USER SATISFACTION ANALYSIS OF POST-DISASTER PERMANENT HOUSING: CASE OF ELAZIĞ

ZEYNEP AHSEN DENİZHAN

SEPTEMBER 2023

ÇANKAYA UNIVERSITY

GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF INTERIOR ARCHITECTURE

M.Sc. Thesis in

INTERIOR ARCHITECTURE

USER SATISFACTION ANALYSIS OF POST-DISASTER PERMANENT HOUSING: CASE OF ELAZIĞ

ZEYNEP AHSEN DENİZHAN

SEPTEMBER 2023

ABSTRACT

USER SATISFACTION ANALYSIS OF POST-DISASTER PERMANENT HOUSING: CASE OF ELAZIĞ

DENİZHAN, Zeynep Ahsen

M.Sc. in Interior Architecture

Supervisor: Assoc. Prof. Dr. Çiğdem BERDİ GÖKHAN

September 2023, 106 pages

Post-disaster housing is one of the most crucial concerns for design, architecture and construction professions. Each year, thousands of people are affected by natural or artificial disasters, and many are left homeless due to the destruction caused by the disaster. Post-disaster permanent housing stage is very important to identify how disaster victims adapt and evaluate their new living spaces by considering their previous houses and living standards and the time they spent in temporary shelters and housing units following the earthquake. This thesis examines the satisfaction level of earthquake victims living in post-disaster permanent buildings through the 24 Jan 2020 Elazığ Earthquake Case with emphasis on interior use of the spaces. The case study is structured with a combination of quantitative and qualitative data; quantitative data is the analysis of a face-to-face survey conducted in the field, whereas qualitative data is information obtained from experts and field observations made by the researcher. This study demonstrates that the interior architectural features and elements of permanent houses significantly affect the satisfaction levels of earthquake victims, and reveals most dissatisfied aspects are storage areas, kitchen capacity and arrangements. As a result of the study, improvements and suggestions related to earthquake housing were presented.

Keywords: Post-Disaster buildings, Post-Disaster permanent housing, User satisfaction, Elazığ earthquake.

ÖZET

AFET SONRASI KALICI KONUTLARDA KULLANICI MEMNUNİYETİ ANALİZİ: ELAZIĞ ÖRNEĞİ

DENİZHAN, Zeynep Ahsen

İç Mimarlık Yüksek Lisans

Danışman: Doç. Dr. Çiğdem BERDİ GÖKHAN

Eylül 2023, 106 sayfa

Afet sonrası konutlar; tasarım, mimari ve inşaat alanları için en önemli konulardan biridir. Her yıl binlerce insan doğal ya da yapay afetlerden etkilenmekte ve birçoğu afetin yol açtığı hasarlar nedeniyle evsiz kalmaktadır. Afet sonrası kalıcı konut evresi; afetzedelerin deprem öncesi konutlarındaki yaşam standartları ve deprem sonrası geçici barınak/konutlarda geçirdikleri süreyi göz önünde bulundurarak yeni yaşam alanlarına nasıl uyum sağladıklarını ve değerlendirdiklerini belirlemek için çok önemlidir. Bu tez, afet sonrası kalıcı konutlarda yaşayan depremzedelerin memnuniyet düzeylerini 24 Ocak 2020 Elazığ Depremi kalıcı konutları üzerinden incelemektedir. Saha çalışması nicel ve nitel verilerin kombinasyonu ile yapılandırılmıştır; nicel veriler, alanda yapılan yüz yüze anketin analizi, nitel veriler ise uzmanlardan elde edilen bilgiler ve araştırmacı tarafından yapılan saha gözlemleridir. Kalıcı konutların iç mimari özellikleri ve unsurlarının depremzedelerin memnuniyet düzeylerini önemli ölçüde etkilediğini ortaya koyan bu çalışma; depolama alanları, mutfak kapasitesi ve düzenlemelerinin kullanıcı memnuniyetinin en düşük olduğu alanlar olduğunu ortaya koymaktadır. Çalışma sonucunda deprem konutları ile ilgili iyileştirmeler ve öneriler sunulmuştur.

Anahtar Kelimeler: Afet sonrası yapılar, Afet sonrası kalıcı konutlar, Kullanıcı memnuniyeti, Elazığ depremi.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my supervisor Assoc. Prof. Dr. Çiğdem Berdi Gökhan for her guidance, support and understanding throughout this work.

I am thankful to Assoc. Prof. Dr. Ayça Gülten along with Muhammed Emin Demirtaş from Fırat University, for their support and contributions in Elazığ. I would like to offer my thanks to the residents in the study area for their hospitality and sharing their experiences and feelings about the post-disaster permanent houses.

I would like to thank my colleagues Uğur Beyza Erçakmak Osma, Asya Larisa Coutinho Kitapcı and Arda İlayda Sağlam Aktan for their support, motivation and valuable contributions.

I offer sincere thanks to my beloved family, my parents Halil and Ayşe Denizhan; my brother Burak Denizhan along with his wife Tuğba Denizhan for being there for me all the time. I would also like to thank my cat Ivan for his emotional support during stressful times.

Finally, I would like to thank a wise woman; my great-grandmother Zehra Genç, who supported me throughout my education with great-great motivation.

TABLE OF CONTENTS

STATEMENT OF NONPLAGIARISM ..... **iii**
ABSTRACT ..... **iv**
ÖZET ..... **v**
ACKNOWLEDGEMENT ..... **vi**
TABLE OF CONTENTS ..... **vii**
LIST OF FIGURES ..... **ix**
LIST OF TABLES ..... **xi**
LIST OF ABBREVIATIONS ..... **xii**
CHAPTER I **1**
INTRODUCTION **1**
1.1 AIM AND SCOPE OF THE THESIS 1
1.2 RESEARCH QUESTIONS 2
1.3 FRAMEWORK OF THE STUDY 2
CHAPTER II **4**
LITERATURE RESEARCH **4**
2.1 DISASTERS 4
2.1.1 Definition of Disaster 4
2.1.2 Types of Disasters 4
2.1.2.1 Natural Disasters 5
2.1.2.2 Human-Made Disasters 7
2.1.2.2.1 Socio-Technical Disasters 7
2.1.2.2.2 Warfare (Conflicts) 8
2.1.3 Scopes of Disasters 8
2.2 POST-DISASTER BUILDINGS 10
2.2.1 Stages of Post-Disaster Buildings 10
2.2.2 Parameters of Post-Disaster Buildings 14
2.3 PSYCHOLOGY and USER SATISFACTION IN DISASTER CASES 17
2.3.1 Psychology of Disaster Victims 17

2.3.2 Housing Satisfaction in Disaster Cases 18
2.4 PROBLEMS CONFRONTED AFTER DISASTERS 22
2.4.1 Sheltering/Housing 24
2.4.2 Health-Hygiene 25
2.4.3 Food-Water Supply 26
2.4.4 Sewage-Garbage Disposal 27
2.4.5 Social and Psychological Support 30
2.5 DISASTER MANAGEMENT AND REGULATIONS FOR POST-DISASTER PHASES 30
2.5.1 Disaster Management and Regulations Around the World 30
2.5.2 Disaster Management and Regulations in Turkiye 31
CHAPTER III 36
ELAZIĞ EARHQUAKE 36
3.1 GENERAL INFORMATION OF THE CASE STUDY 36
3.1.1 Methodology of the Case Study 36
3.1.2 Elazığ Province 37
3.1.3 24 Jan 2020 Elazığ Earthquake 38
3.2 USER SATISFACTION ANALYSIS OF POST-DISASTER PERMANENT HOUSING 40
3.2.1 Case Study: Çatalçeşme District 40
3.2.2 Site and House Types 41
3.2.3 Observations 45
3.2.4 Survey 48
3.2.5 Survey Analysis 49
3.2.6 Comments and Interviews 71
3.3 RESULTS AND DISCUSSION 73
CHAPTER IV 79
CONCLUSION AND SUGGESTIONS 79
REFERENCES 82
APPENDICES 86
A1: Survey Questions 86

LIST OF FIGURES

Figure 1: Framework of the Study 2
Figure 2: "Shiftpod" Shelter by Christian Weber 11
Figure 3: Temporary Housing Units by Garrison Architects 12
Figure 4: Living area of the Temporary Housing Units by Garrison Architects 12
Figure 5: Permanent Housing designed by Rural Urban Framework 13
Figure 6: Masterplan of Jintai Village 13
Figure 7: An Exterior Scene by Rural Urban Framework 14
Figure 8: A Conceptual Model of Users 'Long-Term Satisfaction with Post-Disaster Permanent Housing 21
Figure 9: Unorganized Food Delivery in Earthquake Area 27
Figure 10: Portable Toilet Overflow Due to Intensive use in Hatay after 6 February 2023 Earthquake 28
Figure 11: Garbage Spread in Hatay after 6 February 2023 Earthquake 29
Figure 12: Plan of Temporary Container Housing Units 33
Figure 13: Exterior of the Temporary Container Housing Units 33
Figure 14: Living Area and Bedroom Entrance of the Post-Disaster Containers 33
Figure 15: Living and Kitchenette Area of the Post-Disaster Containers 34
Figure 16: Bathroom Area of the Post-Disaster Containers 34
Figure 17: Location of Elazığ Province 37
Figure 18: Location Map of Sivrice-Elazig (Ml=6.6) Earthquake 39
Figure 19: Estimated Severity Map after Earthquake 39
Figure 20: A Demolished Building after the 24 Jan 2020 Earthquake in Elazığ 40
Figure 21: Location of Çatalçeşme District 41
Figure 22: Çatalçeşme Houses 42
Figure 23: Site Plan of Çatalçeşme District 42
Figure 24: Type B House Floor Plan 43
Figure 25: Type B Building 43
Figure 26: Type E House Floor Plan 44

Figure 27: Type E Building 44
Figure 28: Permanent Houses in Çatalçeşme..... 45
Figure 29: Children's Playground and Near Environment 46
Figure 30: Drains without Covers on the Building Site..... 46
Figure 31: Repaired Pavements 47
Figure 32: Plaster Finishing Defects on the Interior Wall 47
Figure 33: Wallpaper Removal and Repairing in one of the Houses..... 48
Figure 34: Washing Machine Niche as Extra Storage Area 48

LIST OF TABLES

Table 1: Disaster Scale of Destructive Events With Examples 9
Table 2: User Satisfaction Related to Site Selection After Earthquakes Occurred in Turkey 19
Table 3: Weather Averages in Elazığ..... 38
Table 4: Distribution of the Participants According to their Demographic Characteristics 49
Table 5: Distribution of the Participants According to their Answers to the Questions About the Building and the Environment 50
Table 6: Distribution of the Participants According to their Answers to the Questions About the House they Settled in after the Disaster (Questions Related Near Environment)..... 51
Table 7: Distribution of the Participants According to their Answers to the Questions About the House they Settled in After the Disaster (Questions about Disaster Housing)..... 54
Table 8: Distribution of the Participants According to their Answers to the Questions About the Renovation Status of the House they Settled in After the Disaster..... 58
Table 9: The Cross-Table and the Relations Between the Answers Given by the Participants to the Questions About the House they Settled in After the Disaster and the Age Groups 59
Table 10: The Cross-Table and the Relationships Between the Answers Given by the Participants to the Questions About the House they Settled in After the Disaster and the Number of People in the House 63
Table 11: The Cross-Table and the Relations Between the Genders and the Answers Given by the Participants to the Questions About the House they Settled in After the Disaster..... 67
Table 12: Table Representing Environment Satisfaction of PDPH Users..... 74
Table 13: Table Representing Housing Satisfaction of PDPH Users 76

LIST OF ABBREVIATIONS

ABBREVIATIONS

AFAD	: Disaster and Emergency Management Authority
FEMA	: The Federal Emergency Management Agency
NGO	: Non-Governmental Organizations
PDPH	: Post Disaster Permanent Housing
TOKİ	: Housing Development Administration of the Republic of Türkiye

CHAPTER I

INTRODUCTION

Natural and artificial disasters cause extensive damage every year around the world. Numerous people are left homeless as a result of natural or human-made disasters that influence thousands of people every year. Turkey is one of the countries that is affected by disasters, especially earthquakes, throughout its history. Re-housing of earthquake victims is quite an important task for post-disaster period. Most of the survivors experience psychological and physiological problems that is arose after the disaster. For this reason, some special requests and needs should be considered when designing houses for people who have experienced the earthquake. Factors such as the environmental and spatial characteristics of the old houses and the spatial characteristics of the new houses, their location and close environment, neighborly relations, the area of the house and the usefulness of the spaces might have an effect on user satisfaction.

1.1 AIM AND SCOPE OF THE THESIS

There are plenty of studies related to post disaster housing, however, interior architecture and design is usually neglected in previous studies. This thesis aims to examine the thoughts and feelings of post-disaster permanent housing residents by considering interior space quality parameters as well as environmental aspects. In order to analyze this topic, Elazığ post disaster permanent houses are selected due to its recent incident, 24 Jan 2020. User satisfaction analysis reflect pros and cons of the post-disaster permanent housing and their environment to develop suggestions to designers and architects. The results of the study highlight the problematic and less considered aspects of the post-disaster permanent housing and emphasizes the importance of PDPH (Post Disaster Permanent Housing) design considerations.

1.2 RESEARCH QUESTIONS

- What are the problems encountered in permanent housing stage after the disaster?
- How disaster victims evaluate their new houses in terms of interior space quality parameters?
- What are the positive and negative aspects related to post-disaster permanent housing?

1.3 FRAMEWORK OF THE STUDY

This study was built on related literature research and field work, the framework of the study is shown in Figure 1.

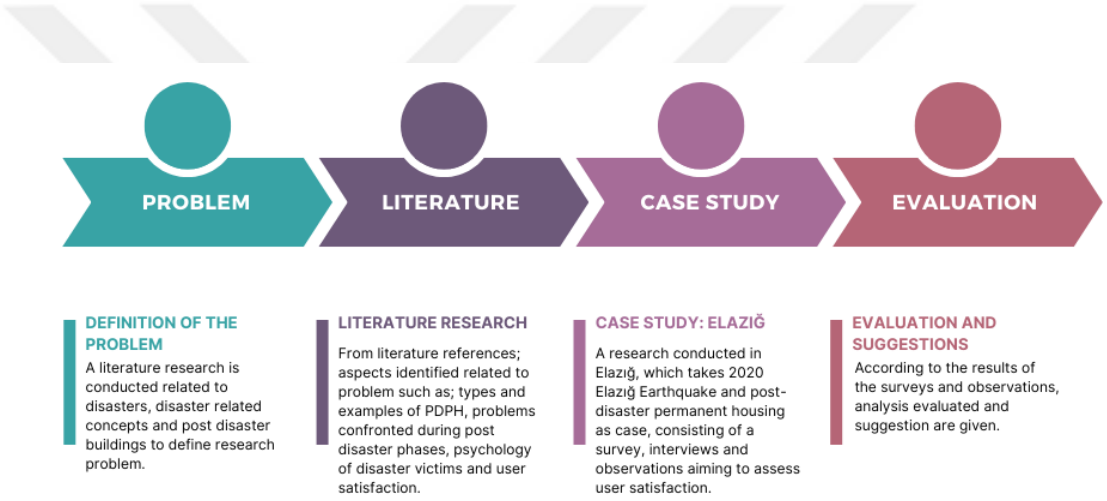

Figure 1: Framework of the Study

The framework of this study arranged in 4 stages: first stage is to define the problem in the light of information gathered related to disasters, disaster housing and disaster related concepts. Second is the literature research to determine aspects related to disaster housing such as: types, stages and examples of the post-disaster housing; problems confronted during post-disaster stages, psychology of the disaster victims and user satisfaction in post-disaster housing. Third stage is the case study, which takes Elazığ Earthquake as subject due to its recent incident, 24 Jan 2020.

Research and analysis for the case study involved 3 steps: qualitative data gathered from professionals and observations done by the researcher on site, and quantitative data is the analysis of a face-to-face survey conducted on the field. Post disaster permanent housing area, Çatalçeşme District, visited in December 2022, and

observations visualized through photographs. In addition to the visual records, a site survey has been prepared to understand the thoughts and feelings of post-disaster housing residents. The survey examines both housing and near-environment satisfaction. Since the survey conducted face to face, in addition to survey answers, some people stated their opinions about the houses and the environment. And last stage is the evaluation and suggestions that are made in the light of results of the analysis.

It is necessary to understand disaster related aspects in order to analyze disaster cases. Chapter II broadly covers disasters; disaster definition and types, disaster buildings, problems emerge during disaster periods, psychology of survivors and user satisfaction in disaster cases, disaster management and regulations. Chapter III comprises the information related Elazığ Earthquake with the research and analysis that are conducted in the post-disaster permanent housing areas in Elazığ. In addition to the observations held on-site, a survey has been prepared to understand the thoughts and feelings of post-disaster housing residents. In the light of the analysis of the case study, suggestions are given for authorities, designers and architects who work on post-disaster buildings.

CHAPTER II

LITERATURE RESEARCH

2.1 DISASTERS

The term "disaster" should be highlighted to understand the post-disaster stages and other disaster related concepts. Variety of disasters throughout the history brought out the need for both emergency and permanent housing following the destruction. Each disaster type reveals different forms of needs beginning with sheltering/housing. This background related disasters is fundamental to understand the following phases and to produce solutions/suggestions.

2.1.1 Definition of Disaster

Disaster is an unexpected event, such as a very bad accident, that kills a lot of people or causes a lot of damage. (Oxford Advanced American Dictionary 2011) United Nations Office for Disaster Risk Reduction defined "disaster" as:

> "*a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts*."

In order to have a better understanding, is it important to refer meaning of hazard as well. As it is defined by UNDRR, "hazard" is a process, phenomenon or human activity that might result in loss of life, injury or other health effects, property damage, social and economic disruption or environmental degradation. (UNDRR 2023) In other words, disasters are direct or indirect consequences of hazards. (Shi 2019: 17)

2.1.2 Types of Disasters

Sheltering and housing are the first needs that emerges after disasters and every disaster requires different kind of sheltering/housing. During the evaluation of the several forms of disasters by many researchers, they are covered as natural, man-made,

and hybrid disasters. (Shaluf 2007: 2) In this work, types of disasters are covered as natural, human-made, and hybrid. Findings of this study are expected to contribute the design of disaster housing for different types of disasters.

2.1.2.1 Natural Disasters

Large-scale geological or meteorological phenomena that have the potential to cause loss of life or property are considered natural disasters. (SAMHSA Disaster Technical Assistance Center 2022) The Federal Emergency Management Agency (FEMA) lists 18 natural hazards that can cause a disaster to occur.

- Avalanche

An avalanche is a snowfall that is moving quickly down a mountainside.

- Coastal Flooding

Coastal flooding occurs as a result of high or increasing tides or storm surges that cause water to inundate or cover previously dry coastal terrain.

- Cold Waves

A cold wave is characterized by a sharp temperature reduction within 24 hours for an extended period.

- Drought

A drought is a lack of precipitation that lasts for a long period of time and causes shortage of water.

- Earthquakes

An earthquake is a surface shaking caused by energy waves released by slowly moving tectonic plates that have overcome friction with one another. Earthquakes might trigger landslides, avalanches, flash floods, fires, and tsunamis. (FEMA 2003)

- Hail

Hail is a type of precipitation that develops during thunderstorms when raindrops freeze into ice balls in exceptionally cold regions of the atmosphere before descending to the earth's surface.

- Heat Waves

A heat wave is a stage of extraordinarily hot and uncomfortable weather, usually lasting two or more days, with temperatures that are above the local historical averages.

- Hurricane

A tropical cyclone or localized low-pressure weather system that has structured thunderstorms but no front (a boundary between two air masses of different densities) and top sustained winds of at least 74 mph is considered to be a hurricane.

- Ice Storm

An ice storm is characterized by large ice accumulations of 0.25 inches or more and freezing rain conditions (rain that freezes on surface contact).

- Landslide

A landslide is the sliding down of a slope of a mass of rock, rubble, or earth.

- Lightning

Lightning is a visible electrical discharge or spark that occurs in the atmosphere between clouds, the air, and/or the ground, generally as a result of a thunderstorm.

- Riverine Flooding

Riverine flooding occurs when streams and rivers have more water flowing through them than can be contained in their natural or man-made channels, overflowing the banks and flooding nearby low-lying, dry land.

- Strong Wind

Strong Wind is defined as wind speeds greater than 58 mph that might cause harm. These winds frequently come from thunderstorms.

- Tornado

A tornado is a tight, violently rotating column of air which extends from the base of a thunderstorm to the ground. The only way to see a tornado is if it develops a condensation funnel comprised of water droplets, dust, and debris.

- Tsunami

A tsunami is a wave or series of waves brought on by an earthquake, landslide, volcanic eruption, or even a massive meteor striking the ocean and raising the surface of the water. A tsunami can move over an open ocean at a speed of around 500 mph and then slow to about 30 mph when it gets closer to land, causing dramatic growth in height of the waves.

- Volcanic Activity

When molten rock is forced upward and through weak spots in the Earth's surface by gas pressure and buoyancy, it erupts as gas, molten rock, and volcanic ash from vents that serve as a conduit between the Earth's surface and inner layers.

