

Take Step

1

For a Safe Life!

Istanbul Seismic Risk Mitigation and  
Emergency Preparedness Project  
**ISMEP**

# First 72 Hours

for The Individual and  
Family in an Earthquake



“Disaster Preparedness Training Materials for Community” which are financed in the framework of 4784-TU numbered contract of loan from World Bank and conducted by Istanbul Special Provincial Administration Istanbul Project Coordination Unit (IPCU) within the A component of “Istanbul Seismic Risk Mitigation and Emergency Preparedness Project” (ISMEP) are prepared by Beyaz Gemi Training and Consulting.

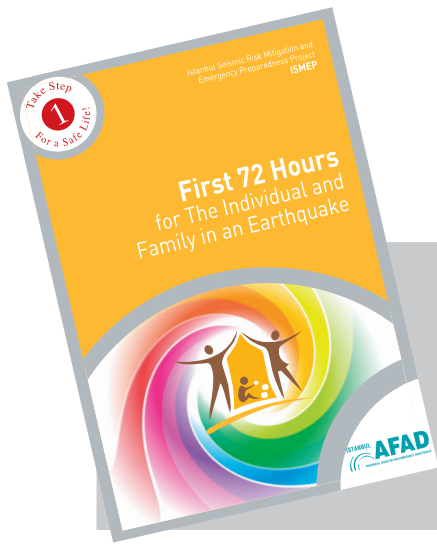
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Dear residents of Istanbul,

Istanbul is a city, which is under the threat of earthquakes and many other disaster risks. In many parts of the world, precautions are taken and some preparation plans are carried out against these kinds of risks. In Turkey, there are studies, which aim at the protection of public buildings, particularly schools and hospitals, and historical monuments and there are retrofitting studies for the whole infrastructure system, especially for transportation and communication, with the participation of the professionals in our country by evaluating the studies made in developed countries.

Physical retrofitting studies have the aim of eliminating the physical threats by earthquakes. But the case of earthquake preparedness is not limited with these activities. What's more important is to change our way of life in such a way to be ready for earthquakes and to be more sensitive for our surrounding.

In order to be ready for earthquakes firstly at individual and then at the national level, we should know about earthquakes, we should develop ourselves by having safe life awareness at our home, in our offices and surrounding, we should get training and above all we should become conscious about what we can do before a possible earthquake strike.

Therefore, we have prepared these awareness raising and training materials to reach you by the means of ISMEP (Istanbul Seismic Risk Mitigation and Emergency Preparedness Project), which is conducted by Istanbul Governorship Provincial Disaster and Emergency Directorate and Istanbul Governorship Special Provincial Administration Istanbul Project Coordination Unit. The documents, which are prepared with the help of specialists from civil and private sectors, are given the last shape after the controls of experts and relevant departments.

Fifteen different training titles have been defined for our editions, which require the preparation of different documents with different themes and appropriate contents for them have been developed to reach all our citizens living in Istanbul and to ensure the institutional preparedness in every sense. We wholeheartedly believe that these training materials which are thought to be appreciated by each institution and individual would meet an important need. Before anything else, to know that our dear citizens would benefit from these activities that would help earthquake preparedness, gratifies us and enlivens our studies.

In Istanbul, where the future is strengthened by us, we share happiness of looking to the future with confidence.

Best regards,  
Muammer Güler  
Governor of Istanbul



**Within the context of Enhancing Emergency Preparedness Capacity**, which is the A component of Istanbul Seismic Risk Mitigation and Emergency Preparedness Project, multiple cooperation has a significant role in Community Disaster Preparedness Training Materials shaping within the framework of best practice and achieving objectives.

Within the framework of this project, which is a product of long and intensive study, and emerged in the light of profound knowledge and experiences of a good deal of people and institutions, we thank all public corporations and institutions who do not withhold their contributions from us;

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**Republic of Turkey Ministry of Labour and Social Security**  
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**Republic of Turkey Ministry of Environment and Forestry**  
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**Search and Rescue Association (AKUT)**  
**Istanbul Union of Chamber of Merchants and Craftsmen**  
**Radio Amateurs Association**  
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**Confederation of Turkish Labor Unions**  
**Social Service Employees Association**  
**Turkish Psychological Association**  
**The Psychiatric Association of Turkey**  
**Turkish Federation for the Physically Disabled**  
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## MY EMERGENCY INFORMATION CARD

My name : \_\_\_\_\_  
My surname : \_\_\_\_\_  
My address : \_\_\_\_\_  
My blood group : \_\_\_\_\_  
My usual medicines (if any) : \_\_\_\_\_  
Medicines I am allergic to (if any) : \_\_\_\_\_  
The operations I had (if any) : \_\_\_\_\_

### Phones to call when I need emergency

Home phone : \_\_\_\_\_  
Work phone : \_\_\_\_\_  
School phone : \_\_\_\_\_  
First degree relative name-surname / phone / mobile phone : \_\_\_\_\_  
Second degree relative name-surname / phone / mobile phone : \_\_\_\_\_

### Emergency Phone Numbers:

<b>112</b> Emergency (Ambulance)	<b>110</b> Fire Brigade	<b>155</b> Police
<b>177</b> Forest Fire	<b>156</b> Gendarmerie	<b>184</b> Health Consultation
<b>114</b> Poison Consultation	<b>187</b> Natural Gas	<b>158</b> Coast Guard

Learn these emergency phone numbers and NEVER call them unnecessarily. REMEMBER that if you keep these phones busy people who are really in need of help would be helpless.



# INTRODUCTION

Together with the climatic conditions, the geomorphological and geological evolution of Anatolia which has confronted with great disasters in different periods of history, puts our country in a risky situation in terms of disasters.

This situation creates a need to deal with disaster subject together with its various aspects. We can only do this by keeping in mind that we might confront with a disaster anytime and taking necessary precautions without losing time.

Istanbul is one of the biggest cities in Turkey and in the world which is located on a major seismic belt. Being situated on such a location, which has a high earthquake hazard, increases the risk potential in the city related to earthquake and disaster vulnerability. Unfortunately it is not possible to prevent a threat that causes natural disasters like an earthquake and reset its potential risks; but it is possible to reduce disaster vulnerability.



There might be loss of life and property damage in earthquakes. It is normal to be afraid of an earthquake but fear and loss can be reduced with these following ways:



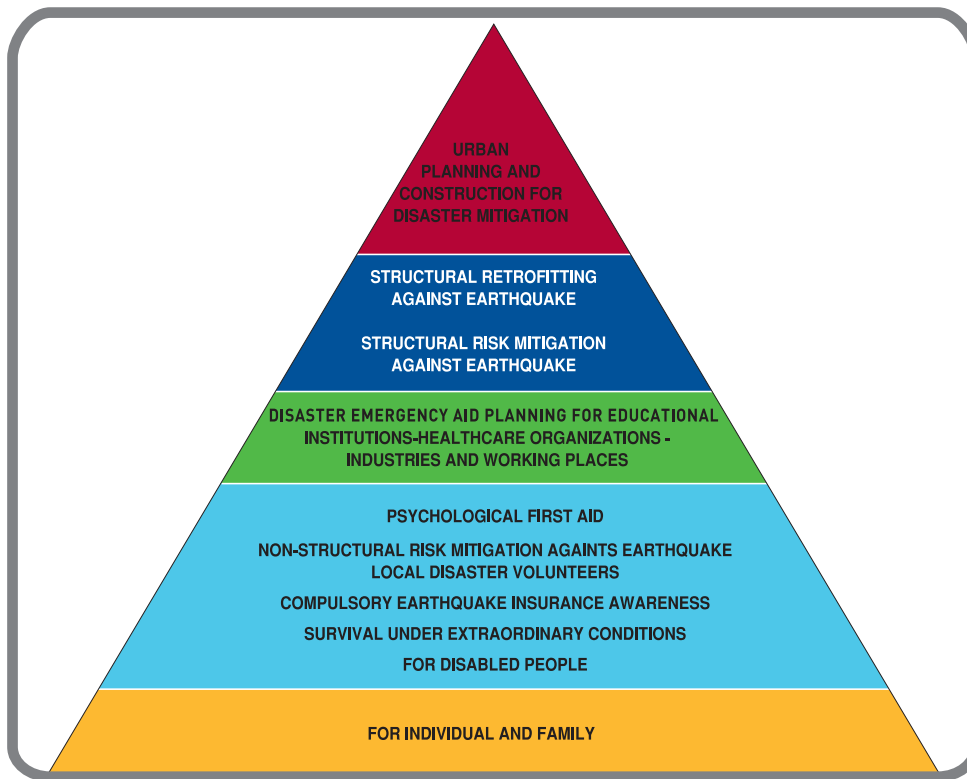
- To learn what an earthquake is
- To know how to take precautions before an earthquake and
- To know how to behave during and after an earthquake

As widely known, during the first minutes of disaster everybody is on his/her own; only our own preparation and knowledge will save us. In none of the countries in the world; it is possible for departments such as medical, fire department or search and rescue teams to reach all the individuals at the same time. So it is a must for each individual to be ready for the first 72 hours which is called as “golden hours” after disaster.

Related to the abovementioned, this book contains the topics given below:

- What is an earthquake?
- How to take precautions and how to be prepared?
- What can be done for hazard mitigation during the first 72 hours which is called golden hours?
- How to respond after an earthquake?

Training aimed to be given in this book just forms the first step of Disaster Preparedness Training Pyramid (Figure 1).



**Figure 1.** Necessary trainings to be taken respectively for disaster preparedness from individuals to experts.

First 72 Hours for The Individual and Family in an Earthquake Training Program is like a summary of the subjects in the second step of Disaster Preparedness Training Pyramid. Therefore, after having completed this training, it is highly recommended to take trainings related to the subjects in the second step of Training Pyramid, too. It should not be forgotten that these trainings are not just for acquaint. It is necessary to change our behaviours and habits for a safe life.

Knowledge saves the person from suspicion, benevolence from suffer and to be determined from fear.

Confucius

# BASIC INFORMATION AND CONCEPTS

In disaster preparedness the most encountered concepts are **hazard**, **risk**, **vulnerability** and **capacity**. At first we briefly define these terms:

## Hazard, Risk and Disaster

- **Hazard** is a physical condition caused by nature, technology or human which may occur in a certain span of time and geography and create negative effect on people, physical structures, environment and community (Figure 2a).
- **Risk** is the probability of a hazard to turn into a disaster and the expected negative results, losses caused by it depending on physical, social, economic, cultural and political reasons (Figure 2b).
- **Vulnerability** is the lack of necessary characteristics and sources (capacity) of the individuals, societies, institutions or countries in terms of hazard exposure, coping with it and mitigating the effects of it (Figure 2c).
- **Capacity** is the qualities and the sources of individuals, societies, corporations or countries on estimating the effects of a hazard, coping with them and protecting, providing and improving with minimum or no loss (Figure 2d).

**Figure 2. (a)** A broken bottle in the beach is just a hazard as long as the beach is empty.

**(b)** If there is a person walking on the beach in bare feet, a broken bottle is a risk for him/her.

**(c)** The person who walks on the beach might get harm when he/she steps on a broken bottle as a result of his/her walking in bare feet.

**(d)** The person who wears slippers has the capacity of getting no harm from broken bottle by considering the possibility of danger on the beach.

What creates the risk is the cluster of hazard and vulnerability elements. On the other hand capacity is the opposite of vulnerability; as the capacity strengthens, vulnerability, therefore probability of a hazard to turn into a risk reduces. To sum up, what reduces or increases the disaster risk is the disaster vulnerability degree of a community. When the disaster vulnerability degree is decreased by hazard mitigation

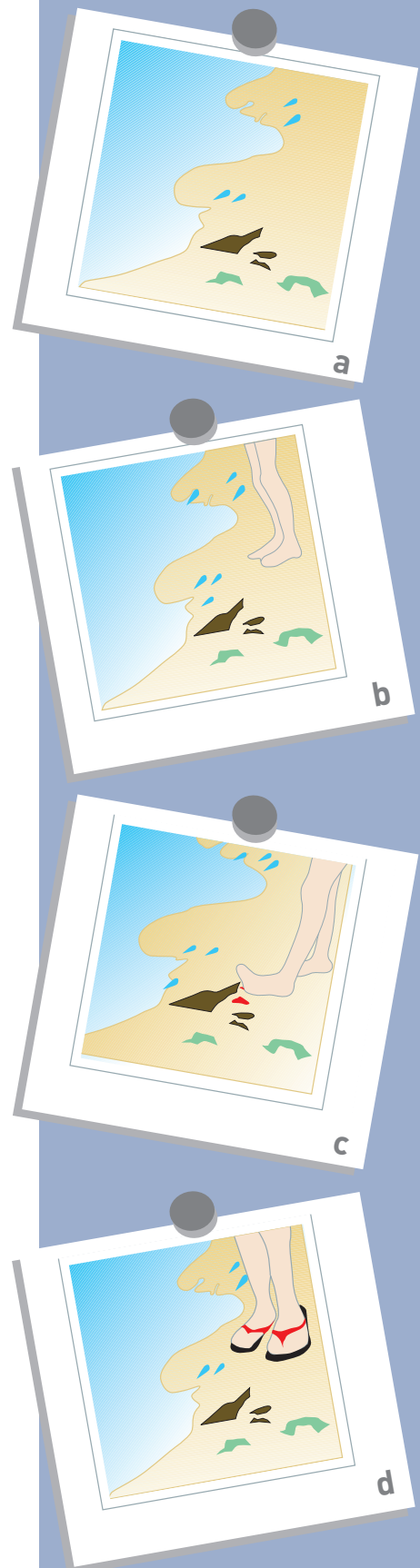
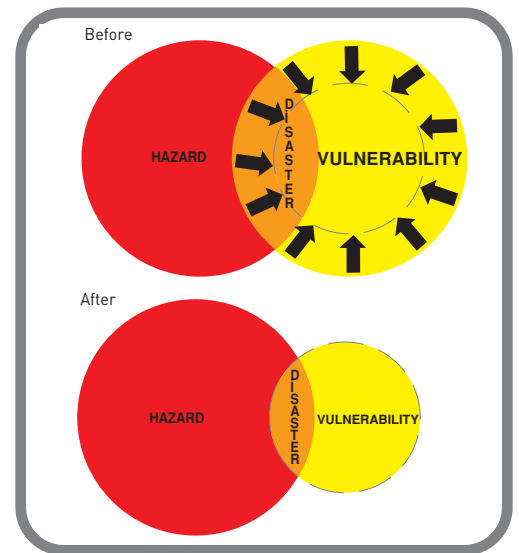


Figure 2. Basic Concepts.

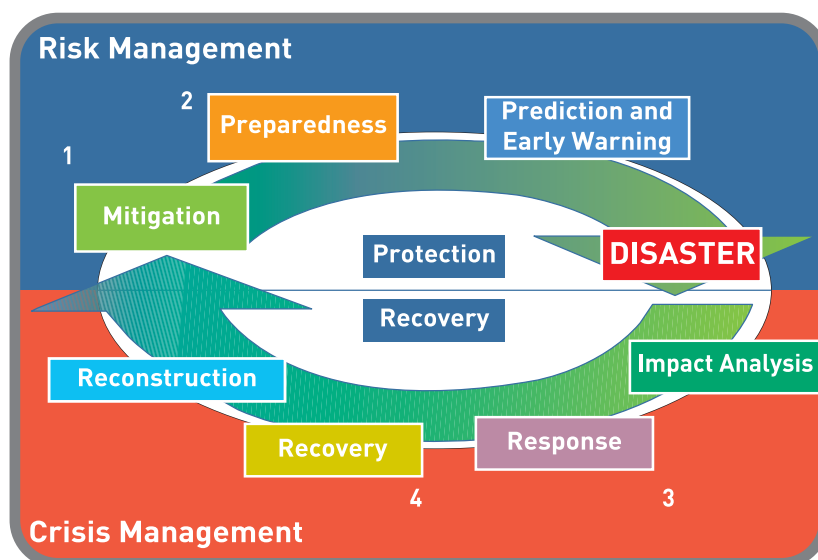
exercises, the disaster that we are exposed to would be minimized as well.

For a hazard to turn into a disaster it is supposed to give huge harm to life, natural surrounding, property and business continuity. For this reason, according to the definition of United Nations, disasters are the situations which the local facilities are insufficient to cope with the negative effects of a hazard on life, property, surrounding, economy and cultural values. Natural events like earthquake, flood, landslide, and thunderstorm are named as natural disasters when they cause big losses of life and property in regional and governmental level or when international aid is required.

Emergencies are the bad effects of a minor hazard on life, property and surrounding which could be overcome with the local possibilities. For example a house fire which can be extinguished by a local fire is characterized as an emergency situation.



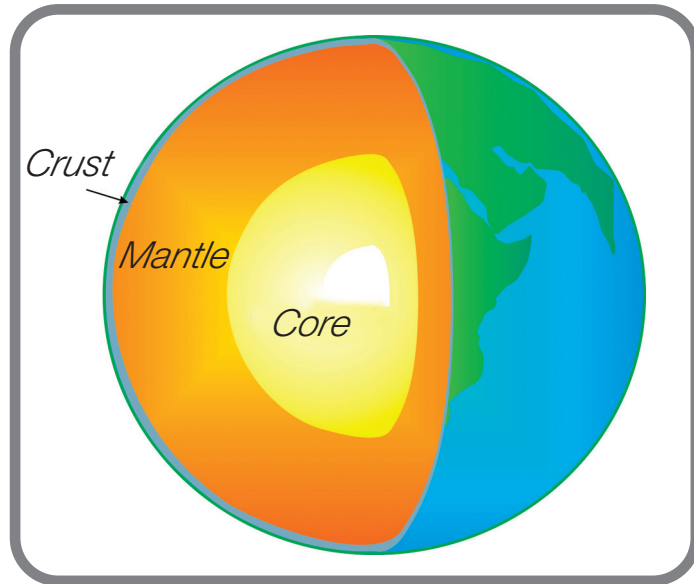
All hazards and risks may not be totally eliminated but they can be mitigated. The disaster management uses the risk management that cope with mitigation and preparation activities, as well. The second part of disaster management is crisis management. In crisis management, response and recovery exercises related to disaster or emergent situations are done (Figure 3).



