Damage Assessment

A Manual For Kitsap County Schools
2010 - 2011

KCDEM

Kitsap County Department of Emergency Management

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Damage Assessment Instructions

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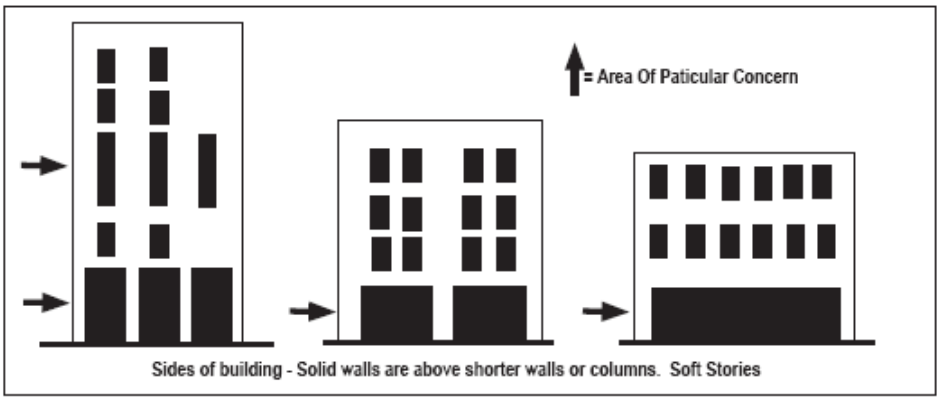
Responsibilities of the Damage Assessment Team

Checklist

Survey the building from the outside

- ☐ Determine the structural system (skeleton) of the building
  For example:
  - Structural systems are wood studs with plywood sheathing
  - Brick masonry wall
  - Concrete block masonry walls
  - Concrete walls
  - Concrete posts and beams
  - Steel posts and beams

- ☐ Examine all accessible sides of the structure for damage
  - Pay particular attention to buildings with the irregular shapes
  - Damage to the structural system will typically show through nonstructural finishes.



NOTE: Typical visible damages are as follows:

1) **Wood studs with plywood sheathing**: new gaps between plywood sheets 1/8" or larger, nail heads pulled out, or cracks 1/8" or larger in stucco over plywood. These are indicators of possible severe structural damage.

2) **Brick masonry walls, concrete masonry walls or concrete walls**: cracks 1/8" or larger indicate possible severe structural damage.

3) **Concrete columns and beams**: hairline cracks are generally not considered dangerous unless widespread. Exposed steel reinforcing, spilling of the concrete, or severe cracking indicate possible severe structural damage.

4) **Steel posts, beams, diagonal braces and/or trusses**: any buckling or bending (usually indicated by cracked or chipped paint) or any bolt failures or cracked welds indicate possible severe structural damage.

- ☐ Look for indicators of excessive horizontal movement in exterior walls
  - The top of the wall not in line with the bottom of the wall
  - Standing 20 - 30 feet from the corner of the building, look along all four edges of the building, checking for locations where the building is leaning

NOTE: Two typical indicators are broken glass in windows and jammed doors. A building can move without breaking windows or jamming doors and still be out-of-plumb and broken windows do not always indicate structural damage

- ☐ Examine exterior nonstructural elements, such as brick veneer, exterior cladding, overhangs, canopies, parapets, signs, and ornamentation

- ☐ Look for new fractures in the foundation or exposed lower walls of the building

An offset from the top to the bottom of a wall, beyond what may have existed prior to the earthquake, 1" or more, may indicate severe structural damage.

Examine the surrounding site for geotechnical hazards

- ☐ Look for ground cracks, bulged ground, and vertical ground movements in the area

- ☐ Examine hillside areas, above and below the site, for landslide displacement or debris encroaching onto the site

- ☐ Remember that geotechnical hazards can extend over an area of several buildings or sites.