- Wildfire

An unintentional fire in a natural or wildland region, such as a forest, shrubland, grassland, or prairie, is called a wildfire.

- Winter Storm

Winter storms are defined as periods of precipitation that mostly consist of snow, sleet, or freezing rain.

2.1.2.2 Human-Made Disasters

Turner first used the term "Man-Made Disaster" in 1978 to separate an undifferentiated kind of disaster from natural ones. (Gherardi et al. 1999) As opposed to natural disasters caused by natural risks, man-made disasters involve human intention, neglect, or error involving a failure of a man-made system. (Monroe County Emergency Management 2023) Later on, other agency and institutes used the term "human-made" disaster instead "man-made" disaster. Law Insider defines human-made disaster as: disasters or emergency situations where the principal, direct causes are identifiable human actions, deliberate or otherwise. (Law Insider 2023) Shaluf (2007) categorizes human-made disasters under two headings: socio-technical and warfare disasters.

2.1.2.2.1 Socio-Technical Disasters

According to Richardson (1994), there are at least four different organizational contexts in which socio-technical disasters might happen. These are technological disasters (plant and factory failures); transport failures; stadia or other "public place" failures; and production failures. Technological disasters are defined as

> "*an occurrence such as a major emission, fire or explosion resulting from uncontrolled developments in the course of an industrial activity, leading to a serious danger to man, immediate or delayed, inside or outside the establishment, and to the environment, and involving one or more dangerous substances*". (International Labor Organization 1988)

Chernobyl Accident that happened in 1986 is an example of technological disasters. **Transportation disasters** are the large-scale rail and highway accidents that can result in catastrophes involving hazardous products, many casualties, and significant interruption of crucial transportation lines. Any accident that results in multiple injuries could tax the capacity of the local emergency services. Tempi Train Crash which occurred near past, on 28 February 2023 in Greece, left 57 dead and

scores injured, is an example of transportation accidents. (Smith 2023) Stadia and other "public place" disasters include fires, building collapses, and crowd crushing. Sports disasters are also considered as public space disasters, Armand Cesari Stadium Disaster that took place in France on 5 May 1992, one of the terraces of the stadium collapsed, resulting in about 18 fatalities and thousands of injuries. The accident was attributed to structural issues and poor construction. (List25 2022) Last one of the socio-technical disasters is production disasters that involves computers system breakdowns and production and distribution of defective products. (Shaluf 2007)

2.1.2.2.2 Warfare (Conflicts)

A conflict is defined as a fight between armed forces. Conflicts differ from wars; war is the official expression of governments' or states' enmity toward other parties. Wars involve conflicts, however not all wars involve genuine conflicts, and not all conflicts are related to war.

Conflict/armed conflict: when at least 25 battle-related deaths in one calendar year occur as a result of an organized actor using force against another organized actor, or against civilians.

There are three types of conflicts:

- State Conflicts: Conflict between two states (inter-state conflict) or one state and one or more rebel factions (civil conflict) are both examples of state-based conflict.
- Non-state Conflict: Two organized, armed actors, neither of which is the government of a state, engage in non-state conflict.
- One-sided Violence: An organized armed group, such as the military forces of a state or another armed group, engages in one-sided violence against people. (Save the Children Fund 2023)

Anti-regime protests in Iran, conflict between India and Pakistan in the Kashmir region; Ethiopia's Tigray region and the Rohingya Crisis in Myanmar are the ongoing examples of conflicts.

2.1.3 Scopes of Disasters

Disasters can take many different forms, from small-scale to massive destructions. Number of people and the size of the area which are affected and some other related information help us to understand the scope of the disasters. There are

scales used for that are useful to perceive the scopes of the disasters. The Richter Magnitude scale and The Moment Magnitude scales are developed to measure earthquakes depending on the amount of energy released, The Saffir-Simpson Hurricane Wind Scale is created to measure hurricanes based on their maximum sustained wind speed. There is Enhanced Fujita scale for rating tornadoes, The volcanic explosivity index (VEI) for volcanic eruptions. Those scales that differ from each disaster type according to the characteristics of disasters types helps us to understand the intensity of the disasters.

Even though disaster scales assist us to distinguish scopes of disasters, there are other parameters to perceive the damage caused by disasters, such as affected area and number of the people. There are studies related to have a common severity expression for all kinds of disasters to use during disaster management process. The lack of a common terminology to identify the scale of the disaster is a problem in disaster-related information management and processing. (Wirasinghe and Zanzotto 2016) In order to respond this need severity scales developed that categorizing the different type of destructive events from emergency to catalysm. A severity scale studied by Caldera and Wirasinghe (2014) with the examples given for each scale shown in Table 1. This scale classifies the destructive events depending on the fatality range and a helpful tool to understand different types of disasters.

Table 1: Disaster Scale of Destructive Events with Examples (Caldera and Wirasinghe 2014)

Type	Fatality Range	Sample Probability	Expected Probability	Example
Emergency	$1 \leq F < 10$	0	0.021	A small landslide that kills one person
Disaster Type 1	$10 \leq F < 100$	0.031	0.051	Edmonton tornado, Canada - 1987 - 27 deaths
Disaster Type 2	$100 \leq F < 1{,}000$	0.268	0.118	Thailand flood – 2011 - 815 deaths
Catastrophe Type 1	$1{,}000 \leq F < 10{,}000$	0.175	0.238	Hurricane Katrina, USA – 2005 - 1833 deaths
Catastrophe Type 2	$10{,}000 \leq F < 0.1M$	0.216	0.334	Tohuku earthquake and tsunami, Japan - 2011 - 15882 deaths
Calamity Type 1	$0.1M \leq F < 1M$	0.299	0.203	Haiti earthquake - 2010 – 316.000 deaths
Calamity Type 2	$1M \leq F < 10M$	0.010	0.022	China floods - 1931 – more than 2,500,000 deaths
Cataclysm Type 1	$10M \leq F < 100M$	0	$5.27*10^{-05}$	Black death pandemic - from 1346 to 1353
Cataclysm Type 2	$100M \leq F < 1B$	0	$1.04*10^{-11}$	Super Volcano (e.g. Yellowstone) – less than 1 billion estimated deaths
Partial or Full Extinction	$1B \leq F < 10B$	0	0	Meteor strike (diameter > 1.5 Km) - less than 1.5 billion estimated deaths Pandemic (Avian influenza) – less than 2.8 billion estimated deaths

2.2 POST-DISASTER BUILDINGS

Post-disaster buildings play a crucial role in disaster recovery stage. Post-disaster building is a term used for housing that needs to be done temporarily or permanently right after the onset of the disaster. Instead of the destroyed houses of the survivors; The construction of temporary or permanent shelters to protect them from climatic conditions, environmental conditions and dangers is called 'post-disaster shelter'. (Songür 2000) Shelter and housing terms were used vice versa in disaster studies until Quarantelli specified the stages of post-disaster buildings, however, both temporary shelters/housings are used to provide private and safe places for people who have left or lost their homes as a result of disaster. They also help them to recover from the trauma of a disaster as well as provide a base to start the process of rehabilitation until the permanent housing stage.

2.2.1 Stages of Post-Disaster Buildings

In disaster studies, the phrases housing and sheltering are generally used synonymously. These two concepts are distinguished by Quarantelli (1995) in his discussion of the four stages of post-disaster housing. He suggests that the distinction between housing and sheltering after a disaster is justified on the grounds that routine tasks are put off while sheltering, but housing comprises the resumption of household duties and activities, such as cooking, washing, socializing, work, school, and leisure.

According to his study, there are four stages of post-disaster buildings:

- **Emergency Shelter**: a place where survivors stay during the height of an emergency
- **Temporary Shelter:** short stay, no more than a few weeks after the disaster
- **Temporary Housing:** for six months to three years, returning to normal daily activities
- **Permanent Housing:** return to the rebuilt house to live permanently

Since amount of the disasters increased for last few decades, designers and architects began to focus more on post-disaster housing/sheltering. Professions work on solutions for different stages of post-disaster housing. “Shiftpod” is a temporary shelter prototype designed by Christian Weber. It is an easy to transport camping shelter that is strong, insulated, and simple to build. It is large enough to house a queen-sized bed and lots of equipment and tall enough a person to stand up. (Figure 2)

Figure 2: "Shiftpod" Shelter by Christian Weber

"Our goal is to set up kits for individuals to take with them that have a shelter, water filtration, and everything you need for a family of four to survive for 30 days," Weber says. "*And to build systems for up to 1,600 people [that can be stored] in one container*." (Buckley 2017)

Garrison Architects created a modular post-disaster housing prototype for displaced people in the case of a major natural or man-made disaster. (Figure 3) The multi-story temporary housing units can be set up in a variety of ways that are suited to challenging urban environments in less than 15 hours. "With 1- and 3-bedroom configurations, every unit features a living area, bathroom, fully equipped kitchen and storage space. Units are built with completely recyclable materials, cork floors, zero formaldehyde, a double-insulated shell, and floor-to-ceiling balcony entry doors with integrated shading to lower solar-heat gain, provide larger windows, and add more habitable space. (Figure 4) Units can be equipped with photovoltaic panels, which will not only alleviate pressure on the city grid, but also ensure the units are self-sustaining. (Urban Post-disaster Housing Prototype 2023)

Figure 3: Temporary Housing Units by Garrison Architects

The modules can be placed in vacant lots, backyards, or public locations due to their flexibility. They are trucked to an area as needed, craned into position, and connected to utilities.

Figure 4: Living area of the Temporary Housing Units by Garrison Architects

As an example of post-disaster permanent housing project, Rural Urban Framework designed the Jintai Village houses in the Sichuan Province of China as a potential option for housing survivors of natural disasters. (Figure 5)

Figure 5: Permanent Housing designed by Rural Urban Framework

One of the region's most severely affected by the catastrophic Wenchuan Earthquake of 2008 was Sichuan Province. In 2011, landslides and floods in the area destroyed several of the newly constructed buildings. Rural Urban Framework created an architectural solution with assistance from the local government and NGOs, that offers suitable post-disaster permanent housing for those who lost their homes as a result of a series of damaging events.

The plan includes a community center with a rooftop garden and 22 houses. Houses are placed tightly together on purpose to create the feeling and familiarity of inner-city neighborhoods. (Figure 6)

Figure 6: Masterplan of Jintai Village

Architects explain that the design strategy provides four different types of houses, differing in size, function, and their roof sections. “These demonstrate new uses of local materials, a green stepped-roof, biogas technologies, and accommodation for pigs and chickens". (Figure 7)

Figure 7: An Exterior Scene by Rural Urban Framework

Rainwater harvesting, natural lighting, and ventilation are all incorporated into the design of the buildings as part of the larger strategy to promote sustainable ecological behaviors. (Griffiths 2017)

2.2.2 Parameters of Post-Disaster Buildings

In post-disaster studies, the various sets of dimensions or features can be divided into four categories: site characteristics; physical conditions of housing; institutional services; and social environment. (Oo 2018)

- ***Site characteristics;***
    - Land tenure and ownership,
    - Location of the house,
    - Proximity to city,
    - Proximity to workplace,

- Space between houses,
- General cleanliness.

- ***Physical conditions of housing;***
  - Level of completion of the house,
  - Size of house,
  - Size of rooms,
  - Layout of the property,
  - Material used,
  - Aesthetic value,
  - Interior noise,
  - Visual privacy,
  - Housing design,
  - Housing quality,
  - Interior design,
  - Convenience of space,
  - Access to utilities supply,
  - Lighting and ventilation,
  - Feeling of home,
  - Easy to upkeep.
- ***Institutional services;***
  - Shopping and conveniences,
  - Educational facilities,
  - Hospital facilities,
  - Facilities for religious practice,
  - Leisure and sport facilities,
  - Public transportation,
  - Spaces for social gathering,
  - Preparedness for future disasters.
- ***Social environment;***
  - Neighbor interaction,
  - Nearness to friends and relatives,
  - Personal security,
  - Outsiders' impression,
  - Neighborhood or public safety,

- Trade opportunities,
- Availability of job opportunities.

In addition to Oo's broadly classified parameters, in Mirza's study space quality parameters listed taking interior design into consideration more. In the study post-disaster building spatial quality parameters with respect to the critical human needs categorized below as; (Mirza 2020)

- ***Technical Parameters*** *(Health, Physical Comfort)*
  - Lighting (Natural)
  - Thermal comfort
  - Air quality
  - Noise
- ***Functional Parameters*** *(Work Flow Performance)*
  - Space Planning
  - Accessibility
  - Wayfinding
  - Furniture Layout
  - Safety
- ***Aesthetical Parameters*** *(Psychological, Aesthetic performances)*
  - Color
  - Materials & Finishes
- ***Social Parameters*** *(Interactions With & Within space)*
  - Privacy
  - Crowding
  - Place Attachment
- ***Spatial Parameters*** *(Form, Features and Theme)*
  - Stimulation (sensory)
  - Coherence (theme)
  - Affordances (cues)
  - Control (features)
  - Restorative (therapeutic)

Oo and Mirza's studies are taken as a guide to prepare evaluation questionnaires for the post disaster permanent housings in Elazığ, which is the case study of this thesis. Since this work aims to analyze user satisfaction in disaster

housing focusing on interior design parameters, these two studies contributed structuring the survey.

2.3 PSYCHOLOGY AND USER SATISFACTION IN DISASTER CASES

Psychology of disaster victims are affected from various aspects, ranging from what they have witnessed/experienced during the disaster to who or what they lost after the disaster. It is critical to understand the mental state of the disaster victims in order to design shelters and houses for their well-being. Identifying the needs of disaster victims can guide designers about the design of house layouts; material and finishings; neighborhood facilities; and organization/location of the post disaster housing.

2.3.1 Psychology of Disaster Victims

The determining factor of the reactions that will occur after the disaster is related to the extent of the disaster and the size of the effect. In addition, the reactions of the individuals exposed to the disaster differ according to the time passed after the disaster.

This reactive differentiation process is evaluated in four parts:

- ***Psychological shock period:*** It may last for the first twenty-four hours or longer. Traumatic reactions that may occur during this period can be listed as follows:

1. Sudden physiological arousal, hypersensitivity and a sense of limitation,
2. Problems of thinking logically and making decisions,
3. Problems with memory retention and concentration,
4. Every apparent situation seems unreal (dissociation),
5. to. It is the petrification of emotions (bluntness) and short-term shock.

- ***Response period:*** It appears after two or six days. Following is a list of possible traumatic reactions during this time:

1. Emotional complexes: Feelings of anger, anxiety, irritability, insecurity, blame, fear of being alone.
2. Bodily reactions: Nausea, palpitations and constant restlessness.

- ***Mental processing and reflection period:*** This period is seen after a week. Following is a list of possible traumatic reactions during this time:

1. The disaster victim is reluctant to discuss what happened.

2. Mourning starts for the lost.
3. Strong emotions like sadness and longing can be felt strongly.
4. There may be issues with focus and memory.
5. Conflicts and anger can be extreme in interpersonal relationships.

- ***Recovery and re-adjustment period:*** A long time after the disaster, trial for adaptation to the process. Following is a list of possible behavioral reactions that could happen at this time:

1. Resistance decreases and life-adaptation behaviors are observed.
2. The experience of emotional well-being starts, and future planning has taken place.
3. The disaster and no longer occupies the mind with the same intensity as it did the first time.

All of these processes differ from person to person. Some individuals may resist, and with the intense stress experienced, events may be denied, suppressed or removed from the level of consciousness with different defense mechanisms. Adapting to life in this way can be very difficult and socially worrisome. In this context, it is thought that it will be very beneficial for mental health to participate in a psychological support education program or to receive the necessary support from the school guidance service if it is a child who is experiencing this situation. Undoubtedly, children and adolescents can be affected by severe traumatic experiences such as disasters more than adults, since they lack life experience and do not have sufficient knowledge to gain awareness of life. For this reason, it is an obvious result that children and adolescents, who still need the care and attention of adults, need psychological support and necessary training most after a disaster. (Kukuoğlu 2018)

2.3.2 Housing Satisfaction in Disaster Cases

In Abidin's (2019) study residential satisfaction is defined as "

...the feeling of contentment when one has or achieved what one needs or desires in a house. Residential satisfaction can also be defined as an indicator of homeowners' view of the general quality of their life and it can mean that an individual's expectation of housing is met. Residential satisfaction is the description of the quality of life of the inhabitants of a determinate residential environment and acts as a trigger factor affecting residential mobility." (Abidin et al. 2019)

Housing/residential satisfaction in disaster cases becomes an important issue since the needs and feelings of disaster victims are decisive more than ever before. Potential of the modification, rejection, and abandonment of post-disaster permanent housing, satisfaction for users is crucial to the success of post-disaster recovery actions. In the long run, an incompatibility between the user's lifestyle and the housing that is offered will result in societal costs that strain the budget of the government. (Oo 2018) There many examples of PDPH with different reactions by users throughout the history. A list made by Varolgüneş (2021) represents the post-earthquake settlements and their user satisfaction situations in a table: (Table 2)

Table 2: User Satisfaction Related to Site Selection After Earthquakes Occurred in Turkey (Kürüm Varolgüneş 2021)

Choosing the suitable settlements			
	Old settlement	New settlement	User Satisfaction
1970 Gediz	Built in Akçalan village's old settlement.	5 km far from the residential area (Özkan, 1972: 26).	New settlements were abandoned by occupants due to their distance from fields and water resources (Aysan & Oliver, 1987).
1971 Bingöl		It was moved to an area that was 4 km far from the old settlement area.	It was abandoned due to the distance to the old settlements (Coburn et al, 1984: 49).
1975 Lice		It was moved 2 km south of the old settlement.	The temporary and permanent housings built were not adopted by the local people and were not used for a long time. In the new residential areas, climatic conditions were not taken into consideration, valuable agricultural areas were remained out of use, and water could not be provided (UNDRO, 1982).
1983 Erzurum- Kars		The location of determined areas did not conform to the traditional form sheltered settlement (Aysan, 1985: 23).	The fact that the residential areas were far from the agricultural areas formed an important problem in terms of the economic conditions of the earthquake victims (Aysan, 1985: 23).
1992 Erzincan	"Aid to those who build their home" practice was implemented for areas where less than 15 houses were planned.	Areas belonging to the treasury or legal entities were identified near the old settlements and opened for construction.	It is stated that this was handled differently than those built in previous earthquakes and more satisfaction was achieved.
1995 Dinar-Afyon		Settlements were moved 4 km far from the old settlement (Enginöz & Ünlü, 2010).	It was emphasized that user demands and the physical structure of the regions were not considered in permanent housing applications implemented in Dinar (Enginöz, 2004: 20).
1999-Marmara		New residential areas were established.	In some settlements built after the 1999 earthquake, houses were left empty for many years without being used (İnal & Ünlü, 2009:104).
2003- Bingol		Residential area in the city center was selected for rural housing (Kürüm Varolgüneş, 2019: 207).	Settlements created after the 2003 Bingöl earthquake were either changed or completely abandoned (Kürüm Varolgüneş, 2020).
2011- Van			Mistakes made in the selection of the housing sites after the 2011 Van Earthquake caused dissatisfaction of the disaster victims (Kılcı et al, 2015: 329).

As shown in Table 2, in most of the cases housings and settlements are not adapted by users and eventually become abandoned and left by them. However, there are some cases, even though so less in number, new permanent houses are adopted by users. This distinction emerges with user participation in design process of the PDPHs according to Varolgüneş's study. Especially in the rural areas, regional knowledge of

the disaster victims should be taken into consideration by responsibles while taking decisions.