**Figure 3.** Schematic illustrations of main and intermediate stages of integrated disaster management system.

## Internal Structure of the Earth

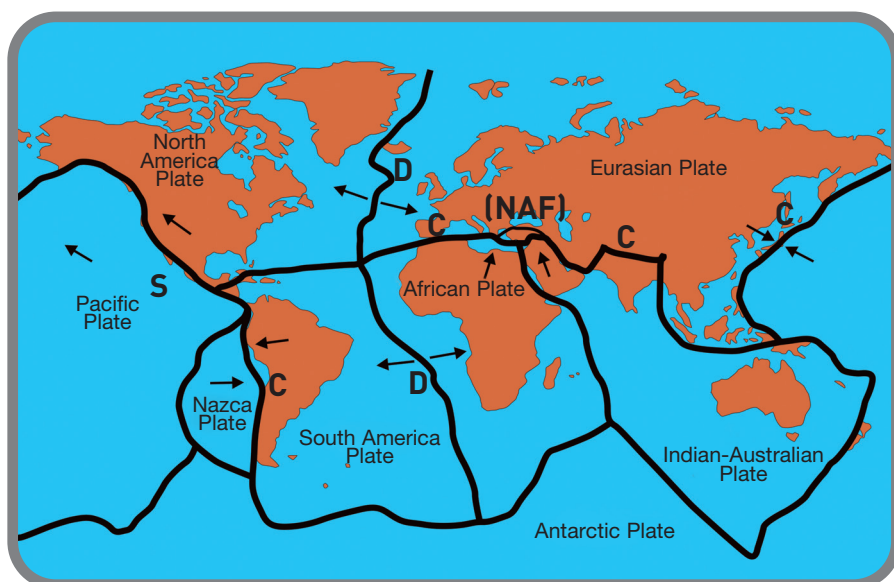
4, 5 million years ago the Earth became an internally layered (as in Figure 4) by getting cold ever since it occurred. This layered structure has different characteristics. These layers are named as “the crust”, “the mantle” and “the core”.



**Figure 4.** The main layers of the Earth's inner structure.

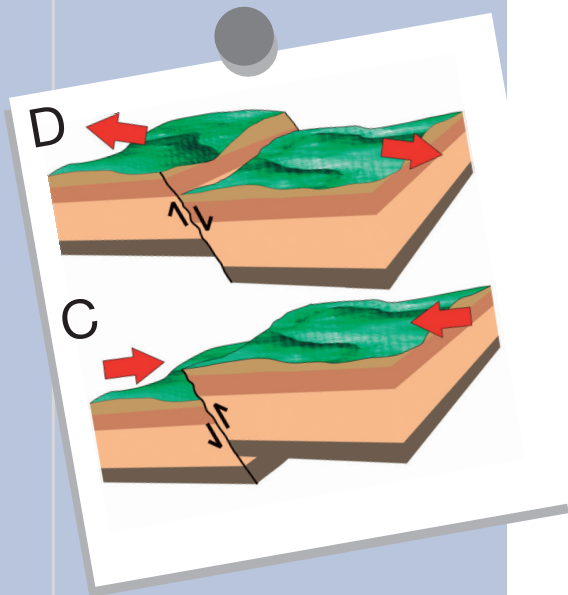
The inner structure of the Earth which is called "the core", is the Earth's magnetic source and is divided into two layers, the inner and the outer core. The inner core is solid whereas the outer core is fluid.

Above the core there is "the mantle" which consists of partially molten rocks (magma) and shows plastic behaviour. Convection currents occur in the mantle as a result of temperature differences. Convection currents may be resembled to the boiling of a dense soup. Convection current activity stretch the top layer of the Earth, the crust, and break into crustal parts. These parts are called "plates". The most recent situations of plates and their borders controlled by relative motion are illustrated in Figure 5.

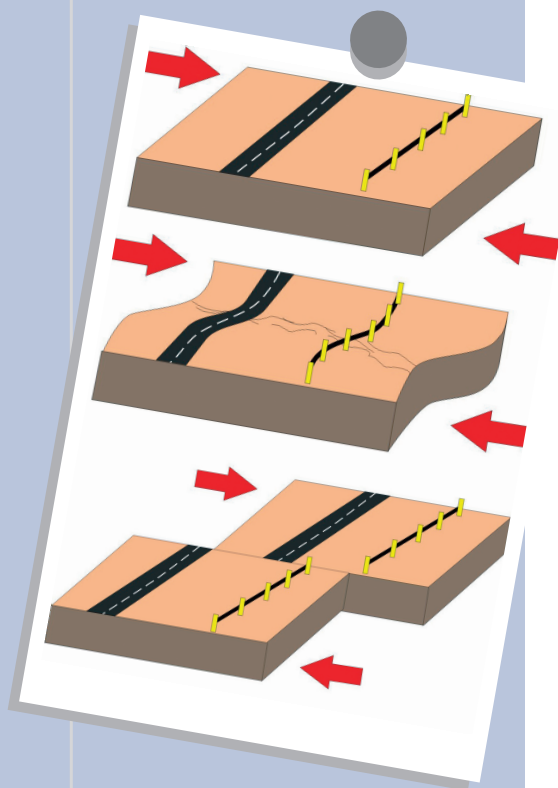


**Figure 5.** The main plates form on the earth's crust and their movements.





**Figure 6.** The schematic illustration of normal and reverse faults.



**Figure 7.** The earthquake's formation of faults by breaking the crust.

The movements of the crustal plates, cause to major geological events on Earth. Earthquakes occur on these large fractions known as fault zones (like North Anatolian Fault Zone). The movements of plates are in three different types; Diverging (D), Converging (C), and Shearing (S). The most devastating volcanic activities occur on Converging Plate boundaries (Figure 5).

## Faults

The Earth's crust moves along weakness zones or plate boundary are called as faults, where the rocks can not resist the force of the earth movements. The earthquakes may occur as a result of relative movements of the blocks respect to one another (Figure 6).

The faults are generally named according to their sense of tectonic plate motion. Those which happen after shearing movements at shearing plate boundary (S) are called "strike-slip fault". We can mention the right or the left movements of two separate blocks formed by a fault (like North Anatolian Fault Zone) and these are the examples of right/left strike -slip faults. The faults that happen after vertical movements are named as "normal or reverse fault". In many faults both the horizontal and the vertical movements can be found. For example, normal fault along diverging plate (D), reverse fault along converging plate boundary (C).

## Earthquakes

Earthquakes are known as a trembling or a shake as a result of the movement of the crust. Although the Earth's crust seems to be inactive it constantly moves, rises, descends, folds, bends and breaks; this creates an over-stress on the rocks. The energy that accumulates during large time periods suddenly discharges along the weakest zones. These fractures are named as "fault" (Figure 7). The seismic waves caused by the released energy and deform (change) the rocks they pass through and shake the Earth. This activity is called as earthquake.

An earthquake can be called as a quake or a seismic activity as well. It happens in a short time and can be sensed

in a large area. Still it can yet not be known where or when an earthquake is going to happen so the exact date and time can not be predicted.

Generally an earthquake is felt like small quakes. You notice that the lamps hanging on the wall are rolling and the objects on shelves are moving. Sometimes you can hear a roaring sound or feel strong shaking. An earthquake emerges with a quake that comes with a rattle and roaring sound beneath the Earth and continues for a very short time. Usually, after a big earthquake small earthquakes called aftershocks may occur.

Aftershocks would continue approximately two or three months after the main shock. But as the days pass the aftershocks become rare, and both their magnitudes and effects reduce. Some buildings which are damaged but not totally demolished during the main shock might collapse during the aftershocks.

Different scales are used to define earthquakes. Magnitude is the measure of the released energy in the source of the earthquake. The magnitude, which is generally described with Richter scale, is defined according to the energy level that releases during an earthquake.

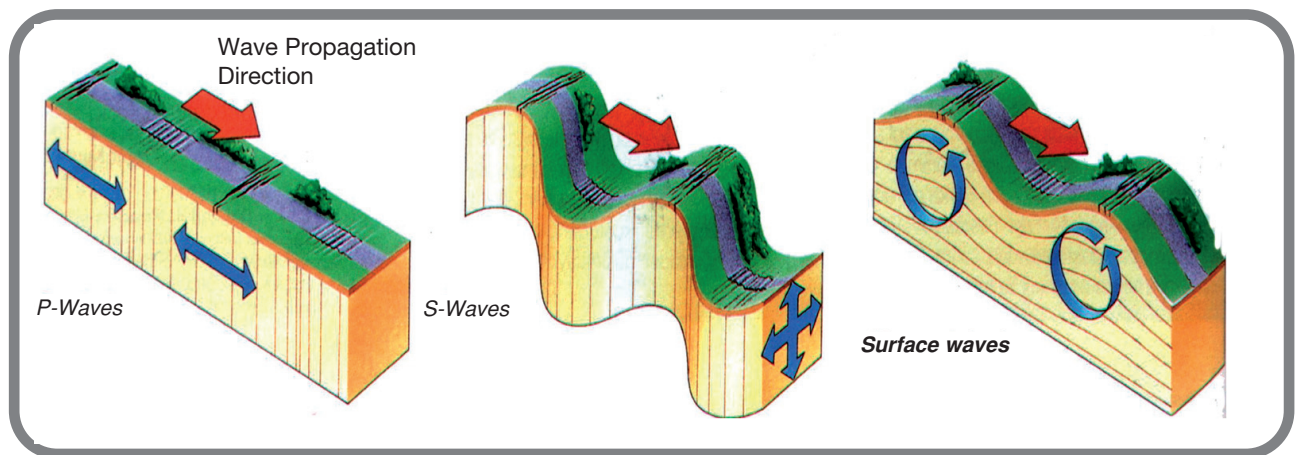
Generally the earthquakes with 4,0 magnitude or below in Richter scale do not cause much loss, but the ones with 5,0 magnitude and above would result in damages. Every year nearly 3,5 million earthquakes happen on the world. And only 1 million of them are recorded. The numbers of the earthquakes which can be felt by people are only 50-60 thousand. For instance, there are approximately one or two earthquakes with 8,0 magnitude or above every year but there are more than 100 thousand micro earthquakes with 3,0 magnitude or below.

The earthquake intensity is also defined by observing its effect on people, constructions, surrounding and crust. According to the "intensity scales", prepared at the end of long-time observations of earthquakes' effect on animate and inanimate beings, there are mainly 12 intensity values and they are illustrated with Roman number. For instance, the magnitude of Marmara Earthquake, in 17 August 1999, is defined with 7,4 magnitude and its intensity in the most demolished parts is defined as X (10).

Earthquakes sometimes may cause fires, chemical fallouts and trigger secondary natural hazards such as avalanches, landslides, rock falls, floods and mud flows. Therefore an earthquake preparedness should be considered in terms of all secondary risks.

## Seismic Waves

The released energy during the earthquake propagates away in the form of vibrations called seismic waves which resemble water waves. The body waves are divided in two, P waves and S waves (Figure 8).

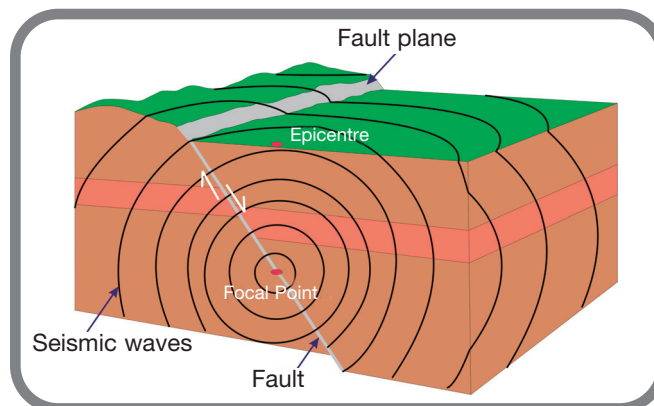


**Figure 8.** The schematic illustration of seismic waves.

Primary (P) waves are compression/expansion waves and cause rock particles to swing back and forth like spiral springs. P waves are the fastest seismic waves so they are the first seen waves on seismograph. Vibration movements are the same as the direction of wave propagation.

Slower S waves are the waves which are secondary seen on seismographs and their vibration movements are perpendicular to the direction of wave propagation. S waves cannot travel easily through liquids, for instance, they are either absorbed or disappear when they travel through the earth's molten parts. Surface waves travel slower than Body waves but their amplitudes are bigger. These are called as "Love" or "Rayleigh" waves. Those Surface waves and S waves cause destructions in buildings.

We can schematically illustrate what we have learned so far (Figure 9).



**Figure 9.** Schematic illustration of the Basic Earthquake Parameters.

## Tsunami

Tsunami means "harbor waves" in Japanese. Today it is used for the waves which occur during natural events on the ocean and sea floor like landslides, earthquakes, and volcanic eruptions. It would be seen as high tide or sea wave at the seas smaller than oceans.

The difference between the wave which occurs after tsunami and the other sea waves is that the destructive energy as a result of water droplets' driftage. Since tsunami does not proceed as a high water wall it would not be felt at deep seas. Once the tsunami waves approach the shore they lose speed but the distance between the waves shortens and overlapping waves might become a disaster for people by building up a high water wall.

At first tsunami is a single wave when it occurs but in a short time by transforming into three or five waves travels outward in all directions. The first and the last of these waves are very weak but the other waves travel with energy which make its effects violently felt on the shore. For this reason after earthquakes in a short time slow but abnormal change of water level on the shores foreshadows the first wave. This change might be foreshadowing of the later very strong waves.

As it could be understood from previous tsunamis in our country, after a great earthquake which may cause a large wave in Marmara Sea there is still a risk even if it is weak but it is obvious that a probable tsunami is not as big as the ones in Pacific Ocean. Nevertheless after Istanbul earthquake in 1894, waves went beyond the city walls on the shore (due to landslide under the sea) and it can be seen in records. In 1630 B.C Santorini volcanic eruption caused a tsunami in Aegean Sea.



## Earthquake in Turkey

In Turkey, there are 3 different earthquake fault zone systems located in one of the most active and important fault zones in the world (earthquakes cause intensive damages in three regions (North - Northeast, West Anatolia regions and East - Southeast Anatolia). The length of North Anatolia Fault Zone (NAFZ) is 1200 km; its width changes between 100 meters and 10 km (Figure 10). This strike slip fault which has been active since approximately 5 million years as an old plate boundary causes intermediate depth (10-20 km) earthquakes. In West Anatolia, the Aegean Fault system which includes normal faults causes less intense shallow earthquakes.



Figure 10. The Map of main active faults in Turkey.

In order to define earthquake activity according to the location of active faults and probable hazard risk, earthquake zones are determined. Earthquake zones are determined considering the probable acceleration value as a result of probable earthquakes in these zones. The zones are given numbers according to their risk potentials. The most risky location is named as first-degree seismic zone. As the degree rises the seismic risk reduces.

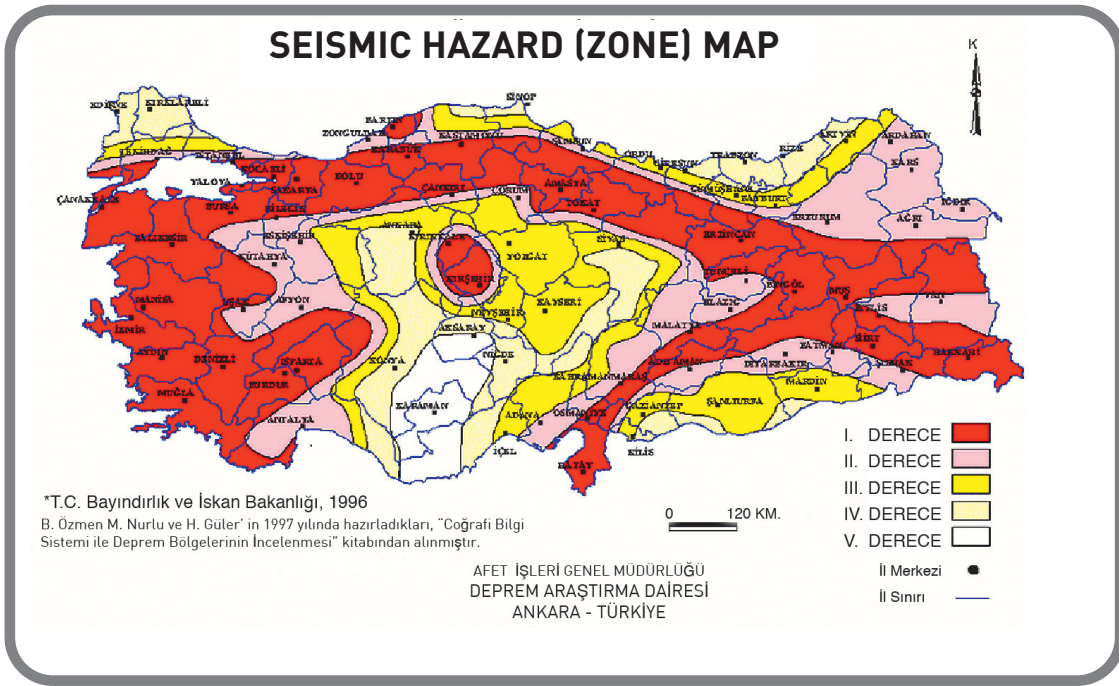


Figure 11. Turkey Seismic Hazard Map according to five different seismic zones.

## Earthquake Prevention

In Marmara Earthquake 1999 unsound structures, unfastened objects and unawareness of people who do not know what to do during an earthquake caused deaths.

It is normal that structures suffer damage in the earthquake but it is an unacceptable situation that they collapse as small pancakes.

The destructive and disruptive effects of disasters immediately show themselves. The normal flow of life stops, unrepairable damages happen in infrastructures. There will be power and water cut, communication halts. The roads are destroyed and transportation stops. In this situation professional teams cannot respond immediately because it takes a long time to reach disaster area. Individuals and families should be prepared beforehand for these kinds of situations.

