design process (Sanoff, 2000; Kamelnia, 2020):

1. Provide a basic framework of social features, the major groups.
2. Hold a meeting with representatives of interest groups to identify key issues.
3. Public information through the media to participatory issues.
4. Organizing workshops for discussion and to determine factors associated with different categories of assessment for group leaders.
5. Group leaders met to review the decisions and recommendations of the groups.
6. Making people aware of the features and criteria of the alternative evaluates the media.
7. Organizing workshops to obtain people's comments.

8. The third workshop is held for leaders to review and assess options topics.
9. Publishing alternatives accepted by the leaders of those groups and surveys about the results.
10. Organizing workshop to identify options and transfer the results to the group leaders.
11. Transfer the results widely and to a wider range of community participants.
12. The final session for close-up views of different groups of leaders, professionals, government officials together.

A design process model includes different design phases and how individuals and users engage at different levels. A literature review shows that various examples of a participatory design process model can be used (such as the Sanoff, 2000).

Figure 2 introduces a participatory process model based on a revision of the *Sanoff* model.

Regardless of how a participatory design process works, there is little research about different participation typologies in practice. In general, most experts consider direct participation in construction or classic methods such as questioners. It is certainly thought about Naïve and recent research on this topic will expand on this topic more deeply. In recent years, several studies on the importance of participation in the environmental decision-making process in which they live have been done:

Arnestein (1969), Cross (1972, 1984), Habraken (1972), Sanoff (1978, 1979, 1990, 2000), Wulz (1986), Francis (1988), Hardie (1988), Friedman (1970), Blundell (2005), Moatasim (2005), Horelli (2002), Hamdi (1991, Hamdi & Goethert, 1997), Wates (2000), Hatch (1984), Salama (1995), Wates and Knevitt (1987), Pretty et al. (1994), Hackney (2007), Kamelnia (2008), etc.
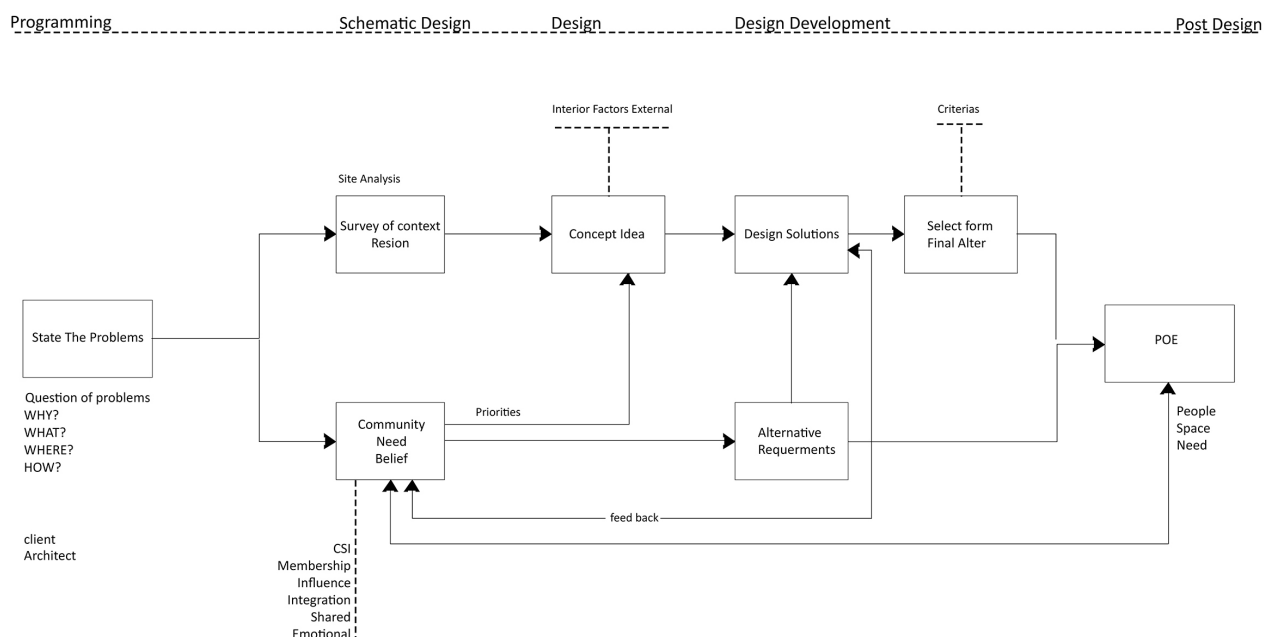


Figure 2. Sample model of the community based design process from programming to POE (source: authors)

Much research considers theoretical aspects of participation in architectural approaches, but more recent examples consider responsible cases.

Many of the ideas of modern community architecture take a glance at the user's behavioral patterns, desires, needs and his wills. So, it is possible to build a responsible environment through a proper understanding of needs, wishes, and wills. This is a development of *Habraken's* theory that talks about design with and for people.

## 1.2. Levels and typologies of participation in architecture

Among the various theories of participation, the one that is less considered is the typology of participation in practice, and just some of the classical theorists like Arnstein (1969) talked about different levels of participation. In 1986, Wulz, in an article called "the concept of participation", compared some works of architects with a participatory approach. He analyzed works of some postmodern architects such as Michael Graves and Aldo Rossi with some post-structuralism architects such as Ralph Erskine, Road Hackney, and Christopher Alexander.

Wulz, in his article, refers to some typologies of participation, such as interpretative participation, regional, self-decision, etc., but he does not propose clear categories for these (Wulz, 1986, p. 161; Kamelnia, 2008, p. 166) (Tables 1–4).

From the perspective of contemporary architectural stylistics (20th and 21st centuries), the use of participatory types can be analyzed in Table 2.

Another group of theorists never classified community architecture approaches, so implementations did not provide a group of architectural ideas based on a typology that can be achieved.

Table 1. Levels of design participation – works of Erskine (source: Wulz, 1986, p. 161 – Redraw: authors)

| R. Erskine | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Exp. authority | Represent | Questionnaire | Regional | Dialogue | Alternative | Co-decision | Self-decision | User. Authority |
| | • | | | | | | | |
| | • | | | | | | | |
| | • | | | • | | | | |
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| • | • | | • | • | | | | |
| • | • | | • | • | | | | |
| • | • | | • | • | | | | |

Table 3. Levels of design participation – works of Domenig, Graves, Rossi (source: Wulz, 1986, p. 161 – Redraw: authors)

| G. Domenig, M. Graves, A. Rossi | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Exp. authority | Represent | Questionnaire | Regional | Dialogue | Alternative | Co-decision | Self-decision | User. Authority |
| • | | | | | | | | |
| • | | | | | | | | |
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| • | • | | | | | | | |
| • | • | | | | | | | |
| • | • | | | | | | | |
| • | • | | | | | | | |

Table 2. Levels of design participation – works of Uhl, Hackney & Alexander (source: Wulz, 1986, p. 161 – Redraw: authors)

| O. Uhl, R. Hackney, C. Alexander | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Exp. authority | Represent | Questionnaire | Regional | Dialogue | Alternative | Co-decision | Self-decision | User. Authority |
| | | | | | | | | |
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| | • | | • | • | • | • | • | |
| | • | • | • | • | • | • | • | |

Table 4. Levels of design participation – works of Foster, BIG & SANNA (source: authors)

| N. Foster, BIG, SANNA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Exp. authority | Represent | Questionnaire | Regional | Dialogue | Alternative | Co-decision | Self-decision | User. Authority |
| • | | | | | | | | |
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Table 5. Participatory typologies of architecture in contemporary ages (based on Wulz (1986) classification) (source: authors)

| Typology of Participation | Modern architecture (1920–1950) | Postmodern (1960–1980) | Post structural architecture (1965–1975) | Vernacular architecture (1950–1980) | Green architecture (1980–2020) | Regionalism Now (1980–2020) | Advanced Modern (2000–2020) |
|---|---|---|---|---|---|---|---|
| Exp. Authority | ■ | ■ | | | ■ | | ■ |
| Represent | | | | | | ■ | |
| Questionnaire | ■ | ■ | ■ | | | ■ | |
| Regional | | | | | ■ | ■ | |
| Dialogue | | | ■ | | | ■ | |
| Alternative | | ■ | ■ | | | ■ | |
| Co-decision | | ■ | ■ | | | ■ | |
| Self-decision | | | | ■ | | | |
| User. Authority | | | | ■ | | | |



Figure 3. A general model of CA design process (source: authors)

Table 5 shows different kinds of participation in contemporary architecture projects from the *Wulz* perspective.

Hence, almost all theories have a completely theoretical basis and practical examples of architecture. Even some theorists such as *Hatch* and *Sanoff* have a practical view and do not determine typologies.

Thus, despite the participatory architecture, community architecture, and social architecture theories and various sources in these fields, there is very little known about typologies of participation in practice (Kamelnia, 2020, p. 77).

