

EARTHQUAKE GUIDANCE NOTES - 2016

Definitions and Acronyms

Emergency: An unexpected occurrence or set of circumstances, requiring immediate action to be taken to minimize serious adverse consequences to people, property, equipment, or to the environment. Emergencies can be handled with local community resources.

Major Drill: An exercise that tests individuals' or organization's capability to respond to an emergency situation. This can be an actual hands-on exercise or a simulation of a potential emergency.

Preparedness: The process of making ready with the aim of reducing loss of lives and minimizing damage.

Response: To react or reply. These are actions taken in response to an event to save lives while reducing property damage.

Earthquake: This is the sudden rapid shaking of the earth resulting from the release of slowly accumulated strain energy along a fault in the earth's crust.

Because earthquakes strike without warning, life-protecting actions must be taken immediately at the first indication of ground shaking. Of all earthquake preparedness measures, earthquake drills are the most important. The primary objective of the drill is to facilitate timely and appropriate response when the actual quake does occur.

The essential components of earthquake drills are classroom discussions, demonstrations and exercises designed to help staff and students to learn and practice where to seek shelter and how to protect their bodies from falling objects (e.g. classroom partitions, light fixtures, shattered glass and hanging fixtures such as ceiling fans).

Effective earthquake drills demonstrate actions to be taken during an actual earthquake and actions to be taken after the ground shaking has stopped. Evacuating buildings following an earthquake is imperative given the potential danger of fires or explosions.

This guidance note will help you to determine:

1. Important steps to be taken in the planning stage of the drill while providing valuable information on the dangers to expect during an earthquake.
2. What actions to take during an earthquake while promoting the concept of DROP, COVER, HOLD.
3. How to develop procedures for evacuating the school building as part of the drill (simulating what happens after an earthquake)
4. How to practice and evaluate the effectiveness of your earthquake drills

An earthquake may occur during the childhood of your students. Earthquake safety lessons they learn at school will stay with them. If other priorities limit the scope of your school's earthquake safety programme and the most you can do is conduct earthquake drills, you will make a difference.

5. For additional reading see Guidelines for the Development of Emergency Preparedness and Response Plans (EPRP: pages 25-26 and pages 37-38).

STEP ONE

The school should convene a meeting of its Safety and Security Committee as outlined in the school's Critical Incident Management Plan or the Emergency Preparedness and Response Plan. This may be chaired by the Principal or Vice Principal.

This step is intended to help you emphasize the need for earthquake safety planning among all staff members - teachers, secretaries, security guards, building maintenance / custodians, janitors and cafeteria staff (including cooks) and other support personnel. You may wish to let classroom teachers know that they will be integral to the process and are expected to impart earthquake concepts and earthquake safety procedures to their students.

1. Present the earthquake scenario as part of the opening discussion and generate discussion on what would happen if the stated magnitude earthquake were to occur.
2. Review with staff the various plans and procedures that are currently in place and conduct a survey of the school plant identifying hazardous areas that may require corrective action.
3. If you have not already done so, have talented staff members draw a floor plan of the school plant. This will help in identifying the feasible evacuation routes, assembly points and areas that may require appropriate signage.
4. Discuss what would be the initial response of the school population and examine what are the likely impacts that will result from such an occurrence.
5. Clarify roles and responsibilities and ensure that every member of staff clearly understands his or her role in the planned exercise.
6. Set up a communications plan to ensure that you will be able to reach critical members of staff as if it were a real earthquake emergency.
7. Establish the type of alarm that will be used by the school and all should come to a general agreement on this designated alarm.
8. At this meeting, staff should be given the opportunity to discuss their concerns about personal safety. Encourage them to practice Family Disaster Planning and prepare their families to cope effectively during and following an earthquake, especially if family members are separated when this event occurs.

Establishing an Effective Alarm:

The alarm selected (whether an electronic bell, a manually wrung bell or other device) should be clearly audible throughout the school plant. It is encouraged that the alarm (tone) being used can be differentiated from the one used for fire drills. The first alarm should be triggered and should run for at least 15-30 seconds. This is to indicate that students follow Earthquake procedure. The second alarm should run for approximately 10 seconds to serve as an indicator for students and staff to evacuate the building to assembly points via pre-identified evacuation routes.

What to Expect During an Earthquake

The first indication of a damaging earthquake may be a rapid shaking. You may notice the swaying of light fixtures, wobbling or movement of books on shelves. You may feel a violent jolt or you may hear a low or loud rumbling noise. A second or two later, you could feel the shaking and by this time, you'll find it very difficult to move from one place to another.

It is important to take action at the first indication of ground shaking. Do not wait until you are certain an earthquake is occurring. As the ground shaking grows stronger, danger increases.

