


REMS
http://rems.ed.gov

Integrating Earthquakes Into School Emergency Operations Plans (EOPs)




U.S. Department of Education
Office of Safe and Healthy Students

1

Housekeeping


- To download a copy of the presentation slides and other pertinent handouts, use the Downloads box on your screen. Select the name of the handout(s) you want, and click the "Download File(s)" button.
- There is no dial-in for this webinar. Audio is available via the link provided. If you are experiencing difficulty hearing the audio stream, make sure your computer speaker volume is turned up.
- If you experience technical difficulties during the webinar, please contact the REMS Technical Assistance Center (TA Center) at info@remstacenter.org or 1-855-781-REMS (7367). You may also request technical assistance using the Q&A Tool. These questions are viewable to the webinar moderator only.



2

Questions & Answers


Please pose any questions using the Q&A Tool on the right side of your computer screen.



3

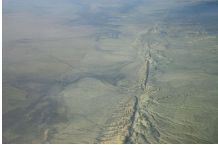
Agenda


1. Introduction
2. Lessening the Potential Physical Impact of an Earthquake
3. Encouraging Personal Preparedness at Home
4. Identifying Resource Needs
5. Q&A Session


4

Causes of Earthquakes


An earthquake is caused by the sudden slip on a fault and the resulting ground shaking and radiated seismic energy, volcanic or magmatic activity, or other sudden stress changes in the earth.



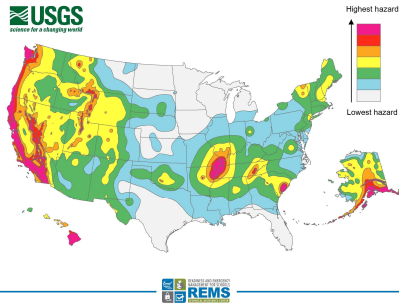

5

Cascading/Secondary Effects

- Additional hazards, called “cascading” or “secondary” effects, associated with an earthquake can also impact people.
- Cascading effects can include a:
 - Tsunami;
 - Seiche (slosh from a closed body of water);
 - Landslide;
 - Liquefaction;
 - Building fire; and
 - Chemical spill.


6

Probability Levels in the United States for Earthquake Shaking



7

Impact of Earthquakes

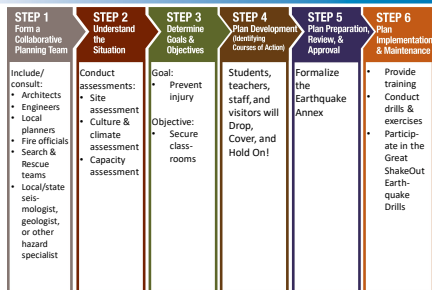
Earthquakes are dangerous in that they:

- Provide little or no warning;
- Can cause extensive injuries, deaths, and damage to entire regions, including critical infrastructure and schools; and
- Are followed by aftershocks.