Figure 3 shows that on a theoretical model of community architecture typology one dimension of the design process includes inspiration, planning, design, implementation, and maintenance.

## 2. Architect-user based community architecture typologies in contemporary Iranian architecture

One of the major issues in participatory design has been proposed in the past few years to reach the main objective in nature and has been designed to contribute to the improvement of environmental quality and its impact on social–individual behavior. Thus, some researchers have pointed out some cases in this field that appear so strange at first glance.

From the perspective of this group, the participatory behaviors and self-concepts are developed through the interpretation of architecture or contributing to the sense that the term is used in endogenous participation to which it refers. This is to reduce the gap between the needs and demands of users with the built architecture, so consider

that this expertise should also play their role, and it is not possible to get a good advantage with seduce participation (Islami, 1998). The difference of terms such as participation, partnership, collaboration, and etc. refers to some concepts like community architecture, participatory architecture, social architecture. Varieties of participation in participatory approaches show the people involved, the amount of time, and so on in the design process. General participatory approaches that seek to engage people, particularly in implementing or funding projects such as these contains the items people use for social mobilization or information. To analyze different typologies of community architecture, there are two types of resources that we are faced with them:

The first category includes resources that have been subject to extensive theoretical domains like (Wulz, 1986; Wates & Knevitt, 1987; Pretty et al., 1994; Barrow & Murphree, 1998; Fleming, 2003; Toker, 2007). The second category includes resources that have been devoted to the realization of participatory methods in architecture (especially in practice) such as some cases introduced by the *Agha Khan* Foundation (Cultural Park of *Cairo*, *Aranya* Township in *India*, *Altit* Village in Pakistan) and some resources like (Hatch, 1984; Sanoff, 2000; Frampton et al., 2001; Blundel et al., 2005). Comparative analysis of these sources can be used to show that the community architecture approach was presented in some typologies, and it includes the following categories to classify (Kamelnia, 2008):

1. Interpretative.
2. Regional.
3. Interactive.
4. Functional.
5. Consultative.
6. Questioner.
7. Social mobilization.
8. Each of these seven typologies of participation in contemporary Iranian architecture in recent years can be described as below.

## 2.1. Interpretative participation

Fleming (2003), in an article, "*Louis Kahn* and Platonic Participation," describes a semantic interpretation of Platonic Participation and architecture of behavior patterns and displays it in the form of architectural space and form of participation in architecture.

Although his more formal compositions refer to interpretation of *Heidegger* from architectural form and space, this kind of participation in architecture proposes interpretative participation as a responsible typology. So, some critics of substantive interpretation of user behavior patterns in architecture as a form of participation are considered. *Fleming*, in his paper, describes how *Louis Kahn* drowns sketches from Indian behaviors to find out their real needs and wills, and so this would be an excellent participatory approach to reach the real needs of users.

Hoskyns (2005) also wrote an article named "City and Democracy." He says that the London city hall and *Reichstag Dome* in *Berlin* represent a concept of people participation in architectural spaces, and this is a kind of participation that respects the user with interpretative approach. The goal of the participation is the development of democracy in his view (Kamelnia, 2020).

Interpretative participation is a kind of participatory typology in architectural design.

Wulz (1986) and Toker (2007) named this type as interpretive participation, and Barrow and Murphree (1998) and Pretty et al. (1994) use the term passive participation for this.

Such participation is a passive form of participation. Interpretation by understanding the desires and needs of users is an architect. The role of the architect is the interpretation of dreams and desires of the user.

In this type, the artistic aspects of architecture will be more. In interpretative participation the influence of citizens and users in the design, the architect and professional background and his empirical knowledge of architecture will play roles. In fact, the architect answers the needs and wills of the user relying on his own personal interpretation of user characteristics.

"*Tabiat walking Bridge*" in *Tehran* focuses on a palace to stay, for social behavior and respecting nature (to create a sense of democracy in public space), different levels for different users (Tabiat Walking Bridge, 2015, 2017) (Figure 4).

## 2.2. Regional participation

Wulz (1986) attributes cultural, historical, and Aboriginal participation to introduce regionalism. From his perspective, regionalism is a species and participative design.
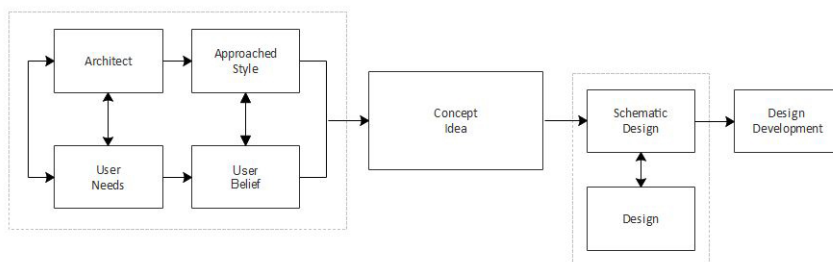


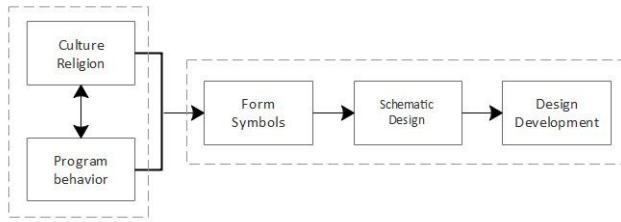Figure 4. Interpretative participation model (source: authors)

Figure 5. Regional participation model (source: authors)



Figure 6. Interactive participation model (source: authors)

He coined the concept of participatory regionalism in architecture; maybe a few people will look at areas such as participation. He has a new look and attitude towards the community in architectural design issues. He pointed to the 1960 and 1970 flows of regionalism and vernacular architectural features of the historical features of the area of architecture as a collaborative manner noted.

Discover symbols, forms, and spatial behaviors of residents in an area are the effectiveness of regionalism that proves it understands people and users. These qualities are evident in the architectural sign (developed interpretative participation). *Presence in Hormoz* 1 in *Hormuz* Island (south of *Iran*), focused on vernacular forms and behaviors and sustainable features of context and region. *Rafsanjan Sports Complex* borrowed a cone-shaped from traditional forms (*Yakhchal-Ice House*) (Figure 5).

## 2.3. Interactive participation

Hatch (1984), in his book, "the scope of social architecture," refers to some examples of this type of participation. The examples he referred to the involvement of people at all stages of this knowledge is not enough. Some theorist's higher conception of this type of partnership with the so-called "shared decision making" is introduced. The difference is that this kind of functional participation in the decision-making process that takes place in partnership between the designer and the user is equal. In Shared decision-making, there is a balance between the architect and the user in all stages of the project. This kind of participation is called "interactive participation." Sanoff (2000), Barrow and Murphree (1998), and Pretty et al. (1994) know participation as a face-to-face act of people with full interaction. In *Aranya* Township, *Doshi* shaped houses and showed an entire interaction between architect and user that forms the environment. Following the 2003 earthquake, *UNICEF*, in collaboration with several organizations and institutions, defined participatory projects, particularly in the area of child-friendly cities. Various studies have been published in this field between 2005 and 2007, mainly based on participatory methodology and its description in the child-friendly city of *Bam*. Several young architects (10 architects) used each working group as a facilitator in this project. Each working group consisted of 10 students aged 10 to 12 years. In *Bam* child-friendly city project, the participation of 110 children was used in 5 areas: housing, school, playground, neighborhood, and park (Kamelnia, 2008). This project could have been an
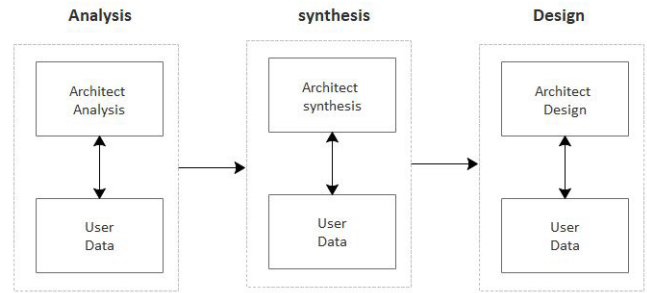
excellent example of a functional partnership, but unfortunately, it was not fully implemented and could not achieve its defined goals (Figure 6).

## 2.4. Functional participation

Another kind of participation is functional participation. *Sanoff*, in his famous book, "*Community participation methods in design and planning*", introduces many cases of this kind. He shows several examples of successful participatory experience points. In this type of participation, all the users necessarily do not participate in an equal way in all the design process stages. User takes part in the design process when needed and this is a functional approach. Barrow and Murphree (1998) and Pretty et al. (1994) also talk about functional participation. Davidsons Primary School, designed with *Henry Sanoff* is a good sample of this kind of participation. In this project, the architect uses children, teachers, and families when needed in the design stages (Sanoff, 2000).