> "*In post-disaster permanent housing projects, user participation should be included in all processes starting from design decisions in order to ensure satisfaction. The workforce of the local people should be utilized in housing production, and the materials available in the region should be given priority. The experiences gained during the process should be considered as design input for later disasters*." (Kürüm Varolgüneş 2021)

In Oo's study, a conceptual framework for post-disaster housing satisfaction created that also includes user participation as a part is shown below: (Figure 7)

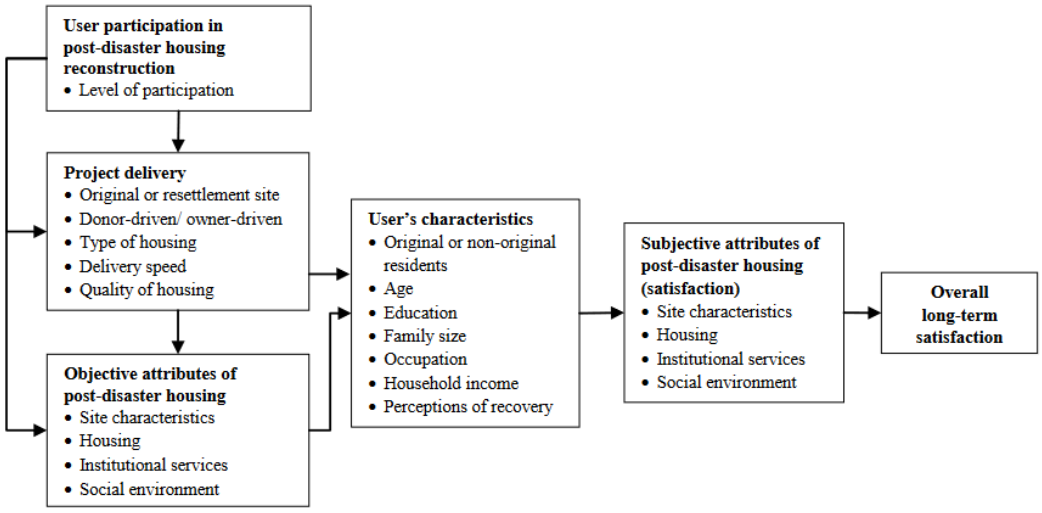

Figure 8: A Conceptual Model of Users 'Long-Term Satisfaction with Post-Disaster Permanent Housing (Oo 2018)

According to Oo's study; people who participated in the design and construction process were happier than those who did not, regarding both psychological requirements and the quality of interior environments. The suggested conceptual framework illustrated in Figure 7 integrates user involvement in the rebuilding of houses to project delivery methods and procedures, characteristics of permanent housing, and ultimately to residents' long-term residential satisfaction. In these interactions, the socioeconomic and demographic features of the users have an impact on their subjective attributes or degrees of satisfaction. Another significant personal aspect that would affect the users' levels of satisfaction with the features of the permanent residence is their perceived rates of recovery following disasters. Oo finalizes their study emphasizing users' residential satisfaction or dissatisfaction is a

complicated concept that tends to vary by residence types, countries, and cultures, hence more research is required to test the proposed model. (Oo 2018)

Another study by Baylan et al. (2018), takes Van Earthquake as a case study, which is a similar case to this study's case Elazığ, in terms of region, climate, community profile and lifestyle. Study examines the sense of place and satisfaction in PDPH's in Edremit district in Van which are built after 2011 Van Earthquakes. New PDPhs were built by TOKI located in an area which is 22 km distance from the town centre in Edremit district. Results of the analysis reveal that respondents have a tendency to build bonds with their new environment because of different motivations, some are emotional and some are functional. "According to the field observations and interviews with the questionnaire respondents, this could be related to living together with the neighbors who share the same earthquake experience along with similar socio-cultural and ethnical background as well as could be related to still living in the same city which is an important part of the respondents' place identity". (Baylan et al. 2018) However, some of the respondents also stated that if any opportunity had occurred their preference would be moving into the city center. This implies that respondents are still willing to keep their connections with pre-disaster lives and environment. Another reason to stay in new PDPH was the economic limits of the disaster victims and lack of available dwelling options in the disaster area. (Baylan et al. 2018) Study concludes further research needed on social bonds and its effects on satisfaction and well-being of users.

2.4 PROBLEMS CONFRONTED AFTER DISASTERS

Following the disaster, it is crucial to deal with the survivors' need immediately. Aiming to save as many human lives as possible, to provide the treatment of the injured, and to meet the vital needs of the people such as water, food, clothing, heating, shelter and protection in the shortest possible time; following works are intended to be done such as: information and transportation, determination of needs, search and rescue, first aid, treatment, evacuation, emergency shelter, heating; supply of food, drink and clothing; security; environmental health and preventive medicine; damage assessment and removal of dangerous debris. (Tüzün 2002)

As a result of the destruction or severe damage of many houses after the disaster, the people living in demolished houses are faced with the necessity of

providing shelter again. Considering the approaches to the post-disaster sheltering problem; the problem is dealt with in three stages,

- Emergency Relief Level (Temporary sheltering)
- Rehabilitation Level (Temporary housing)
- Reconstruction Level (Permanent housing)

but the way the problems are resolved in these three stages also creates other problems and the solutions themselves turn into problems. (Limoncu and Bayülgen 2002)

Problems related to Emergency Relief Level and Rehabilitation Level (Temporary Shelter and Temporary Housing Stages):

Managerial problems such as; not being prepared in advance, lack of organization, difficulty in finding the land on which the sheltering units will be built, the problem of not being able to articulate the settlements with the urban life, the random placement of the units, ignoring locality in the layout plan.

Problems related to sheltering units; incompatibility with the region and climate characteristics, volume-area inadequacy, wet area problems, security problems, insulation problems (heat, sound, humidity, fire), incompatibility with the people's way of living, implementation problems resulting from the interpretation of international solutions with the aim of reducing costs

Infrastructure problems; lighting, mains water, sewerage, flooding problems arising from the inadequacy of basic infrastructure,

Socio-psychological problems; leaving disaster victims alone with problems in unhealthy conditions, social-cultural-commercial life not being considered, lack of a system that does not work effective for disaster victims,

Problems related cost; transportation costs, not being sustainable/recyclable,

Sustainability problems; insufficient physical space, result of the long-term use of the units becoming unusable for the following disasters, not paying attention to the connection details during installation.

Problems related to Reconstruction Level (Permanent Housing Stage):

Managerial problems such as; not being prepared in advance, lack of organization, transportation problems, difficulties in transportation of building products and materials, difficulty finding permanent housing land, loss of time in obtaining foreign loans, delay of tenders, dispute over size of the houses, dispute over number of the houses, difficulty determining beneficiary, tenant problem,

Site Selection - layout problems such as; problems of finding or expropriating public land, the problem of not considering the whole city while making site selection and settlement plan decisions, and inability to integrate settlements into urban life, site selection and settlement decisions are not being the product of a scientific approach, old settlements have not been analyzed,

Design and physical problems of units; The old housing types were not analyzed, limited time was allocated for design, design problems (spatial-dimensional, incompatibility with climatic characteristics, incompatibility with the lifestyle of the people, flexibility, security, privacy), the problem of choosing the construction system, the design and physical problems of the units, application-workmanship problems, Infrastructure problems; lighting, mains water, sewerage, flooding problems arising from the inadequacy of basic infrastructure,

Problems related cost; choosing international solutions, transportation costs, usage costs, not allocating funds for transportation, health, education and social services,

Sustainability problems; Site selection and layout problems, design problems, application and workmanship problems, infrastructure problems, socio-psychological problems, cost of use.

2.4.1 Sheltering/Housing

Accommodation of those who lose their home as soon as possible after the disaster is considered within the concept of temporary sheltering and temporary housing phases according to Quarantelli's classification of disaster housing. Temporary shelter stage refers the short stay after disaster, (no more than a few weeks), and temporary housing refers the 6 months to 3 years period after the disaster, however, in some cases, disaster victims have to live in temporary shelters and temporary housing units for a very long time.

Problems that are faced during temporary shelter and temporary housing stages are quite similar in nature. These are generally timing, site selection, planning, design, materials and construction technologies. Timing is crucial for temporary shelters to be useful to disaster victims. Late distribution/installation of shelters might hinder the temporary shelter and permanent shelter stages and cause delay. Transportation, distribution and assembly of imported emergency shelters plays an important role in timing. Appropriate site selection and planning for temporary shelters and housing

units should be taken into consideration with the integrated city plan before the disaster. Site selection and planning for temporary shelters and temporary residences will accelerate the post-disaster process. In case of a disaster, the existing housing stock, the extent of possible destruction, the proportion of the population that will need temporary settlement, what percentage of the population are tenants and homeowners, post-disaster migration trends, the need for land for temporary settlement and the lands that can be used for temporary settlement should be determined in advance. In the absence of these preliminary studies, site selection for temporary shelter and temporary housing, planning, selection of temporary housing type, etc. decisions are taken in crisis conditions. Under these conditions, it is difficult to make a sound decision, and the construction and resettlement process of temporary shelters and temporary houses is also prolonged. Pre-disaster planning can only provide the expected benefits with the existence of land stock in the hands of the public. (Şengül and Turan 2013) Another consideration related to temporary structures is the construction of infrastructure and temporary residences after the plan made before the disaster is re-evaluated according to the situation after the disaster. The semi-permanent nature of this type of settlement requires the provision of infrastructure for water, sewerage, energy and communication, as in other areas of the city.

Although the residences are built according to a certain plan in temporary settlement areas, it should be taken into account that the construction process will continue through the families' making additions over time, since the residence period is long and the residences are standard, and they do not suit the needs of families with different sizes and lifestyles.

2.4.2 Health-Hygiene

After disasters one of the most important issues is to access healthcare and reach hygiene products. Since the mains water supply and sewage/garbage disposal also become problematic after disaster, lack of these services might cause diseases to spread.

Having to live in a crowded environment for more than four weeks increases the risk of spreading infectious diseases. The existence of environmental risks such as the presence of the infectious agent in the region before, the inability to provide fresh water, the inability to remove domestic wastes and human wastes, and the inability to

control animals such as cats and dogs that were left unattended after the disaster increase the risk of epidemics.

It is very important to take timely measures to prevent epidemics after disasters because when the size of the epidemic grows, it becomes difficult to keep it under control and thousands of people may not be prevented from being harmed. Controlling waste is vital to prevent the formation of puddles and the proliferation of pests in epidemics. In cases where food safety cannot be ensured or water is contaminated, typhoid and cholera; plague and malaria if vectors (ticks, flies, fleas etc.) cannot be controlled; due to the crowding factor, outbreaks of diseases such as hepatitis A transmitted by contact and measles spread through respiratory tract may occur. The most common diseases in temporary accommodation areas created after the disasters experienced so far; malaria, diarrheal diseases, lower respiratory tract diseases and measles. (Ekşi 2016)

2.4.3 Food-Water Supply

After disasters, the provision of water is vital for the survivors. It is necessary to provide drinking and utility water for disaster victims, because disaster experiences show that disaster victims drink all kinds of water they can reach if sufficient water cannot be supplied to disaster areas. (Ekşi 2016) This situation can cause many diseases, especially infectious diseases, and can be a factor in the rapid spread of diseases. Along with drinking water, sufficient water should be provided for personal hygiene, other human needs and sanitation. If enough water is not provided, disaster victims may face deadly water-borne diseases. An adult person needs about three liters of drinking water in cold temperate climates and about six liters in hot climates in order to maintain bodily functions. According to Ekşi's study, when drinking and utility water are considered together, 15-40 liters of daily water is needed per person in temporary settlements.

In order to ensure the continuity of life after a disaster, it is vital that food intake is affordable as well as water. Groups that need post-disaster support such as the elderly, disabled people, pregnant women and those who are less resistant to nutritional deficiencies should be prioritized. It is necessary to take precautionary measures for post-disaster nutrition management and systems such as storage of special diet foods should be established in advance. Immediately after a disaster, swallowing problems may occur, especially in disabled and elderly people, due to poor oral hygiene,

inadequate movement, loss of appetite, eating problems, and fractures. Since food preservation conditions will become more difficult after the earthquake, attention should be paid to easily perishable foods such as dairy products against food poisoning. Consumption of energy-dense ready-to-eat foods is important in preventing malnutrition (Araç and Duru 2021).

Figure 9: Unorganized Food Delivery in Earthquake Area (Ortaş 2023)

Storage of food with a long shelf life without the need for cooking, giving importance to food hygiene and sanitation to prevent contamination of water and food, planning the food supply chain, taking into account the eating habits of the groups with special nutritional needs and the society during food supply to earthquake victims, determining the persons who will take the relevant duties and providing the necessary training, etc. The planning and implementation of the processes are important in terms of preventing nutritional problems that will be encountered after the disaster. Also, delivery of the foods should be well organized to avoid wasting food. Lack of organization leads to spoilage of food as in Figure 9 after Kahramanmaraş Earthquake.

2.4.4 Sewage-Garbage Disposal

Sewer lines damaged in disasters need to be repaired as quickly as possible because unhygienic toilets pave the way for the spread of diseases. Toilets in temporary settlements should be provided as quickly as possible and the public should be trained in the use of toilets. The accumulation of water in toilet areas and

handwashing areas should be prevented. In temporary settlement areas, the most ideal is to provide one toilet for each family, if this cannot be provided, one toilet should be provided for a maximum of 20 people.

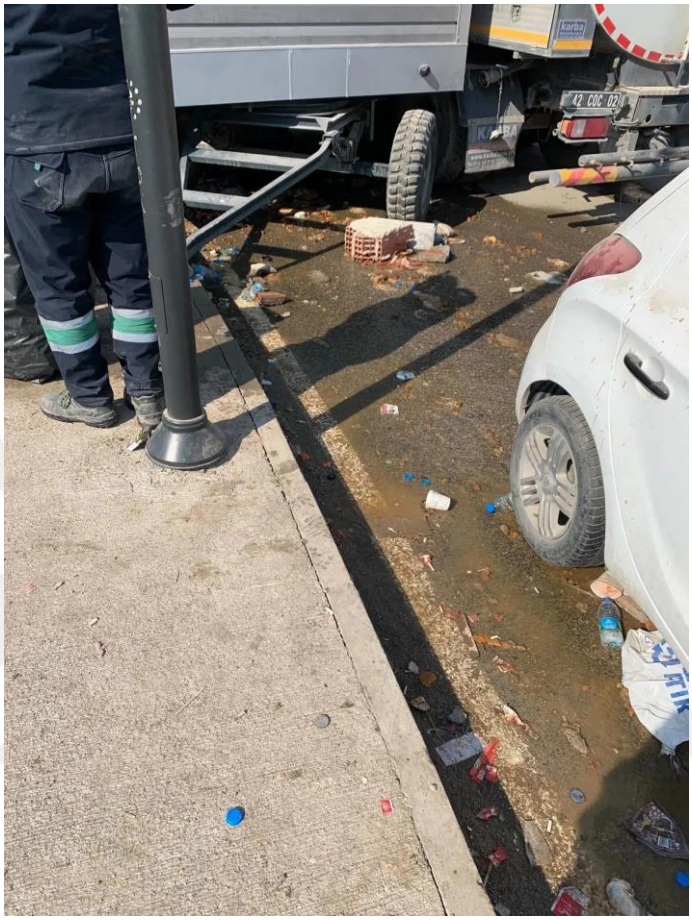

Figure 10: Portable Toilet Overflow Due to Intensive use in Hatay after 6 February 2023 Earthquake (Yaycılı 2023)

The toilet problem in temporary settlements is generally tried to be solved with portable toilets, but the size of the disaster often makes portable toilets inadequate. Until permanent toilets are built, the solution is often provided with open toilet pits. After permanent toilets are provided, these pits should be closed with soil so that they cannot be opened easily and contact with insects is cut off. If the number of the toilets are inadequate module can break out as in Figure 10. Areas with soap and water suitable for hygienic conditions should be built near the toilet for washing hands. (Ekşi 2016)

Figure 11: Garbage Spread in Hatay after 6 February 2023 Earthquake (Yaycılı 2023)

Garbage should be collected regularly in disaster areas and temporary shelter areas, and if possible, it should be dumped into the dumping areas used in ordinary situations. If garbage dumping areas cannot be used due to transportation and similar inadequacies, new garbage collection points should be created. In temporary settlement areas, garbage should be collected daily in bags or closed containers and dumped in the dumping areas. If this is not possible, appropriately sized garbage collection containers should be placed outside the shelters. Containers should have covers and be easy to clean. If the garbage cannot be taken to the dumping areas, garbage should be collected in a pit with a depth of at least two meters in a place outside the settlement area that will not pollute the groundwater. Children and animals should not be allowed to reach the garbage pits, and the dead animals should not be thrown into these pits. (Ekşi 2016)

2.4.5 Social and Psychological Support

One of the social service areas involved in post-disaster recovery activities is psycho-social support services. Psycho-social support helps the society to return to its normal by relieving and directing its interlocutors in the healing process and teaching methods of coping with negativities. Main aim is to alleviate and heal mild and moderate mental problems immediately after the disaster, and to prevent the formation of major problems that will affect the wider society. Especially in the post-disaster period, post-traumatic stress disorder, anxiety and depression have the characteristics that can lead to greater mental problems and social trauma. (Aydın n.d.) In this period, it is important to re-establish social relations within the scope of adaptation and possibilities. Particularly, working with groups, psychological support centers and integrating the traumatized individual into the society after the disaster have an important social service character. In this sense, it can also be considered as a tool to strengthen the factors that hold society together.

2.5 DISASTER MANAGEMENT AND REGULATIONS FOR POST-DISASTER PHASES

With the memory of the disasters that humanity has experienced throughout history, it has developed new methods for effective intervention and reducing the effects of disasters, such as disaster management and preparedness strategies. UNDRR defines disaster management:" The organization, planning and application of measures preparing for, responding to and recovering from disasters." Disaster management focuses on developing and putting into action preparedness and other strategies to lessen the effect of disasters and "build back better". Failure to develop and implement a strategy could result in loss of life, property damage, and financial loss. (UNDRR 2023)

2.5.1 Disaster Management and Regulations Around the World

The end of the Cold War in the 90s and the increase in the number and effects of disasters in the world caused many states to shift their attention to disaster studies and started to change the understanding of disaster management. (MEDAK 2023)

The disaster and emergency management in the USA is defined as the integrated emergency management system (IEMS). Instead of making separate plans for each emergency, a functional approach is used. This system was established by

bringing together all available resources. In addition to local, state and federal sources, voluntary organizations and commercial sources can also be used. Within the scope of IEMS, it addresses the four stages of disaster management, which are mitigation, preparedness, response and recovery, with an approach that evaluates all disasters in a wide range. In addition, all levels of government, from local municipalities to national government, are brought together and the private sector is also involved.

Another fact that is essential in the USA is "Disasters are local." is the concept. In other words, the main thing is local and state intervention to disasters, and the number of disasters that the federal government intervenes is very low and is mostly seen in disasters that affect more than one state.

Federal Emergency Management (FEMA), which manage disaster administration in the USA, is responsible for only to ensure coordination during disasters, its activities other than disaster relief are limited. "All stages" approach adopted in which all disaster management stages are given equal importance. FEMA has 15,000 personnel, with budget of approximately $15 million. Disaster expenditure per capita in the United States is approximately $5. (Karaaslan 2015)

2.5.2 Disaster Management and Regulations in Turkiye

The geographical location and topographic structure of Anatolia is the main reason why it is under the risk of facing many disasters. The fact that Turkiye is on the most active seismic belt in the world also explains why earthquakes are one of the most influential disasters. Earthquakes in this geography have caused the destruction of many civilizations and the displacement of as many since the first ages of history. The fact that disasters cause thousands of casualties, billions of dollars in economic loss, and the destruction of thousands of houses reveals the importance of the measures to be taken in this regard. (Şengün and Sipahi 2017)

Disaster management in Turkey is managed by AFAD, which is subordinate to the Prime Minister or Deputy Prime Minister. AFAD was formed by closing the General Directorate of Civil Defense under the Ministry of Interior, the General Directorate of Disaster Affairs under the Ministry of Public Works, and the General Directorate of Emergency Management in Turkey under the Prime Ministry, with the law numbered 5902 enacted in 2009. Disaster management and duties of these three institutions are gathered in AFAD. (Karaaslan 2015)

In Turkiye, there is no regulation related the design and space qualities of post-disaster permanent housing. Current regulation which is the "Regulation on Buildings to be Constructed in Earthquake Zones" published in the Official Gazette dated 6/3/2007 with the number 26454, covers the technical requirements, structural systems and details in depth, but there is no regulation or assessment about neither the previous housing design/situation, nor the architectural and interior design of the post-disaster permanent houses to be built.

After the series of earthquakes in 2023 February affecting 11 cities in Southeastern Region of Turkiye, a report published by T.C. Strategy and Budget Department about the earthquake strategies and programs.

> "*The Government's proposed reconstruction strategy includes a Disaster Housing Program, to be implemented by AFAD. Architects, construction companies and others involved in the design, planning, construction and inspection of residential housing should receiving trained in "building back better" (BBB) principles*." (T.C. Strategy and Budget Department 2023)

Report also includes that when determining the location of settlements, safe distance to fault lines are respected. In addition, studies for micro-zoning and site investigations will be completed at locations determined as a result of detailed geological surveys by TOKI and AFAD.

About the post-disaster temporary housing units, which are container housing units in Turkiye disaster cases, (Figure 11,12,13,14 and 15) technical requirements demanded for the subcontractors about the containers and container sites are listed below: (AFAD 2021)

- Each temporary housing unit consists of 1 bathroom, 1 bedroom and living area in total 21 m².
- Heating is provided by a 500w and a 1000w convection heater.
- Fresh water is provided through mains and hot water supplied by solar energy panels.
- Waste water integrated to sewerage system and septic tanks.
- It is assumed that there will 4-5 people stay in each container.
- Prayer room, basketball field, reading area for students, market, kids' playground, health center, café, administration and public toilets are placed to campuses.

Figure 12: Plan of Temporary Container Housing Units

Figure 13: Exterior of the Temporary Container Housing Units

Figure 14: Living Area and Bedroom Entrance of the Post-Disaster Containers

Figure 15: Living and Kitchenette Area of the Post-Disaster Containers

Figure 16: Bathroom Area of the Post-Disaster Containers

This literature research directs a necessity of an in-depth study about post-disaster permanent housing. It has been observed that most of the studies engage with the location and planning of the PDHDs, there is a lack of emphasis on interiors and the user's point of view in most of the cases. Therefore, a case study is necessary to find this approach, and the Elazığ Earthquake area was selected for this purpose. Since Elazığ post-disaster permanent houses are under use for the past few years, they are appropriate to study the user satisfaction level.

