Life in a high-rise: surveying opinions and expectations on social housing in Turkey

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ABSTRACT: What does encourage people to spend their time outdoors of their residences? Is it the weather? Is it the enclosure? Is it the safety of their neighborhood? Currently, the Turkish government faces social and spatial disintegration in urban areas. Different ethnicities, beliefs and income levels in the cities divide society. In the last decades, the Turkish Mass Housing Administration - known as TOKI – has altered the silhouette of old low-rise dense neighborhoods with tall apartment buildings. Moving into vertical developments, low-income populations deal with new urban lifestyles. In the past, picturesque streets and little squares with full of activity allowed inhabitants to hang around with family and neighbors. In the present, the TOKI developments are characterized as possessing anonymous areas, that are the un-planned remains of the towers' footprints. Have these urban and architectural circumstances exacerbated the lack of social cohesion in communities all around the country? Through a case study in a TOKI project in the city of Gaziantep – in southeastern Turkey, this research illustrates the current conditions of indoor and communal ground-level areas of this project. Interviews and observations make evident the need to energize these communities exploring climate-responsive design alternatives. Such solutions would alleviate the outdoor thermal stress in this hot and dry climate (particularly in summer). This paper aims to review the current conditions of social housing in Turkey, and the significance of communal outdoor spaces. Survey data makes evident that interaction between people can be enhanced by placing well-defined outdoor. Through a more pleasant range of temperatures and shading regions, communal outdoor areas help communities improve experiences inhabiting and sharing these spaces with others. They stimulate urban vitality, and shape well-defined neighborhoods with participatory and well-aware residents.

KEYWORDS**:** survey, urban form, communal outdoor spaces, social housing, Turkish Mass Housing.

INTRODUCTION

Many publications and researches in social sciences, environmental studies have criticized different aspects of Mass Housing Administration in Turkey. One of these criticisms is about the high-rise typology that TOKI proposes. In the results of slum clearance in cities -as a part of "urban regeneration" process- housing demand has been purportedly solved through TOKI's vertical towers for nearly 35 years in Turkey. While criticisms mention about the human scope of relocation, forcing people to move into towers from low-rise neighborhoods. These people have to change jobs, schools, and neighbors leaving their houses. Exploring what people currently living in TOKI residential developments think is the core of this study.

In this sense, this research uses interviews as a main part of the methodology. A survey conducted in a TOKI development in Etiler neighborhood - the case study of the research- helps to figure out what their opinions are. This experiment displays the relation between theory and practice and answers these questions:

- Are residents of Etiler neighborhood Project really struggling to adopt this high-rise development?
- Do they prefer a single-story house than a high-rise TOKI environment?
- How these people can calibrate the social implications of relocation?
- Do outdoor spaces of the project provide a well-defined and functional area for social interaction?
- Is it easy to create a community in a TOKI high-rise environment?

- How is the satisfaction level of TOKI residents about living in the project?

Findings help to understand the reasons of need of a community. The importance of an appropriate physical space is obvious when you want to make people go outside, share space and time and be aware and a contributing participant member of this community. Overall, the objective of this paper is to review the current conditions of social housing in Turkey, to stress the importance of a quality communal outdoor areas.

Collected data help to understand demographics of a low-income community and their evaluation about the high-rise typology that is new for them. For that purpose, the paper is designed in three parts. The first part reviews the urbanization process of Turkey and governmental solutions for housing demand. The second part studies a project of the Turkish Mass Housing Administration (TOKI) through a survey conducted in August 2018. The paper is concluded with general guidelines and advises with the light of survey results and observations at the site.

1.0. Urbanization process and solutions to informal settlements in Turkey

Figure 1. TOKI - Mass Housing Authority in Turkey Source: (Martinez, 2008-10)

Since the 1940s, rural migration has increased the demand on mass housing in Turkey. According to Turkish Statistical Institute (TUIK), every year two hundred thousand people immigrated to the urban areas between 1950 and 2008. 12.5 million people which is 29% of the urban population live in informal settlements in Turkey. These numbers mean that serious adequacies in social and technical infrastructure are the results of illegal housing (Turk and Korthals Altes 2010, 26-32). Still today, Turkey faces the effects of a rapid urbanization. Cities cannot answer to the housing problem of people, since the unprecedent immigration surpasses the capacity and resources to provide a formal dwelling production, hence, municipalities cannot provide enough infrastructures and slum areas extended quickly (Senyapili 1998, 301-316).

