

PRESENTATION

ADMINISTRATION

15 Minutes

Tell students name and give a brief personal history.

Handout sign in sheet.

Inform students of general course content, objectives to be met and itinerary for the class.

INTRODUCTION

15 Minutes

Ask the following questions.

- ◆ Can structural collapse happen in your jurisdiction?
- ◆ Would you know where or how to begin your response? Who to notify?
- ◆ What buildings in your area would likely have the most casualties?
- ◆ What additional hazards might be created by the collapse of a multistory structure?

Explain that by the end of the lesson, students shall have the basic knowledge required to identify available or potential resources, form an action plan that will use those resources effectively, and identify and mitigate hazards encountered.

Inform students that a background in basic rescue techniques and incident management procedures are important precursors for technical rescues in structural collapse incidents.

Relate to the students that structural collapse can happen anywhere and be caused by various factors: explosion, weather, fire, shoddy construction and because of this emergency personnel need to have the ability to deal with these kinds of incidents.

Handout materials showing structural collapse from different causes.

Describe to the student the need for technical rescue training

- ◆ No fire department can expect to handle technical rescue operations unless it has a sufficient number of specially trained personnel.
- ◆ Instructors must be fully qualified and emphasize safety always and everywhere.
- ◆ Instructors with different specialties should be employed with quality resumes and references.
- ◆ Rescue personnel must be familiar with the incident management system, rescue unit roles, duties and equipment, operational guidelines and procedures for interacting with other organizations.

THE RESOURCE PLAN

Obj. 1

30 Minutes

Explain that all jurisdictions should develop pre-incident plans for potential structural collapse incidents.

Response Area Surveys

- ◆ Must be an ongoing process.

- ◆ Construction types, multistoried buildings, basements and sub-basements, hazardous material buildings, extraordinary life hazard, prone to collapse (bridges, parking garages, overpasses).

Explain that operational plans should be developed for each class of structure.

Plans Development

- ◆ Structures should be viewed with a "worst-case" collapse scenario.
- ◆ Critical elements of an operational plan to be answered;
- ◆ Mechanism of collapse, numbers of trapped people, secondary collapse, secondary hazards created, quantity and types of debris, site accessibility, amount and types of equipment needed, support and rescue personnel requirements, staging areas, utility shutoffs.
- ◆ Knowledge of construction types, strengths and weakness is necessary.

Resource Identification

Explain that special resources needed to mitigate incidents should be identified in pre-incident plans.

- ◆ Target hazard resource needs should be reviewed and updated annually.
- ◆ Mutual aid or private contractor agreements defined.
- ◆ Resource needs should be identified in pre-incident planning.
- ◆ Pre-Incident resource planning factors: operational assignments and personnel needed, specialized training available, mutual aid integration, information transfer sources and contact information for specialized equipment.

Explain that securing local assistance should be a top priority.

Locally Available Resources

- ◆ Utilities
- ◆ Construction
- ◆ Ventilation equipment
- ◆ Equipment firms
- ◆ Engineers
- ◆ Contractors
- ◆ Architect
- ◆ Clergy

Describe Personal protective equipment, structural collapse tools, personnel.

- ◆ Helmets, eye protection, outer-ware, footwear, gloves, respiratory protection.
- ◆ Atmospheric monitors, hand tools, power tools, air supply equipment, ventilation equipment, lighting equipment, retrieval systems, ladders, heavy equipment, structural stability monitors, victim-locating devices.

Note Gasoline-powered blowers are not recommended for structural collapse use.

- ◆ Structure specialist
- ◆ Hazardous material specialists, medical specialists, heavy equipment and rigging specialists, technical information specialists.

HANDOUT: Example of Heavy Rescue Task Force Incident Call List

State that the IAP begins when the Incident Commander arrives at the scene, sizes up the scene, and begins operations.

State the IAP for a structural collapse rescue incident must consider the five phases associated with these incidents.

