Neighborhood Redefined

Creating Culture in the Interstitial Spaces in New Town of Pardis, Iran

by

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Author's declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Low-cost housing developments forming "the new towns" adjacent to the metropolitan cities in Iran were aimed to accommodate low-income households. However, after a decade of occupancy, the inhabitants of these towns are struggling with inadequate public facilities to provide human interaction within their neighborhoods. This thesis aims to repurpose the interstitial spaces between the residential towers in the new town of Pardis. The current urban development has created isolated residential point towers which lead to emerging a desolate landscape in the spaces between them, however, the thesis proposes multipurpose social activities and means of connection that encourages social interaction. This research tackles the current issue by examining cultural elements of Iranian neighborhoods and adapting them in the context of the Pardis new town. Precedents of successful existing neighborhoods with similar climate are studied. Subsequently, after analysing the Pardis site in general, a portion of it is chosen as a prototype to investigate the issue in human scale by producing 3D models of the suggested design intervention. This prototypical study could eventually be applied to other neighborhoods in Pardis as well as new towns with similar climate and topographic features to enhance the quality of residents' social life.

Acknowledgements

Dedication

To my mother.

I wouldn't have gotten this far without you.

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"Shushtar no Diba" Memari Online, www.memari.online/base/wp-content/uploads/2020/05/shushtar-no-diba-13.jpg. Accessed 5 January 2021.

Mozaffari, Ali, and Nigel Westbrook. "Shushtar no'w: Urban Image and fabrication of place in an Iranian New Town, and its relation to the international discourse on Regionalism." Fusion Journal 6 (2015): 1-20.

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Adle, Kamran. "Shushtar New Town, Shushtar, Iran, AKDN, Aga Khan Development Network, www.akdn.org/architecture/project/shushtar-new-town. Accessed 5 January 2021.

Ibid.

Ibid.

Introduction

Fig. 1.1 A view of Pardis new town

Neighborhood as the built environment that embraces our homes, plays a significant role in connecting people to each other within itself. This human interaction in a neighborhood is the main requirement of a dynamic neighborhood that encourages human growth. However, the low-cost housing projects in Iran in the form of new towns demonstrate decision-makers' negligence in providing such living spaces which is a result of sacrificing occupants' basic needs for the sake of cost-efficiency and political gains. Thus, residential satisfaction within these projects is at the lowest rate which demand immediate action[1].

This thesis intends to introduce the reader to the challenges that the residents of Pardis, as the most populated new town, are currently facing in terms of low quality of social life. These problems could have devastating consequences in the long term such the increased risk of mental health issues, surge in crime rate in the neighborhood, and possibly decreased building occupation over time. Latest studies have shown that over 79 percent of Pardis residents are planning to move out of the new town in the next 5 years.[2] This predictable aftermath justifies the need for architectural intervention supported by academic research to prevent the new town housing project from a devastating failure.

There are several questions that this study tries to address and find the answers to: As affordability is the government's main concern in the development of these housing projects, what are the effective strategies to revive these neighborhoods and meet the government's budget at the same time? How can we encourage people living in isolated concrete towers to interact with their neighborhood and eventually other neighbors in their surroundings? How can we adapt the results of the study to similar projects across the country?

1   Ghafourian, M., & Hesari, E. (2018). Evaluating the model of causal relations between sense of place and residential satisfaction In iranian public housing (the case of Mehr housing in Pardis, Tehran). Social Indicators Research, 139(2), 695-721.

2   Salimi Sobhan, M. R. (2020). Mass housing and satisfaction of residents of suburban areas case: Parand and Pardis in Tehran province. Peripheral Urban Spaces Development, 2(1), 35-50.

This thesis presents the research that has been done to tackle the aforementioned challenges in three chapters:

Chapter 1 starts with introducing the background of new towns in Iran and how it has evolved over 50 years since it was first introduced to the country using case studies in different parts of Iran. This presents a genealogy of the subject of the research. Then, the chapter provides an overall understanding of the subject of study, Pardis new town and its current scenario with illustrations elaborating its location, topography, and other particular features.

In Chapter 2, different cultural characteristics of Iranian neighborhoods are presented through investigating case studies. These are the features that are missing in new towns developments and could potentially connect the people of these neighborhoods to their surrounding environment.

Chapter 3 takes the applicable cultural features mentioned above to present the design proposal that repurposes the interstitial spaces in one of the neighborhoods in Pardis new town. Several artifacts and details are produced to visualize the research conducted throughout this thesis. The book concludes by explaining the possible future outcomes of this study.

Chapter 1: New Town

1.1. Background

The concept of new towns is well-known in the urban history of Iran. It was first introduced in 1972 after the establishment of the Supreme Council of Urban Development and Architecture as the governing body in urban development in Iran.[3] With the rapid growth of metropolitan cities, the desire for people to move to the neighboring areas increased. Subsequently, many migrants started to develop settlements and agricultural lands adjacent to the cities to benefit from their suitable economic standings. The formation of unorganized settlements made the planners at the Supreme Council of Urban Development introduce new town zoning to stop land squatting by the migrants.[4] This land allocation was the government's first step in legitimizing the development of new towns. Today, the emergence of many of the new towns next to the metropolitan cities in Iran is the result of planning and studies done in the late 1970s by the Supreme Council–a defensive strategy adopted by the government to stop the unauthorized settlements which were resulted by migration of people seeking employment from smaller cities to the bigger ones.

The idea of new towns was not always necessarily a defensive one depending on the context. When the housing supply is proportional to the market demand and migration rate in a specific area, the new town becomes a platform for proliferation and consistent growth. Shushtar new town is an example of such development. The project was designed by Iranian architect Kamran Diba in 1972 to accommodate the employees of Karun Argo Industry (sugar cane factories) and their families.[5]

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3   Bahador Zamani and Mahyar Arefi. "*Iranian new towns and their urban management issues: A critical review of influential actors and factors.*" Cities 30 (2013): 105-12. Web.

4   Zamani and Arefi. : 105-12.

5   Seyed Mohamad Ali Sedighi. "Shushtar New Town, Shushtar (IR)." *DASH #12-13 – Global Housing* (2018): 246-57. Web.

Fig. 1.2 Aerial image of Shushtar new town

The project was set to be developed adjacent to the original Shushtar town in five construction phases. As a pioneering example of a new town associated with the industrial sector, Shushtar new town was praised by a wide spectrum of architectural communities. The use of Iranian traditional architectural elements of urban design, attention to the cultural context, and practicing exceptional vernacular architecture brought the architect Kamran Diba the Aga Khan Award for architecture in 1986.[6] Exclusive consideration of the site context and cultural elements of an Iranian neighborhood which was embedded in the historical memory of the residents made them relate to the new town and feel as if they belonged to it.

Fig. 1.3 Traditional elements of Iranian neighborhood incorporated in the design of Shushtar new town

6   Mahdi Hamzenazhad, Mohadeseh Mahmoudi, and Bushra Abbasi. "Ethical Sustainability in Iranian New Towns: Case Study of Shushtar New Town." *Asian Social Science* 10.13 (2014): 252. Web.

Another element of Iranian urban architecture that is mastered in the design of Shushtar new town is the hierarchy of urban spaces. Houses as the most private spaces in the urban fabric are connected to the neighborhoods as semi-public areas through narrow alleys and passages along which some small gathering spaces are allocated for residents of each residential neighborhood. Eventually, the pedestrian is invited to the open public spaces such as the main marketplace, mosque, and public plaza. This hierarchy of spaces creates a proper circulation and pedestrian flow that respects inhabitants' privacy and social needs at the same time.[7] The strong connection between peoples' background and living environment made Shushtar new town a remarkable example of successful urban planning of its case for years.
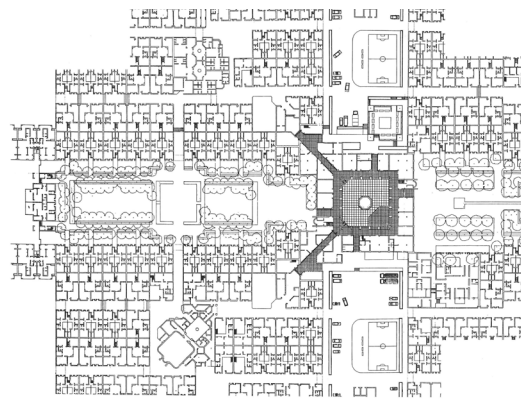
Fig. 1.4 Map of Shushtar new town
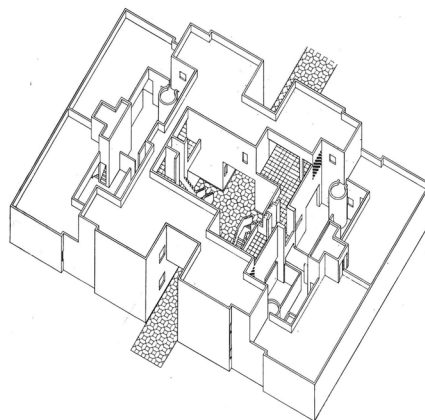
Fig. 1.5 A diagram of residential area in Shushtar

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7   Seyed Mohamad Ali Sedighi. "Shushtar New Town, Shushtar (IR): Kamran Diba (DAZ Architects Planners & Engineers)." *DASH| Delft Architectural Studies on Housing*.12/13 (2016): 246-57. Web.

Fig. 1.6 Marketplace as the neighborhood center in Shushtar new town

Fig. 1.7 Children in alley

Fig. 1.8 Residential passage in neighborhood

Another example of a successful new town is Poolashahr (Fooladshahr) in Isfahan, Iran. The new town was developed by the municipality of Isfahan to the southwest of the second-largest city in Iran to respond to the increasing demand for housing as a result of economic growth. The construction of Pooladshahr began in 1963 and by 1985 the first occupancy started. Currently, over 100,000 people live in this town.[8]

Fig. 1.9 Aerial view of Pooladshahr

8   Iraj Khosravihajivand, et al. "Analysis of the effect of limiting and facilitating factors on good urban governance (Case study: New Town of Fooladshahr)." *Geography (Regional Planning)* 10.1 (2020): 269-81. Web.

Similar to Shushtar, Fooladshahr new town was designed to be integrated with the proliferating industrial sector. The municipal administration required a dedicated town to accommodate a large number of workers and engineers of a steel mill and a cement factory.[9] The existence of infrastructure and urban resources as well as the integration of the new town with the industrial hub were among the key factors of this urban planning excellence. Furthermore, being accepted by the residents, Fooladshahr played a pivotal role in decentralizing the main city, Isfahan, by persuading the working population to move out of the crowded city to the new town.[10] Fooladshahr new town was a planning prototype that demonstrated success through proportionate development of housing and industry that stimulated reverse migration from the metropolitan areas to the new town.

Fig. 1.10 A square in Fooladshahr

9   Mehdi Hosseini Dehaghani and Maysam Basirat. "Urban Plan Quality Evaluation Using an Integrated Approach of ISM and ANP (Case Study: Master Plan of Pooladshahr City (2012))." *Town and Country Planning* 9.2 (2017): 245-74. Web.

10   Bahador Zamani and Mahyar Arefi. "*Iranian new towns and their urban management issues: A critical review of influential actors and factors.*" Cities 30 (2013): 105-12. Web.

Fig. 1.11 Residential neighborhood in Fooladshahr

1.2. Mehr Housing as new towns

Since 1972 and the introduction of new town planning by the Supreme Council of Urban Development, very few new towns were developed by the central government or municipalities. However, in 2008 and after three years of Mahmoud Ahmadinejad's first term of presidency, the mega project of new towns called "Mehr Housing" kick-started its construction phase. Nevertheless, in theory, Ahmadinejad started the project during his campaign for the presidency three years before in 2005.[11] His campaign was mainly focused on low-income families and marginalized communities living in deprived areas of Iran. Ahmadinejad who served as Tehran mayor for years recognized the need for housing among this broad community in Iran. Therefore, he promised to house each Iranian household to get enough votes to win the election. His agenda was based on developing housing projects in the form of new towns on public lands owned by the government. Subsequently, homeowners would not have to pay for the land, the price of which would consist of the majority of the unit price. Also, the government offered various financial aids by financing the construction costs via granting long-term loans to developers and the owners as well as construction tax-exempt privileges.[12] After a few months of introducing Mehr housing by the Ahmadinejad administration, millions of applications were submitted hoping to finally become homeowners.

