MINISTRY OF INFRASTRUCTURE AND TRANSPORT
EARTHQUAKE PLANNING AND PROTECTION ORGANIZATION (E.P.P.O.)

Earthquakes and Workplaces

Earthquake Safety Instructions

Athens 2017

Contents

Workplace's Contact Details

Trade Name: .....

Address: .....

City: .....

Regional Unit: .....

Telephone: .....

Fax: .....

E-mail: .....

Website: .....

Employer: .....

Business Phone: .....

Residence Phone: .....

Mobile Phone: .....

Fax: .....

E-mail: .....

Safety Engineer: .....

Business Phone: .....

Residence Phone: .....

Mobile Phone: .....

Fax: .....

E-mail: .....

Introduction

The earthquake is a natural phenomenon that often strikes our country and other countries as well. An occurrence of a strong earthquake during working hours may cause many problems to employers, employees and visitors such as injuries, property damage, and disruption of day-to-day operations. Proper risk assessment, including seismic risk, it is crucial to create a safe workplace.

Earthquake planning at workplaces (businesses, industries, services of public and private sectors, etc.) includes a total of actions performed by the employer and the employees. These actions aim to reduce the consequences of an earthquake at a workplace and ensure everyone's safety. The management of earthquake risk in a working space includes the following sequence of actions:

1. Actions Before the Earthquake – Earthquake Planning
2. Actions During the Earthquake – Self-protection
3. Actions After the Earthquake – Planning's Implementation.

Emergency Planning requires a collective effort in its implementation, its evaluation and its continuous improvement.

The employers must provide the following to the employees:

- Appropriate safety precautions in case of an earthquake.
- Adequate information and training regarding proper earthquake safety actions and encouragement for effective participation in emergency planning operations.
- Information, on a regular basis, concerning the management of earthquake risk at their workplace.

The employees must:

- Realize that they are personally responsible for their safety.
- Cooperate with the employer for the implementation of the tasks they have been assigned with.
- Suggest ideas for the improvement of earthquake planning.
- Follow the instructions given to them, to ensure their safety.

This guide:

- provides businesses' managers, safety technicians and responsible individuals with practical guidelines regarding earthquake risk management.
- highlights the importance of improving workplace's earthquake safety by employers and employees.
- points out the role that each one of them should have in the workplace's earthquake planning.

Actions Before the Earthquake – Earthquake Planning

Precautionary measures for the earthquake risk management at workplace are:

a. Establishment of an Emergency Plan
b. Communication of the Emergency Plan with co-workers
c. Practice through Earthquake Drills
d. Evaluation of Earthquake Drills
e. Review and update of the Emergency Plan.

Employers are obliged to obtain the services of a safety technician according to relevant safety and health legislation.

a. Establishment of an Emergency Plan at Workplace

The Emergency Plan should take into account human resources available, business's daily operations and arrangements necessary to fulfill its needs in case of an earthquake, aiming towards a safe environment. The following are the main steps for the preparation of such a Plan:

1. Highlighting and Preventing Risks
2. Establishing Emergency Response Teams
3. Registration of Contact Details
4. Provision of Emergency Supplies and necessary Equipment
5. Establishing Escape Routes and Evacuation Procedures
6. Establishing Assembly Area
7. Synergy for common Planning with co-located businesses.

The evacuation plans should be posted prominently in each area of the building (the corridors etc.), for all employees to see. By viewing it daily, employees become familiar with the building's evacuation procedure.

1. Establishment of Emergency Response Teams

Task assignment to employees depends on the type of business, the number of persons employed and the workplace's needs and it aims to manage a seismic emergency in the most possibly efficient way.

The assignments of tasks should be based on the following principles:

- Staff's roles and responsibilities must be specified not only for the pre-earthquake period but also for the post-earthquake period.
- Roles and responsibilities at post-earthquake period must, in many cases, be assigned according to the area each employee is during the earthquake.
- During the earthquake, each employee must take the necessary self-protection measures.

