Structure (2024)

Course Plan

Course Details

Certification: Fire Fighter 1

CTS Guide: Fire Fighter Certification Training Standards Guide (2024)

Description: This course provides the skills and knowledge needed for the entry-level fire fighter to perform structural suppression activities. Key learning concepts include: fire fighter safety; communications; cleaning, maintaining, and utilizing equipment and tools; building construction and fire behavior; water supply; ladder operations; forcing entry into a structure; conducting search and rescue operations; attacking an interior structure fire; horizontal and vertical ventilation; property conservation; fire scene overhaul; fire fighter survival; and fire suppression with Class A materials, vehicles, and ground cover.

Designed For: Entry-level fire fighters

Prerequisites: Prerequisites must be completed prior to enrollment in this course.

- Public Safety First Aid or higher qualification (See *State Fire Training Procedures Manual* (May 2020) section 7.12.1.3 for requirements.)
- CPR healthcare provider certification or equivalent (See *State Fire Training Procedures Manual* (May 2020) section 7.12.1.3 for requirements.)

Corequisites: Students must complete the FEMA independent study courses IS-100, IS-200, IS-700, and IS-800 (current version) prior to the teaching of Topic 2-1: Operating within Command Systems.

Standard: Complete all activities, skills, and formative tests.

Complete all summative tests with a minimum score of 80%.

Hours (Total): 264 hours

(83.25 lecture / 180.75 application / AHJ determines practice and assessment times)

Maximum Class Size: 50

Instructor Level: Fire Fighter Instructor (See *State Fire Training Procedures Manual* (May 2020) section 6.6 for requirements.)*

Instructor/Student Ratio: 1:50 (Lecture) / 1:10 (Application)*

Restrictions: None

SFT Designation: CFSTES

* If any portion of this course curriculum is taught using another course plan, the instructor level and ratio of that course plan supersedes this requirement.

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Required Resources

Instructor Resources

To teach this course, instructors need:

- *Fundamentals of Fire Fighter Skills and Hazardous Materials Response* (Jones and Bartlett Learning, 5th edition, ISBN: 978-1-284-28305-1)
  or
  Essentials of Fire Fighting (IFSTA, 8th edition, ISBN: 978-087939831-6)
- IS-100: Introduction to the Incident Command System, ICS 100 (instructor guide, current edition) (https://training.fema.gov)
- IS-200: Basic Incident Command System for Initial Response, ICS-200 (instructor guide, current edition) (https://training.fema.gov)
- IS-700: An Introduction to the National Incident Management System (instructor guide, current edition) (https://training.fema.gov)
- IS-800: National Response Framework, an Introduction (instructor guide, current edition) (https://training.fema.gov)
- NFPA 1010: Standard on Professional Qualifications for Firefighters (current edition)
- NFPA 1403: Standard on Live Fire Training Evolutions (current edition, NFPA 1403 is scheduled to become part of NFPA 1400: Standard on Fire Service Training)
- NFPA 1404: Standard for Fire Service Respiratory Protection Training (current edition, NFPA 1404 is scheduled to become part of NFPA 1400: Standard on Fire Service Training)
- NFPA 1550: Standard for Emergency Responder Health and Safety (current edition)
- NFPA 1851: Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (current edition, NFPA 1851 is scheduled to become part of NFPA 1850: Standard on Protective Ensembles for Structural Proximity Firefighting and Self-Contained Breathing Apparatus (SCBA))
- NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (current edition, NFPA 1971 is scheduled to become part of NFPA 1970: Standard on Protective Ensembles for Structural and Proximity Firefighting, Work Apparel and Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, and Personal Alert Safety Systems (PASS))
- NFPA 1981: Standard on Self-Contained Breathing Apparatus (SCBA) for Emergency Services (current edition, NFPA 1981 is scheduled to become part of NFPA 1970: Standard on Protective Ensembles for Structural and Proximity Firefighting, Work Apparel and Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, and Personal Alert Safety Systems (PASS))
- Full structural PPE and SCBA that meets AHJ requirements
    - PPE and SCBA used during live burns must be compliant with NFPA 1971 (current edition, NPFA 1971 is scheduled to become part of NFPA 1970)

Online Instructor Resources

The following instructor resources are available online at https://osfm.fire.ca.gov/what-we-do/state-fire-training/professional-certifications

- Fire Fighter 1 Skill Sheets
    - 1-3: Inspect SCBA
    - 1-4: Don Structural PPE
    - 1-5: Don SCBA
    - 1-6: Doff SCBA
    - 1-7: Doff, Inspect, and Prepare Structural PPE for Reuse
    - 1-8: Doff SCBA and PPE for Gross Decontamination
    - 2-1: Initiate a Response to an Emergency
    - 2-2: Operate a Fire Agency Radio
    - 3-1a: Replace an SCBA Air Cylinder
    - 3-1b: Use SCBA During Emergency Operations
    - 3-2: Respond to an Emergency Scene on an Apparatus
    - 3-3: Operate at an Emergency Scene
    - 3-4: Force Entry into a Structure
    - 3-5: Activate an Emergency Call and Exit a Hazardous Area
    - 3-6: Lift, Carry, Raise, and Ascend a Ground Ladder
    - 3-7: Attack a Passenger Vehicle Fire
    - 3-8: Operate a Portable Master Stream
    - 3-9: Combat a Ground Cover Debris or Exterior Fire
    - 3-10a: Search for and Rescue a Victim with no Respiratory Protection
    - 3-10b: Rescue a Fire Fighter
    - 3-10c: Use a Ladder for Rescue
    - 3-11a: Attack a Live Interior Structure Fire
    - 3-11b: Attack a Simulated Interior Structure Fire
    - 3-11c: Extend a Hose Line
    - 3-11d: Load, Deploy, and Advance an Attack Line
    - 3-11e: Load Supply Hose
    - 3-11f: Operate a Charged Attack Hoseline from a Ground Ladder
    - 3-12: Perform Horizontal Ventilation on a Structure
    - 3-13: Perform Vertical Ventilation on a Structure
    - 3-14a: Overhaul a Fire Scene
    - 3-14b - Remove Charred Materials
    - 3-15a: Control Water Flow from a Sprinkler System
    - 3-15b: Remove Water from the Interior of a Structure
    - 3-15c: Salvage a Room and its Contents
    - 3-15d: Cover Building Openings
    - 3-16a: Deploy Portable Tank and Prepare for Drafting Operations
    - 3-16b: Forward Hose Lay
    - 3-17: Select, Carry, and Operate a Portable Fire Extinguisher
    - 3-18: Light a Scene

  - 3-19: Turn Off Building Utilities
  - 3-20a: Tie Knots
  - 3-20b: Hoist Tools Aloft
  - 3-21: Operate Hand and Power Tools
  - 3-22: Operate an Air-Monitoring Instrument
  - 4-1: Clean and Check Equipment
  - 4-2a: Replace a Burst Section of Hose
  - 4-2b: Build Hose Rolls
  - 4-2c: Clean and Maintain Hose and Mark Defective Hose

- Unit 2: Stress and Resilience Resources:
  - Everyone Goes Home: https://www.everyonegoeshome.com
  - Trauma Screening Questionnaire: https://ovc.ojp.gov/sites/g/files/xyckuh226/files/media/document/os_trauma_screening-508.pdf
  - Firefighter Behavioral Health Alliance: http://www.ffbha.org
  - FRCE Behavioral Health Awareness Training Instructor's Manual
- Unit 3: Cancer Awareness Resources:
  - IAFC Lavender Ribbon Report Best Practices for Preventing Firefighter Cancer: https://www.iafc.org/docs/default-source/1vcos/vcoslavendarribbonreport.pdf?sfvrsn=13f88b0d_8
  - Firefighter Cancer Support Network: https://firefightercancersupport.org
  - Fire Fighter Cancer Cohort Study: https://www.ffccs.org
  - FRCE Fire Service Cancer Awareness Training Instructor's Manual
  - Healthy In, Healthy Out: https://www.wscff.org/health-wellness/healthy-in-healthy-out/

Student Resources

To participate in this course, students need:

- *Fundamentals of Fire Fighter Skills and Hazardous Materials Response* (Jones and Bartlett Learning, 4th edition, ISBN: 978-1-284-15133-6, or 5th edition, ISBN: 978-1-284-28305-1, whichever is more current)
  or
  Essentials of Fire Fighting (IFSTA, 8th edition, ISBN: 978-087939831-6)
  Course textbook selected by the instructor
- Full structural personal protective equipment that meets AHJ requirements
  - PPE and SCBA used during live burns must be compliant with NFPA 1971 (current edition, NPFA 1971 is scheduled to become part of NFPA 1970)

Facilities, Equipment, and Personnel

The following facilities, equipment, or personnel* are required to deliver this course:

- **Appliances and tools**: 1 ½-inch fog nozzle, 2 ½ - 1 $^{1}/_{8}$-inch straight tip nozzle, wildland nozzles and appliances, cap, double female fittings, double male fittings, hose clamps, hose jacket, hose roller, hose strap, rope, or chain, nozzle selection as determined by AHJ, plug, master stream device, traffic and scene control devices, reducer or increaser (fittings), Siamese, spanner wrenches, and gated wye
- **Extinguishers and supplies**: Dry chemical extinguisher (ordinary base or multi-purpose) 20 pounds, CO_2 extinguisher, pump tank water extinguisher, Class A fuel for live burns, Class B fuel for live burns, and metal pan – minimum 16 square feet
- **Hose**: 1-, 1 ½- or 1 ¾-inch fire hose (300-foot minimum), 2 ½- or 3-inch fire hose (500-foot minimum), large diameter hose (LDH) (300-foot minimum), handline with fog nozzle, hard suction (intake) hose and strainer, hose and nozzles capable of flowing a minimum of 95 GPM, and soft suction hose
- **Hand tools**: Bolt cutters, crowbar/pry bar, flat head axe, Halligan tool, hand saw, hydrant wrench, K-tool, pick-head axe, pike pole (8 feet), sledgehammer, flashlight, and wildland hand tools and equipment
- **Ladders:** 10-foot folding ladder, 14-foot roof ladder, 24-foot extension ladder, 35-foot extension ladder, and two straight ladders
- **Power tools:** Electric and gasoline-powered fan, chainsaw, gasoline-powered circular saw, and a generator
- **Protective equipment/clothing:** Full set of protective clothing for structural fire fighting for each trainee, including bunker pants, bunker coat, bunker boots, gloves, helmet, hood, and face piece, self-contained breathing apparatus with charged air cylinder, (one extra fully charged air cylinder), personal alert safety system (P.A.S.S.), safety harness, manufacturer approved cleaning agent (for SCBA), manufacturer approved cleaning equipment (for SCBA), and manufacturer approved sanitizing agent (for SCBA)
- **Rope:** ½-inch rope, safety line, webbing, various lengths and diameters of utility rope, various lengths and diameters of synthetic rope, and various lengths of 1-person or 2-person life safety rope
- **Salvage equipment/materials:** Brooms**,** buckets, tubs, mops, objects to cover, salvage covers, squeegees, sprinkler stop, and water vacuums
- **Simulation equipment/materials:** Burn building as recommended in NFPA 1403: Standard on Live Fire Training (current edition, NFPA 1403 is scheduled to become part of NFPA 1400: Standard on Fire Service Training), wood roof prop, smoke-generating equipment, training tower, minimum of two stories in height, gas, water, and electric service cut-off, vehicle fire prop, and a simulated breaching/restricted passageway prop
- **Other supplies/equipment needed:** Fire hydrant, pitot tube and gauge, portable radio, thermal imaging device, atmospheric monitor, standard above ground fall protection, minimum of two apparatuses equipped with pump and two separate water supplies, fuel and supplies for power equipment, cleaning supplies and equipment, portable lighting equipment, two portable tanks with water transfer equipment and appliances

* See NFPA 1403 (current edition, NFPA 1403 is scheduled to become part of NFPA 1400: Standard on Fire Service Training) for additional facilities, equipment, and personnel requirements needed for NFPA 1403-compliant live fire training evolutions.