*Presence in Hormoz* 2, in some design process phases of the project, people participated in both programming and construction. Of course, this is not a successful example of Functional Participation because there is no distribution of participation in the process. But in the examples of Iranian architecture, this project is perhaps the closest example to the concept of functional participation. From the perspective of using the form of historical reservoirs or using a color palette, it can be a kind of regional participation too (Figure 7).

## 2.5. Consultative participation

Consultative participation is a higher level of participation with the questionnaire. People have levels of decision-making power to provide their environment with advice and to contribute to the design. In this example, the architect
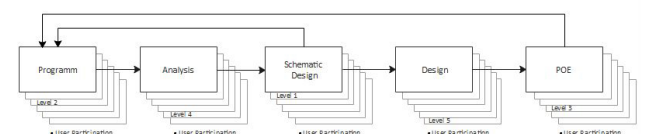


Figure 7. Functional participation model (source: authors)

usually participates with the users by providing the users design patterns and by asking their views about selecting the appropriate pattern and option. *Diagoon* Housing by *Herman Hertzberger* in the *Netherlands* and *Aranya* Low-Cost Housing in *India* by *Doshi* are good examples of this kind (Islami & Kamelnia, 2013). Wulz (1986) uses the term "dialogue" for this kind of participation. Friedman's (1970) request for people's comments in planning and designing also is a kind of consultative participation. This kind of participation refers to an informal relationship between architect and user. *In* the *Baker* project, *Ralph Erskine* established a public office of architecture on the site of the project to get people's advice about the project and to consult with them during the design stage. With this kind of informal method, individuals are encouraged to express their opinions confidently and easily interact with the architect. There is no successful example of this type of participation in the contemporary Iranian architecture projects over the last 40 years (Figure 8).

## 2.6. Questionnaire participation

Participating in a questionnaire needs statistical studies and science (the history of which goes back to the 1930s). This method is most commonly used in social and political attitudes, but more people are involved in the collaborative process and constitute a larger population. In these cases, the use of statistics is required. Systematic studies of architecture take place through participation in a question-naire and statistics, and the results are used in the design. One of the weaknesses of this method is overcoming the majority (according to statistics) on other people (because the majority is not necessarily a good idea). Receiving information from a user is a common type of participation (Barrow & Murphree, 1998; Pretty et al., 1994; Wulz, 1986). With this view, many designs can be described as a participatory architecture design process including some methods of user questionnaires, interviews, and etc. To acquire necessary information.

This type of participation is very broad and somewhat lacking in a specific context. Arnstein (1969) uses *Tokenism* term to describe informing (also consulting) level of participation. Wulz (1986) notes that information is a limited partnership in which individuals are only aware of the decisions suggested.

Perhaps in several Iranian architectural projects in recent years, questionnaires have been used to obtain information from users and people, but there is no example that leads to a citation-able and methodical result. It can be said that this model of participation has not been used in prominent examples of contemporary Iranian architecture (Figure 9).

## 2.7. Social mobilization

Arnstein (1969) uses non-participation terms to describe a level of participation with users' mere therapy and manipulation conditions in the design process. From her
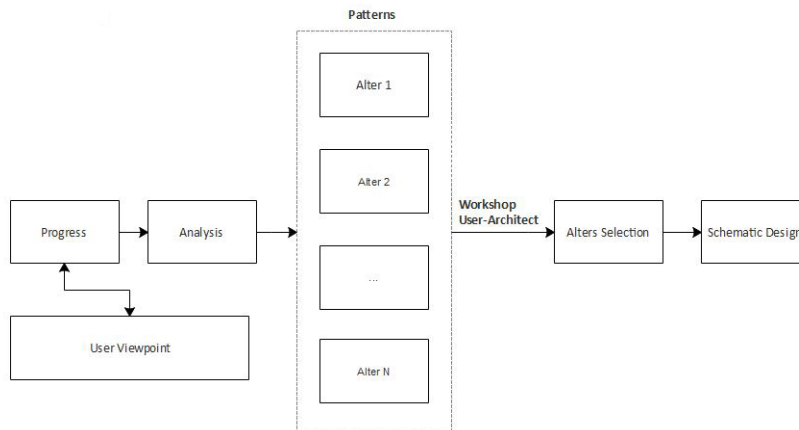


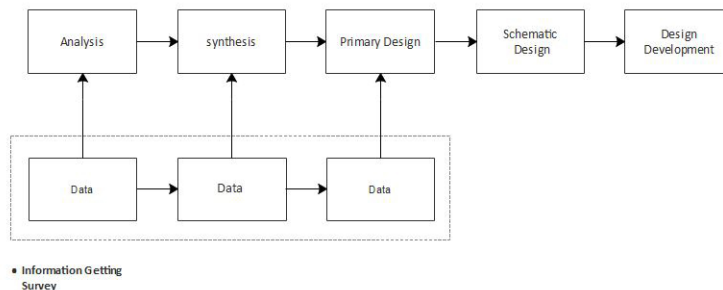Figure 8. Consultative participation model (source: authors)



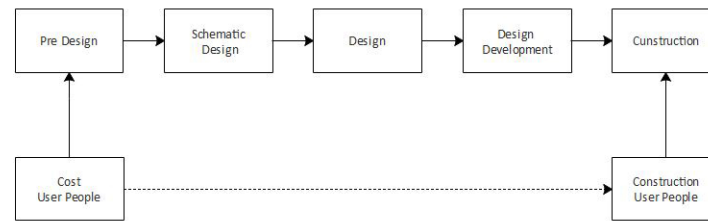Figure 9. Questionnaire participation model (source: authors)

Figure 10. Social mobilization model (source: authors)

view, interfering with people in the design process just in construction is a seduce participation. Some theorists called this type social mobilization – Barrow and Murphree, Pretty, Driskell (Habibi & Rezvani, 2005). Participating in this type is for construction, procurement costs, materials, supplies, and labor. Many examples of these types of projects, especially in developing countries, are visible. *Gourna* village By *Hassan Fathy* is a famous example of this kind (Fathy, 2003). The barefoot colleague is another project of this type. This project is based on the philosophy that there has not been an expert to shape the environment in the past. Community groups develop their knowledge and practical knowledge so people can use their experiences to shape their environment (Frampton et al., 2001) (Figure 10).

## 3. Research methodology

When there are issues associated with the use of participatory research methods, commonly used categories such as case studies, qualitative, quantitative, content analysis, and etc. cannot be efficient alone. A participatory research method is a new and effective paradigm to use knowledge generated by community behavior. Generally, action research (AR) is used in three ways (Sanoff, 2001):

1. Technically, the researchers focus on the analysis of the experiences made in the field.
2. Practically, this involves researchers and research partners.
3. Free critically, the research is the coordinator of the research process and organizes how to use them to analyze the information and expertise.

So, usages of technique – practical research methods, try to find out efficient and accountable cases of community architectural approaches to reach the typology of community approaches in design. In this research, using the case study method and qualitative research, the relationship between the characteristics of community architecture and influential components in the formation of successful examples of contemporary Iranian architecture (Figure 13) after the Islamic Revolution has been analyzed. In the first stage, by systematically studying written and authoritative sources in the field of contemporary Iranian architecture (including authoritative books by authors and researchers of contemporary Iranian architecture that are

considered reference books), all contemporary Iranian architectural buildings after the revolution which are regarded as successful examples have been collected. These examples include public buildings and single buildings (including private houses, villas, etc.), but high-rise office and residential buildings are not included in this category (Figure 11).

In this stage, the used reference sources are the following: Contemporary Engineering and architecture of Iran (1998), Bani Massoud (2009), Kamelnia and Mahdavinejad (2012), Diba (2012, 2017), Bani Massoud (2020), Hakim (2018). These main sources have comprehensively dealt with examples of contemporary Iranian architecture after the revolution, about 100 of which are architectural projects that are the common chapter of these sources. In the next level, all the buildings that had won the first place in prestigious Iranian and international architectural competitions and awards were also examined and analyzed. In the next step, samples that were repeated more than twice (at least in two different sources) were selected. According to the research approach, which is the study of community architecture, examples specifically designed for a specific social group (such as orphans, the elderly, the disabled, etc.) have been added to this collection even if they were mentioned in one of the sources. After this stage, 17 works of contemporary architecture after the Islamic revolution were selected to analyze the characteristics of community architecture. The selected samples should be analyzed based on the model of measuring the components of participatory & community architecture (Table 7). For this purpose, the architectural work content of selected samples collected through the texts and sources were analyzed. For this purpose, for each selected sample, the description and analysis of the work proposed by the architect and designer (summery of concepts and ideas was asked from lead architects of the projects) were classified and coded. Codes and keywords extracted from texts were classified by ATLAS.ti software (Figure 12).

