WABO

Emergency Management

Why us?

....And how do we do it?
Disaster Recovery and Incident Command

• Every city should have an Comprehensive Emergency Management Plan

• This plan is suppose to prepare public and private entities for potential disasters and emergencies that strike.

• Each city should have an Emergency Management Coordinator and Emergency Operations Center

• **BUT...Sometimes, all you can do is call for Help!**
BUT….Why Us?

When disaster strikes a community, there is an immediate need for structural and non structural safety assessments of building and sites-

- Damage from events such as
  - Earthquakes
  - Floods
  - Wind Storms
  - Snow and ice storms

Events like these can overwhelm the resources available at local levels.
Damage Assessment Teams (DAT)

WABO Building Safety Emergency Responders

• Properly qualified and trained **code professionals** are needed to assist and enhance the recovery process during and after a disaster

• Those with the skills are called upon member of a DAT and will be looked upon to:
  • Perform Assessments
  • Disseminate Information to public and media
  • Identify utility problems as to life safety
  • Identify Hazardous Material issues
  • Along with Code and construction knowledge DAT needs to know ICS and NIMS
  • These teams need to be physically and mentally fit to handle the long hours and stress
Hotel Damage
Road Damage
Banking Disruption
Federal Savings Building
Retail becomes shut down
Bridge Closures
Emergency Transition Timeline

- **Disaster Occurs**
- **Time**
- **Level of Activity**
- **Response**
- **Recovery**
- **Reconstruction**
So how does this all work?

The Incident Command System

- It is the Federal Mandate used for Command, Control, and Coordination of a response

- It’s a means to coordinate the efforts of individual agencies as they work toward the common goal of stabilizing the incident and protect life, property, and the environment

- ICS uses principles that have been proven to improve efficiency and effectiveness in a business setting and applies to the principles to emergency response
Incident Command

- All DAT’s through the Incident Commander will report to the Emergency Management in control of the event.
Management in a Disaster Situation is Needed To:

- Maintain the safety of the disaster workers.

- safety is the number one concern, accountability of team members is very important, members work in a buddy system always.

- Provides for clear leadership and organizational structure, develops a chain of command, who to report to and functions.

- Improve the effectiveness of rescue efforts, rescue response is prioritized based on rescuers safety.
What types of Incidents use ICS?

- **Every type of incident require the use of some type of Incident Command**
- Most common are:
  - Hazardous Material Incidents
  - Earthquakes
  - Natural Hazards such as windstorms or snowstorms
  - Floods
  - Single and multi-agency law enforcement incidents
  - Fires
  - Private sector emergency management programs
  - Multi-jurisdictional and multi-agency incidents
ICS Structure

Figure 1 — Incident Command System Structure
Planning Section

• In smaller incidents, the Incident Commander is responsible for planning
• When the incident becomes larger, the IC can appoint someone as Planning Section Operations
• Planning Section includes:
  * Collection, evaluation, dissemination, and use of information about the development of the incident and status of resources
  * Functions can also include creation of the Incident Action Plan
Operations Section

- Responsible for carrying out the response activities in the Incident Action Plan
- Direct and coordinate all operations, ensuring safety of Operations Section personnel
- Assists the IC in developing response goals and objectives for the incident
- Implements the IAP - Incident Action Plan
- Requests resources through the IC
- Keeps the IC informed of situation
Logistics Section

- Responsible for providing facilities, services and materials
- Includes getting personnel to operate equipment for the incident
- Takes on more significance in long term incidents such as flooding, earthquakes, power outages
- This section is geared to support the Incident responders
Finance Section

- Critical for tracking incident costs and reimbursement accounting
- Unless costs and financial operations are carefully recorded and justified, reimbursement of costs is difficult
- Very important in a situation where the President declares an area a Disaster Area
Damage Assessment
Assessment is Accomplished in 3 Phases

1. Rapid Evaluation or Assessment – (also known as Windshield Assessment) Takes place within hours after an incident and focuses on 
   lifesaving needs, imminent hazards, and critical lifelines.
   This action is usually used to determine whether a 
   detailed evaluation or engineering evaluation is needed.