Like in many other countries, slum areas in Turkey are fragmented and erased. Their residents have been relocated. Their neighborhoods have been torn down in urban public lands under the name of “urban redevelopment” as a political tool which impacted the legislative regulations in Turkey in the 1980s. As a solution to control informal settlements in the periphery of cities - known as “*gecekondu*” in Turkish (Karpat, 1976), governmental initiatives have developed housing solutions by establishing a Mass Housing Authority called TOKI. In the last 35 years, this entity has replicated the model of large-scale high-rise typologies all over the country. Thought to alleviate the housing deficit, these interventions have broken the urban continuity, have isolated neighborhoods and have transformed the traditional lifestyle of people that have moved into vertical structures.

Figure 2. A "*gecekondu"* neighborhood Fatih, Istanbul. Source: (Hacaloglu, 2013)

In 1984, with the law number 2985, TOKI was created with the purpose of providing financial support for new projects, the clearance and transformation of slum areas (Dulgereoglu-Yuksel et al. 2009). TOKI has looked for mass housing alternatives for low and middle-income groups, gathering public funds for urbanization. Since that moment, this agency has developed more than 600,000 units in renewal projects around the country (TOKI 2017). Its models include social housing, disaster housing and slum transformation projects (Devrim 2016, 316-326). Regulations passed in favor of TOKI between 2003 and 2008 has provided financial benefits and power. For instance, "65,808,839 m² of land were transferred to TOKI" by allowing the institute to build projects on state-owned lands (Akcan 2015, 359-378)

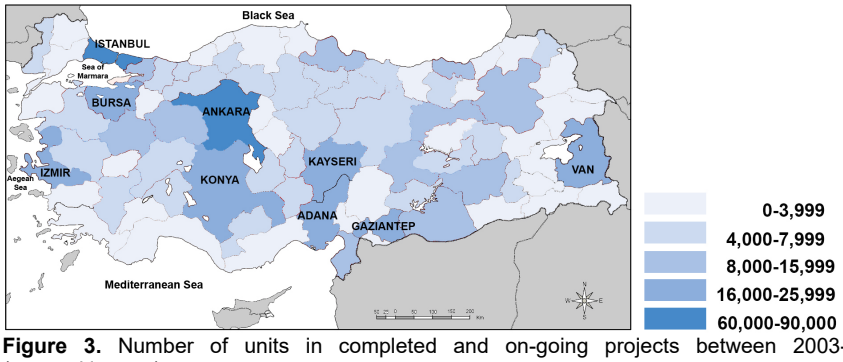

Figure 3. Number of units in completed and on-going projects between 2003-2017. Source: (www.toki.gov.tr)

Concentrated on the main cities, large scale real-estate projects have emerged through investments of private construction companies and subsidized by local governments. Under the scenario of an earthquake destruction, TOKI agency has gained power as a main actor in housing sector (Bozdogan et al. 2012, 848-858). Public-owned lands started to be used for mass housing projects. However, the repetition of the same architectural typology with the use of the same tunnel formwork shows that quantitative and qualitative user needs haven't been properly analyzed and this is a problem (Tomruk, 2009). Limited layout plans made these residential projects lacking functional and aesthetic diversity, while limiting the possibility of different unit size and usage of local natural forces. In this sense, its projects have been criticized for having living areas that overheat in summer and are underheated in winter. Their fenestration and wall assemblies are built under budget restrictions and without clarity about their compliance with thermal standards.

2.0. CASE STUDY: ETILER PROJECT

Throughout a review on social housing projects of TOKI, the most common plan type is identical 4-unit plan configuration. Therefore, in this paper, one of the TOKI projects in Etiler neighborhood is selected as an archetype (Fig.4). This project, built for low income groups in the city of Gaziantep, is studied to display the demographics, residents' evaluation and future expectation about their houses. People, whose former dwellings were demolished during a *gecekondu* clearance of three districts (Turktepe, Etiler and Ozdemirbey), moved into these high-rise towers after the completion of the project in 2012.