Time Table

Segment	Lecture	Application	Unit Total
Unit 1: Introduction			
Topic 1-1: Orientation and Administration	0.5	0.0	
Topic 1-2: Fire Fighter 1 and 2 Certification Process	0.5	0.0	
Topic 1-3: Fire Fighter 1 Roles and Responsibilities	4.0	0.0	
Unit 1 Totals	**5.0**	**0.0**	**5.0**
Unit 2: Fire Fighter Safety			
Topic 2-1: Operating within Command Systems	4.0	4.0	
Topic 2-2: Health and Safety Awareness	2.0	0.0	
Topic 2-3: Stress and Resilience	3.25	0.75	
Topic 2-4: Cancer Awareness	3.0	1.0	
Topic 2-5: Structural Personal Protective Ensemble	2.0	3.0	
Topic 2-6: Self-Contained Breathing Apparatus	3.0	8.0	
Topic 2-7: Using SCBA During Emergency Operations	1.0	1.0	
Topic 2-8: Doffing SCBA and PPE for Gross Decontamination	0.5	1.0	
Topic 2-9: Responding on an Apparatus to an Emergency Scene	0.5	0.5	
Topic 2-10: Establishing and Operating in Work Areas at Emergency Scenes	1.0	1.0	
Unit 2 Totals	**20.25**	**20.25**	**40.5**
Unit 3: Communications			
Topic 3-1: Initiating a Response to a Reported Emergency	0.5	0.0	
Topic 3-2: Transmitting and Receiving Communications	0.5	0.5	
Topic 3-3: Activating an Emergency Call of Assistance	0.5	0.0	
Unit 3 Totals	**1.5**	**0.5**	**2.0**
Unit 4: Fire Tools and Equipment			
Topic 4-1: Tying Knots Appropriate for Hoisting Tools	2.0	4.0	
Topic 4-2: Utilizing Hand and Power Tools	2.0	2.0	
Topic 4-3: Operating Emergency Scene Lighting	1.0	0.5	
Topic 4-4: Operating an Air-Monitoring Instrument	1.0	0.0	
Unit 4 Totals	**6.0**	**6.5**	**12.5**
Unit 5: Structural Fire Suppression			
Topic 5-1: Building Construction	3.0	1.0	
Topic 5-2: Fire Behavior	4.0	0.0	
Topic 5-3: Extinguishing Fire with Fire Extinguishers	1.0	2.0	
Topic 5-4: Water Supply Systems	2.0	6.0	
Topic 5-5: Cleaning, Inspecting, and Returning Fire Hose to Service	2.0	2.0	

Segment	Lecture	Application	Unit Total
Topic 5-6: Deploy and Connect Fire Hose	4.0	36.0	
Topic 5-7: Utility Control at Emergencies	1.5	0.5	
Topic 5-8: Cleaning, Inspecting, and Maintaining Fire Service Ladders	2.0	2.0	
Topic 5-9: Ground Ladder Operations	4.0	35.0	
Topic 5-10: Forcing Entry into a Structure	2.0	6.0	
~~Topic 5-11: [Placeholder]~~	~~0.0~~	~~0.0~~	
Topic 5-12: Conducting a Search and Rescue Operation in a Structure	2.0	12.0	
Topic 5-13: Attacking an Interior Structure Fire	4.5	8.5	
Topic 5-14: Horizontal Ventilation Operations	1.5	4.0	
Topic 5-15: Vertical Ventilation Operations	4.0	12.0	
Topic 5-16: Conserving Property	2.0	4.0	
Topic 5-17: Overhauling a Fire Scene	2.0	2.0	
Unit 5 Totals	**41.5**	**133.5**	**175.0**
Unit 6: Fire Fighter Survival			
Topic 6-1: Structural Fire Fighter Survival	4.0	12.0	
Unit 6 Totals	**4.0**	**12.0**	**16.0**
Unit 7: Suppression of Fires Outside of a Structure			
Topic 7-1: Extinguishing Fires in Exterior Class A Materials	2.0	4.0	
Topic 7-2: Attacking a Passenger Vehicle Fire	3.0	5.0	
Topic 7-3: Combatting a Ground Cover Fire	0.5	0.0	
Unit 7 Totals	**5.5**	**9.0**	**14.5**
Summative Assessment			
Determined by AHJ or educational institution	**TBD**	**TBD**	**TBD**
Skills Practice (Lab / Sets and Reps)			
Determined by AHJ or educational institution	**TBD**	**TBD**	**TBD**
Course Totals	**83.75**	**181.75**	**265.5**

Time Table Key

1. The Time Table documents the amount of time required to deliver the content included in the course plan.

2. Time is documented using the quarter system: 15 min. = .25 / 30 min. = .50 / 45 min. = .75 / 60 min. = 1.0.

3. The Course Totals do not reflect time for lunch (1 hour) or breaks (10 minutes per each 50 minutes of instruction or assessment). It is the instructor's responsibility to add this time based on the course delivery schedule.

4. Application (activities, skills exercises, and formative testing) time will vary depending on the number of students enrolled. The Application time documented is based on the maximum class size identified in the Course Details section.

   The following is a breakdown of what a program might look like if there were fewer students. These estimates may need to be adjusted based on student abilities.
   - 40 – 50 Students = 260 hours
   - 30 – 40 Students = 180 hours
   - 20 – 30 Students = 120 hours
   - 1 – 20 Students = 60 hours

5. Summative Assessments are determined and scheduled by the authority having jurisdiction. These are not the written or psychomotor State Fire Training certification exams. These are in-class assessments to evaluate student progress and calculate course grades.

Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective

At the end of this topic a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, skills exercises, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives

1. Identify facility requirements
    - Restroom locations
    - Food locations
    - Smoking locations
    - Emergency procedures
2. Identify classroom requirements
    - Start and end times
    - Breaks
    - Electronic device policies
    - Special needs and accommodations
    - Other requirements as applicable
3. Review course syllabus
    - Course objectives
    - Calendar of events
    - Course requirements
    - Student evaluation process
    - Assignments
    - Activities and skills exercises
    - Required student resources
    - Class participation requirements

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Instructor Notes

1. When teaching Fire Fighter 1A, 1B, and 1C in a consecutive format, it is not necessary to repeat this topic for each course. At a minimum, cover it once on the first day of the first course.

Topic 1-2: Fire Fighter 1 and 2 Certification Process

Terminal Learning Objective

At the end of this topic a student will be able to identify the requirements for Fire Fighter 1 and 2 certification and be able to describe the certification task book and examination process.

Enabling Learning Objectives

1. Identify the different levels of certification in the Fire Fighter certification track
   - Fire Fighter 1
   - Fire Fighter 2
2. Identify the prerequisites for certification
   - Fire Fighter 1
     - Public Safety First Aid or higher qualification (See *State Fire Training Procedures Manual* (May 2020) section 7.12.1.3 for requirements.)
     - CPR healthcare provider certification or equivalent (See *State Fire Training Procedures Manual* (May 2020) section 7.12.1.3 for requirements.)
     - Confined Space Rescue Awareness (FSTEP)
   - Fire Fighter 2
     - State Fire Training's Fire Fighter 1 – Structure training or an established equivalent
     - Public Safety First Aid or higher qualification (See *State Fire Training Procedures Manual* (May 2020) section 7.12.1.3 for requirements.)
     - CPR healthcare provider certification or equivalent (See *State Fire Training Procedures Manual* (May 2020) section 7.12.1.3 for requirements.)
3. Identify the coursework required for certification
   - Fire Fighter 1
     - Fire Fighter 1A: Structure
     - Fire Fighter 1B: Hazardous Materials/WMD
     - Fire Fighter 1C: Wildland
   - Fire Fighter 2
     - Fire Fighter 2A: Structure
4. Identify the exams required for certification
   - Fire Fighter 1
     - Fire Fighter 1A: Structure
     - Fire Fighter 1B: Hazardous Materials/WMD
     - Fire Fighter 1C: Wildland
   - Fire Fighter 2
     - Fire Fighter 2A: Structure
5. Identify the task book requirements for certification
   - Fire Fighter 2
6. Identify the experience requirements for certification
   - Fire Fighter 2
7. Identify the position requirements for certification
   - Fire Fighter 2

8. Describe the certification task book process
9. Describe the certification examination process

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Instructor Notes

1. When teaching Fire Fighter 1A, 1B, and 1C in a consecutive format, it is not necessary to repeat this topic for each course. At a minimum, cover it once on the first day of the first course.
2. Use the *SFT Procedures Manual* (May 2020) 7.12.1 Fire Fighter 1 (2024) and 7.12.3 Fire Fighter 2 (2024) content for ELOs 2 through 7.
3. Use a copy of the Fire Fighter 2 Certification Task Book to walk students through the task book process and expectations for ELO 8.
4. Use the *SFT Procedures Manual* (May 2020) (Chapter 11: Fire Fighter Certification Exams) content for ELO 9.

Topic 1-3: Fire Fighter 1 Roles and Responsibilities

Terminal Learning Objective

At the end of this topic a student, given AHJ policies and procedures, will be able to define the role of Fire Fighter 1 in the fire department, identify the mission of the fire service, and follow standard operating procedures (if applicable) and rules and regulations of the fire department.

Enabling Learning Objectives

1. Describe the organization of the fire department
2. Define the role of Fire Fighter 1 in the organization and the community
3. Describe the characteristics of a fire service professional
    - Ethics
    - Traits
    - Values
    - Codes of conduct
    - Legal considerations
        - Social media
        - Visual and audio recording devices
        - Constitutional rights
            - First Amendment auditor
4. Describe the mission of the fire service
5. Describe fire agency standard operating procedures (if applicable)
6. Describe fire agency rules and regulations as they apply to the Fire Fighter 1
    - Equal Employment Opportunity
        - Diversity, Equity, and Inclusion (DEI)
        - Implicit bias
    - Harassment
    - Illness and injury prevention
    - Firefighter Bill of Rights
7. Describe the value of fire and life safety initiatives in support of the fire agency's mission and to reduce fire fighter line-of-duty injuries and fatalities
    - 16 Firefighter Life Safety Initiatives (National Fallen Firefighters Foundation)
8. Identify the role of other agencies as they relate to the fire department
9. Locate information in departmental documents and standard or code materials

Discussion Questions

1. How would you define the role of a fire fighter in today’s fire service?
2. What values are important to you as a fire fighter?
3. What are the challenges of implicit bias in public service?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: 1-1
Skill Sheet: None

Unit 2: Fire Fighter Safety

Topic 2-1: Operating within Command Systems

Terminal Learning Objective

At the end of this topic, a student, given an incident and an incident action plan, will be able to operate within command systems so that organizational elements are recognized, positions and responsibilities are identified, facility needs are met, and the incident is managed, in accordance with state and federal regulations.

Enabling Learning Objectives

1. Describe recognized command systems.
   - Incident Command System (ICS)
   - National Incident Management System (NIMS)
   - Standardized Emergency Management System (SEMS)
2. Explain the principles and basic structure of the Incident Command System (ICS)
3. Describe the National Incident Management System (NIMS) characteristics that are the foundation of the ICS
4. Describe the ICS functional areas and the roles of the Incident Commander and Command Staff
5. Describe the General Staff roles within ICS
6. Identify how NIMS management characteristics apply to ICS for a variety of roles and discipline areas
7. Identify how FIRESCOPE characteristics apply to ICS for a variety of roles and discipline areas
8. Describe FIRESCOPE's roll in the California ICS system

Discussion Questions

1. What are the five major sections of the ICS?
2. What are the benefits of the ICS?
3. Which incidents can the ICS be applied to?
4. What is the presidential directive that established NIMS?
5. What are the differences between groups and divisions (i.e., roof division and ventilation group)?
6. What are the different types of ICS systems being used throughout the country?

Application

1. Given a simulated incident, have students assign roles and work through the incident while operating within the ICS.

Instructor Notes

1. Confirm that the students have completed FEMA co-requisites: IS-100.C, IS-200.C, IS-700.B, and IS-800.D prior to teaching this topic.
2. The content in this topic can be fulfilled through completion of State Fire Training's ICS-200 (FSTEP) course or an established equivalency.
3. Review FIRESCOPE principles/FOG manual prior to teaching this topic.

CTS Guide Reference: 1-10

Topic 2-2: Health and Safety Awareness

Terminal Learning Objective

At the end of this topic a student, given an assignment, will be able to identify common fire fighter health and safety issues in order to avoid or mitigate accidents and injuries, maintain a healthy and physically fit lifestyle, and conduct life safety initiatives in the line of duty.

Enabling Learning Objectives

1. List common types of accidents and injuries and identify their causes
    - On duty (station life)
    - Responding to an incident
    - At an incident
    - Training
    - Off duty (personal life)
2. Describe how physical fitness and a healthy lifestyle correspond to fire fighter performance
3. Define the critical aspects of NFPA 1550: Standard for Emergency Responder Health and Safety
4. Describe how fire and life safety initiatives support a fire department's mission to reduce fire fighter line-of-duty injuries and deaths

Discussion Questions

1. What components of a healthy lifestyle pertain to the job of a fire fighter?
2. What proactive steps can a fire fighter take to prevent common accidents and injuries?
3. What does it mean to be "fit for duty"?
4. How do off-duty activities impact on-duty performance?

Application

1. Determined by instructor

Instructor Notes

1. Recommend that students utilize a book like *Firefighter Functional Fitness* (Dan Kerrigan and Jim Moss) to develop a personal fitness plan.
2. The content in this topic can be fulfilled through completion of Behavioral Health and Cancer Awareness 1A FSTEP course or an established equivalency.