   ‘continued’
“Windshield Survey”

- The first assessment conducted should focus on the people's needs.
- The primary focus is on the number of structures that sustained damage. Teams evaluate extent of damage and earmark a structure in one of the following levels of damage: Destroyed, Major, Minor, Affected but Habitable, and Inaccessible.

- And to collect damage information to determine if enough damage is present for a presidential declaration.
Assessment is Accomplished in 3 Phases

**Detailed Evaluation** is done (as a follow-up) by an individual (Structural Engineers/Geotechnical Engineers) with more training and expertise to conduct a careful full visual evaluation of damaged buildings and questionable situations. *Most often it is used in those circumstances to require a structural engineering analysis to be conducted prior to re-use and re-occupancy of a structure.*

**Engineering Evaluation** done with detailed investigation of damaged buildings, involving the use of construction drawings, damage data, and new structural calculations.
Why Do Damage Assessment?

Conducting a local damage assessment enables local officials to:

- **Determine the severity and magnitude of the event**
- Quantify homes and businesses impacted by the disaster
- Determines whether local resources will be sufficient to effectively respond and recover from the event
Why do an assessment?

- provides local departments and agencies with information
- helps to make decisions on how to apply response resources
- provides state agencies and volunteer organizations with information
- media wants to know the impact and cost
Importance of Documentation

- Vital to document and communicate all information about the disaster situation and resource status.

- Efficient flow of information makes it possible for resources to be deployed effectively and for professional emergency services to be applied appropriately.

- Documentation also assists with getting money after the incident.
DISASTER DAMAGE INSPECTION REPORT

Immediate Action Required on Number ___________ Date ___________

Building Address

Use Group: [ ] Single Family [ ] Other
Construction Type: [ ] Wood Frame [ ] Masonry [ ] Other

1. Building Condition: [ ] Safe For Occupancy [ ] Habitable, Repairs Necessary
   [ ] Uninhabitable - Keep Out [ ] Demolition Recommended

2. Exterior Wall Condition: [ ] No Damage
   [ ] Windows Gone [ ] Siding Damage [ ] Holes In Wall
   [ ] Wall Bowed (which wall) [ ] Wall Unsafe (which wall)
   [ ] Wall Gone (which wall) [ ] Comment

3. Roof Condition: [ ] No Damage
   [ ] Holes In Roof [ ] Shingle Damage [ ] Structural Damage
   [ ] Roof Unsafe [ ] Roof Gone [ ] Comment

4. Foundation Condition: [ ] No Damage
   [ ] Crawl Space [ ] Basement [ ] Building Shifted
   [ ] Building Off Foundation [ ] Foundation Cracked (which walls)
   [ ] Comment

5. Floor Condition: First Floor: [ ] No Damage
   Second Floor: [ ] No Damage
   [ ] Holes In Floor [ ] Floor Shifted [ ] Structural Damage
   [ ] Comment

6. Interior Bearing Walls: [ ] No Damage
   [ ] Shifted [ ] Structural Damage
   [ ] Comment

7. Heating System: [ ] No Damage
   [ ] Duct Damage [ ] Appliance Damage
   [ ] Comment

8. Plumbing System: [ ] No Damage
   [ ] Fixture Damage [ ] Piping Damage
   [ ] Comment

9. Electrical System: [ ] No Damage [ ] Fixture Damage
   [ ] Circuit Breaker Box Damage [ ] Comment

10. Utilities Condition: Gas [ ] No Damage Water [ ] No Damage
    Electric [ ] No Damage [ ] Comment

11. Additional Comments:

Inspector ____________________________ (SIGNATURE)
Inspector ____________________________ (SIGNATURE)

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How to Classify

• We must have a common way to call each classification
  • ATC 20/45 or Cal-Ema
• Remember we are doing the first assessment to ID
  • What is wrong
  • Where the problems are (LOCATION)
  • How bad is it
There are 4 degrees of damage:

