TOPIC: Structure Fire Safety

TIME FRAME: 1:00

LEVEL OF INSTRUCTION: Level I

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will list and describe safety hazards present at structure fires and the methods for minimizing these hazards.

Standard: With a minimum of 80% accuracy

MATERIALS NEEDED:

- Appropriate visual aids
- Audio visual equipment

REFERENCES:

- IFSTA, Firefighter Occupational Safety, 1st Edition
- Firefighter Safety, Video, National Fire Academy
- Cal OSHA Regulations
- 1700 Health and Safety Manual
- IFSTA, Essentials of Fire Fighting, 5th Edition

PREPARATION: The emergency fire scene is where a disproportionate number of firefighter injuries and fatalities occur. It is here that training, preplanning, inspections, and experience can be combined to help create a safer working environment for firefighters. Performing duties with safety in mind can also protect firefighters from avoidable injuries while encouraging teamwork and espirit de corps.

PRESENTATION	APPLICATION
I. FIREFIGHTER SAFETY	
A. Frequency of firefighter injuries and deaths may be reduced by training	
B. The goal is to prevent all avoidable firefighter injuries and deaths	
C. Firefighters are routinely exposed to dangers and hazards	
	What are some common hazards?
1. Recognition of theses dangers and hazards is important	
D. It is everyone's duty to work safely	
II. PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT	
A. Firefighters must wear full personal protective clothing and equipment in performance of firefighting duties per CAL FIRE policy	
1. Failing to use personal protective clothing and equipment is responsible for many firefighter injuries	
2. Full structure PPE consists of:	
a. Helmet	
b. Turnout coat and pants	
c. Turnout boots	
d. Structure gloves	
e. SCBA with integrated personal alarm safety system (PASS)	
f. Fire resistive hood	

PRESENTATION	APPLICATION
	Describe department's Adverse Action which may be utilized when safety policies are not adhered to.
3. A firefighter working without full personal protective clothing is a liability to the fire fighting team	
III. FIREFIGHTING OPERATIONS	
A. Equipment used by firefighters to safely perform their duties include:	
1. Fire engine	
2. Hose	
a. Booster lines	Describe limitations of booster lines and local policies regarding their use
(1) Limited flow	
(2) Used only for mop up/overhaul	
b. Supply lines	
c. Attack lines	
3. Nozzles	
4. Ladders	
5. Forcible entry tools	
NOTE: Give specific examples of each type of tool	
a. Striking (flat head axe)	

PRESENTATION	APPLICATION

b. Prying (halligan)

c. Cutting (pick head-axe)

6. Self-contained breathing apparatus with personal alarm safety systems

7. Saws and power equipment

8. Generators and lighting equipment

9. Rescue equipment

10. Thermal imagining camera (TIC)

11. Fire extinguishers

12. Ropes - life lines

13. Smoke ejectors or PPV fans

B. Search and rescue safety precautions

1. Develop a plan prior to entry

2. **DO NOT ENTER A BURNING STRUCTURE ALONE**.

a. Use the buddy system

b. Exception-when attempting to save a human life after using an acceptable Risk Assessment process.

c. A professional judgment call

d. “Risk a lot to save a savable life” Risk little what is already lost” Chief Alan Brunnacini

3. Keep the incident commander informed of the status of search and rescue operations and personnel inside the structure

PRESENTATION	APPLICATION

4. Coordinate search and rescue with suppression and ventilation crews

    a. Extreme caution must be used when entering areas that may be subject to suppression action utilizing fog streams or an indirect attack

        (1) The combination of fog and super-heated air can create large volumes of steam which could burn firefighters working in such an atmosphere

    b. Unplanned or poorly coordinated ventilation may intensify the fire and jeopardize the safety of search crews

5. Do not risk your life in an attempt to save a person who is obviously beyond reasonable hope of rescue

6. Attempt to ascertain location of potential victims prior to entry

    a. Interview persons who have escaped

    b. Consult pre-fire plans

7. Consider the possibility of explosion

8. Consider the possibility of building collapse or debris entrapment

9. When making a search above an area seriously involved in fire, ensure that a charged line (safety line) of sufficient size to hold the fire in position is operating on the fire floor

10. Always have an escape route in mind

    a. Utilize LCES in a structure fire setting

11. Consider secondary escape routes

PRESENTATION	APPLICATION

a. Windows, fire escapes, roof access, etc

12. Firefighters should check each other's personal protective clothing and equipment prior to entering a burning structure using the buddy system

    a. Verify that complete personal protective equipment is in place and ready for interior firefighting operations

    b. SCBA with **full** bottle and PASS device activated

    c. Forcible entry tool - i.e. pick-head axe

    d. Portable radio for communications

    e. Back-up hose line

    f. Lifeline, if necessary

    g. Thermal Imaging Camera if available

    h. Bail-out rope (option)