CTS Guide Reference: 1-1, 1-11

Skill Sheet: None

Topic 2-3: Stress and Resilience

Terminal Learning Objective

At the end of this topic, a student, given an assignment in the fire service, will be able to identify and describe common sources and impacts of stress and demonstrate practices that contribute to resilience.

Enabling Learning Objectives

1. Define types of stress
2. Describe signs and symptoms of and reactions to stress
3. List common stressors found in various situations and environments:
    - On-duty/workplace/station life
        - Relationships with peers/coworkers
        - Relationships with supervisors
        - Relationships with the community
        - Environmental stressors
    - Off-duty/family and personal life
        - Transitioning to home life
    - Responding to incidents
    - Extended deployments or shift assignments
    - Long-term injuries
    - Training
4. Describe physiological and emotional impacts of stress
    - Acute versus cumulative
    - Stress and the brain
        - Parasympathetic versus sympathetic (fight or flight)
    - Adrenal fatigue
    - Mood and cognitive impacts
5. Describe behaviors associated with unmanaged stress
    - Anger and irritability
    - Sleep problems
    - Depression
    - Marital and family issues
    - Substance abuse
    - Addictions
    - Thoughts of suicide
    - Other forms of self-harm or risky behavior
6. Demonstrate the self-assessment process
7. Describe the role of nutrition, sleep, exercise, relaxation techniques, and rest in mediating and mitigating stress
8. Demonstrate relaxation techniques
9. Describe healthy and unhealthy coping mechanisms
10. Identify potential consequences of unhealthy coping mechanisms
11. Describe the role of communication in coping with stress

- Personal life
- Professional life

12. Describe resources available in the AHJ, such as:
    - Peer support
    - Preventive tools
    - Employee assistance programs
    - Chaplains
13. Describe external resources, such as:
    - Community and faith-based groups
    - Health care system
    - Culturally competent clinicians
    - Hotlines and crisis resources

Discussion Questions

1. How do high-frequency calls without resolution impact job satisfaction?
2. If a front-line responder responds to three calls to one patient in one day, what stressors will they be exposed to?
3. What are some techniques for transitioning between work and home life?
4. What is hypervigilance, and how does it manifest at work and home?
5. What are the current statistics regarding fire service suicide?
6. What is the difference between acute stress and cumulative stress?
7. What is your personal relationship with substance use, including drugs and alcohol?
8. What are some stressors you will encounter in fire service training and/or the academy? What are some coping skills for these?
9. How is a personal support system a part of resilience?
10. What internal and external resources are available in your AHJ and how do you access them?
11. What would you do if a peer showed signs and symptoms of stress?

Application/Activities

1. The instructor must create an activity directing the students to perform a self-assessment.
2. The instructor should create an activity directing students to use their self-assessments and come up with specific strategies for dealing with stressors.

Instructor Notes

1. Refer to the Healing Our Own, Firefighter Behavioral Health Alliance, National Fallen Firefighter Foundation, Florida Firefighter Safety and Health Collaborative, National Volunteer Firefighter Council, and Firestrong websites.
2. Refer to the Healing Our Own, Firefighter Behavioral Health Alliance, National Fallen Firefighter Foundation, Florida Firefighter Safety and Health Collaborative, National Volunteer Firefighter Council, and Firestrong websites. Provide statistics on issues like suicide and PTSD among first responders.
3. Provide case studies (in-person speakers, videos, etc.) and have students perform a stress inventory to demonstrate assessment skills.

4. Use discussion question 3 as a place of reflection or as a written exercise. Students may experience discomfort, but this is an important part of a wellness reflection.
5. Present information on evidence-based relaxation techniques, possibly including yoga, breathing exercises, and mindfulness exercises. Consider bringing in someone to lead the class in relaxation techniques, such as a yoga instructor or someone familiar with breathing exercises.
6. Culturally competent providers and clinicians can help provide the information in this topic, such as peer counselors, psychologists with experience in fire and front-line-responder culture, or chaplains.
7. The content in this topic can be fulfilled through completion of Behavioral Health and Cancer Awareness 1A FSTEP course or an established equivalency.

CTS Guide Reference: 1-1, 1-12
Skill Sheet: None

Topic 2-4: Cancer Awareness

Terminal Learning Objective

At the end of this topic a student, given an assignment in the fire service, will be able to describe the types, prevalence of, and common causes of cancer in the fire service; describe exposure to carcinogenic chemicals; and demonstrate best practices to minimize exposure and risk.

Enabling Learning Objectives

1. Describe cancer prevalence in the fire service
   - Types/locations
   - Statistics
2. Define “carcinogenic agent”
   - Occupational
   - Activities
   - Chemicals
3. List risk factors specific to the fire service
   - Exposure to carcinogenic chemicals
   - Sleep disruption
   - Shift work
   - UV radiation
4. List risk or protective factors specific to lifestyle or personal life, including but not limited to:
   - Tobacco
   - Alcohol
   - Stress
   - Diet
   - Exercise
   - Infectious agents
   - Age
   - Metabolic syndrome
   - Overweight
   - Mental health
   - Genetic history
   - Hormones
5. List sources of exposure
   - Fires and products of combustion
   - Hazardous materials
   - Environmental
   - Cross-contamination
6. List common states of carcinogenic chemicals
   - Gases
   - Particulates
7. List common categories of carcinogenic chemicals

- Polycyclic aromatic hydrocarbon (PAHs)
- Volatile organic compounds (VOCs)

8. List routes of exposure
   - Absorption
   - Inhalation
   - Ingestion
   - Injection or penetration
9. List common sources of exposure found in various situations and environments
   - Fire suppression
   - Overhaul, mop-up, and post-incident activities
   - PPE
   - Equipment
   - Apparatus
   - Station
   - Home
10. Identify unmodifiable factors
    - Infectious agents
    - Genetic history
    - Hormones
    - Age
11. Identify modifiable factors
    - Exposures
    - Sleep
    - Tobacco
    - Alcohol
    - Diet
    - Exercise
    - Metabolic syndrome
    - Overweight obesity
    - UV radiation
12. Define exclusion (hot) zones, contamination reduction (warm) zones, and support (cold) zones on a fireground
13. Identify and demonstrate best practices for minimizing contaminant exposure and risk during fire suppression, overhaul, mop-up, and post-incident activities
    - Wearing full PPE with SCBA until no longer exposed to carcinogenic chemicals
    - At wildland fires, wearing full PPE with respiratory protection until no longer exposed to carcinogenic chemicals
    - Gross decontamination procedures in the warm zone prior to rehabilitation
    - Appropriate placement and cleaning procedures for rehabilitation
        - Establish rehabilitation in the cold zone
        - Establish rehabilitation away from smoke (uphill, upwind)
        - Establish rehabilitation away from any sources of exhaust

    - Ensure clean hands, mouth, and face prior to eating or drinking
    - Only enter rehabilitation area after gross decontamination and removal of contaminated gear
- Storage of contaminated gear in isolation bags for transfer

14. Identify and demonstrate best practices for PPE that minimize contaminant exposure and risk
    - Proper fit
    - Best practice is two complete sets of everything
        - Helmet, hood, coat and liner, gloves, pants and liner, suspenders, boots, radio straps, hose/truck belts, web gear, goggles, respiratory protection, wildland coat and pants
    - Wearing PPE
        - Ensure it is clean before you put it on
        - Best practices for hood exchange
    - Transfer of PPE and equipment between job sites
    - Gross decontamination
        - Performed in warm zone
        - Person being decontaminated needs to wear SCBA and remain on supplied air for duration of decontamination process
        - Person decontaminating needs to wear SCBA, remain on supplied air, and wear turnouts or splash protection for duration of decontamination process
        - While handling contaminated PPE, use EMS gloves
        - Dry, wet, or combination method
        - Wipe and wash your face, neck, armpits, torso, groin, and hands
        - Isolate contaminated turnouts
        - Wash turnouts
            - Air out turnouts at least 25 minutes outdoors before washing
            - Launder turnouts at approved location
            - Wash out or dispose of the isolation method
            - Commercial dishwasher for helmet and SCBA, boots, and gloves
            - Extractor washer for turnouts
            - Turnout dryer
            - While washing turnouts, need to wear EMS gloves and respirator and protective clothing, and have a negative pressure environment
15. Identify and demonstrate best practices for equipment that minimize contaminant exposure and risk
    - Dangers of equipment off-gassing and cross-contaminating after exposure
    - Completing gross decontamination
    - Having a designated decontamination station
    - PPE for all decontamination practices
    - Cleaning products designed for purpose
    - Apparatus
        - Clean cab concept and treating contaminants as biohazards

    - Turning off apparatus and other vehicles to minimize exhaust
16. Identify and demonstrate best practices that minimize contaminant exposure and risk at the station
    - Avoid cross-contamination at all costs
    - Identify hot, warm, and cold zones in fire stations
    - Treat living quarters as cold zones
        - PPE must never enter cold zones
        - Keep all doors at zone interfaces shut
        - Wash hands, face, and neck before entering cold zone
    - Identify possible warm zones in fire stations (areas of interface between hot and cold)
        - Shower within an hour of exposure (cold and then hot water)
        - Infrared saunas as chemical decontamination units (CDUs)
        - PPE storage in the warm zone
        - Wash all garments and undergarments worn beneath PPE separately at the station
    - Identify hot zones
        - Treat apparatus floor as a hot zone because of vehicle exhaust
        - The following must not be located in hot zone
            - Ice machines
            - Workout equipment
        - PPE storage must be situated to prevent exhaust carcinogen contamination
            - Off-duty storage
            - Response-ready storage
        - Use of exhaust systems
        - Tool maintenance and checks performed outdoors, wearing PPE, to prevent exposure
        - Tool decontamination performed in a negative pressure environment and while wearing PPE to prevent carcinogen exposure
        - Perform apparatus pre-trips outside of apparatus floor
17. Identify and demonstrate best practices that minimize contaminant exposure and risk at home
    - Avoid cross-contamination at all costs, including with PPE
    - Don’t wash work items at home
        - PPE including wildland
        - Uniforms
        - Personal items used during work hours
        - Garments or undergarments worn beneath PPE
    - Keep all work items in a sealed bag in vehicle and avoid direct sunlight and heat
    - Shower prior to leaving the station
18. Document all exposures, injuries, and illnesses within AHJ reporting system

Discussion Questions

1. How does tobacco use affect your ability to claim workers compensation for cancer?
2. How are behavioral health, lifestyle, your occupation, and cancer risk related?

3. How do factors such as race and gender impact occupational cancer risk?
4. What are some types of carcinogenic agents other than chemical carcinogens?
5. What are some sources of exposure after a fire is extinguished?
6. How does duration of exposure relate to absorption of carcinogenic chemicals?
7. How might a fire fighter ingest carcinogenic chemicals?
8. What are some exposure risks for members not engaged in the IDLH environment?
9. What are best practices for hood types, wearing, and exchange?
10. Under what circumstances is it best to do dry decontamination or wet decontamination?
11. What are the benefits of washing versus wiping during body decontamination?
12. Why is it important to use a new wipe for each part of your body? What can you use to wipe off contaminants?
13. Why is it critical to complete an exposure report for all exposures, injuries, and illnesses on all incidents?

Application/Activities

1. Create an activity directing students to demonstrate the above ELOs.

Instructor Notes

1. Consider having students perform a risk self-assessment.
2. Refer to Tucson best practices document and Washington state's Healthy In, Healthy Out document and video.
3. This topic is interrelated with those pertaining to behavioral health and stress reduction. Some of the wellness behaviors will overlap.
4. NFPA 1550: Standard for Emergency Responder Health and Safety, Topic 16.7 addresses exposure reports.
5. Refer to and share the NIOSH photo showing the limits of PPE in preventing exposure.
6. The content in this topic can be fulfilled through completion of Behavioral Health and Cancer Awareness 1A FSTEP course or an established equivalency.

CTS Guide Reference: 1-13

Topic 2-5: Structural Personal Protective Ensemble

Terminal Learning Objective

At the end of this topic a student, given a structural personal protective ensemble (PPE), will be able to inspect and maintain, and don and doff a structural personal protective ensemble so that PPE is donned within 60 seconds, all elements of the ensemble are worn and removed according to manufacturer guidelines, and PPE is inspected, maintained, and returned to a ready state.