		Roles- Responsibilities	Designated Person or Description of the Position
1	Employer	**Pre-earthquake actions to consider:** - Identify existing and potential hazards. - Take preventive measures for employees' health and safety. - Prepare a pre-earthquake planning of the workplace. - Provide maintenance to regular facilities', inspection of the equipment and ensure the immediate restoration of shortages. - Take care of the review of planning when needed and supervise its correct implementation. - Conduct frequent drills to ensure that all employees know what to do under stressful conditions. - Organize information campaigns, trainings courses etc.	**Pre-earthquake:**
		Post-earthquake: - Assess the situation to determine if the activation of emergency procedure is required. - Supervise all efforts in the area. - Contact with related agencies and services. - Decision making for critical matters and emergency shutdown procedures (e.g. interruption of critical operations).	**Post-earthquake:**
2	Safety Technician	**Pre-earthquake:** - Provide the employer with advice and suggestions either orally or on paper concerning emergency planning, facilities' maintenance, acquisition of equipment etc. - Register suggestions in the business's special register. - Take care of the implementation of health and safety measures and inform the person in charge of each department. - Supervise the earthquake drills. - Evaluate the drills and the emergency planning. - Submit suggestions to the employer for the planning's revision or update.	**Pre-earthquake:**
3	First Aid Team	**Pre-earthquake:** - Ensure provision of first aid equipment. - Care for training of employees on first aid issues.	**Pre-earthquake:**
		Post-earthquake: - Provide first aid services to employees that have microtraumas. - Take care of the injured, until the ambulance arrives.	**Post-earthquake:**

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		Roles- Responsibilities	Designated Person or Description of the Position
4	Fire Safety Team	**Pre-earthquake:** - Provide fire safety instructions and relevant training to employees.	**Pre-earthquake:**
		Post-earthquake: - Extinguish fires. - Inform the Employer and/or the Safety Technician about the prevailing situation.	**Post-earthquake:**
5	Network Team (electricity, water etc.)	**Pre-earthquake:** - Take care of the networks' right operation.	**Pre-earthquake:**
		Post-earthquake: - Take care of the facilities' power outage and water supply disruption. - Check networks' status. - Inform the Employer and/or the Safety Technician about the prevailing situation.	**Post-earthquake:**
6	Department Heads or Floor Managers	**Pre-earthquake:** - Create a list with the employees' personal contact details (surname, address, telephone number etc.). - keep on daily basis a record with absent employees per department.	**Pre-earthquake:**
		Post-earthquake: - Take care of the evacuation of the whole Department/ Floor. - Take a head count of the employees after the evacuation in the assembly area. - Inform the Employer or the Safety Technician for anyone not accounted for.	**Post-earthquake:**
7	Support Team of Disabled	**Pre-earthquake:** - Be familiar with the needs of each disabled employee in case of an earthquake. - Inform disabled individuals about the self-protection measures in case of an earthquake. - Plan the evacuation procedure for disabled persons.	**Pre-earthquake:**
		Post-earthquake: - Assist the disabled individuals during the evacuation and during their stay in the assembly area.	**Post-earthquake:**

2. Registration of Contact Details

I. Emergency Response Teams

	Full Name or the Position's Description	Phone Number (Residence, Mobile)	Email
Employer and Alternate	a.		
	b.		
Safety Technician			
First Aid Team	Pre-earthquake: a.		
	b.		
	c.		
	d.		
	Post-earthquake: a.		
	b.		
	c.		
	d.		
Fire Safety Team	Pre-earthquake: a.		
	b.		
	c.		
	d.		
	Post-earthquake: a.		
	b.		
	c.		
	d.		
Network Team	Pre-earthquake:		
	b.		
	c.		
	Post-earthquake: a.		
	b.		
	c.		

▶

	Full Name or the Position's Description	Phone Number (Residence, Mobile)	Email
Department Heads or Floor Managers	Pre-earthquake: a.		
	b.		
	c.		
	Post-earthquake: a.		
	b.		
	c.		
Support Team of Disabled	Pre-earthquake: a.		
	b.		
	c.		
	Post-earthquake: a.		
	b.		
	c.		

