Collaborative Bachelor's Degree Program of Fire Protection and Safety Engineering Technology between Southwest Jiaotong University and Oklahoma State University, U.S.A.

FPST 2023 Industrial and Occupational Safety

Emergency Preparedness
And
Fire Prevention Plans

Incident action plan video
Basement video

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OSHA Requirements Related to Emergencies

- Exit routes, emergency action plans, and fire prevention plans (29 CFR 1910.33-1910.39)
- Fire brigades (29 CFR 1910.156)
- Hazardous waste operations and emergency response (29 CFR 1910.120)
- Respiratory protection (29 CFR 1910.134)
- Permit-required confined spaces (29 CFR 1910.146)
- Bloodborne pathogens (29 CFR 1910.1030)

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OSHA standards that require ERP or FPP

Emergency Response Plan

- 1910.119 Process Safety Management of Highly Hazardous Chemicals,
- 1910.160 Fixed Extinguishing Systems, General
- 1910.164 Fire Detection Systems
- 1910.272 Grain Handling
- 1910.1047 Ethylene Oxide
- 1910.1050 Methylenedianiline
- 1910.1051 1,3 Butadiene

Fire Prevention Plan

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29 CFR 1910.38 Emergency Action Plans

- An employer must have an emergency action plan whenever an OSHA standard in this part requires one
- An emergency action plan must be in writing, kept in the workplace, and available to employees for review
  - However, an employer with 10 or fewer employees may communicate the plan orally to employees

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29 CFR 1910.38 Emergency Action Plans

- c) Minimum elements of an emergency action plan. An emergency action plan must include at a minimum:
  - Procedures for reporting a fire or other emergency;
  - Procedures for emergency evacuation, including type of evacuation and exit route assignments;
  - Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;
  - Procedures to account for all employees after evacuation;
  - Procedures to be followed by employees performing rescue or medical duties; **and**
  - The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.

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Evacuations

- External
  - Fire
  - Chemical Release

- Shelter in Place
  - Tornado
  - External threats

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29 CFR 1910.38 Emergency Action Plans

- d) Employee alarm system
  - An employer must have and maintain an employee alarm system. The employee alarm system must use a distinctive signal for each purpose and comply with the requirements in 1910.165 Employee Alarm Systems.
- e) Training
  - An employer must designate and train employees to assist in a safe and orderly evacuation of other employees.
  - An employer must review the emergency action plan with each employee covered by the plan:
    - When the plan is developed or the employee is assigned initially to a job;
    - When the employee's responsibilities under the plan change; **and**
    - When the plan is changed.
- f) Review of emergency action plan

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Goal of Emergency Planning

- 1st - employees and public
  - Short-term and long term
- 2nd - property and environment
  - Salvage
  - Overhaul
  - Decontamination
- 3rd - Restoring operations
  - Business continuity

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Emergency Management

- Need authority to create a plan and CEO commitment to make emergency management part of corporate culture
- Emergency management is a dynamic process
  - Planning, training, conducting drills, testing equipment and coordinating activities with the community
- Requires upper management support
  - CEO (Chief Executive Officer) sets tone

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The Case for Emergency Management

- Helps companies fulfill moral AND social responsibility
- Facilitates compliance with regulatory requirements
- Enhances ability to recover from financial losses, regulatory fines, market share loss, equipment damages, or products or business interruption
  - "Business continuity"
- Reduces exposure to civil or criminal liability
- Enhances a company's image and credibility
- May reduce your insurance premiums

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Emergency Management Elements

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Direction & Control

- What is Direction and Control?
  - Someone must be in charge in an emergency
  - The system for managing resources, analyzing information and making decisions in an emergency is direction and control
    - Emergency Management Group (EMG)
    - Incident Command System (ICS)
    - Emergency Operations Center (EOC)
    - Planning considerations
    - Security
    - Coordination of outside response

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Direction & Control (continued)

- The configuration of your system depends on many factors.
- Larger industries may:
  - Have their own fire team, emergency medical technicians, or hazardous materials team, while smaller organizations may need to rely on mutual aid agreements.
  - Be able to consolidate positions/combine responsibilities.
- Tenants of office buildings or industrial parks may be part of an emergency management program for the entire facility.