Enabling Learning Objectives

1. Explain the importance of standards for structural personal protective ensemble
2. Identify components of structural PPE
3. Describe protection provided by structural PPE
4. Describe limitations of structural PPE
5. Identify manufacturer guidelines for correct PPE use
6. Identify when and how to doff PPE
    - When it is safe
        - Fire/smoke exposure
        - Carcinogenic chemical exposure
        - When to emergency doff/remove PPE
            - Self
            - Others
    - Manufacturer guidelines
    - AHJ policies and procedures
7. Describe how improper usage or maintenance can compromise PPE effectiveness
8. Describe proper methods for inspecting, cleaning, and maintaining structural PPE
9. Identify when and describe how to remove PPE from service
10. Don structural PPE
11. Doff structural PPE
12. Doff structural PPE in an emergency
    - Demonstrate how to rapidly remove your own PPE
    - Demonstrate how to rapidly remove an unresponsive fire fighter’s PPE in an organized fashion
13. Return PPE to a ready state
14. Inspect structural PPE
15. Clean structural PPE
16. Maintain structural PPE

Discussion Questions

1. What are the different components of structural PPE?
2. What are the safety features of structural PPE?
3. Why is it important to know your PPE equipment?
4. What are the limitations of structural PPE?
5. What are the benefits of inspecting, cleaning, and maintaining structural PPE?

Application

1. Given structural PPE, have students practice donning, doffing, inspecting, cleaning, maintaining, and returning PPE to a ready state.

Instructor Notes

1. Use NFPA 1850: Standard on Protective Ensembles for Structural and Proximity Firefighting and Self-Contained Breathing Apparatus (SCBA) (current edition) as a resource for this topic.
2. Students must have access to full PPE for application and practice.

CTS Guide Reference: 1-2, 1-4, 1-7

Skill Sheet:

- 1-4: Don Structural PPE
- 1-7: Doff, Inspect, and Prepare Structural PPE for Reuse

Topic 2-6: Self-Contained Breathing Apparatus

Terminal Learning Objective

At the end of this topic a student, given self-contained breathing apparatus (SCBA) and structural personal protective ensemble (PPE), will be able to don SCBA within 60 seconds or less; wear, operate, and doff SCBA in accordance with manufacturer guidelines; and inspect, maintain, and return SCBA to a ready state in a non-emergency setting.

Enabling Learning Objectives

1. Define “Immediately Dangerous to Life and Health” (IDLH)
2. Identify conditions requiring respiratory protection
    - NFPA 1550: Standard for Emergency Responder Health and Safety Program (current edition)
    - Code of Federal Regulations 29, 1910.134
    - California Code of Regulations Title 8, 5144K
3. Explain the importance of standards for SCBA
4. Describe protection provided by, uses of, and limitations of SCBA
5. Describe potential long-term consequences of exposure to products of combustion
6. Identify the components of SCBA
    - NFPA 1852: Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA) (current edition, NFPA 1852 is becoming a part of NFPA 1850: Standard on Protective Ensembles for Structural and Proximity Firefighting and Self-Contained Breathing Apparatus (SCBA))
7. Describe operational inspection procedures for SCBA
8. Describe different donning procedures
    - Coat
    - Over the head
    - Seat mounted
9. Identify manufacturer guidelines for correct SCBA use
10. Describe how improper fit, usage, or maintenance can compromise SCBA effectiveness
11. Identify when to doff respiratory protection
    - Outside IDLH
    - Dependent on contaminate exposure levels
12. Identify how to doff respiratory protection
    - Manufacturer guidelines
    - AHJ policies and procedures
13. Identify proper methods for inspecting, cleaning, and maintaining SCBA
14. Identify when and describe how to remove SCBA from service
    - NFPA 1852 (current edition, NFPA 1852 is becoming NFPA 1850)
15. Perform operational inspection for a self-contained breathing apparatus
16. Don SCBA using the following methods:
    - Coat
    - Over-the-head
    - Seat mounted
17. Doff SCBA

18. Return SCBA to a ready state
19. Inspect, clean, and maintain SCBA

Discussion Questions

1. What are the major components of SCBA and their functions?
2. What conditions require respiratory protection?
3. What are the limitations of SCBA?

Application

1. Given structural PPE and SCBA, have students practice donning, doffing, inspecting, cleaning, maintaining, and returning SCBA to a ready state.

Instructor Notes

1. Use NFPA 1550: Standard for Emergency Responder Health and Safety Program (current edition).
2. Reinforce carcinogen exposure and cancer risk reduction practices during this topic.
3. Students must have access to full PPE and SCBA for application and practice.

CTS Guide Reference: 1-3, 1-5, 1-6

Skill Sheet:

- 1-3: Inspect SCBA
- 1-5: Don SCBA
- 1-6: Doff SCBA

Topic 2-7: Using SCBA During Emergency Operations

Terminal Learning Objective

At the end of this topic a student, given a self-contained breathing apparatus (SCBA) and other personal protective equipment (PPE), will be able to use an SCBA during emergency operations so that SCBA is donned within 60 seconds and worn correctly, controlled breathing techniques are used, emergency procedures are enacted if the SCBA fails, all low-air warnings are recognized, respiratory protection is not intentionally compromised, and hazardous areas are exited prior to air depletion.

Enabling Learning Objectives

1. Describe different breathing techniques
2. Describe how to monitor and manage air consumption
3. Describe emergency indicators and emergency procedures for SCBA
4. Identify physical requirements of the SCBA wearer
5. Identify and troubleshoot problems associated with SCBA use
    - Human error or behavior
    - Equipment damage or failure
6. Demonstrate controlled breathing techniques
7. Replace SCBA air cylinders
8. Use an SCBA to exit through restricted passages
9. Monitor and manage air consumption
10. Initiate and complete emergency procedures in the event of SCBA failure or air depletion

Discussion Questions

1. What are some possible human errors associated with SCBA use?
2. What are some possible equipment failures associated with SCBA use?

Application

1. Given PPE and SCBA have students don PPE and SCBA and troubleshoot different SCBA emergency or failure scenarios initiated by the instructor.

Instructor Notes

1. Reference NFPA 1400: Standard on Fire Service Training and NFPA 1970: Standard on Protective Ensembles for Structural and Proximity Fire Fighting, Work Apparel, and Open Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, and Personal Alert Safety Systems (PASS) for current SCBA air-management standards.
2. This topic is intended to be an overview. The content and application will be covered again in context in Topic 6-1: Structural Fire Fighter Survival.

CTS Guide Reference: 3-1

Skill Sheet:

- 3-1a: Replace an SCBA Air Cylinder
- 3-1b: Use SCBA During Emergency Operations

Topic 2-8: Doffing SCBA and PPE for Gross Decontamination

Terminal Learning Objective

At the end of this topic a student, given self-contained breathing apparatus (SCBA) and structural personal protective equipment (PPE), will be able to doff SCBA and PPE so that SCBA and PPE are removed to reduce contaminant exposure; SCBA and PPE undergo gross decontamination and are tagged and transported; and fire fighter conducts physical decontamination as soon as possible, in order to reduce exposure to field contaminates.

Enabling Learning Objectives

1. Identify purpose and benefits of gross decontamination
    - Reduce contaminant exposure
    - Promote best/safe practices
    - Cancer prevention
2. Identify parts of the body most susceptible to contaminate exposure
3. Identify common routes of exposure
    - Inhalation
    - Ingestion
    - Absorption
    - Penetration/injection
4. Describe how to conduct on-site gross decontamination
5. Describe how to doff SCBA and PPE to reduce exposure to field contaminants
6. Describe how to tag and transport contaminated SCBA and PPE
7. Identify personal decontamination processes
8. Don and doff SCBA and PPE

Discussion Questions

1. What are the benefits of gross decontamination?
2. What parts of the body are most susceptible to contaminate exposure?
3. What are the common routes of exposure?

Application

1. Determined by instructor

Instructor Notes

1. Recommend referencing:
    - Fire Smoke Coalition YouTube Channel
    - IAFF Cancer Prevention and Awareness Resource (http://wwwiaff.org/cancer)
2. Reference exposure-tracking systems like PER and encourage students to participate:
    - Personal Exposure Reporting (PER) (https://www.peronline.org/)
3. Recommend bringing in guest speakers from professional associations to discuss prevention or cancer survivors to discuss personal impact.
4. This topic is intended to be an overview. The content and application will be covered again in context in Topic 6-1: Structural Fire Fighter Survival.

CTS Guide Reference: 1-8

Skill Sheet: 1-8: Doff SCBA and PPE for Gross Decontamination

Topic 2-9: Responding on an Apparatus to an Emergency Scene

Terminal Learning Objective

At the end of this topic a student, given an apparatus, personal protective clothing, and other necessary personal protective equipment (PPE), will be able to respond on an apparatus to an emergency scene, correctly mount and dismount the apparatus, use seat belts while the vehicle is in motion, and correctly use other personal protective equipment.

Enabling Learning Objectives

1. Describe mounting and dismounting procedures for riding an apparatus
2. Identify hazards and ways to avoid hazards associated with riding an apparatus
3. Describe prohibited practices
4. Identify different types of agency PPE and their use(s)
    - Hearing protection
    - Seat belts
    - Other safety devices
5. Use each piece of provided safety equipment

Discussion Questions

1. What safety equipment is used when riding on an apparatus?
2. What is the importance of using safety equipment to protect against hearing and vision loss?
3. What are some outcomes when safety equipment is not used?
4. How do personnel riding in an apparatus contribute to situational awareness?
5. What methods can be used to reduce biological or carcinogenic exposure inside an apparatus?

Application

1. Given an apparatus, have students practice correct mounting and dismounting techniques.

Instructor Notes

1. California fire fighters respond daily to many different types of incidents that require different PPE, such as technical rescue, emergency medical service, structural fire, wildland fire, water rescue, etc. Stress this in class.

CTS Guide Reference: 3-2

Skill Sheet: 3-2: Respond to an Emergency Scene on an Apparatus (2024)

Topic 2-10: Establishing and Operating in Work Areas at Emergency Scenes

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment (PPE), traffic and scene control devices, structure fire and roadway emergency scenes, traffic hazards, downed electrical wires, photovoltaic power systems, battery storage systems or other special hazards, an assignment, standard operating procedures (if applicable), and an apparatus, will be able to establish and operate in work areas at emergency scenes, follow procedures, wear protective equipment, establish protected work areas as directed using traffic and scene control devices, and perform assigned tasks in established protected work areas.

Enabling Learning Objectives

1. Describe proper procedures for mounting and dismounting an apparatus in traffic
2. Identify potential hazards involved in operating on emergency scenes
    - Vehicle traffic
    - Utilities
    - Environmental conditions
    - Special hazards
        - Lithium-ion batteries
        - Compressed Natural Gas (CNG)
        - Photovoltaic (PV) systems
        - Energy storage systems
        - Combustible metals
        - Hydrogen cells
        - Autonomous vehicles
        - New and emerging hazards
3. Describe procedures for safe operation at emergency scenes
4. Identify PPE available for members' safety on emergency scenes and work zone designations
5. Describe how to work with electrical hazards at an emergency scene
    - Identify hazard
    - Communicate to Incident Command
    - Establish physical barriers for protection
6. Use PPE
7. Deploy traffic and scene control devices
8. Dismount an apparatus
9. Operate in protected work areas as directed

Discussion Questions

1. What are some potential hazards to fire fighters while operating at an emergency incident?
    - How can fire fighters limit exposure and injury?
    - What methods are used to communicate hazards?
2. What hazards are associated with mounting and dismounting a fire apparatus in traffic?

3. What different types of personal protective equipment do fire fighters use on the scene of an emergency?
    - What are their uses?

Application

1. Given a simulated incident, have students work in small groups to develop an emergency scene work zone.

Instructor Notes

1. Reference Firefighter Incident Safety and Accountability Guidelines ICS 910 (FIRECOPE).

CTS Guide Reference: 3-3

Skill Sheet: 3-3: Operate at an Emergency Scene

Unit 3: Communications

Topic 3-1: Initiating a Response to a Reported Emergency

Terminal Learning Objective

At the end of this topic, a student, given the report of an emergency, fire agency SOPs (if applicable), and communications equipment and technology, will be able to initiate the response to a reported emergency, obtain all necessary information, correctly operate all communications equipment and technology, and promptly and accurately relay information to the dispatch center.

Enabling Learning Objectives

1. Explain procedures for reporting an emergency
2. Identify agency SOPs (if applicable) for taking and receiving:
    - Alarms
    - Radio codes
    - Procedures
    - Clear text for communications
3. List information needs of the dispatch center:
    - Incident type
    - Caller name
    - Phone number
    - Incident location or description
    - Other notifications (911, police, etc.)
4. Identify different types of fire agency communications equipment
5. Operate fire agency communications equipment and technology
6. Relay information
7. Record information

Discussion Questions

1. How do you differentiate between emergency and non-emergency calls?
2. What information is needed to dispatch a call, and why?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: 2-1

Skill Sheet: 2-1: Initiate a Response to an Emergency

Topic 3-2: Transmitting and Receiving Communications

Terminal Learning Objective

At the end of this topic a student, given equipment and technology and standard operating procedures (if applicable), will be able to transmit and receive communications using fire agency equipment and technology so that the information is accurate, clear, and relayed within the time established by the AHJ.