II. Involved Institutions – Services

Institution - Agency	Phone Number	Address	Website	Email
European Emergency Number	112			
Hellenic Police	100			
Fire Service	199			
National Emergency Aid Centre	166			
Municipality				
Regional Unit				
Region				
Hospital				
Public Power Corporation				
Water Supply and Sewerage Company				
Natural Gas Company				
Telecommunications Company				
Insurance Company				

3. Identification and Mitigation of Potential Hazards

Among other things, Safety Technician is also responsible for:

- Providing the employer with advices regarding the identification of potential hazards in the worksite and in assembly areas as well.
- Making suggestions for their mitigation.

The expression "Identification and Mitigation of Potential Hazards" refers to the necessary pre-earthquake interventions to minimize the earthquake's consequences (e.g. the avoidance of injury and property damage etc.).

EPPO has released a Check List of Non-Structural Elements of the Buildings, which has been posted on its website: www.oasp.gr/userfiles/midomiki_frm.pdf.

4. Establishment of Evacuation Procedure

Evacuation routes should be marked appropriately on the Emergency Plan and must lead directly to an open and safe space via the shortest possible route.

The escape routes and emergency exits should be proportional to the size and the use of the building, the number of employees, and always comply with the legal framework of the country (e.g. Building Code Fire Safety Regulation and the Occupational Safety and Health Act etc.).

The design of evacuation routes should comply with the following requirements:

- To be simple and short.
- Their width and length should be in accordance with the fire safety regulations.
- To be accessible to people with disabilities.
- To include the building areas which are safe to use after the earthquake.
- To be free of tall furnishings, devices etc. that could restrict use of the evacuation route.
- To post proper signs at the doors or corridors along the exit access indicating the direction of the exit. Each connecting door must open in this direction of the exit.
- The existence of emergency lighting with light signals.
- To constantly check the compliance with the aforementioned recommendations so that the escape route's operation is secured in case of an emergency.

Escape routes, exit doors etc. should be clearly marked on the Emergency Plan.

Description of the evacuation procedure
Rooms/offices and other spaces of workplace that are closer to each staircase are evacuated first.
Ground Floor - Evacuation in the following order:
Staircase No …
Offices:
Staircase No …
Offices:
First floor - Evacuation in the following order:
Staircase No …
Offices:
Staircase No …
Offices:
Second Floor - Evacuation in the following order:
Staircase No …
Offices:
Staircase No …
Offices:
Third Floor - Evacuation in the following order:
Staircase No …
Offices:
Staircase No …
Offices:

Floor plan with escape routes

5. Definition of Assembly areas

An assembly area is an open, near, safe space (a park, a square, an open sports facility etc.) in which the habitants should gather after a strong earthquake or other emergency case. First and foremost, assembly areas must be accessible to pedestrians. While selecting such a space, any seaside or littoral zones must be avoided. Their altitudinal position must be such that they do not risk being affected by tsunamis. In the Emergency Plan, apart from the main assembly areas, an alternative solution must exist, which will be utilized in case the main area is rendered unsuitable.

It should also be noted that Civil Protection Office of each Hellenic Municipality in cooperation with the competent authorities (Municipality's technical services etc.), has specified the proper population's open assembly areas for its area of competence, after an earthquake. Therefore, a respective search can be conducted to identify the safe areas that Municipality suggests and which are located close to your workplace.

Area's Description	**Shelter's Details**
Main Assembly area	Address:
	Position coordinates via electronic means:
	Area's facilities:
2nd Assembly area	Address:
	Position coordinates via electronic means:
	Area's facilities:
Map showing the location of the business' building and the assembly areas.	