For this reason we should be prepared for an earthquake in terms of "if everybody in Istanbul, Marmara or Turkey is ready for an earthquake then we all will be ready for it" principle. Do not forget that preparation for an earthquake is not just the job of institutions like the government, Red Crescent, municipality or governorship.

Disaster consciousness and disaster preparation should be a part of individuals' safe life culture. Safe life is to live avoiding from all kinds of hazards in other words with knowledge and prepared that might cause damage. In order to be protected from them, we should learn and teach basic knowledge about earthquakes and fires that might occur in each day of the year; strong winds of the autumn; snow; rainfall in the spring; floods, thunderstorms and landslides, sunbathing in the summer and heat waves, forest fires.

Let's imagine the process of an earthquake from 0. Second to third day so we would test and see whether we are really ready for an earthquake as an individual in a simple way.

When we prepare for disasters as an individual and family we should take special precautions for all disabled groups and people who need special care. At first with precautions given below we should mitigate hazards beforehand related to disasters like an earthquake, we should be prepared for the disaster moment and after it.

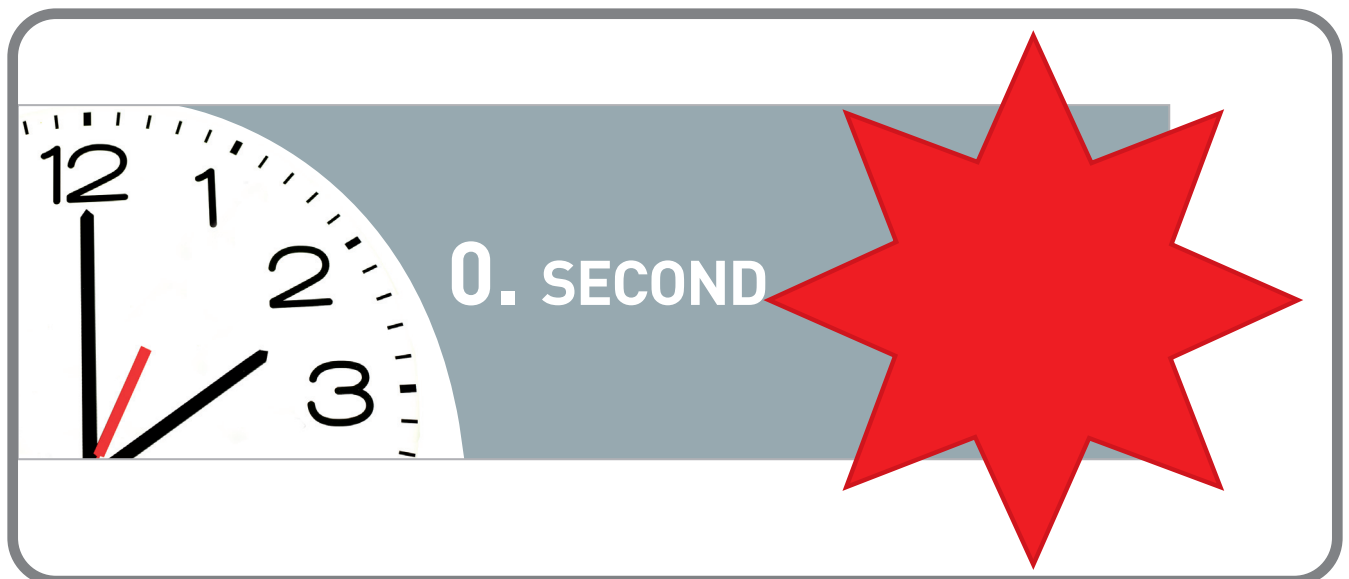
- We should be careful about that whether our cities and houses are constructed according to safe building and construction rules.
- In the house by doing "earthquake hazard hunt", we should define the objects that might slide and fall down or cause physical injuries by breaking during an earthquake, fasten these objects or change their places.
- We should define safe and unsafe places in our houses.
- We should take out the Natural Disaster Insurance (by the agency of The Turkish Catastrophe Insurance Pool - TCIP)
- Before the earthquake we should prepare an Earthquake Kit and Family Disaster Plan.
- We should learn how to perform Drop, Cover and Hold drill during an earthquake.
- After the earthquake we should take necessary precautions such as turning off the infrastructure systems, not using any source of fire and gathering in determined places in family disaster plans.

In next chapters we will briefly deal with what we can experience in golden hours after the earthquake and necessary precautions that we are supposed to take before the earthquake.



**Safe life is only possible with being informed against all kinds of hazards and being prepared against them.**

# PREPARATION FOR THE 0. SECOND



The most important thing for the 0. (zeroth) second during an earthquake is that the city we live in should be well-planned and the buildings in which we live, work, get education, worship, do shopping should be safe. Solidity of a building means that this building is constructed according to features of the ground on which the building is located and proper building standards which is appropriate for ground features. It is not important only if the ground is safe.

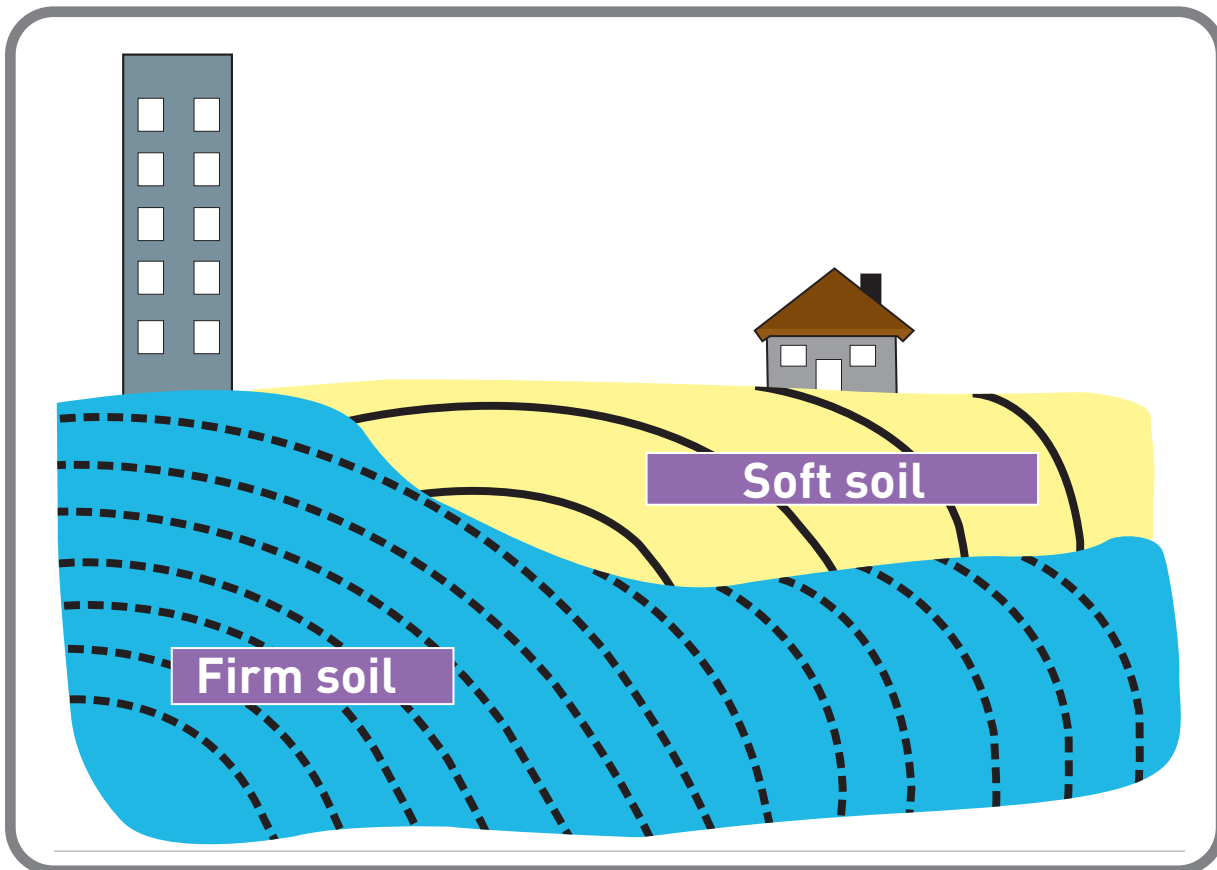
In the zeroth second of an earthquake, objects should not fall down on us. Imagining how objects fall down and swing back and forth in the earthquake and fastening them has great advantages. Thus we should ask ourselves these questions:

- Can wardrobes tumble and fall down on us while we are sleeping?
- Can heavy books and objects on top shelves fall down on a cradle or a similar place?
- Can a heavy chandelier fall down in a small shake?

If you think it is required you should fasten your objects to the wall, ceiling or to the ground in an appropriate method.

## Disaster Resilient Urbanization

One of the factors that affects structural damage in an earthquake is local ground terms because local ground terms and behavioral features differ in each area. In earthquake resistant structure design, different behavioral features of the grounds should be taken into consideration (Figure 12). For this reason these features should be defined according to type and importance of the structure on-site or in the laboratories with special methods.



**Figure 12.** Different behaviors of seismic waves on different grounds.

When the cities are disaster-safe, in other words all disaster hazards should be taken into consideration in empty areas which are thought to open to settlement. In structured areas all disaster risks should be defined on large scale maps and as a result of this safe land usage and zoning decisions should be taken. While defining strategic purposes, objectives and priorities for urban regeneration and mitigation planning studies, useful researches that provide information should be done. Studies with all of these purposes are named as defining disaster hazard and risk in local scales or micro zoning studies.

“Micro zoning” studies is the beginning of the process of harm reduction which is caused by earthquake (Figure 13). These studies and disaster scenarios aim to define disaster hazard and risks at local scale as well. These can be prepared to form basic principals of a city development plan or an environment plan; moreover for the purpose of development plan more detailed and bigger scale studies can be done.





**Figure 13.** Geological map of Istanbul in consequence of micro zoning studies ([www.ibb.gov.tr](http://www.ibb.gov.tr)).

According to Istanbul Earthquake Master Plan which is published in 2004 together with micro zoning studies, if we do nothing, it is guessed that in a probable Marmara earthquake 73.000-87.000 people would lose their lives, 120.000-135.000 people would seriously get wounded, 50.000 buildings would get severe, 114.000 buildings would get moderate damage. At the same time as the structure quality increased, buildings are retrofitted, objects are fastened, corporations and public get ready we can minimize our economical, cultural and social losses.

To warn the public and local decision makers for the possible hazard and risks and to make them take the necessary precautions in time is one of the most updated actual problems. For this reason with Town Watching method the level of awareness against risks and hazards should be raised. In order to do that citizens and local decision makers should be united and work together in a field study and make them take decisions together about taking responsibilities. To arrange these kinds of team works is the responsibility of both local decision makers and non-governmental organizations.

**For Further Information:**

**Look at Urban Planning and Construction for Disaster Mitigation Training Guides.**

## Prevention of Structural Damages

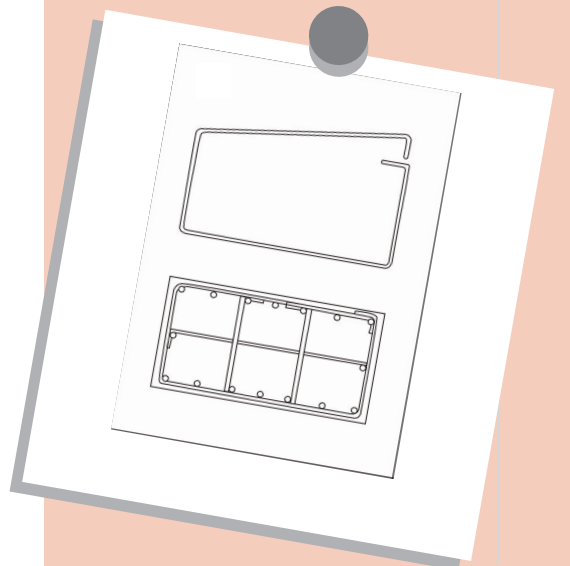
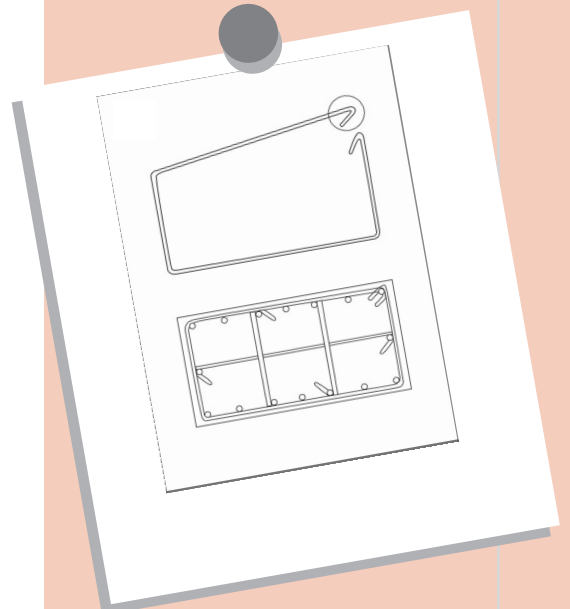
After the earthquakes that we have experienced in previous years, there has been great life and financial losses. Nevertheless building quality of most of the structures that we live and work is below their supposed level. In other words significant part of the structural risks in our country arises from the fact that buildings are not constructed according to construction standards. Due to inadequate activity of control mechanism during structuring even in current buildings, significant inadequacies thus significant risks can be a matter of fact.

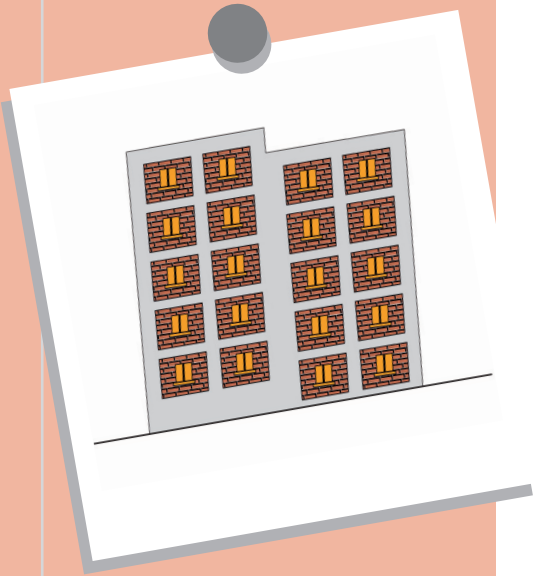
In order to prevent significant loss of life and financial losses in earthquakes, buildings that are inadequate in terms of earthquake resistance should be retrofitted or should be demolished and rebuilt. When deciding among demolishing, retrofitting and rebuilding, the social, cultural and historical value of the building should be taken into consideration together with the economical and technical criteria.

When taking the decision of demolishing or retrofitting many different factors are effective. In buildings which do not have a special social, cultural and historical value, if retrofitting cost exceeds 40% of demolishing and rebuilding costs it could be concluded that demolishing and rebuilding is more reasonable than retrofitting.

In order to make retrofitting easier for disaster hazard in existing buildings a certain number of changes are made in Law of Property Ownership and special provisions are carried out related to buildings. The main changes can be listed as below:

- As a part of load-bearing system girder, column and curtain walls together with the other parts of load-bearing system would be considered as common places of the main real estate; In other words elements of load-bearing system would accepted as common property of flat owners.
- Repairment, construction, external paint and whitewash could be done by getting all of the flat owners' agreement, with the amendment in 19th article; these kinds of repairments can be done by taking the written permissions of four out of five.
- Again with the amendment in this article for proper repairment and retrofitting, agreement of the flat owners would not be taken into consideration as long as it is confirmed by the court that damages in common places give harm





- to main structure or independent parts, require urgent repairment or retrofiting of the main structure is essential.
- With the amendment in 20th article besides repairment expenses of common places flat owners would contribute to the retrofiting expenses in terms of land share proportion.

It is possible to divide structural risks into two. First one is the risks that are emerged as a result of non-structural components' getting harm. Among them the risks that are emerged a result of collapsing of partition walls, affusion, falling down, cracking of plaster, glass breaking or so forth damages can be mentioned. Second kind of risks would happen in case load bearing elements would get harm. In case these kinds of risks emerge damages would be much bigger even the structure would completely collapse. If the load-bearing system of a structure's earthquake safety level is higher in terms of column, girder, curtain, base, floor the risk is lower. Or in contrast to this, the lower safety level, the higher risk of financial loss and loss of life.

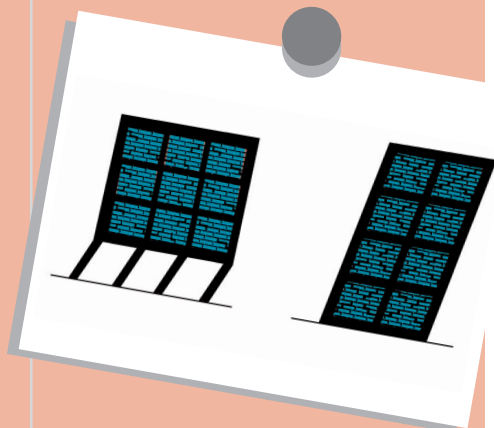
The main reasons of low safety level in structures are those:

- Not putting correct and enough stirrups on junctions of columns and girders
- Inadequate concrete strength or concrete is burnt
- Very small column sections
- Existence of mezzazine floor in structure

To sum up, considering our existent structure stock it is understood that our country is under much bigger risk compared to various earthquake-prone countries. Both in our big cities and rural areas buildings suffer harm even in small earthquakes and collapse as well. Even in analysis and evaluations that are made just after an earthquake it is observed that there are no remarkable damages in buildings that are projected and constructed according to earthquake regulations.

In order to minimize life and financial losses in future earthquakes new buildings should be constructed according to related rules and regulations and collapsing buildings with inadequate earthquake safety level and reconstruction or retrofiting have great importance.