CHAPTER III

ELAZIĞ EARHQUAKE

3.1 GENERAL INFORMATION OF THE CASE STUDY

Turkey is a potential earthquake area due to its geographical location. Throughout its history, unfortunately, Turkey has faced many devastating earthquakes. In recent history, 24 Jan 2020, an earthquake happened in Elazığ, a city in the east region of Turkey. Many people died and many were injured due to the destruction caused by the disaster. 76 buildings collapsed and more of them heavily damaged after the earthquake, as a result, container campuses has established by AFAD and Ministry of Environment and Urbanization. After a year of construction process, earthquake victims started to move in post-disaster permanent houses. In this chapter, it is planned to investigate the thoughts, feelings, adaptation and satisfaction levels of PDPH users. A survey conducted on site to understand the views of earthquake victims as post-disaster permanent housing residents.

3.1.1 Methodology of the Case Study

This case study is built on triangulation method which consist of both qualitative and quantitative data. Qualitative data includes drawings and visual documents, data regarding the PDHDs were collected on site, and the observations were presented by the researcher with photographs. Quantitative data gathered via a face-to-face questionnaire survey. (A1: Survey Questions) Questionnaire consist of questions related demographic data, characteristics of pre-disaster housing and post-disaster housing, level of satisfaction about the post-disaster housing features, physical and social environment, and renovation status of the houses. Survey is conducted on site with 117 participants through Convenience Sampling method in Çatalçeşme area. In the analysis of the survey, descriptive statistics (number and percentage) of the data are given. In testing the relationship between categorical variables, Fisher's Exact test

was applied when the sample size assumption (expected value>5) was not met. Analyzes were performed in IBM SPSS 25 program.

3.1.2 Elazığ Province

The province of Elazığ is located in the Upper Euphrates Section, in the southwest of the Eastern Anatolia Region. Located between 38°30' and 40°0'21" east longitudes, 38°0'17" and 39°0'11" north latitudes, the province is surrounded by Bingöl from the east, Tunceli from the north, Malatya from the west and southwest, and Diyarbakır from the south. (Figure 16) The plain that the city is located on is 1,067 meters above sea level. The province consists of 11 districts together with the central district.

Figure 17: Location of Elazığ Province

Elazig, where a continental climate prevailed in the past, has transitioned to a temperate climate with the effect of the dams built. As a result, winters which were very cold and heavy snowy before are relatively milder. In comparison to the climatic conditions of the region, relatively mild climate prevails in the Elazığ province. The average annual temperature is 13.7 °C | 56.7 °F. There is more rainfall in the winter time than in the summer. (Climate-Data 2023)

Table 3: Weather Averages in Elazığ

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	0.2 °C (32.3) °F	1.9 °C (35.4) °F	6.4 °C (43.5) °F	11.6 °C (52.9) °F	16.9 °C (62.5) °F	23.2 °C (73.8) °F	27.5 °C (81.6) °F	27.8 °C (82.1) °F	22.8 °C (73) °F	15.9 °C (60.6) °F	7.9 °C (46.2) °F	2.2 °C (36) °F
Min. Temperature °C (°F)	-2.7 °C (27.1) °F	-1.7 °C (29) °F	1.7 °C (35) °F	6.4 °C (43.5) °F	11.5 °C (52.7) °F	16.8 °C (62.3) °F	20.6 °C (69) °F	21.4 °C (70.5) °F	17.3 °C (63.1) °F	11.5 °C (52.8) °F	4.2 °C (39.5) °F	-0.7 °C (30.8) °F
Max. Temperature °C (°F)	3.2 °C (37.8) °F	5.7 °C (42.2) °F	11.1 °C (52) °F	16.6 °C (61.9) °F	22.1 °C (71.7) °F	29 °C (84.3) °F	33.7 °C (92.7) °F	33.8 °C (92.8) °F	28.3 °C (82.9) °F	20.6 °C (69) °F	11.8 °C (53.3) °F	5.4 °C (41.7) °F
Precipitation / Rainfall mm (in)	78 (3)	76 (2)	83 (3)	91 (3)	71 (2)	14 (0)	2 (0)	2 (0)	13 (0)	53 (2)	59 (2)	75 (2)
Humidity(%)	77%	73%	64%	59%	51%	35%	28%	29%	34%	52%	67%	75%
Rainy days (d)	8	8	9	10	8	3	1	1	2	5	5	8
avg. Sun hours (hours)	4.8	5.6	8.1	9.9	11.9	13.2	13.1	12.3	11.1	9.1	6.9	4.9

Data: 1991 - 2021 Min. Temperature °C (°F), Max. Temperature °C (°F), Precipitation / Rainfall mm (in), Humidity, Rainy days. Data: 1999 -

Agriculture is Elazig's primary industry despite changes to the industrial and service sectors. The production of field crops is the first agricultural activity that significantly boosts the provincial economy. This is followed by animal husbandry and vineyard-garden agriculture.

3.1.3 24 Jan 2020 Elazığ Earthquake

On 24 January 2020, a very severe earthquake with Ml=6.6 (Mw=6.5) instrumental magnitude and 38.3775 N 39.1042 E coordinate occurred over the center of Sivrice (Elazığ) at 20:55 local time. The focal depth of the earthquake is about 5 km and it is a shallow focused earthquake. The earthquake was felt in the Eastern Anatolia, Southeastern Anatolia, Central Anatolia and Black Sea regions, especially in the province of Elazığ and its districts. (Kandilli 2023) Center of the earthquake and affected areas shown in Figure 17 and 18. Scope of the Elazığ earthquake was Disaster Type 1 according to the disaster scale studied by Caldera and Wirasinghe (Table 1) since fatality range was in between 10-100.

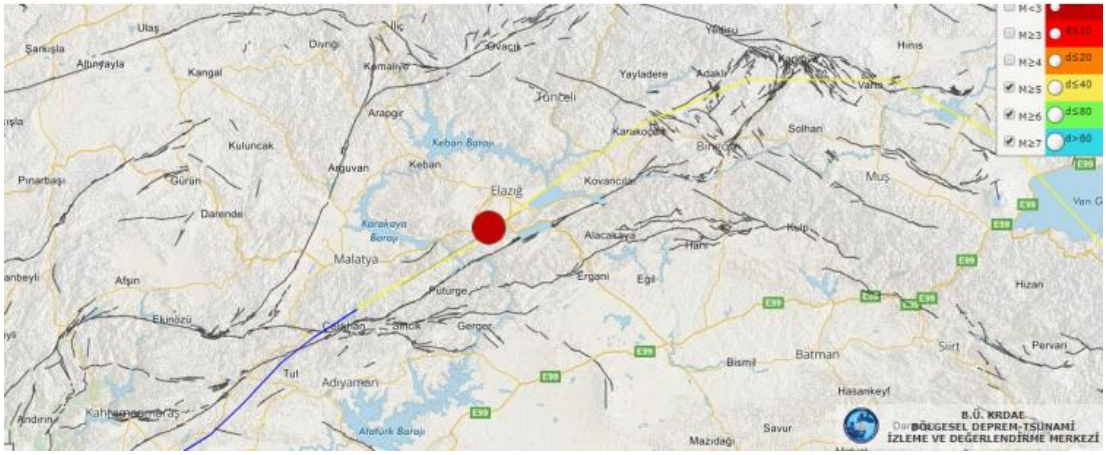

Figure 18: Location Map of Sivrice-Elazig (Ml=6.6) Earthquake

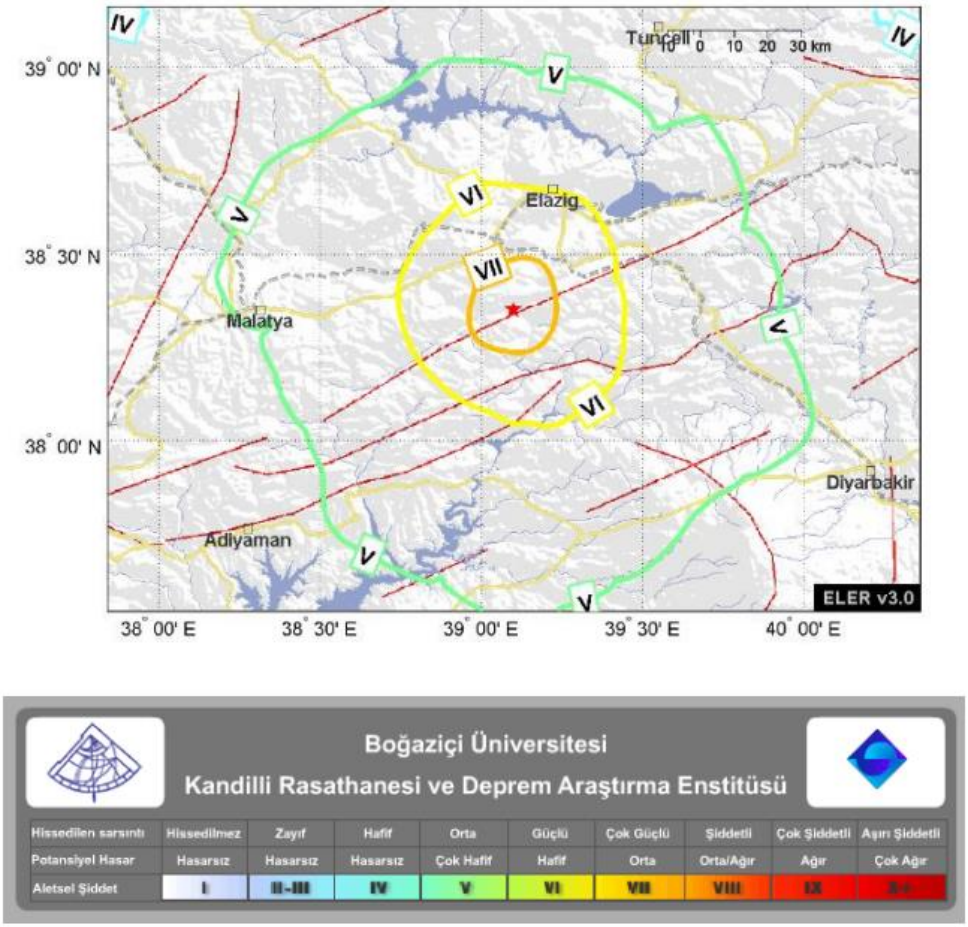

Figure 19: Estimated Severity Map after Earthquake

41 people died and 1466 people were injured due to the destruction caused by the disaster. There are 27,438 buildings in total in the city center of Elazığ, 76 buildings collapsed during the earthquake and 3,527 buildings were damaged. On the residential scale, 7,637 houses were demolished or heavily damaged, and 10,217 houses with moderate damage, which means about 13% of the total number of buildings in Elazığ.

About 50,000 people living in the city center were directly affected by this earthquake. (Şikoğlu and Güney 2020)

Figure 20: A Demolished Building after the 24 Jan 2020 Earthquake in Elazığ

3.2 USER SATISFACTION ANALYSIS OF POST-DISASTER PERMANENT HOUSING

3.2.1 Case Study: Çatalçeşme District

Approximately a year spent in temporary housing units after the earthquake, permanent houses began to be delivered in Elazığ. Çatalçeşme area selected as case study area for this study. (Figure 21) Since Çatalçeşme post-disaster permanent houses are experienced by users for the past few years, they are appropriate to study the user satisfaction level.

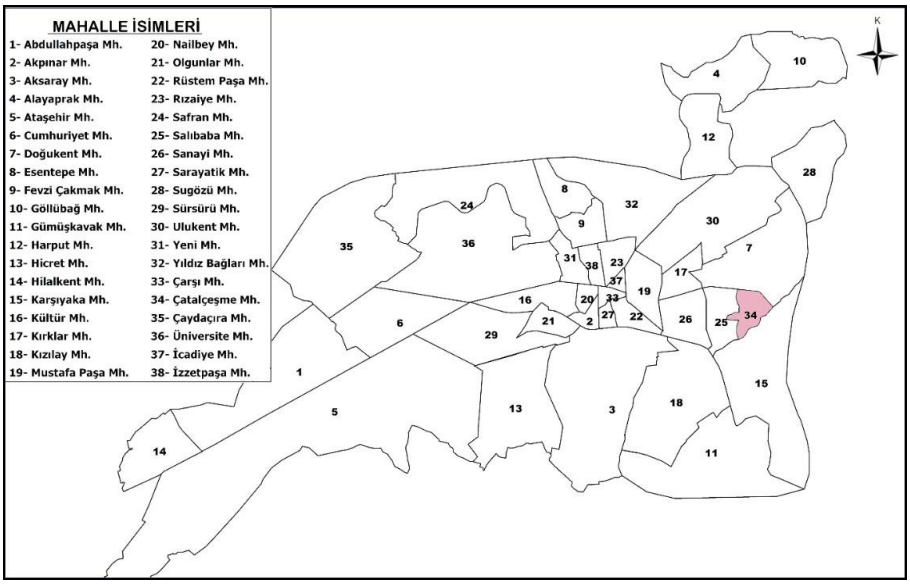

Figure 21: Location of Çatalçeşme District

38° 39' 44.1828" N 39° 11' 56.5548" E coordinated Çatalçeşme is a district about 5 km from the Elazığ city center. The reason for selecting Çatalçeşme area to study was the time spent in permanent houses. People experienced PDPHs in this area for over a year and lived through four seasons. In the light of this experience, user's thoughts and feelings were examined to determine satisfaction levels.

3.2.2 Site and House Types

Post-disaster permanent houses in Çatalçeşme district that are built by Housing Development Administration of the Republic of Türkiye (TOKİ) consist of 2 areas and 188 buildings that host about 6.000 people. Construction phase started after the earthquake, buildings constructed using tunnel formwork technique and completed in July 2021, about 1.5 years after earthquake. Houses in this area consist of two typologies, which are B type and E type buildings.

Figure 22: Çatalçeşme Houses

Figure 23: Site Plan of Çatalçeşme District

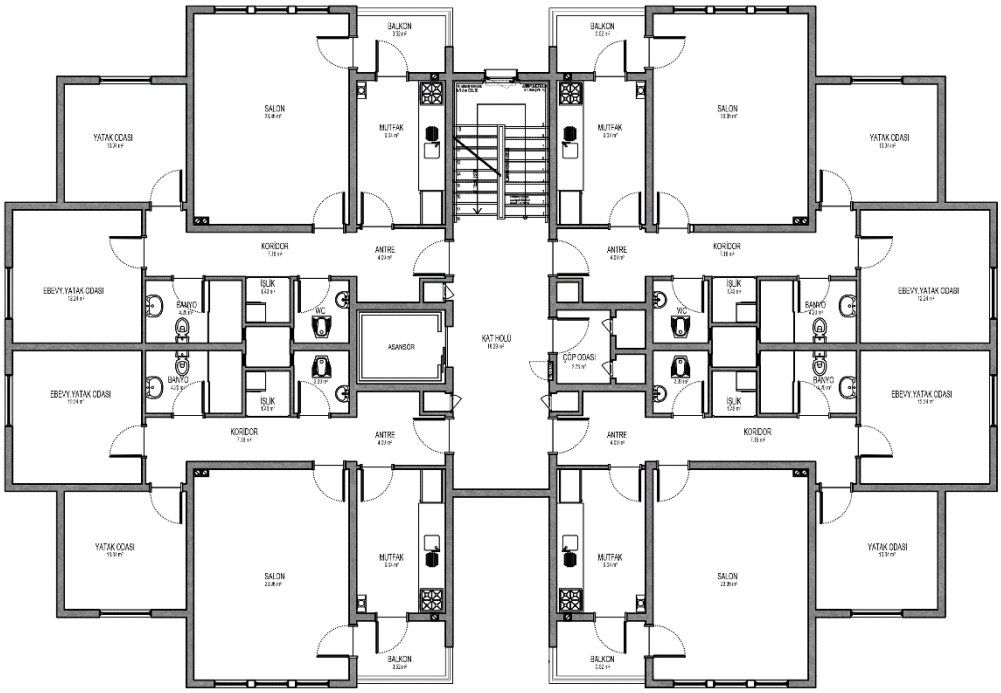

Figure 24: Type B House Floor Plan

Type B houses consist of 2 bedrooms and a living room in addition to a kitchen and wet areas, in a total area of 76.80 m².

Figure 25: Type B Building

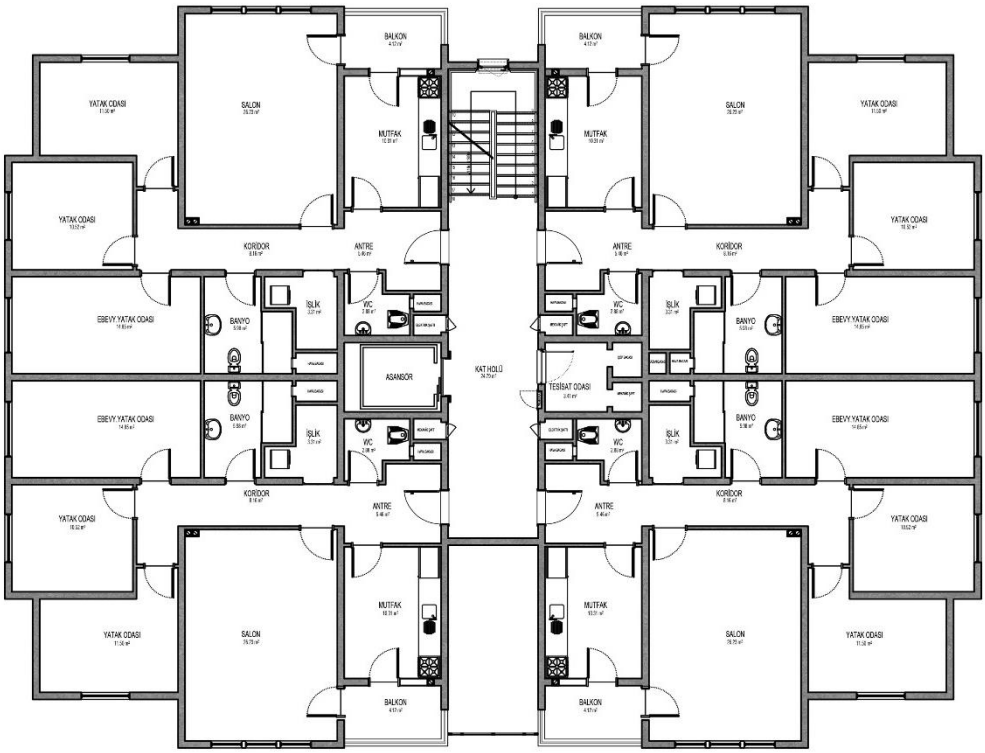

Figure 26: Type E House Floor Plan

Type E houses consist of 3 bedrooms and a living room in addition to a kitchen and wet areas, in a total area of 106.40 m².

Figure 27: Type E Building

3.2.3 Observations

Photographs are taken during site trip to better understand the buildings and environment from architects and designers' perspective. Site visited in December 2022, approximately 1,5 years after houses delivered to households.

Figure 28: Permanent Houses in Çatalçeşme

Two types of buildings, type B and E, painted variety of colors after previous buildings were criticized about being monotonous as quoted by the administration. Ground floor level exterior façades are covered with natural stone tiles and upper level finishings are painted plaster. (Figure 29)

Figure 29: Children's Playground and Near Environment

There are playgrounds placed for children in building site, there is no separation element defining the building area such as walls or fences. (Figure 28) On the streets in between the buildings, there are drains open above since the covers are stolen as stated by the households. (Figure 30)

Figure 30: Drains without Covers on the Building Site

Due to lack of planning related infrastructure, there are re-built pavements and roads. Problems related electricity or water system resulted in removing and repairing the pavements many times, leading to uneven surfaces. (Figure 31)

Figure 31: Repaired Pavements

In the interior of the houses, since the time spared for plaster coating to dry was not enough because of the fast construction process, there are defects on the walls. (Figure 32)

Figure 32: Plaster Finishing Defects on the Interior Wall

Some households state that they applied wallpapers on the wall, however they had to remove it after a while due to the defects that occurred on the walls. (Figure 33)

Figure 33: Wallpaper Removal and Repairing in one of the Houses

In some of the houses, people turn the space that is spared for washing machine into extra storage areas. They stated that the storage capacity of the houses is not enough for their belongings that they had to use that space as cabinets. (Figure 34)

Figure 34: Washing Machine Niche as Extra Storage Area

3.2.4 Survey

A questionnaire, approved by Ethics Committee, prepared to analyze the thoughts and feelings of the post-disaster permanent housing residents. Every person over the age of 18 has full legal authority and accountability in terms of juristic acts according to the Civil Code of Turkey. Based on this information, a questionnaire was voluntarily filled by people who was either 18 or older, without regard to their gender,

education level, race, or economic situation. Questionnaire created according to the post-disaster building and space quality parameters depending on Oo and Mirza's studies. Within the questionnaire participants answered questions related demographic data, characteristics of pre-disaster housing and post-disaster housing, level of satisfaction about the post-disaster housing features, physical and social environment, and renovation status of the houses. Site visited in December 2022, approximately 1,5 years after houses delivered to households. The survey conducted through Convenience Sampling method in Çatalçeşme area with 117 participants. Survey questionnaire is given in Appendices section. (A1: Survey Questions)

3.2.5 Survey Analysis

In the study, descriptive statistics (number and percentage) of the data are given. In testing the relationship between categorical variables, Fisher's Exact test was applied when the sample size assumption (expected value>5) was not met. Analyzes were performed in IBM SPSS 25 program.