13. If a firefighter is trapped, it may be possible to reach safety by breaching a wall to an adjoining safe area

14. When trapped and no other means of escape is available, place as many doors or barriers as possible between you and the fire and notify someone on the exterior of your situation

C. Fire confinement and extinguishment

1. Be aware of other firefighting operations in progress

2. Regardless of the fire situation, human life must take precedence in determining hose line placement and fire attack

PRESENTATION	APPLICATION
3. Exterior streams can cause injury to firefighters operating on the interior of the structure or drive them off the fire floor	
D. Salvage and overhaul safety precautions	
1. Overhaul operations are responsible for many firefighter injuries	
a. Overhaul is a time when excitement has worn off and fatigue sets in. Fatigue adds to firefighter injuries	Why do injuries occur during this phase of fire fighting?
2. It is extremely important for firefighters to be alert, wear proper personal protective clothing and work in an organized manner	
3. Use correct tools for the job	
4. A hasty overhaul can result in injury to firefighters	
5. Firefighters should pace themselves and take rests	
a. Be aware of fatigue factor	
b. Maintain hydration	
6. During overhaul operations, the S.C.B.A. face-piece protects against steam explosions in hot coals which would otherwise throw material in a firefighter's face	
7. Boots with steel soles provide protection against penetration by nails and sharp objects	
8. Steel toes offer protection from falling or dropping objects	

PRESENTATION	APPLICATION

9. If material is being thrown or scooped out of a window or door, a firefighter should be posted to protect bystanders and firefighters near the impact area

10. During night operations, lights should be placed to illuminate work areas, stairways, roofs, and floors, particularly where they have collapsed or have been weakened due to ventilation holes or where the fire has burned through

11. Lights should also be placed where there are tripping hazards, dangerous materials, or large accumulations of debris or water

12. Caution should be exercised when lifting or moving wet material which normally weighs considerably more than dry material

13. Firefighters need to be alert for broken, sheet metal and sharp objects

14. Delineate the area where conditions may lead to slipping and falling such as wet or icy floors, tripping over debris or building parts, and stepping into holes in the floor or roof

15. Be alert for objects falling from overhead areas

16. Loosened or weakened ceilings and walls must be pulled

17. Stairways must be inspected for structural integrity and adequacy before they are used

18. Utilities - gas, water, and electrical services must be shut off

19. Firefighters should never work closer than is safe from each other – 10 feet apart is a good rule of thumb

PRESENTATION	APPLICATION

E. Ventilation safety precautions

1. Wear personal equipment and SCBA to avoid breathing combustion products and smoke
2. Displace contaminated air with fresh air
3. Properly lift smoke ejectors or PPV fans by handles or hangers
   a. Lift with legs keeping back straight
   b. Proper lifting techniques prevent injuries
4. When using smoke ejectors or blowers, take steps to prevent blowing loose materials, such as debris or dirt which could cause injury
5. In flammable, combustible, or explosive atmospheres--use blowers or smoke ejectors with explosion proof motors only (or keep them out of the smoke)
6. Prevent heavier than air gases from settling in low areas where damage or injury could occur
   a. This can be accomplished by driving the gases forcefully into the atmosphere with a fog stream thus diluting and dispersing them
7. Firefighters using ladders, power equipment, and hand tools must be aware of their surroundings
   a. Avoid contacting power lines, plumbing and electrical wiring within the structure
   b. Follow safety procedures when using power equipment
   c. Be sure equipment is operational before taking it aloft

PRESENTATION	APPLICATION

d. Roof mounted equipment and roof structural design/integrity near ventilation sites must be considered

8. Utilize safe techniques when taking equipment onto roofs and upper floors

9. Coordinate ventilation efforts with other fire operations to prevent injury during simultaneous operations

10. Utilize safe techniques during ventilation operations

11. Establish firm footing and create a safe working surface when ventilating and using heavy equipment

12. Work in pairs during all roof ventilation operations

13. Have two means of escape from the roof as a minimum. Diagonal corners are best

14. Be sure roof is structurally safe to work on

15. Some types of modern lightweight roof construction may render the roof unsafe for firefighting operations

16. Be cautious of back draft or flashover conditions

SUMMARY:

Accidents and firefighter injuries can be prevented by proper training and supervision. It is the duty of all firefighters to work in a safe manner and the duty of fire officer's to see that subordinates do so.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by the instructor(s).