Figure 4. Etiler TOKI Project, Gaziantep. Source: (http://www.gaziantephaberler.com)

Etiler Project comprises six tower blocks in an 18.506 m² site. Residents who first moved into these towers in 2012 were chosen by TOKI agency and local municipalities according to the criteria of economic status. As part of this research, the community living in this project was surveyed to know its opinion about the quality satisfaction with indoor areas and outdoor communal spaces. Interviews were carried on August 2018. Visits were scheduled on working days between 10 am and 5 pm. A group of 143 residents representing their households (out of 288 number of families) decided to participate in this survey. Statistics about the gender gives the number of nonworking women of this development. Only 18 participants out of 143 are male. In each unit, the interview was planned to last from 10 to 12 minutes. During this time, a resident answered to a set of 33 questions. Also, according to the orientation of the units, residents were asked about their windows operation (Fig. 5). These statistics about users provide a reference for future alternatives beside proving data of user profile of this specific project.

The obtained questionnaires represent a distributed sample of the project. Answers from the different towers (6), stories (12), and orientations (8) were reported (Fig. 5). The project has 288 identical housing units. Each one has two bedrooms, one living room, one kitchen and one bathroom, and one balcony as a transitional space. 58% of all interviewees are the first occupants of their units. Majority own their apartments. Since the area is scarce for many residents, most of them, which are owners, tend to make some changes in plans. Therefore, the survey explores the family sizes living in this project under a same residential layout. Statistics give an important clue about the demand of variety in housing units. If the number of large families (more than 4 members) is considered, it is obvious that 2-bedroom units of Etiler Project do not meet the spatial needs of those big families.

Related to the size of families, a larger distribution is found. Instead of having a unique apartment type, families with 1-7 persons have to live these same 2-bedroom units (built area of 82 square meters). However, the most common family type contains 4 or 5 members (21% and 25.9% respectively). Larger families occupy more than 16% of apartments. (Fig. 6). Overall, outdoor spaces seem to be the only choice for these families not just to interact but also to alleviate the overloaded use of apartments at times of the day. Similarly, statistics about number of children that live in Etiler Project are useful to determine the scale of social organization (such as formal and voluntary associations) that the neighborhood needs to.

Understanding the family as a growing entity, the survey investigates the previous residence that these households had before arriving into this mass housing project. As a common answer, it was obtained that larger families were living previously low-rise informal developments. Nearly 40% of families with more than five members lived in one-story residences before arriving to the TOKI Project. The adaptation to living in a smaller unit, without open private spaces, and without major climatic possibilities, represents the problems of these families when moving into a high-rise building.

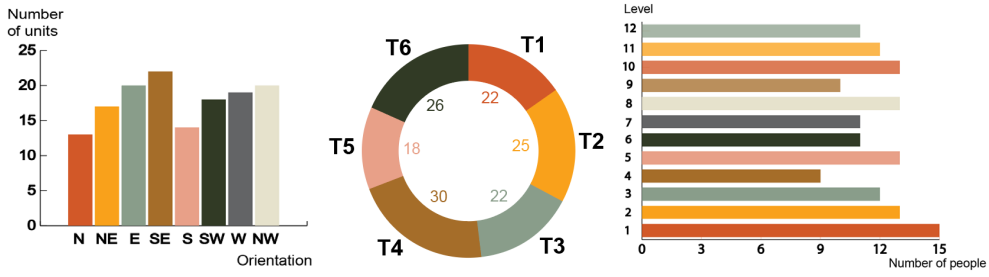

Figure 5. Number of interviewees according to the tower and level that they live. Source: (Author 2018)

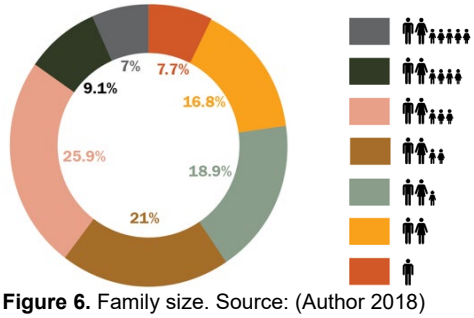

Figure 6. Family size. Source: (Author 2018)