For example:

- Free standing cabinets and bookshelves are likely to topple. Wall mounted objects (such as clocks) may shake loose and be thrown across the room.
- Suspended ceiling components may fall, bringing light fixtures, mechanical devices and other components down with them.
- Door frames may be bent by moving walls and jam the door shut. Moving walls may bend window frames, causing glass to shatter while sending dangerous pieces of glass into the room.
- The noise that accompanies an earthquake cannot cause physical harm. However, it may cause considerable emotional stress - especially if you are not prepared for the noisy clamour of moving and falling objects, shattering glass, wailing fire alarms, banging doors and creaking walls. The noise may be frightening, but a little less so if it is anticipated.

STEP TWO: Hold a special meeting with teachers to discuss student preparation activities: Step two may be combined with STEP ONE.

STEP THREE: Familiarise students and staff with Earthquake Procedures

The following earthquake drill is an example of standard response actions to take in classrooms. The complete earthquake drill includes post-earthquake evacuation to a safe, assembly point (open-space area free of hazards). In the event of an actual earthquake, building evacuation takes place after the ground stops shaking.

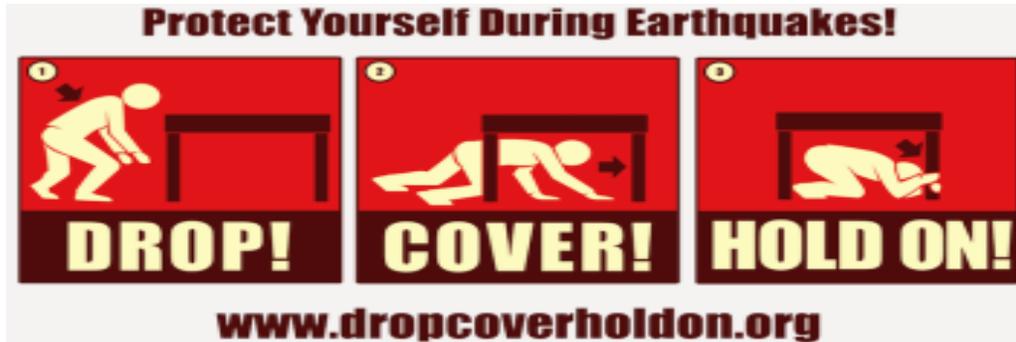
Sample Classroom Earthquake Drill

Teachers are encouraged to conduct dry runs with students on a classroom by classroom basis. This will help in the preparation of the exercise as they will become familiar with the procedure.

Objective: During an earthquake drill or at first sign of ground shaking, students demonstrate their ability to react immediately and appropriately.

- DROP, COVER, HOLD

- KEEP CALM
- TURN AWAY FROM WINDOWS
- STAY UNDER APPROPRIATE COVER UNTIL SHAKING STOPS
- LISTEN AND AWAIT INSTRUCTIONS FROM THE TEACHER



Following the Teacher's command, students will:

1. Immediately carry out DROP, COVER, HOLD Procedure by taking cover under desks and tables making sure to MOVE AWAY from windows.
2. Remain in sheltered position for at least 60 seconds
3. Be silent and listen to instructions

During the earthquake drill, Teacher will:

1. Take Cover
2. Talk Calmly to students
3. Review procedure for evacuating classroom

Earthquake Response Guidelines

1. During a major or moderate earthquake, the greatest immediate hazard to people in or near a building is the danger of being hit by falling objects. During the ground shaking, the school population is safest finding immediate shelter under desks, chairs or tables.

Although doorways have traditionally been regarded as a safe location, it is important to anticipate that doors may slam shut during an earthquake. In Jamaica, the use of doorjamb as part of sheet rock partitions may be unsafe and is discouraged. A reinforced concrete door jam is recommended.

IF INDOORS:

1. **Stay Inside:** move away from windows, shelves and heavy objects and furniture that may fall.
2. **Take cover:** under a table, chair or desk, or in a reinforced doorway.
3. In halls, stairways, or other areas where no cover is available, move to an interior wall. Turn away from windows, kneel alongside the wall, bend head close to knees, cover sides of head with elbows and clasp hands firmly behind the neck.
4. If you are in the library, immediately move away from windows and bookshelves and take appropriate cover.
5. In laboratories and kitchens, all burners should be extinguished (if possible) before taking cover. Stay clear of hazardous chemicals that may spill.
6. **If outdoors:** Move to an open space away from buildings and overhead power lines. Crouch low to the ground (your legs may not be steady). Keep looking around to be aware of dangers that may bring you harm.
7. If you are in a motor vehicle (just getting ready to leave for a school excursion), stop the vehicle away from power lines, bridges, overpasses and buildings. Students should remain in their seats and hold on.
8. **Indoors or outdoors,** when an earthquake occurs: TAKE ACTION AT THE FIRST INDICATION OF GROUND SHAKING:

STEP FOUR: Determine and discuss procedures for evacuating the building(s).