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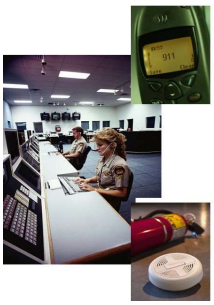
Communications



- Contingency Planning
- Emergency Communications
- Family Communications
- Notification
- Warning

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Life Safety

- Protecting the health and safety of everyone in the facility is the first priority during an emergency.

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Property Protection

- Protecting facilities, equipment, and vital records is essential to restoring operations after an emergency.

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Community Outreach

- Your facility's relationship with the community will influence your ability to protect personnel and property and return to normal operations
  - Tours
  - Family Day

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Recovery & Restoration

- Business recovery and restoration, or business resumption, goes right to a facility's bottom line…keeping people employed and the business running
  - "Business Continuity"

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Types of Emergencies/Threats

- Fire
- Severe Weather
- Medical
- Hazardous Material Spills/Releases
- Workplace Violence
- Earthquake
- Power Outage
- Biological
- The key is "foreseeable"

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EARTHQUAKES

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Non-structural Damage

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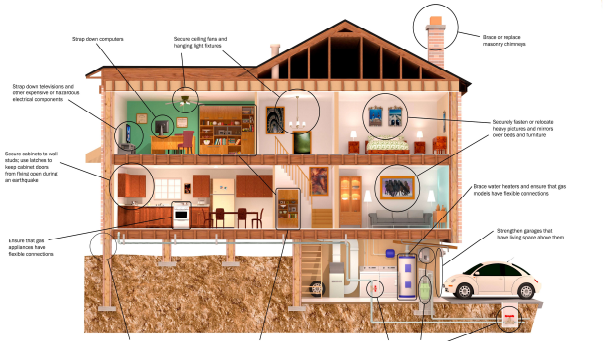
Non-structural Damage

22

Earthquake Home Hazard Hunt

Recommendations for reducing earthquake hazards in your home are presented on the other side of this poster

FEMA 526 10/2004



FEMA

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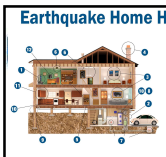
Earthquake Home Hazard Hunt



Correcting Problems

Utilities

Trench responsible members of your family how to turn off electricity, gas, and water at main switch and valves. Caution: Do not shut off gas unless you emergency or you smell gas. Do not light matches or use electrical appliances until local utilities let more information.

Label the water shutoff valve, drained where water enters the house and the main water shut-off valve drained with the meter in a concrete box in the sidewalk or yard.

Wash Cantilever Walls

Garages With Living Spaces Above

Chimney Bracing

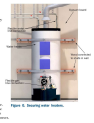
Hanging Objects

Home Electronics

In the Kitchen

Furniture

Water Heaters



Take Action To Protect Yourself and Your Family From Earthquakes

Create and Practice Your Disaster Preparedness Plan

Life-Critical Actions - Learn how to:

Your Disaster Preparedness Plan Should Include:

Financial Plan

Create Your Disaster Supplies Kit

Family Earthquake Drill

Further Information

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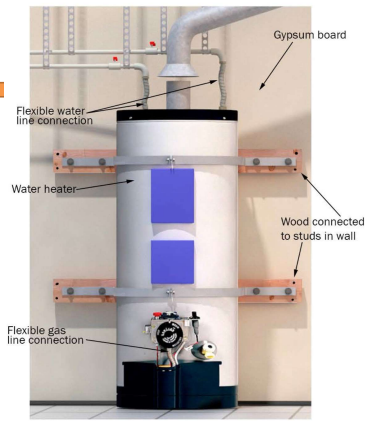

Figure G. Securing water heaters.