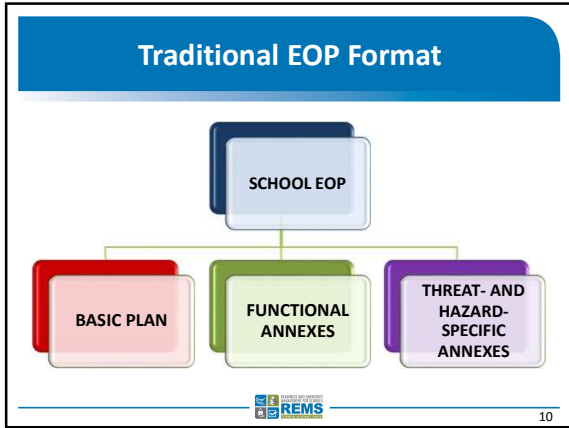


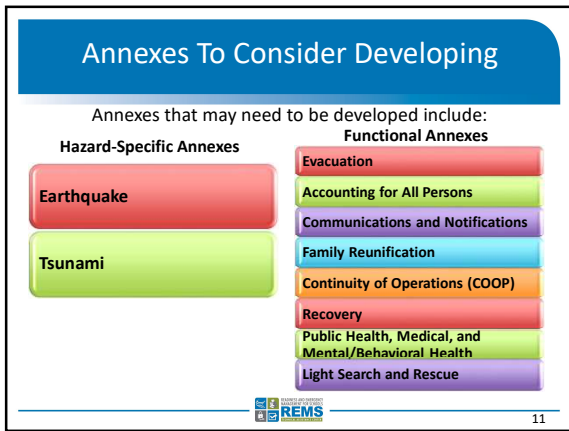
8

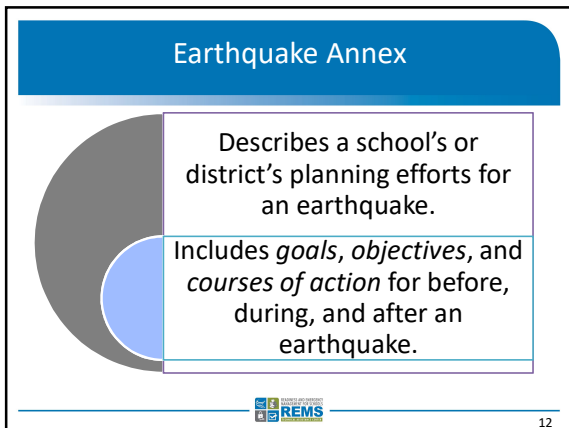
Connection to the Six-Step Planning Process



9








Earthquake Annex Considerations


Schools and districts should consider:

1. Lessening the potential physical impact of an earthquake	2. Encouraging personal preparedness at home	3. Identifying resource needs
---	--	-------------------------------



13


Agenda


1. Introduction
- 2. *Lessening the Potential Physical Impact of an Earthquake***
3. Encouraging Personal Preparedness at Home
4. Identifying Resource Needs
5. Q&A Session


14


Lessen the Impact

- 

1. Non-structural mitigation
- 


2. Training
- 

3. Exercises


15


Mitigation Activities

1. School location
2. Structural mitigation:
 - Focus on building components that support the building
3. Non-structural mitigation:
 - Focus on portions of the building not connected to the superstructure

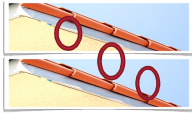

16

1. Non-Structural Mitigation


Architectural components	Mechanical, electrical, & plumbing components	Furniture, fixtures, equipment, & contents
<ul style="list-style-type: none"> Partitions Ceilings Roof tiles Stairways Freestanding walls or fences 	<ul style="list-style-type: none"> Mechanical equipment Fire protection piping Ductwork Elevators 	<ul style="list-style-type: none"> Storage racks Bookcases Shelving Computer equipment


17


Architectural Components



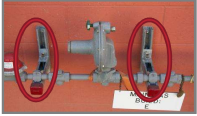
Roof Tile Clips




Gutter Bracing


18


Mechanical, Electrical, & Plumbing Components




Gas Line Bracing



Water Heater Straps





Automatic Gas Shutoff Valve




19

Mechanical, Electrical, & Plumbing Components

Fire Sprinkler System Bracing








20

Furniture, Fixtures, Equipment, & Contents

Strapping



21

Furniture, Fixtures, Equipment, & Contents



Strap Between Wall and Bookshelf



Built-In Cabinet Fasteners



22

Furniture, Fixtures, Equipment, & Contents



23

Furniture, Fixtures, Equipment, & Contents



Music Room Instrument Cages

Science Room Shelves



Wall-Hung Mounting



24

Furniture, Fixtures, Equipment, & Contents

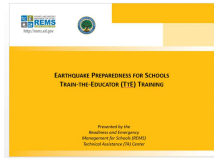
- Keep exit routes clear.
- Consider glass in cases.