Assembly Area	Description of Assembly Area	Yes	No
Main Assembly Area (a) **2nd Assembly Area (b)**	Is the distance from the surrounding buildings equal at least with the buildings' half height?	a.	
		b.	
	Is it far from geologically hazardous areas which are prone to rock falls, landslides etc.?	a.	
		b.	
	Is it in an appropriate altitudinal position (for coastal areas) so there is not any tsunami risk?	a.	
		b.	
	Is it far from high-risk areas (bridges, electricity lines, fuel tanks etc.)?	a.	
		b.	

6. Synergy for common Planning with co-located businesses

If the business is co-located with other businesses, all employers must work together for the development of the workplace's Emergency Plan. Also, they must coordinate their actions by taking into account their regular activities and keep each other informed.

Co-located Businesses	Address	Number of Employees	Common Planning Exercise	Date of Joint Exercises

Co-located Businesses' Employers' Contact Details	Telephones
Business A	
Business B	
Business C	

7. Provision of Emergency Supplies – Inventory of necessary Equipment

Equipment, Supplies and Fire Extinguishing Systems	Items' Description	Number	Date of Inspection ☑
Fire Protection Systems	a.		
	b.		
	c.		
	d.		
	e.		
Warning Systems, Sign Systems, Alarm Systems etc.	a. audio		
	b. visual		
Emergency Power Systems			
Means of Communication	a.		
	b.		
	c.		
First Aid Supplies	a.		
	b.		
	c.		
	d.		
	e.		
Emergency Supplies	a.		
	b.		
	c.		
	d.		
	e.		
Other Equipment			

Utilities	Supply Number	Master Switch
Public Power Corporation S.A.		
Natural Gas		
Water		

b. Information on Earthquake Planning

Employer is responsible to communicate the working space's earthquake planning to the staff. This is a continuous procedure which should be adjusted to the new data or instructions. The staff briefing should be done regularly on the following issues:

- **Self-protection measures** in case of an earthquake.
- **The Workplace Emergency Plan** (reminding the escape routes, the assembly area and the employees' roles and responsibilities).

Employees are obliged to attend seminars or other educational programs on emergency planning provided by the employer.

Employees' Training / per year	**Yes**	**No**
Self-protection measures in case of an earthquake		
Workplace Emergency Plan (escape routes, evacuation procedure, assembly areas etc.)		
Basic First Aid		
Fire extinguishing systems, master switches of electric current, water or natural gas		
Warning Systems		
The support procedure for individuals with disabilities during the evacuation of the building		
The guidance procedure for people who do not speak Greek and/or for the visitors etc. after an earthquake		

Places where the Emergency Plan is posted	**Action ☑**	**Date**
Ground Floor		
1st Floor		
2nd Floor		
3rd Floor		
4th Floor		

c. Practice of Earthquake Drills

It is necessary to test the Emergency Plan through earthquake drills. The drills must be organized each year. These exercises will improve the workers' skills, attitudes and behavior in order to avoid the confusion and panic in case of an earthquake. Before the implementation of the drill, the aim, the scenario and the expected results should be specified.

A variety of scenarios must be taken into account for the staff's skills to be improved (e.g. an earthquake event during night shift). Prior to the exercise each employee must be informed about the exercise scenario, the distinctive sound which is the signal to start the exercise, the assembly area etc.

In each exercise, the Safety Technician and a few employees can participate as "Evaluators". They will write down the observed problems and any bad or good practices. After the evaluation of the drill an update of the workplace emergency plan should be done. The "Observers" are employees that simply watch the exercise's progress without playing an active role.

d. Evaluation of Earthquake Drills and Update of Emergency Plan

After the drill's implementation, an evaluation follows which aims to document its "strong" points but mainly to identify its deficiencies.

The exercise's evaluation can be done:

a. During a work meeting between the Employer and the Safety Technician etc.

b. By organizing a meeting with the Employer, the Safety Technician and the employees in order to exchange opinions related to the exercise's implementation, any bad or good practices etc., and taking into account the comments of the "Evaluators".

c. By the distribution of questionnaires to all participants.

