



Operations/Technician

Course Plan

Course Details

- CTS Guide:** Confined Space Rescue Operations/Technician (2021)
- Description:** This intensive hands-on course provides the skills and knowledge needed to prepare the confined space rescue technician to respond to confined space emergencies including identifying confined spaces and permit-required confined spaces, the hazards associated with permit-required confined spaces, target industries and hazards, state and federal regulations, components of a rescue operation, and the roles and responsibilities of the rescue team.
- Designed For:** Personnel preparing to pursue technical rescue certification (pending) and all emergency personnel with confined spaces within their jurisdiction
- Prerequisites:** Confined Space Rescue: Awareness (SFT)
Rope Rescue Operations* (SFT) **or** Rescue Systems 1 **and** LARRO (SFT)
HazMat First Responder Operations (SFT)
IS-100, IS-200, IS-700, IS-800 (FEMA** – online)
- Standard:** Attend and participate in all course sections
Successful completion of all skills identified on the Training Record
- Hours:** 40 hours
(13.5 lecture / 26.5 application)
- Max Class Size:** 36
- Instructor Level:** SFT Registered Confined Space Rescue Operations/Technician Instructor
- Instructor/Student Ratio:** 1:36 (lecture)
1:8 (application)
- Restrictions:** All instructors counted toward student ratios, including application components, must be SFT Registered Confined Space Rescue Operations/Technician Instructors.
- SFT Designation:** FSTEP

* If the student has completed a Rope Rescue Operations course through FEMA or another entity, the student shall show proof of completion of the Ladder Module to the Registered Instructor.

** Courses taught by outside agencies often change names and numbers. Students should enroll in the most current version of any course, even if the course name or number has changed.

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Required Resources

Instructor Resources

To teach this course, instructors need:

- *Confined Space Entry and Rescue Manual* (CMC Rescue, Inc., revised 2nd edition, ISBN: 978-0-96183-374-9)
- NFPA 1006: Standard for Technical Rescue Personnel (2021) (physical or digital access to current edition)
- Cal-OSHA CCR Title 8 Article 108 § 5157
- Manufacturer videos, manuals, and directions for equipment use
- Personal protective equipment (PPE)

Online Instructor Resources

The following instructor resources are available online at

<https://osfm.fire.ca.gov/divisions/state-fire-training/fstep-curriculum/>:

- None

Student Resources

To participate in this course, students need:

- *Confined Space Entry and Rescue Manual* (CMC Rescue, Inc., revised 2nd edition, ISBN: 978-0-96183-374-9)
- NFPA 1006: Standard for Technical Rescue Personnel (2021) (physical or digital access to current edition)
- Cal-OSHA CCR Title 8 Article 108 § 5157
- Personal Protective Equipment (PPE)
 - Helmet (brush or low profile)
 - Gloves
 - Eye protection
 - Ear protection
 - Long sleeve shirt
 - Pants
 - Safety toe boots
 - Knee pads (optional)
 - A light (e.g., head lamp)

Facilities, Equipment, and Personnel

Facilities

The following facilities are required to deliver this course:

- Standard learning environment or facility, which may include:
 - Writing board or paper easel chart
 - Markers, erasers

- Amplification devices
- Projector and screen
- Laptop or tablet with presentation or other viewing software
- Internet access with appropriate broadband capabilities
- A Confined Space Rescue Operations/Technician (CSRO/T) Training Site with the NFPA 1006 required facilities, structures, work areas, materials, props, tools, and equipment of adequate size, type, and quantity to fully and safely support the cognitive and psychomotor training required to deliver the CSRO/T curriculum

Equipment

Student safety is of paramount importance when conducting the type of high-risk training associated with this Confined Space Rescue course. The equipment listed below is the minimum for the delivery of this course. The equipment complies with or exceeds the standards listed in NFPA 1983: Standard on Fire Service Life Safety Rope, Harness, and Hardware. The student is responsible for providing all PPE and ensuring that all PPE meets AHJ and site requirements.

The following equipment is required to deliver this course:

Per Module	Equipment
1	Adequate power source (e.g., generator)
1	Extension cord(s) (enough to support operations)
1	Atmospheric monitor w/ pump and required equipment (spare per module recommended)
1	Ventilation – Fan with duct
1	Ventilation – Saddle vent with 90-degree elbow (optional as needed)
2	SCBA (can be provided by the student)
1	Supplied air – Manifold
4	Supplied air – Air line (length determined by scenario, max 300’ per entrant)
4	Supplied air – Respirator with escape cylinder
As needed	Supplied air – Breathing air
1	Victim respirator per AHJ
As needed	Mask cleaning materials (per manufacturer specifications)
1	Hardline communication system
4	Air and comm line protective covering per AHJ (optional)
2	Portable radio(s)
1	Artificial high directional
1	Raising and lowering system
1	Victim packaging/retrieval device (rated for horizontal and/or vertical lift)
1	Backboard
1	Spreader bar (optional)

1	Wristlets (sets)
4	Class III harness
1	Rope edge protection (as needed for the scenario, e.g., edge pads, edge rollers)
6	Pulley (one or more must be prusik-minding)
2	Double sheave pulley
1	Descent control device
3	NFPA 1983 "G" rated static kernmantle rope with bag (length based on scenario needs)
5	8 mm prusik loop, short
5	8 mm prusik loop, long
10	1" webbing, 5' – green
10	1" webbing, 12' – yellow
10	1" webbing, 15' – blue
10	1" webbing, 20' – orange
30	Carabiners, NFPA 1983 "G" rated
2	Fire service ground ladder
4	Entrant light source
4	Personal alert device
1	Clipboard
1	Sample entry permit forms for each scenario
1	Lock-out/Tag-out kit
1	Manikin

Training Props

The following training props are required to deliver this course:

- Aboveground Tank
 - Minimum 8' high with a vertical (top) entry through a portal of 18" to 30" and a horizontal (side) entry through a portal of 18" to 30"
- Underground Vault
 - While belowground vaults are preferred, it will be acceptable to place vaults at ground level and provide platforms to simulate ground level for placing tripods or other equipment
 - Vertical drop from the entry point must be greater than 5'
 - Tapered cross section
 - An internal configuration of inwardly converging walls or a floor that slopes downward and tapers to a smaller cross section
 - Entry may be vertical or horizontal, but horizontal but must be above the section that tapers downward
 - Horizontal Pipe
 - Below grade or aboveground pipes between 18" and 36" in diameter

- A minimum of 25' of continuous pipe shall be provided with at least one 45-degree or 90-degree bend
- One or more of the above listed spaces shall include a lock-out/tag-out prop as part of the evolution
- Permit-required confined spaces
- Minimum training prop requirements can be fulfilled by using actual permit-required confined spaces or representative spaces
- Opening Size
 - One portal of entry on any of the above props shall be less than 24"
 - Opening size is determined by measuring the shorter side of the opening

The provider or agency assumes all responsibility, liability, and maintenance for the engineering design, strength, stability, and adequacy of all props, including anchor points and tie-offs. The provider or agency further assumes all responsibility, liability, and maintenance for all tools, equipment, and supplies used at the site for the delivery of a CSRO/T class. This includes, but is not limited to, ladders, ropes, rescue hardware, and software.

Personnel

The following personnel are required to deliver this course:

- Any instructor counted toward student ratios must be an SFT Registered Confined Space Rescue Operations/Technician Instructor.