By extracting the codes of each work, these codes were inserted in the Table 7 and the model of community architecture analysis. Using that analysis, the relationship between contemporary Iranian architectural works after the revolution and the concepts of community architecture were expressed (Tables 6, 7).
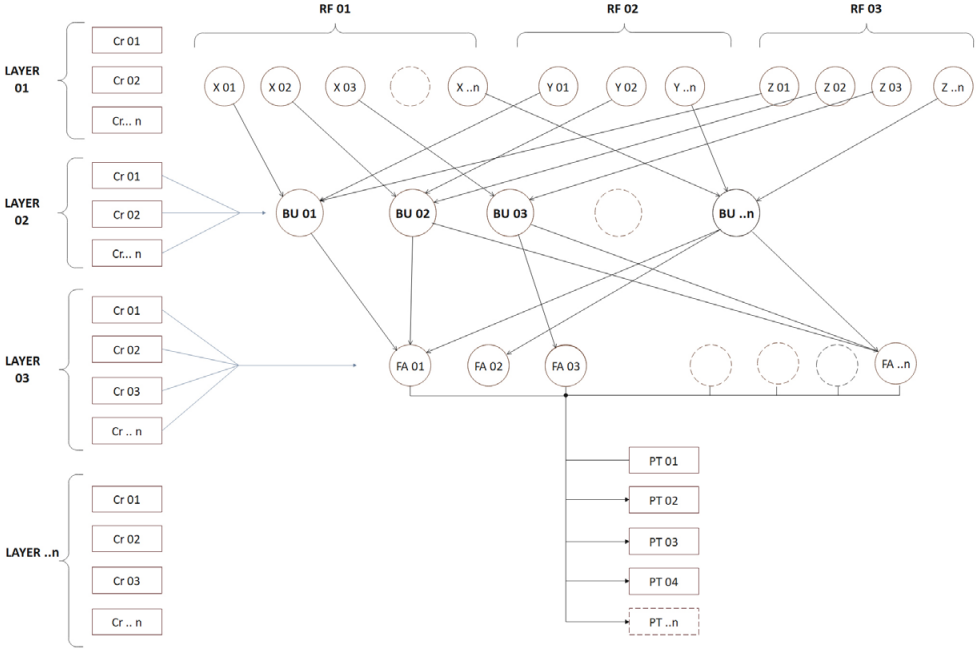
Figure 11. A systematic survey model shows different layers to find cases (source: authors)
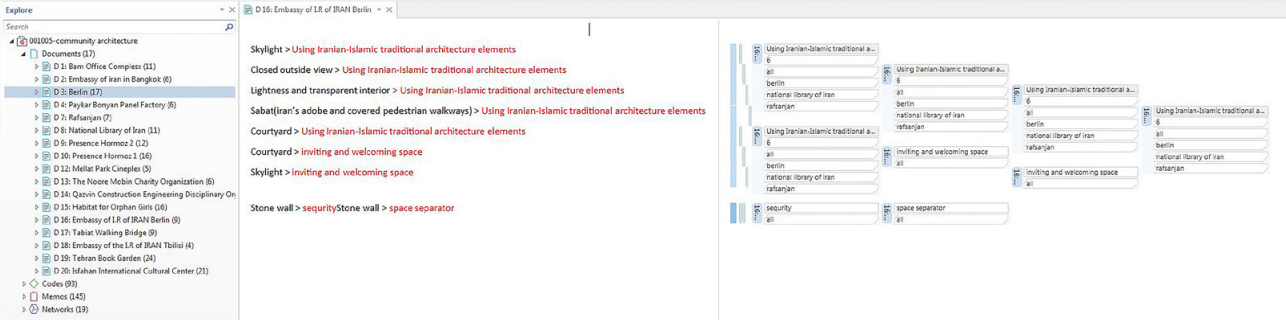


Figure 12. A case of qualitative analysis with ATLAS.ti for a sample project (source: authors)

Table 6. Key codes related to SCI (source: Chavis et al., 1986; Kamelnia, 2008)

| Sense of Community Index | | | |
|---|---|---|---|
| Membership | Influence | Integration and fulfillment of needs | Shared emotional connection |
| a. Boundaries<br>b. Emotional safety<br>c. A sense of belonging and identification<br>d. Personal investment<br>e. A common symbol system | have influence<br>be influenced | Be in a group (being a member)<br>competence<br>Shared values | a. Contact hypothesis<br>b. Quality of interaction<br>c. Closure to events<br>d. Shared valent event hypothesis<br>e. Investment<br>f. Effect of honor and humiliation on community members<br>g. Spiritual bond |

Table 7. Key codes related to community and participatory design

| Wulz (1986) | Interpret, dream, culture, history, context, vernacular, information, dialogue |
|---|---|
| Pretty et al. (1994) | Needs, information, cost, material, worker, interaction |
| Barrow and Murphree (1998) | Needs, information, cost, material, worker, interaction |
| Fleming (2003) | Interpret, meaning, behavior patterns, form, space |
| Hoskyns (2005) | Democracy, user-space |
| Toker (2007) | Interpret, dream |

## 4. Discussion

In the first layer, 99 selected works of contemporary Iranian architecture after the Islamic Revolution were selected from among the seven main sources in this field. In the second layer, only one source's buildings were removed, and buildings were chosen in more than half of the sources (different researchers and theorists). At this stage, 17 buildings were selected. In the next layer, these buildings were evaluated based on the descriptions and interpretations of their designers (in reliable and credible sources related to the subject). In this section, describing the ideas and views of the designers were converted into information codes in ATLAS.ti software, and their cause-and-effect equations were analyzed. In other words, these codes were compared and analyzed in a model-analytical of community architecture (taken from Kamelnia, 2008) in the sense of community index (SCI) and participatory types (Tables 5, 6).

In the selected projects, various elements and characteristics have been examined, which have been mentioned according to the following:

– Different groups of users, including low-income people, people with special physical conditions, users with the same social status (such as employees of "*Paykar Bonyan Panel Factory*" and residents of "*Habitat for Orphan Girls*")
– Characteristics of community sense include membership, Impact and influence, integration and fulfillment of needs, and emotional connection.
– Creating a sense of security in people by having a sense of belonging and individual identity such as "*Habitat for Orphan Girls*", having a personal space and respecting the privacy of people such as "*Habitat for Orphan Girls*", having a sense of commonality between people in various fields in their presence relative to space, such as "*Bam Office Complex*" and "*Qazvin Construction Engineering Disciplinary organization*" and have a sense of safety in space by being in a space that will be safe from accidents, such as the "*Presence in Hormoz 2*" project, in which using one of the unique materials in the production of space walls lead to the construction of earthquake-resistant buildings are cases that measure the membership of people in a space. The influence and the impact of space are related to the definition of territory. The more defined the territory is, the more value and power the people feel, such as "*Habitat for Orphan Girls.*"
– Interpretation includes form, meaning and expression, behavioral and formal patterns, democracy, and user needs.
– For example, the project "*Embassy of the Islamic Republic of Iran, Berlin, Federal Republic of Germany*," the project "*Embassy of Iran in Tokyo, Japan.*"
– Due to the use of traditional Iranian architectural elements, the meaning and concept of the past elements in the history of Iranian architecture have been depicted in the form. The existence of spaces for community social behaviors, spaces for dialogue, as well as the fact of platforms are elements that determine the degree of democracy in space, such as "*Tabiat Walking Bridge*" and "*Presence in Hormoz* 1". Also, in the project "*Paykar Bonyan Panel Factory*", special attention has been paid to the user's needs due to light control and natural ventilation.
– Regional characteristics include culture, history, and vernacular, form and symbol, architectural signatures, materials, and colors.
– Similar to the "*Presence in Hormoz* 2" project, which used chemical dyes to respect the surrounding nature, it also created a color palette inspired by the colors created in the alluvial path between the mountains.
– Offering various options, including patterns, flexibility, and uncertainty are factors to consider. Flexibility in space due to the creation of different seasonal or light scenarios and the possibility of constantly changing the quality of the interior and exterior form can create various alternatives for the space. The project "*Presence in Hormoz* 2" due to the granularity of volumes and the possibility of functional independence are some of the items that offer different options in form and space after the operation.
– Consulting includes design consultants' and users' viewpoints.
– People's participation in pre-design polls has made architecture available to the public in the "*Presence in Hormoz* 1" project by creating an urban space.
– Questionnaires include information getting, participatory techniques, and systematic surveys.

Social mobilization in construction and expenditure, such as the "*Presence in Hormoz* 2" project, has benefited local people, reduced costs, and provided economic benefits by using local labor and local materials.

Qualitative studies of contemporary Iranian architectural examples after the revolution show that the three main topics in the formation of design ideas are Figures 14–18:

1. *Using Iranian-Islamic traditional architectural elements.*
2. *Incorporation in Environment (connect to nature) (Persian garden schema).*
3. *Regulating Natural Light.*

The most important factor influencing the formation of design ideas is climate adaptation including:

Rotation of form, Interior courtyard, green space between volumes, Brick, Vertical windows.