Enabling Learning Objectives

1. Identify components of agency communications equipment and technology
2. Identify the difference between routine and emergency traffic
3. Describe agency communications procedures and etiquette for:
    - Routine traffic
    - Emergency traffic
    - Emergency evacuation signals
4. Identify basic types of agency communications equipment and technology
    - Agency radios
        - Mobile
        - Portable
        - Mobile data terminal
    - Mobile devices
        - Pagers
        - Tablets
        - Applications
    - Mutual aid systems
    - Specialty use systems (transit, airport, law enforcement, marine, etc.)
    - New and emerging technologies
5. Identify operations of communications equipment and technology
6. Describe how to activate radio emergency distress button/signal
7. Operate fire agency communications equipment and technology

Discussion Questions

1. What are the different components of a fire agency radio?
2. What are the proper procedures and etiquette for:
    - Routine traffic?
    - Emergency traffic?
    - Specialty use systems?
3. What are emergency evacuation signals and when are they used?

Application

1. Given simulated situations, have students identify the proper channel for communication on fire agency equipment and technology.

Instructor Notes

1. None

CTS Guide Reference: 2-2

Skill Sheet: 2-2: Operate a Fire Agency Radio

Topic 3-3: Activating an Emergency Call of Assistance

Terminal Learning Objective

At the end of this topic a student, given vision-obscured conditions, PPE, and agency Sops (if applicable), will activate an emergency call for assistance so that the fire fighter can be located and rescued.

Enabling Learning Objectives

1. Describe personnel accountability systems
2. Describe emergency communication procedures
3. Describe emergency evacuation methods
4. Initiate an emergency call for assistance in accordance with the AHJ's procedures
5. Use other methods of emergency calls for assistance

Discussion Questions

1. How would you activate an emergency call in accordance with your AHJ?
2. What are alternative methods for making the emergency call?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: 2-3

Skill Sheet:

- 2-3: Operate a Fire Agency Radio
- 3-5: Activate an Emergency Call and Exit a Hazardous Area

Unit 4: Fire Tools and Equipment

Topic 4-1: Tying Knots Appropriate for Hoisting Tools

Terminal Learning Objective

At the end of this topic, a student, given personal protective equipment (PPE), tools, ropes, webbing, and an assignment, will be able to tie a knot appropriate for hoisting tools securely and as directed.

Enabling Learning Objectives

1. Identify rope terminology
    - Standing
    - Running
    - Working
2. Identify rope types, differences, and uses
    - Life safety
    - Utility
    - Escape
    - Search
    - Water rescue throw line
    - Static vs. dynamic
3. Describe how to use rope(s) to support response activities
4. Identify guidelines for cleaning, inspecting, and maintaining rope
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
5. Describe methods for cleaning ropes
    - Equipment/tools to use
    - Solvents or solutions to use
6. Identify when and how to remove rope from service
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
7. Describe types of knots to use for different ropes and webbing
8. Describe types of knots to use for different situations
9. Identify knot types and uses
    - Overhand
    - Half hitch
    - Clove hitch
    - Beckett bend
    - Bowline
    - Figure 8
    - Figure 8 on a bight
    - Figure 8 follow-through

- Water

10. Describe hoisting methods for tools and equipment
11. Identify types of knots used to hoist tools
    - Axe
    - Pike pole
    - Chainsaw (or other power saw)
    - Ground ladder
    - Charged hose line
    - Uncharged hose line
12. Tie knots
13. Hoist tools using specific knots based on the type of tool

Discussion Questions

1. What are the three parts of a rope?
2. What are three situations when ropes are applicable for use on the fire ground?
3. What is the difference between static and dynamic rope?
    - Which is preferred in the fire service?
4. What knots are commonly used in the fire service?

Application

1. Given different types of ropes and tools, have students:
    - Inspect and clean ropes
    - Identify ropes that should be removed from service
    - Tie knots appropriate for hoisting tools
    - Use ropes for life safety, search, or escape activities

Instructor Notes

1. None

CTS Guide Reference: 3-21

Skill Sheet:

- 3-20a: Tie Knots
- 3-20b: Hoist Tools Aloft

Topic 4-2: Utilizing Hand and Power Tools

Terminal Learning Objective

At the end of this topic a student, given various hand and power tools, will be able to safely transport, operate, and maintain them in accordance with manufacturer specifications and AHJ policies and procedures.

Enabling Learning Objectives

1. Identify basic construction tools and equipment (hammers, saws, pliers, etc.)
2. Identify basic mechanic tools and equipment (screwdrivers, wrenches, socket sets, etc.)
3. Describe types and uses of hand tools
    - Prying
    - Striking
    - Pushing/pulling
    - Cutting
4. Describe types and uses of power tools
    - Gas
    - Battery
    - Electric
    - Pneumatic
    - Hydraulic
5. Identify safety considerations for storing and transporting hand and power tools
6. Identify guidelines for cleaning, inspecting, and maintaining hand and power tools
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
7. Describe methods for cleaning hand and power tools
    - Equipment/tools to use
    - Solvents or solutions to use
8. Identify when and how to remove hand and power tools from service
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
9. Transport, operate, and maintain hand and power tools

Discussion Questions

1. How are two-stroke and four-stroke engines different?
    - How is each identified?
2. What are the advantages of different power sources?
    - What are the disadvantages?
3. What are some examples of hand tools?
    - How would you use them?

Application

1. Given various tools contained within an apparatus, have students identify each tool and its potential uses.

Instructor Notes

1. Spend time on new and emerging technologies.

CTS Guide Reference: 3-22
Skill Sheet: 3-21: Operate Hand and Power Tools

Topic 4-3: Operating Emergency Scene Lighting

Terminal Learning Objective

At the end of this topic, a student, given fire service electrical equipment, a power supply, and an assignment, will be able to operate emergency scene lighting, illuminating designated areas of the emergency scene, within the manufacturer's listed safety precautions.

Enabling Learning Objectives

1. Describe safety principles and practices for portable electrical equipment
2. Identify power supply capacity and limitations
3. Describe light deployment methods
4. Operate agency power supply and lighting equipment
5. Deploy cords and connectors
6. Reset ground-fault interrupter (GFI) devices
7. Locate lights for best effect

Discussion Questions

1. What is the purpose of portable lighting at an emergency scene?
2. What are some limitations of portable lighting?
3. What are some safety concerns when using portable lighting at an emergency scene?

Application

1. Given lighting equipment, a power supply, and an assignment, have students practice operating emergency scene lighting.

Instructor Notes

1. None

CTS Guide Reference: 3-18

Skill Sheet: 3-18: Light a Scene

Topic 4-4: Operating an Air-Monitoring Instrument

Terminal Learning Objective

At the end of this topic a student, given an air monitor and an assignment or task, will be able to operate an air-monitoring instrument so that the device is operated and the fire fighter recognizes the high- or low-level alarms of the air monitor and takes action to mitigate the hazard.

Enabling Learning Objectives

1. Identify various uses for an air monitor
2. Describe basic operation of an air monitor
3. Describe air monitoring procedures
4. Identify how to recognize high- or low-level alarms of the air monitor
5. Describe emergency actions to be taken upon activation of the high- or low-level alarms of air monitor
6. Operate the air monitor
7. Recognize the alarms
8. React to the alarms of the air monitor

Discussion Questions

1. When monitoring and recording atmosphere, which reading should be noted first, second and third?
2. What are the benefits of air monitoring?
3. What are the procedures of air monitoring?

Application

1. Determined by instructor

Instructor Notes

1. Recommend teaching this in combination with the SFT Confined-Space Rescue Awareness course.

CTS Guide Reference: 3-23

Skill Sheet: 3-22: Operate an Air-Monitoring Instrument

Unit 5: Structural Fire Suppression

Topic 5-1: Building Construction

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment, tools, ladders (when needed), and an assignment, will be able to describe common building materials and construction types, and identify dangerous building conditions created by fire.

Enabling Learning Objectives

1. Describe common construction types
2. Describe basic construction of typical doors, windows, walls, floors, and roofs within the department's community or service area
3. Describe common building materials
4. Identify effects of each construction type and elapsed time under fire conditions on structural integrity
5. Identify dangerous building conditions created by fire

Discussion Questions

1. Why is it important for fire fighters to understand building construction?
2. What are some indicators of potential building collapse?
3. How do legacy (conventional) and modern (lightweight) construction perform differently under fire conditions?

Application

1. Given a building under construction, have students complete a walk through, identifying different components of building construction.
2. Given examples of building sections, have students identify different structural components.

Instructor Notes

1. The foundational cognitive information in this topic will be applied in Topics 5-10 (Forcing Entry into a Structure), 5-14 (Horizontal Ventilation Operations), and 5-15 (Vertical Ventilation Operations).

CTS Guide Reference: 3-4, 3-11, 3-13
Skill Sheet: None

Topic 5-2: Fire Behavior

Terminal Learning Objective

At the end of this topic a student, given a fire within a structure, will be able to identify and mitigate dangerous fire behavior conditions while ensuring fire fighter safety.

Enabling Learning Objectives

1. Describe physical states of matter in which fuels are found
2. Define terminology associated with fire chemistry
3. Describe the differences between energy and temperature
4. Describe the concept of power and energy
5. Describe flashpoint, fire point, ignition, and vaporization
6. List the products of combustion found in a structure fire
7. Identify methods of heat transfer
8. Describe the impact of oxygen concentration on life safety and fire growth
9. Identify the components of the fire triangle and fire tetrahedron
10. Describe the classifications of fire
11. Describe the relationship of oxygen concentration to life safety and fire growth
12. Describe fire behavior in a structure
13. Describe the stages of fire
14. Describe the principles of thermal layering within a structure fire
15. Identify the signs, causes, effects, and prevention of hostile fire events
    - Backdraft
    - Smoke explosion
    - Flashover
16. Describe the modern time temperature curve
17. Describe the composition of smoke
18. Describe the attributes of smoke
19. Identify concepts associated with water as an extinguishing agent
20. Describe how water and steam impact the fire tetrahedron
21. Describe signs of effective gas cooling
22. Describe signs of effective surface cooling
23. Describe gas expansion and contraction

Discussion Questions

1. What are the components of the fire tetrahedron?
2. What are signs of flashover, backdraft, and smoke explosion?
3. How does wind affect fire in a structure?
4. How does a vent-limited fire growth curve differ from a traditional/legacy fire growth curve?
5. How would you reduce the heat release rate for each phase of fire within the time temperature curve?

Application

1. Determined by instructor

Instructor Notes

1. For further information, see State Fire Training Fire Control 3 Course Plan (FSTEP) (current edition)
2. Include the following videos in your teaching:
   - What Is Fire Pyrolysis (Fire Training) (https://www.youtube.com/watch?v=-vAylSv2lUo)
   - Christmas Tree Fire Safety (National Institute of Standards and Technology) (https://www.youtube.com/watch?v=IwBiZtfjioU)
   - The Woosh Box (State Fire Training) (https://vimeo.com/271589541 password: SFT)
   - New vs Old Room Fire Final UL (National Institute of Standards and Technology) (https://www.youtube.com/watch?v=aDNPhq5ggoE&index=34&list=WL)
   - Art of Reading Smoke Vol 1 Sample (FireEngineering Books) (https://www.youtube.com/watch?v=W8gJosK_BxY)

CTS Guide Reference: 3-11, 3-12, 3-13, 3-18
Skill Sheet: None

Topic 5-3: Extinguishing Fire with Fire Extinguishers

Terminal Learning Objective

At the end of this topic a student, given a selection of portable fire extinguishers and personal protective equipment (PPE), will be able to extinguish incipient Class A, Class B, and Class C fires so that the correct extinguisher is chosen, correct handling techniques are followed, and the fire is completely extinguished.

Enabling Learning Objectives

1. Identify types of fire extinguishers
2. Identify rating systems for different types of fire extinguishers
3. Identify risks associated with different types of fire extinguishers
4. Describe operating methods and limitations of portable extinguishers
    - Stored water pressure (Class A)
    - Dry chemical (Class B)
    - CO_2 (Class C)
    - Combination
5. Select an appropriate extinguisher based on size and type of fire
6. Safely carry portable fire extinguishers
7. Approach fire with portable fire extinguishers
8. Operate portable fire extinguishers

Discussion Questions

1. Why does the fire service use different types of fire extinguishers?
2. What does “P.A.S.S.” stand for?
3. What does the rating “2A/10BC” represent?

Application

1. Given PPE and fire extinguishers, have students practice fire extinguisher procedures, applications, and techniques.

Instructor Notes

1. NFPA 1010 (2024) covers Class A, B, and C extinguishers. Cover additional types (D and K) if appropriate to the AHJ.

CTS Guide Reference: 3-17

Skill Sheet: 3-17: Select, Carry, and Operate a Portable Fire Extinguisher

Topic 5-4: Water Supply Systems

Terminal Learning Objective

At the end of this topic a student, given supply or intake hose, hose tools, a fire hydrant, portable water tank, or static water source, an apparatus, and personal protective equipment, will be able to connect an engine to a water supply as a member of a team, ensuring tight connections and an unobstructed water flow.