Time Table

Segment	Lecture	Application	Unit Total
Unit 1: Introduction			
Topic 1-1: Orientation and Administration	0.5	0.0	
Unit 1 Totals	0.5	0.0	0.5
Unit 2: Overview (Classroom)			
Topic 2-1: Identifying Regulations and Standards	0.5	0.0	
Topic 2-2: Describing Lessons Learned	0.25	0.0	
Topic 2-3: Defining a Confined Space	0.25	0.0	
Topic 2-4: Defining a Permit-Required Confined Space	0.25	0.0	
Topic 2-5: Describing the Required Positions and Elements of an Entry Permit	0.25	0.0	
Topic 2-6: Describing Required Personal Protective Equipment (PPE)	0.25	0.0	
Unit 2 Totals	1.75	0.0	1.75
Unit 3: Size Up and Safety (Classroom)			
Topic 3-1: Identifying Hazards	0.75	0.0	
Topic 3-2: Conducting Environmental Monitoring	0.50	0.0	
Topic 3-3: Controlling Hazards	0.5	0.0	
Topic 3-4: Mitigating Risks	0.5	0.0	
Topic 3-5: Recognizing Resource Needs	0.5	0.0	
Topic 3-6: Assessing an Incident	0.5	0.0	
Topic 3-7: Sizing Up an Incident	0.5	0.0	
Unit 3 Totals	3.75	0.0	3.75
Unit 4: Pre-Entry (Classroom)			
Topic 4-1: Applying and Using Supplied-Air Respirators (SARs)	0.25	0.0	
Topic 4-2: Preparing to Enter a Confined Space	0.25	0.0	
Unit 4 Totals	0.5	0.0	0.5
Unit 5: Entry (Classroom)			
Topic 5-1: Entering a Confined Space	0.25	0.0	
Unit 5 Totals	0.25	0.0	0.25
Unit 6: Termination (Classroom)			
Topic 6-1: Terminating a Technical Rescue Operation	0.25	0.0	
Unit 6 Totals	0.25	0.0	0.25
Unit 7: Preplanning (Classroom)			
Topic 7-1: Preplanning a Confined Space Incident	0.25	0.25	
Unit 7 Totals	0.25	0.25	0.50

Unit 8: Size Up and Safety (Drill Ground)			
Topic 8-1: Assessing an Incident	0.25	0.25	
Topic 8-2: Sizing Up an Incident	0.25	0.25	
Topic 8-3: Conducting Environmental Monitoring	0.25	0.5	
Topic 8-4: Controlling Hazards	0.25	0.5	
Unit 8 Totals	1.0	1.5	2.5
Unit 9: Pre-Entry (Drill Ground)			
Topic 9-1: Applying and Using SCBA as a Rescue Entrant	0.25	0.25	
Topic 9-2: Applying and Using Supplied-Air Respirators (SARs) as a Rescue Entrant	0.25	1.0	
Topic 9-3: Initiating a Search in Areas Immediately Visible from Entry Portal	0.25	0.5	
Topic 9-4: Preparing to Enter a Confined Space with a Hazardous Atmosphere	0.25	0.5	
Topic 9-5: Preparing to Enter a Horizontally Oriented Confined Space	0.25	1.25	
Topic 9-6: Preparing to Enter a Vertically Oriented Confined Space	0.25	1.25	
Topic 9-7: Assembling an Artificial High Directional (AHD) and Applicable Raising and Lowering Systems	0.25	1.5	
Unit 9 Totals	1.75	6.25	8.0
Unit 10: Entry (Drill Ground)			
Topic 10-1: Entering a Confined Space with Atmospheric Hazards	0.25	1.25	
Topic 10-2: Entering a Horizontally Oriented Confined Space for Rescue	0.25	1.25	
Topic 10-3: Entering a Vertically Oriented Confined Space for Rescue	0.25	1.25	
Topic 10-4: Initiating a Search in Areas Not Immediately Visible from Entry Portal	0.25	1.25	
Unit 10 Totals	1.0	5.0	6.0
Unit 11: Rescue (Drill Ground)			
Topic 11-1: Applying an Atmosphere-Supplying Respirator (ASR) to a Victim	0.25	0.25	
Topic 11-2: Performing Full Spinal Victim Immobilization	0.25	0.25	
Topic 11-3: Performing Short Spinal Victim Immobilization	0.25	0.25	
Topic 11-4: Packaging a Victim in a Litter for Removal from a Horizontally Oriented Confined Space	0.25	0.25	
Topic 11-5: Packaging a Victim in a Litter for Removal from a Vertically Oriented Confined Space	0.25	0.25	

Topic 11-6: Removing a Victim Requiring Immediate Extraction to Prevent Imminent Death	0.25	0.75	
Topic 11-7: Removing a Victim from a Horizontally Oriented Confined Space	0.25	1.0	
Topic 11-8: Removing a Victim from a Vertically Oriented Confined Space	0.25	1.5	
Unit 11 Totals	2.0	4.5	6.5
Unit 12: Termination (Drill Ground)			
Topic 12-1: Removing all Entrants from a Confined Space	0.25	0.25	
Topic 12-2: Terminating a Technical Rescue Operation	0.25	0.25	
Unit 12 Totals	0.5	0.5	1.0
Formative Assessments			
Determined by AHJ or educational institution	0.0	0.0	0.0
Summative Assessment			
Determined by AHJ or educational institution	0.0	8.0	0.0
Course Totals			
	13.5	26.5	40.0

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 every 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.
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
 - Required student resources
 - Class participation requirements

Discussion Questions

1. Determined by instructor

Application

1. Have students complete all required registration forms.

Unit 2: Overview (Classroom)

Topic 2-1: Identifying Regulations and Standards

Terminal Learning Objective

At the end of this topic a student, given applicable regulations and standards, will be able to identify and apply confined space rescue regulations and standards during confined space rescue incidents and operations.

Enabling Learning Objectives

1. Describe the difference between a regulation or law and a standard
 - Regulation or law (requirement)
 - Titles
 - Codes
 - Regulations
 - Laws
 - Acts
 - Standards (guidance)
 - Guidelines
 - Standards
 - Policies
 - Procedures
 - Best practices
2. Identify applicable industry regulations
 - Federal
 - Code of Federal Regulations, Permit-Required Confined Spaces, 26 CFR 1901.146
 - State
 - California Code of Regulations, General Industry Safety Orders, Title 8, Article 108, Sections 5156, 5157, 5158
3. Identify the applicable industry standards
 - Professional organizations
 - NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (current edition)
 - NFPA 1670: Standard on Operations and Training for Technical Search and Rescue Incidents (current edition)
 - AHJ
 - Policies and procedures

Discussion Questions

1. Which are mandatory, laws or standards?
2. Which are recommended, laws or standards?

Application

1. Determined by instructor

Instructor Resources

1. None

CTS Guide Reference: None

Topic 2-2: Describing Lessons Learned

Terminal Learning Objective

At the end of this topic a student, given reports and industry standards, will be able to describe historical confined space rescue incidents and identify risks to rescuers, bystanders, and victims so that lessons learned can be applied to future rescue incidents.

Enabling Learning Objectives

1. Identify confined space rescue training levels
 - Awareness
 - Operations
 - Technicians
2. Identify historical incidents and dangers
 - Historical and current injury and death statistics
 - Most deaths are “would-be” rescuers

Discussion Questions

1. Who is most likely to be injured or killed in a rescue incident?
2. What is the difference between awareness and technician level training?

Application

1. Determined by instructor

Instructor Notes

1. ELO1: SFT teaches Operations and Technician together in Confined Space Rescue Operations/Technician (2021). All technicians have operations level training.
2. ELO2: Use the following resources to identify historical incidents
 - [Worker Deaths in Confined Spaces: A Summary of NIOSH Surveillance and Investigative Findings \(NIOSH\)](#)
 - [Fatality Assessment and Control Evaluation \(FACE\) Program Investigations \(NIOSH\)](#)
 - U.S. Department of Health and Human Services
 - U.S. Public Health Service
 - Centers for Disease Control and Prevention
 - [Confined Space Guide for General Industry, California Department of Industrial Relations \(2019\)](#)

CTS Guide Reference: None

Topic 2-3: Defining a Confined Space

Terminal Learning Objective

At the end of this topic a student, given Cal-OSHA CCR Title 8 Article 108 § 5157, will be able to define a confined space in accordance with state standards.

Enabling Learning Objectives

1. Define the three requirements of a confined space (all three must be present)
 - Is large enough and so configured that an employee can bodily enter and perform assigned work
 - Has limited or restricted means for entry or exit
 - Is not designed for continuous employee occupancy
2. Identify examples of confined spaces
 - Tanks
 - Vessels
 - Silos
 - Storage bins
 - Hoppers
 - Vaults
 - Pits

Discussion Questions

1. What is the definition of a confined space?
2. What confined spaces might you encounter in your AHJ?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: None

Topic 2-4: Defining a Permit-Required Confined Space

Terminal Learning Objective

At the end of this topic a student, given Cal-OSHA CCR Title 8 Article 108 § 5157, will be able to define a permit-required confined space in accordance with state standards.

Enabling Learning Objectives

1. Define the conditions that indicate a permit-required confined space (any one of the four must be present)
 - Contains or has a potential to contain a hazardous atmosphere
 - Contains a material that has the potential for engulfing an entrant
 - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section
 - Contains any other recognized serious safety or health hazard

Discussion Questions

1. What is the difference between a confined space and a permit-required confined space?
2. To be permit-required, does a space need to be confined?
3. What permit-required confined spaces might you encounter in your AHJ?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: None

Topic 2-5: Describing the Required Positions and Elements of an Entry Permit

Terminal Learning Objective

At the end of this topic a student, given Cal-OSHA CCR Title 8 Article 108 § 5157, will be able to describe the mandatory positions and components of a permit-required confined-space entry.