Influential architectural elements in the formation of contemporary Iranian architecture include thirteen elements:

*Koushk, Arch, Dome, Sabat, Closed outside view, Introversion, Courtyard, Eyvan(iwan), yakhchal, Ab-Anbar, bridge, skylight, citadel.*

Factors influencing the adaptation of architecture to the environment include 10 cases:

*Urban space, light, geometry, continuity of nature inside, vernacular material, spatial organization, color pallet, stepped space, using native material, greenery* (Table 9).

1 – Rafsanjan Sports Complex
2 – Embassy of the I.R of IRAN Tbilisi
3 – National Library of Iran
4 – Isfahan International Cultural Center
5 – Embassy of the I.R of IRAN Tokyo
6 – Embassy of the I.R of IRAN Berlin
7 – Embassy of iran in Bangkok
8 – Paykar Bonyan Panel Factory
9 – Bam Office Complex
10 – Mellat Park Cineplex
11 – Qazvin Construction Engineering Disciplinary Organization
12 – Habitat For Orphan Girls
13 – Tabiat Walking Bridge
14 – Tehran Book Garden
15 – The Noore Mobin Charity Organization
16 – presence Hormoz 1
17 – presence Hormoz 2

Figure 13. Best practice of contemporary Iranian architect (1978–2000). Selected for qualitative analyze by ATLAS.ti (source: authors)

Table 8. Analyze community design factors in selected cases of contemporary Iranian architecture (1978–2020)

| Group | Subgroup | Factor | Rafsanjan Sports Complex (1999) | Embassy of the I.R. of Iran Tbilisi (2003) | National Library of IRAN (2004) | Isfahan International Cultural Center (2005) | Embassy of the I.R. of Iran Tokyo (2005) | Embassy of the I.R. of Iran in Berlin (2005) | Embassy of the I.R. of Iran Bangkok (2006) | Paykar Bonyan Panel Factory (2007) | Bam office complex (2008) | Mellat Park Cineplex (2008) | Qazvin Construction Engineering Disciplinary Organization (2010) | Tabiat Walking Bridge (2014) | Habitat for orphan girls (2014) | Tehran book garden (2017) | Noore Mobin Charity Organization G2 Primary School (2017) | Presence in Hormoz 1 (2017) | Presence in Hormoz 2 (2020) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| User Group | | Low income | | | | | | | | | | | | | | | | | |
| | | Disable, Blind | | | | | | | | | | | | | | | | | |
| | | Worker, Orphaned | | | | | | | | ■ | | | | | ■ | | | | |
| SCI | | Membership | | | | | | | | | ■ | ■ | | | ■ | | ■ | | ■ |
| | | Influence | | | | | | | | | | | | | | | | | ■ |
| | | Integration and fulfillment of needs | | | | | | | | ■ | ■ | | | | ■ | | ■ | | |
| | | Shared emotional connection | | | | | | | | | | ■ | | | | ■ | ■ | | |
| Participation Typology | Interpretation | Form, meaning interpretation | ■ | ■ | | ■ | ■ | ■ | ■ | | | | | | | | | | |
| | | Behavioral patterns and form | | | | ■ | | | | | | ■ | | | ■ | | | | ■ |
| | | Democracy | | | | ■ | | | | | ■ | | | ■ | | ■ | | ■ | |
| | | User needs | | | | | | | | ■ | ■ | ■ | | | ■ | | | | |
| | Regional | Cultural, historical, vernacular | | | | | | | | | ■ | | | | ■ | | | | |
| | | Form and symbol | | | | ■ | | | | | ■ | | | | | | | | |
| | | Architectural Signatures | ■ | | | | | | | | | | | | | | | | ■ |
| | | Material, Colors | | | | | | | | | | | | | | | | | ■ |
| | Alternatives | Patterns | | | | | | | | ■ | | | | | | | | | ■ |
| | Consultant | Design consultant | | | | | | | | | | | | | | | | | ■ |
| | | Users, viewpoints | | | | | | | | | | | | | | | | ■ | |
| | Questionaries' | Information getting | | | | | | | | | | | | | | | | ■ | |
| | | Participatory techniques | | | | | | | | | | | | | | | | | |
| | | Systematic surveys | | | | | | | | | | | | | | | | | |
| | Social mobilization | Construction, cost | | | | | | | | | | | | | | | | | ■ |

Table 9. Summary of selected project's codes based on architect's descriptions and Manuscripts-Based data codes for ATLAS.ti analysis (source: authors)

| 1-RAFSANJAN SPORTS COMPLEX (1999) | 2-EMBASSY OF THE I.R OF IRAN TBILISI (2003) | 3-NATIONAL LIBRARY OF IRAN (2004) | 4-ISFAHAN INTERNATIONAL CULTURAL CENTER (2005) | 5-EMBASSY OF THE I.R OF IRAN TOKYO (2005) | 6-EMBASSY OF THE I.R OF IRAN BERLIN (2005) |
|---|---|---|---|---|---|
| -Brick Material > Climate Adaptat ion<br>-Low-Rise Construction > Climate Adaptation<br>-Cone-Shaped Dome > Yakhchal<br>-Yakhchal > Using Iranian-Islamic Traditional Architecture Elements<br>-Multi-Purpose Spaces<br>-Transparency > concept<br>-Transparency > Regulate Natural Light<br>-Opaque Volume > Using Iranian-Islamic Traditional Architecture Elements<br>-Glazed-Glass > Regulate Natural Light<br>-yakhchal > iconic landmark<br>-Public Garden > Group Social Behavior Activities | -Austere volume > bolding the site boundaries<br>-Austere volume > sense of an official administrative area<br>-Eyvan > Using Iranian-Islamic traditional architecture elements<br>-Eyvan > (inviting and welcoming space)<br>-Eyvan > entrance introduction<br>-Public open area inside > regulate natural light<br>-Bridges > visual perspectives (provide view)<br>-courtyard > using natural qualities of land (incorporation with environment (connect to nature))<br>-light > (incorporation with environment (connect to nature))<br>- introversion > Surrounding urban context<br>-solid façade > entrance introduction<br>-solid façade > (incorporation with environment (connect to nature))<br>-solid façade > sense of place > concept<br>-interior yard > introversion<br>-transparency > Regulate Natural Light<br>-bridge > provide view<br>-space > privacy | - whole organic structure > intimate and inviting atmosphere (inviting and welcoming space)<br>-introversion > concept<br>-introversion > Climate adaptation<br>-flexibility >community design idea<br>-compactness >movement<br>-skylight > regulate natural light<br>-skylight > saving energy (energy efficiency)<br>-stepped space > answering sloped site (incorporation with environment (connect to nature))<br>-tall trees > regulate natural light<br>-natural materials > sustainable<br>-landscape >connect to nature<br>-water > connect to nature<br>-greenery > connect to nature<br>-courtyard >Using Iranian-Islamic traditional architecture elements<br>-provide access > different floor layers<br>-Single solid compact Structure > Flexibility<br>-Flexible structure > Human Scale | -Symmetric Geometry > Using Iranian-Islamic Traditional Architecture Elements<br>-Stepped space > Ability for Performance in Open Spaces (Group Social Behavior Activities)<br>-Stepped space > Ability for Performance in Open Spaces (Group Social Behavior Activities)<br>-Transparent Ceiling(transparency) > Lightness<br>-Transparent Ceiling(transparency) > Regulate Natural Light<br>-Water > Lightness<br>-Water > concept<br>-Porch > Using Iranian-Islamic Traditional Architecture Elements<br>-Koushk > Using Iranian-Islamic Traditional Architecture Elements<br>-Court Yard > Using Iranian-Islamic Traditional Architecture Elements<br>Identity > Avoid Function Interfere<br>-Spatial Indoor and Outdoor Spaces > Avoid Function Interfere<br>-Towers > Using Iranian-Islamic Traditional Architecture Elements<br>-Concepts And Meanings<br>-Geometry > Unified Continuity<br>-Geometry > Regional and Worldwide Combination >Identity<br>-Towers>Regional Cultures<br>-Minimal Spatial Structure<br>-Introversion > concept<br>-Cultural Complex > Group Social Behavior Activities<br>-Gates > Using Iranian-Islamic Traditional Architecture Elements<br>-Gates >Welcoming and Inviting Place<br>-Tradition And Technology Combination<br>-Bridge > Using Iranian-Islamic Traditional Architecture Elements<br>-Material > New Technology > Identity > concept<br>-Material > Regional and Worldwide Combination<br>-Simplicity > Regional and Worldwide Combination > Identity > concept<br>-Regional and Worldwide Combination > concept<br>-Bridge > Provide Connection<br>-Bridge > Provide Views<br>-Introversion > concept<br>-Interior yard > Introversion<br>- introversion > Surrounding urban context | -skylight > using iranian-islamic traditional architecture elements<br>-closed outside view > concept<br>-transparent interior(transparency) > concept<br>-lightness > concept<br>-sabat (Iran's adobe and covered pedestrian walkways) > using iranian-islamic traditional architecture elements<br>-courtyard > using iranian-islamic traditional architecture elements<br>-courtyard > inviting and welcoming space<br>-skylight > inviting and welcoming space<br>-stone wall > security<br>-stone wall > space separator<br>-stone wall > using iranian-islamic traditional architecture elements<br>-transparency > inviting and welcoming space<br>-water > concept | -Persian garden > calmness<br>-Persian garden > using iranian-islamic traditional architecture elements light<br>-continuity of the environment within the project > incorporation with environment (connect to nature)<br>-Light > concept<br>-Light > incorporation with environment (connect to nature)<br>-Arch > Using Iranian-Islamic traditional architecture elements<br>-dome > Using Iranian-Islamic traditional architecture elements<br>-centrality < sense of unity<br>-remembering memories< concept<br>-geometry > incorporation with environment (connect to nature)<br>-four Arches (chahar tagh) > unity > concept<br>-four Arches (chahar tagh) > provide access<br>-four Arches (chahar tagh) > using iranian-islamic traditional architecture elements<br>-Eyvan > moving inside to outside<br>-Eyvan > Using Iranian-Islamic traditional architecture elements<br>-natural materials > incorporation with environment (connect to nature)<br>-natural materials > sustainability<br>-white stone > transparency<br>-white stone > security<br>-Water > a boundless quality<br>-Secret and appearance metaphors > Sense of suspension<br>-transparency > concept<br>-connect to history > identity > concept<br>-skylight > Using Iranian-Islamic traditional architecture elements |