Evacuation of buildings is important following an earthquake owing to the possibility of secondary hazards such as explosions and fires.

Through repeated fire drills, your students undoubtedly will demonstrate their ability to exit the school building in a quick and orderly manner. Building evacuation following an earthquake should be equally as quick and orderly. A good drill on average lasts three minutes, from the point that the earthquake procedure is carried out to the point where children assemble at the designated points. It is, however, difficult to estimate how long it will take or how hard it will be for students to manoeuvre through the debris that might have fallen in their path to safety in a real emergency.

Surprises may lead to confusion and anxiety. Students and staff should be told what to expect and how to navigate safely. To emphasize that evacuation takes place only after ground shaking ceases, building evacuation should be practiced as an extension of classroom DROP,COVER,HOLD drills.

Issues to consider in Evacuation Planning:

1. Determine who will give the command to evacuate each classroom. Take into consideration class monitors in instances where students are unsupervised by an adult.

2. Determine how the evacuation command will be given especially in instances where the school has no intercom or bull horn.
3. Map evacuation routes that are deemed safe and determine the number of classrooms which will exit via enclosed corridors and those which are evacuating onto sidewalk pavements.
4. An aftershock may occur while students are evacuating through a crowded passageway. Discuss advantages and disadvantages of sequentially evacuating classes through corridors and passageways
5. Determine whether evacuation routes coincide with the route used for fire drills. If not, discuss this with the Fire Department.
6. Identify potential hazards along your evacuation route.

STEP FIVE: Plan for the Unexpected

Identify all possible emergencies you might have to handle during an earthquake evacuation and generate alternative response procedures. For example, discuss what to do if:

- The power fails
- The door jams
- An alternative exit route must be sought
- Corridors and stairways are littered with debris. (Do your fire drills occasionally and simulate blocked corridors).
- Your visibility and your ability to breathe are affected by smoke
- Students are injured and cannot be moved.

STEP SIX: Designate outdoor evacuation assembly points

Locate a safe assembly area on the school site map. Ask the following questions?

1. Is there an area away from buildings and overhead power lines?
2. Is there an area away from underground gas and sewer lines?
3. Is the earthquake assembly the same as the one used for fire drills?

If you have answered no to the last question, discuss this with the Fire Department. Both earthquake and fire drill evacuation routes and outdoor assembly areas should be the same to avoid confusion.

However, if you answered no to the first two questions, you should consider an alternative open space/ area if the earthquake is likely to cause extensive damage (or you suspect potential danger).

STEP SEVEN : Evaluate the effectiveness of your earthquake drills

After the all clear is given and students are asked to go back to their classrooms, a small group, led by the Principal should conduct a debriefing exercise. Issues to be discussed include:

1. What were the strengths of the drill conducted
2. What were the weaknesses identified
3. In what ways could future drills be improved
4. Documentation of the experience. Fill out the Self –Evaluation feedback form (available online) and submit.

Use the following checklist to assess the effectiveness of your current earthquake drill procedures. If you have not yet initiated earthquake drills in your school, use the checklist as a guide for developing and conducting meaningful drills.

Summary Checklist for Conducting Earthquake Drills

- Familiarise students and staff with the drop, cover and hold procedure
- Students have demonstrated their ability to take immediate and correct actions
- Teachers understand that they too are expected to take cover with students during drills
- Teachers and Safety Wardens have verified that there is sufficient space under the tables, desks, chairs for all students
- All students know how to protect themselves if they are in an open space
- Teachers and students are prepared to remain in positions for at least sixty seconds until the second alarm is heard for evacuation
- Students understand the importance of being calm and silent during drills
- Teachers in a state of readiness to maintain relative calm and reassure their students
- Assembly point (s) have been identified and students understand that they will evacuate in an orderly manner from the classrooms to the pre-identified assembly points (outdoors).
- The post-earthquake building procedure considers the very real possibility that strong aftershocks may occur within minutes after the main shock
- Teachers know that they should take their class attendance register with them to the assembly point
- The Principal knows that the Secretary or designate should take the staff attendance register to the designated assembly points
- Security officers, watchmen and other maintenance staff have been assigned roles for the drill and have practiced their roles during the earthquake drill
- Students have been given ample opportunity to discuss their fears and efforts been made by the Teachers to allay their fears
- Parents are informed of drills and approval obtained for their children's participation in this meaningful activity.

1. Adapted from the Guidebook for Developing a School Earthquake Safety Programme, FEMA reproduced by the Office of Disaster Preparedness and Emergency Relief Coordination, JAMAICA.