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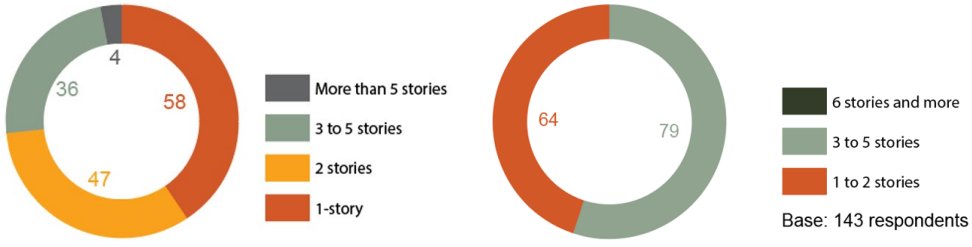
Results show that 73% of interviewees lived in 1 or 2-story buildings in the past (Fig. 7). Only 4 out of 143 people used to live in buildings more than 5 stories. However, small families which have more available domestic areas also complain about the tower surrounding areas. These are non-functional spaces that end in most of the times as surface parking plots. Most of surveys express that as a main consequence of living on high-rise residential building is the community's disintegration. Residents believe that this is originated by the absence of central spaces that can serve as communal services such as recreational, cultural and social areas.

The TOKI mass housing projects have been characterized by a low retention rate by families who really seek other long-term residences. It is a common aspect that families that inhabit in TOKIs after a couple of years of dwelling in these buildings look for a more appropriate residence that meet their needs. As a priority, families intuitively look for projects of smaller scales. Therefore, one of the most certain answers when families are questioned about their expectations for a residence after the TOKI is connected to the desire of living in mid-rise developments (Fig. 7).

The following part of the survey is related to natural ventilation questions. For instance, questions about ventilation methods of users helps this study to understand their adaptability level. In this TOKI project, 16% of families declared that they had an air conditioning unit in one of their rooms. However, only 6% of those uses the AC unit as a cooling method when the summer mean temperature is between 29 to 34 Celsius degrees. This pattern explains residents' tolerance level to hot temperatures compared to people who depend on mechanical ventilation. Opening windows to enhance cross winds through the units is the most used

alternative. When asked about pointing the windows used for ventilation purposes, answers explain the trends in window operation and schedules in day and nighttime.



"Our neighborhood relations were strong before. Now, I don't know anybody."
"I would be happier if we lived in 4 or 5 story building."
"We didn't use to live in this kind of building." (Highrise)
"It is really crowded. All kids are playing in corridors, elevators, stairs. It is hot outside for them to play but they generate a lot of noise here. Also, outside areas are used for parking and dangerous for them."
"It is impossible to keep the building clean since there are 48 apartment units."
"Only children spend time outside here, in playground. There is no place to sit and nothing to do outside."

Figure 7: Story of previous residence (left) and future preference of a residence to live after the TOKI residence (right). No surveyed expressed a decide of living in more than five stories. Source: (Author 2018)

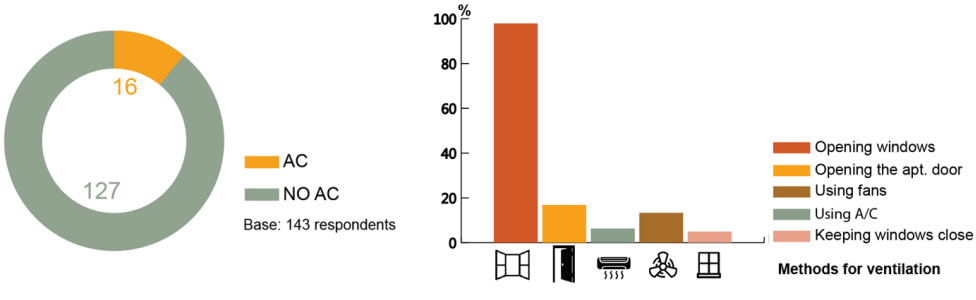


Figure 8. A/C ownership (Numbers indicate number of responses) and methods for ventilation. Source: (Author 2018)