From the beginning of the commencement of the Ahmadinejad administration's ambitious housing plan, many experts cast doubt on it by opposing its necessity and means of financing. They asserted that subsidizing a megaproject on a national scale by the government that at the time was being severely sanctioned by the United States and many other countries because of its nuclear program would put the government in substantial debt.[13] Moreover, the Iranian construction industry has always been dependent on import of raw materials and selling oil by the government which both had been affected by the US sanctions. In contrast with Shushtar and Fooladshahr new towns, there was no financial program supporting

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11   Mohammad Reza Farzanegan and Mohammad Mahdi Habibpour. "Resource rents distribution, income inequality and poverty in Iran." *Energy Economics* 66 (2017): 35-42. Web.

12   Farzanegan and Habibpour. : 35-42.

13   Farzanegan and Habibpour. : 35-42.

the new emergence of Mehr housing. The former precedents were reasonably developed as a response to the increasing demand in the industrial regions of the country, whereas in the case of Mehr housing, the mere stimulator was the ephemeral political gain instead of long-lasting financial benefit. Additionally, the project started its construction phase amid the 2008 global financial crisis.[14] Numerous telltale signs were advising the government against this extraordinary investment in the new towns because of the forthcoming financial crisis in Iran following the global recession. However, with only one year left until the next election, Ahmadinejad insisted on executing his plans hoping that creating millions of temporary jobs in the construction phase as well as delivering his promise in providing housing for his supporters would help him being re-elected as president.

Fig. 1.12 Mehr housing project in Pardis ready for the opening ceremony

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14   Jahangir Amuzegar. "The Ahmadinejad era: Preparing for the apocalypse." *Journal of International Affairs* (2007): 35-53. Web.

As mentioned earlier, the new towns were constructed adjacent to the metropolitan cities in Iran. Tehran, as the capital city of the country, was planned to be associated with three major new towns, Pardis, Parand, and Hashtgerd.

Hashtgerd is located 68 kilometers to the west of Tehran. It had a population of 42,147 in the 2016 census. However, the city is projected to accommodate 500,000 people after finishing all phases of construction.[1] The initial planning of this new town was done in 1985. By the year 1988, the municipality began the infrastructure of the new town. The location of the new town was close enough to the capital to take advantage of the existing infrastructure of the city, yet far enough to create the opportunity to act as an independent city.[2] In addition, the new town is located near the industrial hub of Tehran on the west side of the capital.
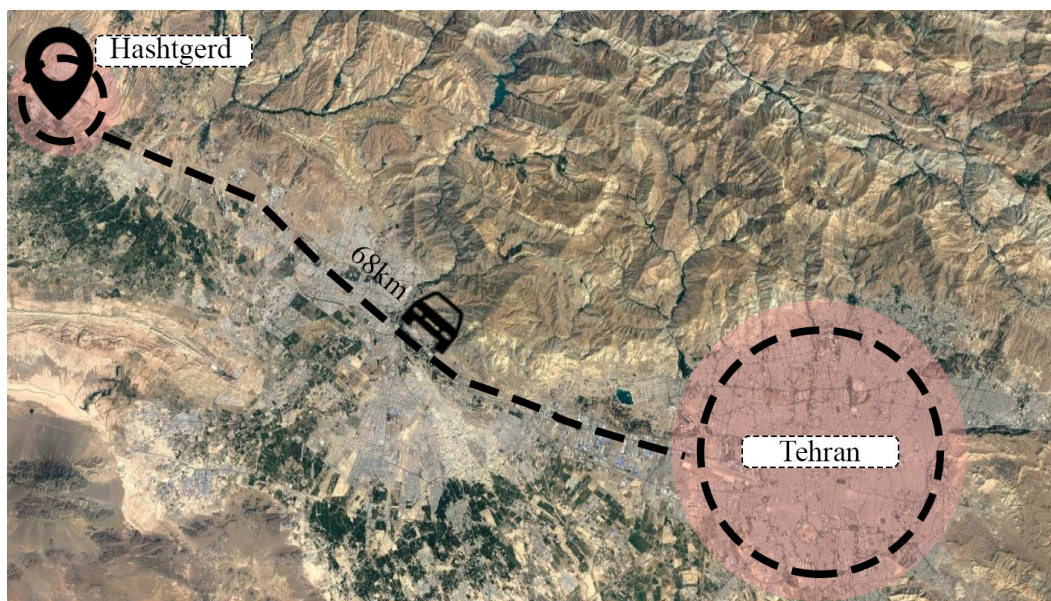
Fig. 1.13 Hashtgerd new town's location in relation to Tehran

1   A. Zebardast and Shahlou L. Jahan. "A survey about Hashtgerd New City operation in surplus population attraction." (2007)Web.

2   Iesa Ebrahimzadeh, Mehdei Garakhlo, and Mehdei Shhreiarei. "New Town of Pardis and its role in decentralization of Tehran metropolis." *Geography And Development Iranian Journal* 7.13 (2009): 27-46. Web.

Parand is the second most populated new town adjacent to Tehran with a population of 97,464 in the 2016 census.[3] The new town was initially planned to accommodate employees of Imam Khomeini International Airport to the southwest of Tehran. It was also intended to organize the unauthorized settlements adjacent to Tehran[4].
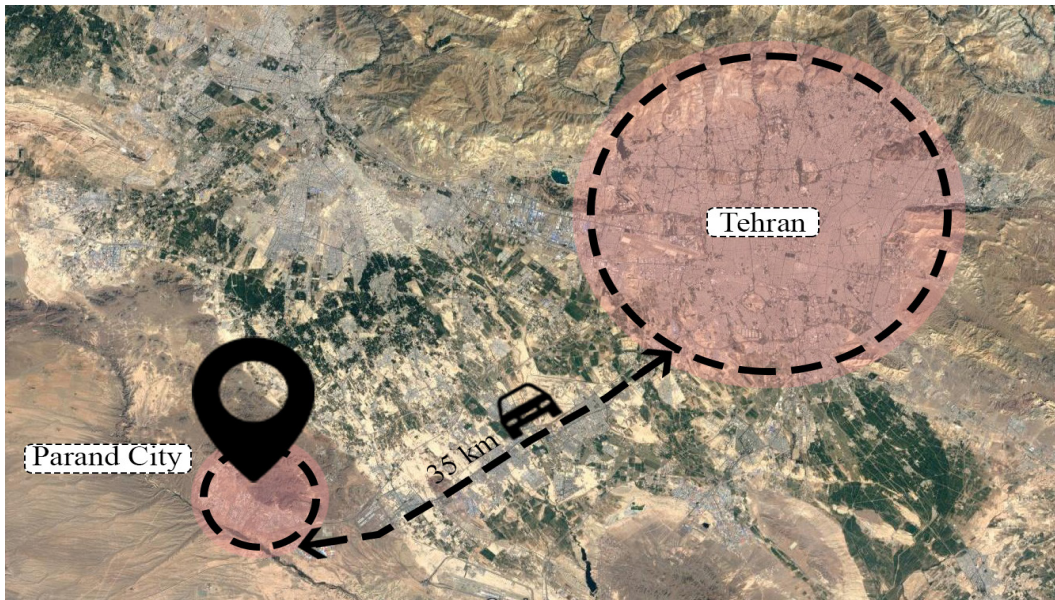
Fig. 1.14 Parand new town's location in relation to Tehran

In 2008 the Ahmadinejad administration planned to develop Mehr housing projects in the two cities in the lands allocated to by the Supreme Council. They designed 146,000 residential units in 6 and 15 story concrete buildings on relatively flat lands in the two new towns.

3   Statistical center of Iran, October 23, 2016, www.amar.org.ir/english/Popula-tion-and-Housing-Censuses/Census-2016-Detailed-Results, Accessed March 2, 2021.

4   Ali Karji, et al. "Assessment of social sustainability indicators in mass housing construc-tion: a case study of Mehr housing project." *Sustainable Cities and Society* 50 (2019): 101697. Web.

Fig. 1.15 Mehr housing in Parand new town

Fig. 1.16 Mehr housing in Hashgerd new town

1.3. Pardis new town

Pardis new town, located 17 kilometers to the northeast of Tehran is the largest and most populated new town ever developed in the history of the urban planning of Iran. Its projected population after completion of all 11 phases of construction is 660,000 people.[5] Similar to Parand, the new town of Pardis was initially planned in 1972 by the Supreme Court to reciprocate the land acquisition in Tehran suburban areas by the migrants and farmers.[6] The new town is located near the old (original) town of Pardis which has a typical Iranian urban design accommodating mostly local inhabitants whereas the new town is a combination of different urban planning typologies from residential point towers to two-story apartments.
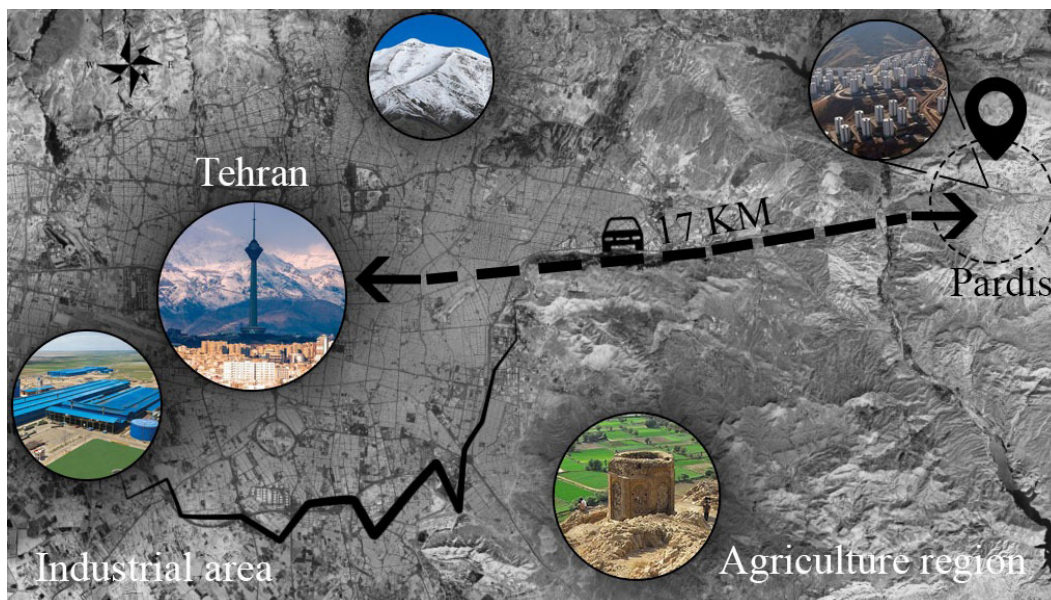
Fig. 1.17 Pardis new town's location in relation to Tehran

5   Hashem Dadashpoor and Maryam Akbarniya. "-The survey of self-reliance of new towns in large metropolitan areas case Study: Pardis of new town in tehran metropolitan area." *Geographical Planning of Space* 3.10 (2014): 44-65. Web.

6   Zamani and Arefi. : 105-12.

Fig. 1.18 Pardis new town's location and surrounding areas

Fig. 1.19 Old town of Pardis with the new town in the background

Beyond its distance from the major city of Tehran, another even more challenging feature of the Pardis new town is its severe topography. It is located on the slopes of the foothills of the northern mountains of Tehran province in a barren landscape.[7] This special topography normally would require a specific urban design that would be different from the ones located on flat sites. However, while re-studying and re-designing the development plan of the new town in 2008, the designers failed to address this issue. The strategic location of Pardis and its more desirable location and climate condition compared to the other two cities near Tehran led the designers to try to accommodate as many units as they could in a very dense site surrounded by mountains on a steep slope to reach the minimum unit goal planned for Tehran metropolitan area by the government.[8]

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7   Hashem Dadashpoor and Maryam Akbarniya. "-The survey of self-reliance of new towns in large metropolitan areas case Study: Pardis of new town in tehran metropolitan area." *Geographical Planning of Space* 3.10 (2014): 44-65. Web.
8   Mahkameh Fattahi, et al. "Studying The Role of Social Capital in Cohesion of urban areas and its impact on reducing social Harm (Case study: Pardis New Town)." 16.46: 341-64. Web.