Enabling Learning Objectives

1. Describe types of water supply systems
    - Pump
    - Gravity
    - Combination
2. Describe components of municipal and rural water systems
3. Describe loading and off-loading procedures for a mobile water supply apparatus
4. Describe fire hydrant operations
5. Identify suitable static water supply sources
6. Describe procedures and protocols for connecting to various water sources
    - Hand lay a supply hose
    - Connect and place hard suction hose for drafting operations
    - Deploy portable water tanks and the equipment necessary to transfer between and draft from them
    - Make hydrant-to-engine hose connects for forward and reverse lays
    - Connect supply hose to a hydrant
    - Fully open hydrant when hose is connected
    - Fully close hydrant when operation ends

Discussion Questions

1. What types of water sources are available to fire departments?
2. What are the components of a water supply system?

Application

1. Given a water supply, an apparatus, hoses, hydrants, and tools, have students connect supply hose to hydrant or water sources and provide an unobstructed water flow.

Instructor Notes

1. ELO 6: Some AHJs have appliances that connect hose to water supplies. Note this if it's appropriate to the AHJ.
2. For all water supplies, only flush the system until the water runs clear.

CTS Guide Reference: 3-16

Skill Sheet:

- 3-16a - Deploy Portable Tank and Prepare for Drafting Operations
- 3-16b - Hose Lay

Topic 5-5: Cleaning, Inspecting, and Returning Fire Hose to Service

Terminal Learning Objective

At the end of this topic a student, given washing equipment, water, detergent, tools, and replacement gaskets, will be able to clean, inspect, and return fire hose to service so that damage is noted and corrected, the hose is clean, and the equipment is placed in a ready state for service.

Enabling Learning Objectives

1. Describe fire hoses
    - Types
    - Design
    - Uses
        - Attack line
        - Supply line
2. Describe departmental procedures for inspecting a hose according to manufacturer guidelines, noting any defects, and removing it from service
3. Describe nozzles
    - Types
    - Design
    - Operation
    - Pressure effects
    - Flow capabilities
4. Identify fittings, tools, and appliances
5. Describe how to apply each size and type of attack line
6. Describe cleaning and maintenance methods
    - Hose
    - Nozzles
    - Appliances
7. Describe types of hose rolls
    - Single roll
    - Donut roll
    - Twin donut roll
    - Self-locking twin donut roll
8. Describe types of hose loads
    - Flat load
    - Minute-man load
    - Triple fold
    - Accordion
    - Horseshoe
    - Hose bundles (AHJ specific)
9. Clean different types of hose
10. Operate hose washing and drying equipment
11. Replace coupling gaskets

12. Mark defective hose

Discussion Questions

1. What different types of hose does a fire agency use?
2. How are attack lines and supply lines different?
3. Why is it important to clean, inspect, load, roll, and store fire hose?

Application

1. Given PPE and hoses, have students practice different hose roles
2. Given PPE and cleaning supplies and equipment, have students inspect, clean, and store hoses

Instructor Notes

1. ELO 8: Teach the hose loads most applicable to the AHJ

CTS Guide Reference: 3-11, 4-2

Skill Sheet:

- 4-2a: Replace a Burst Section of Hose
- 4-2b: Build Hose Rolls
- 4-2c: Clean and Maintain Hose and Mark Defective Hose

Topic 5-6: Deploy and Connect Fire Hose

Terminal Learning Objective

At the end of this topic a student, given a water supply, tools and equipment, hose, nozzles, appliances, personal protective equipment (PPE), and an apparatus, will be able to place hose into service on an assigned apparatus so that nozzles and appliances are connected in accordance with manufacturer specification and attack lines are placed into position.

Enabling Learning Objectives

1. Identify the principles of fire streams
2. Describe types of supply line hose deployments (carries and drags)
3. Describe types of attack line hose deployments (carries and drags)
    - Minute-man load
    - Triple fold
    - Pre-connected flat load
    - Working line drag method
    - Shoulder load method
    - Hose bundle (AHJ specific)
    - Wyed lines
4. Identify precautions to follow when advancing hose lines to objective
5. Open, close, and adjust nozzle flow and patterns
6. Describe observable results that a fire stream is properly applied
7. Prevent water hammer when shutting down nozzles
8. Couple and uncouple various hose line connections
9. Roll hose
10. Carry hose
11. Reload hose
12. Replace burst hose sections
13. Hand lay a supply hose
14. Connect and place hard suction hose for drafting operations
15. Deploy portable water tanks and the equipment necessary to transfer between and draft from them
16. Make hydrant-to-engine hose connections for forward and reverse lays
17. Connect a supply hose to a hydrant
18. Fully open hydrant when hose is connected
19. Fully close hydrant when operation ends

Discussion Questions

1. What are the pros and cons associated with different hose deployments?
2. What factors determine nozzle selection?
3. What is water hammer?

Application

1. Given a water supply, tools and equipment, hose, nozzles, appliances, personal protective equipment (PPE), and an apparatus, have students:
    - Deploy and load attack lines
    - Deploy and load supply lines

- Connect and operate nozzles and appliances
- Flow water

Instructor Notes

1. ELOs 13-19 are covered in Topic 5-4 from a cognitive perspective. In this topic, they should be approached as a psychomotor objective.

CTS Guide Reference: 3-11, 3-16, 4-2

Skill Sheet:

- 3-11c: Extend a Hose Line
- 3-11d: Load, Deploy, and Advance an Attack Line
- 3-11e: Load Supply Hose
- 3-16a: Deploy Portable Tank and Prepare for Drafting Operations
- 3-16b: Hose Lay
- 4-2a: Replace a Burst Section of Hose
- 4-2b: Build Hose Rolls

Topic 5-7: Utility Control at Emergencies

Terminal Learning Objective

At the end of this topic a student, given tools and personal protective equipment (PPE), will be able to turn off building utilities in order to safely complete an assignment.

Enabling Learning Objectives

1. Describe properties and principles of and safety concerns for electrical systems
   - Primary electrical service
   - Secondary electrical service
   - Alternative energy services
2. Describe properties and principles of and safety concerns for gas systems
3. Describe properties and principles of and safety concerns for water systems
4. Identify utility disconnect methods
5. Identify dangers associated with different utility disconnect methods
6. Describe how to use required safety equipment
7. Identify utility control devices
8. Operate control valves or switches
9. Assess for related hazards

Discussion Questions

1. What types of utility systems might a fire fighter encounter at a structure fire?
2. What hazards do electrical, gas, and water systems present during a structure fire?
3. What safety precautions should a fire fighter take when securing electrical systems at a structure fire?

Application

1. Given a geographic area, have students identify gas, propane, electrical, and photovoltaic utilities and determine control techniques for different structures.

Instructor Notes

1. State Fire Training has an FSTEP course called Fire Operations for Photovoltaic Emergencies (2010). Consider using the content for reference materials.

CTS Guide Reference: 3-19

Skill Sheet: 3-19: Turn Off Building Utilities

Topic 5-8: Cleaning, Inspecting, and Maintaining Fire Service Ladders

Terminal Learning Objective

At the end of this topic a student, given single and/or extension ladders, personal protective equipment (PPE), and cleaning equipment and supplies, will be able to clean and inspect fire service ladders so that ladders are cleaned, inspected, maintained, and ready for or removed from service.

Enabling Learning Objectives

1. Identify types of fire service ladders
    - Ground
    - Aerial
2. Describe ladders
    - Types
    - Parts
    - Construction features
3. Identify uses of ladders
4. Identify guidelines for cleaning, inspecting, and maintaining ladders
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
5. Describe methods for cleaning ladders
    - Equipment/tools to use
    - Solvents or solutions to use
6. Identify when and how to remove ladders from service
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements

Discussion Questions

1. What are some of the general uses of ground ladders?
2. What type of damage or defects would cause a fire fighter to remove a ladder from service?

Application

1. Given single and/or extension ladders, personal protective equipment (PPE), and cleaning equipment and supplies, have students clean, inspect, and maintain ladders.
2. Given damaged or defective ladders (or images), have students identify the damaged or defective portions.

Instructor Notes

1. None

CTS Guide Reference: 3-6

Skill Sheet: 3-6: Lift, Carry, Raise, and Ascend a Ground Ladder

Topic 5-9: Ground Ladder Operations

Terminal Learning Objective

At the end of this topic a student, given single and/or extension ladders, an assignment, team members (if needed), and personal protective equipment (PPE), will be able to set up, mount, ascend, dismount, and descend ground ladders, so that hazards are assessed, ground ladders are stable and their angles are correct for climbing, extension ladders are extended to the necessary height with the fly locked, the top of the ladder is placed against a reliable structural component, and the assignment is accomplished.

Enabling Learning Objectives

1. Identify types of lifts and carries
    - High shoulder – Single/two fire fighter
    - Low shoulder – Single/two/three fire fighter
    - Flat shoulder method – Three/four fire fighter
    - Suitcase or arm's length carry – Single/two fire fighter
2. Identify types of raises
    - Flat raise (single/two/three/four fire fighter)
    - Beam raise (single/two/three fire fighter)
    - AHJ-specific raises
3. Describe methods used to secure ground ladders
4. Describe safety limits to degree of angulation
5. Identify different angles for various tasks
    - Access
    - Search
    - Ventilation
6. Describe hazards associated with setting up ladders
7. Define what constitutes a stable foundation for ladder placement
8. Describe what constitutes a reliable structural component for top placement
9. Describe proper climbing techniques
10. Describe how to operate from ground ladders
    - Belts
    - Leg locks
    - AHJ-specific techniques
11. Determine that a wall and roof will support a ladder
12. Judge extension ladder height requirements
13. Lift and carry ladders
14. Move and place ladder to avoid obvious hazards
15. Raise and extend ladders and lock flies
16. Secure ground ladders
17. Demonstrate proper climbing techniques
18. Operate from ground ladders
19. Demonstrate leg lock method
20. Mount, ascend, dismount, and descend ladders

Discussion Questions

1. How would you place a ladder for:
    - Access?
    - Rescue?
    - Ventilation?
2. What are the pros and cons of different ladder raises?

Application

1. Given single and/or extension ladders, sample scenarios, team members (if needed), and personal protective equipment (PPE), have students work in groups to mount, ascend, dismount, and descend ground ladders to meet different incident objectives.

Instructor Notes

1. ELO 3: Can be “fly in” or “fly out” based on the AHJ requirements.

CTS Guide Reference: 3-6

Skill Sheet: 3-6: Lift, Carry, Raise, and Ascend a Ground Ladder

Topic 5-10: Forcing Entry into a Structure

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment (PPE), tools, an assignment, and a prop or structure with doors, windows, and walls, will be able to force entry into a structure so that tools are used as designed, the barrier is removed, and the opening is in a safe condition and ready for entry.

Enabling Learning Objectives

1. Describe basic construction of typical doors, windows, and walls within department's community or service area
   - Residential
   - Commercial
2. Describe types and uses of hand and power tools used in forcible entry
3. Describe operation of doors, windows, and locks
4. Identify dangers associated with forcing entry through doors, windows, and walls
5. Transport and operate hand and power tools used in forcible entry
6. Force entry through doors, locks, windows, and walls using assorted methods and tools

Discussion Questions

1. How would you size up a door for forcible entry purposes?
2. What are indicators of an inward versus an outward swinging door?
3. What tools would you use to force entry through:
   - A residential door?
   - A roll-up door at a commercial structure?
4. What are some safety considerations during forcible entry operations?

Application

1. Given personal protective equipment (PPE), tools, an assignment, and a prop or structure with doors, windows, and walls, have students practice forcible entry techniques.

Instructor Notes

1. Recommend discussing the need for forcible exit in survival scenarios.

CTS Guide Reference: 3-4

Skill Sheet: 3-4: Force Entry into a Structure

Topic 5-11: [Placeholder]

Topic 5-12: Conducting a Search and Rescue Operation in a Structure

Terminal Learning Objective

At the end of this topic a student, given an assignment, obscured vision conditions, personal protective equipment (PPE), self-contained breathing apparatus (SCBA), a flashlight, forcible entry tools, hose lines or guide lines, a thermal imager, and ladders (when necessary), will be able to conduct a search and rescue operation in a structure so that ladders are correctly placed when used, all assigned areas are searched, all victims are located and removed, team integrity is maintained, and team members' safety, including respiratory protection, is not compromised.