**For Further Information:**  
**Non-structural Risk Mitigation Against Earthquake Training Book**



## Prevention of Nonstructural Damages

In our country at least 50% of physical injuries, 3% of deaths are due to nonstructural risks. These risks are as a result of object usage. For this reason, taking simple precautions at home (like fastening objects) will prevent physical injuries during a disaster. **To be prepared for disasters and harm reduction, there are simple precautions to be primarily taken for everybody in their houses.**



First we should start with **Hazard Hunt** in our houses and working places:

- If the wardrobe next to our bed is overthrown does it fall on us?
- If our library is overthrown who will be injured?
- Can objects like saucepans, fryers in cupboards fall on our heads?

**Do not forget! Everything that would move, slide, fall, break during an earthquake is dangerous. Fasten all your objects immediately against to shake.**

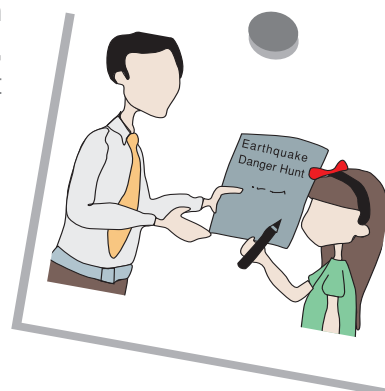
In order to do Hazard Hunt and define safe places, take the photos of your classes and each room of your house. Then mark safe and dangerous places on these photos according to criteria given below. Do not forget, you should try to use the safe places as much as possible at the moment of an earthquake.

**Safe places are these:**

- Under or near sturdy object
- Inside of corridors

**Risky places are these:**

- Surrounding of glass and mirror

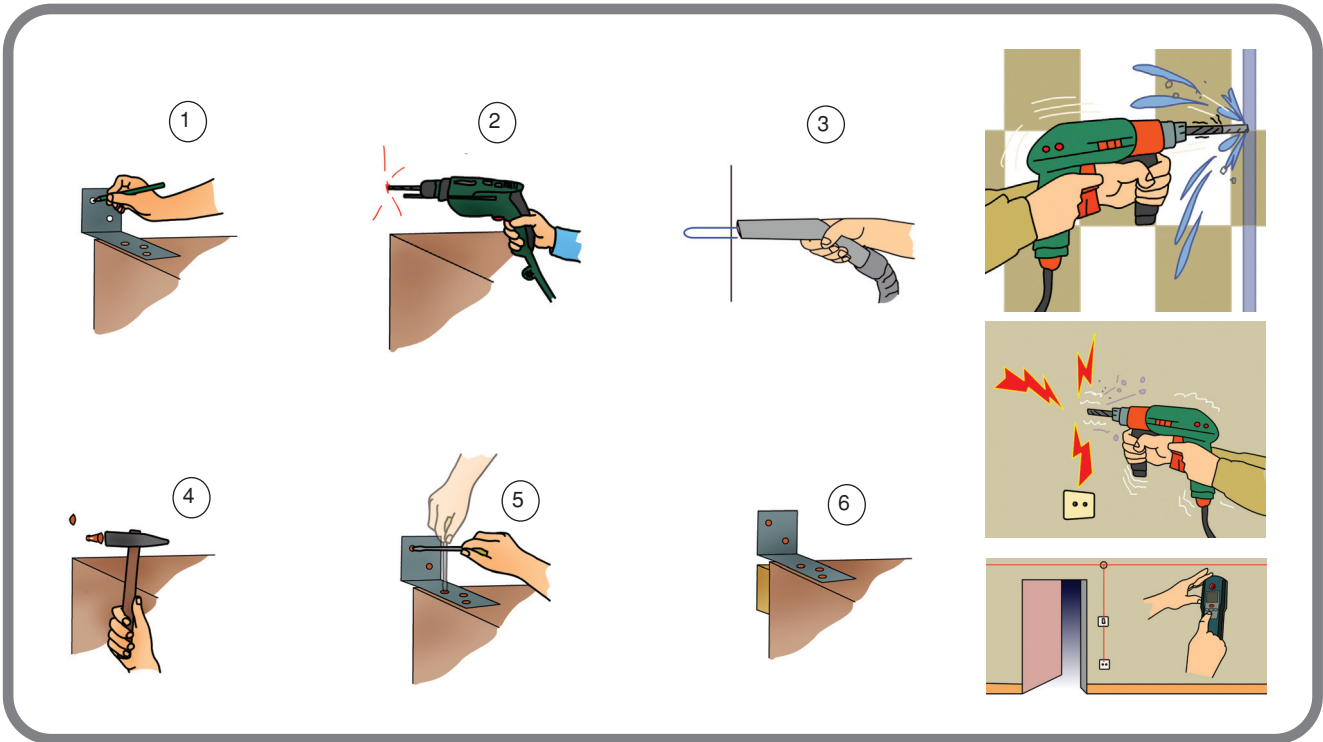


- Under the any objects that might fall down (suspended ceiling, air-vent pipes, lightening objects)
- Oven
- Refrigerator
- Cupboards
- Doorways

You should share tasks at home and do listed works on the board to mitigate nonstructural risks.

Whose duty?	Things should be done in order to mitigate nonstructural risks	Is it done?
	Beds will be removed from big windows or windows will be covered with drapes, films or heavy curtains.	
	A flashlight and thick slippers will be put near beds.	
	Shelves and bookshelves will be fastened to the wall. Lath or similar material will be put in front of shelves. Heavy objects will be put on lower shelves.	
	Objects that might roll and fall like cabinet, bookshelf, buffet will be fastened to the wall and ground.	
	Pictures on bed side wall and next walls will be removed and hang on another wall with hook screws.	
	Mirrors on the wall be firmly fastened with hook screws.	
	Flowerpots of hanging flowers will we changed with light, unbreakable flowerpots and fastened to the ceiling with closed hooks.	
	Chandeliers and lamps will be fastened to the wall with locked hangers in a safe way.	
	Lock and latches will be added to the cupboards in which breakable objects exist like kitchen cupboards. Doors of shelves will be strengthened in a way that they would not open.	
	White goods will be fastened to the ground and wall by using appropriate materials according to their weight.	
	Televisions on wheeled tables will be fastened at first to the table and then table will be fastened to the wall.	
	Water heaters such as termosiphone, hot-water apparatus and boiler will be set up on the wall or ground in a safe way.	
	Anti skid covers will be put under the devices like computer and inside the kitchen cupboards.	
	Poisonuos and inflammable substances will be kept in a way that they can never fall and break.	

In order to fasten objects like closets, bookshelves, sideboards that can fall or slide to wall and/or floor, follow similar steps in Figure 14 and be careful about the warnings.



**Figure 14.** Fastening steps and hazards needed to be avoided.

**Attention!** Before perforation, the wall should be completely checked. Otherwise electric and water installations that are on the unseen parts of the walls may damage.

Before going inside of your house raise your head and look at your building's surface or take the photo of your building's surface. Later on, mark the objects which can fall down at the moment of an earthquake on the photo. During a possible earthquake objects like tile, brick, flowerpot, air conditioner, signboard, chimney, glass might fall. For this reason, at the moment of an earthquake going out is very dangerous. Besides, flowerpots and so forth objects should not be put on window seat, air conditioner equipments should be installed in a way that might never fall down in an earthquake.

**For Further Information:**

**Look at Non-structural Risk Mitigation Against Earthquake Training Book**

## Purchasing of Compulsory Earthquake Insurance

Compulsory Earthquake Insurance (CEI), in general terms, is an insurance system which is created for residences within the city hall borders. Buildings within this insurance are those:



- Buildings which are land registered and constructed as residence on privately owned real estates
- Individual parts within the Property Ownership Law no 164
- Individual parts inside of those buildings which are used as business organization, office and so forth purposes
- Residences which are constructed because of natural disasters or with the given loan by the government

Compulsory Earthquake Insurance is necessary for the buildings which fit in the conditions stated above, construction servitude established buildings, buildings of which classification in land title is not done yet and quality is seen as "land etc" in land register, cooperative houses whose land registration are not done yet. Insurance of independent residences which do not have independent land title yet, is insured with regard to insurant's statement and according to land title information.

By purchasing Compulsory Earthquake Insurance:

- We will have a concrete assurance which is not related to the government's budget and immediately compensate financial loss. In addition to this, even our house is not affected by the earthquake; insurance premiums which we pay would be used for disaster victims whose houses suffer damage so we perform social solidarity in the most beautiful way.
- We will contribute to the objective long term financial source saving for compensating earthquake damages and prevent additional taxes after earthquakes.
- We will have significant contribution to perform structure standards, healthy structuring and form a modern social structure.

Necessary information to take out a policy:

- Name, address, phone number and mobile phone number -if he/she has- of the insurant
- TR Identity number of the insurant
- Mailing address of the insured place
- Title information (block, sheet, parcel, page number) (residence title or land title)
- Year of construction (like 1975 and before 1975, between 1976-1996, between 1997-1999, 2000 and after 2000)
- Structure style of the building (steel/ferroconcrete, carcass, masonry, other)
- Total flat number of the building
- Damage condition of the building (like non damaged, light damaged, moderate damaged)
- Gross area of the residence (flat) (m<sup>2</sup>)
- Usage of the residence (flat) (like residence, business organization, office, other)

Compulsory Earthquake Insurance Policies, on DASK's (Turkish Catastrophic Insurance Pool) name and account, are arranged by authorized insurance companies and their agencies.

**For Further Information:**

**Look at Compulsory Earthquake Insurance Awareness Training Book**

## Family Disaster Plan

Disasters can happen at any time and place and turn into frightening dimensions. For instance you have to abandon your home. Official disaster institutions might not provide your needs immediately. Besides you do not have enough time to think during an earthquake. Give up thoughts like “It does not happen here. Even it happens nothing would happen to me” and do not postpone your preparations.

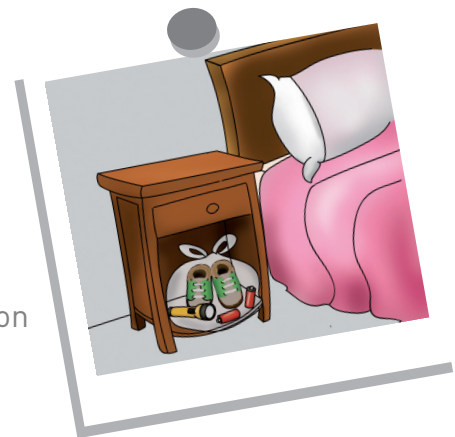
You should definitely make preparation and a disaster plan as a family. For instance, at the moment of an earthquake family members might be at different places. It might not possible to communicate between each other during the first hours. As intercity communication can be earlier and easier a person from a different city should be chosen and after the disaster everybody should call him/her and both give and take information about himself and the other family members.

Besides, a disaster and emergency kit should be prepared by collecting necessary key items that family members might need in a disaster.

These items can be put in a disaster kit:

- Pocket knife, whistle
- Cash
- Pen, paper
- Blanket or sleeping bag
- Scissors, box tape, plastic/nylon cover
- Battery-operated radio, hand lamp, extra battery
- Personal first aid kit and medicines with extra and prescription that you essentially use
- Protective outfit, sturdy shoes and raincoat
- Special items for babies, old or disabled people if there is
- Identity card, family records, documents of house, car, and bank, social insurance and medical documents, etc. and copies for similar documents and current photos of family members (in a water proof bag)
- If your family has an car, its spare key
- Enough water and food
- Hygiene packet (soap, disinfectant gel, tooth brush and tooth paste, wet tissue-paper, toilet paper, etc.)

Materially and morally valuable documents to be firstly rescued can be put into disaster kit as well. You can prepare similar kits for your car (if any) and working place. All family members should know where the disaster kit is. Materials given above are examples. A person can add materials to this list according to his/her personal situation and needs. Apart from the emergency papers and emergency kits families should have a Family Disaster Plan which includes at least the first three days called as “golden hours” during a disaster. You can start planning and disaster preparation by doing works in the list which are given on the table below. You should pay attention to that each family member has a part in this plan and do the works really and try to complete them when you follow these steps.





Done?	Things to do for Family Disaster Preparedness and Disaster Plan:	The date action completed
	We defined hazards which can cause emergency and disaster in our surrounding	
	We defined the safest places in each room and in the house by doing "Hazard Hunt".	
	We checked our building and belongings. We made a plan to mitigate the structural and nonstructural risks.	
	We determined two exit ways from each room and the building-if possible-by drawing a sketch.	
	We learned the places of valves like natural gas, electricity and water and how to turn them off	
	We learned how and when to call emergency phone numbers (112,155,156,110)	
	We have chosen two relatives in and out of the city and learned their phone numbers. In case any separation during the disaster each family member knows to call these two people at first.	
	We determined two gathering places one is near and the other is far from the house to meet family members if we are not together at the moment of the disaster.	
	We bought flashlight, smoke detector and fire extinguisher for our house.	
	We bought first aid kit. We planned to take and repeat disaster preparedness, fire extinguishing and first aid trainings.	
	We've learned how to be informed from the emergency situations and where to stay from our municipality.	
	We learned local evacuation routes in our street from our headman.	
	We learned how to help to babies, old and disabled ones.	
	We've talked how to cooperate with our neighbours during a disaster.	
	We planned how to supply our water, food and toilet needs for three days after the disaster. We keep our disaster kit in a place that we can easily reach and carry.	
	We learned not to use things which might cause a fire like match, etc. when we are not sure of gas leakage after a disaster or emergency.	
	We put water, whistle, hand lamp, shoes, protective gloves near our beds.	

**FRONT**

**EMERGENCY INFORMATION CARD**

Name-Surname : .....

Blood group : .....

Date of birth : .....

TR identity number : .....

Address : .....

Emergency person for the card owner : .....

Name-Surname : .....

Phone number : .....

For more information [www.guvenliyasam.org](http://www.guvenliyasam.org)

**BACK**

**EMERGENCY INFORMATION CARD**

Chronic disease if any : .....

Medicines taken : .....

Surgical operation if any : .....

Any organ donation? : .....

Family meeting point during a disaster : .....

Other information : .....

Please always carry this card with you.

When you finish practicing these steps about Family Disaster Preparedness Plan on the list below with your family, put a cross to the “Done” box and write the date action completed to the final column. When you have finished with this table, fill in the family emergency card that is given as a sample below and copy them for the each family member and always carry with you.

**DISASTER PLAN OF ..... FAMILY**

The person to call out of the city  
Name .....  
City .....  
(Home number) .....  
(Work Number) .....

The person to call in the city  
Name .....  
(Home number) .....  
(Work number) .....

Relative  
Name .....  
City .....  
(Home number) .....  
(Work number) .....

Work numbers of the family  
Father ..... Mother .....  
Other .....

Emergency phone numbers  
In an emergency call 155 or 112 or call these numbers in your city:  
Police .....  
Fire department .....  
Hospital .....

Meeting places  
1. At home .....  
2. Next to home .....  
3. Away from home (if you can not return to home) .....

Address .....  
Phone .....  
The first route .....

**FAMILY DISASTER PREPAREDNESS WORK PLAN AND CHECK LIST** ✓✓✓

<input type="checkbox"/> We have defined the insecure places at home (for instance; window fronts, sides of big, heavy, rollable and flammable objects)	<input type="checkbox"/> We have learned not to use any matches or lighters that might cause a fire until it is certain that there is no gas leak after a disaster.
<input type="checkbox"/> We have put our torches and slippers next to our beds.	<input type="checkbox"/> We have learned that we should use our phones only for emergencies and radios and TVs to get information.
<input type="checkbox"/> We have learned the places of electric, water and gas valves and how to turn off them.	<input type="checkbox"/> We have completed this plan in ..... and we have decided to go over our plan in every six months
<input type="checkbox"/> We have bought a fire extinguisher device for our home and learned how to use it. We have a smoke detector at home and we have been changing its batteries two times in a year.	
<input type="checkbox"/> We have planned to take or repeat a first aid course.	<b>112 Emergency (Ambulance)</b>
<input type="checkbox"/> We have prepared our first aid kit.	<b>110 Fire brigade</b>
<input type="checkbox"/> We have prepared our disaster kit. The places and the preparation date of disaster kit: .....	<b>155 Police</b>
<input type="checkbox"/> We have defined the evacuation ways from the building and marked them on the sketch.	<b>177 Forest Fire</b>
<input type="checkbox"/> We have finished "Hazard Hunt" at home.	<b>156 Gendarmerie</b>
<input type="checkbox"/> We have fastened the rollable furniture.	<b>184 Health Consultation</b>
<input type="checkbox"/> We have defined the secude places of our house.	<b>114 Poison Consultation</b>
<input type="checkbox"/> We have decided how to meet again.	<b>187 Natural Gas</b>
	<b>158 Coast guard</b>

Plan and get ready!  
Fill in this Family Disaster Plan with your family.  
Put one of its copies into your bag and the bags of each family member.  
And also, hang one of the copies to a visible place at your home.

## PREPARATION FOR THE 3. SECOND



Earthquake is at first recognized with P-wave. Because of following S-wave we begin to shake and hear noises. Sequential, fast and intense shakes might last a couple of seconds or minutes. Earthquake itself would not give harm to us but a broken glass, falling objects, dashing heavy objects might fatally wound us.

We should know what to do and how to protect ourselves in the third second of an earthquake. Getting into panic and running out to stairs and balconies even in small earthquakes results in unnecessary deaths. When the earthquake starts we need to act properly to protect ourselves without being petrified or rushing around.

### Fear and Panic

If you are afraid of an earthquake, share your fears with the people around you. Earthquakes might be frightening but do not forget that shake would end in a short time. In order not to be panic learn what to do before, during and after the earthquake and together with taking necessary precautions make earthquake drills in different places. Besides, to prevent the panic, try to behave as if you are not got into panic. Only in this way you can help yourself and the people around you.