Enabling Learning Objectives

1. Describe the duties and responsibilities of:
 - Authorized entrant
 - Attendant
 - Entry supervisor
2. Identify the minimum requirements for a confined-space entry permit

Discussion Questions

1. What are the mandatory components of a confined space entry permit?
2. What is the minimum training required of an entry supervisor?

Application

1. Given a confined space incident and images, have students complete a sample confined space entry permit.

Instructor Notes

1. Permit requirements are documented in Cal-OSHA CCR Title 8 Article 108 § 5157 and any other applicable regulations.

CTS Guide Reference: None

Topic 2-6: Describing Required Personal Protective Equipment (PPE)

Terminal Learning Objective

At the end of this topic a student, given personal protective equipment and AHJ policies and procedures will be able to describe the PPE required to safely enter and work in confined spaces.

Enabling Learning Objectives

1. Describe the physical protection required to safely enter and rescue a victim from a confined space
2. Describe the four levels of chemical protective equipment
3. Describe Self-Contained Breathing Apparatus (SCBA) used in confined space rescue
 - Breathing air conservation
 - Communication methods appropriate to breathing apparatus use in confined spaces
4. Describe supplied air respirators and their advantages and disadvantages when used in confined space rescue
5. Describe air purifying respirators and their advantages and disadvantages when used in confined space rescue
6. Describe respiratory protection factors and how they are used to determine respiratory protection levels
7. Describe elements of a respiratory protection program as required by state and federal regulations

Discussion Questions

1. What types of breathing air systems are appropriate to use in a confined space?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: None

Unit 3: Size Up and Safety (Classroom)

Topic 3-1: Identifying Hazards

Terminal Learning Objective

At the end of this topic a student, given a confined space incident and technical resources, will be able to identify incident hazards so that hazards can be mitigated prior to entry.

Enabling Learning Objectives

1. Describe hazards commonly found at confined space incidents
 - Atmospheric hazards
 - Oxygen deficient
 - Oxygen enriched
 - Flammability
 - Airborne combustible dust
 - Toxicity
 - Engulfment hazards
 - Finely divided solids
 - Liquids
 - Physical/mechanical hazards
 - Environmental hazards
 - High temperatures
 - Cryogenics
 - Corrosive hazards
 - Radiological hazards
 - Biological hazards
 - Psychological hazards
2. Describe basic physical properties of contaminants
3. Describe signs, symptoms, and behavioral impacts of hazard exposure
4. Identify types and use of technical references
 - Department of Transportation Emergency Response Guidebook (DOT ERG)
 - Safety Data Sheets (SDS)
 - Other site work permits (including site-specific entry permits)

Discussion Questions

1. What hazards might you encounter in confined spaces affiliated with different industries?
2. What hazards might you find in confined spaces found in your AHJ?
3. How can a hazard inside a confined space become a hazard in the area adjacent to the confined space?
4. What are the signs, symptoms, and behavioral effects of exposure to atmospheric hazards?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: None

Topic 3-2: Conducting Environmental Monitoring

Terminal Learning Objective

At the end of this topic a student, given monitoring equipment, reference material, PPE, accurately calibrated detection and monitoring equipment, and size-up information, will be able to conduct monitoring of the environment so that a representative sample of the space is obtained, accurate readings are made, readings are documented, and effects of ventilation in determining atmospheric conditions and the conditions of the space have been determined for exposures to existing or potential environmental hazards.

Enabling Learning Objectives

1. Identify types of detection and monitoring equipment
 - Colorimetric tubes
 - Oxygen concentration monitor (continuous reading, remote sampling)
 - Combustible gas monitor (continuous reading, remote sampling)
 - Specific toxicity monitor (continuous reading, remote sampling)
 - Multi-gas atmospheric monitors (continuous reading, remote sampling)
 - Passive dosimeter
 - pH papers, pH meters, and pH strips
 - Radiation detection instruments
2. Describe how to use detection and monitoring equipment
 - Calibration
 - Proper operation
 - Response time
 - Detection range
 - Relative response
 - Sensitivity
 - Selectivity
3. Describe capabilities and limitations of detection and monitoring equipment
 - Temperature extremes
 - Cross-sensitivity
 - Calibration
 - Power
 - Time of sampling period
 - Location of sample
 - Condition of instrument sensors
4. Describe ways to confirm calibration
5. Describe how to define confined space configuration as it applies to obtaining a representative sample of space
6. Describe how to determine contents of a confined space
7. Identify reference terms and resources including
 - Lethal concentration-50 (LC50)
 - Lethal dose-50 (LD50)
 - Permissible exposure limit (PEL)

- Threshold limit value (TLV)
- Threshold limit value — short-term exposure limit (TLVSTEL)
- Threshold limit value — time-weighted average (TLVTWA)
- IDLH
- Chemical information documents (e.g., SDS)
- Reference manuals
- Computerized reference databases
- Technical information centers
- Technical information specialists and monitoring equipment

Discussion Questions

1. What equipment does your AHJ use for environmental monitoring?
2. What factors can impact the equipment's functionality or effectiveness?

Application

1. Covered in corresponding drill ground Topic 8-3.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-3

Topic 3-3: Controlling Hazards

Terminal Learning Objective

At the end of this topic a student, given PPE and a confined space tool cache, will be able to control hazards so that the rescue area is established; access to the incident scene is controlled; rescuers are protected from exposure to hazardous materials and atmospheres, all forms of harmful energy releases, and physical hazards; and victims are protected from further harm.

Enabling Learning Objectives

1. Describe safety protocols
2. Describe isolation terminology, methods, equipment, and implementation
 - Lockout/tagout
 - Shut down system
 - Isolation
 - Apply lockout/tagout device
 - Control stored energy
3. Describe how to establish control zones (barriers)
4. Describe ventilation equipment and procedures
 - Equipment used to ventilate confined spaces
 - Techniques used for various confined space configurations
 - Common ventilation problems and ways to avoid or overcome them

Discussion Questions

1. What are the various isolation procedures?
2. Why is atmospheric monitoring performed?
3. Why is there a need for ventilation?

Application

1. Covered in corresponding drill ground Topic 8-4.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-5

Topic 3-4: Mitigating Risks

Terminal Learning Objective

At the end of this topic a student, given PPE and a confined space tool cache, will be able to identify and mitigate risk to rescuers and victims so that rescuers and victims are protected from further harm.

Enabling Learning Objectives

1. Identify common risks
 - To rescuer
 - To victim
2. Describe how to conduct a risk/benefit analysis
3. Assess victim survival profile (risk/benefit)
4. Identify risk management strategies

Discussion Questions

1. How can you increase the victim survivability profile?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: None

Topic 3-5: Recognizing Resource Needs

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue incident, will be able to recognize resource needs so that the incident is supported in accordance with AHJ policies and procedures.

Enabling Learning Objectives

1. Identify the availability, capabilities, and limitations of rescuers and other resources
2. Identify types of resources
 - Hazmat
 - Rescue
 - Medical
 - Decontamination
 - Rehabilitation
 - Law enforcement
 - Site representatives
 - Public information officer
 - Logistics
 - Utilities/public works
3. Identify needed resources
 - Personnel
 - Roles
 - Quantity
 - Rotations
 - Equipment
 - PPE, including chemical protective clothing
 - Respiratory protection
 - Harnesses
 - Communications equipment
 - High-point anchor
 - Retrieval systems
 - Monitoring devices
 - Ventilation
 - Lighting
 - Rescue tools
4. Describe how to request resources
 - AHJ policies and procedures

Discussion Questions

1. What types of resources might be required to support a confined space incident?

Application

1. Determined by instructor

Instructor Notes

1. None

CTS Guide Reference: None

Topic 3-6: Assessing an Incident

Terminal Learning Objective

At the end of this topic a student, given size-up information, information from technical resources, monitoring equipment, and PPE required to perform the assessment, will be able to assess an incident so that general area and space-specific hazards are identified, bystanders and victims are interviewed, immediate and ongoing monitoring of the space is performed, the victims' conditions and location are determined, a risk/benefit analysis is performed, methods of ingress and egress for rescuer and victims are identified, rescue systems for victim removal are determined, and an emergency means of retrieval for rescue entrants is established.