In each unit of this project, there are four window openings (one per each room) on two façades. Each block has 14.5 % of opening area which is 536.5 m². The exterior wall area of a tower is 4615.9 m². While two bedrooms and the living room have one operable window, there is not any windows in the kitchen. However, a balcony door is the only opening in this space. During daytime more than 95% of families use the balcony door for cross ventilation. Overall, it is the most used opening for both daytime and night ventilation. As predicted, windows in bedrooms are being opened more at nocturnal time. However, they are also used in mornings and afternoons by more than 65 % of families. (Fig. 9)

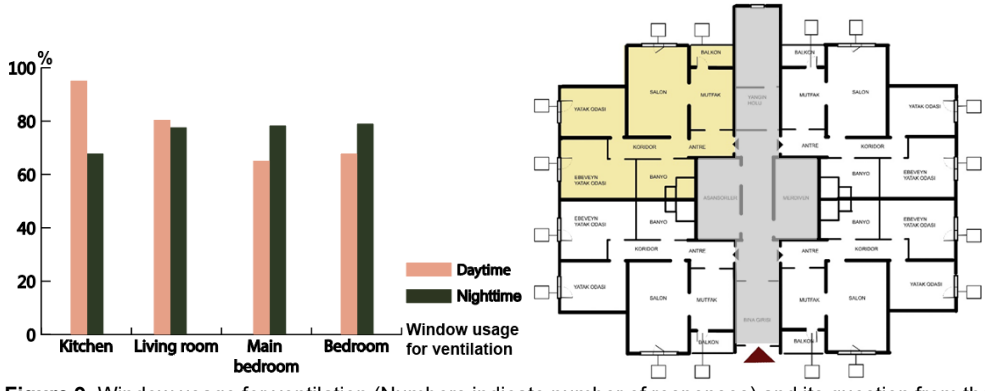


Figure 9. Window usage for ventilation (Numbers indicate number of responses) and its question from the survey. Source: (Author 2018)

Considering these results, it is seen that nearly 35% of families modify balconies and enclose them by PVC profiles and glass panes. However, they continue to use this opening for cross ventilation. Survey data shows that air movement desire on the indoor environment is averaged on “no change” with 80% of families for hot period of a year when average outdoor temperature changes from 29° C to 34° C (Windfinder). This unpredicted result emphasizes the strong connection of residents’ thermal sensation adaptability with outdoor temperatures in this region.

Example of a survey question: *Did you close your balcony with PVC profiles? If yes, please indicate the reason(s)?*
“The house is small, and the balcony as well. We cannot put a table to sit with somebody. So, we closed it with a PVC window frame. Now, we are using it as a storage”.

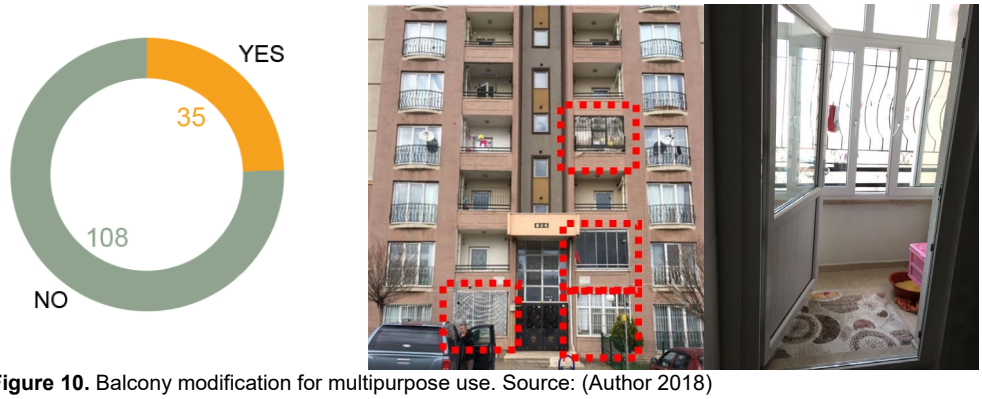


Figure 10. Balcony modification for multipurpose use. Source: (Author 2018)

The scale between -3 and 3 indicates that satisfaction level about indoor areas in units and outdoor spaces. 57% of 143 residents are very dissatisfied in outdoor areas when this number is lower for unit satisfaction. While only 1% of people feel very satisfied for indoor and outdoor environment, nearly 50 percent of interviewees defines their perception as slightly dissatisfied.