Enabling Learning Objectives

1. Define primary and secondary search techniques
    - Team-based
    - Orientator method
    - VEIS (vent, enter, isolate, search)
    - Point-to-point with TIC/TID
2. Describe how to use tools, and equipment for search and rescue operations
    - Thermal imagers
    - Hand tools
    - Lights
    - Ladders
    - Search rope
    - Hose line
3. Identify team members' roles and goals in search and rescue operations within a structure
4. Identify considerations related to respiratory protection
5. Describe methods to determine if an area is tenable
6. Describe methods and indicators used to locate victims
7. Identify psychological effects of operating in obscured conditions and ways to manage them
8. Describe victim removal methods (including various lifts, carries, and drags)
9. Assess areas to determine tenability
10. Demonstrate a primary and secondary search
11. Demonstrate victim removal methods
12. Set up and use different types of ladders for various types of rescue operations
    - Balcony
    - Fire escape
    - Roof
    - Window
13. Remove the victim down a ladder
    - Conscious
    - Unconscious
14. Rescue a fire fighter with functioning respiratory protection

15. Rescue a fire fighter whose respiratory protection is not functioning
16. Rescue a person who has no respiratory protection
17. Use SCBA to exit through restricted passages

Discussion Questions

1. When conducting a search in a residential structure, which areas should be searched first, second, third, etc.?
2. What tools and equipment will make room/area searches more efficient?
3. What is the difference between a primary search and a secondary search?

Application

1. Given an assignment, obscured vision conditions, personal protective equipment (PPE), self-contained breathing apparatus (SCBA), a flashlight, forcible entry tools, hose lines or guide lines, a thermal imager, and ladders (when necessary), have students practice search and rescue operations.

Instructor Notes

1. Make sure to cover proper lifting techniques for victim removal.

CTS Guide Reference: 3-10

Skill Sheet:

- 3-10a - Search for and Rescue a Victim with No Respiratory Protection
- 3-10b - Rescue a Fire Fighter
- 3-10c - Use a Ladder for Rescue

Topic 5-13: Attacking an Interior Structure Fire

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment (PPE), an attack line ($1^1/_2$-inch or larger), pumping apparatus, established water supply, ladders (when needed), self-contained breathing apparatus (SCBA), tools, and an assignment, will be able to attack an interior structure fire operating as a member of a team so that team integrity is maintained, the attack line is deployed for advancement, ladders are correctly placed when used, access into the fire area is gained, effective water application practices are used, the fire is correctly approached, attack techniques facilitate suppression given the level of the fire, hidden fires are located and controlled, correct body posture is maintained, hazards are recognized and managed, and the fire is brought under control.

Enabling Learning Objectives

1. Identify precautions to be followed when advancing hose lines to a fire
2. Identify principles of exposure protection
   - Exterior
   - Interior
3. Describe attack and control techniques for below, at, and above grade level fires
4. Describe impacts of flow path while performing interior fire attack
5. Demonstrate techniques for controlling flow path
6. Identify methods for locating and exposing hidden fires
7. List common types of accidents or injuries and their causes
8. Apply water using direct, indirect, and combination attacks
9. Describe observable results that a fire stream is properly applied
10. Advance charged and uncharged hand lines of 1½-inch diameter or larger up ladders and up and down interior and exterior stairways
11. Operate charged hand lines of 1½-inch diameter or larger while secured to a ground ladder
12. Demonstrate how to attack fires:
    - Below grade
    - At grade
    - Above grade
13. Locate and suppress interior wall and subfloor fires
14. Define the role of the backup team in fire attack situations
15. Identify visual indicators to make an informed decision about fire location
16. Define terminology associated with flow path and air track
17. Describe how to control flow path and air track management
18. Describe the impact of venting a vent-limited fire
19. Describe how to control flow path and manage air track
20. Describe the importance of extinguishing exterior fires before entry
21. Describe how to improve interior condition through cooling from a less involved area
22. Identify factors that may contraindicate an exterior attack
23. Describe hose management techniques
24. Describe how to assess risk at the entry point to determine go/no-go status

Discussion Questions

1. What is the difference between a second attack line and a backup line?
2. What hazards are associated with below grade fires?
3. What are the consequences of uncoordinated ventilation?
4. What does “cooling from a safe location” mean?
5. How does water application (stream pattern and technique) impact fire conditions?

Application

1. Determined by instructor

Instructor Notes

1. There are two ways to deliver the live fire training included in Topic 5-11:
   - Option 1: Provide a registered Fire Control 3: Structural Fire Fighting (2018) course
     - May use simulated live fire training evolutions during Fire Fighter 1 – Structure certification exam testing.
   - Option 2: Use the TLO and ELOs listed in Topic 5-11
     - Must use live fire training evolutions compliant with NFPA 1403 (current edition, NFPA 1403 is scheduled to become part of NFPA 1400: Standard on Fire Service Training) during Fire Fighter 1 – Structure certification exam testing.
     - Skills Evaluator for certification exam must be a registered Fire Control 3 primary instructor.
2. Any training or practice for this topic that involves live fire requires PPE compliant with NFPA 1971 (current edition) and SCBA compliant with NFPA 1981 (current edition) (Both NFPA 1971 and NFPA 1981 are scheduled to become part of NFPA 1970: Standard on Protective Ensembles for Structural and Proximity Firefighting, Work Apparel and Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, and Personal Alert Safety Systems (PASS)).
3. Include the following videos in your teaching:
   - Principles of Modern Fire Attack (ISFSI You Tube) https://www.youtube.com/watch?v=ATuCxWj6AW8&list=PLLLoaO4uEI11OsyF7SY7WEZjAorZhraQs&index=3

CTS Guide Reference: 3-11

Skill Sheet:

- 3-11a: Attack a Live Interior Structure Fire
- 3-11b: Attack a Simulated Interior Structure Fire
- 3-11c: Extend a Hoseline
- 3-11d: Load, Deploy, and Advance an Attack Line
- 3-11e: Load Supply Hose
- 3-11f: Operate Charged Attack Hose Line from a Ground Ladder

Topic 5-14: Horizontal Ventilation Operations

Terminal Learning Objective

At the end of this topic a student, given an assignment, personal protective equipment (PPE), ventilation tools, equipment, and ladders, will be able to perform horizontal ventilation on a structure operating as part of a team so that ventilation openings are free of obstructions, tools are used as designed, ladders and ventilation devices are placed correctly, and the structure is cleared of smoke.

Enabling Learning Objectives

1. Describe horizontal ventilation
    - Principles
    - Methods
        - Natural
        - Mechanical
        - Hydraulic
    - Techniques
        - Positive pressure
        - Negative pressure
    - Advantages
    - Limitations
    - Effects
2. Describe how to ventilate a structure using different ventilation methods
3. Describe safety considerations when venting a structure
4. Describe the importance of communication and coordination between fire attack and ventilation teams
5. Identify guidelines for cleaning, inspecting, and maintaining horizontal ventilation tools
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
6. Describe methods for cleaning horizontal ventilation tools
    - Equipment/tools to use
    - Solvents or solutions to use
7. Identify when and how to remove horizontal ventilation tools from service
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
8. Transport and operate ventilation tools and equipment and ladders
9. Demonstrate safe procedures for breaking window and door glass and removing obstructions
10. Demonstrate the ability to horizontally ventilate a structure

Discussion Questions

1. What situations call for horizontal ventilation?
2. What are different ways to complete horizontal ventilation?
3. What are some safety considerations when using horizontal ventilation?

4. What are the ramifications of opening windows and doors without coordinating with attack crews?

Application

1. Given an assignment, personal protective equipment (PPE), ventilation tools, equipment, and ladders, have students practice horizontal ventilation techniques.

Instructor Notes

1. Recommend using case studies or videos of effective and ineffective horizontal ventilation.

CTS Guide Reference: 3-12

Skill Sheet: 3-12: Perform Horizontal Ventilation on a Structure

Topic 5-15: Vertical Ventilation Operations

Terminal Learning Objective

At the end of this topic a student, given an assignment, personal protective equipment (PPE), ground and roof ladders, and ventilation tools, will be able to perform vertical ventilation on a structure as part of a team so that position ladders are positioned for ventilation, a specified opening is created, all ventilation barriers are removed, structural integrity is not compromised, products of combustion are released from the structure, and the team retreats from the area when ventilation is accomplished.

Enabling Learning Objectives

1. Describe vertical (top-side) ventilation
    - Principles
    - Tactics
        - Offensive (exhaust opening/hot or heat hole)
        - Defensive (trench/strip)
    - Advantages
    - Limitations
    - Effects
2. Describe how to ventilate a structure using different ventilation methods
    - Determine proper location for hole placement
    - Cut hole
    - Communicate with crew
    - Remove or tilt decking material
    - Plunge through interior ceiling using hand tools
    - Evaluate effectiveness
3. List techniques and safety precautions for venting flat roofs, pitched roofs, and basements
4. Identify effects of construction type and elapsed time under fire conditions on structural integrity
5. Describe basic indicators of potential collapse or roof failure
6. Describe the importance of communication and coordination between fire attack and ventilation teams
7. Identify guidelines for cleaning, inspecting, and maintaining vertical ventilation tools
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
8. Describe methods for cleaning vertical ventilation tools
    - Equipment/tools to use
    - Solvents or solutions to use
9. Identify when and how to remove vertical ventilation tools from service
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements

10. Transport and operate ventilation tools and equipment and ladders
11. Select, carry, deploy, and secure ground ladders for ventilation activities
12. Deploy roof ladders on pitched roofs while secured to a ground ladder for vertical ventilation
13. Carry ventilation-related tools and equipment while ascending and descending ladders
14. Hoist ventilation tools to a roof
15. Sound the surface for integrity
16. Cut roofing or flooring materials to vent flat roofs, pitched roofs, or basements
17. Clear an opening with hand tools
18. Retreat from the area when ventilation is accomplished

Discussion Questions

1. When is vertical ventilation performed versus horizontal ventilation?
2. What safety factors should be considered when performing vertical/top-side ventilation?
3. What types of cuts can be performed to achieve vertical ventilation?
4. What are some indicators that a roof is not safe for operations?

Application

1. Given an assignment, personal protective equipment (PPE), ventilation tools, equipment, and ladders, have students practice vertical ventilation techniques.

Instructor Notes

1. Recommend using case studies or videos of effective and ineffective vertical ventilation.

CTS Guide Reference: 3-13

Skill Sheet: 3-13: Perform Vertical Ventilation on a Structure

Topic 5-16: Conserving Property

Terminal Learning Objective

At the end of this topic a student, given an assignment, salvage tools and equipment, and personal protective equipment (PPE), will be able to conserve property as a member of that team so that the building and its contents are protected from further damage.

Enabling Learning Objectives

1. Describe the purpose of property conservation and its value to the public
2. Identify salvage tools and equipment
   - Salvage tarps
   - Water evacuation pumps
   - Squeegees
   - Brooms
   - Shovels
   - Hose
   - Board-up equipment
3. Identify guidelines for cleaning, inspecting, and maintaining salvage tools and equipment
   - Manufacturer guidelines
   - AHJ guidelines
   - Documentation and reporting requirements
4. Describe methods for cleaning salvage tools and equipment
   - Equipment/tools to use
   - Solvents or solutions to use
5. Identify when and how to remove salvage tools and equipment from service
   - Manufacturer guidelines
   - AHJ guidelines
   - Documentation and reporting requirements
6. Describe methods used to protect property
7. List types of and uses for salvage covers
8. Describe operations at properties protected with automatic sprinklers
9. Describe how to stop the flow of water from an automatic sprinkler head
10. Identify main control valve on an automatic sprinkler system
11. Describe procedures for protecting possible areas of origin and potential evidence
12. Describe forcible entry issues related to salvage
13. Cluster furniture
14. Deploy covering materials
15. Roll and fold salvage covers for reuse
16. Construct water chutes and catch-alls
17. Remove water
18. Cover building openings, including doors, windows, floor openings, and roof openings
19. Stop flow of water from a sprinkler with sprinkler wedges or stoppers
20. Operate a main control valve on an automatic sprinkler system

Discussion Questions

1. Why is property conservation important?
2. When does property conservation take place?
3. What are some effective ways to conserve property?
4. What is the difference between primary and secondary damage?

Application

1. Given the contents of a room and tarps, have students practice arranging contents and throwing tarps to protect against water and smoke damage.
2. Given tools and salvage equipment, have students practice removing water from inside a structure.
3. Given tools and salvage equipment, have students practice stopping or diverting water from a sprinkler system.
4. Given a prop, materials, and tools, have students practice boarding up openings.

Instructor Notes

1. None

CTS Guide Reference: 3-15

Skill Sheet:

- 3-15a: Control Water Flow from a Sprinkler System
- 3-15b: Remove Water from the Interior of a Structure
- 3-15c: Salvage a Room and its Contents
- 3-15d: Cover Building Openings

Topic 5-17: Overhauling a Fire Scene

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment (PPE), an attack line, hand tools, a flashlight, a thermal imager, and an assignment, will be able to overhaul a fire scene so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.