- ◆ Phase 1- Assessment and command of the collapse area.
- ◆ Phase 2- Removal of surface victims.
- ◆ Phase 3- Voids and accessible spaces searched for viable victims.
- ◆ Phase 4- Selected debris removal.
- ◆ Phase 5- General debris removal.

Describe Structural collapse incident progression.

- ◆ Initial Response
- ◆ Planned community response.
- ◆ Void space rescue.
- ◆ Technical urban search and rescue.

Phase 1: Assessment and Command

Emphasize rescue personnel must conduct an initial survey, perform area reconnaissance, building triage, and possible large scale search priorities.

Explain that prior to performing operations.

- ◆ Identify buildings with high potential for viable rescue.
- ◆ Perform hazard assessment.
- ◆ Mark buildings with search and rescue marks.

Call attention to example of First Day Deployment sheet on page 23.

Information Gathering.

- ◆ Information provided by local sources must be validated.
- ◆ Gather information about the number, condition, and location of victims.
- ◆ Consider building function, occupancy, and potential for hazardous materials.

Reconnaissance

- ◆ Evaluate all sides (top, bottom, inside) during reconnaissance.
- ◆ Personnel should diagram, document size, type of construction and access points for rescue.

Explain that rescue personnel must be capable of evaluating building integrity.

- ◆ Structure type.
- ◆ Structure content.
- ◆ Survivability profile.
- ◆ Triage method and criteria.

Note: MSDS sheet on page 27 with attention paid to highlighted areas.

Large Scale Search Priorities

Explain widespread damage demands that the IC triage entire areas.

Resource Deployment

- ◆ Divide the area into smaller sections or areas.
- ◆ Determine search priorities by occupancy type.

Phase 2: Surface Victim Removal

Explain after Phase I completion rescuers must direct efforts toward specific building search operations.

- ◆ Victims heard, seen or in known locations should be removed first.
- ◆ Seek victims in areas with a reasonable chance of survival.

Phase 3: Searching Voids and Accessible Spaces

Explain that shoring/stabilization may be required prior to entry and there must be coordination between search and rescue teams.

Phase 4: Selected Debris Removal

Explain this phase requires the use of specialized tools and techniques.

Phase 5: General Debris Removal

Note that this occurs after all known victims have been rescued, and generally involves using heavy equipment.

Incident Management

Describe the necessity for establishing the IMS at structural collapse scenes to assure uniformity and control.

- ◆ Staging areas.
- ◆ Control zones.
- ◆ Cordoned areas.
- ◆ Logistics and Resource determination.
- ◆ Specialized Equipment, Personnel and Operational work area's.
- ◆ General Incident support.

IDENTIFYING AND MITIGATING HAZARDS

Obj. 3

30 Minutes

Describe Environmental Hazards

- ◆ Damaged utilities including live electrical wires both visible and buried, broken water pipes, and broken gas pipes are some of the most common life threatening secondary hazards created by structural collapse.

Atmospheric Contamination

- ◆ Concrete dust, asbestos, and other contaminants related to building occupancy (oxygen, medical gases, airborne biological hazards) may be present at structural collapse scenes.

Hazardous Materials

- ◆ Knowledge of building types and contents will help rescuers identify potential hazardous material threats.

Darkness, Temperature Extremes, and High Ambient Noise

- ◆ Significantly reduce rescuer safety and effectiveness.

Fire Hazards

- ◆ Rescue workers must realize that a collapsed structure is much more susceptible to fire because of damage to building systems and physical changes to the building itself.

Describe Physical Hazards

- ◆ Secondary collapse of structural elements is a major concern for rescuers and steps must be taken to minimize it.

Surface Hazards, Unstable Debris, and Overhead Hazards

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- ◆ **Are all potential dangers encountered during structural collapse rescues.**
Confined Space, Below Grade, and Heights
 - ◆ **All present unique hazards and dangers to the rescuer.**

SUMMARY

15 Minutes

Review that technical rescue at structural collapse incidents benefits immensely from pre-incident resource determination, a pre-incident plan, and the ability and knowledge to identify and mitigate potential hazards.