- ☐ When geotechnical hazards are suspected, a detailed evaluation must be made by a geotechnical engineer

Inspect the structural system from inside the building

- ☐ Before entering the building, look to see if anything could fall on you
- ☐ Ceiling panels may be removed to view the structural system but any destructive exploration requires an engineer and authorization
- ☐ Look in stairwells, basements, mechanical rooms, and other exposed areas to view the structural system
- ☐ Examine the vertical load-carrying system (walls, posts out of plumb, nails protruding)
- ☐ Look for situations in which a post may show signs of damage
- ☐ Examine the lateral load-carrying system (floor/roof beams)
- ☐ Inspect the basement for fractures, cracks, bulges, and uneven settlement.
- ☐ Examine every floor

Inspect for other hazards

- ☐ Elevators should not be restarted without first being inspected by a qualified elevator inspector
- ☐ Inspect the stairs to verify they are stable and inspect exits for jammed doors and obstructions
- ☐ Look for damage to sprinkler systems, piping, and smoke detection components of signal systems

Determine the need for locking or barricading buildings

- ☐ Make sure everyone is out of the building
- ☐ Barricading should be established to make students, faculty, parents, and staff aware of the hazards and keep them well away from the condition
- ☐ Report the school site condition to the school district
- ☐ Aftershocks can cause additional damage and buildings may require re-inspection

Additional Information

Preliminary Evaluation Criteria

This table will be used to determine the condition of a building and give guidance on action.

Conditions	Actions
1. Building has collapsed, partially collapsed or moved off its foundation.	Do not occupy, prevent access
2. Building or any story is leaning significantly.	Do not occupy, prevent access
3. Obvious severe damage to primary structural members, severe leaning of walls or other signs of severe distress present.	Do not occupy, prevent access
4. Large cracks in ground, massive ground movement, or slope displacement present which are under, or near, the building and are a hazard to the building.	Do not occupy, prevent access to area
5. Obvious parapet, chimney or other falling hazard	Barricade to prevent access to area
6. Obvious hazard present (e.g., toxic spill, chemical spill, asbestos contamination, broken gas line, fallen power line).	Barricade to prevent access to area
7. Air duct terminals, ductwork, light fixtures, lenses or florescent bulbs fallen or dislodged. Suspended ceiling system grid members fallen or dislodged. Broken windows. Overhead mechanical equipment supports or bracing dislodged.	Barricade to prevent access to area
8. Although no damage is yet apparent, areas with overhead elements similar to those indicated in condition 7 may also fall in an aftershock.	Barricade to prevent access to area

Report Procedures

Reporting to the Incident Management Team

1. Use the radio, if available, to communicate immediate life-safety hazards, such as: fires, injured or trapped people, and areas which may not be entered. Describe the situation including location and size. The Incident Management Team will determine the Response Teams to send to mitigate the situation.

2. For non-life-safety hazards, record the hazard and use a runner to send the information to the Incident Management Team. If a runner is not available, provide the information at the completion of your assessment.

3. When communicating information, use the terminology used to describe the area every day (for example: room number, building name, floor name, wing name).

   The maps the Damage Assessment team carries should match the maps at the Incident Management Team. In addition to showing room numbers, they should also indicate where each Response Team plans to be located (for example: Command Post and First Aid Area).

   During stressful situations, many people cannot remember which way North is, so avoid using North-South-East-West directions. It is recommended to use the building as a reference point to describe exterior problems. Refer to the front of the building (the side the building is addressed from) as Side A. Label the other sides in a clockwise fashion Side B, Side C and Side D. Make sure that each teams maps are labeled so all teams know the location being described.

Reporting to School District and Outside Agencies

1. School staff or personnel complete preliminary inspection and based on inspection results, determine appropriate reporting code as designed by the school.

2. Report to school district using reporting codes. If communication is not available to the school district, report directly to Kitsap County Department of Emergency Management.

3. School Districts receive reports from schools and fill out School District Post Earthquake Damage Report Form (copy attached). In the event of smaller earthquakes where communications are available, the school district should directly contact their pre-arranged engineers.