Table 4: Distribution of the Participants According to their Demographic Characteristics

		n	**%**			**n**	**%**
Age	18-25	9	7,7	**Educational Background**	Elementary	28	23,9
	26-40	34	29,1		Middle School	27	23,1
	40-64	52	44,4		High School	40	34,2
	65 and above	22	18,8		Bachelor's Degree	17	14,5
Gender	Female	43	36,8		Post-Graduate	5	4,3
	Male	73	62,4	**Number of Households**	1	5	4,3
	Prefer no to state	1	0,9		2	26	22,2
Marital Status	Single	23	19,7		3-4	70	59,8
	Married	93	79,5		5-6	16	13,7
Job	Student	8	6,8	**Working Status**	Yes	40	34,2
	Public Servant	18	15,4		No	51	43,6
	Worker	14	12,0		Retired	26	22,2
	Tradesmen/Craftsmen	6	5,1	**Number of actively working households**	0	28	23,9
	Self-employed	10	8,5		1	67	57,3
	Agriculture and Livestock	4	3,4		2	19	16,2
	Housewife	38	32,5		3 and above	3	2,6
	Other	19	16,2				

The distribution of the participants according to their demographic characteristics is examined in Table. It was determined that 7.7% of the people were in the age range of 18-25, 29.1% were in the age range of 26-40, 44.4% were in the age range of 40-64, and 18.8% were in the age range of 65 and over. It was determined that 36.8% of the participants were female, 62.4% were male, and 0.9% did not want to mention it. It was observed that 19.7% of the individuals were single and 79.5% were married. 6.8% of the participants are students, 15.4% are public servants, 12% are workers, 5.1% are tradesmen/craftsmen, 8.5% are self-employed, 3.4% are agriculture and livestock, 32.5% were housewives and 16.2% were in other professions. It has been determined that 23.9% of the individuals are primary school graduates, 23.1% are secondary school graduates, 34.2% are high school graduates, 14.5% are university graduates, and 4.3% are graduate level educated. It was determined that 4.3% of the participants lived in the same house with one person, 22.2% with two, 59.8% with three or four people, and 13.7% with five or six people. It was determined that 34.2% of the individuals were working, 43.6% were not working and 22.2% were retired. When the people living with the participants were examined, it was seen that 57.3% of them had one, 16.2% of them two, 2.6% of three or more people were working actively, while 23.9% of them were not working.

Table 5: Distribution of the Participants According to their Answers to the Questions About the Building and the Environment

Answer the following questions according to the structure you lived in BEFORE the earthquake.		**n**	**%**
What is the ownership status of the house you lived in BEFORE the earthquake?	Homeowner	73	62,4
	Tenant	43	36,8
	Other	1	0,9
What type of house did you live in BEFORE the earthquake?	Apartment	88	75,2
	Detached house/Villa	20	17,1
	Village house	9	7,7
Please indicate the number of rooms and living rooms in the house you lived in BEFORE the earthquake.	2+1	21	17,9
	3+1	82	70,1
	4+1	14	12,0
What is the area of the house you lived in BEFORE the earthquake?	Less than 80 m^2	4	3,4
	80-90 m^2	8	6,8
	90-100 m^2	19	16,2
	100-120 m^2	34	29,1
	120-150 m^2	39	33,3
	More than 150 m^2	13	11,1

Table 5 Continued

Answer the following questions according to the structure you live in AFTER the earthquake.		**n**	**%**
What is the ownership status of the house you lived in AFTER the earthquake?	Homeowner	71	60,7
	Tenant	44	37,6
	Other	2	1,7
Please indicate the number of rooms and living rooms in the house you lived in AFTER the earthquake.	2+1	84	71,8
	3+1	33	28,2
What is the area of the house you lived in AFTER the earthquake?	Less than 80 m^2	3	2,6
	80-90 m^2	8	6,8
	90-100 m^2	74	63,2
	100-120 m^2	30	25,6
	120-150 m^2	2	1,7

The distribution of the participants according to their answers to the questions about the building and the environment is given in Table. Before the earthquake, 62.4% of the house in which the people lived belonged to themselves-family, 36.8% was rented and 0.9% belonged to another. 75.2% lived in an apartment, 17.1% were in a detached house/villa and 7.7% of them lived in a village house. Before the earthquake, 17.9% of participants lived 2+1 type of house, 70.1% were 3+1 and 12% were 4+1. 3.4% of the participants live less than 80 m2 total area of house, 6.8% are 80-90 m2, 16.2% are 90-100 m2, 29.1% are 100-120 m2, 33.3% are 120-150 m2 and 11.1% are 150 m2. After the earthquake, it was determined that 60.7% of the houses in which the people lived belonged to themselves and their families, 37.6% were rented and 1.7% belonged to the other. After the earthquake, 71.8% of the participants settled in the 2+1 types of flat, and 28.2% was 3+1. 2.6% of the participants' flat area was less than 80 m2, 6.8% was 80-90 m2, 63.2% was 90-100 m2, 25.6% was 100-120 m2, and 1.7% was 120-150 m2.

Table 6: Distribution of the Participants According to their Answers to the Questions About the House they Settled in after the Disaster / Questions Related Near Environment

Post-Disaster Housing Evaluation (Environment)		**n**	**%**
My house is easy to reach the city center.	I totally disagree	14	12,0
	I partially disagree	47	40,2
	I am not sure	22	18,8
	I partially agree	22	18,8
	I totally agree	12	10,3
My house is easy to reach institutions providing educational services such as schools and course centers.	I totally disagree	4	3,4
	I partially disagree	16	13,7
	I am not sure	36	30,8

Tablo 6 Continued

	I partially agree	38	32,5
	I totally agree	23	19,7
My house is easy to access to institutions that provide sales services such as markets, grocery stores, and shopping centers.	I totally disagree	2	1,7
	I partially disagree	7	6,0
	I am not sure	7	6,0
	I partially agree	41	35,0
	I totally agree	60	51,3
My house is easy to access religious and cultural facilities such as mosques, religious education institutions, and libraries.	I totally disagree	3	2,6
	I partially disagree	5	4,3
	I am not sure	6	5,1
	I partially agree	34	29,1
	I totally agree	69	59,0
Car horn and street noise are often heard from my house.	I totally disagree	31	26,5
	I partially disagree	17	14,5
	I am not sure	38	32,5
	I partially agree	30	25,6
	I totally agree	1	0,9
My neighborhood is calm and safe.	I totally disagree	5	4,3
	I partially disagree	16	13,7
	I am not sure	35	29,9
	I partially agree	38	32,5
	I totally agree	23	19,7
My neighbors and I visit each other's house.	I totally disagree	34	29,1
	I partially disagree	26	22,2
	I am not sure	12	10,3
	I partially agree	26	22,2
	I totally agree	19	16,2
My house is close to public transportation vehicles (bus, minibus, etc.)	I totally disagree	1	0,9
	I partially disagree	6	5,1
	I am not sure	7	6,0
	I partially agree	42	35,9
	I totally agree	61	52,1
There is no security problem in the neighborhood where I live.	I totally disagree	4	3,4
	I partially disagree	7	6,0
	I am not sure	71	60,7
	I partially agree	18	15,4
	I totally agree	17	14,5
I keep the curtains/tulle of my house closed so that it is not visible from the outside.	I totally disagree	4	3,4
	I partially disagree	3	2,6
	I am not sure	11	9,4
	I partially agree	41	35,0
	I totally agree	58	49,6
My house is close to my friends and relatives.	I totally disagree	44	37,6
	I partially disagree	46	39,3
	I am not sure	11	9,4
	I partially agree	9	7,7
	I totally agree	7	6,0

Tablo 6 Continued

I know my neighbors living in the building.	I totally disagree	32	27,4
	I partially disagree	26	22,2
	I am not sure	14	12,0
	I partially agree	27	23,1
	I totally agree	18	15,4
My neighborhood is quiet.	I totally disagree	2	1,7
	I partially disagree	4	3,4
	I am not sure	11	9,4
	I partially agree	44	37,6
	I totally agree	56	47,9

The distribution of the participants according to the answers to the questions about the house and near environment they settled in after the disaster is shown in Table…. The majority (40.2%) answered "I partially disagree" with the sentence "My house is easy to reach the city center", and (32.5%) "I partially agree" with the sentence "My house is easy to reach institutions providing educational services such as schools and course centers". (51.3%) "I totally agree" with the sentence "My house is easy to access to institutions that provide sales services such as markets, grocery stores, and shopping centers". "My house is easy to access religious and cultural facilities such as mosques, religious education institutions, and libraries" mostly (59%) answered "I totally agree". Mostly (32.5%) "I am not sure" to the sentence "Car horn and street noise are often heard from my house", (32.5%) "I partially agree" to the sentence "My neighborhood is calm and safe" (29.1%) "I strongly disagree" with the sentence "My neighbors and I visit each other's house". "My house is close to public transportation vehicles (bus, minibus, etc.)" mostly (52.1%) answered, "Totally agree". (60.7%) interpreted the sentence "There is no security problem in the neighborhood where I live" as "I am not sure". (49.6%) "I completely agree" with the sentence "I keep the curtains/tulle of my house closed so that it is not visible from the outside". "My house is close to my friends and relatives" sentence most (39.3%) replied "I partially disagree". (27.4%) stated "I totally disagree" with the sentence "I know my neighbors living in the building" and (47.9%) "I totally agree" with the sentence "My neighborhood is quiet".

Table 7: Distribution of the Participants According to their Answers to the Questions About the House they Settled in After the Disaster (Questions about Disaster Housing)

Post-Disaster Housing Evaluation (Housing)		**n**	**%**
My house gets enough daylight.	I totally disagree	5	4,3
	I partially disagree	5	4,3
	I am not sure	4	3,4
	I partially agree	36	30,8
	I totally agree	67	57,3
The people living in the house can easily hear each other's voices behind the walls of the house.	I totally disagree	13	11,1
	I partially disagree	30	25,6
	I am not sure	44	37,6
	I partially agree	14	12,0
	I totally agree	16	13,7
I use heaters in addition to the heating system of the house during the winter months.	I totally disagree	67	57,3
	I partially disagree	34	29,1
	I am not sure	3	2,6
	I partially agree	9	7,7
	I totally agree	4	3,4
In summer, it is sufficient to use the windows to ventilate/cool the house.	I totally disagree	2	1,7
	I partially disagree	5	4,3
	I am not sure	53	45,3
	I partially agree	27	23,1
	I totally agree	30	25,6
Sunlight is effective in warming my house.	I totally disagree	6	5,1
	I partially disagree	8	6,8
	I am not sure	7	6,0
	I partially agree	46	39,3
	I totally agree	50	42,7
Sounds from downstairs/upstairs are heard from my house.	I totally disagree	14	12,0
	I partially disagree	35	29,9
	I am not sure	46	39,3
	I partially agree	12	10,3
	I totally agree	10	8,5
I use tools such as air conditioners and fans to cool the house in the summer.	I totally disagree	51	43,6
	I partially disagree	37	31,6
	I am not sure	12	10,3
	I partially agree	11	9,4
	I totally agree	6	5,1
The number of sockets/electrical switches in the house is sufficient.	I totally disagree	5	4,3
	I partially disagree	7	6,0
	I am not sure	7	6,0
	I partially agree	35	29,9
	I totally agree	63	53,8
My house is easily warmed in winter.	I totally disagree	5	4,3
	I partially disagree	4	3,4
	I am not sure	5	4,3
	I partially agree	49	41,9
	I totally agree	54	46,2
The locations of the sockets/electrical switches in the house are suitable for use.	I totally disagree	7	6,0
	I partially disagree	4	3,4
	I am not sure	45	38,5
	I partially agree	32	27,4
	I totally agree	29	24,8

Tablo 7 Continued

The living room is sufficient to spend time with the family.	I totally disagree	3	2,6
	I partially disagree	10	8,5
	I am not sure	23	19,7
	I partially agree	52	44,4
	I totally agree	29	24,8
The living room has enough space to host guests.	I totally disagree	8	6,8
	I partially disagree	39	33,3
	I am not sure	31	26,5
	I partially agree	20	17,1
	I totally agree	19	16,2
My living room/dining room is sufficient when I invite guests to dinner.	I totally disagree	9	7,7
	I partially disagree	32	27,4
	I am not sure	41	35,0
	I partially agree	18	15,4
	I totally agree	17	14,5
My house meets my storage needs.	I totally disagree	46	39,3
	I partially disagree	40	34,2
	I am not sure	10	8,5
	I partially agree	9	7,7
	I totally agree	12	10,3
There is enough space in the house for the washing machine and for doing laundry.	I totally disagree	39	33,3
	I partially disagree	36	30,8
	I am not sure	9	7,7
	I partially agree	9	7,7
	I totally agree	24	20,5
I have enough space to dry and iron the laundry at home.	I totally disagree	37	31,6
	I partially disagree	48	41,0
	I am not sure	12	10,3
	I partially agree	8	6,8
	I totally agree	12	10,3
My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)	I totally disagree	35	29,9
	I partially disagree	47	40,2
	I am not sure	13	11,1
	I partially agree	12	10,3
	I totally agree	10	8,5
The kitchen is easily ventilated after cooking, there is no smell of food.	I totally disagree	9	7,7
	I partially disagree	9	7,7
	I am not sure	8	6,8
	I partially agree	50	42,7
	I totally agree	41	35,0
My house has enough space to store foods such as ready-made food, canned food, etc.	I totally disagree	48	41,0
	I partially disagree	35	29,9
	I am not sure	9	7,7
	I partially agree	13	11,1
	I totally agree	12	10,3
All white goods (refrigerator, oven, dishwasher, etc.) fit in my kitchen easily.	I totally disagree	7	6,0
	I partially disagree	32	27,4
	I am not sure	43	36,8
	I partially agree	21	17,9
	I totally agree	14	12,0
My kitchen/balcony is suitable for drying vegetables/fruits and preparing winter food.	I totally disagree	50	42,7
	I partially disagree	36	30,8
	I am not sure	16	13,7
	I partially agree	10	8,5

Tablo 7 Continued

	I totally agree	5	4,3
The smell of food from neighbors living in the same building does not come into the house/kitchen.	I totally disagree	14	12,0
	I partially disagree	31	26,5
	I am not sure	36	30,8
	I partially agree	14	12,0
	I totally agree	22	18,8
The number of rooms in the house is sufficient for individuals living in the house.	I totally disagree	13	11,1
	I partially disagree	8	6,8
	I am not sure	62	53,0
	I partially agree	10	8,5
	I totally agree	24	20,5
My house has enough space to host boarding guests.	I totally disagree	19	16,2
	I partially disagree	48	41,0
	I am not sure	27	23,1
	I partially agree	9	7,7
	I totally agree	14	12,0
The cabinets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house.	I totally disagree	15	12,8
	I partially disagree	46	39,3
	I am not sure	30	25,6
	I partially agree	11	9,4
	I totally agree	15	12,8
The number of bathrooms in the house is sufficient for everyone to use.	I totally disagree	8	6,8
	I partially disagree	9	7,7
	I am not sure	62	53,0
	I partially agree	16	13,7
	I totally agree	22	18,8
Bathroom/toilet ventilation is sufficient.	I totally disagree	5	4,3
	I partially disagree	5	4,3
	I am not sure	7	6,0
	I partially agree	49	41,9
	I totally agree	51	43,6
People often have to wait for each other to use the bathroom/toilet.	I totally disagree	53	45,3
	I partially disagree	31	26,5
	I am not sure	10	8,5
	I partially agree	15	12,8
	I totally agree	8	6,8
The size of the balcony is sufficient.	I totally disagree	19	16,2
	I partially disagree	28	23,9
	I am not sure	47	40,2
	I partially agree	10	8,5
	I totally agree	13	11,1

The distribution of the participants according to their answers to the questions about the house they settled in after the disaster is presented in Table 6.

“My house gets enough daylight” mostly (57.3%) responded “I totally agree”, “The people living in the house can easily hear each other's voices behind the walls of the house” mostly (37.6%) "I am not sure", “I use heaters in addition to the heating system of the house during the winter months” mostly (57.3%) “I strongly disagree”,

“In summer, it is sufficient to use the windows to ventilate/cool the house” mostly (45.3%) “I am not sure”. It was observed that most of the participants (42.7%) stated "Sunlight is effective in warming my house" as "I totally agree". “Sounds from downstairs/upstairs are heard from my house” mostly (39.3%) "I am not sure", and " I use tools such as air conditioners and fans to cool the house in the summer" is mostly (43.6%) “I strongly disagree”.

“The number of sockets/electrical switches in the house is sufficient” mostly (53.8%) “I totally agree”. “My house is easily warmed in winter” was determined that they mostly (46.2%) expressed "I totally agree", "The locations of the sockets/electrical switches in the house are suitable for use" mostly (38.5%) as "I am not sure". “The living room is sufficient to spend time with the family” mostly (44.4%) “I partially agree”, “The living room has enough space to host guests” mostly (33.3%) “I partially disagree”, “My living room/dining room is sufficient when I invite guests to dinner” mostly (35%) “I am not sure”, “My house meets my storage needs” mostly (39.3%) “I strongly disagree”. “There is enough space in the house for the washing machine and for doing laundry” most (33.3%) evaluated the situation as “I strongly disagree”, “I have enough space to dry and iron the laundry at home” mostly (41%) state “I partially disagree”.

“My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)” mostly (40.2%) “I partially disagree”, “The kitchen is easily ventilated after cooking, there is no smell of food” mostly (42.7%) “I partially agree”. “My house has enough space to store foods such as ready-made food, canned food, etc.” mostly (41%) “I strongly disagree”, “All white goods (refrigerator, oven, dishwasher, etc.) fit in my kitchen easily” mostly (36.8%) “I am not sure”. “My kitchen/balcony is suitable for drying vegetables/fruits and preparing winter food” mostly (42.7%) state “I strongly disagree” and “The smell of food from neighbors living in the same building does not come into the house/kitchen” mostly (30.8%) replied, “I am not sure”.

“The number of rooms in the house is sufficient for individuals living in the house” mostly (53%) “I am not sure”, “My house has enough space to host boarding guests” mostly (41%) “Partially disagree ”, “The cabinets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house” mostly (39.3%) as "I partially disagree". “The number of bathrooms in the house is sufficient for everyone to use” mostly (53%) “I am not sure”, “Bathroom/toilet

ventilation is sufficient" mostly (43.6%) "I totally agree", "People often have to wait for each other to use the bathroom/toilet." (45.3%) "I strongly disagree" and "The size of the balcony is sufficient" mostly (40.2%) as "I am not sure".

Table 8: Distribution of the Participants According to their Answers to the Questions About the Renovation Status of the House they Settled in After the Disaster

Post-Disaster Housing Evaluation (Renovation)		**n**	**%**
Have you made any changes/renovations in the building you were placed in AFTER the earthquake?	Yes	61	52,1
	No	56	47,9
If yes, the type of change/renovation made;			
Covering/closing the balcony		46	39,4
Room joining (joining the kitchen and the balcony, combining and enlarging two separate rooms, etc.)		1	0,9
Changing the floor covering (parquet, ceramic, etc.)		13	11,1
Changing the wall covering (wall paint change, wallpaper making, etc.)		36	30,8
Changing/adding lighting elements (replacing the chandelier, light band construction, etc.)		22	18,8
Changing the electrical installation (replacing the sockets / electric switches, adding sockets, etc.)		6	5,1
Changing plumbing (adding/removing squatting pan or water closet, changing the location of the shower/sink, changing the location of the washing machine, etc.)		8	6,8
Additional storage and cabinet construction (cloakroom construction, kitchen cabinet construction, clothing cabinet construction, etc.)		46	39,3
Other		3	2,6
Are you planning to sell the house you have settled in in the near future, after receiving the title deed?	Yes	15	12,8
	No	99	84,6

The distribution of the participants according to their answers to the questions about the renovation status of the house they settled in after the disaster is examined in Table 7. It was determined that while 52.1% of the people made changes/modifications to the building they were placed in after the earthquake, 47.9% did not. When the types of changes/renovations are examined, 39.4% of them are closing the balcony, 39.3% of them are additional storage and cabinet construction (cloakroom construction, kitchen cabinet construction, clothing cabinet construction, etc.), 30.8% of them are changing the wall covering (wall paint change, wallpaper making, etc.), 18.8% changing/adding lighting elements (replacing the chandelier, light band construction, etc.), 11.1% changing the floor covering (parquet, ceramic, etc.), 6,8% of them changed the plumbing (adding/removing squatting pan or water closet, changing the location of the shower/sink, changing the location of the washing machine, etc.), changing the electrical installation of 5.1% (replacing the sockets / electric switches, adding sockets, etc.), it was determined that 0.9% of them were room

joining (joining the kitchen and the balcony, combining and enlarging two separate rooms, etc.) and 2.6% of them were other types of renovations. While 84.6% of the participants do not think of selling the house they settled in in the near future after receiving the title deed, it was seen that 12.8% did.