Fig. 1.20 Point towers in Pardis

Fig. 1.21 View of Pardis phase 11

Fig. 1.22 Residential towers in phase 11 under construction

Fig. 1.23 Towers located on the Alborz mountain foothill

Fig. 1.24 Long retaining walls along the neighborhood

Fig. 1.25 Site topography and neighborhood isolation

Today, there are hundreds of 15 story concrete slab point towers constructed in Pardis which is not what the site was originally planned for in 1972.[9] The example of Pardis is a clear demonstration of poor urban design and planning affected by political interference in a short time period.

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9   Naser Barati and Mohammad Reza Yazdanpanah. "Conceptual Relationship Between Social Capital and Quality of Life in Urban Environments (Case Study: Pardis New Town)." *Sociological Cultural Studies* 2.1 (2011): 25-49. Web.

2008

2010

2015

2020

Fig. 1.26 Aerial images of Pardis development over the past 12 years

1.4. Current scenario and challenges

Politicized design and planning interventions in the new towns directly affect the quality of the inhabitants' social lives in the new town. The design of point towers in a desolate landscape demonstrating the concept of towers in the park brings challenges to their everyday experience of the neighborhood.[10] The vertical development of the units on this peculiar landscape made the residential towers in an isolated state from one another. This isolation has brought challenges to people's daily life. The low level of walkability within the new town makes the pedestrians take unsafe and unpleasant shortcuts while walking to their destinations in the neighborhood. Moreover, the lack of enough public places of activity and gathering spaces in the neighborhood has discouraged the residents from coming out of their apartments. Thus, the potential for human interaction within each neighborhood and between the neighborhoods has been minimized.[11]
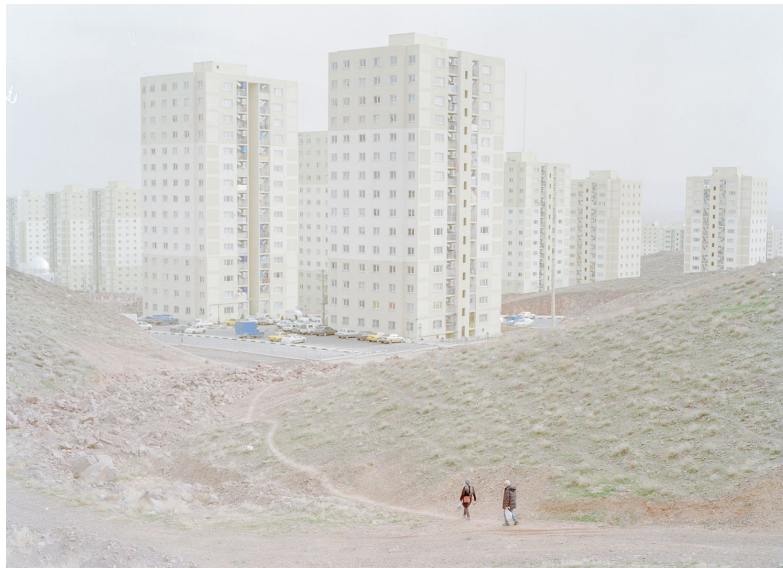
Fig. 1.27 Pedestrians taking shortcuts to walk through Pardis

10   Roger Keil. "Towers in the park, bungalows in the garden: Peripheral densities, metropolitan scales and the political cultures of post-suburbia." *Built Environment* 41.4 (2015): 579-96. Web.

11   Mitra Ghafourian and Elham Hesari. "Evaluating the model of causal relations between sense of place and residential satisfaction in Iranian Public Housing (the case of Mehr housing in Pardis, Tehran)." *Social Indicators Research* 139.2 (2018): 695-721. Web.

The issue of insufficient socialization due to the isolation becomes more critical considering that nowadays, Pardis is operating as a dormitory town to the capital city. The main factor that distinguishes a successful new town from a dormitory town is self-reliance. To be socially successful, the new town should be independent of the adjacent towns in terms of services and employment. Consequently, not only the new town could attract a large population, but also it assists in decentralizing the mother town.[12] For instance, the excellence of Fooladshahr which is due to proper urban planning has attracted a working-class population to the town that not only contributes to the economic growth of the region, but also helps with the decentralization of the already overcrowded mother city, Isfahan through reverse migration. In the newly built new towns such as Pardis, however, the circumstances are the opposite. Due to poor architectural and urban design approaches, the construction of Pardis has failed to decentralize Tehran. In fact, this model of new town is performing against their planned purpose by hosting migrants from other provinces across the country that are looking for jobs in Tehran. This problem adds up to the existing struggles of Tehran such as overpopulation, pollution, and unemployment.[13]

12   Hashem Dadashpoor and Maryam Akbarniya. "-The survey of self-reliance of new towns in large metropolitan areas case Study: Pardis of new town in tehran metropolitan area." *Geographical Planning of Space* 3.10 (2014): 44-65. Web.

13   Hashem Dadashpoor and Mehdi Alidadi. "Towards decentralization: Spatial changes of employment and population in Tehran Metropolitan Region, Iran." *Applied Geography* 85 (2017): 51-61. Web.

Fig. 1.28 Laborers in Pardis construction

Fig. 1.29 Peddling sinks on the side of the road

This lack of self-reliance intensively challenges new town inhabitants' normal daily lives. The wage-earner of the household typically takes the only vehicle of the family in the morning to go to his job in Tehran. That leaves the rest of the family stranded in the desolate, residentially dominated neighborhood. Distance and geographically challenging access to critical services provided by the new town such as schools, grocery stores, medical services, commercial services and mosques makes each visit extremely difficult for the daytime inhabitants, a group mainly composed of women, children, and the elderly. Low walkability quality as a result of the general layout of the neighborhood, tall concrete retaining walls, steep slopes, and narrow sidewalks brings serious daily challenges to the inhabitants' lives. Additionally, in many times of the year, harsh climatic conditions such as hot and dry periods in summers or cold winters exacerbate the circumstances affecting residents' satisfaction.[14]

Fig. 1.30 Family cooking lunch for outdoor picnic

14   Dorsa Alipour and Pooyan Shahabian. "Evaluation of the Effective Factors of Environmental Quality on Satisfaction Rate of Residential Environment Neighborhood (A Case Study of Pardis New Town)." (2019)Web.

The desolate and exposed nature of the pedestrian realm in Pardis new town, combined with the absence of spaces for people to meet and socialize along the walk has encouraged people to take only necessary trips, making the neighborhood a vacant place at most of the times of the day. This is in complete contrast to the Iranian culture where social interaction and public gathering are integral parts of people's daily lives[15]. As mentioned earlier in the paper, in Shushtar new town, the architect integrated his urban design with this very cultural characteristic of the Iranian neighborhood. Diba created a dynamic living environment for the residents by connecting public and semi-public areas[16]. By integrating traditional architectural values inside the new town, the project became successful in fostering social interaction that could eventually make the people belong to their new town. Conversely, there is no hierarchy of space in the neighborhood fabric of Pardis. The residential areas connect to the public space of the sidewalk and parking area without mediation. All these issues are causing people to become unable to make a strong connection and feel belonged to their living environment which is a stereotype in all dormitory towns.[17]

15   Seyyed Fakhroddin Hosseini and Mehrdad Soltani. "A comparative investigation and analysis between the neighborhood concept in the traditional urban system in Iran and its similar patterns in contemporary period." *The Monthly Scientific Journal of Bagh-E Nazar* 15.60 (2018): 15-28. Web.

16   Mohammad Reza Shirazi. New Towns-Promises Towards Sustainable Urban Form. Universitätsverlag der TU Berlin, 2013. Web.

17   Dorsa Alipour and Pooyan Shahabian. "Evaluation of the Effective Factors of Environmental Quality on Satisfaction Rate of Residential Environment Neighborhood (A Case Study of Pardis New Town)." (2019)Web.

Fig. 1.31 Vertical expansion of residential towers

Fig. 1.32 Desolate landscape of Pardis

Legend:
- Residential
- Commercial
- Institutional
- Religious
- Recreational
- Utilities
- Facilities
- Healthcare
- Administrative
- Industrial
- Transportation
- Tourism
- Unused

N

0 100 300 600

Targeted site
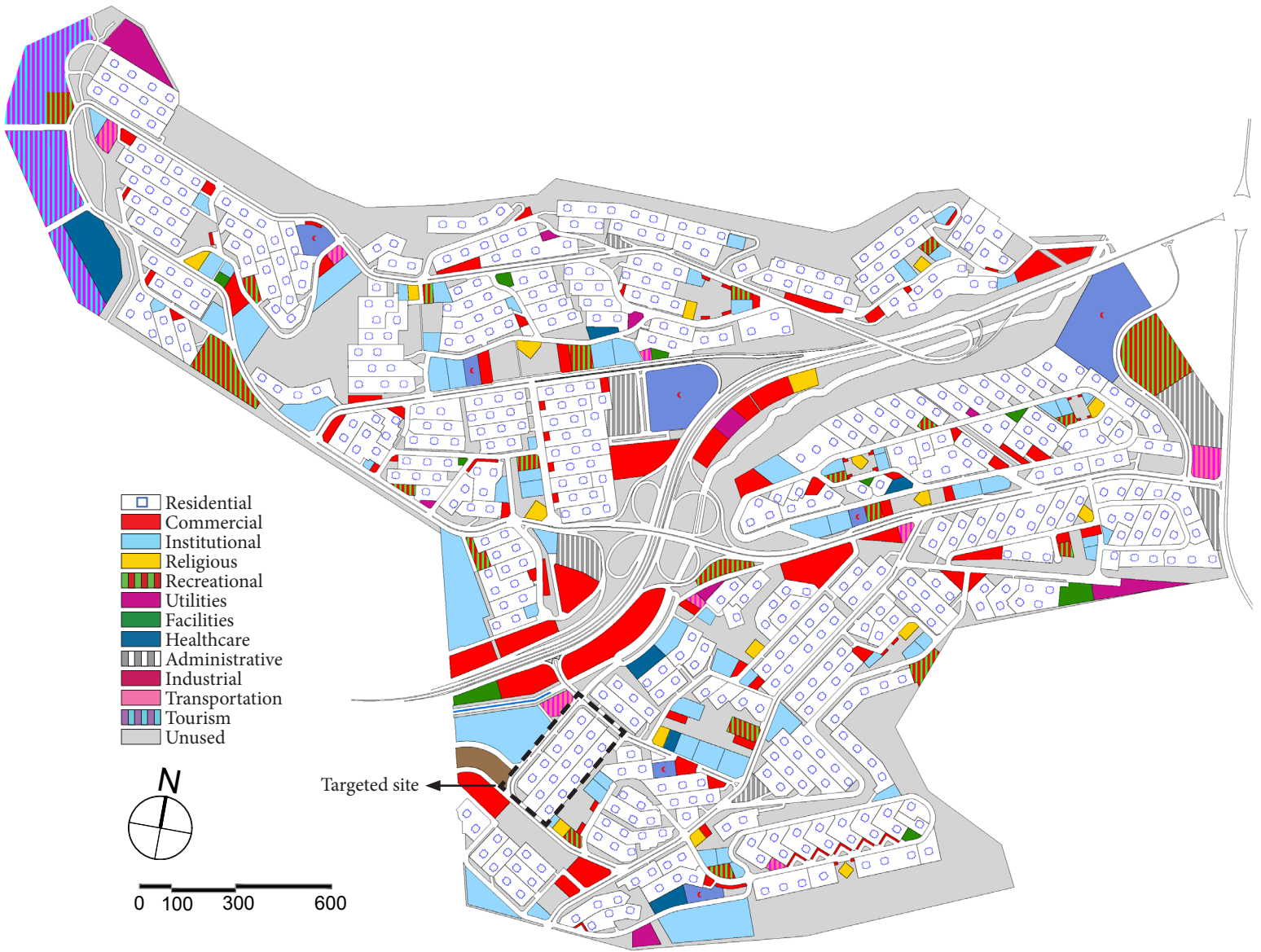
Fig. 1.33 Land use map of Pardis phase 11

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1.5. Previous studies

There are several researches that have been done focusing on the concept of new towns and its history in different parts of Iran since before Islamic revolution. According to Ziari, economic and political gains have affected new town development agendas throughout the Iranian urban development history.[18] In addition, in his paper titled New Town and Future Urbanization in Iran, Farhad Atash asserts that the new towns in Iran have failed to reach their initial goal in decentralizing metropolitan areas and finding their own identity among the Iranian community.[19]

In the case of Pardis, there have been a few researches evolving around living quality and residents' satisfaction in the neighborhood. According to Sabounchi the highest dissatisfaction rate is about landscape design such as public facilities, green spaces, and parking lots.[20] They ran a post-occupational survey to examine satisfaction rates in three new towns, including Pardis. Ahmadi and others argue that the vitality could be brought back to the new town by providing pedestrian-oriented shopping centers as well as public plazas and connecting the desolate areas which could eventually generate human interaction and people's participation in social activities.[21]

While the aforementioned researchers provide useful information about the new towns' genealogy as well as analyzing the current situation to give an insight into the actual struggle of Pardis inhabitants, there is a knowledge gap in the study of landscape design approaches in the interstitial spaces between the buildings of

18   K. Ziari and MahdiGharakhlou. "A Study of Iranian New Towns During Pre and Post Revolution." *International Journal of Environmental Research* 3.1 (2009): 143-54. Web.