Enabling Learning Objectives

1. Describe how to use size-up information and interview techniques
 - Scope, magnitude, and nature of the incident
 - Location, number, and condition of victims
 - Risk/benefit analysis (body recovery versus rescue)
 - Access to the scene
 - Environmental factors
 - Hazards
 - Available and necessary resources
 - Establishment of a control perimeter
2. Describe permit process
3. Describe monitoring equipment protocols
4. Describe methods to identify egress from and ingress into the space
5. Describe processes to identify opening(s) and internal configuration of the space
 - Size
 - Type
 - Configuration
6. Describe rescue and retrieval systems

Discussion Questions

1. What is your AHJ's permitting process?
2. Who is a good onsite resource for identifying the interior configuration of a confined space?

Application

1. Covered in corresponding drill ground Topic 8-1

Instructor Notes

1. None

CTS Guide Reference: CTS 2-4

Topic 3-7: Sizing Up an Incident

Terminal Learning Objective

At the end of this topic a student, given background information and applicable reference materials, will be able to perform size-up of a confined space rescue incident so that the type of rescue is determined, the number of victims is identified, the last reported location of all victims is established, witnesses and reporting parties are identified and interviewed, resource needs are assessed, search parameters are identified, and information required to develop an incident action plan is obtained.

Enabling Learning Objectives

1. Describe types of reference materials and their uses including but not limited to:
 - Entry permits
 - Chemical information documents (e.g., SDS)
 - Site plans or drawings
2. Describe elements of an action plan and related information
3. Describe relationship of size-up to the incident management system
4. Describe information gathering techniques and how that information is used in the size-up process

Discussion Questions

1. What are your agency's size-up considerations?
2. What trigger points should cause you to reassess an incident?

Application

1. Covered in corresponding drill ground Topic 8-2.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-2

Unit 4: Pre-Entry (Classroom)

Topic 4-1: Applying and Using Supplied-Air Respirators (SARs)

Terminal Learning Objective

At the end of this topic a student, given a confined space incident requiring respiratory protection, a rescue assignment, a means of entry into and exit from the space, a rescue attendant outside the space, personnel to manage air lines outside of the space, a SAR, a breathing air supply system with air lines to supply the SAR, breathing apparatus cylinders, personnel to monitor and maintain the air supply system, and a confined space, will be able to apply and use supplied-air respirators (SARs) as a rescue entrant so that the internal configuration of the space will not create entanglement hazards when using air lines, the victim cannot be seen from the outside of the space's primary access opening, the portal size and configuration will not allow a rescuer to pass through the access/egress opening(s) using SCBA when worn in the manner recommended by the manufacturer, all hazards in and around the confined space have been identified and might be mitigated by using respiratory protection so that the rescue entrant passes through the portal without removal of the SAR and the assigned rescue duty is performed.

Enabling Learning Objectives

1. Identify components of a SAR
2. Describe capabilities and limitations of SAR in confined space rescue
3. Describe breathing air conservation
4. Describe air-line management and communication methods appropriate to breathing apparatus use in confined spaces

Discussion Questions

1. What are the advantages of using a SAR rather than an SCBA in a confined space?
2. What are the disadvantages of using a SAR in a confined space?

Application

1. Covered in corresponding drill ground Topic 9-1

Instructor Notes

1. None

CTS Guide Reference: CTS 3-3

Topic 4-2: Preparing to Enter a Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space with a hazardous atmosphere, atmosphere-supplied respirators, and a confined space tool cache, will be able to prepare for entry into a horizontally or vertically oriented confined space with a hazardous atmosphere so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that victim communication is established when possible, continuous atmospheric monitoring is initiated, the atmosphere is assessed to be manageable with atmosphere-supplying respirators, victim communication is established when possible, atmosphere-supplying respirators are used by rescue entrants while within the space, atmosphere-supplying respirators are rapidly applied to the victim, rescuer readiness is verified, rescuers' limitations are identified and evaluated, rescuers unsuitable to confined space entry operations are reassigned and replaced, route and methods of confined space entry are determined, and rescuer evacuation is planned.

Enabling Learning Objectives

1. Identify characteristics of a hazardous atmosphere
 - Internal configuration of the space could create entanglement hazards and retrieval might not be effective
 - Victim cannot be seen from the outside of the space's primary access opening
 - Portal size and configuration will not allow a rescuer to pass through the access/egress opening(s) using SCBA when worn in the manner recommended by the manufacturer
 - All hazards in and around the confined space have been identified and can be mitigated by using respiratory protection
2. Describe methods of entry into confined spaces with hazardous atmospheres in accordance with operational protocols
3. Identify characteristics of a horizontally oriented confined space
4. Describe methods of entry into horizontally oriented confined spaces in accordance with operational protocols
5. Identify characteristics of a vertically oriented confined space
6. Describe methods of entry into vertically oriented confined spaces in accordance with operational protocols
7. Describe organization protocol for medical and psychological evaluation related to confined space entry
8. Describe rescuer evaluation methods

Discussion Questions

1. What characteristics make a confined space a potentially hazardous area?

2. What characteristics differentiate a vertical confined space from or horizontal confined space?

Application

1. Covered in corresponding drill ground Topic 9-3, 9-4, and 9-5.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-9, CTS 2-13, CTS 3-5

Unit 5: Entry (Classroom)

Topic 5-1: Entering a Confined Space

Terminal Learning Objective

At the end of this topic a student, given hazard-specific PPE; safety, communication, and operational protocols; a confined space rescue tool cache; and a confined space with a hazardous atmosphere, will be able to enter a horizontally or vertically oriented confined space with atmospheric hazards so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that the victim is contacted, controlled confined space entry is established and maintained, atmosphere is continuously monitored, the victim's mental and physical conditions are further assessed, patient care is initiated, the patient is packaged to restrictions of the space, and patient removal can be initiated.

Enabling Learning Objectives

1. Describe principles of operation for atmospheric monitoring equipment
2. Describe methods for patient care in confined spaces
3. Describe safety protocols
4. Describe communication protocols
5. Describe medical protocols
6. Describe operational protocols
7. Describe controlled confined space entry and egress procedures for confined spaces

Discussion Questions

1. What type of victim injuries might you encounter?
2. What safety considerations apply to the rescuer?
3. What safety considerations apply to the victim?

Application

1. Covered in corresponding drill ground Topic 10-1, 10-2, and 10-3.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-10, CTS 2-14, CTS 3-6

Unit 6: Termination (Classroom)

Topic 6-1: Terminating a Technical Rescue Operation

Terminal Learning Objective

At the end of this topic a student, given an incident scenario, assigned resources, and site safety data, will be able to terminate a technical rescue operation so that rescuer risk and site safety are managed, scene security is maintained, and custody transferred to a responsible party, personnel and resources are returned to a state of readiness, record-keeping and documentation occur, and post-event analysis is conducted.

Enabling Learning Objectives

1. Describe Incident Command functions and resources
2. Describe hazard identification and risk management strategies
3. Describe logistics and resource management
4. Describe personnel accountability systems
5. Describe AHJ-specific procedures or protocols related to personnel rehab
6. Describe record-keeping and documentation requirements (federal, state, AHJ)

Discussion Questions

1. At what point is a confined space incident “terminated”?
2. How long are you required to maintain your confined space permit after termination?

Application

1. Covered in corresponding drill ground Topic 12-2

Instructor Notes

1. None

CTS Guide Reference: CTS 2-18

Unit 7: Preplanning (Classroom)

Topic 7-1: Preplanning a Confined Space Incident

Terminal Learning Objective

At the end of this topic a student, given applicable guidelines and regulations and a preplan form, will be able to preplan a confined space incident so that a standard approach is used during a confined space rescue emergency, hazards are recognized and documented, isolation methods are identified and documented, all accesses to the location of the confined space entry opening are identified and documented, all types of confined space entry openings are identified and documented, and internal configurations and special resource needs are documented for future rescuer use.

Enabling Learning Objectives

1. Identify operational protocols
2. Identify preplan forms
3. Identify hazards common to jurisdictional boundaries
4. Identify hazards that should and must be identified on preplans
5. Identify isolation methods and issues related to preplanning
6. Identify issues and constraints related to type of confined space opening
7. Identify internal configuration special resource needs
8. Identify applicable legal issues
9. Select a preplan form
10. Draft or draw a sketch of confined spaces
11. Complete supplied forms
12. Identify and evaluate:
 - Various configurations of confined spaces
 - Access points
 - Confined space entry openings
 - Isolation procedures
 - Energy control locations
13. Recognize general and site-specific hazards
14. Document all data
15. Apply all regulatory compliance references

Discussion Questions

1. What type of information should you include in a confined space preplan?
2. How often must a facility with permit-required confined spaces allow rescue services to access their site?
3. Where does your agency keep its completed preplans?