4. School districts need to submit reports to the Kitsap County Department of Emergency Management.

5. All schools having shaking intensity sufficient to knock books off shelves should file a report.

Forms

School Post Earthquake Damage

Complete this form after the initial earthquake and each aftershock. This form can be used for any hazard requiring damage assessment.

Classroom	Damage Structural Non-Structural	Comments	Building Damage Rating								
			F1	P2	H1	H2	M1	M2	L	R	NR	Comments

Priority

(P1) 1. Site identified as possible community Shelter

(P2) 2. Sites showing any structural or nonstructural damage to any building

High

(H1) 1. Sites showing severe structural damage to any building or ground and teachers intend to re-occupy between 24 and 48 hours after the earthquake

(H2) 2. Sites showing any structural or nonstructural damage which students(ES) and teachers intend to re-occupy between 24 and 48 hours after the earthquake.

Moderate

(M1) 1. Sites showing any structural damage to any building or that have overhead hazard defined by conditions 5 through 8 Table 1

(M2) 2. Sites showing any nonstructural or structural damage which students and teachers reoccupy between 48-72 hours.

Low

(L) Sites showing structural or nonstructural damage which students and teachers into re-occupy 72 hours or more after the earthquake.

(R) Sites showing no damage and very few, if any books and objects have fallen off sl

No Report

(NR) Sites where no report has been made due to lack of communication.

Log Of Actions Taken

Date of this page:_____ Page Number _____ of _____

Time	Reporting Person	Student Name	Information/Message Action Taken

Take Time To Record Information – <u>It Is A Legal Document!</u>

Emergency Phone Numbers

School District Office — Number: _____
Local Fire Department — Business Number: _____ Emergency: 911
Local Police Department — Business Number: _____ Emergency: 911
Sheriff/Coroner's Office — Business Number: _____ Emergency: 911
Ambulance (Fire Department) — Name: _____ Number: _____
Name: _____ Number: _____
Name: _____ Number: _____

Local Hospitals

Name: _____ Number: _____
Name: _____ Number: _____
Name: _____ Number: _____

Local Emergency Services Office

Kitsap County DEM — Number: 307-5870

School Numbers

Superintendent — Office: _____ Home: _____
Principal — Office: _____ Home: _____
School Emerg. Svcs. Coord. — Office: _____ Home: _____
School Nurse — Office: _____ Home: _____

Qualified Fire Aid Personnel

Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____

Utilities

Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____

Radio and TV Stations

Name: KIRO Location: _____
Name: KOMO Location: _____
Name: _____ Location: _____
Name: _____ Location: _____
Name: _____ Location: _____

(Radio and TV stations may be requested to make announcements when students are to be sent home.)

Volunteer Assignment Log

(Copy onto Orange paper then everyone will know these are the volunteers for Support/Security)

Volunteer Name	Time In/Initials	Team/Job	Assigned Time	Out/Initials
1.				
2.				
3.				
4.				
5.				
6				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

STATE OF WASHINGTON
EMERGENCY WORKER DAILY ACTIVITY REPORT

County in which mission/incident took place:		**Mission/Incident Number:**			
Mission/Incident Name:			**Date From:**		**Date To:**
Unit Name:					
Unit Address:					

EMERGENCY WORKER NAME	CARD No.	ASSIGN. OR TEAM	DATE		DATE		TOTAL HOURS	ROUND TRIP MILES (DRIVER)
			IN	*OUT	IN	*OUT		
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								

*** The time a person could reasonably have expected to reach home without stopping enroute.**

TOTAL PERSONNEL:		TOTAL HOURS:		TOTAL MILEAGE:	

THIS FORM MUST BE SIGNED BY LOCAL EMERGENCY MANAGEMENT DIRECTOR/COORDINATOR OR SHERIFF'S DEPUTY.

By my signature below, I certify that these persons did participate in this mission/incident:

Print Name and Title	Signature

EMD - 078 (02/00)