25

2. Training

- “Earthquake Preparedness for Schools” Training by Request (TBR)
- Personal protection training—how to Drop, Cover, and Hold On



26

Training (continued)

- Teen Community Emergency Response Team (CERT) training
- National Incident Management System (NIMS) and the Incident Command System (ICS)



27

3. Exercises

Conduct exercises:

- Include seminars, tabletop exercises, drills, functional exercises, and full-scale exercises.
- In a drill:
 - Identify where students and staff would take cover in rooms such as classrooms, the dining hall, and gymnasium; and
 - Practice at different times of the day.
- Coordinate and conduct training and exercises with local emergency planning efforts when possible, as earthquakes can impact a whole community or region.



Great ShakeOut Earthquake Drills

- Annual opportunity to practice what to do during an earthquake, along with millions of others.
- Schools can register to be counted in the Great ShakeOut Earthquake Drills, get email updates, and more.



Agenda

1. Introduction
2. Lessening the Potential Physical Impact of an Earthquake
3. *Encouraging Personal Preparedness at Home*
4. Identifying Resource Needs
5. Q&A Session



Promote Preparedness at Home



EarthquakeCountry.org

- Is the website of the Earthquake Country Alliance (ECA), which created the first *Great ShakeOut Earthquake Drill* in 2008.
- Provides booklets, videos, games, and other resources.
- Describes how to prepare, survive, and recover by following the ***Seven Steps to Earthquake Safety***.



31

ECA's Seven Steps to Earthquake Safety

- Each step is a set of suggested actions to improve personal and family safety at home before, during, and after earthquakes.
- The steps can be incorporated into the six-step planning process for developing and maintaining a school EOP for a range of threats and hazards.

EarthquakeCountry.org/sevensteps



32

ECA's Seven Steps to Earthquake Safety

BEFORE

- 1. Secure Your Space
- 2. Plan To Be Safe
- 3. Organize Disaster Supplies
- 4. Minimize Financial Hardship

DURING

- 5. Drop, Cover, and Hold On
- 6. Improve Safety

AFTER

- 7. Reconnect and Restore



33

Step 1: Secure Your Space

- Identify hazards.
- Secure moveable items.
- Reduce injuries and damage.



EarthquakeCountry.org/step1



34

Step 2: Plan To Be Safe

- Create a disaster plan.
- Decide how to communicate in an emergency.



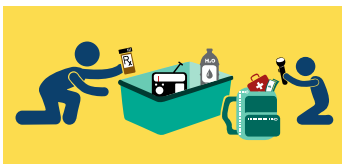
EarthquakeCountry.org/step2



35

Step 3: Organize Disaster Supplies

- At home, work, and in your car
- Copies of prescriptions, extra glasses, etc.
- Essentials for 3 days, ideally 2 weeks



EarthquakeCountry.org/step3



36

Step 4: Minimize Financial Hardship

- Organize important documents.
- Strengthen your property.
- Consider insurance.



EarthquakeCountry.org/step4



37

Step 5: Drop, Cover, and Hold On

- When the earth shakes
- In most situations (see link below)
- Protection from falling objects



EarthquakeCountry.org/step5



38

Why Drop, Cover, and Hold On?

- Get down before being thrown to the ground.
- Buildings *rarely* collapse in the United States.
- Provides protection from falling items ... including structural elements.





Classroom in Calexico, CA
April 2010 (Magnitude 7.2)




39

Drop!






Mexico City, Mexico
Sept. 1985 (Magnitude 8.1)


- Drop to the ground where you are.
- Drop before the earthquake can knock you down.
- Being low protects you from flying and falling objects.


40


Cover! (Inside)

or



- Stay low to the ground, and cover head/neck with hands and arms.
- If a sturdy desk or table is nearby:* crawl under it for additional shelter.
- If no nearby shelter:* crawl next to an interior wall or low furniture.


41


Cover! (Special Situations)





- If in bed:* lay face down, and cover your head with a pillow.
- If in a theater/auditorium:* get down between chairs, or bend over and cover head and neck with your arms.


42


Cover! (Outside)




- Stay outside, and get down on the ground.
- Crawl away from anything that can fall.
- Cover your head/neck with your hands and arms to protect yourself from flying debris.


43

Hold On!



- If under a desk or table:
 - Hold On to your shelter; and
 - Be ready to move with it.
- Other situations:
 - Hold On to whatever can provide stability or shelter.
- Always keep head/neck covered with at least one hand/arm.