There were some additional tests done examining the relations between user satisfaction and different variables such as age, gender and number of people living in the house.

Table 9: The Cross-Table and the Relations Between the Answers Given by the Participants to the Questions About the House they Settled in After the Disaster and the Age Groups

		Age					
		18-25	26-40	40-64	65 and above	Test Statistics	p
25.The living room has enough space to host guests.							
I totally disagree	n	1	3	4	0	11,564	0,435
	%	12,5	37,5	50,0	0,0		
	%Y.	11,1	8,8	7,7	0,0		
I partially disagree	n	2	14	13	10		
	%	5,1	35,9	33,3	25,6		
	%Y.	22,2	41,2	25,0	45,5		
I am not sure	n	1	7	19	4		
	%	3,2	22,6	61,3	12,9		
	%Y.	11,1	20,6	36,5	18,2		
I partially agree	n	3	5	7	5		
	%	15,0	25,0	35,0	25,0		
	%Y.	33,3	14,7	13,5	22,7		
I totally agree	n	2	5	9	3		
	%	10,5	26,3	47,4	15,8		
	%Y.	22,2	14,7	17,3	13,6		
26.My living room/dining room is sufficient when I invite guests to dinner.							
I totally disagree	n	1	4	3	1	5,122	0,968
	%	11,1	44,4	33,3	11,1		
	%Y.	11,1	11,8	5,8	4,5		
I partially disagree	n	1	8	17	6		
	%	3,1	25,0	53,1	18,8		
	%Y.	11,1	23,5	32,7	27,3		
I am not sure	n	3	13	17	8		
	%	7,3	31,7	41,5	19,5		
	%Y.	33,3	38,2	32,7	36,4		
I partially agree	n	2	4	8	4		
	%	11,1	22,2	44,4	22,2		
	%Y.	22,2	11,8	15,4	18,2		
I totally agree	n	2	5	7	3		
	%	11,8	29,4	41,2	17,6		
	%Y.	22,2	14,7	13,5	13,6		
27.My house meets my storage needs.							
I totally disagree	n	3	11	24	8	7,604	0,810
	%	6,5	23,9	52,2	17,4		
	%Y.	33,3	32,4	46,2	36,4		
I partially disagree	n	3	12	17	8		
	%	7,5	30,0	42,5	20,0		
	%Y.	33,3	35,3	32,7	36,4		

Tablo 9 Continued

I am not sure	n	1	6	2	1		
	%	10,0	60,0	20,0	10,0		
	%Y.	11,1	17,6	3,8	4,5		
I partially agree	n	1	2	4	2		
	%	11,1	22,2	44,4	22,2		
	%Y.	11,1	5,9	7,7	9,1		
I totally agree	n	1	3	5	3		
	%	8,3	25,0	41,7	25,0		
	%Y.	11,1	8,8	9,6	13,6		
28.There is enough space in the house for the washing machine and for doing laundry.							
I totally disagree	n	1	12	19	7	14,989	0,183
	%	2,6	30,8	48,7	17,9		
	%Y.	11,1	35,3	36,5	31,8		
I partially disagree	n	3	7	17	9		
	%	8,3	19,4	47,2	25,0		
	%Y.	33,3	20,6	32,7	40,9		
I am not sure	n	3	3	1	2		
	%	33,3	33,3	11,1	22,2		
	%Y.	33,3	8,8	1,9	9,1		
I partially agree	n	0	2	5	2		
	%	0,0	22,2	55,6	22,2		
	%Y.	0,0	5,9	9,6	9,1		
I totally agree	n	2	10	10	2		
	%	8,3	41,7	41,7	8,3		
	%Y.	22,2	29,4	19,2	9,1		
29.I have enough space to dry and iron the laundry at home.							
I totally disagree	n	1	13	15	8	11,308	0,448
	%	2,7	35,1	40,5	21,6		
	%Y.	11,1	38,2	28,8	36,4		
I partially disagree	n	4	11	25	8		
	%	8,3	22,9	52,1	16,7		
	%Y.	44,4	32,4	48,1	36,4		
I am not sure	n	2	6	2	2		
	%	16,7	50,0	16,7	16,7		
	%Y.	22,2	17,6	3,8	9,1		
I partially agree	n	1	2	3	2		
	%	12,5	25,0	37,5	25,0		
	%Y.	11,1	5,9	5,8	9,1		
I totally agree	n	1	2	7	2		
	%	8,3	16,7	58,3	16,7		
	%Y.	11,1	5,9	13,5	9,1		
30.My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)							
I totally disagree	n	1	9	20	5	16,577	0,120
	%	2,9	25,7	57,1	14,3		
	%Y.	11,1	26,5	38,5	22,7		
I partially disagree	n	2	15	21	9		
	%	4,3	31,9	44,7	19,1		
	%Y.	22,2	44,1	40,4	40,9		
I am not sure	n	4	5	2	2		
	%	30,8	38,5	15,4	15,4		
	%Y.	44,4	14,7	3,8	9,1		
I partially agree	n	2	2	4	4		
	%	16,7	16,7	33,3	33,3		
	%Y.	22,2	5,9	7,7	18,2		

Tablo 9 Continued

I totally agree	n	0	3	5	2		
	%	0,0	30,0	50,0	20,0		
	%Y.	0,0	8,8	9,6	9,1		
32.My house has enough space to store foods such as ready-made food, canned food, etc.							
I totally disagree	n	3	19	20	6	24,102	0,008*
	%	6,3	39,6	41,7	12,5		
	%Y.	33,3	55,9	38,5	27,3		
I partially disagree	n	2	6	17	10		
	%	5,7	17,1	48,6	28,6		
	%Y.	22,2	17,6	32,7	45,5		
I am not sure	n	3	4	2	0		
	%	33,3	44,4	22,2	0,0		
	%Y.	33,3	11,8	3,8	0,0		
I partially agree	n	1	5	6	1		
	%	7,7	38,5	46,2	7,7		
	%Y.	11,1	14,7	11,5	4,5		
I totally agree	n	0	0	7	5		
	%	0,0	0,0	58,3	41,7		
	%Y.	0,0	0,0	13,5	22,7		
33.All white goods (refrigerator, oven, dishwasher, etc.) fit in my kitchen easily.							
I totally disagree	n	1	3	3	0	10,335	0,551
	%	14,3	42,9	42,9	0,0		
	%Y.	11,1	8,8	5,8	0,0		
I partially disagree	n	4	11	10	7		
	%	12,5	34,4	31,3	21,9		
	%Y.	44,4	32,4	19,2	31,8		
I am not sure	n	1	11	23	8		
	%	2,3	25,6	53,5	18,6		
	%Y.	11,1	32,4	44,2	36,4		
I partially agree	n	2	7	8	4		
	%	9,5	33,3	38,1	19,0		
	%Y.	22,2	20,6	15,4	18,2		
I totally agree	n	1	2	8	3		
	%	7,1	14,3	57,1	21,4		
	%Y.	11,1	5,9	15,4	13,6		
34.My kitchen/balcony is suitable for drying vegetables/fruits and preparing winter food.							
I totally disagree	n	2	12	26	10	9,833	0,587
	%	4,0	24,0	52,0	20,0		
	%Y.	22,2	35,3	50,0	45,5		
I partially disagree	n	4	10	15	7		
	%	11,1	27,8	41,7	19,4		
	%Y.	44,4	29,4	28,8	31,8		
I am not sure	n	1	8	6	1		
	%	6,3	50,0	37,5	6,3		
	%Y.	11,1	23,5	11,5	4,5		
I partially agree	n	1	3	3	3		
	%	10,0	30,0	30,0	30,0		
	%Y.	11,1	8,8	5,8	13,6		
I totally agree	n	1	1	2	1		
	%	20,0	20,0	40,0	20,0		
	%Y.	11,1	2,9	3,8	4,5		
37.My house has enough space to host boarding guests.							
I totally disagree	n	2	6	10	1	10,449	0,546
	%	10,5	31,6	52,6	5,3		
	%Y.	22,2	17,6	19,2	4,5		

Tablo 9 Continued

I partially disagree	n	3	15	20	10		
	%	6,3	31,3	41,7	20,8		
	%Y.	33,3	44,1	38,5	45,5		
I am not sure	n	1	10	11	5		
	%	3,7	37,0	40,7	18,5		
	%Y.	11,1	29,4	21,2	22,7		
I partially agree	n	1	2	3	3		
	%	11,1	22,2	33,3	33,3		
	%Y.	11,1	5,9	5,8	13,6		
I totally agree	n	2	1	8	3		
	%	14,3	7,1	57,1	21,4		
	%Y.	22,2	2,9	15,4	13,6		
38.The cabinets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house.							
I totally disagree	n	3	4	7	1	8,821	0,710
	%	20,0	26,7	46,7	6,7		
	%Y.	33,3	11,8	13,5	4,5		
I partially disagree	n	1	13	22	10		
	%	2,2	28,3	47,8	21,7		
	%Y.	11,1	38,2	42,3	45,5		
I am not sure	n	3	9	13	5		
	%	10,0	30,0	43,3	16,7		
	%Y.	33,3	26,5	25,0	22,7		
I partially agree	n	0	4	4	3		
	%	0,0	36,4	36,4	27,3		
	%Y.	0,0	11,8	7,7	13,6		
I totally agree	n	2	4	6	3		
	%	13,3	26,7	40,0	20,0		
	%Y.	22,2	11,8	11,5	13,6		

*p<0,05

Fisher's Exact tests were applied to examine the relationships between the ages of the participants and the answers they gave to the questions about the house they settled in after the disaster. As a result of the analysis, a statistically significant relationship was found between the age groups and the answers given to the question "My house has enough space to store foods such as winter food, ready-made food and canned food" ($p<0.05$). When the observations are examined for the reason of the relationship, it is seen that the people who give the answer of "I do not agree" are mostly between the ages of 26-40 and 40-64; It was determined that the people who answered "Partially disagree" were mostly between the ages of 40-64, and those who gave the answer "I totally agree" were mostly 65 years old and over.

"The living room/living room has enough space to host guests", "my living room/dining room is sufficient when I invite guests to dinner", "my house meets my storage needs", "there is enough space for washing machine and laundry at home", "drying and I have enough space for ironing", "My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)", "all white goods

(refrigerator, oven, dishwasher, etc.) fit easily in my kitchen", "my kitchen/balcony is suitable for drying vegetables/fruits, preparing winter food", "my house has enough space to host guests" and "the closets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house" and between age groups, no statistically significant relationships were found (p>0.05).

Table 10: The Cross-Table and the Relationships Between the Answers Given by the Participants to the Questions About the House they Settled in After the Disaster and the Number of People in the House

		Number of People in the House					
		1	2	3-4	5-6	Test Statistics	p
25.The living room has enough space to host guests.							
I totally disagree	n	0	2	4	2	21,187	0,018*
	%	0,0	25,0	50,0	25,0		
	%Y.	0,0	7,7	5,7	12,5		
I partially disagree	n	2	4	30	3		
	%	5,1	10,3	76,9	7,7		
	%Y.	40,0	15,4	42,9	18,8		
I am not sure	n	1	5	22	3		
	%	3,2	16,1	71,0	9,7		
	%Y.	20,0	19,2	31,4	18,8		
I partially agree	n	1	7	6	6		
	%	5,0	35,0	30,0	30,0		
	%Y.	20,0	26,9	8,6	37,5		
I totally agree	n	1	8	8	2		
	%	5,3	42,1	42,1	10,5		
	%Y.	20,0	30,8	11,4	12,5		
26.My living room/dining room is sufficient when I invite guests to dinner.							
I totally disagree	n	0	2	5	2	28,950	0,001*
	%	0,0	22,2	55,6	22,2		
	%Y.	0,0	7,7	7,1	12,5		
I partially disagree	n	2	2	26	2		
	%	6,3	6,3	81,3	6,3		
	%Y.	40,0	7,7	37,1	12,5		
I am not sure	n	1	7	27	6		
	%	2,4	17,1	65,9	14,6		
	%Y.	20,0	26,9	38,6	37,5		
I partially agree	n	1	7	4	6		
	%	5,6	38,9	22,2	33,3		
	%Y.	20,0	26,9	5,7	37,5		
I totally agree	n	1	8	8	0		
	%	5,9	47,1	47,1	0,0		
	%Y.	20,0	30,8	11,4	0,0		
27.My house meets my storage needs.							

Tablo 10 Continued

I totally disagree	n	3	6	28	9	21,839	0,012*
	%	6,5	13,0	60,9	19,6		
	%Y.	60,0	23,1	40,0	56,3		
I partially disagree	n	0	8	28	4		
	%	0,0	20,0	70,0	10,0		
	%Y.	0,0	30,8	40,0	25,0		
I am not sure	n	0	2	8	0		
	%	0,0	20,0	80,0	0,0		
	%Y.	0,0	7,7	11,4	0,0		
I partially agree	n	1	5	1	2		
	%	11,1	55,6	11,1	22,2		
	%Y.	20,0	19,2	1,4	12,5		
I totally agree	n	1	5	5	1		
	%	8,3	41,7	41,7	8,3		
	%Y.	20,0	19,2	7,1	6,3		
28.There is enough space in the house for the washing machine and for doing laundry.							
I totally disagree	n	2	4	30	3	15,505	0,133
	%	5,1	10,3	76,9	7,7		
	%Y.	40,0	15,4	42,9	18,8		
I partially disagree	n	0	10	21	5		
	%	0,0	27,8	58,3	13,9		
	%Y.	0,0	38,5	30,0	31,3		
I am not sure	n	0	3	4	2		
	%	0,0	33,3	44,4	22,2		
	%Y.	0,0	11,5	5,7	12,5		
I partially agree	n	0	3	4	2		
	%	0,0	33,3	44,4	22,2		
	%Y.	0,0	11,5	5,7	12,5		
I totally agree	n	3	6	11	4		
	%	12,5	25,0	45,8	16,7		
	%Y.	60,0	23,1	15,7	25,0		
29.I have enough space to dry and iron the laundry at home.							
I totally disagree	n	1	5	26	5	12,375	0,323
	%	2,7	13,5	70,3	13,5		
	%Y.	20,0	19,2	37,1	31,3		
I partially disagree	n	2	10	30	6		
	%	4,2	20,8	62,5	12,5		
	%Y.	40,0	38,5	42,9	37,5		
I am not sure	n	0	3	7	2		
	%	0,0	25,0	58,3	16,7		
	%Y.	0,0	11,5	10,0	12,5		
I partially agree	n	1	2	4	1		
	%	12,5	25,0	50,0	12,5		
	%Y.	20,0	7,7	5,7	6,3		
I totally agree	n	1	6	3	2		
	%	8,3	50,0	25,0	16,7		
	%Y.	20,0	23,1	4,3	12,5		
30.My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)							
I totally disagree	n	2	3	24	6	22,869	0,009*
	%	5,7	8,6	68,6	17,1		
	%Y.	40,0	11,5	34,3	37,5		

Table 10 Continued

I partially disagree	n	1	9	32	5		
	%	2,1	19,1	68,1	10,6		
	%Y.	20,0	34,6	45,7	31,3		
I am not sure	n	0	4	8	1		
	%	0,0	30,8	61,5	7,7		
	%Y.	0,0	15,4	11,4	6,3		
I partially agree	n	1	5	2	4		
	%	8,3	41,7	16,7	33,3		
	%Y.	20,0	19,2	2,9	25,0		
I totally agree	n	1	5	4	0		
	%	10,0	50,0	40,0	0,0		
	%Y.	20,0	19,2	5,7	0,0		
32.My house has enough space to store foods such as ready-made food, canned food, etc.							
I totally disagree	n	3	6	31	8	27,850	0,001*
	%	6,3	12,5	64,6	16,7		
	%Y.	60,0	23,1	44,3	50,0		
I partially disagree	n	0	8	25	2		
	%	0,0	22,9	71,4	5,7		
	%Y.	0,0	30,8	35,7	12,5		
I am not sure	n	0	2	6	1		
	%	0,0	22,2	66,7	11,1		
	%Y.	0,0	7,7	8,6	6,3		
I partially agree	n	0	2	7	4		
	%	0,0	15,4	53,8	30,8		
	%Y.	0,0	7,7	10,0	25,0		
I totally agree	n	2	8	1	1		
	%	16,7	66,7	8,3	8,3		
	%Y.	40,0	30,8	1,4	6,3		
33.All white goods (refrigerator, oven, dishwasher, etc.) fit in my kitchen easily.							
I totally disagree	n	0	0	3	4	29,431	0,001*
	%	0,0	0,0	42,9	57,1		
	%Y.	0,0	0,0	4,3	25,0		
I partially disagree	n	0	6	22	4		
	%	0,0	18,8	68,8	12,5		
	%Y.	0,0	23,1	31,4	25,0		
I am not sure	n	2	7	32	2		
	%	4,7	16,3	74,4	4,7		
	%Y.	40,0	26,9	45,7	12,5		
I partially agree	n	1	5	10	5		
	%	4,8	23,8	47,6	23,8		
	%Y.	20,0	19,2	14,3	31,3		
I totally agree	n	2	8	3	1		
	%	14,3	57,1	21,4	7,1		
	%Y.	40,0	30,8	4,3	6,3		
34.My kitchen/balcony is suitable for drying vegetables/fruits and preparing winter food.							
I totally disagree	n	2	11	30	7	13,216	0,258
	%	4,0	22,0	60,0	14,0		
	%Y.	40,0	42,3	42,9	43,8		
I partially disagree	n	1	6	25	4		
	%	2,8	16,7	69,4	11,1		
	%Y.	20,0	23,1	35,7	25,0		

Table 10: Continued

I am not sure	n	1	3	11	1		
	%	6,3	18,8	68,8	6,3		
	%Y.	20,0	11,5	15,7	6,3		
I partially agree	n	0	4	3	3		
	%	0,0	40,0	30,0	30,0		
	%Y.	0,0	15,4	4,3	18,8		
I totally agree	n	1	2	1	1		
	%	20,0	40,0	20,0	20,0		
	%Y.	20,0	7,7	1,4	6,3		
37.My house has enough space to host boarding guests.							
I totally disagree	n	0	4	8	7	33,832	0,000*
	%	0,0	21,1	42,1	36,8		
	%Y.	0,0	15,4	11,4	43,8		
I partially disagree	n	3	4	38	3		
	%	6,3	8,3	79,2	6,3		
	%Y.	60,0	15,4	54,3	18,8		
I am not sure	n	1	6	18	2		
	%	3,7	22,2	66,7	7,4		
	%Y.	20,0	23,1	25,7	12,5		
I partially agree	n	0	4	2	3		
	%	0,0	44,4	22,2	33,3		
	%Y.	0,0	15,4	2,9	18,8		
I totally agree	n	1	8	4	1		
	%	7,1	57,1	28,6	7,1		
	%Y.	20,0	30,8	5,7	6,3		
38.The cabinets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house.							
I totally disagree	n	0	3	6	6	24,698	0,005*
	%	0,0	20,0	40,0	40,0		
	%Y.	0,0	11,5	8,6	37,5		
I partially disagree	n	2	4	34	6		
	%	4,3	8,7	73,9	13,0		
	%Y.	40,0	15,4	48,6	37,5		
I am not sure	n	1	8	20	1		
	%	3,3	26,7	66,7	3,3		
	%Y.	20,0	30,8	28,6	6,3		
I partially agree	n	1	4	4	2		
	%	9,1	36,4	36,4	18,2		
	%Y.	20,0	15,4	5,7	12,5		
I totally agree	n	1	7	6	1		
	%	6,7	46,7	40,0	6,7		
	%Y.	20,0	26,9	8,6	6,3		

*p<0, 05

Fisher's Exact tests were carried out to examine the relationships between the number of people in the house and the answers they gave to the questions about the house they settled in after the disaster. As a result of the analysis, with the number of people in the house, “The living room/living room has enough space to host guests”, “My living room/dining room is sufficient when I invite guests to dinner”, “My house

meets my storage needs", "The cabinets/drawers of my kitchen are sufficient for all kitchen utensils (cutlery, pots, pans, etc.).", "My house has enough space to store foods such as ready-made food, canned food and etc.", "All white goods (refrigerator, oven, dishwasher, etc.) fit easily in my kitchen", " My house has enough space to host boarding guests" and "The closets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house" statistically significant relationships were determined between the answers given to these questions ($p<0.05$). When the observations are examined for the reason of the relationship, "The living room/living room has enough space to host guests", "My living room/dining room is sufficient when I invite guests to dinner", "All the white goods (refrigerator, oven, dishwasher, etc.) fit easily in my kitchen" and "Closets/storage areas are sufficient for the clothes and personal belongings of the people living in the house", it was observed that the people who gave the answers to the questions "I disagree partially and I am not sure" mostly live with 3-4 people at home.