**Question:** In order not to panic how should I behave at the moment of an earthquake ?

- a) I do drop-cover-hold act
- b) I start to count till 60 inside
- c) I think earthquake would end in a short time
- d) I make them all above

The answer is “d”

Physical injuries and deaths can also be seen in slightly damaged or nondamaged buildings which are not completely demolished and took the shape called “sandwiched” or “pancake”; the non-structural risks like objects in the house cause them. For this reason when considering the fact that major parts of our buildings would not be “pancake”, the only universally accepted behaviour type to protect from the nonstructural risks is “drop-cover-hold”.

## Drop-Cover-Hold

This method is used in hazards such as earthquake, airplane crash, landslide, bomb explosion or bomb hazard, lightning and cyclone. For instance when the ground begins to shake or a great explosion is heard everybody should do “drop-cover-hold”. This act minimizes the target to get less damage and protect us from flying, falling, spilling objects.

If we are in the building we should not stand up when we feel the earthquake, absolutely

- should not run around
- should not go to balcony
- should not go to stairs
- should not use the lift (elevator)
- should not jump out of the window and balcony

If we do not fastened primarily we should keep away

- from windows
- from doors
- from glass walls
- from bookshelves
- from libraries
- from lamps
- from frames
- hanging flowers and flowerpots
- from cabinets
- wardrobes
- from chemicals
- from the cookers and ovens on
- from high furniture
- from unsafe structural components

**DROP** and get under a sturdy object or go next to it. Take **COVER** facing back the windows and protect your head and nape against the objects that might fall. **HOLD** to the object to be able to move with it until the shake is over. Put your face on your arm that you are holding the object with and try to protect your face and eyes from the flying objects around you.



At the moment of an earthquake if you are in the kitchen and the cooker is on you should do these:

- When you feel the shaking turn off the cooker.
- And then do the Drop-Cover-Hold.

**In a disaster or emergency minimize the target by taking the most suitable “DROP-COVER-HOLD” position. Keep your position till the hazard ends.**

Look at the First 72 Hours for Disabled People in an Earthquake Training Book for further information about disaster preparedness of disabled and people who need special care, the things should be done during and after a disaster for them.

**People forget  
what they hear,  
remember what  
they see and just  
understand  
what they do!  
(Conficius)**

In order to remember right behaviour type and apply it during an earthquake, drills should be done constantly and certainly.

### **Drop-Cover-Hold Drill**

It is scientifically proven that with their Drop-Cover-Hold drill people have double chances of moving without getting into panic. Therefore, knowing how to protect ourselves is very important whether we are at home, school or workplace. If we drill what to do during an earthquake with our family, class or friends our reflex automatically will lead us to the right actions.

You have learned the things should be done during an earthquake. When one of the family members who directs the drill, read the given text the others should do a real “drop-cover-hold” drill.

### **DROP-COVER-HOLD DRILL FOR EARTHQUAKE PREPARATION**

- Think that you hear a low or rumbling noise. The noise increases continuously and continues for a couple of seconds. You feel as if someone suddenly has put on the brake or a truck has hit a building and where you stand on begins to shake.
- Suddenly you hear that someone shouts as "EARTHQUAKE" and "DROP-COVER-HOLD". As if the ground moves beneath you. To remain standing even to sit on the chair is difficult.
- You are carefully listening to what drill director says by going under or near a sturdy object quietly and immediately.
- Shake and stir might continue till 60 seconds. Our friend who holds the watch will start to count seconds during the earthquake (Second count starts).
- The building shakes and makes noises. Books fall down from the library. Suspended flowerpots and lamps shake. Suddenly the flowerpot falls down and is broken. Your table begins to move as well.
- Pay attention to keep your drop and cover position under or near a sturdy table and hold the legs of your table to prevent its sliding.
- You hear voices from outside. Dogs bark, cats meow and a baby cries. People shout and run around. You hear falling and breaking objects inside the building. Trees shake and brush against the building.
- And then silence. Shake stops and the room suddenly falls into silence (Second count ends now).
- "Please everybody sits down". It is very significant to sit down quietly and wait for the instructions. If evacuating the building is safe and evacuation instruction is given, I'll take you to a safe place. Be ready for drop-cover-hold act in case any aftershock happens or shake begins again.
- (If you wish a second drill would be done for the aftershock so everybody would understand that danger might still continue after the first shock. For the second drill suddenly shout as "aftershock" when nobody expects.)
- Look around to see whether everybody is all right and whether there is any injured ones. Warn people who participate in this drill to inform you in case of any injury.

## To protect yourself during an earthquake

### If indoors

- Calm down!
- Stay facing back the windows, if there is any
- Take your Drop-Cover-Hold position under or a near a sturdy desk or a table, if there isn't any desk or table under a wall away from the glass walls and the objects that might break, roll or fall.
- Do not use the elevators or stairs



### If outdoors

- Stay away from buildings, trees, pillars, signboards, electric wires that might fall or roll on you.
- Drop-Cover-Hold on



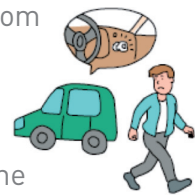
### If a passenger in a moving vehicle

- Stay in your seat until the vehicle stops safely
- Tell the driver to stop the vehicle on the right of the road in a safe way ,away from a bridge, energy transmission lines, and traffic lights
- Take your Drop-Cover-Hold position where you stop.
- When the shaking stops check yourself and the people around you for possible injuries. Go to the meeting places that you have decided in the family disaster plan in previous pages quickly but without getting into panic.



### If a driver in a moving vehicle

- When you feel the earthquake pull off and park the car away from the energy transmission lines, bridges and viaducts and turn off the engine. Do not cross the emergency lane.
- Do not leave your vehicle until the earthquake stops. Turn on your radio to get information.
- While you are leaving your car just be sure that you closed the windows. And leave the key on the car without locking the doors.
- Use neither your car nor somebody else's car for evacuation or transportation.



### If trapped under debris

- Do not light a match, etc.
- Do not move around and kick up dust
- Cover your mouth with a handkerchief or your hand
- Later on, tap on pipes or walls in order to be located.
- You can use a whistle or a torch if one is available.
- Do not shout aimlessly, because you might inhale dangerous amount of dust and lose your voice.



For Further Information:

Disaster Emergency Aid Planning Guide for Educational Institutions

# PREPARATION FOR THE 3. MINUTE



Right after the earthquake;

- We should check the health of ourselves and other people around us.
- We can protect ourselves from fire and extinguish small fires.
- We should be prepared for the aftershocks.

Health officers and fire department which respond as soon as possible in normal times, they cannot respond to all bleedings, cuts and fires in a major earthquake. For this reason everybody should know how to respond bleedings and fires and keep necessary fire extinguisher and first aid materials.

Extinguishing fires by the public is very important after the earthquake. Fireman who might be a disaster victim as well, thus it should be not expected that they can reach thousand of fires in impossibilities like traffic congestion and stuck ways. For this reason keeping people who can apply first aid and knows fire extinguishing and materials that would respond to small fires and injuries in each house and working place is essential.

You should make necessary preparations by learning practical information summarized below. These practical informations would save your life or lives of beloved ones.

- Calm down, do not panic
- Check yourself and the people around you whether they are injured or not
- Be prepared for the aftershocks after the earthquake
- Wear proper cloths and shoes considering the weather, broken glasses
- For your safety do not light a match or turn on or off the lights until you are sure that there is not any gas or flammable leakage
- If fire has not started yet and if you smell gas or hear explosion and gas leakage open a window and immediately leave the building
- If you are leaving inform the people around you
- If you need emergent support put a support mark on your windows
- Listen to emergency instructions from battery operated radio (Governorship of Istanbul Disaster Radio 103.0 MHz)
- Keep away from demolished power lines
- Keep away from objects that might fall down
- Keep away from damaged buildings



- Carefully obey the instructions of the exerciser who conducts emergency plans
- If you are in a crowded and public place do not hasten to reach the door
- Keep away from the beaches and sea sides where tsunami or storm surge might occur
- Do not occupy the phone lines, only use in emergencies and prefer sending SMS

### Do you want to do more?

You can take different steps to protect yourself and other people as you pay attention to the principles given above. Do not forget that you might be alone for 72 hours or more. Everything you do would depend on the circumstances you are in. For this:

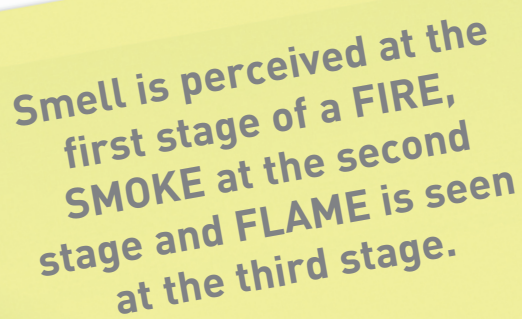
- At first learn that whether you have Compulsory Earthquake Insurance or not.
- Attend voluntarily to disaster trainings of Red Crescent, Directorate of Health, Civil Defense and municipality.
- Be a model person in disaster preparations by helping old and disabled people to prepare their houses against earthquake, checking each of them after the earthquake and looking after pets.

## Fire

Three conditions should be united for fire incident. These are flammable substance, heat and oxygen (caustic material). If any of these three conditions, which forms fire triangle, does not exist or sufficiently exist there would be no fire.

Simple precautions which can be taken in every house at any time for fire safety are those:

- To use smoke detector
- To keep fire extinguishers
- Not to use a single plug for multiple power tools
- To turn off devices which can cause fire like gas and water heater?



**Smell is perceived at the first stage of a FIRE, SMOKE at the second stage and FLAME is seen at the third stage.**

### During a Fire after the Earthquake

- We should immediately inform people by yelling as "Fire!" if we see flame or smoke or perceive burning smell.
- At first our safety is important; we should immediately leave fire scene.
- If smoke or burning smell comes from another room we should touch the door handle with the back of our hand; if it is hot we should not open it .
- We should obey the evacuation rules and leave fire scene without getting into flap.
- We should stay calm when we are leaving the building, we should not cause panic and chaos.

- When we are leaving we should close the doors between the fire scene and us, we should block wet towel under the doors if possible.
- We should use fire escaper and stairs.
- We should go to emergency gathering places determined beforehand and wait there.
- If your evacuation from the building is not possible then do not hide under beds or in cabinets but show yourself from the window to the people outside the building.
- In order not to suffocate because of smoke we should proceed by bending down or getting down until aid comes, if possible we should breathe by covering our mouth and nose with wet towels.
- If our cloth catches fire we should stop, lie/drop on the ground and roll. We should not apply anything on burnt skin; we should keep burnt skin under the water for 10-15 minutes to cool.

If possible extinguishing the fire when it starts or escaping from fire scene is necessary. So the most important thing in a fire is providing life safety. We should permit nobody to risk his/her life. For this reason at the moment of a fire we should remember and apply **R.A.A.E** abbreviation.

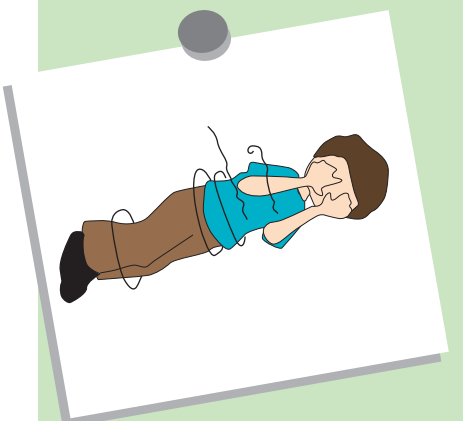
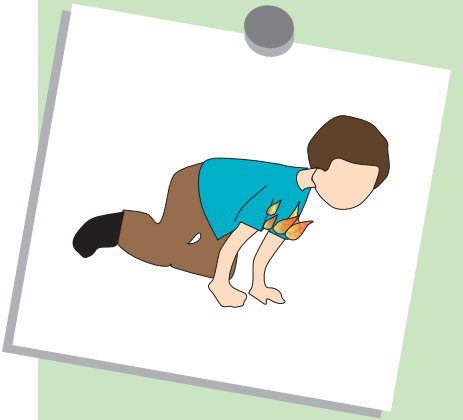
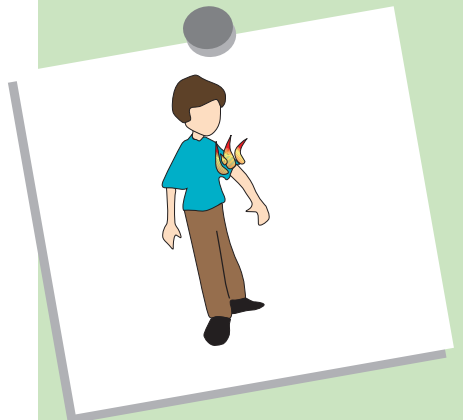
### R.A.A.E.

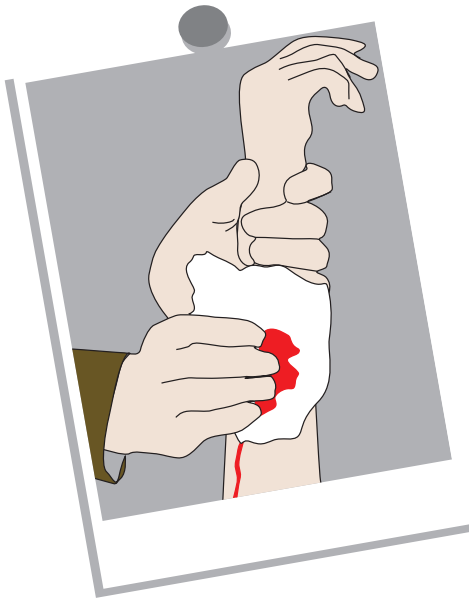
**Rescue:** At first rescue people in danger and important documents immediately

**Alarm:** Activate fire alarm if there is or shout as “fire” and call 110 if possible

**Asphyxiate:** Close the doors and windows or cover the flame

**Extinguish or leave::** If the fire is small extinguish it; if it is out of control leave there immediately. Be careful about the smoke! Get down and go to a safe exit. Do not open hot doors. If it is possible breathe by covering your mouth and nose with a wet handkerchief or a piece of rag.





## First Aid

First aid is a drugless practice which is applied with the available resources to the person whose life is in danger after an unexpected accident or a disease until the medical staff arrives.

- Purpose of first aid is to prevent the patient's or injured person's condition getting worse and to help him/her recover.
- Only need is a first aid kit for first aid.

There is always a risk of an accident to happen. The people close to us are the ones who would help and apply first aid in case an accident or event happens. In order to apply first aid you should have training on this subject.

Basic applications of first aid consist of three main concepts:

- **Protection:** Providing security in incident scene.
- **Informing:** Activating emergency support teams.
- **Rescue:** Applying first aid to patient/injured person.

**Protection:** If there are risk factors like fire, gas leak or high speed vehicles in the accident place first we should provide our and the patient/injured person's life safety. If there is possibility of an explosion or fire hazard, the patient/injured should be moved away from the scene of the event and if it is not possible the injured person should not be moved from his/her place.

### Incident Scene Safety and Warnings

- Environmental safety should be provided by putting warning signs (reflectors) around the cars which have accident.
- In order to prevent explosion risk you should not smoke inside and around the car.
- Toxic substances should not be touched or left exposed against poisoning risk.
- You should never touch the injured person who has direct contact with electricity. At first current should be cut off or the injured person should be removed from the electric welding with an insulator like wood.

**Informing:** After providing the safety of ourselves and the patient we should call the emergency service (112). When we call 112 we should talk briefly and properly and we should give those informations:

- Detailed envelope address of the incident/accident scene (for the closest team to reach us)
- Who we are and our phone number? (To confirm the incident)
- What has happened? (For teams to be prepared)
- Number of the injured people. (For number of the ambulance)

Emergency numbers should NEVER be called unnecessarily. In this way the people who really need first aid can reach the related person when they call this number.

**Rescue:** It includes all the first aid practices applied to the injured people in the scene of event or accident. If there are more than one patient or injured person to decide which one is of first priority is very important. In this case a quick and right evaluation and the proper first aid application would help to save the life of patient or the injured person.

**In order to help yourself and your relatives in disasters you have to get first aid training.**

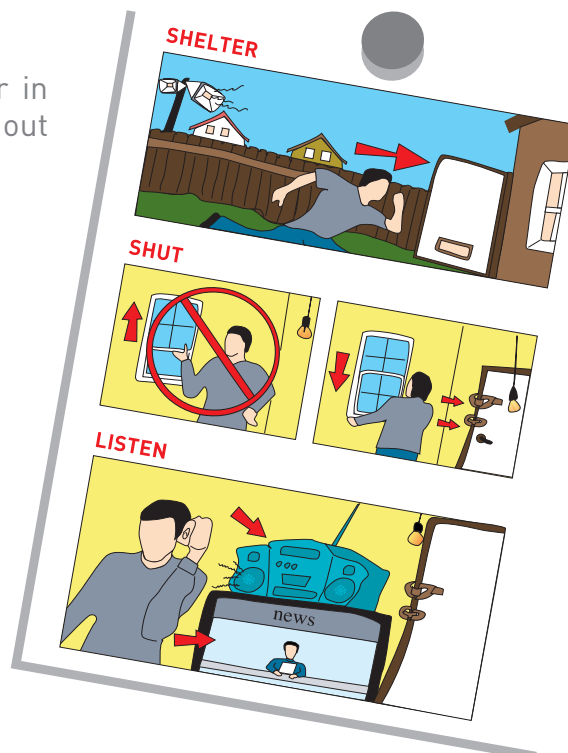
## Shelter In Place

After destructions and accidents chemical fall-out and toxic fume danger might be emerged in industrial plants. The possibility to experience this kind of situation is also considerably high after the earthquake. Tüpraş fire which has been experienced in Marmara Earthquake 1999 can be given as an example for fires after the earthquake. In order to minimize damages in these kinds of hazards shelter in place practice should be learned and adopted in drills.

In general terms shelter in place is carried out in hazardous substance leakage or fall-out (chemical, biological, nuclear and radiological - CBNR), smoke, armed attack, explosion and severe storms.

Whether an earthquake occurs or not shelter in place practice should be immediately carried out in those situations given below:

- When hazardous material risk occurs.
- When an unexpected smell or explosion is heard.
- When a big smoke, vapour cloud or fire is seen.
- When the skin or eyes are irritated in an unusual way or respiratory distress occurs.