19   Farhad Atash. "New towns and future urbanisation in Iran." *Third World Planning Review* 22.1 (2000): 67. Web.

20   Leilabadi Mitra Sabounchi, Goharrizi BEehnaz Aminzadeh, and Azadeh Shahcheraghi. "The Role of architectural design in enhancing the life quality in residential complexes of Iranian new towns (Case Study: Andisheh, Pardis, Parand)." (2020)Web.

21   Melahat Ahmadi, Ali Dashti Shafei, and Mohsen Kalantari. "Designing pedestrian-oriented shopping centers to promote the vitality of urban spaces: A case in Phase 2 of Pardis new city." *European Online Journal of Natural and Social Sciences* 2.1 (2013): pp. 129-135. Web.

each neighborhood. Only a few pieces of research have focused on studying and bringing design solutions to the landscape of the residential areas in Pardis. Most of the literature has acknowledged the central nature of this problem. However, there has been no design solution suggested to date that could address the current and future needs of the inhabitants.

Chapter 2: Iranian Neighborhood

Neighborhood is a section lived in by neighbors and usually has distinguishing characteristics.[1] Similar to many others, the Iranian neighborhood is characterized by its places of gathering that foster human interaction within its fabric. In this chapter, some of the main spatial elements that represent fundamental concepts of this feature of Iranian neighborhoods are investigated to understand what is missing in the urban design of the new towns in Tehran. While the urban layout and neighborhood pattern and density in the new towns are different from the ones in Iranian traditional neighborhoods, the inhabitants' needs have not changed throughout time. This study could eventually help with finding feasible solutions to bring back some of the features that are applicable in the new format of urban design in new towns.

Fig. 2.1 30 Tir neighborhood in Tehran, Iran

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1   "Neighborhood." Merriam-Webster.com. Merriam-Webster, 2011. Web. 5 June 2021.

2.1. Alleyways

Although some of these spaces such as public plazas, bazaars, mosques, and parks are created by the urban designers to accommodate neighborhoods' different needs, many of them became a space of socialization through the activities of people with common interests in neighborhoods' public realm.[2] Alleyways are one of these spaces in Iranian neighborhoods. These passages not only connect the private spaces of residential sections to the public areas, but also embrace the daily activities of various groups of the community. These are safe spaces where children can play games, women can participate in group activities, and families can engage in programs that encourage them to interact with others in their neighborhood. The existence of these spaces provides the opportunity for meetings and daily activities in the public space.[3] As a result, these activities could help with creating a dynamic neighborhood that makes people establish a strong connection to their living environment.

Fig. 2.2 Children playing games at their doorstep in the alley

2   Farah Habib, Hamed Moztarzadeh, and Vahideh Hodjati. "The concept of neighborhood and its constituent elements in the context of traditional neighborhoods in Iran." *Advances in Environmental Biology* (2013): 2270-9. Web.

3   Jan Gehl. Life between buildings: *using public space*. Island press, 2011. Web.

Fig. 2.3 Street football in the alley

Fig. 2.4 Women preparing for religious events in the neighborhood

Fig. 2.5 People getting street food in the neighborhood

Fig. 2.6 Neighbors participating in the program of panting an alley

2.2. Streets and Stairs

Another feature of an Iranian neighborhood is the high level of walkability. From the alleyways to the streets that lead to public facilities, the pathways are safe, accessible, and pedestrian-friendly with many attractions along the way. In addition, in cities located on foothills such as Tehran, different elevation of the topography or longer distances to the neighborhood amenities because of it does not prevent people from being able to easily walk through different parts of the neighborhood. Designers have always come up with ideas that not only connect different levels of the land, but also host other sorts of activities within themselves.[4] These activities may be in the form of art performances such as paintings and murals that bring people together via public activities as well as making the space more pleasant to walk.

Fig. 2.7 Street food and nightlife in Tehran

4   Mohsen Hadianpour. "Walkability: the case of the Central Jannat Abad neighborhood, Tehran." (2017) Web.
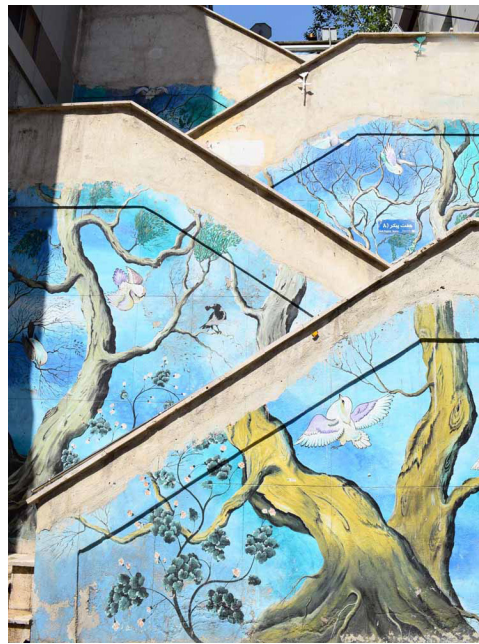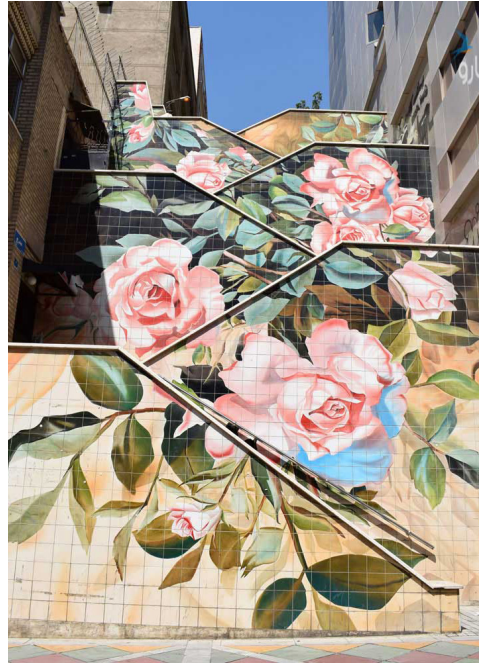
Fig. 2.8 Stairs and murals in the streets of Tehran

Fig. 2.9 Street theatre in Tehran

Fig. 2.10 Street music in Tehran street

2.3. Public spaces

Squares and urban open spaces as public areas are the environmental elements that shape the identity of a neighborhood through which inhabitants define themselves through.[5] In the Iranian urban environment, these multifunctional spaces gather people together on a variety of occasions such as religious events, national festivals, and so on. These spaces provide a hotspot for shared experience via social activities among the community with similar cultural backgrounds which consequently create a strong bond between them by being repeated and continued over time.[6] Moreover, this participation forms the inhabitants' perception of the public space which leads to generating a sense of place that eventually reinforces the relationship between the neighborhood and inhabitants.[7]
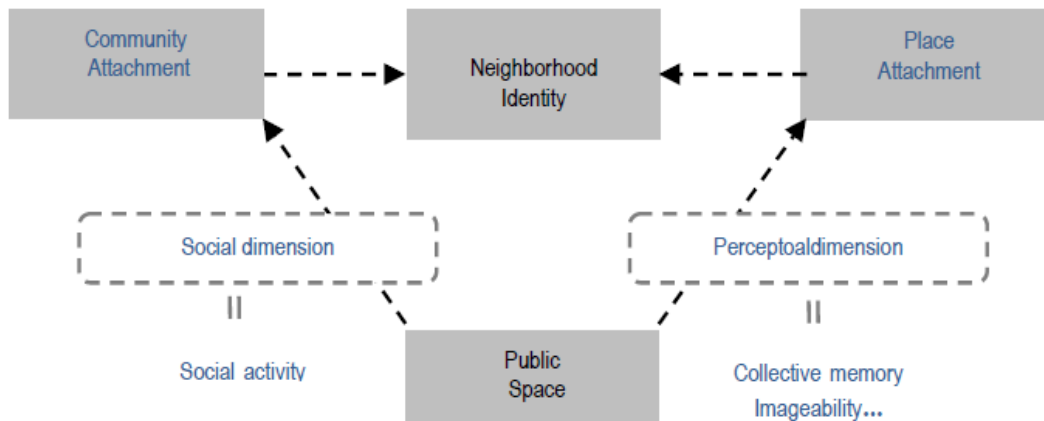
Fig. 2.11 Relationship between public space and neighborhood identity

5   Majid Mansoor Rezaie–Shabnam Esmaeily. "Transformation of public space leads to transformation of neighborhood identity." Web.

6   Matthew Carmona and Steven Tiesdell. *Urban design reader*. Routledge, 2007. Web.

7   Amos Rapoport. "Spatial organization and the built environment." *Companion encyclopedia of anthropology: humanity, culture and social life* (1994): 460-502. Web.

Fig. 2.12 People celebrating Nowruz in public

Fig. 2.13 New Year's streets selling market in Tehran

Fig. 2.14 Religious event in public spaces in Tehran neighborhood

Fig. 2.15 Streets hosting religious ceremonies in a neighborhood in Tehran

Fig. 2.16 The traditional festival of fire in the neighborhood

Fig. 2.17 Celebration of fire as a traditional ritual

Parks and green spaces are another forms of a public place that encourages daily human interaction and social gathering for different age groups of the community. In Iranian culture, each neighborhood is identified by its park where people can meet their neighbors and socialize with them. While the average of per capita urban parks and green spaces in Tehran, for example, is much lower than the World Health Organization (WHO) standard, people still try to take advantage of the existing facilities in the neighborhood as a medium to maintain a healthy social life[8].
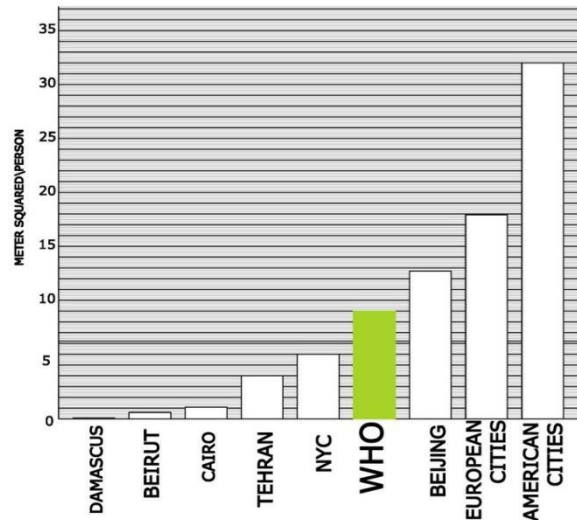
Fig. 2.18 Urban green area per capita in Tehran and other cities

8   Shirkou Jaafari, et al. "Applying landscape metrics and structural equation modeling to predict the effect of urban green space on air pollution and respiratory mortality in Tehran." *Environmental monitoring and assessment* 192 (2020): 1-15. Web.