Thermal Sensation and Clothing Value for winter and summer are explained through Figure 12. In winter, the predominant trends show that nearly 75% of people expresses ‘warm’ as a Thermal Sensation. In summer, 38.5 %of people define their thermal sensation cooler than neutral which only 1.4% of residents expresses as.

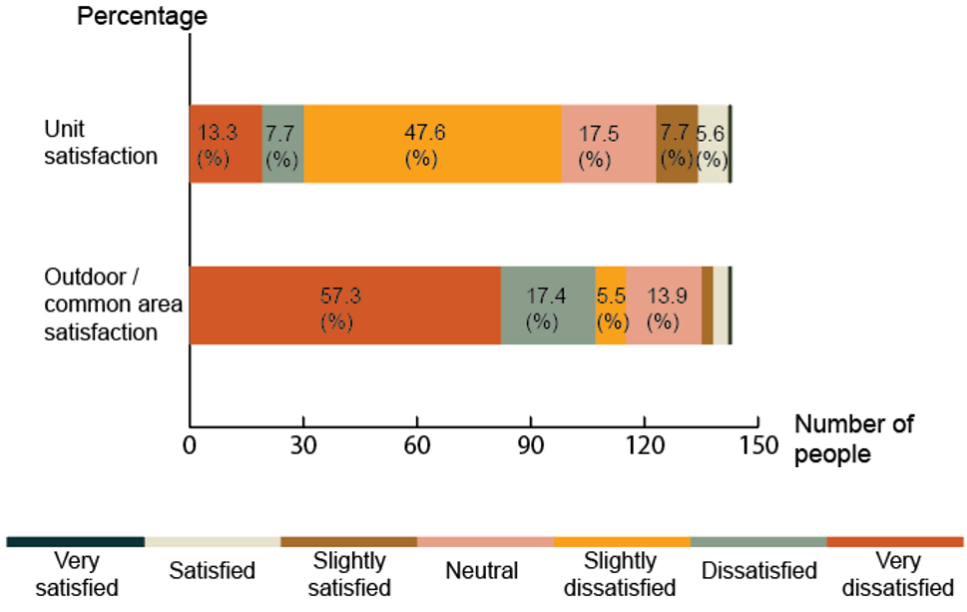


Figure 11. Overall satisfaction for units and outdoor areas of the project. Source: (Author 2018)

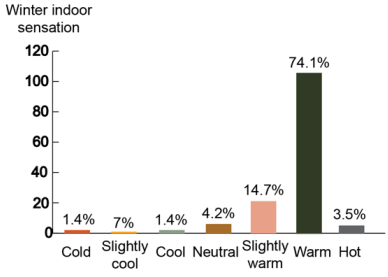
CONCLUSIONS

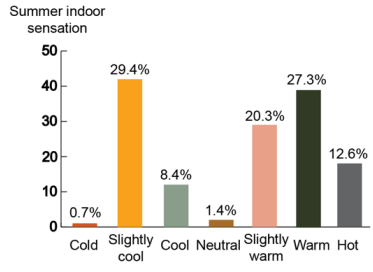
This paper reviews the current conditions of social housing in Turkey while bringing the residents' evaluation up through a case study and interviews. Slum clearance through "Urban Renewal" operations and quality of TOKI projects as new dwellings for people, are controversial topics among architects, urban planners and academics in Turkey. A review of the issue via surveys shows that TOKI buildings have a limited possibility on spatial diversity. Constantly, residents complain about lack of community and social life which according to opinions is a consequence of outdoor discomfort. Resolving the housing problems of the Etiler Project residents through a participatory process can help to provide a better understanding of their expectation. It is essential for implementable and sustainable possibilities in new TOKI projects.