"My house meets my storage needs", "My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)", "My house has enough space to store foods such as ready-made food, canned food, etc." and "My house has enough space to host boarding guests" are examined, it has been determined that the people who gave the answers of "I totally disagree" and "Partially disagree" mostly live with 3-4 people at home.

There was no statistically significant relationship between the answers given to "There is enough space for washing machine and laundry at home", "I have enough space to dry and iron the laundry at home" and "My kitchen/balcony is suitable for drying vegetables/fruits and preparing winter food" questions and the number of people in the house. ($p>0.05$)

Table 11: The Cross-Table and the Relations Between the Genders and the Answers Given by the Participants to the Questions About the House they Settled in After the Disaster

		Gender				
		Female	Male	Prefer not to state	Test Statistics	p
25. The living room has enough space to host guests.						
I totally disagree	n	3	5	0	9,099	0,329
	%	37,5	62,5	0,0		
	%Y.	7,0	6,8	0,0		

Tablo 11 Continued

I partially disagree	n	11	28	0		
	%	28,2	71,8	0,0		
	%Y.	25,6	38,4	0,0		
I am not sure	n	16	14	1		
	%	51,6	45,2	3,2		
	%Y.	37,2	19,2	100,0		
I partially agree	n	6	14	0		
	%	30,0	70,0	0,0		
	%Y.	14,0	19,2	0,0		
I totally agree	n	7	12	0		
	%	36,8	63,2	0,0		
	%Y.	16,3	16,4	0,0		
26.My living room/dining room is sufficient when I invite guests to dinner.						
I totally disagree	n	0	9	0	10,215	0,218
	%	0,0	100,0	0,0		
	%Y.	0,0	12,3	0,0		
I partially disagree	n	14	18	0		
	%	43,8	56,3	0,0		
	%Y.	32,6	24,7	0,0		
I am not sure	n	15	25	1		
	%	36,6	61,0	2,4		
	%Y.	34,9	34,2	100,0		
I partially agree	n	7	11	0		
	%	38,9	61,1	0,0		
	%Y.	16,3	15,1	0,0		
I totally agree	n	7	10	0		
	%	41,2	58,8	0,0		
	%Y.	16,3	13,7	0,0		
26.My house meets my storage needs.						
I totally disagree	n	14	32	0	12,730	0,104
	%	30,4	69,6	0,0		
	%Y.	32,6	43,8	0,0		
I partially disagree	n	21	18	1		
	%	52,5	45,0	2,5		
	%Y.	48,8	24,7	100,0		
I am not sure	n	4	6	0		
	%	40,0	60,0	0,0		
	%Y.	9,3	8,2	0,0		
I partially agree	n	1	8	0		
	%	11,1	88,9	0,0		
	%Y.	2,3	11,0	0,0		
I totally agree	n	3	9	0		
	%	25,0	75,0	0,0		
	%Y.	7,0	12,3	0,0		
28.There is enough space in the house for the washing machine and for doing laundry.						
I totally disagree	n	15	24	0	5,832	0,849
	%	38,5	61,5	0,0		
	%Y.	34,9	32,9	0,0		
I partially disagree	n	12	23	1		
	%	33,3	63,9	2,8		
	%Y.	27,9	31,5	100,0		
I am not sure	n	3	6	0		
	%	33,3	66,7	0,0		
	%Y.	7,0	8,2	0,0		
I partially agree	n	2	7	0		
	%	22,2	77,8	0,0		
	%Y.	4,7	9,6	0,0		

Tablo 11 Continued

I totally agree	n	11	13	0		
	%	45,8	54,2	0,0		
	%Y.	25,6	17,8	0,0		
29.I have enough space to dry and iron the laundry at home.						
I totally disagree	n	14	23	0	6,173	0,797
	%	37,8	62,2	0,0		
	%Y.	32,6	31,5	0,0		
I partially disagree	n	19	28	1		
	%	39,6	58,3	2,1		
	%Y.	44,2	38,4	100,0		
I am not sure	n	5	7	0		
	%	41,7	58,3	0,0		
	%Y.	11,6	9,6	0,0		
I partially agree	n	1	7	0		
	%	12,5	87,5	0,0		
	%Y.	2,3	9,6	0,0		
I totally agree	n	4	8	0		
	%	33,3	66,7	0,0		
	%Y.	9,3	11,0	0,0		
30.My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)						
I totally disagree	n	20	15	0	14,714	0,041*
	%	57,1	42,9	0,0		
	%Y.	46,5	20,5	0,0		
I partially disagree	n	16	30	1		
	%	34,0	63,8	2,1		
	%Y.	37,2	41,1	100,0		
I am not sure	n	4	9	0		
	%	30,8	69,2	0,0		
	%Y.	9,3	12,3	0,0		
I partially agree	n	2	10	0		
	%	16,7	83,3	0,0		
	%Y.	4,7	13,7	0,0		
I totally agree	n	1	9	0		
	%	10,0	90,0	0,0		
	%Y.	2,3	12,3	0,0		
32.My house has enough space to store foods such as ready-made food, canned food, etc.						
I totally disagree	n	16	32	0	8,848	0,397
	%	33,3	66,7	0,0		
	%Y.	37,2	43,8	0,0		
I partially disagree	n	17	17	1		
	%	48,6	48,6	2,9		
	%Y.	39,5	23,3	100,0		
I am not sure	n	4	5	0		
	%	44,4	55,6	0,0		
	%Y.	9,3	6,8	0,0		
I partially agree	n	3	10	0		
	%	23,1	76,9	0,0		
	%Y.	7,0	13,7	0,0		
I totally agree	n	3	9	0		
	%	25,0	75,0	0,0		
	%Y.	7,0	12,3	0,0		
33.All white goods (refrigerator, oven, dishwasher, etc.) fit in my kitchen easily.						
I totally disagree	n	2	4	1	9,040	0,367
	%	28,6	57,1	14,3		
	%Y.	4,7	5,5	100,0		
I partially disagree	n	10	22	0		
	%	31,3	68,8	0,0		

Tablo 11 Continued

	%Y.	23,3	30,1	0,0		
I am not sure	n	19	24	0		
	%	44,2	55,8	0,0		
	%Y.	44,2	32,9	0,0		
I partially agree	n	8	13	0		
	%	38,1	61,9	0,0		
	%Y.	18,6	17,8	0,0		
I totally agree	n	4	10	0		
	%	28,6	71,4	0,0		
	%Y.	9,3	13,7	0,0		
34.My kitchen/balcony is suitable for drying vegetables/fruits and preparing winter food.						
I totally disagree	n	21	29	0	6,137	0,842
	%	42,0	58,0	0,0		
	%Y.	48,8	39,7	0,0		
I partially disagree	n	12	23	1		
	%	33,3	63,9	2,8		
	%Y.	27,9	31,5	100,0		
I am not sure	n	5	11	0		
	%	31,3	68,8	0,0		
	%Y.	11,6	15,1	0,0		
I partially agree	n	4	6	0		
	%	40,0	60,0	0,0		
	%Y.	9,3	8,2	0,0		
I totally agree	n	1	4	0		
	%	20,0	80,0	0,0		
	%Y.	2,3	5,5	0,0		
37.My house has enough space to host boarding guests.						
I totally disagree	n	6	13	0	6,928	0,659
	%	31,6	68,4	0,0		
	%Y.	14,0	17,8	0,0		
I partially disagree	n	18	30	0		
	%	37,5	62,5	0,0		
	%Y.	41,9	41,1	0,0		
I am not sure	n	12	15	0		
	%	44,4	55,6	0,0		
	%Y.	27,9	20,5	0,0		
I partially agree	n	3	6	0		
	%	33,3	66,7	0,0		
	%Y.	7,0	8,2	0,0		
I totally agree	n	4	9	1		
	%	28,6	64,3	7,1		
	%Y.	9,3	12,3	100,0		
38.The cabinets/storage areas in the house are sufficient for the clothes and personal belongings of the people living in the house.						
I totally disagree	n	3	11	1	7,432	0,572
	%	20,0	73,3	6,7		
	%Y.	7,0	15,1	100,0		
I partially disagree	n	19	27	0		
	%	41,3	58,7	0,0		
	%Y.	44,2	37,0	0,0		
I am not sure	n	11	19	0		
	%	36,7	63,3	0,0		
	%Y.	25,6	26,0	0,0		
I partially agree	n	4	7	0		
	%	36,4	63,6	0,0		
	%Y.	9,3	9,6	0,0		
I totally agree	n	6	9	0		
	%	40,0	60,0	0,0		
	%Y.	14,0	12,3	0,0		

*p<0, 05

Fisher's Exact tests were applied to examine the relationships between the genders of the people participating in the research and the answers they gave to the questions about the house they settled in after the disaster. As a result of the analyzes, a statistically significant relationship was found between the gender of the participants and the answers given to the question “My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pot, pan, etc.)” ($p<0.05$). When the observations are examined for the reason of the relationship, it is seen that the people who give the answer of “Strongly disagree” are mostly women; It was determined that the people who gave the answers “Partially agree” and “Completely agree” were mostly male.

No statistically significant relationship was found between the answers given to following questions and gender of the participants. “The living room/living room has enough space to host guests”, “My living room/dining room is sufficient when I invite guests to dinner”, “My house meets my storage needs”, “There is enough space for washing machine and laundry at home”, “I have enough space at home to dry and iron clothes”, “My house has enough space to store food such as ready-made food, canned food and etc.”, “All white goods (refrigerator, oven, dishwasher, etc.) fit easily in my kitchen”, “My kitchen/balcony is suitable for drying vegetables/fruit, preparing winter food”, “My house has enough space to host boarding guests”, “Closets/storage areas in the house are sufficient for the clothes and personal belongings of the residents”. ($p>0,05$)

3.2.6 Comments and Interviews

Some of the participants stated their experiences and thoughts in the notes part at end of the survey. In general, the statements are related to the problems about security, workmanship and capacity of the houses.

Comments related to environment:

“I am having trouble with the farness problem and the distance of the stops.” (Participant 3)

“No perimeter wall and camera system, it is not safe.” (Participant 7)

Comments related to buildings:

“Paints were renewed, cracks appeared on the plaster. The toilet mite is coming into the bathroom. The bathroom and toilet are problematic. Storage space is insufficient. The bathroom mite flows into the hall. The landscaping is insufficient at some points.” (Participant 4)

"There is not enough storage space, there is no place to put a deep freezer." (Participant 7)

"Balcony and kitchen are very small. The workmanship is bad, the doors and walls are crooked. Bathroom tiles are not well glued, fell off." (Participant 8)

"The whole house was painted, 5000 TL was paid for the paint, both the paint and the plaster were peeled of, the officials of the Ministry of Environment and Urbanization came for the damage, the renovation is under construction." (Participant 11)

"I do not forgive those who are responsible, the floor we were placed was determined by lot. Water gathers in front of the ground floor door, furniture covers swell." (Participant 17)

"There's a problem with the toilet clogging." (Participant 24)

"We live here because we think the houses are earthquake resistant." (Participant 32)

"Not enough storage space" (Participant 33)

"The houses could have been a little bigger." (Participant 51)

"Kitchen storage areas are insufficient." (Participant 56)

"There are cracks on the plaster coating and clogging problems in the toilet." (Participant 58)

"The houses are too small, the plaster has been peeled of and removed from the first month." (Participant 83)

In additions to the comments written on the notes of surveys, since survey has been done face to face, some participants stated their opinions during the survey. A household who is a retired workman stated that since the construction phase is rapid, he can clearly see the reasons for the problems that appear. He says he would prefer 3-4 months of delay in delivery of the houses instead of being placed in the houses with defects and having to make repairments and renovations again and again.

In the light of written content by participants, it can be seen that people's comments support the survey analysis. Most of the comments are complaints about the size and capacity of the houses, especially area/capacity of kitchen. There are comments related to subjects like quality of the workmanship and construction failures that are not covered in the survey, however they gave an insight about the big picture.

3.3 RESULTS AND DISCUSSION

Results of the survey categorized under 3 headings: demographics, environment satisfaction and housing satisfaction.

Demographics: The distribution of participants according to their demographic characteristics examined and majority of the age range is 40-64 years, with %44.4 percentage. %62,4 of the participants was male and 36,8 was female. One of the difficulties of this case study was to reach female participants on the site. Because of the culture and lifestyle of Elazığ, women spend their time mostly at home and permission needed to have a meeting with them. For that reason, an extra test was done with a group of question related housing satisfaction to understand if satisfaction level changes according to gender. (Table 11)

% 32,5 of the participants were housewives, followed by %16,2 other professions and 15,4 civil servants. %34,2 of the participants are high school graduates, followed by %23,9 percent primary school graduates. Majority of the participants (%59,8) live 3-4 people in the house.

%34,2 of the participants is actively working, rest of the participants are not working or retired. Number of the people who actively work per house is 1 for %57,3 of the participants, and followed by 0 for %23,9. Meaning more than half of the households do not actively work.

The percentage of people who own a house vs rent a house before and after the earthquake are almost the same. However, while %70,1 of the participants lived in 3+1 type houses before the earthquake, percentage of the people who live 3+1 type houses is only %28,2. Total area of the houses that participants live before earthquake is mostly (%33,3) in between 120-150 m², followed by 100-120 m² with %29,1 of the participants. On the contrary, total area of the post-disaster houses that participants live in is mostly (%63,2) in between 90-100 m², followed by 100-120 m² with %25,6 of the participants. It can be understood from the answers that majority of the disaster victims live in a smaller house than the house that they live before the earthquake.

Environment Satisfaction: Participants' answers to the questions related near environment (Questions 1-13) include aspects like neighborly relations, transportation and accessibility to facilities. %59 of the participants totally agree that it is easy to reach religion related facilities and %51,3 of them totally agree that it is easy to reach shopping facilities as well. %32,5 of the participants partially agrees and %30,2 of them not sure that educational facilities are easy to each. On the other hand, %40,2 of

the people partially disagree that city center is easy to reach even though %52,1 of them stated that their houses are close to public transportation stops. In addition, %39,6 partially, and %37,6 of the participants totally disagree that their house is close to their family and relatives. Regarding the neighborly relations, %29,2 of the people totally and %22,2 partially disagree that they and their neighbors visit each other. Also %27,4 of the participants totally and %22,2 of them partially disagree with the sentence "I know my neighbors living in the same building." As a consequence of the new location of post-disaster permanent houses, majority of the people living there find it difficult to reach their family and relatives, and live in an environment in which they are alienated with the people from different neighborhoods since their apartments assigned by lot. %60,7 of the people are not sure about if there are security problems in the neighborhood.

Table 12: Table Representing Environment Satisfaction of PDPH Users

Environment Satisfaction			
	Totally/Partially Satisfied	Not Sure	Totally/Partially Dissatisfied
Nearness to city center			+
Access to educational facilities	+	+	
Access to shopping facilities	+		
Access to religious facilities	+		
Access to public transportation	+		
Nearness to family/relatives			+
Neighborly relations			+
Security of the housing area		+	

Housing Satisfaction: Participants answered the questions related housing satisfaction (Questions 14-42) consisting of aspects such as storage-capacity, privacy, acoustics, usability and etc. Majority of the people are satisfied about their houses having enough daylight. (Q14, Q18) During winter months, most of the people confirmed that their houses can be heated easily and no additional heaters are needed,

(Q16, Q22) and in summer times, majority do not use cooling equipment to cool down houses however not sure about windows are sufficient enough to cool down the house. Majority responded that they are not sure to the questions related if sounds can be heard between walls of the houses and different floors. (Q15, Q19) Despite most people think that electrical sockets and switches are sufficient in number, they are not sure about if their locations and placement are efficient to use. (Q21, Q23) About the storage area, capacity and affordances of the houses, there are variety of responses. While majority of the people are satisfied with the living room area for family use, most of them disagree that there is enough space for guests in the living area, and not sure if the living room/dining room capacity is sufficient enough to have guests for dinner. (Q24, Q25, Q26) Almost %75 percent of the residents do not agree that their house have enough storage space. (Q27) Majority disagree there is enough room for washing machine and to wash clothes, as well as to dry and iron the clothes. (Q28, Q29) Also, majority are not sure about if the number of rooms are enough for the people living in, and disagree that their house has enough area to accommodate boarding guests. (Q36, Q37) More than half of the participants disagree that there are enough cabinets/storage areas to store personal belongings of the people living in. (Q 38) Almost %70 of the residents disagree that kitchen cabinets and drawers are sufficient for all kitchen utensils and most are not sure that kitchen has enough area for white goods such as refrigerator, dishwasher etc. (Q30, Q33) Most disagree that there is enough space to prepare and store winter food/canned food. (Q32, Q34) Majority state there is no smell of food after cooking however they are not sure about smells coming to their kitchen from other floors. (Q31, Q35) Also area of the balcony found not sufficient by the majority. (Q42) Most of the participants agree that bathroom ventilation is sufficient, and people do not have to wait for each other to use bathroom, however most disagree that the number of bathrooms is sufficient for everyone to use. (Q39, Q40, Q41)

Table 13: Table Representing Housing Satisfaction of PDPH Users

Housing Satisfaction			
	Totally/Partially Satisfied	Not Sure	Totally/Partially Dissatisfied
Daylight exposure/efficiency	+		
Heating	+		
Cooling	+		
Acoustic performance		+	
Number of electrical sockets and switches	+		
Usefulness of electrical sockets and switches		+	
Living room area for family use	+		
Living room area for guests			+
Dining area for guests		+	
Storage space of the house			+
Room for washing machine/laundry			+
Room for drying/ironing clothes			+
Number of room for households		+	
Space for boarding guests			+
Cabinets/storage areas for personal belongings			+
Kitchen cabinets/area for all kitchen utensils			+
Kitchen cabinets/area for all white goods		+	
Area to prepare and store winter/canned food			+
Ventilation of kitchen	+		
Smells coming into kitchen		+	
Balcony area/sufficiency			+
Ventilation of bathroom	+		
Number of bathrooms			+

Participants are also asked whether they made renovation/repairments or not, more than half of the participants stated they made changes/modifications. Types of the renovations done mostly follows as: closing/covering balconies (through glazing or balustrades mostly), additional storage and cabinet making, changing wall finishings (paint, wallpaper making etc.) and changing/adding lighting elements.

Last question of the survey was whether participants are thinking about selling their house they settled or not after receiving deed, majority -almost %85- replied that they do not think about selling their houses. While considering the comments added to the survey, some people stated that they think these houses are earthquake resistant, it can be understood that even though there are negative sides related to houses, resilience of the houses against earthquakes might be reason for people not to think about selling these houses. However, during the site visit it is observed that some of the people hesitated -even rejected- to answer questions related houses since they have not received the title deeds yet and worried about losing ownership of the houses. In addition, since some of the residents are tenants, the stated they do not think about selling the houses in questionnaires since they do not own the houses.

There are additional tests done to examine if user satisfaction changes according to age, gender and number of people living in the house. Cross-tables presented (Table 9,10,11) showing the relationships between different variables and a group of questions related to house capacity/affordances. (Q25-Q38) As a result of the analysis some statistically significant relationships found between different variables. When the answers given to the question “My house has enough space to store foods such as winter food, ready-made and canned food” examined, it is seen that people who disagree are mostly in between the ages of 26-64, and people who totally agree were mostly 65 years old and over. It is observed during the area visit that most of the people who are 65 and over are living with their wife/husband -without children-, in comparison with bigger families, area of the existing house types on the site (B and E) are both sufficient for older people but not enough for younger and bigger families.
When results of the analysis between housing satisfaction and number of people in the house examined, it is seen that those who live with 3-4 people in house mostly disagree about storage areas being sufficient enough. Examining the answers, these people are dissatisfied about living room capacity to host guests, dining/living room capacity to invite guest for dinner, general storage capacity of the house, kitchen area for white goods, kitchen area for kitchen utensils, storage area for ready-made/canned foods.

Another finding when examining the relation between gender and storage/capacity satisfaction, answers given to the question “My kitchen cabinets/drawers are sufficient for all kitchen utensils (cutlery, pots, pans, etc.)” were statistically significant. When the results examined for the reason of the relationship, it is seen that people who give the answer of “Strongly disagree” are women, while people who gave answer “Partially agree” and “Completely agree” were mostly male. Since most of the female participant are housewives, they spent more time in house than male participants by considering region’s lifestyle, their assessment about kitchen space and efficiency differs from male participants since they have more experience about kitchen usage.

CHAPTER IV

CONCLUSION AND SUGGESTIONS

The literature related interior space quality covers many aspects like technical, functional, aesthetical, social and spatial parameters that have an influence on well-being. From this point aiming to understand the impact of interior architecture on user satisfaction, analysis of case study that is conducted in Elazığ give a picture of the PDPH situation in Turkey. Looking at the result of the questionnaires, comments and observations, interior architecture and interior space quality is a very crucial aspect for PDPH.

There is an attempt by the government and responsible collaborators to complete the post disaster permanent house construction fastest way possible to satisfy disaster victims who affected by the disaster. Although the aim is to minimize the time spent in temporary housing units and deliver the new permanent houses, emergence of problems related to rapid construction process is inevitable. These errors caused by the application/construction led people to make renovations. There are on-going construction and renovation works in houses to correct the mistakes caused by lack of planning, some people state that they prefer a few months of delay instead delivering their house with defects and mistakes.