**You can do shelter in place practice by following those steps:**

- Choose a shelter room beforehand together with the family members. If it is possible there would be no door which is opened to outside and there would be less windows and windows would be small.
- Go immediately to your shelter room when shelter in place practice is required.

**In case shelter in place practice is required do the following instructions:**

- If you are outside swiftly enter indoor and make all family members enter.
- If you have pets take them with you.
- Take your disaster kit and go to your shelter room.

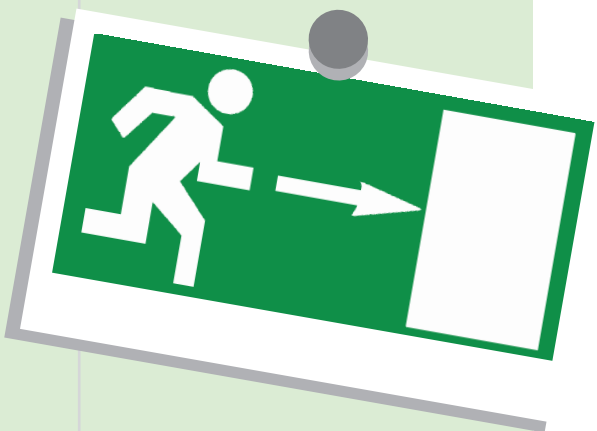
**When doing shelter in place practice remember those:**

- Close all air intake places like doors and air-conditioning of the building or block them from inside.
- In order to prevent air leakage from outside cover electricity, cable tv, internet and telephone plugs with box tape.
- Close air intake places like door, window, heating and cooling system of the room with a box tape or cover them with stretch films.
- Block air intake by putting wet towels or piece of rags under the door.
- Do not leave your place until “all clear” signal is given.
- Listen to the warnings of officials and carry out. Stay inside until you are told that you can go out.

## **The Building Out Evacuation**

In those situations building evacuation is applied:

- At the moment of a fire
- After an earthquake
- After an explosion
- At the moment and after flood
- Chemical accidents
- Terror and bomb threat
- Before landslide threat



The most important thing in evacuation is to obey warnings and directions of evacuation officers silently. Resisting to directions of officers, being doubtful and late or quick evacuation might cause very dangerous results.

You should make an evacuation plan with your family in order to evacuate your building when necessary. In this plan escape routes, outside gathering place and valuable objects to be rescued at first should be displayed. Do not forget to hang this plan on the back of doors.

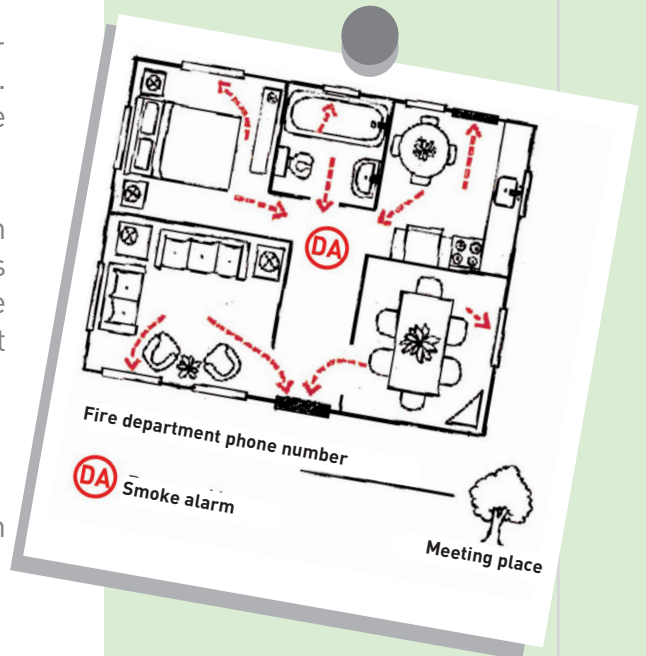
#### **If you need to evacuate your house/building/apartment:**

- Act according to the announcements of the officials from loud speakers, radios or similar communication vehicles (Governorship of Istanbul Disaster Radio 103.0 MHz).
- Wear protective clothes and sturdy shoes.
- Take your personal belongings like medicines or identity cards with you.
- Lock the doors.
- Use the indicated evacuation roads by the officials.

It is safe to stay in if there is not any structural damage in the building after an earthquake.

#### **If you have time during the evacuation process:**

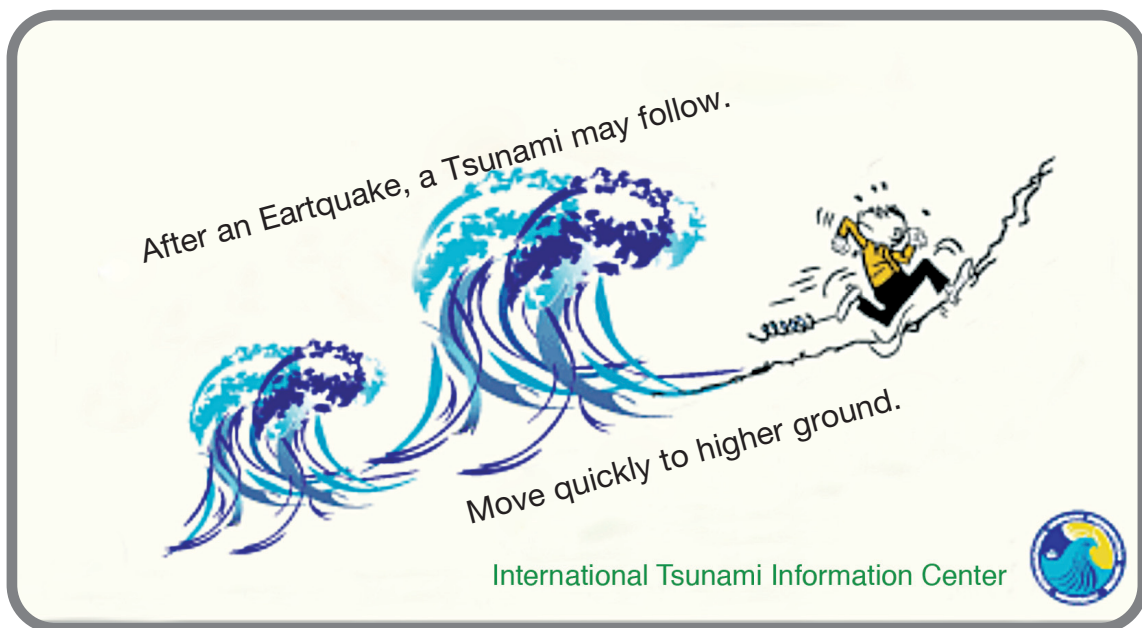
- Turn off the electricity, water and gas valves.
- Inform the people you know about where you are going.
- Help your disabled and alone neighbours .
- Take precautions for your pets.
- Do not enter the building until you get the “all clear” announcement.



**In order to evacuate buildings when necessary the first step is preparing an evacuation plan.**

## Protection From Tsunami

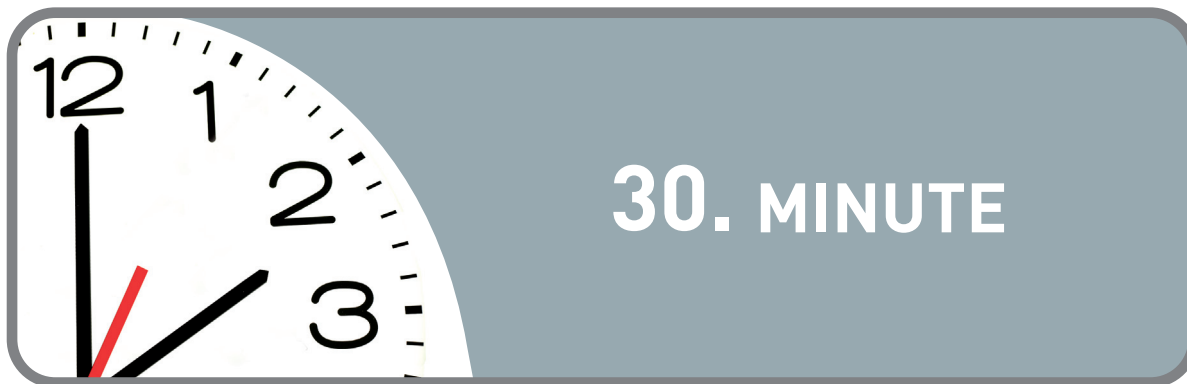
When choosing a settlement close to seaside tsunami risk should be considered as the other disasters as well. Commonly the first sign of tsunami is not a big water wall but sudden regression of the sea. For this reason, we should remember tsunami risk when an earthquake is felt or regression is seen in the sea or near the seaside.



To protect yourself from tsunami do the followings:

- When you feel the danger swiftly and immediately go to high places and go away from the seaside.
- Listen to the radio for a probable tsunami warning after the earthquake and when warning is announced go to high places.
- When you are in the sea and cannot go to seashore during a tsunami, go away from the seashore and go to the places that are at least 50 m deep.
- Do not think that danger is over after the first wave has come; sometimes the second wave might be bigger and more destructive than the first wave. Do not go to seaside until “all clear” is announced.
- The speed of tsunami on land is more than the speed of a running man. For this reason do not go to tsunami-prone seashores.

# PREPARATION FOR THE 30. MINUTE



If disaster victims, who are injured or be trapped in the debris, are rescued within the first 24 hours during the disaster have 80% chance to live. However, volunteers who come to incident scene to help at the first stage of a disaster are disorganized people to help without having any practice or training. Major part of the emergency response is carried out by these volunteers generally without sticking to any order or safety rules. So individual volunteers are seen as both a major source and a source of trouble.

At this point, a need for Local Disaster Volunteers (LDV) arises. Local Disaster Volunteers are organized groups who are informed about the disaster risks and necessary precautions to be taken against these risks, equipped with necessary training and equipments, whose disaster sensivity and awareness level is increased, source and ability is strengthened to respond for the first hours till professional teams arrive.

Community should be organized as LDV and have those trainings:

- Disaster Preparedness
- Fire Extinguishing
- First Aid during Disasters
- Light Search and Rescue
- Disaster Psychology and Team Organization
- Drill

After the disaster LDV are supposed to do these:

- To turn off installations such as gas and electric
- To extinguish small fires
- To treat small injuries which threaten safety of life
- To conduct light search and rescue
- To help disaster victims to calm down





## Organizing a Team and Communication

After the earthquake, our families and neighbours start the first search and rescue practices. In these situations where life and property loss is experienced and social life is deeply affected, to help community only with human feelings would not be enough. Unconscious responses would cause life losses or disabilities rather than rescuing life. For this reason, the important thing is making these responses in an organized, conscious and trained way.

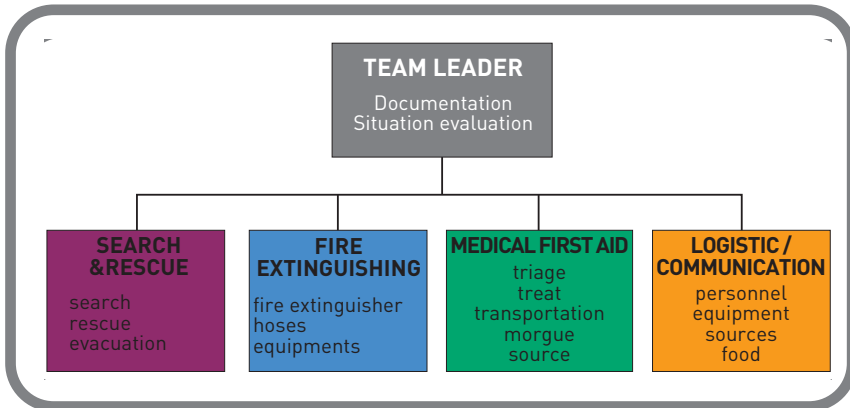
LDV especially should be organized by the groups which have relations between each other. These can be neighbours, apartment/site residents, local tradesmen, co-workers, civil defense volunteers, families of response teams and scouts.

Together with your neighbours in the apartment and street do the followings by constantly contacting your local headman:

- Talk about how to work collaboratively in disasters.
- Determine whether your neighbours have any training or proficiency for disaster preparation and response.
- Determine whether your neighbours have any special equipment like generator, etc.
- Decide who will take care of old and disabled ones.
- Decide who will check your children in case you are not at home.
- Prepare a similar Family Disaster Plan for your apartment and street.

With these and similar steps organize a “Local Disaster Volunteers” crew with your family members, apartment and neighbours (Figure 15). Determine LDV search and rescue, fire extinguishing and first aid crew according to the training and abilities of your neighbours. Each crew should consist of at least three people; each team should consist of at least two people.





**Figure 15.** Schematic illustration of crews and teams which are organized by local disaster volunteers.

Different trainings are also given to LDV like seminars, tabletop and field exercises. In these trainings LDV are supposed to acquire experience, exercises experiences are reinforced and mistakes are corrected.

After organizing “Local Disaster Volunteers” crew with your family, apartment and street neighbours, request help from local authorities for necessary place, equipment and training. They have to help you because it is a legal obligation. You should work co-ordinately with the local civil defense and fire department as well.

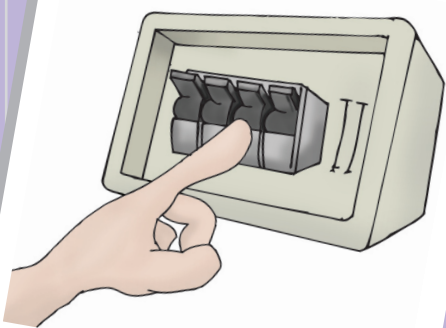
## Light Search and Rescue

For Local Disaster Volunteers who apply the first response at first their safety is important. So by making building damage assessment, priorities for the search and rescue are identified. Besides searching should be made visually at first, searching around the debris and heavy search and rescue should be left to professional search and rescue teams.

Light search and rescue teams can only enter into slightly and moderate damaged buildings. They are responsible for determining the place of the injured/trapped person who wants help without giving any harm to themselves or other people and if it is necessary carrying them to triage (classifying according to injuries) area. Seriously damaged buildings might collapse with aftershake so they should not work in these buildings.

**5302 numbered “Special Provincial Administration Law” and 5393 numbered “Municipality Law” gives assignments to special provincial administrations and municipalities such as mitigation and response planning, conducting public training, preparing necessary equipments and materials in order to be protected against natural disasters and prevent their harms.**

If you perceive gas smell inside the house do not turn on/ off electrical fuses.



Local Disaster Volunteers:

- Should report structural damages to their team leaders.
- Should use warning band to identify hazard area.
- Should not enter into unsafe buildings.
- If they suspect existence of people in unsafe buildings, they should stay outside and wait for the professional aid and support.

Entering into slightly damaged buildings is safe and first aid can be applied in them. Rather than searching, entering into building with all team members is inconvenient in terms of safety. Team members might be poisoned or trapped in the debris; These potential hazards should always be taken into consideration. Limited number of people can enter into these buildings. A person who is responsible for the team safety should wait outside of the building. Team members should work at least as two people. They should be always physically, visually and vocally in contact while working.

Enter if the building is safe. Obey the rules of order and safety while entering. Look under the chair/armchair/bed and tables both visually and vocally check all parts/rooms by listening to different kinds of voices.

A searched place/area should not be searched again. In order to prevent time loss, searched place should be marked so other teams would not enter. Besides general situation should be reported and documented. In these reports different forms are used. Information of incident scene, damage condition, needs, open and closed roads, current hazards are written in these reports. These kinds of information are necessary both for LDV and professional search and rescue teams.

**For Further Information:**  
**Look at Disaster Preparedness for Local Disaster Volunteers Training Book**

## Responding to Infrastructure

Turning off installations like gas, water, electricity is quite important to prevent flood, fires and explosions after disasters. For instance after Kobe Earthquake in Japan in 17 January 1995, some fires had started in the kitchens and widened, caused big fires in the city. In order to prevent this kind of event in our cities, we should especially be careful about natural gas leakage.

As natural gas does not have a smell, it is aromatized in order to perceive gas leakage. For this reason, if you perceive gas smell in your house or building pay attention to rules that are given below and warn people around you to obey these rules:

- Do not turn on buttons if they are turned off, if they are turned on do not turn off.
- Do not turn on/off electrical fuse, switch, key switch or power tools.
- Do not replace wireless telephones, remove or use them.
- Do not use electric bells.
- Do not light match/lighter.
- Ventilate your place starting from where you have perceived gas smell at first. Close the valve of your counter (Natural gas valve is turned on when it is at the same direction with installation pipe, it is turned off when makes a 90 angle).
- If it is possible call 187 Natural Gas line which gives service 24 hours a day.
- When you call 187 Natural Gas line if you know give your installation number, if you do not know give your detailed address. If you turn off natural gas from out of the building absolutely do not try to turn on again. In order to turn it on definitely call 187 and demand an expert.