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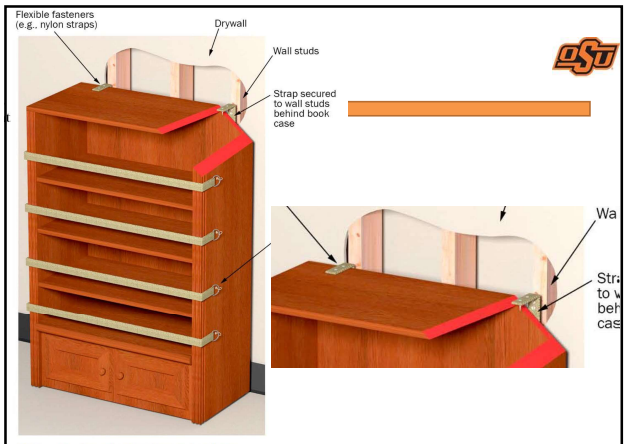

Figure F. Securing top-heavy furniture.

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Process

1. Identify potential threats
2. Assess risk/determine vulnerability
3. Assess response capabilities
4. Develop emergency plan
5. Develop emergency procedures
6. Assess available and needed resources
7. Integrate with community emergency management plan
8. Conduct training
9. Conduct drills
10. Assess effectiveness of plan
11. Continuous improvement

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Conduct a Vulnerability Analysis

TYPE OF EMERGENCY	Probability	Human Impact	Property Impact	Business Impact	Internal Resources	External Resources	Total
	High 5 ←→ 1 Low	High Impact 5 ←→ 1 Low Impact			Weak Resources 5 ←→ 1 Strong Resources		

- List Potential Emergencies
- Estimate Probability
- Assess Potential Human Impact
- Assess Potential Property Impact
- Assess Potential Business Impact
- Assess Internal and External Resources
- Add Columns

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Assess Response Capabilities

- Areas/tasks to include in your capability analysis:
  - Review internal plans and policies
  - Meet with outside groups
  - Identify codes and regulations
  - Identify critical products, services, and operations
  - Identify internal resources and capabilities
  - Identify external resources
  - Do an insurance review

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Development Emergency Plan

- Identify Challenges & Prioritize Activities
- Write the Plan
- Establish a Training Schedule
- Coordinate with Outside Organizations
- Maintain Contact with Other Corporate Offices
- Review, Conduct Training, & Revise
- Seek Final Approval
- Distribute the Plan

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Develop Emergency Procedures

- Scenario specific
- Include preparation/prevention
- What are the key things to do during the event?
- …After the event?
  - Regulatory reporting
  - Investigation
  - Debriefing

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- Assess available and needed resources
  - Third-party
    - Have them conduct regular tours
- Integrate with community emergency management plan
  - Municipal
    - City fire department
    - Have them conduct regular tours

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Training

- Who will be trained?
- Who will do the training?
- What training activities will be used?
- When/where will each session take place?
- How will sessions be evaluated and documented?

- Roles and responsibilities
- Threats, hazards, protective actions
- Notification, warning, communications procedures
- Means for locating family members
- Response procedures
- Evacuation, shelter, accountability procedures
- Location/use of common emergency equipment
- Emergency shutdown procedures

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Drills

- Orientation & Education Session
- Tabletop Exercise
- Walk-Through Drills
- Functional Drills
- Evacuation Drills
- Full-Scale Exercise

- PRACTICE…PRACTICE …PRACTICE!!!

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Assess Effectiveness Of Plan

- Conduct a formal audit of entire plan at least once a year
- In addition to a yearly audit, evaluate, and modify the plan:
  - After each training drill or exercise
  - After each emergency
  - When personnel or their responsibilities change
  - When the layout or design of the facility changes
  - When policies or procedures change
- Remember to brief personnel on changes to the plan
- Continuously improve

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"GOLDEN RULE" OF EMERGENCY PREPARATION AND RESPONSE:

It's better to have it and not need it, than to need it and not have it.