Evaluating the results related environment satisfaction, people find it difficult to reach city center and their family/relatives, comments support the findings of the questionnaires stating that they have problems about the distance related to city center. In addition, people are not sure about the safety of the housing area according to the results of the survey, supported by a comment saying there is no security cameras and walls covering the housing area. Observations also include photographs of stolen drain covers that creates a risk for users of the area. About housing satisfaction there are some aspects such as capacity/storage areas which most people are dissatisfied with, people struggle to fit smaller houses than their previous houses. Results show that people are dissatisfied about capacity/area of living room, storage, balcony and

especially kitchen. There are key statements in the survey questioning interior architectural impact on spaces. Even though people find the electrical switches and sockets efficient in number, they are not sure about the usefulness and placement of them. Electrical plans can be included in design process that are drawn by interior architects specifying the exact places, heights and dimensions of the switches/sockets. Also, cabinets and storage areas of the kitchen, area for laundry and other dissatisfied areas related to storage could be solved efficiently by interior architects. During the design process of the PDPH's, there are no regulations/specifications covering interior architectural aspects, and no interior scale plans are demanded by responsibles in Turkey. Currently interior architects have no position in responsible authorities like ministries and municipalities, positioning interior architects in disaster planning and the design process will help to improve PDPHs and contribute to user satisfaction.

On the other hand, despite the negative opinions, almost %85 of people do not think of leaving their houses. Even though the interior architectural parameters affect the satisfaction levels of the users, there are some considerations like earthquake resilience that convince them to prefer and stay in these houses. Although a scenario where all expectations of users are met is unlikely to happen, wellbeing of users must be the main goal of permanent housing process' especially in post-disaster cases. Since the user group in these buildings already have survived a disaster and have the specific kind of needs and feelings, answering the needs and expectations of these people have great importance. There are many research about the positive impact of the participation of disaster victims to post-disaster permanent housing planning process. Aspects like previous living conditions, population, family structure, and lifestyle can be taken into consideration in touch with the disaster victims to design more efficient interiors and environments, types of houses might be varied to address different user groups. Currently in PDPH cases, there are types of reinforced concrete buildings that are applied and constructed to every region of Turkey without looking any of the characteristics of regions. Having types/templates accelerates the PDPH process for sure, however, there can be types designed for regions as a part of regional disaster planning. In addition, errors caused by construction/application can be reduced by improving the planning and construction process.

Further research is needed to understand users 'satisfaction since it is a complex notion, and engaged with many aspects like, culture, lifestyle, age, gender and etc. A

design that can meet all these demands requires time and good planning, but brings healthy environments and interiors out for sure.

REFERENCES

ABIDIN Nurzafira Zainul, ABDULLAH Mohamad Isa, BASRAH Noraliza and ALIAS Muhammad Nazim (2019), "Residential Satisfaction: Literature Review and A Conceptual Framework", *IOP Conference Series: Earth and Environmental Science,* Vol. 385, No. 1, pp. 012040, DOI: 10.1088/1755-1315/385/1/012040.

ARCHELLO (2023), *Urban Post-disaster Housing Prototype,* https://archello.com/project/urban-post-disaster-housing-prototype, DoA. 10.03.2023.

AYDIN Durmuş (2014), "Afet Sonrası Psikososyal Destek Uygulamaları", *İnsani ve Sosyal Araştırmalar Merkezi*, pp. 1-9, https://acikders.ankara.edu.tr/pluginfile.php/20281/mod_resource/content/1/Makale%20-%20Afet%20Sonras%C4%B1%20Psikososyal%20Destek%20Uygulamalar%C4%B1.pdf, DoA. 10.04.2023.

B.Ü. KANDILLI RASATHANESI VE DAE. BÖLGESEL DEPREM-TSUNAMI IZLEME VE DEĞERLENDIRME MERKEZI (2023), *24 Ocak Sivrice-Elazığ Depremi*, http://www.koeri.boun.edu.tr/sismo/2/24-ocak-sivrice-elazig-depremi-2/, DoA. 10.03.2023.

BUCKLEY Samantha (2017), *Prefab Pop-Up Shelter Designed for Burning Man and Perfected for Disaster Relief,* https://www.archdaily.com/883389/prefab-pop-up-shelter-designed-for-burning-man-and-perfected-for-disaster-relief?ad_campaign=normal-tag, DoA. 10.03.2023.

CALDERA H. J. and WIRASINGHE S. C. (2014), "Analysis and Classification of Volcanic Eruptions", *The 10th International Conference of the International Institute for Infrastructure Resilience and Reconstruction (I3R2),* pp. 20–22. West Lafayette, Purdue University, Indiana.

CALDERA H.J., WIRASINGHE S. C. and ZANZOTTO L. (2016), "An Approach to Classification of Natural Disasters by Severity", *5th International Natural*

Disaster Mitigation Specialty Conference, CSCE Annual Conference, London, Canada.

DATA.ORG (2023), *Data and Graphs for Weather & Climate in Elazığ*, https://en.climate-data.org/asia/turkey/elaz%c4%b1g-661/, DoA. 10.03.2023.

EKŞİ Ali (2016), Afetlerden Sonra Ortaya Çikabilecek Çevresel Risklerin Yönetimi, *Hastane Öncesi Dergisi*, Vol. 1, No. 2, pp. 15-25.

KUKUOĞLU Ahmet (2018), "Doğal Afetler Sonrası Yaşanan Travmalar ve Örnek Bir Psikoeğitim Programı", *Afet ve Risk Dergisi,* Vol. 1, No. 1, pp. 39-52, DOI: 10.35341/afet.412005.

KÜRÜM VAROLGÜNEŞ Fatma (2021), "Success Factors for Post-Disaster Permanent Housing: Example of Turkish Earthquakes", *Turkish Online Journal of Design Art and Communication,* Vol. 11, No. 1, pp. 115-30, DOI: 10.7456/11101100/007.

LAWINSIDER (2023), *Human-Made Disaster,* https://www.lawinsider.com/dictionary/human-made-disasters, DoA. 10.03.2023.

LIMONCU Sevgül and BAYÜLGEN Cengiz (2005), "Türkiye'de Afet Sonrası Yaşanan Barınma Sorunları", *Megaron,* Vol. 1, No 1, p. 18.

LIST25 TEAM (2022), *25 Unforgettable Sport Disasters,* https://list25.com/25-unforgettable-sport-disasters/, DoA. 10.03.2023.

MEDAK (2023), Medikal Arama ve Kurtarma Derneği, *Dünyada Afet Yönetimi ve Gelişimi*, https://www.medak.org.tr/faydali-bilgiler/dunyada-afet-yonetimi-ve-gelisimi/, DoA. 10.03.2023.

MIRZA Muhammed Nisar Ali (2020), *Analysis of Post-Disaster Emergency Housing Projects in Terms of Interior Space Quality Parameters* (Master's Thesis), Yaşar University, İzmir.

MONROE COUNTY EMERGENCY MANAGEMENT (2023), *Man-Made Disasters*, https://www.monroecounty-fl.gov/904/Man-MadeDisaster#:~:text=Man%2Dmade%20disasters%20have%20an,%2C%20cyber%2Dattacks%2C%20etc, DoA. 10.03.2023.

NTV (2020), *Elazığ'da 6,8'lik Deprem (Bölgeden Son Fotoğraflar)*, https://www.ntv.com.tr/galeri/turkiye/elazigda-6-8lik-deprem-bolgeden-son-fotograflar,LRmurkWfyEeg1Q8LfAu_Yg/sASBqAAXEUyxZWp3QBKMSg, DoA. 10.03.2023.

OO Bee Lan (2018), "Users' Long-Term Satisfaction with Post-Disaster Permanent Housing Programs: A Conceptual Model", *International Journal of Innovation, Management and Technology*, Vol. 9, No. 1, pp. 28-32, DOI.10.18178/ijimt.2018.9.1.782.

ORTAŞ İbrahim (2023), *Deprem İçin Yapılan Yardımların İsrafa Dönüşmemesi İçin İhtiyaçların Organize Edilmesi Gerekir,* https://www.habereguven.com/deprem-icin-yapilan-yardimlarin-israfa-donusmemesi-icin-ihtiyaclarin-organize-edilmesi-gerekir, DoA. 10.03.2023.

RICHARDSON B. (1994), "Socio-technical disaster: profile and prevalence", *Disaster Prevention and Management*, Vol. 3, No. 4, pp. 41-69.

SAVE THE CHILDREN FUND. (2023), *How Save The Children Help Children Affected by Conflict & War?*, https://www.savethechildren.org.uk/what-we-do/conflict-war#:~:text=A%20conflict%20is%20a%20fight,every%20conflict%20connected%20to%20war, DoA. 10.03.2023.

ŞENGÜL M. and TURAN M. (2013), "Erciş Depremi Örneğinde Afet Sonrası Geçici Yerleşim Alanlarında Yönetim Uygulamaları ve Sorunları/Administration and Problems of Post Disaster Temporary Settlements in Example of Erciş Earthquake", *Mülkiye Dergisi*, Vol. 36, No 1-274, pp. 113-148.

SHALUF Ibrahim Mohamed (2007), "An Overview on Disasters", *Disaster Prevention and Management: An International Journal*, Vol. 16, No. 5, pp. 687-703, DOI: 10.1108/09653560710837000.

SHI Peijun (2019), "Hazards, Disasters, and Risks", *In*, *Disaster Risk Science*, 2nd Edition, Ed. Peijun Shi, pp. 1-48, Springer, Singapore, DOI: 10.1007/978-981-13-6689-5_1.

ŞIKOĞLU Emrah and GÜNEY Yasemin (2020), "24 Ocak 2020 Sivrice (Elazığ) Depremi'nin Kent Merkezindeki Yansıması Üzerine Coğrafi Bir Değerlendirme", *Resilience*, Vol. 4, No 2, pp. 275-92, DOI: 10.32569/resilience.779242.

SMITH Helena (2023), "Further Three People Charged Over Greek Train Crash", *The Guardian*, 9 March 2023, https://www.theguardian.com/world/2023/mar/09/further-three-people-charged-over-greek-train-crash, DoA. 24.04.2023

T.C. CUMHURBAŞKANLIĞI STRATEJI VE BÜTÇE BAŞKANLIĞI (2023), *Türkiye Earthquakes Recovery and Reconstruction Assessment*,

https://www.sbb.gov.tr/wp-content/uploads/2023/03/Turkiye-Recovery-and-Reconstruction-Assessment.pdf, DoA. 29.03.2023.

TERDIMAN Daniel (2017), *How A Burning Man Camp Project Became A Multimillion-Dollar Business,* https://www.fastcompany.com/40448192/how-a-burning-man-camp-project-became-a-multimillion-dollar-business?utm_ medium=website&utm_source=archdaily.com, DoA. 10.03.2023.

YAYCILI Ali Can (2023), *Hatay'da Çöp ve Tuvalet Krizi Büyüyor,* https://gazeteoksijen.com/turkiye/hatayda-cop-ve-tuvalet-krizi-buyuyor-170342, DoA. 10.03.2023.

APPENDICES

A1: SURVEY QUESTIONS

Since survey is conducted on site with Elazığ PDPH residents, the questionaire prepared in Turkish, all the relevant information about the questionnaire is translated into English in the thesis.

AFET SONRASI YAPILARDA YAŞAMA DENEYİMİ: ELAZIĞ DEPREMİ

Bu anket formu yüksek lisans kapsamında, afet sonrası yapılarda yaşama deneyimine yönelik duygu ve düşüncelerinizi belirlemek üzere hazırlanmıştır. Elde edilecek bilgiler tamamen bilimsel amaçlı kullanılacak olup, ankette isim belirtme gerekliliği bulunmamaktadır. Ankette yer alan sorulara içtenlikle ve HİÇBİR SORUYU ATLAMADAN yanıt vermeniz, araştırmanın bilimsel geçerliliği ve güvenilirliği açısından büyük önem taşımaktadır. Zaman ayırarak çalışmamıza katıldığınız için teşekkür ederiz.

A. DEMOGRAFİK SORULAR – GENEL SORULAR

1. Yaşınız
   i. 18-25
   ii. 26-40
   iii. 40-64
   iv. 65 ve üzeri

2. Cinsiyetiniz
   i. Kadın
   ii. Erkek
   iii. Belirtmek istemiyorum

3. Medeni haliniz
   i. Bekar
   ii. Evli

4. Mesleğiniz
   i. Öğrenci
   ii. Memur
   iii. İşçi
   iv. Esnaf/Zanaatkar
   v. Serbest Meslek
   vi. Tarım ve Hayvancılık
   vii. Ev Hanımı
   viii. Diğer_____

5. Eğitim düzeyiniz
   i. İlkokul Mezunu
   ii. Ortaokul Mezunu
   iii. Lise Mezunu
   iv. Üniversite Mezunu
   v. Lisansüstü ve üzeri

6. Evde kaç kişi yaşıyorsunuz?
   i. 1
   ii. 2
   iii. 3-4
   iv. 5-6
   v. 6- üzeri

7. Çalışıyor musunuz?
   i. Evet
   ii. Hayır
   iii. Emekliyim

8. Evde yaşayan kaç kişi aktif olarak çalışıyor?
    i. 0
    ii. 1
    iii. 2
    iv. 3 ve üzeri

B. BİNA VE ÇEVRE İLE İLGİLİ SORULAR

AŞAĞIDAKİ SORULARI DEPREMDEN **ÖNCE** YAŞADIĞINIZ YAPIYA GÖRE CEVAPLAYINIZ.

1. Depremden **ÖNCE** yaşadığınız ev kime aittir?
   i. Kendime-Aileme
   ii. Kiralık
   iii. Diğer_____

2. Depremden **ÖNCE** yaşadığınız ev tipi nedir?
   i. Apartman Dairesi
   ii. Müstakil Ev-Villa
   iii. Köy Evi (Ahır, bahçe vb. alanları olan)

3. Depremden **ÖNCE** yaşadığınız evin oda ve salon sayısını belirtiniz. (2+1,3+1 vb.)
   i. 2+1
   ii. 3+1
   iii. 4+1
   iv. 5+1
   v. Diğer_____

4. Depremden **ÖNCE** yaşadığınız evin alanı nedir?
   i. 80 m²'den az
   ii. 80-90 m²
   iii. 90-100 m²
   iv. 100-120 m²
   v. 120-150 m²
   vi. 150 m²'den fazla

AŞAĞIDAKİ SORULARI DEPREMDEN **SONRA** YAŞADIĞINIZ YAPIYA GÖRE CEVAPLAYINIZ.

1. Depremden **SONRA** yaşadığınız ev kime aittir?
   i. Kendime-Aileme
   ii. Kiralık
   iii. Diğer_____

2. Depremden **SONRA** yaşadığınız evin oda ve salon sayısını belirtiniz. (2+1,3+1 vb.)
   i. 2+1
   ii. 3+1
   iii. 4+1
   iv. 5+1
   v. Diğer_____

3. Depremden **SONRA** yaşadığınız evin alanı nedir?
   i. 80 m²'den az
   ii. 80-90 m²
   iii. 90-100 m²
   iv. 100-120 m²
   v. 120-150 m²
   vi. 150 m²'den fazla

Lütfen aşağıdaki tabloyu **AFETTEN SONRA YERLEŞTİRİLDİĞİNİZ EVİ** dikkate alarak doldurunuz.

		Afet **SONRASI** Konut Değerlendirme	Hiç Katılmıyorum	Kısmen Katılmıyorum	Emin Değilim	Kısmen Katılıyorum	Tamamen Katılıyorum
1	**ÇEVRE**	Evimin şehir merkezine ulaşımı kolaydır.					
2		Evimin okul, kurs merkezi gibi eğitim hizmeti veren kurumlara ulaşımı kolaydır.					
3		Evimin market, bakkal, alışveriş merkezi gibi satış hizmeti veren kurumlara ulaşımı kolaydır.					
4		Evimin cami, dini eğitim kurumu, kütüphane gibi dini ve kültürel tesislere ulaşımı kolaydır.					
5		Evimden sıklıkla araba kornası ve sokak gürültüsü duyulur.					
6		Evimin bulunduğu muhit sakin ve güvenlidir.					
7		Komşularımla birbirimizin evine oturmaya gidip geliriz.					
8		Evim toplu taşıma araçlarına (otobüs, minibüs vb.) yakındır.					
9		Yaşadığım muhitte güvenlik sorunu yoktur.					
10		Dışarıdan görünmemesi için evimin perdelerini/tüllerini kapalı tutarım.					
11		Evim arkadaş ve akrabalarıma yakındır.					
12		Aynı binada oturduğum komşularımı tanırım.					
13		Evimin bulunduğu muhit sessizdir.					

		Afet **SONRASI** Konut Değerlendirme	Hiç Katılmıyorum	Kısmen Katılmıyorum	Emin Değilim	Kısmen Katılıyorum	Tamamen Katılıyorum
14	**KONUT KULLANIMI**	Evim yeterli gün ışığı alıyor.					
15		Evde yaşayanlar evin duvarları ardından birbirinin sesini kolayca duyabilir.					
16		Kış aylarında evin ısıtma sistemine ek olarak ısıtıcılar kullanırım.					
17		Yaz aylarında evi havalandırmak/serinletmek için pencereleri kullanmam yeterlidir.					
18		Güneş ışığı evimin ısınmasında etkili oluyor.					
19		Alt/üst kattan gelen sesler evimden duyulur.					
20		Yazın evi serinletmek için klima, vantilatör vb. araçlar kullanırım.					
21		Evdeki prizler/elektrik anahtarlarının sayısı yeterlidir.					
22		Kış aylarında evim rahatlıkla ısınır.					
23		Evdeki prizlerin/elektrik anahtarlanın yerleri kullanıma uygundur.					
24		Salon/oturma odası ailece vakit geçirmek için yeterlidir.					
25		Salon/oturma odası misafir ağırlamak için yeterli alana sahiptir.					
26		Salonum/yemek odam yemeğe misafir çağırdığımda yeterlidir.					
27		Evim depolama ihtiyacımı karşılar.					
28		Evde çamaşır makinesi için ve çamaşır yıkamak için yeterli alan vardır.					

29		Evde çamaşırları kurutmak ve ütülemek için yeterli alanım vardır.					
30		Mutfağımın dolapları/çekmeceleri tüm mutfak araç-gereçleri (çatal-kaşık,tencere,tava vb.) için yeterlidir.					
31		Yemek pişirdikten sonra mutfak rahatlıkla havalanır, yemek kokusu kalmaz.					
32		Evim kışlık yiyecek, hazır gıda, konserve gibi gıdaları saklamak için yeterli alana sahiptir.					
33		Tüm beyaz eşyalar (buzdolabı, fırın, bulaşık makinesi vb.) mutfağıma rahatlıkla sığar.					
34		Mutfağım/balkonum sebze/meyve kurutmak, kışlık yiyecek hazırlamak için uygundur.					
35		Aynı binada oturan komşuların yemek kokusu eve/mutfağa gelmez.					
36		Evdeki oda sayısı evde yaşayan bireyler için yeterlidir.					
37		Evim yatılı misafir ağırlamak için yeterli alana sahiptir.					
38		Evdeki dolaplar/depolama alanları evde yaşayanların kıyafetleri ve kişisel eşyaları için yeterlidir.					
39		Evdeki banyo sayısı herkesin kullanımı için yeterlidir.					
40		Banyo/tuvalet havalandırması yeterlidir.					
41		Evde yaşayanların banyoyu/tuvaleti kullanmak için çoğunlukla birbirini beklemeleri gerekir.					
42		Balkonun büyüklüğü yeterlidir.					

1. Depremden **SONRA** yerleştirildiğiniz yapıda değişiklik/tadilat yaptınız mı?
    i. Evet
    ii. Hayır

2. Yaptıysanız değişiklik/tadilatın çeşidini işaretleyiniz. (Birden fazla yanıt verebilirsiniz)

	Balkon kapatma
	Oda birleştirme (Mutfak ve balkonu birleştirmek, iki ayrı odayı birleştirip büyütmek vb.)
	Zemin kaplaması değiştirme (Parke, seramik vb.)
	Duvar kaplaması değiştirme (Duvar boyası değişikliği, duvar kağıdı yapımı vb.)
	Aydınlatma elemanlarını değiştirme/ekleme (Avizenin yerini değiştirmek, ışık bandı yapımı vb.)
	Elektrik tesisatını değiştirme (Prizlerin/elektrik anahtarlarının yerlerini değiştirmek, priz eklemek vb.)
	Sıhhi tesisatı değiştirme (Klozet/alaturka tuvalet ekleme/çıkarma, duş alanı/lavabonun yerini değiştirme, çamaşır makinesinin yerini değiştirme vb.)
	Ek depolama ve mobilya yapımı (Vestiyer yapımı, mutfak dolabı yapımı, kıyafet dolabı yapımı vb.)
	Diğer_____

3. Yakın gelecekte, tapuyu aldıktan sonra, yerleştiğiniz evi satmayı düşünüyor musunuz?
    i. Evet
    ii. Hayır

NOTLAR: (Eklemek istediklerinizi yazınız.)