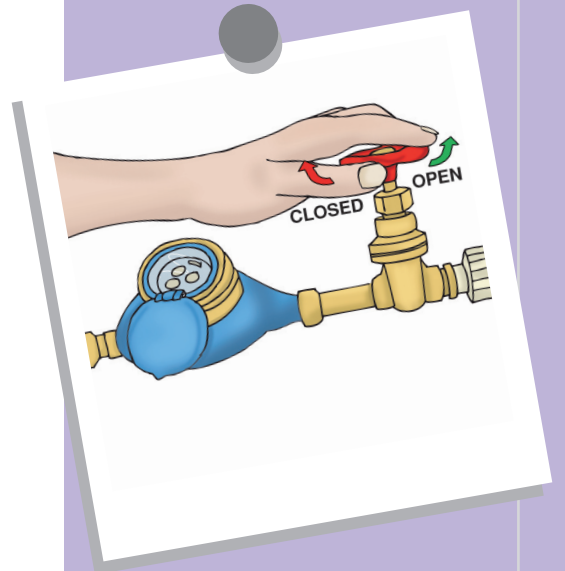
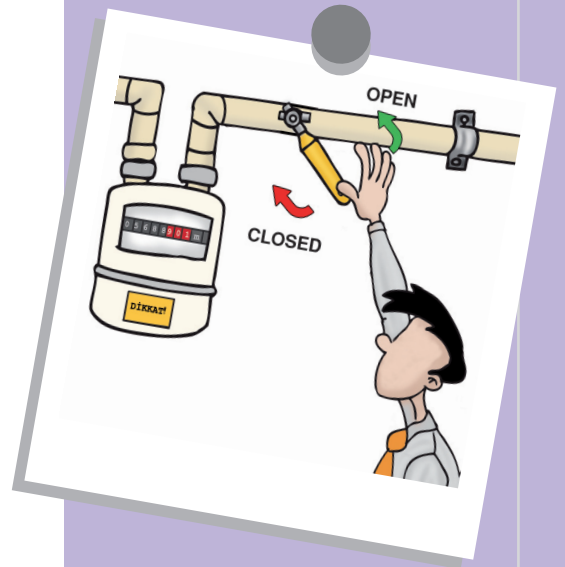
## Fire Extinguishing

At first these trainings should be taken on fire:

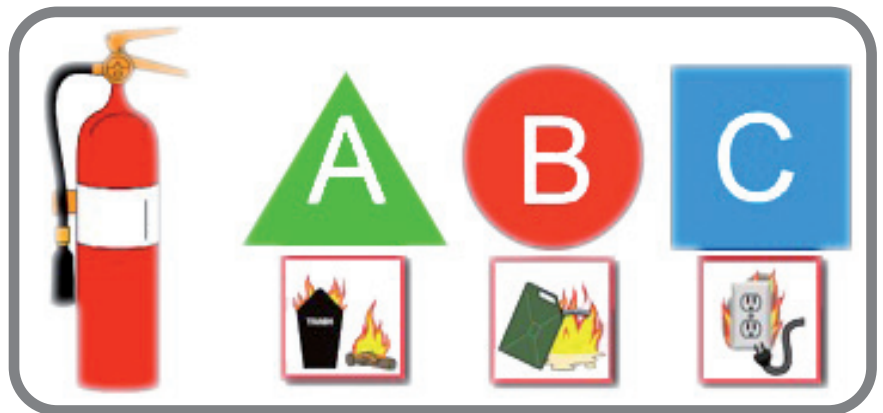
- Fire information and fire fighting
- Fire risks before and after disaster
- Protection from fire
- Extinguishing newly-began fires
- Using fire extinguishing engines

There are simple precautions to be taken easily for everybody within his/her house against fires. For instance some precautions are very important such as using smoke detector, keeping fire extinguishing engines in the houses, schools, working places, not using single plug for multiple power tools, to turn off gas and water heater and not to leave them turn on.

Letters and symbols on fire extinguishing engine which indicate the class of dry chemical powders explain for which fire type these tubes are efficient (Figure 16). A is used in "solid", B is used in "liquid", C is used in "gas" class fires.



Keep fire extinguishing engines in the building, make periodic maintenance inspection and learn their usage with the abbreviation given below. If you know how to use a fire extinguishing engine try to extinguish the fire. If you are not successful and the fire is bigger than you can control, warn the people around you and call the fire department.



**Figure 16.** At least one multi-purpose fire extinguishing tube with ABC powder should be kept in each house and car.

If the fire is small and you have a fire extinguishing engine try to extinguish the fire according to **P.A.S.S** abbreviation.

### P.A.S.S.

1. **Pull the Pin:** Pull the metal pin on the fire extinguishing tube compellingly.
2. **Aim:** Aim the hose of fire extinguishing engine at the source of fire.
3. **Spray:** Spray the fire extinguishing engine to the source of fire by keeping the wind at your back and remaining at a certain distance to the fire.
4. **Sweep:** Apply the extinguishing material to the sprayed area by sweeping till the fire ends.

**A fire extinguishing tube should be filled even it is squeezed once and not emptied completely!**



## First Aid During Disasters

First aid during disasters is based on the same basic principles with the first aid applied to people in usual times (diagnose, treat, transport) but because of the number of disaster victims there are some differences.

First aid trainings of local disaster volunteers do not include complete treatment. In these trainings followings are taught:

- Life saving precautions (for instance to open airway if the respiratory is stopped, to check bleedings and stop if there is, to learn shock response and apply it)
- Diagnosing method for determining priorities among plenty of the disaster victims
- Respiratory, circulation and consciousness assessment method to classify injured people according to their injuries
- Transportation methods

If it is possible these people should be assigned for triage:

- At least two people for urgent injured people
- At least two people for slightly injured people
- At least two people for psychological support

Points to be taken into consideration:

- An entrance point should be arranged for the ambulance on the treatment area.
- Treatment areas should be arranged for “urgent” and “slightly” injured ones.
- If there are enough staff a separate psychological first aid area should be arranged.
- People who have suffered from psychological trauma should be kept in a different place from physically injured ones.
- If the places of injured people are identified, team leaders should be informed about their place and situation.
- Names of the dead and injured people should not be told when using telephone or radio.

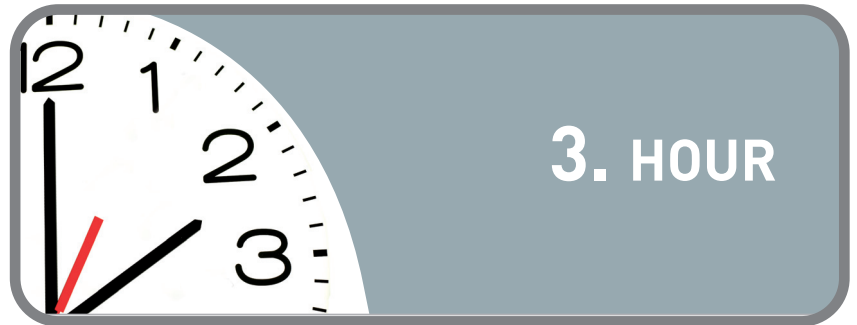
**For Further Information:**

**Look at Disaster Preparedness for Local Disaster Volunteers Training Book**



**Post-earthquake fires cause serious problems even in developed countries. In our country several numbers of fires occurred after 1999 Düzce Earthquake.**

# PREPARATION FOR THE 3. HOUR



During the first hours of an earthquake local governments and groups start search and rescue practices. Post-traumatic psychological reactions related to disaster are seen in individuals and families. To understand these reactions and to apply necessary psychological first aid is so significant.

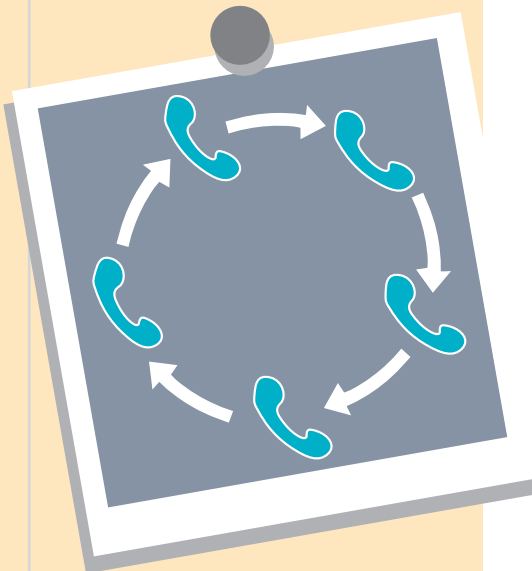
## Meeting and Communication

All of your family members might not be together after a disaster. If your child goes to a school, you can ask to school management and learn where and how students will be protected and how you can communicate with him/her after a disaster. If your child is as big as to walk to meeting place or get into any transportation vehicle, you should want your child to obey instructions of authorities.

Inform your family members to call contact person in or out of region immediately after a disaster or emergency. Everybody has to inform about his/her place and physical condition after a disaster or emergency.

You should inform the contact person out of region about the situation. He/she should know that when he/she gets news from disaster area he/she should gather and transfer them to other callers. So by the medium of family contact out of region, people can communicate with each other.

In order to be sure about the validity of family contact numbers on family emergency cards, these phone numbers should be called and checked sometimes.



Within the scope of disaster preparedness you should create a network with the people you know because it would not be possible to get out on your own depending on the disaster intensity and results. Especially, when an earthquake happens in the places where the individual frequently goes (home, school, working place) the person who will help you should be determined and necessary arrangements about this subject should be made beforehand. This support network should be arranged according to special conditions of children, disabled ones and people who need special attention.

In beforehand arrangements with the people in support network, establishing communication mechanism is privileged. If it is necessary, subjects like sharing of significant document copies and house keys with the people in the network can be added to plans.

## Regional Evacuation

To carry out evacuations in a successful way, on the subjects of efficiency of control mechanism, applying first response in time and back-up assignments, matchings between close departments or people should be made.

Co-departments (bodies) would control each other during both inside and outside evacuations. Matchings are schematically displayed on the plan as departments.

You should constantly check your situation after the disaster. To do that follow media and listen to the directives of local administrators; determine the safe roads for going your home or gathering places which are defined beforehand in family disaster plans.

Evacuation of a region might not be officially demanded; but still on the subject of evacuation we should decide whether the building is safe against dangers such as fire and flood. If the building is not safe go to a safer place as the weather conditions and road conditions permit.







We should be careful about these things while being evacuated into another region or if there is such a risk:

- If you have a car, always keep a at least half tank of gas.
- At first together with your family members, in terms of family disaster plan, consider the subject of going to gathering place which is out of the region.
- Follow the recommended evacuation roads. Not take any risk by trying short roads.
- Give information to the contact person out of the region about from which road and where you go to.
- Post a note on your door that informs when you leave, from which road and where you go to.
- Control your neighbours for accompanying.
- Take your disaster kit with you.
- If you walk, wear long sleeved clothes and a pair of sturdy shoes. Be careful about overhead dangers and if you have, use a protective helmet.
- Lock the door of your house.
- If official authorities start evacuation and evacuation order is given, evacuate the building.

## Psychological First Aid

In order to be ready for the disasters in which mass injuries occur, social and psychological/emotional needs should be taken into consideration.

Affects of disasters on the psychological state of an individual can be examined as three stages:

**1. Stage:** The first stage after a disaster is named as acute period. These feelings are seen in disaster victims at this stage:

- Physiological excitation
- Not thinking reasonably and decision making problems
- Not believing what he/she lives
- Thinking everything as a dream
- Fear
- Anxiety
- Feeling of guilt
- Anger
- Agitation
- Despair
- Sadness
- Mistrust

These changes can be examined in behaviours:

- Over excitation
- Fidgetiness
- Sleeping Disorders
- Appetite Changes
- Increase in smoking/alcohol habits

As mentally, memory and attention problems are emerged and the disaster victim complains about difficulties in focussing attention and memory. Repetitive thoughts and delusions related to disasters are viewed as well.

**2. Stage:** We can name this stage as reaction period. At this point disaster victim avoids all kinds of situation and stimulus which reminds him/her the disaster. These reactions are seen in the victim:

- Agitation
- Fear
- Anxiety
- Depression
- Feeling lonely and away from community

At this stage dreams and nightmares disturb the individual. Besides surviving and not being able to help others might cause feeling of guilt.

**3. Stage:** At healing period severity of reactions reduce. Disaster victims start to show more interest in daily life and make plans for their futures. But how buildings suffer severe damages in disasters, in some disaster victims more severe psychological reactions can be seen. In this situation which is called Post-Traumatic Stress Disorder (PTSD) professional support is certainly required.

Especially at the moment of a disaster or an emergency children ask for help from adults as well. How you behave and show them how they should behave. If you panic they would also panic. Calmly, explain soon what has happened and ensure that support will come.



Psychological support practices given after the disasters are based on the basis of expressing and sharing of feelings related to disasters and emphasizing the fact that they are “normal reactions given to an extraordinary condition”. Short, understandable guides which include the information of what are these feelings and behaviours and how to cope with them has a significant function to inform disaster victims and make their experiences normal.

Psychological First Aid for disaster victims can be summarized as following:

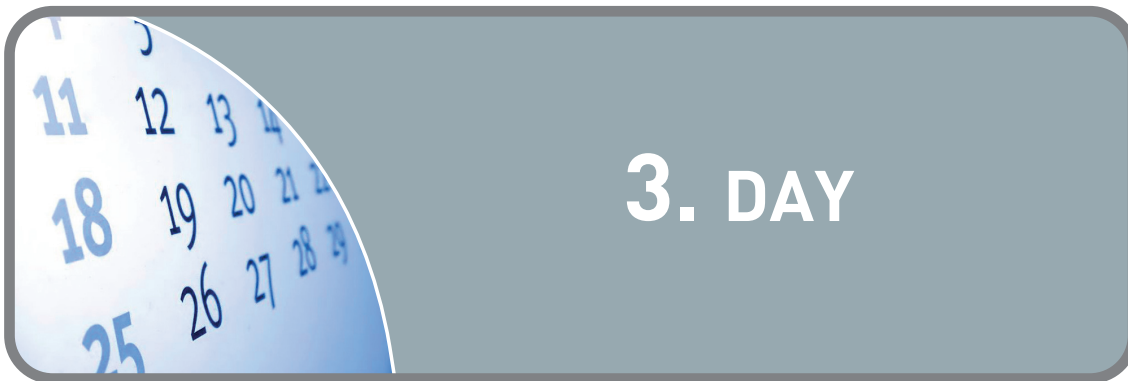
- |                        |   |
|------------------------|---|
| <b>Give support</b>    | : Talk with them.   |
| <b>Listen</b>          | : Listen to what disaster victim says.  |
| <b>Show sympathy</b>   | : Explain that their feelings are normal.                                     |
| <b>Give confidence</b> | : Do not transfer personal information of disaster victims to another people. |

**To Help Yourself:** Do not avoid to talk about what you have experienced. Share your feelings and thoughts about the incident with the people you know. Think the meaning of your life and try to make plans for the future. You can feel desperate, useless against what you have experienced. All of these symptoms are normal and natural for disaster victims but if these complaints do not reduce in the process of time and make your life difficult and have difficulty to cope with them you should consult an expert.

**Do not avoid from sharing,  
talking and seeking for help.  
Do not forget that you are  
not alone!**

**For Futher Information:**  
**Look at Psychological First Aid in Disasters Training Book**

# PREPARATION FOR THE 3. DAY



In order to maintain life the most basic needs are water, food, sheltering and energy (for heating, lighting, hot water and meal)

## Sheltering

Some people have opportunity to go out of the region after an earthquake but major part of the community cannot leave the region because they have assignments, they have lost, injured family members or alive acquaintances or valuable belongings under debris. People whose house has suffered damage or who are anxious to enter inside the house although their houses are safe, need alternative sheltering possibilities.

Temporary settlements roughly can be summoned in four groups:

1. Placing people in public buildings like sport center, school, etc.
2. Establishing temporary settlements like tent city, etc.
3. Living in tents or similar shelters which are obtained with an individual's own possibilities or received as aid.
4. Using holiday villages, passenger ships, coaches for this purpose.

During the first days people live in cars or simple arbor-like places but later they start to live in tents they buy or acquire or in shelters that they construct with materials like wood, plywood or canvas. After the first week they settle in newly constructed temporary settlements.

**Tent:** Maintains the first choice quality because of its features like storage easiness, set up speed, simplicity and reusability. But in terms of comfort and safety, long term living in post-earthquake and weather conditions it has important disadvantages.

**Individual Tents:** There had been some problems in past earthquakes about shelter support. For instance given tents could not meet the requirement. The department which distributes tents (governorship, red crescent) generally sees people who live in moderately or seriously damaged buildings as the target group. Although the building is slightly damaged or has no damage, people who see dead and injured people and damaged buildings, cannot enter the buildings for a long time, they cannot sleep even if they enter. That's why much more than supposed people want temporary shelter support.

**Do not forget!  
For your health  
when necessary,  
you should be attentive  
to obey the tent city  
rules.**

**Tent City:** When we say temporary sheltering, the first institution that comes to our mind is Red Crescent in our country. Red Crescent becomes prominent especially in tent, blanket, mobile kitchen and meal supports after disaster. Previously tent distribution approach which stands for giving tents to people in need, especially after 99 Earthquakes, is turned into "Tent City" concept which is applied as setting up tents in determined places, in a certain order and settling people who need shelter.

After the 99 Earthquakes, prefabricated house practice is applied for temporary settlements which would last long. Comparing to tent, although this method provides high comfort and safety it cannot be an alternative for tent in early period because it is expensive and takes time to establish.

These are used for shelter and temporary settlement after 2 weeks, 6 months and 2 years of an earthquake:

- Individual tents
- Tent Cities
- Public Facilities
- Rental Housings

You should make plans beforehand by thinking that whether you want to move to house of your friends or relatives.

Get information about preparation of local authorities on this subject.

Individuals should get the tent and prefer to settle near their debris. But in extended temporary shelter period this approach cause serious difficulty in terms of public service supply. Getting an individual tent would be useful before an earthquake by thinking that aid organizations like Red Crescent might not meet the need of tent in early period.

## **Food and Drink**

Personal materials are kept in disaster kit and among emergency materials in terms of personal need. However, other precautions are needed to be taken in general as well.

In order to survive without getting any help at least 72 hours (3 days), prepare your water and food. Gather emergency equipments together with water and food, keep them in a bag or similar place, which would keep them safe and easy to reach. These materials should be kept in different kits so if evacuation is required an individual would carry them on his own. Do not forget to put necessary special materials for little children, adults and disabled people. You should keep evacuation kit in a safe place together with emergency equipments.

**Food:** Major part of the stored food materials should be nonperishable, unnecessary to heat or put into refrigerator. Avoid from foods which would make you thirsty like saltines. Watery canned foods, saltless crackers and nuts, rice and cornflakes, dried fruits and canned fruit juices should be kept in a way that they can remain fresh.