Workplace's Emergency Plan should be revised or updated when:

- It is deemed that it will not be effective in case of an earthquake emergency.
- Important changes have been made in the operating procedures or/and the workplace equipment.
- The staff has changed.
- The protection instructions have changed.

Earthquake Drills/Year	Exercise ☑ Date
1st evacuation exercise	
Evaluators:	
1st exercise's evaluation	
2nd exercise	
Evaluators:	
2nd exercise's evaluation	
3rd exercise	
Evaluators:	
3rd exercise's evaluation	
4th exercise	
Evaluators:	
4th exercise's evaluation	

Actions During the Earthquake

Self-protection

During an earthquake, each individual should protect himself by taking the necessary measures. Namely, these measures are:

- If you are indoors, stay where you are and remain calm.
- Keep away from large glass surfaces (windows, skylights or glass partitions) or furniture and objects that might injure you.
- Drop to the floor, take cover under a sturdy table or a desk and hold on until the shaking stops.
- If there is not any table or desk nearby, crouch to the floor in the middle of the room away from dangerous spots, and protect your head and your back neck with your arms.
- If you are outdoors, stay there and move away from facades of the buildings', utility wires or other dangerous spots (as much as possible).

Actions After the Earthquake

Earthquake Planning's Implementation

After the earthquake, actions predetermined in the Workplace Emergency Plan must be implemented. In particular:

- Provide assistance to disabled and visitors according to what is determined in the Workplace's Emergency Plan.
- Avoid using the elevator.
- Evacuate the building by the staircase. Gather the staff in the pre-defined assembly area.
- Take a staff head count after the evacuation.
- Provide First Aid to those who suffer minor injuries. Communicate with the National Emergency Aid Centre for the provision of pre-hospital care and the transfer of the heavily injured to hospitals.
- Communicate with the Fire Service if there are any fires or if there are any trapped people in the building.
- Use the telephone only for emergency calls.
- The employer should supervise all efforts and take the important decisions (e.g. the business' shutdown operations).
- Be psychologically prepared for aftershocks.
- The Employer or the Safety Technician must inform the staff about the following actions, according to the instructions of competent authorities'.
- Make arrangements for a post-earthquake usability assessment of the building by the competent authorities, according to the State's procedures.

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State's Actions after a disastrous Earthquake – Post-Earthquake Usability Assessment of the Buildings

After a strong earthquake, great care and attention must be taken for everyone's safety. During this period, there are a lot of aftershocks that aggravate the condition of earthquake-affected buildings. One of the State's top priorities during the aftershock period is to start the Post-Earthquake Usability Assessment procedure of buildings.

Primary Post-Earthquake Usability Assessment of Buildings

In the immediate post earthquake period, the State assigns the execution of a first-degree emergency inspection of buildings to competent authorities. According to the Usability Classification of Buildings, the buildings are classified into two categories:

• Inhabitable

• Non inhabitable.

If a building is characterized as "Inhabitable", it is suitable for use. If the building is characterized as "Non inhabitable" it cannot be used temporarily, and it will be re-inspected via the Secondary Post-Earthquake Usability Assessment of Buildings.

Secondary Post-Earthquake Usability Assessment of Buildings

After the completion of the building's first-degree inspection, the second degree which is the final one begins. The second-degree damage assessment is performed only to buildings which were characterized as "Non inhabitable" during the first-degree inspection.

At the second-degree assessment, the buildings are classified into three categories:

- **Green:** These buildings have minor damages and can be used immediately by their owners or their residents.
- **Yellow:** These buildings have significant damages but their restoration is possible. They must not be used until the restoration completion.
- **Red – To Be Demolished:** These buildings have been deemed as dangerous, unusable and must be demolished.

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Greece is a country with high seismicity.
It is well known that an earthquake can cause problems to employers, employees and the visitors of the workplace.

Does each one of you know the self-protection measures in case of an earthquake?

Do you have an Emergency Plan in your workspace?

Do you participate in earthquake drills?

Do you have any evaluation procedure of the drills and the emergency planning in your workplace?

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