Enabling Learning Objectives

1. Describe purposes and methods of overhaul
2. Describe types of fire attack lines and water application devices most effective for overhaul
3. Describe water application methods for extinguishment that limit water damage
4. Identify types of tools and methods used to expose hidden fire
    - Senses
    - Hand and power tools
    - Thermal imagers
5. Describe hazard mitigation associated with overhaul
    - Atmosphere quality
        - Air monitoring
        - Respiratory protection
    - Structural integrity
    - Hidden fires
    - Fire fighter complacency
    - Construction damage (nails, insulation, etc.)
6. Identify reasons for protecting a fire scene
7. Describe obvious signs of arson, area of origin, or cause
8. List techniques for preserving fire cause evidence
9. Deploy and operate an attack line for overhaul
10. Apply water for maximum effectiveness
11. Expose and extinguish hidden fires in walls, ceilings, and subfloor spaces
12. Remove floor, ceiling, and wall components to expose void spaces without compromising structural integrity
13. Recognize and preserve obvious signs of arson, area of origin, and cause
14. Separate, remove, and relocate charred material to a safe location while protecting area of origin for cause determination
15. Evaluate for complete extinguishment

Discussion Questions

1. What safety factors should be considered when performing overhaul operations?
2. What tools and equipment are used to perform overhaul operations?
3. What are ways to preserve an area for a proper fire investigation prior to and during overhaul operations?

Application

1. Given personal protective equipment (PPE), an attack line, hand tools, a flashlight, and an assignment, have students practice overhaul activities.

Instructor Notes

1. None

CTS Guide Reference: 3-14

Skill Sheet:

- 3-14a - Overhaul a Fire Scene
- 3-14b - Remove Charred Materials

Unit 6: Fire Fighter Survival

Topic 6-1: Structural Fire Fighter Survival

Terminal Learning Objective

At the end of this topic a student, given vision-obscured conditions, personal protective equipment (PPE), self-contained breathing apparatus (SCBA), and departmental standard operating procedures (SOPs; if applicable), will be able to activate an emergency call for assistance so that a fire fighter can be located and rescued, and exit a hazardous area as a team so that a safe haven is found before exhausting the air supply, others are not endangered, and team integrity is maintained.

Enabling Learning Objectives

1. Describe recommendations for developing a fire fighter survival attitude
    - Need to develop a fire fighter survival attitude
    - Changes needed to reduce potential for serious injury and death
    - Studies performed to increase fire fighter situational awareness and enhance fireground knowledge
    - Empower and enhance fire fighter training to handle their own emergencies
    - Define what constitutes a safe haven
2. Describe how to recognize and evaluate a potentially hazardous situation
    - Key elements of conducting a thorough size-up
    - Importance of a concise size-up
    - Proper procedures for pre-incident planning
3. Describe how to prevent, recognize, call, and deal with a fire fighter emergency
    - Prevent a fire fighter emergency incident
    - Situations that create or may create a fire fighter emergency
    - G.R.A.B. L.I.V.E.S. (gauge; radio; activate; breathing; low; illuminate; volume–make noise; exit; shield for one, shield airway)
    - Proper procedures for calling a fire fighter emergency
        - L.U.N.A.R. (location, unit, name, assignment, resources)
        - N.U.C.A.N. (name, unit, conditions, actions, needs)
4. Describe how to resolve obstacles and SCBA emergencies faced during a fire fighter survival emergency
    - Determine air consumption rates
    - Perform emergency check procedures
    - Demonstrate techniques utilized by fire fighters when running out of air
    - Demonstrate techniques utilized for escaping from restrictive areas
5. Demonstrate how to overcome a variety of obstacles and SCBA emergencies faced during a fire fighter survival emergency
    - Read couplings techniques
    - Escape an entanglement emergency using the swim/sweep and SCBA removal methods
    - Escape an emergency using hose slide

- Escape an emergency using emergency ladder escape hook-two/slide-to-four method or head-first ladder escape technique
- Call “Mayday”
- Change SCBA profile using the non-removal, low or reduced profile (partial-removal), and zero or no profile (full-removal) methods
- Escape an emergency using window hang
- Escape an emergency using wall breach
- Perform an SCBA emergency procedure check

Discussion Questions

1. What are best practices for enhancing fire fighter safety and survival during fire suppression activities?
2. What are common factors that place fire fighters in need of rescue assistance in hazardous conditions?
3. What should a fire fighter do when trapped, disoriented, or out of direct contact with the crew?
4. What do “L.U.N.A.R.”, “N.U.C.A.N.”, and “G.R.A.B. L.I.V.E.S.” stand for?

Application

1. Given a simulated hazardous atmosphere in which their vision is obscured leading to disorientation, have students make an emergency call and then exit the simulated hazardous atmosphere to a safe haven and exit the building/area before their air supply is exhausted.

Instructor Notes

1. The content in this topic can be fulfilled through completion of State Fire Training’s Fire Fighter Survival (FSTEP) course or IAFF’s Fire Ground Survival program.

CTS Guide Reference: 2-4, 3-5

Skill Sheet: 3-5: Activate an Emergency Call and Exit a Hazardous Area

Unit 7: Suppression of Fires Outside of a Structure

Topic 7-1: Extinguishing Fires in Exterior Class A Materials

Terminal Learning Objective

At the end of this topic a student, given attack lines, hand tools, master stream devices, an assignment, structural personal protective equipment (PPE), and self-contained breathing apparatus (SCBA), and fires in stacked or piled materials, small unattached structures, or storage containers that can be fought from the exterior, will be able to extinguish fires in exterior Class A materials so that exposures are protected, the spread of fire is stopped, collapse hazards are avoided, water application is effective, the fire is extinguished, signs of the origin area(s) and arson are preserved.

Enabling Learning Objectives

1. Describe types of exterior fires
2. Describe types of attack lines and water streams appropriate for attacking stacked or piled materials and outdoor fires
3. Identify water application methods for exposure protection and fire extinguishment
4. Describe hazards associated with stacked and piled materials
    - Contents
    - Configuration
    - Proximity to adjacent structures
5. Describe hazards associated with storage building and container fires
    - Toxic or hazardous materials
6. Describe various extinguishing agents and their effect on different material configurations
7. Identify tools and methods used in breaking up various types of materials
8. Describe difficulties related to complete extinguishment of stacked and piled materials
9. Identify obvious signs of origin and cause
10. List techniques for preserving fire cause evidence
11. Operate hose lines and other water application devices
12. Operate handlines or master streams
    - One fire fighter method (operating a large hand line)
    - Two fire fighter method (operating a large hand line)
    - Master stream
        - Fixed
        - Portable
13. Break up material using hand tools and water streams
14. Evaluate and modify water application for maximum penetration
15. Search for and expose hidden fires
16. Assess patterns for origin determination
17. Evaluate for extension
18. Evaluate for complete extinguishment

Discussion Questions

1. What life hazards might fire fighters encounter during:

- Exterior fires?
- Outbuildings and dumpster fires?

2. What steps can you take to ensure fire fighter safety?

Application

1. Given a scenario or location, have students list possible materials found in exterior and outbuilding fires and design a fire attack plan.

Instructor Notes

1. None

CTS Guide Reference: 3-8

Skill Sheet:

- 3-8: Operate a Portable Master Stream
- 3-9: Combat a Ground Cover, Debris, or Exterior Fire

Topic 7-2: Attacking a Passenger Vehicle Fire

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment (PPE), self-contained breathing apparatus (SCBA), an attack line (1½-inch or larger), hand tools, and a passenger vehicle or prop, will be able to attack a passenger vehicle fire operating as a member of a team so that hazards including alternative power source vehicles are avoided, leaking flammable liquids are identified and controlled, protection from flash fires is maintained, all vehicle compartments are overhauled, and the fire is extinguished.

Enabling Learning Objectives

1. Describe hazardous conditions created during a passenger vehicle fire
2. Identify passenger vehicle fuel types
3. Identify alternative fuels and their associated hazards
4. Identify alternative power sources and their associated hazards
5. Identify precautions to follow when advancing hose lines toward a passenger vehicle
6. Describe principles of fire streams as they relate to fighting passenger vehicle fires
7. List observable results that a fire stream is properly applied
8. Describe common types of accidents or injuries related to fighting passenger vehicle fires and how to avoid them
9. Describe how to access locked passenger, trunk, and engine compartments
10. Identify methods for overhauling a passenger vehicle
11. Assess and control fuel leaks
12. Open, close, and adjust flow and pattern on nozzles
13. Advance 1½-inch or larger diameter attack lines on a passenger vehicle fire
14. Apply water for maximum effectiveness while maintaining flash fire protection
15. Expose hidden fires by opening all passenger vehicle compartments

Discussion Questions

1. What safety concerns are associated with passenger vehicle fires?
2. What personal protective equipment should a fire fighter wear while fighting passenger vehicle fires?
3. What hazards do hybrid and alternative fuel passenger vehicle fires present?

Application

1. Given PPE, SCBA, an attack line (1½-inch or larger), hand tools, and a passenger vehicle or prop, have students practice:
    - Avoiding or mitigating hazards
    - Identifying and controlling flammable liquids
    - Extinguishing fire
    - Overhauling vehicle compartments

Instructor Notes

1. NFPA Alternative Fuel Vehicles Training can be used to support this topic.
2. FIRESCOPE Lithium-Ion Battery Awareness Training is also useful (https://www.youtube.com/watch?v=JSj8_TVVWbk).

CTS Guide Reference: 3-7
Skill Sheet: 3-7: Attack a Passenger Vehicle Fire

Topic 7-3: Combatting a Ground Cover Fire

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment (PPE), self-contained breathing apparatus (SCBA) (if needed), hose lines, extinguishers or hand tools, and an assignment, will be able to combat a ground cover fire operating as a member of a team so that threats to property are reported, threats to personal safety are recognized, retreat is quickly accomplished when warranted and the assignment is completed.

Enabling Learning Objectives

1. Describe types of ground cover fires
2. Describe parts of ground cover fires
3. Describe methods to contain or suppress
4. Describe safety principles and practices
5. Determine exposure threats based on fire spread potential
6. Describe the types of hazards associated with encampment fires
7. Describe resources available to displaced fire victims, per AHJ
8. Protect exposures
9. Construct a fire line or extinguish with hand tools
10. Maintain integrity of established fire lines
11. Suppress ground cover fires using water

Discussion Questions

1. What constitutes a ground fire?
2. What are some of the hazards associated with encampment fires?

Application

1. Determined by instructor

Instructor Notes

1. This topic does not address wildland fires. It includes bark, grass, freeway easements, playground cover, encampments, etc.

CTS Guide Reference: 3-20

Skill Sheet: 3-9: Combat a Ground Cover, Debris, or Exterior Fire

How to Read a Course Plan

A course plan identifies the details, logistics, resources, and training and education content for an individual course. Whenever possible, course content is directly tied to a national or state standard. SFT uses the course plans as the training and education standard for an individual course. Individuals at fire agencies, academies, and community colleges use course plans to obtain their institution's consent to offer course and provide credit for their completion. Instructors use course plans to develop syllabi and lesson plans for course delivery.

Course Details
The Course Details segment identifies the logistical information required for planning, scheduling, and delivering a course.

Required Resources
The Required Resources segment identifies the resources, equipment, facilities, and personnel required to deliver the course.

Unit
Each Unit represents a collection of aligned topics. Unit 1 is the same for all SFT courses. An instructor is not required to repeat Unit 1 when teaching multiple courses within a single instructional period or academy.

Topics
Each Topic documents a single Terminal Learning Objective and the instructional activities that support it.

Terminal Learning Objective
A Terminal Learning Objective (TLO) states the instructor's expectations of student performance at the end of a specific lesson or unit. Each TLO includes a task (what the student must be able to do), a condition (the setting and supplies needed), and a standard (how well or to whose specifications the task must be performed). TLOs target the performance required when students are evaluated, not what they will do as part of the course.

Enabling Learning Objectives
The Enabling Learning Objectives (ELO) specify a detailed sequence of student activities that make up the instructional content of a lesson plan. ELOs cover the cognitive, affective, and psychomotor skills students must master to complete the TLO.

Discussion Questions
The Discussion Questions are designed to guide students into a topic or to enhance their understanding of a topic. Instructors may add to or adjust the questions to suit their students.

Application
The Application segment documents experiences that enable students to apply lecture content through cognitive and psychomotor activities, skills exercises, and formative testing. Application experiences included in the course plan are required. Instructors may add additional application experiences to suit their student population if time permits.

Instructor Notes
The Instructor Notes segment documents suggestions and resources to enhance an instructor's ability to teach a specific topic.

CTS Guide Reference
The CTS Guide Reference segment documents the standard(s) from the corresponding Certification Training Standard Guide upon which each topic within the course is based. This segment is eliminated if the course is not based on a standard.

Skill Sheet
The Skill Sheet segment documents the skill sheet that tests the content contained within the topic. This segment is eliminated if the course does not have skill sheets.