| 7-EMBASSY OF IRAN IN BANGKOK (2006) | 8-PAYKAR BONYAN PANEL FACTORY (2007) | 9-BAM OFFICE COMPLEX (2007) | 10-MELLAT PARK CINEPLEX (2008) | 11-QAZVIN CONSTRUCTION ENGINEERING DISCIPLINARY ORGANIZATION (2010) | 12-TABIAT WALKING BRIDGE (2014) |
|---|---|---|---|---|---|
| -Interconnected spaces > reflection<br>-Koushk (traditional pavilion) > Using Iranian-Islamic traditional architecture elements<br>-Axis of the water > Continuity of the internal and external space<br>-Combination of glass, water, and light > A boundless quality<br>-Natural elements connect two parts of the building harmoniously (continuity of the environment within the project) > Continuity of the internal and external space<br>-Concrete Structure > Humid hot weather of the city (Climate adaptation)<br>-Material > Transparency<br>-persian garden > Using Iranian-Islamic traditional architecture elements<br>-trees > passage<br>- look into environmental issue > respect to nature | -Glass and aluminum (transparent material) > Regulate natural light<br>-Checkered formation windows > Regulate natural light<br>-Checkered formation windows > ventilation<br>-Skylight > Regulate natural light<br>-Native materials > incorporation with environment (connect to nature)<br>-Roof folding and partition > incorporation with environment (connect to nature))<br>-Regulate natural light > energy efficiency<br>-ventilation > energy efficiency<br>-Breaking away the conventional look<br>-Agreeable space work<br>-Transparency > Community design idea<br>-look into environmental issue > respect to nature | -citadel > using iranian-islamic traditional architecture elements<br>-Modular architectural > flexibility<br>-brick > flexibility to withstand an earthquake<br>-Low height > Respect for the environmental context of region (incorporation with environment (connect to nature))<br>-Open and central courtyard> Climate adaptation<br>-courtyard > using iranian-islamic traditional architecture elements<br>-interlocking Volumes linked > harmony with context<br>-social platforms > Community design idea<br>-45-degree rotation of volumes > Climate adaptation<br>-porch (canopy) > Climate adaptation<br>-greenery > decreasing temperature >Climate adaptation<br>-brick > Climate adaptation<br>-vertical windows > Climate adaptation<br>-vertical windows > Regulate natural light<br>-sloped two-shell roof > regulate natural light | -plot shape > a well-balanced interaction with its surroundings (incorporation with environment (connect to nature))<br>-Eyvan (a large covered plaza) > related ramp levels > public activities encouragement (group social behavior activities)<br>-Eyvan > using iranian-islamic traditional architecture elements<br>-integrated functions<br>-high influence<br>-resolving needs of the region (user need) > concept<br>-spatial arrangement affected by form and bed > incorporation with environment (connect to nature)<br>-spatial arrangement affected by form and bed > natural fluid circulation<br>-covered plaza (Eyvan) > group social behavior activities<br>-elongation and curvature of the form > soft and wavy slopes > feeling the continuity of the environment within the project (incorporation with environment (connect to nature))<br>-transverse variable sections > soft and wavy slopes > feeling the continuity of the environment within the project (incorporation with environment (connect to nature))<br>-feeling the continuity of the environment within the project (incorporation with environment (connect to nature)) > innovative visual perspectives (provide view) | -using different material > covering different masses<br>-above the ground mass > entrance introduction<br>-above the ground mass > inviting and welcoming space<br>-apertures on exterior wall > regulate natural light<br>-double skin facade > provide view<br>-public plaza > incorporation with environment (connect to nature)<br>-public plaza > confirming building's public prominence(identity)<br>- courtyard > using Iranian Islamic traditional architecture elements<br>-difficult layout > user needs > concept | -bridge > provide connection<br>-transverse variable sections > entrance introduction<br>-openings in bridges > respect to nature<br>-greenery > place to stay<br>-places to sit > place to stay<br>-multiple functional spaces > place to stay<br>-different levels > group social behavior activities> community design ideas<br>-open and wide surfaces > group social behavior activities > community design ideas<br>-nonlinear and combined paths > place to stay<br>less columns > respect to nature<br>-high > usable spaces<br>-different special sequences > (focus on user) user needs<br>-urban space > group social behavior activities<br>-introversion<br>-identity<br>-tree shaped columns > incorporation with environment (connect to nature)<br>-combined structure and architecture > useful spaces |