Fig. 2.19 Elderly people playing games and spending time together park

Fig. 2.20 Young people hanging out in park

Fig. 2.21 Family picnic in Park

Chapter 3: Design Proposal

3.1. Design Approach

As mentioned in chapter one, the high density of residential neighborhoods and peculiar landscape of the site are among the most important challenges of Pardis new town which makes the neighborhoods less walkable and minimizes the potential of social activities. This research tries to examine the possibility of adapting spatial characteristics of the Iranian neighborhood presented in chapter two in the existing context of the new town to tackle the issue. In that regard, the thesis's approach is to focus on one of the neighborhoods in Pardis and take a portion of the site to have a more in-depth examination of the challenge and problems and try to adapt the spatial elements of the Iranian neighborhood to the new formation of housing in the spaces between the towers on the landscape level in Pardis neighborhood. The final design approach could become a model that could be applied to the rest of the neighborhood since they all have the same typologies. In order to match the current context of the site, this design has to follow three main principles:

3.1.1. Culture-oriented

Creating new spaces in the areas between the point towers to connect different parts of the neighborhood could eventually generate social activities and better human interaction between the people. One of the efficient approaches to reach this goal is creating places of activity in the urban fabric to attract people to them in a neighborhood.[1] People tend to be inclined to participate in these kinds of activities if they could relate to them. Lack of cultural references in the urban architecture of the buildings as well as their interstitial spaces is the most important issue in Pardis. Emphasizing this need for cultural identity, the thesis proposes redefining the interstitial spaces between the buildings to create a sense of cultural familiarity for the inhabitants. It suggests a series of pedestrian pathways and public spaces in the neighborhood's landscape to bring people together by connecting their buildings on the ground level. These spaces will create a sense of community and belonging to people by bringing their cultural ties to their daily life.

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1   Jan Gehl. *Life between buildings: using public space.* Island press, 2011. Web.

3.1.2. **Climate-responsiveness**

The proposed design interventions in the spaces between the residential towers must be climate responsive. One of the main reasons for the failure of the current pedestrian pathways in the area is their inability to provide weather protection for the users. In other words, the landscape design is not providing a convenient pedestrian experience which is a result of neglect of environmental consideration. Lack of green spaces and shade that could protect people from the sun in the summer has not only discouraged people from going out of the blocks, but also made the essential daily trips extremely inconvenient. This thesis adopts a climate-responsive approach towards landscape design by running climate studies in four seasons to design spaces that better correspond to the climate and make the walking experience for pedestrians more desirable.

3.1.3. Affordability and budget consideration

The idea of a new town is based on building homes for low-income families. For the government to reach this goal, they had to lower the construction costs as much as possible. This very monetary approach towards this urban development indeed dictated design strategies which eventually led to all the challenges that this thesis is targeted to tackle. However, the proposed design solution should be generally affordable and realistically motivated to meet the government's budget. In other words, because of the government budget limits, the design strategies should find minimal pragmatic solutions to mitigate the negative effects of the previous urban design in terms of walkability and social activity to the extent that it improves the landscape quality to the minimum standards of Iranian neighborhood. To achieve that, the thesis considers implementing the vernacular materials that already exist on the site or could be reused or recycled as urban furniture, wall and floor finishes, etc. Besides lowering the environmental impact of the design, this could significantly lower the construction costs. Moreover, in the design process, the thesis considers the potential of executing the project by implementing community programs that involve the inhabitants in repurposing public spaces. This could increase their social life quality and actively involve them in the process

of creating a better neighborhood for themselves while lowering the costs of making them. Furthermore, these design solutions should be developed gradually and in different stages starting from less expensive approaches such as improving pathways. Success in these approaches could intrigue the government to fund more costly ones like green and public spaces in the neighborhood.

3.2. The Site

To conduct a more focused study, this thesis aims at one neighborhood in Pardis. The site is located on the west part of Pardis on a steep slope. The area of the site is over 55,000 square meters. It has 15 residential towers with a total of 885 units. Each 5 of them is built on a separate base surrounded by stone retaining walls. According to Iranian household statistics in 2016, approximately 2,920 people are estimated to be living in this part of the town.

Year	Man (%)	Woman (%)	Family	Average Household Size
2016	50/67	49/33	24196035	3.3
2011	50/44	49/56	21185647	3.5
2006	50/88	49/12	17501771	4
1996	50/81	49/19	12398235	4.8
1986	51/13	48/87	9673931	5.1

Fig. 3.1 Population and household size in urban areas

Fig. 3.2 A view of intended site in Pardis
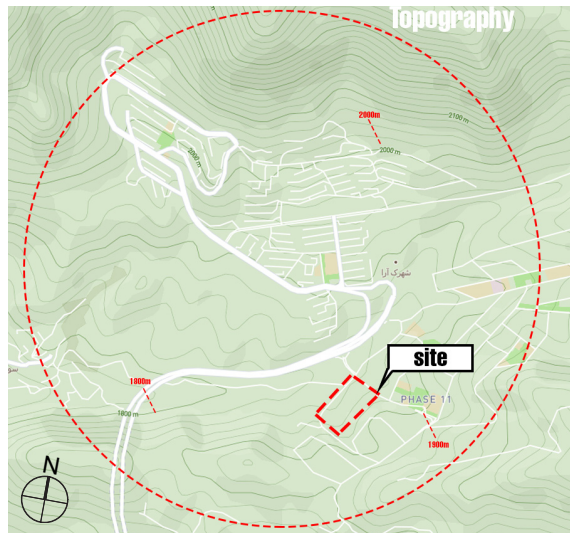
Fig. 3.3 Site topography map
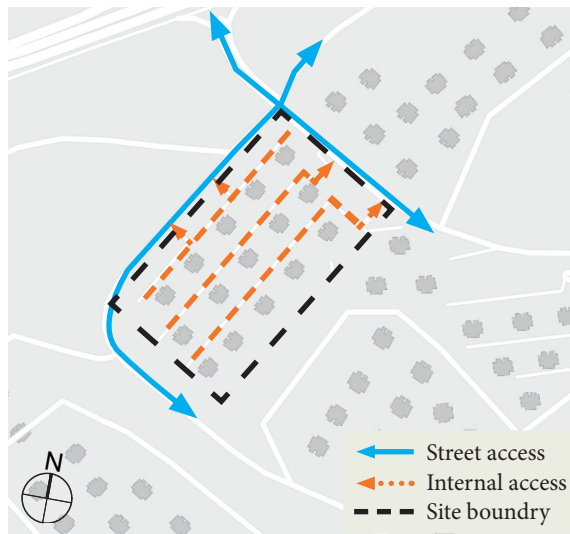
Fig. 3.4 Site access map

Fig. 3.5 Aerial view of the site

The challenge of poor walkability as a result of the general layout of the neighborhood, tall concrete retaining walls, steep slopes, and narrow sidewalks brings serious daily challenges to the inhabitants' lives. Additionally, in many times of the year, harsh climatic conditions such as hot and dry periods in summers or cold winters exacerbate the circumstances affecting residents' comfort and satisfaction.

Fig. 3.6 different elevations separating residential towers

Fig. 3.7 The layout of streets, parking lots, and sidewalks

Fig. 3.8 Retaining wall along the site

Fig. 3.9 9-meter high retaining wall

The desolate and exposed nature of the pedestrian realm in Pardis new town, combined with the absence of spaces for people to meet and socialize along the walk has encouraged people to take only necessary trips, making the neighborhood a vacant place in most of the times of the day. This is in complete contrast to the Iranian culture where social interaction and public gathering are an integral part of people's daily lives.

In contrast with Iranian neighborhood design principles, there is a lack of a hierarchy of space in the neighborhood fabric of Pardis as the transitions are harsh and sudden. The private spaces of the buildings directly lead to the public space and the streets with no buffer zone such as greenery, gathering spaces, and playgrounds in between them.

Fig. 3.10 Parking lots adjacent to the reidential buildings

Fig. 3.11 Shortcut path made by pedestrians

Fig. 3.12 Dangerous shortcut made to reach the main street

Fig. 3.13 Deserted leftover land
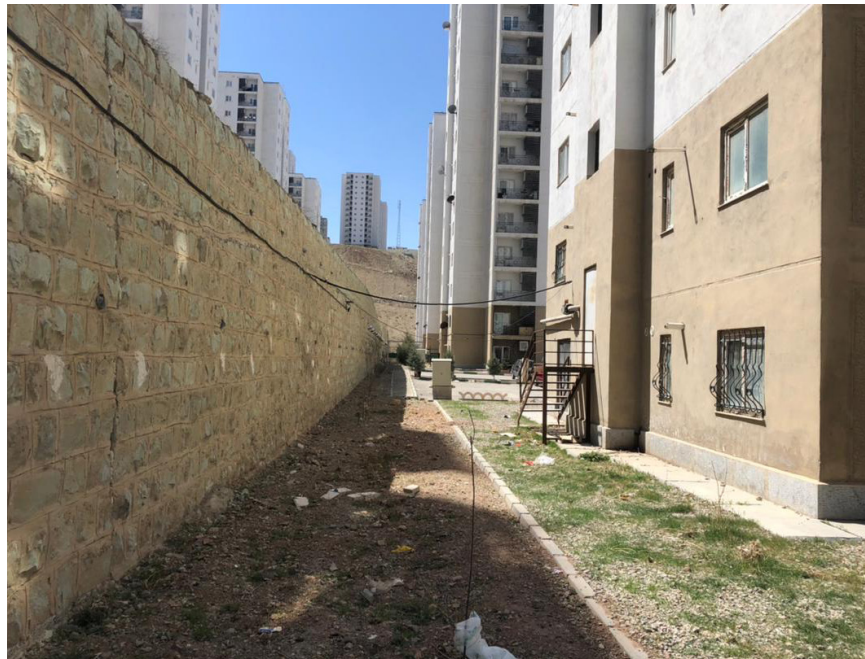
Fig. 3.14 Unused spaces between the buildings and the

3.3 Design Proposal

Taking into consideration the three design approaches, the final design proposal focuses on two major issues of walkability and activity on the site. It aims to tackle the issue of physical barriers (the walls and pathways) as well as creating places of activity to attract people and encourage them to interact with each other. These two main approaches could eventually help with the matter of isolation in the neighborhood.

There are four vehicular accesses to the site, two of which are on the west adjacent to the shopping center dedicated to the lower level, and two more to the north of the site on higher levels. Pedestrians also use the same entrance. And there is no access between the different levels of the site
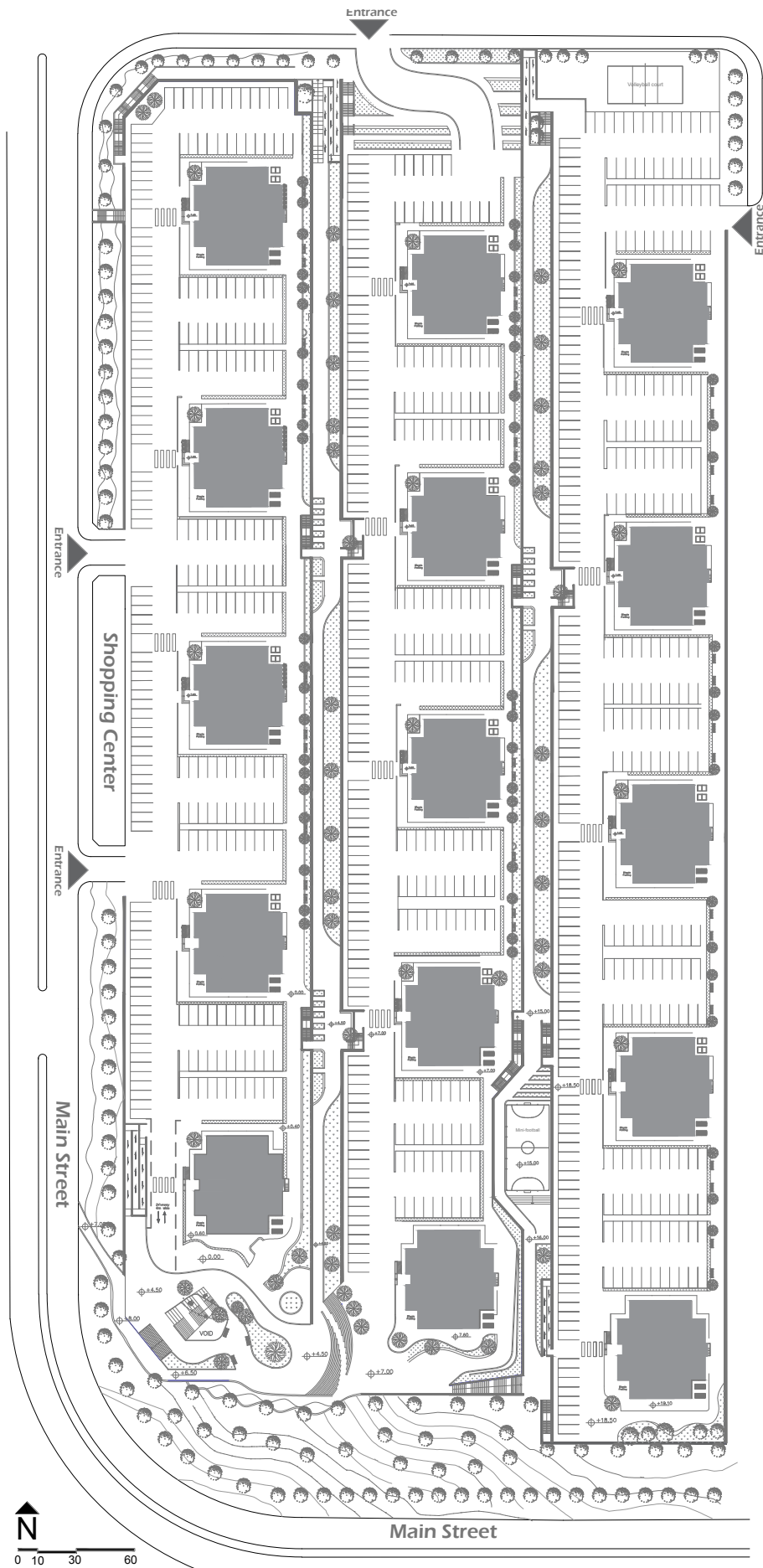
Fig. 3.15 Proposed site plan