- Destroyed
- Major
- Minor
- Affected
EARTHQUAKE DAMAGE: SINGLE FAMILY DWELLING

Examples:
- Structure damage
- Broken Columns
- Foundation shift
EARTHQUAKE DAMAGE: SINGLE FAMILY DWELLING

Examples:
- Chimney damage
- Few broken windows
- Cosmetic damage to siding
EARTHQUAKE DAMAGE: SINGLE FAMILY DWELLING

Examples:
- Liquefaction
- foundations sunk
- walls are cracked
- sewer pipe is broken
WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:

• Some shingle damage
• Few broken windows
• Cosmetic damage to siding
• Repairable
WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:
• One (1) wall damaged
• Section of roof missing or damaged
• Repairable
WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:

• Substantial structural damage to walls, roof, etc.
• Repairable
WIND DAMAGE: SINGLE FAMILY DWELLING

Examples:
• Total Loss
• Structure is compromised
• Not repairable

DESTROYED
FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Without basement: less than 12 inches on 1st floor.
- With basement: less than 12 inches.
- No structure damage
FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Without basement: 1-2 feet of water on 1st floor.
- With basement: 1-8 feet
FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:
- Without basement: 2-5 feet of water on 1st floor.
- With basement: over 8 feet
- Collapsed basement wall(s)
FLOOD DAMAGE: SINGLE FAMILY DWELLING

Examples:

- Over 5 feet of water on 1st floor
- Basement full and over 2 feet of water on 1st floor.
Do’s

• Wait for **ACTIVATION** by your **City or County** before you Start any Damage Assessment. Must be under Activation.

  *(FDNY firefighters self dispatched at shift change and made it very difficult to account for who was working in what area when the towers collapsed)*
Do’s

• Conduct visual inspection

• Look for waterline or debris lines to determine depth of structure damages

• Focus on degrees of damages and habitability. Do not become preoccupied with property value

• Be sensitive when discussing damages with property owner

• Only report disaster-related damages.
Do’s

• Look for the perimeter of the damaged area. Survey as many streets as possible Detail addresses
• Optimum grid layout
• NOTE: We observe, we do not FIX

Focus on your own safety first

Next Step…..
some comments on ATC 20?
gwright, 6/18/2012
HERE IS HOW ONE CITY IS PREPARING:

CITY OF EVERETT
BUILDING DEPARTMENT

UTILITY MAPPING TOOLS
FOR RAPID ASSESSMENTS AND REPORTS
MISSION (IBC 101.3)

Safeguard the public health safety and general welfare through...safety to life and property

from fire and other hazards attributed to the built environment

and to provide safety to the fire fighters and emergency responders during emergency operations.
San Francisco 1906 (M 7.8)
San Francisco 1989 (M 7.1)
RESPONSE: Hour 1

- Loss of Communications
  - Phones
  - Internet
  - Equipment and Servers

- Chaos and Confusion

- Emergency Responders Dispatched
PLANNING: Hour 1

• Create mapping tools that are paper based (and paperless) to support emergency responders, media, public, and rapid assessments:
  • Incident Command Map
  • Atlas of Jurisdiction
  • Incident Map Book
  • Quarter Grid Inspection Maps
How do People See your City?

- Citizens
- Media
- Jurisdiction
  - Administration
  - Police
  - Fire
  - Planning
  - Neighborhoods
  - Public Works
  - Building Department
  - Emergency Management
Neighborhood Map
Police Map
Public Works Map
Citizen Map
Detail: Incident Command Map
Atlas of Jurisdiction
Incident Quarter Grid Map Book

For smart phone, text, and Internet intake reports
Quarter Grid Inspection Map
REPORTING: Hour 1

• Establish process for reporting tools that are paper based (and paperless) to support emergency responders, media, public, and rapid assessments:
  
• Detailed ATC-20 inspections

• Rapid ATC-20 inspections

• Mobile Phone/Device Applications
Welcome to the ROVER Ready Alliance web page.

