

# EARTHQUAKE SAFETY IN THE WORK PLACE

## COMPANY PLANS

All companies have an obligation to their employees to maintain a disaster plan. An emergency evacuation area must be designed, a nearby safe area, preferably outdoor, where workers can get together after a fire or earthquake. It should be out in the open away from buildings or powerlines. If there is no open space nearby, designate some other safe place.

Set up a procedure to account for all employees. If there is a register assign some one to take this with them when evacuating the building.

Identify evacuation routes and alternate routes, and keep them clear of any obstructions. Plan assistance for people with disabilities, employees, and people who maybe visiting and conduct drills.

Assign and train teams of employees to handle basic first aid, search and rescue, fire response, evacuation, damage assessment, and security. Train all employees in earthquake preparedness and identify safe places at work. Appoint and train wardens to take leadership in emergencies. Conduct regular [evacuation drills](#).

## HAZARD HUNT

Office hazards include:

1. Tall Shelves
2. Bookshelves
3. Tall, Heavy Lamps
4. Hanging Plants
5. Heavy Objects on Walls
6. Windows, Air Conditioners / PA Systems
7. Light Fixtures
8. Desks by Windows, etc.
9. Heavy Pictures

10. Gas Stoves

11. Unsecured TV, typewriters, computers. Attach these items to their stands

- a. with industrial strength Velcro
- b. by bolting them to the stand
- c. using a detachable leash attached to the wall
- d. tie down with bicycle or bungee elastic cord.

12. File cabinets – these will tip over unless they are bolted to the floor. Bolting them together also increase their stability. Be sure the drawers can lock when they are closed, because if a drawer slides open during an earthquake it can injure someone.

13. Ceiling Partitions

14. Signs

15. Fans

16. Water Tanks – on roof can affect the load bearing capacity of the roof causing it to fail.

17. Satellite dish (older version).

## **EARTHQUAKE DRILLS**

In order that your staff knows how to respond during an earthquake, it is essential that they practice these procedures by conducting earthquake drills until they are second nature.

There are six (6) components to an Earthquake Drill.

These are the **Alarm, Response, Evacuation, Assembly, Head Count** or **Roll Call** and the **Evaluation**.

### **ALARM**

During the alarm stage, those involved in the drill are alerted by a loud warning device, such as a bell or buzzer. This must be a pre-arranged signal known by everyone, so that all will respond appropriately.

## **RESPONSE**

During the response phase, everyone heads for cover. Persons get under a heavy desk, table, chair, bed or under a door jamb. Make sure you move away from windows, glass or light fixtures. If there is not cover available, crouch and try to protect your head.

## **EVACUATION**

After remaining in your respective safe-place until the shaking has stopped, persons should then evacuate the building. The evacuation proceeds through pre-determined safe routes and evacuees gather outside in a safe area away from buildings, fences, walls, electricity poles, bridges and trees.

## **ASSEMBLY**

At the assembly point, the evacuees are grouped in order of classrooms, departments or floors – whichever is more convenient to facilitate the next step, which is roll call.

## **ROLL CALL**

During the roll call, teachers, floor wardens, or others designated before-hand determine if everyone is present. In the event of a real earthquake, a search and rescue team would have to be dispatched to look for those missing.

## **EVALUATION**

After the roll call, there should be an evaluation where the institution identifies snags in the drill, problem areas, or potential problem areas.

Remember that only by practicing will occupants of a building be reasonably sure that in the event of a serious earthquake they will be able to respond appropriately.

### **High Rise Buildings**

Most of the guidelines for earthquake preparation in other buildings also apply to high rise buildings.

When a high rise building is designed without earthquake protection, the building is designed to withstand its own weight as well as the weight of the contents, and hold up against wind. Earthquake engineering adds other dimensions, because the building must be able to hold together as it is shaken from side to side and up and down. The roof and walls are tied together so that the walls do not pull apart and allow the roof to fall. Some multi-storey buildings have been designed to be flexible while holding together. The building is designed to sway as a unit in a side to side motion. Without this planned

flexibility, the various elements of a large building would move at different rates, creating additional stresses within the building that could weaken it to the point of collapse.

During large earthquakes, expect windows to break, plaster and suspended ceilings to fall. If high rise buildings are designed to sway as they should during earthquakes, unsecured objects will slide around inside, particularly on the upper floors. That is why it is important to secure the furnishings of a high rise building. Anchoring pieces of furniture will prevent them from sliding back and forth, even acting as battering rams to break through windows or walls. Carpets may help reduce this action. Large windows above the fourth and fifth floor would have guard rails installed on the inside, and/or shatter resistant plastic film on the glass.

## **The Warehouse**

Tall racks of stored equipment and supplies pose a great danger in an earthquake. Many warehouses have shelves holding thousands of supplies ten or more feet high. These shelves should be bolted to the floor and further anchored with steel channel bars to the upper walls and ceilings. Goods should be stored carefully, with heavier items on the lower shelves. Removable fences can prevent the item from sliding while providing access to workers and fork lifts.

Great care should be taken when storing chemicals or other potentially hazardous material. Avoid glass containers where possible. Drums piled one on top of another are very dangerous; and should be stored on shelves with fences. Incompatible materials stored close together could mix in a spill. Chemistry and test laboratories should store their chemicals by type instead of alphabetically, making sure that each container is secured – while in use and when stored.

## **DURING AN EARTHQUAKE**

In an office building, the safest place is usually under a desk, protecting you from filing cabinets, bookshelves and other tall office furniture that could easily fall during an earthquake. In industrial buildings, with the additional hazards of heavy equipment and supplies, try to locate safe places in advance.

### **In a High Rise Building**

Tall buildings sway back and forth during earthquakes, so you will need to hold on while the ground shakes. Again, find the safest place and hold on tight. Take cover under a desk or table unless it is right by a low window. Turn away from windows. Hold on and move along with the desk as it slides. Or brace your self in the central hall way or against an

interior wall. If you are in a stairwell, sit down and hold on. Stay out of the elevators. If you are in an elevator, step out of it if the door is open. Otherwise, use the [drop position](#).

### **In A Public Place**

Stay where you are and assess the situation. In most public places, the best thing to do during an earthquake is to stay where you are and drop. In a restaurant, get under the table. In a theatre or stadium drop between the rows of seats.

If you are in a store, shopping mall, or a place where people are standing or walking, stay still to see what the other people do. If you must move, do so slowly. Try to find a wall or other protection to lean against. In any emergency in a crowded place, there are dangers of pushing and trampling, and if the lights are off, the situation will be worse. Try to stay out of the way of the crowd. Store and other public buildings are required to clearly identify emergency exits. Train yourself to notice the location of these exits in case you need them.

In the supermarket or other stores, goods are bound to be falling around you during an earthquake. The worst place to be are near the soft drinks, liquor or the cleaning supplies because of the danger of broken glass, spilled chemicals and exploding pressurized cans. If you are pushing a shopping cart, use it for protection. Drop and hold onto the cart.