To provide that access across the site, a change in the landscape on top of each retaining wall is proposed. By leveling the long slopes, pathways are created along the site as well as a set of stairs to provide vertical connectivity on the width of the site joining the three levels together. These spaces could improve the walkability in the neighborhood, as well as encourage people to stay and engage in neighborhood activities.

Fig. 3.16 Targeted spaces for public terrace

Leveling the slope

Horizontal access through pathways

Vertical access through stairs
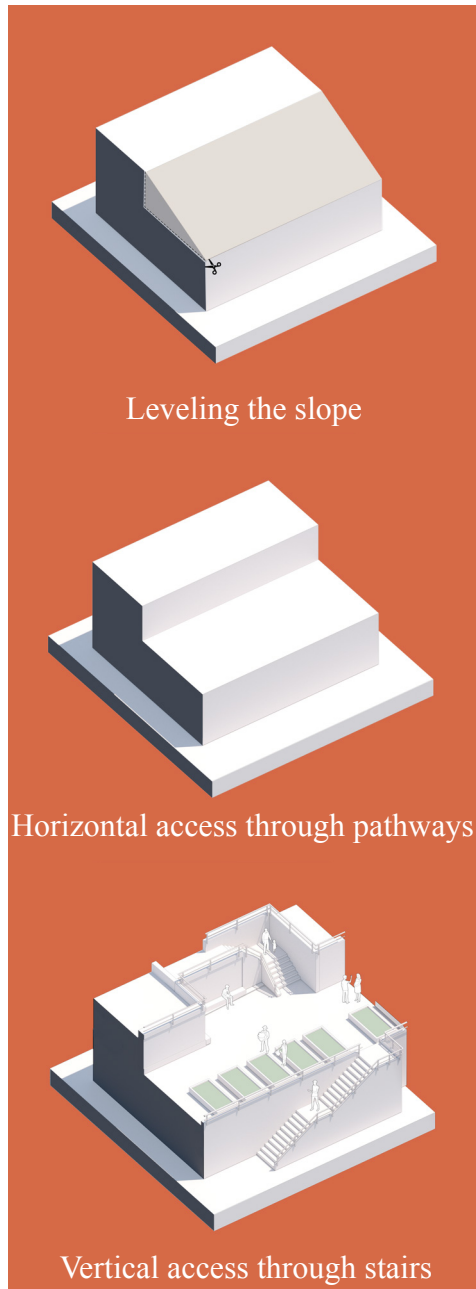
Fig. 3.17 Concept diagram of community terrace

Furthermore, by creating a series of these steps in the width of the site, the walk to the shopping center will be more convenient. In the current situation, the pedestrians have to circle around the site to get to that location or take unsafe shortcuts in the deserted land. With this intervention, they will have direct access through the series of stairs from the top to the bottom of the site.
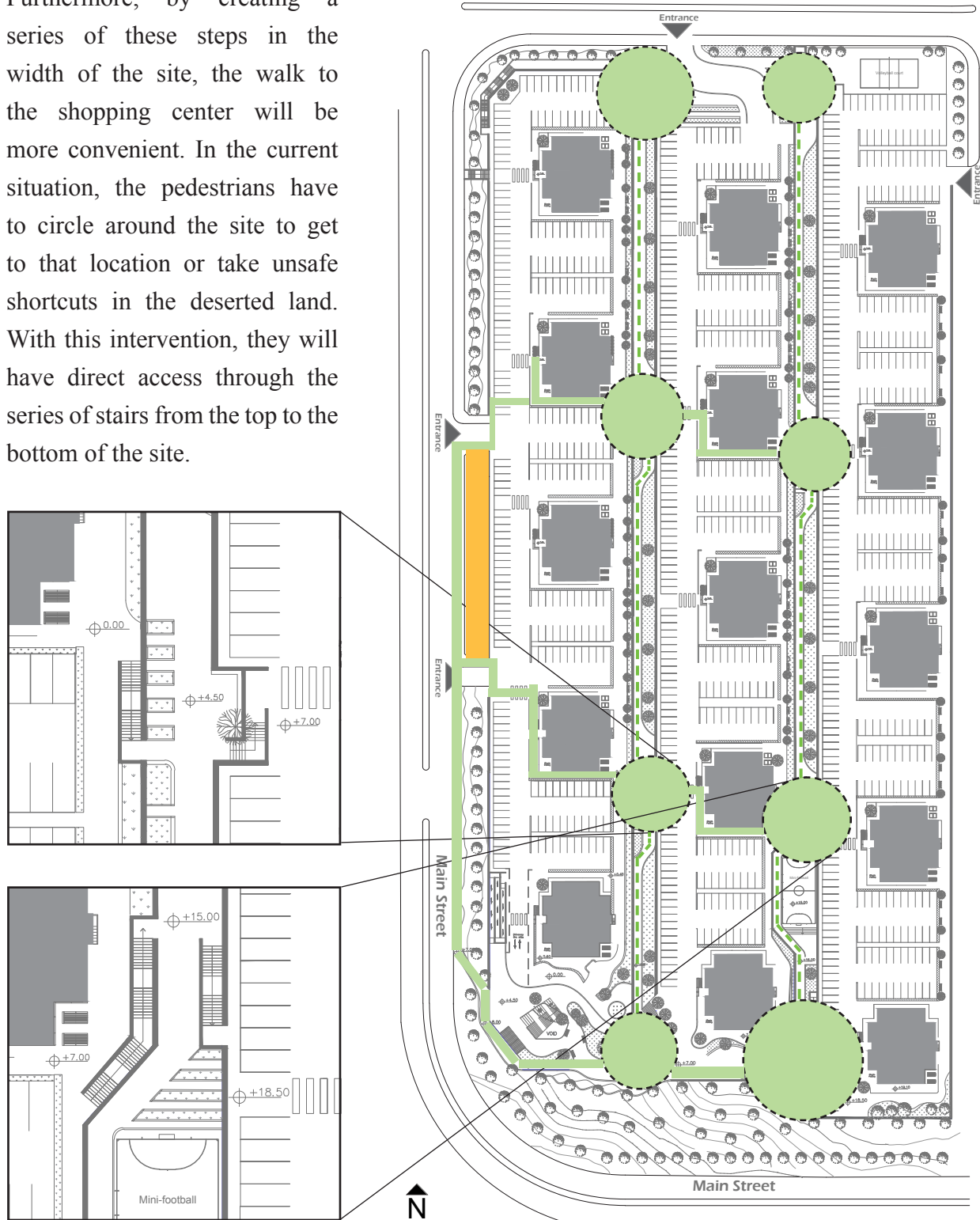
Fig. 3.18 Location of stairs and pathways on the site

Fig. 3.19 View of terrace and community gardens

Community gardens incorporated in these spaces will attract different groups of people, especially women and children of different levels of the landscape together. In addition, shadow study is done to ensure that vertical and community gardens receive enough daylight throughout the afternoon hours while gathering spaces get sufficient shadow during the rest of the daytime.