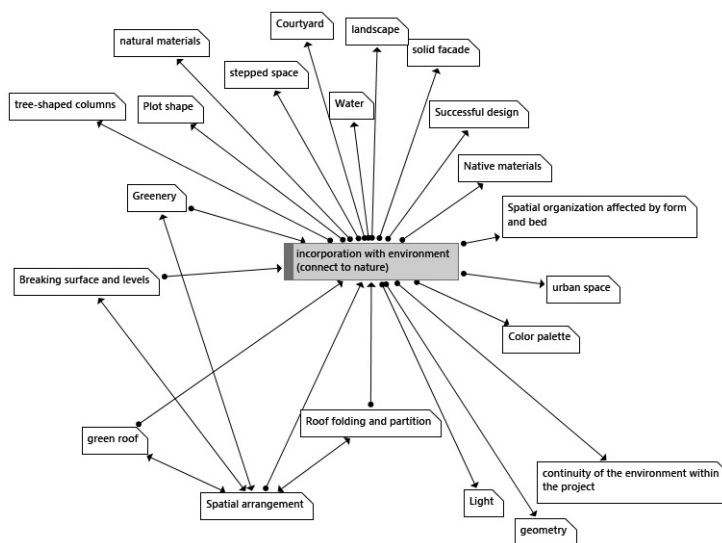| 13-HABITAT FOR ORPHAN GIRLS (2014) | 14-TEHRAN BOOK GARDEN (2017) | 15-THE NOORE MOBIN CHARITY ORGANIZATION (2017) | 16-PRESENCE HORMOZ 1 (2017) | 17-PRESENCE HORMOZ 2 (2020) |
|---|---|---|---|---|
| -honest construction > cost reduction<br>-honest construction > harmony between inside and outside<br>-honest construction > fast construction<br>-quiet display of facade > avoids prominence<br>-protruded balcony > harmony with the region's beliefs<br>-protruded balcony > dealing with physical introversion<br>-protruded balcony > optional Hijab practice<br>-protruded balcony > updating the traditions<br>-protruded balcony > updating the site bed<br>-protruded balcony > connection between introverted world to the outside<br>-controllable closed and semi-open spaces > privacy > concept<br>-living amongst a historical region > connect to history>identity >concept<br>-interior yard > imaginative architecture<br>-arc > imaginative architecture<br>-arc > using iranian-islamic traditional architecture elements<br>-open sky > imaginative architecture<br>-combination of light,shadow and water > imaginative architecture | -Place for social activities > community design idea<br>-Place for book lovers > community design idea<br>-Flexible architecture > A place for gathering and promenades<br>-Coherent circulation > A place for gathering and promenades<br>-Breaking surface and levels > incorporation with environment (connect to nature)<br>-Different multi-space > provide connection<br>-platforms and observation decks > provide rest areas<br>-platforms and observation decks > provide views<br>-integrated composition of architecture and nature > creation of general unity of ensemble<br>-master landscape > initiating a multi-purpose cultural program<br>-integrated composition of architecture and nature > generating a sense of place (sense of place) > concept<br>-spreading along site > responsive functionality<br>-recurring modules and blocks > responsive functionality<br>-spreading along site > coherence<br>-spreading along site > dynamism<br>-recurring modules and blocks > coherence<br>-recurring modules and blocks > dynamism<br>-skylight > regulate natural light<br>-green roof > continuous motion<br>-green roof > (incorporation with environment (connect to nature))<br>-glass façade > regulate natural light<br>-vasl garden > Using Iranian-Islamic traditional architecture elements<br>-emerging construction > relate with people > social interaction<br>-emerging construction > relate with people > awareness for city<br>-emerging construction > relate with surroundings > social interaction<br>-glass facade (curtain wall) > regulate natural light<br>-integrated composition of architecture and nature > becoming an urban fabric | open space > democracy > concept<br>independent volumes > educational district<br>independent volumes > provide views<br>educational district > sense of ownership > concept<br>educational district > sense of belonging> concept<br>different levels > provide views<br>educational district > neighborhood interactions | -rammed soil system > respect to nature<br>-rammed soil system > ability to update through time<br>-architecture in the role of soil > sustainable<br>-urban space > incorporation with environment (connect to nature)<br>-urban space > architecture in people's service (user needs) > concept<br>-urban space > group social behavior activities<br>-urban space native's unity (unity) > community design idea<br>-accepting people's reality > community design idea<br>-successful design > people's participation> community design idea<br>-rammed soil system > sustainable<br>-rammed soil system > recyclable<br>-rammed soil system > contemporary technology<br>-successful design > self-sufficiency<br>-successful design > simple implementation<br>-successful design > incorporation with environment (connect to nature) contemporization<br>Climate adaptation sustainable<br>- recyclable > sustainable<br>- accepting people's reality > Community design idea<br>- new technology > sustainable | -increasing GPD > generating social change<br>-Building economically > benefit<br>-Using the local labor > benefit of the local population (benefit)<br>-Native materials > cost reduction<br>-Native materials > benefit of the local population<br>-people's participation > users' viewpoints > concept<br>-combined crushed volumes > adaptive and future-proof spatial scenario<br>-Combined crushed volumes > ability to generalize the project<br>-sand domes >inspired by Ab-Anbar (water storage) > using Iranian-Islamic traditional architecture elements<br>-combined crushed volumes > Creation of an organic district<br>-Native materials > Swelling Earth (sustainable)<br>-Connection of volumes and environment > Harmony with context<br>-Color palette > inspired by alluvial path between mountain (incorporation with environment (connect to nature))<br>-Chemical colors > respect to nature<br>-Indefinite boundaries > ability to expand and change (flexibility)<br>-Combined crushed volumes > possibility of functional independence (flexibility)<br>-research for design<br>-convergence architecture > the mediating element between present and future beneficiaries (benefit) |



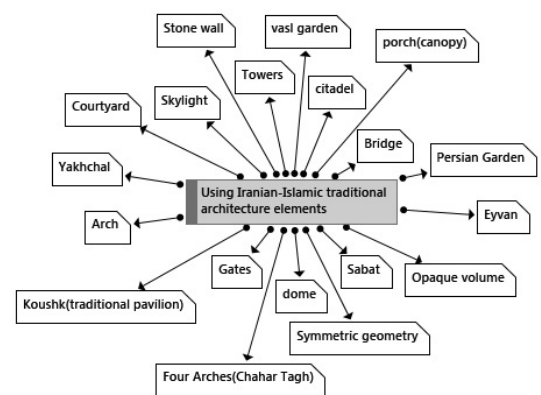Figure 14. Codes related to "incorporation with environment"



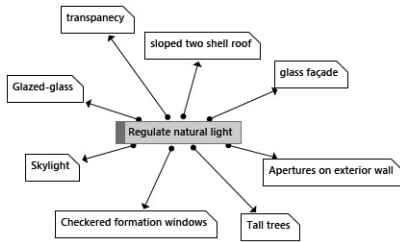Figure 15. Codes related to Iranian architectural elements of the past

Figure 16. Codes related to light in contemporary Iranian architecture (source: authors)
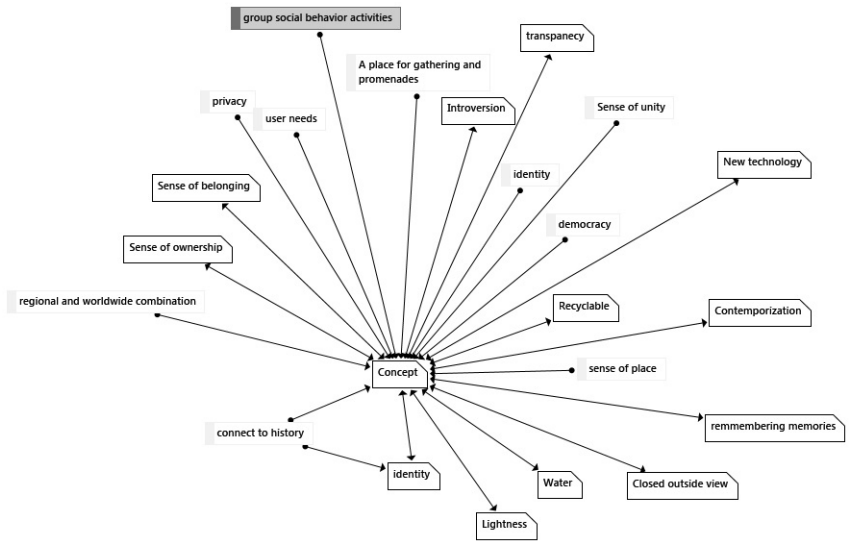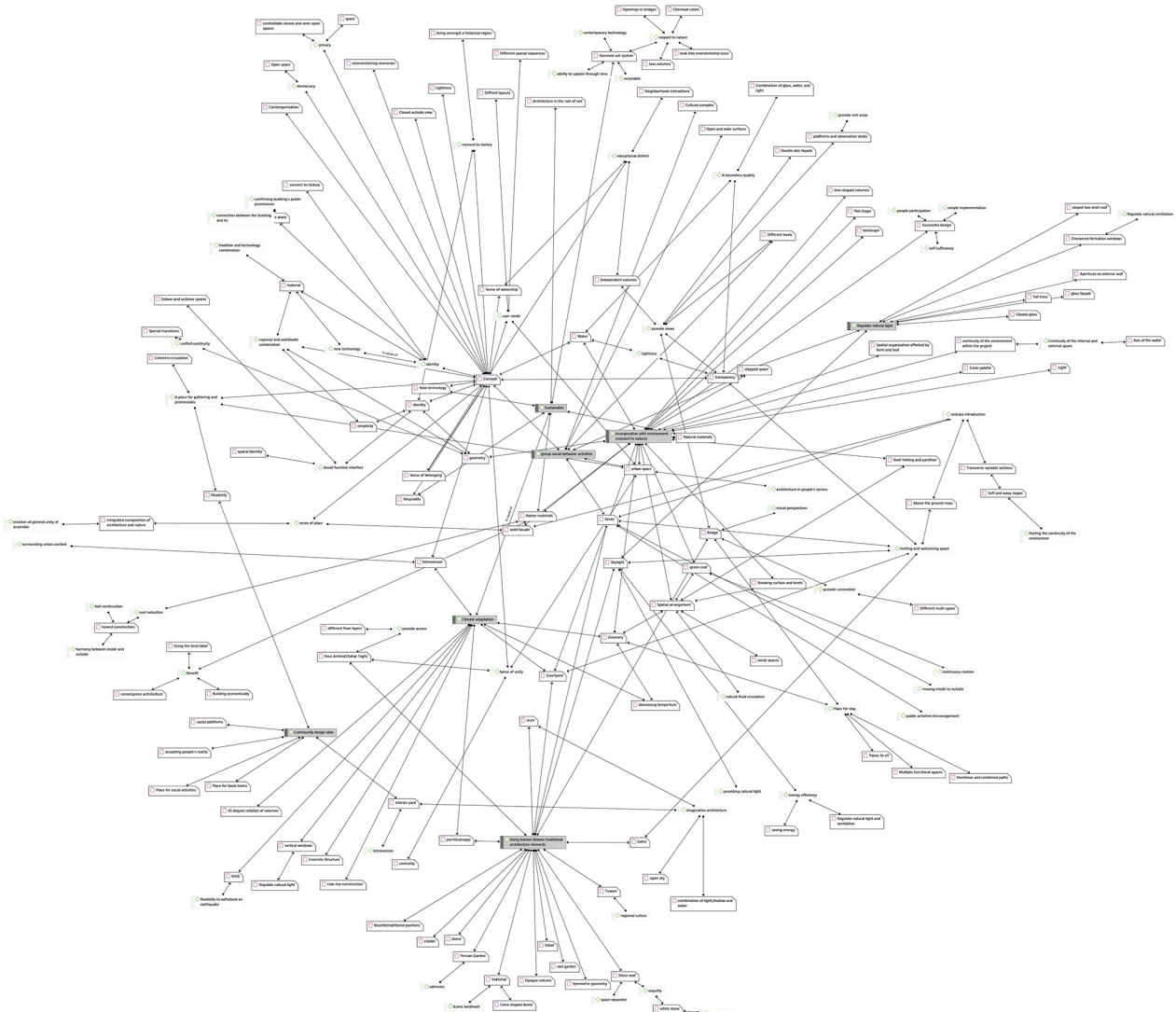
Figure 17. Codes related to community architecture concepts in contemporary architecture of Iran – 1978–2000 (source: authors)



*Note:* Relationship between the studied concepts of contemporary Iranian architectural examples through analysis of cause and effect codes. The diagram shows the main indicators affecting the ideas of contemporary Iranian architecture and its relationship with the concepts of community architecture codes.