Application

1. Given applicable guidelines and regulations, a preplan form, and a sample confined space rescue scenario, have students preplan a confined space incident.

Instructor Notes

1. None

CTS Guide Reference: CTS 3-2

Unit 8: Size Up and Safety (Drill Ground)

Topic 8-1: Assessing an Incident

Terminal Learning Objective

At the end of this topic a student, given size-up information, information from technical resources, monitoring equipment, and PPE required to perform the assessment, will be able to assess the incident so that general area and space-specific hazards are identified, bystanders and victims are interviewed, immediate and ongoing monitoring of the space is performed, the victims' conditions and location are determined, a risk/benefit analysis is performed, methods of ingress and egress for rescuer and victims are identified, rescue systems for victim removal are determined, and an emergency means of retrieval for rescue entrants is established.

Enabling Learning Objectives

1. Select and interpret size-up information
2. Operate monitoring equipment
3. Conduct interviews
4. Choose and utilize PPE
5. Identify hazard mitigation options
6. Recognize characteristics and hazards of confined spaces
7. Identify probable victim location
8. Perform risk/benefit analysis
9. Describe rescue and retrieval systems
10. Evaluate specific rescue systems for confined space entry and retrieval of rescuers and victims during confined space incidents

Discussion Questions

1. Determined by instructor

Application

1. Given size-up information, information from technical resources, monitoring equipment, and PPE required to perform the assessment, have students assess a confined space rescue evolution.

Instructor Notes

1. See corresponding classroom content in Topic 3-6.

CTS Guide Reference: CTS 2-4

Topic 8-2: Sizing Up an Incident

Terminal Learning Objective

At the end of this topic a student, given background information and applicable reference materials, will be able to perform size-up of a confined space rescue incident so that the type of rescue is determined, the number of victims is identified, the last reported location of all victims is established, witnesses and reporting parties are identified and interviewed, resource needs are assessed, search parameters are identified, and information required to develop an incident action plan is obtained.

Enabling Learning Objectives

1. Read technical rescue reference materials
2. Gather information
3. Relay information
4. Use information gathering sources

Discussion Questions

1. Determined by instructor

Application

1. Given background information and applicable reference materials, have students perform size-up of a confined space rescue evolution.

Instructor Notes

1. See corresponding classroom content in Topic 3-7.

CTS Guide Reference: CTS 2-2

Topic 8-3: Conduct Environmental Monitoring

Terminal Learning Objective

At the end of this topic a student, given monitoring equipment reference material, PPE, accurately calibrated detection and monitoring equipment, and size-up information, will be able to conduct monitoring of the environment so that a representative sample of the space is obtained, accurate readings are made, readings are documented, and effects of ventilation in determining atmospheric conditions and the conditions of the space have been determined for exposures to existing or potential environmental hazards.

Enabling Learning Objectives

1. Use and confirm calibration of detection and monitoring equipment
2. Acquire representative samples of space

Discussion Questions

1. Determined by instructor

Application

1. Given monitoring equipment reference material, PPE, accurately calibrated detection and monitoring equipment, and size-up information, have students conduct monitoring of the environment in a confined space evolution.

Instructor Notes

1. See corresponding classroom content in Topic 3-2.

CTS Guide Reference: CTS 2-3

Topic 8-4: Controlling Hazards

Terminal Learning Objective

At the end of this topic a student, given PPE and a confined space tool cache, will be able to control hazards so that the rescue area is established; access to the incident scene is controlled; rescuers are protected from exposure to hazardous materials and atmospheres, all forms of harmful energy releases, and physical hazards; and victims are protected from further harm.

Enabling Learning Objectives

1. Describe monitoring equipment and procedures
2. Describe ventilation equipment and procedures
3. Describe forms, sources, and control of harmful energy and physical hazards in the confined space
4. Utilize PPE
5. Place scene control barriers
6. Operate atmospheric monitoring equipment
7. Ventilate a confined space
8. Identify dangerous forms of energy
9. Mitigate physical and atmospheric hazards

Discussion Questions

1. Determined by instructor

Application

1. Given PPE and a confined space tool cache, have students control hazards in a confined space evolution.

Instructor Notes

1. See corresponding classroom content in Topic 3-3.

CTS Guide Reference: CTS 2-5

Unit 9: Pre-Entry (Drill Ground)

Topic 9-1: Applying and Using SCBA as a Rescue Entrant

Terminal Learning Objective

At the end of this topic a student, given a confined space incident requiring respiratory protection, a rescue assignment, a means of entry into and exit from the space, a rescue attendant outside the space, SCBA, breathing apparatus cylinders, and a confined space, will be able to apply and use self-contained breathing apparatus (SCBA) as a rescue entrant so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be seen easily from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection, the rescue entrant passes through the portal without removal of the SCBA, the assigned rescue duty is performed, the rescue entrant frequently assesses the level of air remaining in the cylinder and communicates this level to rescuers outside of the space, and the rescue entrant exits the space prior to activation of the low-pressure alarm on the SCBA.

Enabling Learning Objectives

1. Describe the capabilities and limitations of SCBA in confined space rescue
2. Describe breathing air conservation
3. Describe communication methods appropriate to breathing apparatus use in confined spaces
4. Use SCBA in a confined space entry for rescue
5. Use breathing techniques that will conserve the air supply
6. Use communication methods that effectively convey information between rescuers inside and outside of the space

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space evolution requiring respiratory protection, a rescue assignment, a means of entry into and exit from the space, a rescue attendant outside the space, SCBA, breathing apparatus cylinders, and a confined space, have students apply and use self-contained breathing apparatus (SCBA) as a rescue entrant.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-6

Topic 9-2: Applying and Using Supplied-Air Respirators (SARs) as a Rescue Entrant

Terminal Learning Objective

At the end of this topic a student, given a confined space incident requiring respiratory protection, a rescue assignment, a means of entry into and exit from the space, a rescue attendant outside the space, personnel to manage air lines outside of the space, a SAR, a breathing air supply system with air lines to supply the SAR, breathing apparatus cylinders, personnel to monitor and maintain the air supply system, and a confined space, will be able to apply and use supplied-air respirators (SARs) as a rescue entrant so that the internal configuration of the space will not create entanglement hazards when using air lines, the victim cannot be seen from the outside of the space's primary access opening, the portal size and configuration will not allow a rescuer to pass through the access/egress opening(s) using SCBA when worn in the manner recommended by the manufacturer, all hazards in and around the confined space have been identified and might be mitigated by using respiratory protection so that the rescue entrant passes through the portal without removal of the SAR and the assigned rescue duty is performed.

Enabling Learning Objectives

1. Describe the capabilities and limitations of SAR in confined space rescue
2. Describe breathing air conservation
3. Describe air-line management
4. Describe communication methods appropriate to breathing apparatus use in confined spaces
5. Use SARs in a confined space entry for rescue
6. Use breathing techniques that will conserve the air supply
7. Manage airlines while working within the space
8. Use communication methods that effectively convey information between rescuers inside and outside of the space

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space evolution requiring respiratory protection, a rescue assignment, a means of entry into and exit from the space, a rescue attendant outside the space, personnel to manage air lines outside of the space, a SAR, a breathing air supply system with air lines to supply the SAR, breathing apparatus cylinders, personnel to monitor and maintain the air supply system, and a confined space, have students apply and use supplied-air respirators (SARs) as a rescue entrant.

Instructor Notes

1. See corresponding classroom content in Topic 4-1.

CTS Guide Reference: CTS 3-3

Topic 9-3: Initiating a Search in Areas Immediately Visible from Entry Portal

Terminal Learning Objective

At the end of this topic a student, given hazard-specific PPE, equipment pertinent to the search mission, a confined space, and victim investigative information, will be able to initiate a search inside a confined space in those areas immediately visible from the confined space entry portal so that search parameters are established; the victim profile is established; the people in or around the search area are questioned and the information is updated and relayed to command; the personnel assignments match their expertise; all victims inside the space that are immediately visible from outside the portal are located and identified quickly; applicable technical rescue concerns are managed; risks to searchers are minimized; and all searchers are accounted for.