22 March, 10 a.m

22 June, 10 a.m

22 September, 10 a.m

22 March, 1 p.m

22 June, 1 p.m

22 September, 1 p.m

22 March 5 p.m

22 June 5 p.m

22 September, 5 p.m
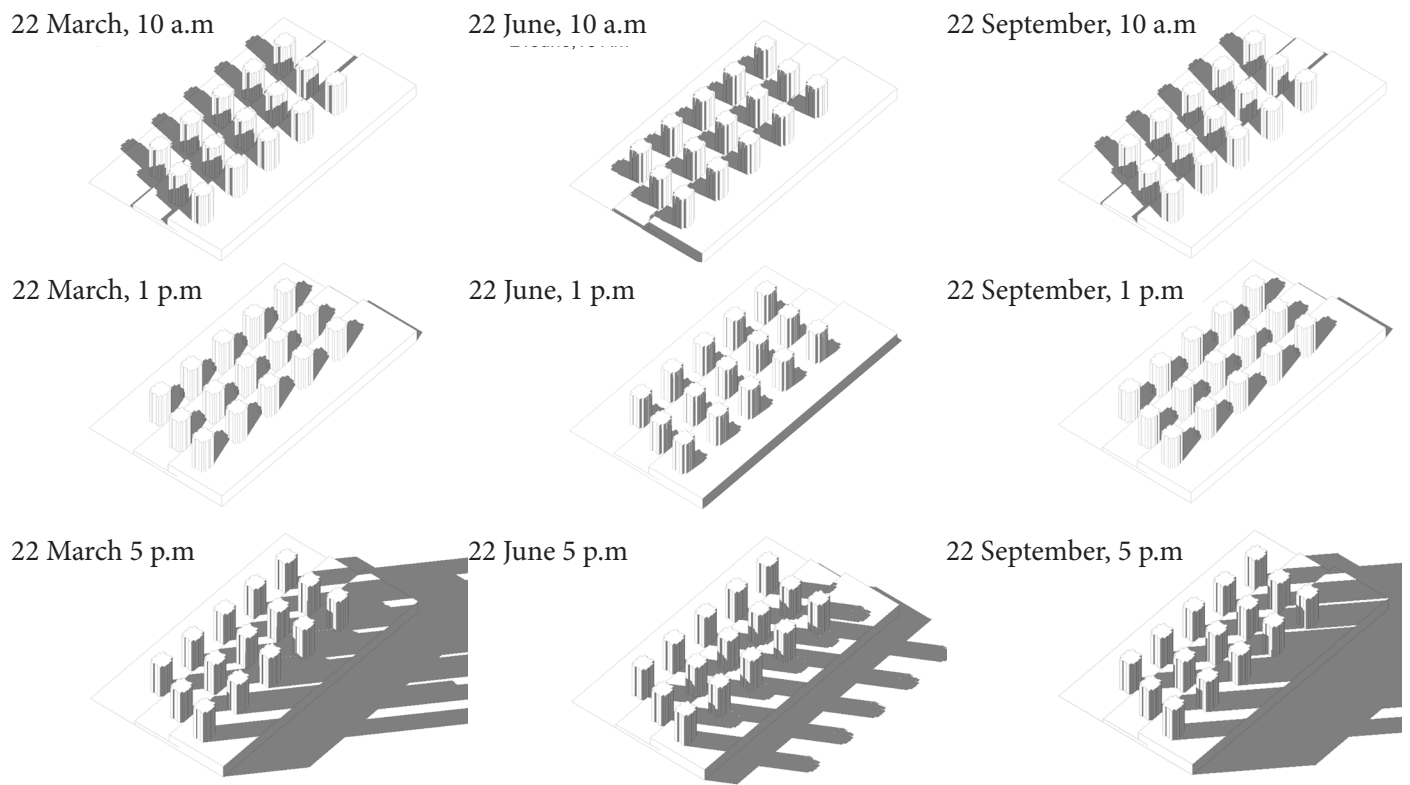
Fig. 3.20 Shadow study of the site

Fig. 3.21 Stairs and gathering spaces on the terrace

Climate study is conducted in the preliminary phases of design to satisfy the climate-responsive approach of the design. Pardis climate is similar to Tehran with higher elevation in some areas. Therefore, Mehrabad, Tehran climate data is extracted to provide better comfort in the outdoor spaces as well as using the proper materials that are compatible with the climate. According to the data, Pardis has a cold semi-arid climate with long hot and dry summers and relatively cold winters. In summer, sometimes the temperature is as high as 40 °C which requires proper shading elements for landscape design. Also, dominant wind in Tehran blows from the West to the East throughout the year.
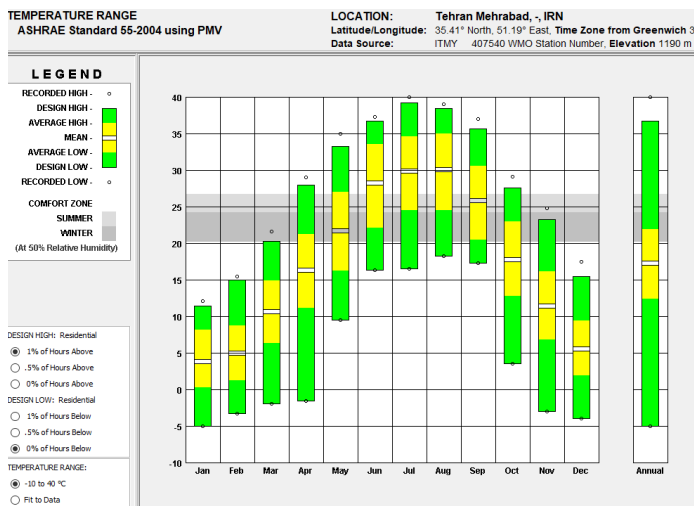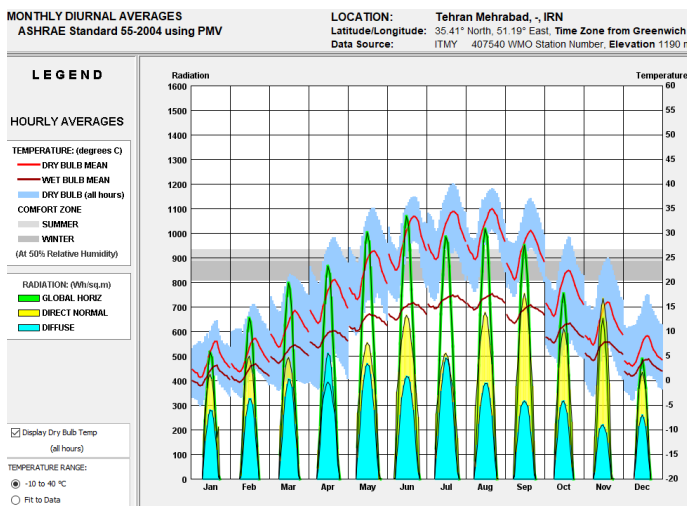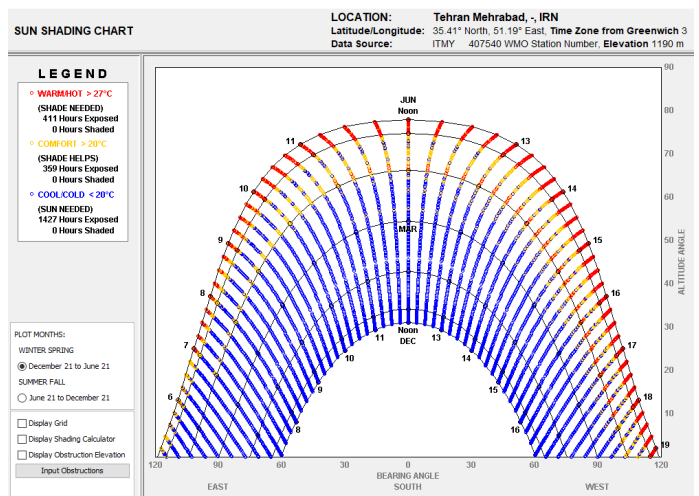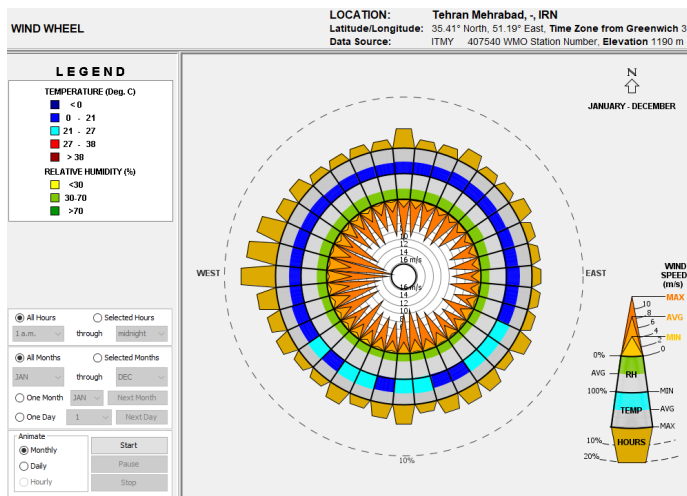
Fig. 3.22 Climate study of Tehran

Another alternative pathway on the site can be the leftover spaces on the east side of the buildings in the spaces between the walls and the buildings. Also, the exterior corners of the buildings are ideal spaces for a more private gathering space. By incorporating basic landscape materials and vegetation, the pathways will become a safe and quiet enclosed space along the site borrowing the features of traditional passages in the Iranian neighborhood

Fig. 3.23 Space for alternative pathways
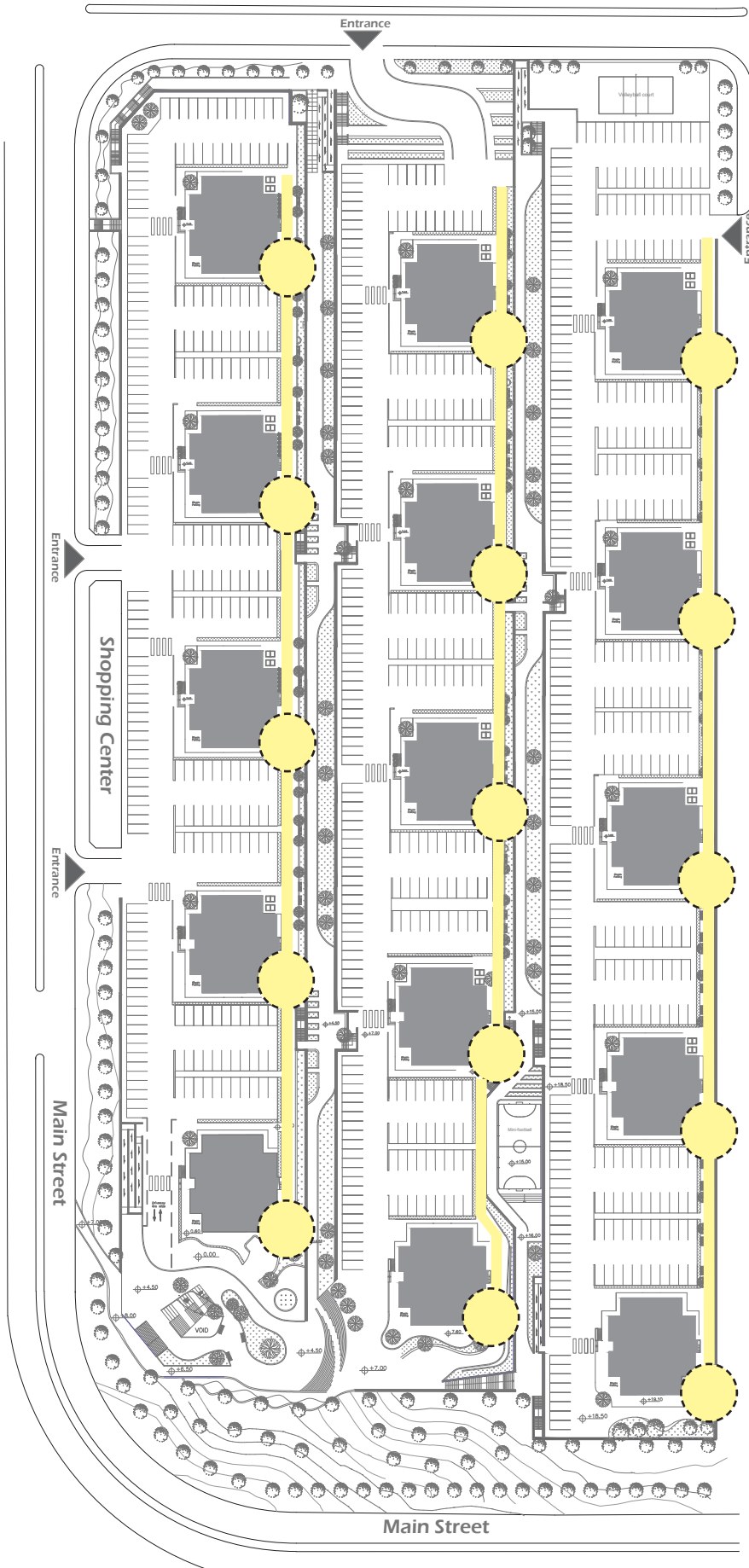
Fig. 3.24 Location of the alternative pathways and repurposed corners

Fig. 3.25 Repurposed alternative pathway between the buildings and the walls

In dense urban areas such as Pardis, the Iranian housing typology is transforming from townhouses with courtyards to multi-story apartments. In the new design of the landscape, the exterior corners of each building are reimagined as a comfortable backyard for neighbors of each building so that people, especially elderly people can use these small gathering spaces with minimum effort. These spaces furnished with recycled construction materials provide enough shadow for a comfortable gathering. Moreover, the bases of the buildings are used to create spaces with similar features for all groups of neighbors. The buffer zone created by these spaces around the buildings mediates the transition from the residential space to the public. The concept which was neglected in the current design of the neighborhood.
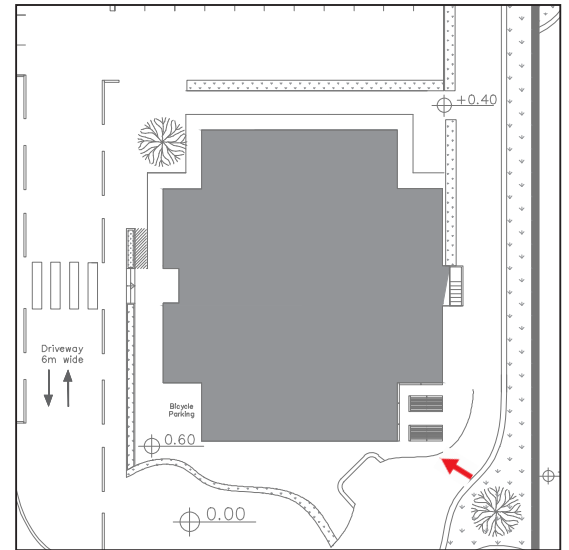
Fig. 3.26 Corners and base of the buildings used as public spaces

Fig. 3.28 Transition from residential to public space

Fig. 3.27 Transition from residential to public space

Activity as attraction is another major concept of the design. In the existing condition, due to the presence of parking lots around the residential towers, there is not enough space to design a public space on the ground level. However, these spaces can be designed on a higher elevation. This could also help with mediating different elevations and potentially create pedestrian access to other levels. Another benefit of this approach is that by shifting the cars away from the buildings and putting them underneath the public space, the buffer zone between the private spaces of buildings and the street is expanded. As a result, more spaces can be incorporated in the landscape.