Figure 18. Analysis model of codes related to volumetric design indicators in contemporary Iranian architectural buildings based on data analysis, by ATLAS.ti software (source: authors)

Table 10. Specific features of different typologies of participation in the design process.
Contemporary Iranian Architecture (source: authors)

| Participation Type | Famous world Architects | Theorist | Level of Participation | Design Process | Architect-User | Case study |
|---|---|---|---|---|---|---|
| Interpretative | Louis Kahn-Norman Foster | Fleming Hoskyns | passive | Intuition Concept getting | Diba Co. | Tabiat Bridge-Tehran |
| Regional | Abdelhalim Ibrahim | Hamdi Salam Moatasim | indirect | conception | ZAV Architects | *Presence in Hormuz* 1 *Presence in Hormuz* 2 |
| Interactive | Doshi | Horelli Wates Knevitt Hackney | Shared decision making | Programming Study planning | UNICEF Naghsh e Jahan Co. | CFC-Bam |
| Functional | Henry Sanoff | Sanoof Hatch | Share when needed | All phases When needed | ZAV Architects | *Presence in Hormuz 2* |
| Consultative | Ralph Erskine-Charles Moor | Terner Habraken | Consulting decision | Schematic design evolution | FEA Studio | N/A |
| Questionnaire | | | direct | study POE | N/A | N/A |
| Social mobilization | Hassan Fathy | Arnestein Davidoff Pretty | direct | Found Construction maintenance | Emarat Khorshid Co. | *Esfahak Rural Town Tabas Presence in Hormuz 2* |

Qualitative-content analysis of selected examples of contemporary Iranian architecture after the Islamic Revolution shows that attention to the characteristics of community architecture and concepts such as community, behavioral patterns, democracy, and user needs in recent years have been the central themes for architects. These issues have been on the rise since the third decade. Unlike previous years which are more inclined to formal tendencies compared to past Iranian architecture, ancient Iranian architectural motifs have received less attention. Data analysis shows that no successful and effective architectural examples have been introduced in the first two decades (until 1999) for various political-economic reasons (especially the Iran-Iraq war).

- Architects tend to public spaces and social projects. The presence of users in public spaces has increased, and interpretive types and participatory regionalist tendencies have played important roles in the fourth decade, so that in the first three decades, less attention has been paid to them.
- Membership has been considered more than other indicators in terms of the sense of community index.
- Three important indicators in the components of participatory typology that have had the greatest impact on the architecture of recent years are Traditional Iranian Architecture Forms, Democracy (usage of stairs and platform), and Paying attention to community behavior patterns.
- The most participatory typologies are interpretive and regional participation, and the least participatory typologies are social mobilization and questionnaires (Table 10).

## Conclusions

A systematic approach to participatory design seeks to involve users in different phases of a project. Some types like consulting, functional and interactive are used in this kind. When the user's behavioral patterns, beliefs, and values are important, the scope of Community architecture is considered. In a summary of the various theories about any participation typologies, it can be applied to seven different types: Interpretative participation, regional participation, interactive participation, functional, consultative, questioners, and social mobilization. Based on previous discussions about characteristics of different participatory approaches, community architecture, participatory architecture, and social architecture, the relation between approaches and typologies is: In community architectures, the use of beliefs and rituals Symbols are considered as effective and engaging methods that involving people through them is understandable, interactive, and interpreting, and regional participation is concerned. In participatory architecture, because of the systematic relationship between user and expert, reviews of the samples show the existence of such information, consultation, functional and interactive participation. Among all the types, functional participation is used more. In social participation, involvement in the process by using social mobilization, information, and consulting are done (Islami & Kamelnia, 2013; Kamelnia, 2020). Table 7 shows these features. Studies show that between 1979 and 1999, there is no prominent example in contemporary Iranian architecture (due to the country's conditions that were involved in the war). The first example is *Rafsanjan sports complex*. In the

early 21st century and before, elements such as skylights and porches were used more in forms. Most of the designs are formal, and the use of traditional Iranian architectural elements can be seen in the projects ("*Rafsanjan sport complex*" form borrowed from old "ice house" cones in 1999). Light and water and creating transparency in spaces have been as integral parts of Iranian architecture (Isfahan International Cultural Center, 2005) in recent years. Elements such as porches and platforms are seen in the form of spaces for gatherings and group activities and social interaction has been more prominently than before.

Developing democratic behaviors in space, especially the connection to urban spaces has been the most important factor for the Iranian architects in recent projects.

In "Tehran Book Garden" (2017a, 2017b) Existence of platforms, in addition to creating views with a view to the surroundings, there are also spaces for the users to sit and relax. In "Mellat park Cineplex" (2008), the covered Ivan is considered as a reason for creating social interaction. The use of modular forms and repetitive patterns but with the ability to change and expand, more flexibility to space are more common in recent examples. In "*Presence in Hormuz* 2" (2020) the granularity of volumes and their functional independence have made the project generalizable and flexible. Energy sustainability is another factor that makes light, ventilation, and even structures and facilities with better performance, and it is used in the design. Attention to materials and the environment has been a design priority due to specific climatic conditions. Respect for nature and its compatibility with architecture has been more studied in recent years as a result; it can be said that in recent years, architects have paid more attention to the development of mass communication and common sense, on the other hand, indigenous and natural (green) considerations are important issues in **Iranian architecture now!**

A qualitative case-based research approach in Iranian Architecture now shows that to create a heritage for the future is considerable via interpretative and regional participatory design methods and usage of Iranian traditional architecture elements, connecting to nature and regulating natural light. Climate adaptation is the most important factor that causes architectural design (selected cases). Limitations of research: The most important limitation of the research is the emphasis on the top 17 works of contemporary Iranian architecture after the revolution, which was selected according to the methodology and analytical model and was selected for a more accurate subject and qualitative-analytical results. In general, qualitative research requires a lot of review of reliable sources and texts and their validity. This research is focused on its initial assumption. It was about the development of community-based design tendencies in contemporary Iranian architecture in recent years. It focused on a community architecture approach that could be developed and investigated in other areas as well. Future research suggests that contemporary Iranian architectural buildings in terms of historical periods and the impact of different eras be ana-

lyzed to examine the effect of political decisions on the form and content of architecture in different periods.

The study of contemporary Iranian architectural examples shows that the emergence of responsive and lasting examples can be studied since 2000 (due to the Iran revolution and the Iran-Iraq war in the first two decades). From 2000 till 2015, emphasizing on Iranian-Islamic traditional architectural elements such as Koushk (2 codes), Eyvan (3 codes), central courtyard (4 codes), Sabat, skylight, were more often especially in recent years. During 2014–2020 the concepts of community architecture have replaced the emphasis on Iranian-Islamic traditional architectural elements. In earlier years, architecture could be considered a work of art with aesthetic features using formal ideas based on history and identity. As we get closer to recent years, architecture and space are both defined by users. And they owe a lot of their identity to the user's presence. They do not necessarily have sculptural beauty, and original ideas of form derived from history and the past are no longer observed in them. The main architectural ideas are based on Iranian architectural elements (such as Yakhchal in the Rafsanjan sports complex, the central courtyard of the National Library of the Islamic Republic of Iran, four arches in the Iranian embassy in Berlin, a citadel in the Bam office complex). But it has changed to community design concepts such as sense of place, space to stay, technology, community behavior (Tabiat pedestrian bridge), sense of belonging (presence in Hormoz), sense of ownership (Noor Al-Mobin School). The presence of people and users in architecture and integration with it (architecture + community) are the main tendencies that have shaped architecture in recent years. Also, considering concepts such as sustainability (7 codes), recyclability, climate (11 codes), and light are other topics in contemporary architecture. Emphasizing concepts such as identity and history has given way to community behavior, democracy, contemporarization, and global-regional combination.

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