Enabling Learning Objectives

1. Identify local policies and procedures
2. Describe how to operate in the environment surrounding the area of the confined space access area
3. Work in the immediate area of the confined space entry portal
4. Perform immediate escape from the area if conditions become untenable

Discussion Questions

1. Determined by instructor

Application

1. Given hazard-specific PPE, equipment pertinent to the search mission, a confined space evolution, and victim investigative information, have students initiate a search inside a confined space in those areas immediately visible from the confined space entry portal.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-1

Topic 9-4: Preparing to Enter a Confined Space with a Hazardous Atmosphere

Terminal Learning Objective

At the end of this topic a student, given a confined space with a hazardous atmosphere, atmosphere-supplied respirators, and a confined space tool cache, will be able to prepare for entry into the confined space with a hazardous atmosphere so that entry can be made into a confined space that contains one or more of the following characteristics: the internal configuration of the space could create entanglement hazards and retrieval might not be effective, the victim cannot be seen from the outside of the space's primary access opening, the portal size and configuration will not allow a rescuer to pass through the access/egress opening(s) using SCBA when worn in the manner recommended by the manufacturer, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that continuous atmospheric monitoring is initiated, the atmosphere is assessed to be manageable with atmosphere-supplying respirators, victim communication is established when possible, atmosphere-supplying respirators are used by rescue entrants while within the space, atmosphere-supplying respirators are rapidly applied to the victim, rescuer readiness is verified, rescuers' limitations are identified and evaluated, rescuers unsuitable to entry operations are reassigned and replaced, route and methods of confined space entry are determined, and rescuer evacuation is planned.

Enabling Learning Objectives

1. Describe how to operate required hazard-specific monitoring equipment
2. Describe how to operate required atmosphere supplying respirators
3. Describe methods of entry into confined spaces with hazardous atmospheres in accordance with operational protocols
4. Operate monitoring equipment
5. Perform rescuer pre-entry medical exam
6. Evaluate rescuer capabilities and limitations
7. Identify victim communication needs
8. Evaluate for point and route of confined space entry
9. Select evacuation methods

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space evolution with a hazardous atmosphere, atmosphere-supplied respirators, and a confined space tool cache, have students prepare for entry into the confined space.

Instructor Notes

1. See corresponding classroom content in Topic 4-2.

CTS Guide Reference: CTS 3-5

Topic 9-5: Preparing to Enter a Horizontally Oriented Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache and a confined space, will be able to prepare for entry into horizontally oriented confined space so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that victim communication is established when possible, continuous atmospheric monitoring is initiated, rescuer readiness is verified, rescuers' limitations are identified and evaluated, rescuers unsuitable to confined space entry operations are reassigned and replaced, route and methods of entry are determined, and rescuer evacuation is planned.

Enabling Learning Objectives

1. Describe how to operate required hazard-specific monitoring equipment
2. Describe methods of entry into confined spaces in accordance with operational protocols
3. Operate monitoring equipment
4. Perform rescuer pre-entry medical exam
5. Evaluate rescuer capabilities and limitations
6. Identify victim communication needs
7. Evaluate for point and route of confined space entry
8. Select evacuation methods

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space rescue tool cache and a horizontally oriented confined space evolution, have students prepare for entry.

Instructor Notes

1. See corresponding classroom content in Topic 4-2.

CTS Guide Reference: CTS 2-9

Topic 9-6: Preparing to Enter a Vertically Oriented Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache and a confined space, will be able to prepare for entry into vertically oriented confined space so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that victim communication is established when possible, continuous atmospheric monitoring is initiated, rescuer readiness is verified, rescuers' limitations are identified and evaluated, rescuers unsuitable to entry operations are reassigned and replaced, route and methods of confined space entry are determined, and rescuer evacuation is planned.

Enabling Learning Objectives

1. Describe how to operate required hazard-specific monitoring equipment
2. Describe methods of entry into confined spaces in accordance with operational protocols
3. Operate monitoring equipment
4. Perform rescuer pre-entry medical exam
5. Evaluate rescuer capabilities and limitations
6. Identify victim communication needs
7. Evaluate for point and route of confined space entry
8. Select evacuation methods

Discussion Questions

1. Determined by instruction

Application

1. Given a confined space rescue tool cache and a vertically oriented confined space evolution, have students prepare for entry.

Instructor Notes

1. See corresponding classroom content in Topic 4-2.

CTS Guide Reference: CTS 2-13

Topic 9-7: Assembling an Artificial High Directional (AHD) and Applicable Raising and Lowering Systems

Terminal Learning Objective

At the end of this topic a student, given an AHD, additional rescuers to assist in the assembly, and a vertically oriented space with a portal above which to set the AHD, will be able to assemble an AHD for application of a high point of attachment to a confined space rescue system so that the AHD is assembled in accordance with the manufacturer's recommendations, rescue systems are attached and secured to the AHD and the AHD provides enough clearance above the portal to fully extract a victim packaged in a vertically oriented litter.

Enabling Learning Objectives

1. Describe capabilities and limitations of AHDs in confined space rescue
2. Describe assembly procedures for the AHD utilized
3. Describe methods for stabilization of AHDs to prevent unnecessary movement
4. Describe force application to AHDs
5. Describe proper direction of that force to prevent movement or collapse
6. Assemble the AHD with assistance of other rescuers
7. Attach the rescue system to the AHD
8. Position the device high enough to provide adequate clearance area above the portal to allow removal of a vertically oriented litter
9. Operate the system in a way that will keep the AHD stable while lifting a load

Discussion Questions

1. What are some alternate vertical entry approaches other than an AHD?
2. What are the limitations of an improvised vs. a manufactured AHD?

Application

1. Given an AHD, additional rescuers to assist in the assembly, and a vertically oriented space with a portal above which to set the AHD, have students assemble an AHD for application of a high point of attachment to a confined space rescue system.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-12

Unit 10: Entry (Drill Ground)

Topic 10-1: Entering a Confined Space with Atmospheric Hazards

Terminal Learning Objective

At the end of this topic a student, given hazard-specific PPE; safety, communication, and operational protocols; a confined space with a hazardous atmosphere; a confined space rescue tool cache, will be able to enter a confined space with atmospheric hazards so that the victim is contacted; and a confined space, so that the internal configuration of the space could create entanglement hazards and retrieval might not be effective, the victim cannot be seen from the outside of the space's primary access opening, the portal size and configuration will not allow a rescuer to pass through the access/egress opening(s) using SCBA when worn in the manner recommended by the manufacturer, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that a controlled confined space entry is established and maintained, the atmosphere is continuously monitored, the rescuers and patient(s) are protected from the hazards, the victim's mental and physical conditions are further assessed, patient care is initiated, the patient is packaged to restrictions of the space, and patient removal can be initiated.

Enabling Learning Objectives

1. Describe principles of operation for atmospheric monitoring equipment
2. Describe methods for patient care in confined spaces
3. Describe safety protocols
4. Describe communication protocols
 - Hand signals
 - Rope
 - Portable radio
 - Hardwire
5. Describe medical protocols
6. Describe operational protocols
7. Use and apply hazard-specific PPE and rescue-related systems and equipment
8. Implement safety, communication, and operational protocols
9. Use medical protocols to determine treatment priorities
10. Use medical equipment specific to confined space victim needs
11. Reassess and confirm mode of operation

Discussion Questions

1. What does "intrinsically safe" mean?
2. What are some communication challenges when operating in a confined space?

Application

1. Given hazard-specific PPE; safety, communication, and operational protocols; a confined space evolution with a hazardous atmosphere; and a confined space rescue tool cache, have students enter a confined space evolution with atmospheric hazards.

Instructor Notes

1. See corresponding classroom content in Topic 5-1.

CTS Guide Reference: CTS 3-6

Topic 10-2: Entering a Horizontally Oriented Confined Space for Rescue

Terminal Learning Objective

At the end of this topic a student, given PPE; safety, communication, and operational protocols; portable lighting; and a confined space rescue tool cache; a retrieval system; and a confined space, will be able to enter a horizontally oriented confined space for rescue so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that the victim is contacted, controlled confined space entry is established and maintained, atmosphere is monitored continuously, the victim's mental and physical conditions are assessed further, the rescue entrant is aided by portable lighting, rescue entrants are attached to retrieval lines at all times, patient care is initiated, the patient is packaged to restrictions of the space, and patient removal can be initiated.