Fig. 3.29 Targeted areas for the multipurpose public space

Shifting parking spots away

Pedestrian buffer zone

Vertical and horizontal access

Fig. 3.30 Concept diagram of the public space
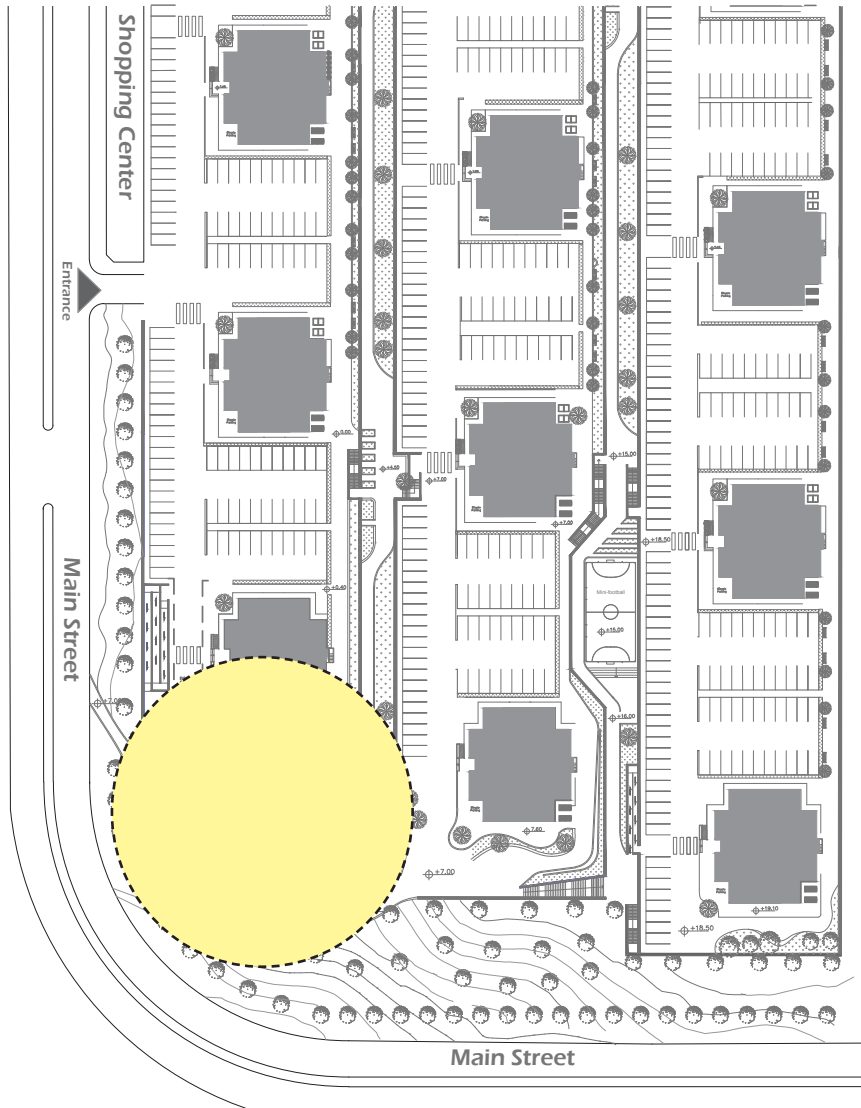
Fig. 3.31 Location of the repurposed public space
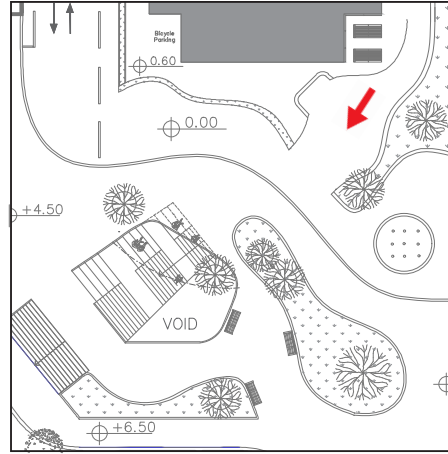
Fig. 3.32 Buffer zone between the parking lot and residential area

Different types of limestone are chosen for paving and other landscape uses in this proposal. As mentioned in the climate study, the hot and dry weather during long summers requires a material that decreases the heat of the environment. Additionally, stone's durability makes it a suitable material for areas with vehicular and foot traffic such as driveways and public terraces. Furthermore, both stone and cast-in-place concrete are extracted and executed locally which makes them affordable for the limited budget of Padis.

Fig. 3.33 Repurposed parking lot

A children's playground is located in the expanded buffer zone between the new parking lot and the residential tower. This safe space adjacent to the residential units compensates for the lack of facilities for children's entertainment; a space that forms the integral spatial characteristics of the Iranian neighborhood. The water feature and vegetation in this playground which is inspired by the concept of the Iranian garden and pond add to the spatial value of this space as well as providing a cooling effect in the hot summer days.

Fig. 3.34 Children's playground

The outdoor terrace on top that the parking spots connect the two levels of the neighborhood as well as people from all around it. It is the new hub of the neighborhood that acts as a multipurpose public space where social activities and events happen such as playing sports, art performances, and family picnics in the green spaces.

In the current design, accessibility requirements are completely neglected. In the new design proposal, different types of accessibility ramps are located throughout the site on all of the levels to make the neighborhood accessible for everyone.

Fig. 3.35 New multipurpose public space
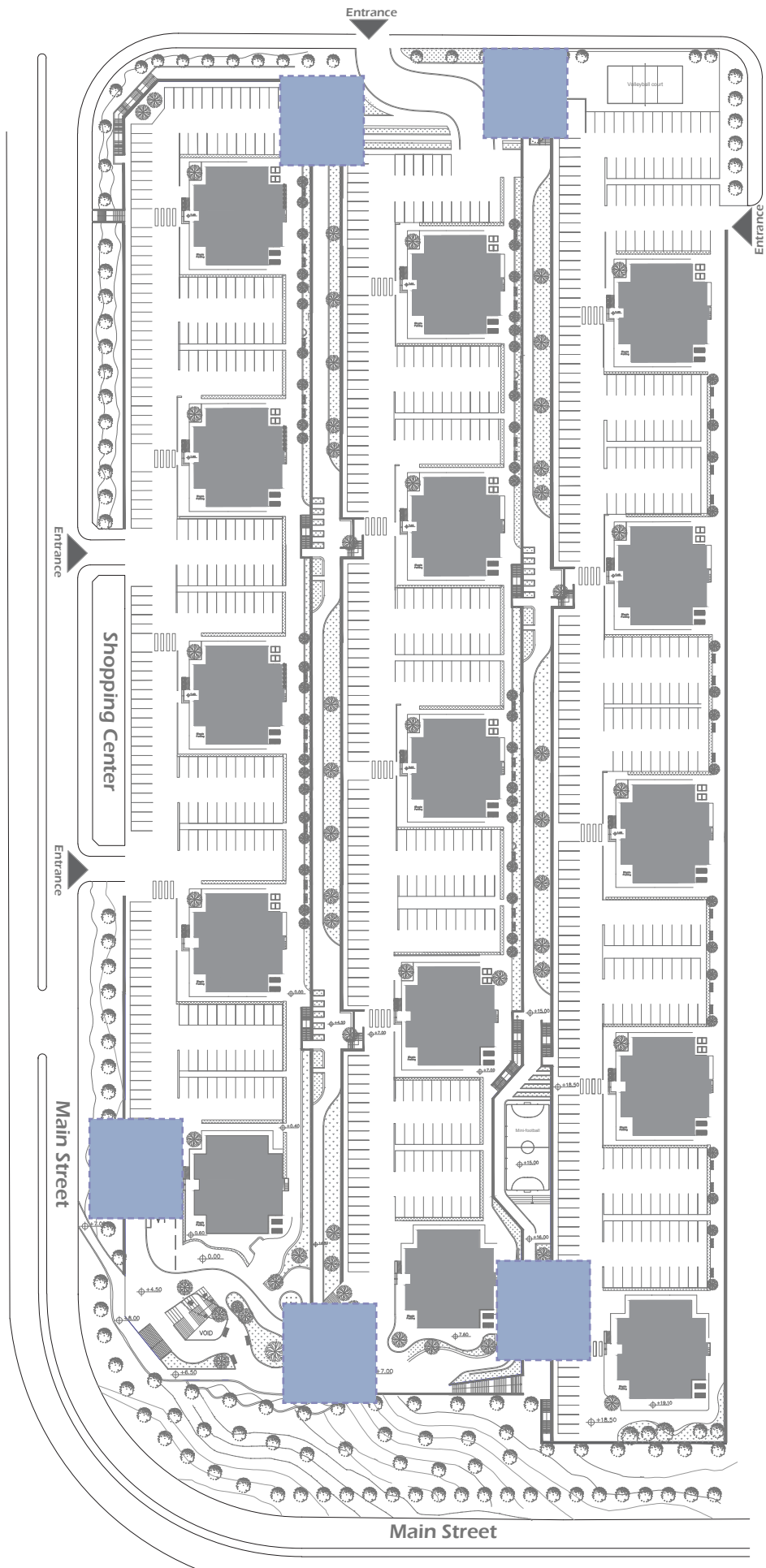
Fig. 3.36 Accessibility ramp locations

Since the water resources in Iran are scarce, the vegetation types are chosen in a way that requires less water and maintenance during the year such as European ash, Tree of heaven, Pine, box flowers, and so on. These types are the most common sort of vegetation in the Iranian neighborhoods with the same climate as Pardis. Also, fruit trees such as pomegranate are chosen for the more private spaces such as the alternative pathways between the buildings and the retaining walls.
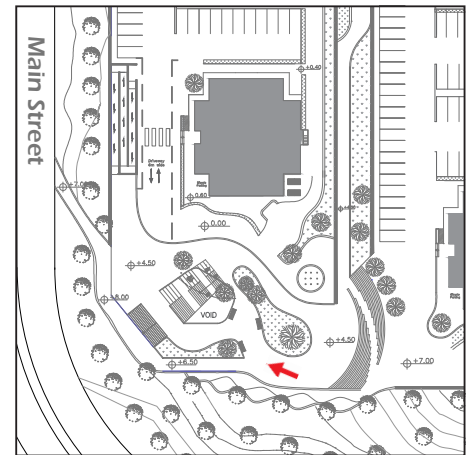
Fig. 3.37 Interior view of the new public space

All of the residential buildings have direct access to this repurposed public space through stairs, ramps, and pathways that were previously presented in this chapter. This network of connections and new spaces change the current desolate landscape of the neighborhood by easing pedestrian access and bringing numerous social activities to the site. Eventually, these interventions will encourage people to come out of their homes and enjoy a more desirable neighborhood that they can relate to.

Fig. 3.38 Bird view of the neighborhood

Conclusion

Mehr housing development in Iran which was initiated over a decade ago now accommodates over one million citizens throughout the country. The urban planners' and decision-makers' neglect of inhabitants' social needs has brought serious challenges to their normal life. Needless to say, the aftermath of this brutal urban development will be devastating for society. Thus, improving their quality of life in the outdoor spaces between the buildings in the neighborhood will hinder the forthcoming irreversible sociological issues and eventually prevent the new town projects across the country from gradual evacuation and failure.

The Iranian neighborhood has always been known for its dynamic environment and special cultural characteristics that create a strong bond between the inhabitant and the neighborhood. Referring to those values and spatial elements that represent them could bring back the people of Pardis to their neighborhood and themselves.

This thesis incorporated the concept of Iranian neighborhood and applied them in the interstitial spaces on the landscape level of Pardis new town by proposing affordable modes of connection that potentially generate social activities within the neighborhood to tackle the issue of isolation in Pardis. This prototypical sort of intervention that is tailored for Pardis special topography was tested in one neighborhood, but it can be applied to other similar examples in any other affordable housing development with the same layout and landscape features.

The landscape interventions followed three main concepts; they were culture-oriented, meaning that they provided spaces and potential for activities that have their roots in the culture of the Iranian neighborhood. Additionally, design ideas were climate-responsive to provide efficiency and comfort for the residents in the outdoors. Finally, the thesis brought affordable solutions to the existing challenges. The design is inexpensive enough to persuade the government to execute it while bringing significant changes to the landscape of the site. The design interventions in this thesis bring back the characteristics of an Iranian neighborhood that Pardis is missing at the moment. Reimagining Pardis neighborhood by recreating the genuine Iranian neighborhood features that every citizen could relate to, will finally make the inhabitants feel at home and call it their neighborhood.

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