44

Adapt to Your Situation


- If you can't get back up, don't get down.
If seated, bend over and cover head/neck with hands and arms.
- Know what you need so you can instruct others how to assist you.
- Practice is key.
- EarthquakeCountry.org/disability


IF POSSIBLE

USING CANE

USING WALKER

USING WHEELCHAIR




45

Out-of-Date and Dangerous Advice

- Myth: In an earthquake, get in a doorway.
 - Doorways do not protect you from falling items.
 - You cannot hold yourself up in strong shaking.
 - There may not be enough doors for people in a room.
- Myth: In an earthquake, crouch next to big furniture and not under cover.
 - This myth is based on rare situations.
 - Most injuries occur from falling items.
 - When available, getting under something provides the best shelter.
- For advice about what to do in many situations, visit EarthquakeCountry.org/step5



After Shaking Stops ...



Northridge, 1994
(Magnitude 6.7)

- Wait a minute after shaking stops, in case objects continue to fall.
- Look for hazards before you move:
 - Above and below you; and
 - Behind, around, and ahead of you.
- Expect aftershocks—be prepared to drop again.
- Follow your emergency plan.



47

Step 6: Improve Safety

- Evacuate if necessary.
- Help the injured.
- Prevent further injuries or damage.



EarthquakeCountry.org/step6



48

Step 7: Reconnect and Restore

- Restore daily life.
- Reconnect with others.
- Repair damage.
- Rebuild the community.



EarthquakeCountry.org/step7



49

Agenda

1. Introduction
2. Lessening the Potential Physical Impact of an Earthquake
3. Encouraging Personal Preparedness at Home
4. *Identifying Resource Needs*
5. Q&A Session



50

Identify the Need



CAPACITY ASSESSMENT

Description:
Examines the capabilities of students and staff, as well as the services and material resources of community partners.

Purpose:


- To provide an increased understanding of the resources available.
- To provide information about staff capabilities to help planners assign roles and responsibilities in the plan.



51

Group- and Location-Specific Supplies and Equipment


1. Administration
2. Classrooms
3. Students & staff

 52

Administration Supplies


Supplies are used by leadership to:

- Help coordinate a response;
- Ensure the safety of all students, teachers, staff, and visitors; and
- Communicate and coordinate with emergency responders.

 53


Classroom and Student & Staff Supplies

- Classroom supplies help inform teachers, classroom staff, and students how to respond to a variety of hazards and threats and meet basic needs.
- Student and staff supplies can help individuals stay warm, fed, hydrated, and comfortable.


 54


Agenda

1. Introduction
2. Lessening the Potential Physical Impact of an Earthquake
3. Encouraging Personal Preparedness at Home
4. Identifying Resource Needs
5. *Q&A Session*


55

Q&A Session




56

Contact Information

Mark Benthien
 Director for Communication, Education, and Outreach
 for the Southern California Earthquake Center at the
 University of Southern California (USC) and Executive
 Director of the Earthquake Country Alliance

info@shakeout.org







57

TA Center Earthquake Resources

- Training by Request (TBR)
- Podcast on earthquake exercises for schools
- Webinars on Teen CERT and meeting the needs of those with disabilities/access and functional needs (AFN)
- Information on the Great ShakeOut Earthquake Drills, NIMS, and ICS
- Tool Box
- Community of Practice (CoP)


58


Technical Assistance

Contact:


info@remstacenter.org
 1-855-781-REMS (7367)

For topics, such as:

- Planning for an *active shooter incident* at schools;
- Creating a plan to address weapons of mass destruction on a university campus;
- Expanding a school Teen CERT program; and
- Training on how to clean schools to prevent infectious disease outbreaks.


59

Further Information



REMS
TECHNICAL ASSISTANCE CENTER

Phone: (855) 781-7367 (REMS)
 Email: info@remstacenter.org


<http://rem.s.ed.gov>

[Get the Guide](#)

[Join our Community of Practice!](#)

[Access Virtual Trainings](#)

[Request an On-Site Training](#)


60