Energizing foods which take small place (biscuit, wafer, canned tuna fish, bonbon, etc.) can be stored easily. Do not forget can opener by the way! Besides packages which can be closed after they are opened should be preferred. Nylon bags, stretch films, aluminum foil rolls are very useful. Special needs of babies, old people and diabetics should not be forgotten.

If the house is non damaged, the first two days foods in the refrigerator, later on foods in freezer should be consumed because there would be long term power cut. By the way, refrigerator should be opened at certain times, necessary things should be taken immediately and the door should be closed because when the door opened refrigerator would get warm.

**Water:** In disasters and emergencies 15 lt of water is needed for each individual per day, 2-2.5 lt for drinking, 12 lt for cleaning and cooking. At least 12 lt of fresh water should be stored for three days. This is necessary water demand of an individual under normal circumstances. Necessary water demands of individuals change according to physical conditions, activities, exercises, diets and weather conditions. Water demand of children, nursing mothers and patients is more. Water demand doubles in too hot weathers.





**In order to store drinking water we should wash plastic water containers with water and soap and then disinfect. Later, we should keep water in bottles in a cool and dark place.**

After filling fresh water be careful not to touch inside of the bottle cap when closing the bottle. Unused water should be changed in every 6 months.

For drinking, personal use (tooth brush, toilet) and general hygiene different levels of treated water is required. The safest way to clean water is using different methods together. The easiest ways are filtering, chlorination or boiling.

If there are particles inside the water at first these particles should be collapsed in the bottle and then with a clean piece of rag it is filtered (coffee filter is very suitable for this).

**The most suitable method for chlorination** is chlorine tablets in pharmacies. By using these tablets as described, utility water even drinking water can be obtained.

**The second easiest way for chlorination** is using bleach but pure (without perfume and detergent) ones should be preferred. Other products which are used for laundry cleaning should not be used for this purpose.

Two drops for one liter if the water is clean, four drops for one liter if the water is blurred or if it is rain water would generally be enough for utility water. After bleach is used, water should be shaken well and wait 30 minutes. There should be slight chlorine scent in the water, if there is not, a little bleach can be added (1-2 drops for one liter clean water). Then wait 15 minutes.

In order to obtain clean water, water should be boiled well. After boiling it should be kept on fire at least 10 minutes. After getting cold you can drink but its taste would not be good. When it is ventilated by changing its container, taste would be better.

The same process is valid for awaited water. Drinking this water as tea is another way, too.

**For Further Information:  
Look at Survival Under Extraordinary Conditions  
Training Book**

## Notification Of Claim

If you have Compulsory Earthquake Insurance in case a damage occurs in your building after an earthquake, together with documents which are necessary for damage file such as copy of insurance policy and occupancy permit insurer is responsible for fulfilling these matters given below:

- Reporting to Turkish Catastrophic Insurance Pool-TCIP or to insurance company that contracts for and on behalf of TCIP, from the date of the damage occurrence to 15 weekdays the latest.
- Giving permission to TCIP officers and authorized persons' attempt in order to minimize damage and enter into damaged buildings with reasonable aims and in an appropriate way.
- Giving necessary information and documents to TCIP without any delay as its demand, that are useful for collecting evidence about damage rate, using right of recourse and it is possible for insurer to provide.
- Giving a written notification that informs about estimation of damage to TCIP or authorized persons in a reasonable and suitable time.
- Informing TCIP if there is any insurance contract except compulsory earthquake insurance on insured building/ area.
- Informing notification of damage in case of any damage (if it is possible) from this number to TCIP call center 444 0 336, internet site of TCIP ([www.dask.gov.tr](http://www.dask.gov.tr)) or to insurance company that make compulsory earthquake insurance of TCIP. Besides CEI policy of the insured building, if there is another policy which has earthquake assurance, existence of this policy should be reported to TCIP as well.



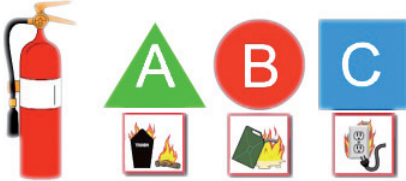

Information and documents that are sent to TCIP in case of any damage are these:

- Information of notification of damage.
- Photocopy of insurance policy (if possible).
- Photocopy of occupancy permit (if possible).
- Detailed address of the damaged place for insurance appraiser in order to find the damaged place easily and do damage assessment.
- Fixed phone or mobile phone number in order to get in touch with insurer.
- In case of occurrence of a damage that exceeds limit, the amount which is above the part of excess limit will be paid aforesaid insurance policy limits.





# EPILOGUE

<p>You are responsible for yourself and your beloved ones' safety at first!</p>	
<p>Mostly your preparation and knowledge protect you in disasters</p>	
<p>Fasten your objects immediately and/or relocate them and mitigate other risks.</p>	
<p>Learn suitable behaviour types like drop-cover-hold, evacuation and shelter in place and practice them.</p>	
<p>Buy smoke detector and fire extinguisher and get their trainings.</p>	
<p>Keep first aid kit and get first aid training.</p>	
<p>Develop a safe life style!</p>	

**In order to get protected from earthquake  
prepare your family disaster plan and practice!**



# FREQUENTLY ASKED QUESTIONS

## How many earthquakes happen in a year?

There are nearly 3.5 million earthquakes on earth each year. Only 1 million of them are recordable. The number of the earthquakes that are felt is only 50-60 thousand. There happen 800 earthquakes with medium magnitude (5.0-5.9) and cause less destruction. There are almost 120 large earthquakes (6.0-6.9) which cause more destruction every year. There are approximately 18 potentially destructive (7.0-7.9) earthquakes in a year and there is a disastrous earthquake (8.0-8.9) in every 10-20 years.

## Are the earthquakes predictable?

The time and the magnitude of an earthquake is impossible to know like a weather forecast.

## Where is the North Anatolian fault line?

It lies like an belt in east- west direction between Karliova in the east and Mureffe-Sarkoy in the west.

## Which one is the biggest earthquake that is recorded on Turkey?

The biggest one that is recorded in the instrumental period is Erzincan Earthquake which has happened in 26 December, 1939. In this earthquake which happened at night approximately 33.000 people have died.

## Which one is the biggest earthquake that is recorded on earth?

The biggest one that is recorded in Chile, in 22 May 1960 (9.5 magnitude).

## Which continent has the least earthquake?

It is Antarctic.

## Do the earthquakes generally happen at night?

There is no certain time for an earthquake; it might happen day or night.





### **Is there something called “earthquake weather”?**

There is no relation between the earthquakes and weather conditions. Earthquakes happen in the depths of earth far away from weather conditions. An earthquake might happen in every weather, climate and season. There is no need to worry about an earthquake by looking at the changing weather.

### **Is there an increase in the number of the earthquakes?**

We are able to define the unfelt earthquakes with instruments called Seismograph. The places recorded earthquakes are called “observatories”(Kandilli Seismic Observatory). When we compare to the past years we are informed about more earthquakes now. Especially we are informed about the current news on the earthquakes that happen in the world after 1999 Marmara Earthquake. For this reason it is not proper to say “More earthquakes happen nowadays compared to the past

### **Can we prevent earthquakes?**

No, earthquakes are unbound and irresistible events. But we can mitigate the damage caused by them.

### **May some unidentifiable lights on the sky be a sign of an earthquake?**

No. There are some earth origin lights which can be seen in the atmosphere but can not be identified. These beams of light would be seen on the world when there is no earthquake.

### **Is it possible when seven planets like Mercury, Venus, Mars, Jupiter, Saturn, Moon and Sun form a single line the big gravity force of these planets on earth might cause an earthquake by triggering off the faults?**

Such kind of sequences happened before and will be in the future. There are no records which prove that the sequence of the planets has caused a disaster on earth in the past. Moreover it is often explained by the astronomers that this situation is not a subject of fear. There would be no difference if all the planets and stars form a single line and apply a gravity force on earth because they would not be able to apply the gravity force that the sun and the moon is applying on their own.

### **Are there air crashes after earthquakes or are there major earthquakes after air crashes?**

Earthquakes and air crashes are uncommon events. It does not mean that there is a relation between them when one of them happens earlier or later. Just like to expect an air crash after an earthquake, it is possible to expect a kind of relationship between the events before and after an earthquake. But, such forced relationships established between the events which are observed in nature and predictions are nothing other than illogical prejudices and emotional obsessions.

### **Are the long and thin clouds a sign of an earthquake?**

The nondurable, black and thin clouds are called as earthquake clouds. Still there is no earthquake prediction made by looking at the meteorological satellite images in these days. Since the "earthquake cloud" is in black colour it would not reflect the sun light. So there would be no clear detection from the meteorological satellite images which are taken in visible light. Finally, there are wrong/missing and conflicting information in the predictions which are made by looking the " earthquake clouds" in meteorological satellite images.



# GLOSSARY

**Emergency:** the bad effects of a small hazard, which can be handled with local facilities, on life, property and environment. For instance, a house fire which can be extinguished by local fire department would be described as an “emergency”.

**Disaster:** the situations which the local facilities are not enough in coping with the bad effects of a hazard on life, property, environment, economy and cultural values. Natural events like earthquakes, floods, thunderbolts which require nationwide or international support and cause great loss of life and property are named as natural disasters.

**Heavy damage:** occurring of big fractures on the walls and the falling of the chimneys.

**Active fault:** the fault which was active at least for once and caused an earthquake for the past 10.000 years.

**Flame:** the visible part of burning.

**Alluvial:** the unbalanced sediments as a result of the materials like clay, silt, sand and gravel which are gathered in certain regions.

**Main shock:** the earthquake which happens between a foreshock and an aftershock and which is more destructive than the others.

**Aftershock:** the earthquakes which happen after the main shock and have less magnitude than the main one.

**Concrete reinforced:** a construction material which is made up of concrete and steel reinforcement materials together.

**Mudflow:** the downward mass movement of waterlogged soil and rock materials as a result of heavy rain from the mountain slopes and valleys in arid and semi-arid areas.

**Earthquake hazard:** it includes everything about an earthquake that might be dangerous for human life.

**Earthquake:** the trembling and shakings that happen on earth with the movements of the earth’s crust.

**Seismicity:** the distribution of the sequences and the magnitudes of earthquakes in a certain area.

**Natural disaster:** the disasters which are caused by some natural events like earthquakes, floods, avalanches and landslides, etc.

**Infill wall:** the components which are made up of hollow bricks in order to separate various places. They are not a part of the supporting system but have an important effect on the earthquake response of a construction.

**Reinforcement:** the steel constituent which helps the carrying process with concrete reinforcement in concrete components.

**Energy:** different energy types which can be turned into different forms but still

remain the same amount of total energy; the skill of doing.

**Epicentre:** the closest spot to the focal point on earth. This spot is also the place where an earthquake is felt strongest.

**Stirrup:** a horizontal reinforcement which is placed in gaps to prevent the disintegration of the concrete in concrete components by horizontally encompassing it.

**Fault:** the the breaks and moves that happen where the plates/weakness that form the crust.

**Over ruin:** the total destruction of the constructions.

**Observation:** measuring the physical activities like earthquakes, temperature, pressure or winds which happen on or above the surface of the Earth.

**Light damage:** cracking of plasters and removing of little plaster parts.

**Balk:** rectangular concrete components which are both produced in horizontal and vertical forms to enable the supporting walls act together in masonry buildings and to prevent weakness as a result of the spaces opened in the walls.

**Landslide:** movement of soil and/or rocks by sliding on a plane surface.

**Hypothermia:** reducing of the body temperature in a way that the normal muscle and brain functions would be damaged.

**Hypocenter:** the spot within earth where fault breaks and the energy of an earthquake occurs. Actually the focal point is not a point but a line/surface still it is accepted as a point in the applications.

**Geophysics:** it is the science which examines the physical properties and activities of earth.

**Geology:** the science which examines the structure and materials, historical development and the processes that shape the earth's crust.

**Piled foundation:** it is the type of foundation that is applied with the piles with high bearing capacity and extends to the stratum when there are tall building heights and very bad ground conditions.

**Short column:** the case in which some columns are shorter than the others in reinforced concrete buildings as a result of both architectural and structural applications and there is the effect of more force.





**Girder:** horizontal bearings produced in rectangular forms that combine the vertical bearings to each other in reinforced concrete buildings.

**Column:** vertical supporting components which have the similar size of plans in reinforced concrete buildings.

**Corrosion:** the loss of the characteristics of concrete components by rusting as a result of moisture and water.

**Cure:** the curing process of the removed plaster in order to regain its stability.

**Magnitude:** the amount of the energy that comes off during an earthquake. It is determined out from the records of the devices which record the earthquakes. Each earthquake has only one magnitude and it does not change according to the distance or other properties as in intensity.

**Epicentre:** the closest place to the focal point where an earthquake is felt strongest.

**Focal depth:** the shortest distance between the point where the energy of an earthquake comes off and the earth.

**Focal point:** the place where an earthquake happens under the ground.

**Moderate damage:** happening of little cracks on the walls, falling of big plaster pieces, slipping of bricks, little cracks on the chimneys and falling down of some parts of chimneys.

**Foreshock:** small shakings after the main shock. An earthquake is named as a foreshock on the condition that a larger earthquake happens in this area.

**P-wave:** it is the first wave that directly comes from the epicentre and arrives to the earthquake area in large earthquakes.

**Partition:** vertical bearing components whose ratio is seven in plan size in reinforced concrete buildings.

**Raft foundation:** the foundation type which is applied with a certain thickness when the constructions are higher and the ground conditions are not good enough.

**Richter scale:** the magnitude scale of the earth. It is the numerical scale of the energy released after an earthquake. Richter scales are used in order to measure the real size of earthquakes. This is called as "earthquake magnitude". The magnitude corresponds to an increase



of 30 times the amount of energy in each numbers. So there is 30 times energy difference between the earthquakes with 6.0 magnitudes and 7.0 magnitudes.

**Risk:** negative results caused by hazard. These results affect directly or indirectly life, houses, working places and their activities. Risks cannot be eliminated totally but it can be reduced. It is expressed as  $\text{Risk} = \text{Hazard} \times \text{Vulnerability}$

**S-wave:** second wave that comes after P wave during an earthquake. It is a seismic wave that shake earth surface up and down as vertical to direction movement.

**Liquefaction:** due to effect of an earthquake, complete loss off the bearing capacity as a result of increasing space water pressure and acting as a liquid of water logged, fine grained sand and silty layers.

**Seismic gap:** one part of fault that has caused an earthquake in the past but seismically inactive now.

**Seismograph:** it is a device that detects and records seismic waves. An inactive stable mass is detected as the other part moves during an earthquake in most of seismographs. Some seismographs detect vertical movements as some detect horizontal ones. Marks of waves

are drawn on a mobile paper band with a vibratory pen. Arrival time is calculated between P and S waves. Time on a "seismograph" gives the distance between station and epicentre.

**Seismography:** the branch of science which examines how the earthquakes happen, how the seismic waves are transmitted in the earth, measuring devices and methods, evaluation of the records and other subjects related to earthquakes.

**Seismology:** the subdiscipline of geology which examines the formation of earthquakes, transmission of seismic waves, measuring and other subjects related to earthquakes.

**Intensity scale:** the scale that evaluates the intensity of an earthquake. In other words, intensity scales measure the reactions of animate and inanimate beings that are affected by an earthquake. When an earthquake occurs its effect on the area can be described by its severity. And the intensity of this earthquake is measured according to the intensity degree that the earthquake belongs based on the observations.





**Intensity:** it is the size of effect of an earthquake that occurs in any depth and felt on the earth. It depends on effects on physical structures and people. It based on observational data and standard scale prepared beforehand.

**Evacuation:** especially leaving and getting out away from area under threat.

**Bearing component:** a vertical or horizontal component that carries the vertical and horizontal forces that are effective on a construction.

**Bearing system:** the system as a combination of supporting components with the aim of carrying the external loads safely in a construction.

**Hazard:** events like earthquakes, floods, hurricanes, landslides, fires, explosions which might cause loss of life and property and restricts our daily lives.

**Foundation:** the bearing system that supports the building and enables the external loads to be passed to the foundation safely.

**Triage:** a coding and selection process of prioritizing patients and injured based on the severity of their condition in a phenomenon zone by healthcare organizations.

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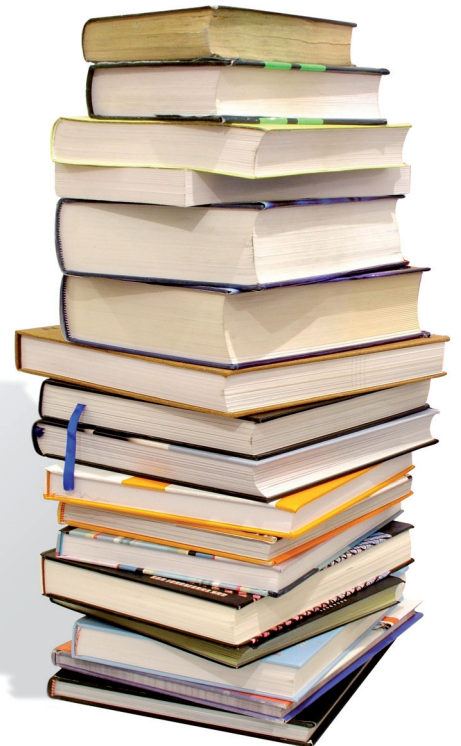
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- Non-structural Risk Mitigation Against Earthquake
- Structural Retrofitting Against Earthquake
- Structural Risk Mitigation Against Earthquake
- Disaster Emergency Aid Planning Guide for Educational Institutions
- Disaster Emergency Aid Planning Guide for Healthcare Organizations
- First 72 Hours for The Individual and a Family in an Earthquake
- First 72 Hours for Disabled People in an Earthquake
- Disaster Emergency Aid Planning Guide for Industries and Working Places
- Survival Under Extraordinary Conditions
- Psychological First Aid in Disasters
- Disaster Preparedness for Local Disaster Volunteers
- Compulsory Earthquake Insurance Awareness
- Urban Planning and Construction for Disaster Mitigation
  - For Local Decision Makers
  - For Technical Staff
  - For Community Representatives

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