Over 1500 people have acquired the ROVER software from here or the FEMA warehouse.

Rapid Observation of Vulnerability and Estimation of Risk (ROVER) is fast, free, mobile software for pre- and post-earthquake building safety screening. FEMA developed the software. Cal EMA has adopted it for use in post-earthquake building safety inspection. It implements de facto international standards for treating pre- and post-earthquake risk, using standard terminology and risk-management procedures.

http://www.atc-rover.org/
REPORTING: Hour 1

• Other Tools and Resources:
  • Windshield surveys: Police, Fire, Public Works
  • Citizen 911 calls
  • Trained CERT Volunteers
# Windshield Surveys

## Windshield Survey: Damages from Incident

<table>
<thead>
<tr>
<th>Overall Damage (excluding contents)</th>
<th>Specific Building Damage Information</th>
<th>(Check the appropriate column)</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ None/Minor: 0 - 10% Green</td>
<td>a. Building collapse</td>
<td>None/Minor  Moderate Severe</td>
</tr>
<tr>
<td>□ Moderate: 11 - 60% Yellow</td>
<td>b. Off foundation</td>
<td></td>
</tr>
<tr>
<td>□ Severe: 61 - 100% Red</td>
<td>c. Building leaning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Exits Blocked</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Chimney, parapet, other falling hazard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Ground movement or cracking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Other (specify):</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary exterior building materials:</th>
<th>☐ Wood ☐ Brick/Masonry ☐ Concrete ☐ Glass ☐ Metal</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Report Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name: Affiliation:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Phone/e-mail:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ AM ☐ PM</td>
<td>Photo Source:</td>
</tr>
</tbody>
</table>

Photo: ☐ Yes ☐ No
Citizen Report

• Modified Mercalli Scale?

I. Instrumental: detected only by instruments.
II. Very feeble: noticed only by people at rest.
III. Slight: felt by people at rest. Like passing of a truck.
IV. Moderate: generally perceptible by people in motion. Loose objects disturbed.
V. Rather strong: dishes broken, bells rung, pendulum clocks stopped. People awakened.
VI. Strong: felt by all, some people frightened. Damage slight, some plaster cracked.
VIII. Destructive: chimneys fall, much damage in substantial buildings, heavy furniture overturned.
IX. Ruinous: great damage to substantial structures. Ground cracked, pipes broken.
X. Disastrous: many buildings destroyed.
XI. Very disastrous: few structures left standing.
XII. Catastrophic: total destruction.
REPORTING: Week 1

- Converting Paper Reports to Digital Displays and Reports:
  - Input Tools
  - Mapping Tools
  - Reporting Tools
Building Assessment Reporting
Challenges

Mapping updates to departmental GIS systems are not made consistently or concurrently by all impacted departments:

- Building addresses
- New annexes
- Neighborhood names
- Street names
- New and existing bridges
<table>
<thead>
<tr>
<th>Type</th>
<th>Duties/Limits</th>
<th>Min. Qualifications</th>
</tr>
</thead>
</table>
| 4    | Single family residences and accessory structures | ICS 100  
Any ICC certification  
ATC 20, ATC 45 or Cal EMA  
First Aid/CPR |
| 3    | Wood-framed multi-family and small commercial structures up to 3 stories | ICS 100  
Certified Residential Plans Examiner or Certified Residential Building Inspector  
ATC 20, ATC 45 or Cal EMA  
First Aid/CPR |
| 2    | Non-structural evaluation: All multi-family and commercial structures. Structural evaluation: Multi-family and commercial Structures up to 5 stories. | ICS 100  
Certified Building Plans Examiner or Certified Inspector or Certified Building Inspector or Registered Architect  
ATC 20, ATC 45 or Cal EMA  
First Aid/CPR |
| 1    | Structural evaluation only: Multi-family and commercial structures over 5 stories, and complex structures. | ICS 100  
Registered civil or structural engineer  
ATC 20, ATC 45 or Cal EMA  
First Aid/CPR |