In the TOKI project, surveys demonstrated deficiencies in ventilation abilities, resulting in indoor discomfort. TOKI urgently needs to improve the quality of mass housing, not only for structural durability but also for social and environmental sustainability by providing more habitable residential areas to deal with extreme climates. This group of residents also complained about large amount of unused ground spaces, it exemplifies the scale of TOKI interventions through on state-owned lands. It questions if it is possible to come up with different typologies to create communities.

Large scale intervention in urban areas by TOKI should be reconsidered. Architects should be able to propose lower density design proposals with adequate communal areas. These features would better fit into the urban dynamics of Developing Countries.

Perimeters of connected blocks create access points for pedestrians by providing an access and transforming a closed private interior into a semi-public transitional space. These communal gardens provide an intermediate space between streets and built environment. These recognizable domestic spaces will bring dynamism. Also, using a midrise typology will help to recover the link between street and dwelling which does not exist in TOKI towers.





CLOTHING VALUE

Winter		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Light	6	4,2	4,2	4,2
	Light	72	50,3	50,3	54,5
	Heavy	59	41,3	41,3	95,8
	Very Heavy	6	4,2	4,2	100,0
	Total	143	100,0	100,0	

Summer		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Light	54	37,8	37,8	37,8
	Light	87	60,8	60,8	98,6
	Heavy	2	1,4	1,4	100,0
	Very Heavy	0	0	0	0
	Total	143	100,0	100,0	

Figure 12. Winter/summer indoor sensation and clothing preferences. Source: (Author 2018)

In light of these survey data and the resultant literature on resident satisfaction, this research recommends that the following new principles in order to ensure higher satisfaction of residents in TOKI providing well-being for adults and children.

1. Building Type:
   - Instead of using 12 stories, similar densities (people/hectare) could be obtained through configuration of 3 to 5 stories. As interviews show a mid-rise typology with communal outdoor areas can be easier to keep the connection with outdoor environment.
   - Even small-scale modifications of building geometry and typology can influence habitability of residential areas. The integration of communal areas into the built environment as transitional spaces, may provide a shaded meeting point for pedestrians to gather socialize. When these well-defined and functional outdoor spaces have attractions to public use and give users reasons for crisscrossing paths, people start using them voluntarily. Thus, strong community connections may randomly occur. Therefore, spaces between TOKI towers stop presenting themselves as large voids.
   - Residents' expectations about a space for social and cultural activities proves the need of communal services such as a daycare would help children of the community.

2. Outdoor Spaces:
   - Vehicular access should be rearranged to have better recreational area. The current urban layout does not allow people to have pedestrian-friendly routes and provide safety for children by carrying vehicular roadwork from inside to outer parts of the project away from where people gather.
   - Public spaces and amenities enhance social mixing and upgrading the quality of space. If the zoning allowed the residents to incorporate small businesses on the ground floor, commercial part of the project can help to have livelier outdoor space by calibrating the social implications of relocation.

3. Indoor Environment:
   - Results show that a residential project should provide different unit types for various family sizes.
   - Since buildings do not have any mechanical conditioning for cooling, especially in this hot and dry climate, residents struggle to obtain comfortable indoor environments. Without success, they try to enhance the air movement though their units as a manner

to reduce temperatures. Thus, openings which are located in adjacent facades in the Etiler Project should be located on opposite facades to increase the performance of cross ventilation.

- Transitional spaces such as balconies, terraces, courtyards and galleries could be reinterpreted to improve passive conditions.

When urban activist and New York historian Jane Jacobs explains what makes a community and what makes a city livable, she indicates an active, involved and aware neighborhood. She talks about safety as a basic notion comes from “eyes on the street”. She mentions the importance of urban vitality which also comes from residents’ participation. However, as she mentioned, if people don’t have any reason to use streets, you can’t make them use (Jacobs 1961, 105-109).

LIMITATIONS

This research does not include residents of all TOKI projects in Gaziantep and can thus not be generalized to all of hot and dry climate regions of Turkey. Interviews with residents have included a broader understanding and concern for the many issues that surround this TOKI development.

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