Enabling Learning Objectives

1. Describe principles of operation for atmospheric monitoring equipment
2. Describe methods for patient care in confined spaces
3. Describe portable lighting methods
4. Describe safety protocols
5. Describe communication protocols
6. Describe medical protocols
7. Describe operational protocols
8. Describe controlled confined space entry and egress procedures
9. Use non-entry retrieval lines
10. Use and apply PPE and rescue-related systems and equipment
11. Use portable lighting in a darkened environment
12. Implement safety, communication, and operational protocols
13. Use medical protocols to determine treatment priorities
14. Use medical equipment specific to confined space victim needs
15. Reassess and confirm mode of operation

Discussion Questions

1. Determined by instructor

Application

1. Given PPE; safety, communication, and operational protocols; portable lighting; a confined space rescue tool cache; a retrieval system; and a confined space evolution, have students enter a horizontally oriented confined space for rescue.

Instructor Notes

1. See corresponding classroom content in Topic 5-1.

CTS Guide Reference: CTS 2-10

Topic 10-3: Enter a Vertically Oriented Confined Space for Rescue

Terminal Learning Objective

At the end of this topic a student, given PPE; safety, communication, operational protocols; a confined space rescue tool cache; and a confined space, will be able to enter a vertically oriented confined space for rescue, so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that the victim is contacted, controlled confined space entry is established and maintained, atmosphere is continuously monitored, the victim's mental and physical conditions are further assessed, patient care is initiated, the patient is packaged to restrictions of the space, and patient removal can be initiated.

Enabling Learning Objectives

1. Describe principles of operation for atmospheric monitoring equipment
2. Describe methods for patient care in confined spaces
3. Describe safety protocols
4. Describe communication protocols
5. Describe medical protocols
6. Describe operational protocols
7. Use non-entry retrieval lines
8. Use and apply PPE and rescue-related systems and equipment
9. Implement safety, communication, and operational protocols
10. Use medical protocols to determine treatment priorities
11. Use medical equipment specific to confined space victim needs
12. Reassess and confirm mode of operation

Discussion Questions

1. Determined by instructor

Application

1. Given PPE; safety, communication, operational protocols; a confined space rescue tool cache; and a confined space evolution, have students enter a vertically oriented confined space for rescue.

Instructor Notes

1. See corresponding classroom content in Topic 5-1.

CTS Guide Reference: CTS 2-14

Topic 10-4: Initiating a Search in Areas Not Immediately Visible from Entry Portal

Terminal Learning Objective

At the end of this topic a student, given hazard-specific PPE, confined space rescue entrant(s) to perform the search, equipment pertinent to the search mission, a confined space, and victim investigative information, will be able to initiate a search inside a confined space in those areas not immediately visible from the confined space entry portal so that search parameters are established; the victim profile is established; search result information is acquired and relayed to command; the personnel assignments match their expertise; all victims inside the space are located and identified quickly; applicable technical rescue concerns are managed; risks to searchers are minimized; and all searchers are accounted for.

Enabling Learning Objectives

1. Identify local policies and procedures
2. Describe how to operate inside the confined space
3. Work inside the confined space
4. Communicate with rescuers outside the confined space portal
5. Perform self-rescue if conditions become untenable (when possible)

Discussion Questions

1. Will non-entry rescue be affected in this circumstance?

Application

1. Given hazard-specific PPE, confined space rescue entrant(s) to perform the search, equipment pertinent to the search mission, a confined space evolution, and victim investigative information, have students initiate a search inside a confined space in those areas not immediately visible from the entry portal.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 3-1

Unit 11: Rescue (Drill Ground)

Topic 11-1: Applying an Atmosphere-Supplying Respirator (ASR) to a Victim

Terminal Learning Objective

At the end of this topic a student, given a confined space incident requiring respiratory protection, a live victim, an atmosphere-supplying respirator and associated equipment, and a confined space, will be able to apply an atmosphere-supplying respirator to a victim so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement; the victim can be easily seen from the outside of the space's primary access opening; rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer; the space can accommodate two or more rescuers in addition to the victim; all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection; the apparatus face piece is applied rapidly, positioned properly on the face and without air leakage; application of the face piece can be performed simultaneously with spinal precautions; the breathing apparatus unit is securely placed during victim movement so the face piece will not be pulled from the victim's face during movement; the level of air remaining in the victim's breathing apparatus is frequently accessed and communicated; and the victim is removed from the space without interruption of the air supply.

Enabling Learning Objectives

1. Describe capabilities and limitations of atmosphere supplying respirators (SCBA or SAR) for victims in confined space rescue
2. Describe expected victim air usage
3. Describe methods for applying face pieces to victims:
 - Wearing helmets
 - With spinal injuries
4. Describe methods for securing a victim's breathing apparatus unit when:
 - Packaged in litters
 - Attached to rope rescue systems
 - Being dragged along a horizontal plane
5. Describe communication methods in confined spaces
6. Apply a patent air supply to a victim in a confined space rescue
 - Assure there is no interruption of the breathing air supply, which could cause asphyxiation
 - Continuously check air systems for proper application and operation during movement
 - Failure to recognize an issue could result in the victim's death
7. Move the victim wearing breathing apparatus without interruption or compromise of their air supply or face piece seal
8. Monitoring the victim's air supply continuously during operations
9. Use communication methods that effectively convey information between rescuers inside and outside of the space

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space evolution requiring respiratory protection, a live victim, an atmosphere-supplying respirator and associated equipment, and a confined space, have students apply an atmosphere-supplying respirator to a victim.

Instructor Notes

1. During training exercises, it is recommended that live victims have access to their facepieces so that they can remove the regulator or facepiece should accidental cessation of air supply occur. If a victim cannot access a facepiece due to packaging methods used or other conditions associated with the rescue simulation, it is highly recommended that the facepiece regulator be removed from the facepiece during that segment of the evolution. (NFPA 1006 – A.7.2.7)

CTS Guide Reference: CTS 2-7

Topic 11-2: Performing Full Spinal Victim Immobilization

Terminal Learning Objective

At the end of this topic a student, given a confined space incident requiring spinal precautions, a victim, full spinal immobilization equipment, a second rescuer to assist, and a confined space, will be able to perform full spinal immobilization of a victim inside a confined space so that the internal configuration of the space is clear and unobstructed so retrieval systems can be utilized for rescuers without possibility of entanglement, the victim can be easily seen from the outside of the space's primary access opening, rescuers can pass easily through the access/egress opening(s) with room to spare when PPE is worn in the manner recommended by the manufacturer, the space can accommodate two or more rescuers in addition to the victim, all hazards in and around the confined space have been identified and can be mitigated by using respiratory protection so that the victim's cervical spine is manually maintained in a neutral position immediately on contact and maintained until the body and head are completely immobilized and secure, victim movement onto the spinal immobilization device creates minimal manipulation of the spine, void spaces between the victim and immobilization device are padded as appropriate, victim securement to the immobilization device will prevent spinal manipulation during movement, and applicable local treatment protocols are followed.

Enabling Learning Objectives

1. Describe capabilities and limitations of long spine immobilization equipment for victims in confined space rescue
2. Describe methods for movement of a victim onto a long spine immobilizer with minimum spinal manipulation
3. Describe methods for securing a victim's body on a long spine immobilizer
4. Describe methods for securing a victim's head on a long spine immobilizer
5. Describe other long spinal immobilization treatment modalities and procedures
6. Maintain manual immobilization of a victim's head during the immobilization process
7. Assist in moving the victim to a long spine immobilizer with only two persons with minimal spinal manipulation
8. Apply void space padding as needed based on the immobilization device
9. Apply and secure the victim's body and head to a long spinal immobilization device

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space evolution requiring spinal precautions, a victim, full spinal immobilization equipment, a second rescuer to assist, and a confined space, have students perform full spinal immobilization of a victim inside a confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-8

Topic 11-3: Performing Short Spinal Victim Immobilization

Terminal Learning Objective

At the end of this topic a student, given a confined space incident requiring spinal precautions, a stable victim, a short spinal immobilization device, a second rescuer to assist, and a confined space, will be able to perform short spinal immobilization of a victim inside a confined space so that the portal size or internal configuration will not allow the application of a full spine immobilization device, all hazards in and around the confined space have been identified and might be mitigated by using respiratory protection so that the victim's cervical spine is manually maintained in a neutral position immediately on contact and maintained until the short immobilization device is completely applied and secure, victim movement onto the spinal immobilization device creates minimal manipulation of the spine, void spaces between the victim and immobilization device are padded as appropriate, victim securement to the immobilization device will reduce spinal manipulation during movement, and applicable local treatment protocols are followed.

Enabling Learning Objectives

1. Describe capabilities and limitations of short spine immobilization equipment for victims in confined space rescue
2. Describe methods for movement of a victim onto a long spine immobilizer with minimum spinal manipulation
3. Describe methods for securing a victim onto a short spine immobilizer
4. Describe methods for securing a victim's head on a short spine immobilizer
5. Describe other short spinal immobilization treatment modalities and procedures
6. Maintain manual immobilization of a victim's head during the immobilization process
7. Assist in moving the victim to a short spine immobilizer with only two persons with minimal spinal manipulation
8. Apply void space padding as needed based on the immobilization device
9. Apply and secure the victim's upper body and head to a short spinal immobilization device

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space incident evolution requiring spinal precautions, a stable victim, a short spinal immobilization device, a second rescuer to assist, and a confined space, have students perform short spinal immobilization of a victim inside a confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 3-4

Topic 11-4: Packaging a Victim in a Litter for Removal from a Horizontally Oriented Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache, a litter and associated rigging equipment, a space that provides enough internal and external clearance to maneuver a litter in and around the space, will be able to package the victim in a litter for removal from a horizontally oriented confined space so that the victim is secured to the litter, the litter is secured to the rescue system if needed, the litter will pass through the portal, the victim is protected during the extraction, and further harm to the victim is minimized.

Enabling Learning Objectives

1. Describe spinal management techniques
2. Describe victim packaging techniques
3. Describe how to use low-profile packaging devices and equipment
 - Full spine immobilization devices
 - Short spine immobilization devices
 - Cervical spine immobilization devices
 - Litters
4. Describe methods to reduce or avoid damage to equipment
5. Describe similarities and differences between packaging for confined spaces and other types of rescue
6. Immobilize a victim's spine
7. Package victims in litters or low-profile devices
8. Recognize and perform basic management of various traumatic injuries and medical conditions
9. Support respiratory efforts
10. Perform local treatment modalities as required based on the environment

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space rescue tool cache, a horizontally oriented litter and associated rigging equipment, and a work area that provides enough horizontal clearance to extract a horizontally oriented litter and a victim, have students package a victim in a litter for removal from a horizontally oriented confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-11

Topic 11-5: Packaging a Victim in a Litter for Removal from a Vertically Oriented Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache, a vertically oriented litter and associated rigging equipment, a work area that provides enough vertical clearance to extract a vertically oriented litter and a victim, will be able to package the victim in a litter for removal from a vertically oriented confined space so that the victim is secured to the litter, the litter is secured to the rescue system in a vertical configuration, the litter will pass through the portal, the litter can be raised high enough to clear the portal, the victim is protected during the extraction, and further harm to the victim is minimized.

Enabling Learning Objectives

1. Describe spinal management techniques
2. Describe victim packaging techniques
3. Describe how to use low-profile packaging devices and equipment
 - Full spine immobilization devices
 - Short spine immobilization devices
 - Cervical spine immobilization devices
 - Litters
4. Describe methods to reduce or avoid damage to equipment,
5. Describe similarities and differences between packaging for confined spaces and other types of rescue
6. Immobilize a victim's spine
7. Package victims in litters or low-profile devices
8. Describe the pathophysiology of suspension trauma related to packaging devices
9. Recognize and perform basic management of various traumatic injuries and medical conditions
10. Support respiratory efforts
11. Perform local treatment modalities as required based on the environment

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space rescue tool cache, a vertically oriented litter and associated rigging equipment, and a work area that provides enough vertical clearance to extract a vertically oriented litter and a victim, have students package a victim in a litter for removal from a vertically oriented confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-15

Topic 11-6: Removing a Victim Requiring Immediate Extraction to Prevent Imminent Death

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache, victim harnesses and rigging, a victim who has been discovered to be in respiratory arrest, and conditions inside the space requiring immediate extraction to prevent imminent death of the victim, will be able to remove a victim so that the victim is rapidly secured in an extraction harness, the harness is secured to the rescue system, and the victim is removed from the space.

Enabling Learning Objectives

1. Describe rapid victim harness application techniques
2. Describe methods to reduce or avoid damage to equipment
3. Describe the similarities and differences between packaging for conditions of imminent danger compared to those that are stable
4. Recognize the immediate threat and need for rapid extraction
5. Rapid application of victim harnesses and rigging to rescue systems

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space rescue tool cache, victim harnesses and rigging, a victim who has been discovered to be in respiratory arrest, and conditions inside the space requiring immediate extraction to prevent imminent death of the victim, have students remove a victim from a confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-16

Topic 11-7: Removing a Victim from a Horizontally Oriented Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache, rigging, and a packaged victim, will be able to remove a victim from a horizontally oriented confined space so that the victim is secured to the rescue system, the litter passes through the portal, the victim is protected during the extraction, and further harm to the victim is minimized.

Enabling Learning Objectives

1. Describe rigging application techniques
2. Describe methods to reduce or avoid damage to equipment
3. Apply rigging to assist horizontal movement
 - Inside confined space
 - Outside confined space

Discussion Questions

1. Determined by instructor

Application

1. Given a confined space rescue tool cache, rigging, and a packaged victim, have students remove a victim from a horizontally oriented confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-17

Topic 11-8: Removing a Victim from a Vertically Oriented Confined Space

Terminal Learning Objective

At the end of this topic a student, given a confined space rescue tool cache, rigging, and a packaged victim, will be able to remove a victim from a vertically oriented confined space so that the victim is secured to the rescue system, the litter passes through the portal, the victim is protected during the extraction, and further harm to the victim is minimized.

Enabling Learning Objectives

1. Describe rigging application techniques
2. Describe methods to reduce or avoid damage to equipment
3. Apply rigging to assist vertical movement

Discussion Questions

1. How would you remove a victim from a confined space with both horizontal and vertical orientations?

Application

1. Given a confined space rescue tool cache, rigging, and a packaged victim, have students remove a victim from a vertically oriented confined space.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-18

Unit 12: Termination (Drill Ground)

Topic 12-1: Removing all Entrants from a Confined Space

Terminal Learning Objective

At the end of this topic a student, given PPE, rope and related rescue and retrieval systems, personnel to operate rescue and retrieval systems, and a confined space rescue tool cache, will be able to remove all entrants from a confined space so that internal obstacles and hazards are negotiated, all persons are extricated from a space in the selected transfer device, the victim and rescuers are decontaminated as necessary, and the victim is delivered to the EMS provider.

Enabling Learning Objectives

1. Describe operational protocols
2. Describe medical protocols (if applicable)
3. Describe decontamination procedures
4. Describe rescue and retrieval systems and equipment
5. Select and operate rescue and retrieval systems used for removal
6. Utilize medical equipment (if applicable)
7. Use equipment and procedures for decontamination

Discussion Questions

1. Determined by instructor

Application

1. Given PPE, rope and related rescue and retrieval systems, personnel to operate rescue and retrieval systems, and a confined space rescue tool cache, have students remove all entrants from a confined space.

Instructor Notes

1. Teach both the cognitive and psychomotor portions of this lesson on the drill ground.

CTS Guide Reference: CTS 2-19

Topic 12-2: Terminating a Technical Rescue Operation

Terminal Learning Objective

At the end of this topic a student, given an incident scenario, assigned resources, and site safety data, will be able to terminate a technical rescue operation so that rescuer risk and site safety are managed, scene security is maintained and custody transferred to a responsible party, personnel and resources are returned to a state of readiness, record-keeping and documentation occur, and post-event analysis is conducted.

Enabling Learning Objectives

1. Recognize hazards associated with safely concluding or demobilizing an event
 - Fatigued or injured personnel
 - Resources in transition from active event to return to service
2. Analyze risk
 - Scene safety
 - Rescuer safety
3. Apply risk/safety strategies
 - Active strategies
 - Nonintervention strategies (not removing (abandoning in place) equipment, denying entry to a site, etc.)
4. Use site control equipment and methods
5. Use data collection and management systems
6. Use asset and personnel tracking systems

Discussion Questions

1. Determined by instructor

Application

1. Given an incident evolution, assigned resources, and site safety data, have students terminate a technical rescue operation.

Instructor Notes

1. See corresponding classroom content in Topic 6-1.

CTS Guide Reference: CTS 2-20

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 plan 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 courses 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.