DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
State Fire Training Division
P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 568-2911
Website: www.fire.ca.gov

Date: July 10, 2020 **Attachment 21**

To: John Binaski, Chair
Statewide Training and Education Advisory Committee
c/o State Fire Training

From: Joe Bunn, Jim Eastman and Rick Lum, Fire Service Training Specialist III's

SUBJECT/AGENDA ACTION ITEM:
Rope Rescue Awareness/Operations and Rope Rescue Technician Curriculum

Recommended Actions:
Approval of Rope Rescue Awareness/Operations and Rope Rescue Technician Curriculum

Background Information:
These curriculums are being presented for a motion to approve. This document is intended to provide information for all State Fire Training (SFT) stakeholders on new curriculum titled Rope Rescue Awareness/Operations (2019) and Rope Rescue Technician (2019). Historically, LARRO (low angle rescue), Rescue Systems 1, Rescue Systems 2 and Rescue System 3 have been delivered through SFT's curriculum under the Fire Service Training and Education Program (FSTEP). These curriculums will stay on the FSTEP side of SFT curriculums until such time SFT can offer the complete Rescue Technician Specialist Certification. Stakeholders including FEMA, Office of Emergency Services (OES), FIRESCOPE, SFT representatives, and local emergency rescue response resources were consulted to discuss updating rescue curriculum and coming into alignment with the National Fire Protection Association standards. It was identified to keep FEMA, OES - State Agency Task Forces, FIRESCOPE, SFT representatives, and local emergency rescue resources able to deploy while meeting the minimum standards as identified in NFPA, state and federal guidelines. It is intended to maintain the professional development of all Instructors desiring to teach and deliver SFT course curriculum. The Cadre is recommending maintaining the essential requirements and to introduce additional qualifications for new instructors with the delivery of these courses.

A cadre of experienced subject matter experts with extensive technical expertise in the area of special operations was selected from various agencies and backgrounds with the mission to create the content for these two new certification courses.

Cadre Leadership
Joe Bunn, Fire Service Training Specialist III, Deputy Chief (ret) US&R CA-TF8, Jim Eastman, Fire Service Training Specialist III, Deputy Chief (ret), Rick Lum, Fire Service Training Specialist III, Fire Captain (ret), Laura Garwood Meehan, Cadre Editor, Sacramento State.

Development Cadre Members
Paul Gonzales, Fire Engineer, San Jose Fire Department, Billy Milligan, Firefighter, City of Riverside Fire Department, Kevin Frye, Fire Captain, Los Angeles County Fire Department, Richard Wayne Chapman, Rescue Specialist, CMC, Orange County Fire Authority (ret), Brian Sippel, Fire Captain, Sacramento Fire Department, Aide Barbat, Battalion Chief, San Diego Fire and Rescue, Jeff Hakola, Fire Engineer, City of Merced Fire Department, Darius Luttrop, Fire Captain, San Francisco Fire Department, Ryan Primosch, Apparatus Operator, City of Los Angeles Fire Department, Greg Belk, Battalion Chief, CAL FIRE, Seth Whisnand, Fire Engineer, Kern County Fire Department.
Several of the cadre members are State Fire Training Registered Instructors and all have extensive operational experience with special operations incidents involving technical rope rescue. The development of the material required two multi-day sessions for these curriculums. Because these are courses leading to potential certification the development of a Certification Training Standards (CTS) were developed for both curriculums. Terminal Learning Objectives (TLO) were established from the authority from the below. The majority of the TLO's and the supporting Enabling Learning Objectives (ELO) were developed from the authority of standards NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incidents (2017), and NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2017.) Additionally, NFPA Standards were considered such as 1500, 1521,1561 with observance to ICS 420-1, Field Operations Guide, ICS-SF-SAR-020-, Technical Rope Rescue standards recommended for Training, Skills and Equipment List (current edition) and several others references aided as supporting documents when creating the Course Plans.

The breakdown of the Certification courses is as follows:

Rope Rescue Awareness/Operations

Didactic	11.30 Hours: Minutes
Activities and Testing	29:30 Hours: Minutes
Course Hour Totals	40:00 Hours: Minutes

Rope Rescue Technician

Didactic	07:45 Hours: Minutes
Activities and Testing	32:15 Hours: Minutes
Course Hour Totals	40:00 Hours: Minutes

Analysis/Summary of Issue:

Following is an analysis of this new FSTEP courses.

1. Neither the old legacy SFT Fire Officer or Chief Officer courses, nor the NFPA Fire Officer I-IV standards addressed the specific hazards and risks faced by an initial incident commander at the scene of a technical rescue incident nor any technical rescue operations or otherwise. The only curriculum developed regarding command and control of special operations is the SFT course, Incident Management of Special Operations, which was created to provide awareness level training for incident commanders in recognizing and managing the initial actions of the technical rescue incident safely. This course is highly recommended for any new to special operations and may have the responsibility of command and control. Any career or volunteer fire service officer will benefit greatly from the design and content of that course as it relates to technical rescue operations.
2. These curriculums require training sites that assist in simulating live scenarios for different levels of technical rescue. The curriculums material ranges from low angle to high angle and everything between including but not limited to the use of ladders. The training sites chosen by the AHJ needs to meet the requirements of the course plans. It is incumbent on the instructors to insure the requirements are met prior to facilitating this course.
3. Planning and Logistics are a huge piece to this course. The training site or sites must be thought out with safety as the most important element. In addition, complete equipment caches should be on site or sites for each discipline of the courses. The number of instructors to students with activities in technical rescue operations is always extremely high risk, so eliminating those risk elements lowers the overall risk during these courses during instruction.
4. The instructors for these courses need an extensive background in technical rescue as it relates to the low and high angle environment. The rollouts are essential to the success of these courses during this transition to National Standards.
5. The core content utilizes the authority NFPA 1006, 1670 standards, as well as 1500, 1521 and 1561 as supporting documents.

ROPE RESCUE AWARENESS/OPERATIONS AND ROPE RESCUE TECHNICIAN Curriculum Implementation Plan

Issued: September 2020

OVERVIEW

This document is intended to provide information for all State Fire Training (SFT) stakeholders on new curriculum titled Rope Rescue Awareness/Operations (2017) and Rope Rescue Technician (2017). Historically, Rescue Systems 1 and Rescue Systems 2 has been delivered through SFT's curriculum under the Fire Service Training and Education Program (FSTEP). Stakeholders including FEMA, Office of Emergency Services (OES), FIRESCOPE, SFT representatives, and local emergency rescue response resources were consulted to discuss updating rescue curriculum and coming into alignment with the National Fire Protection Association standards. This alignment was identified to keep FEMA, OES-State Agency Task Force, FIRESCOPE, SFT representatives, and local emergency rescue resources able to deploy while meeting the minimum standards as identified in NFPA, state and federal guidelines.

IMPLEMENTATION

SFT recognizes that many candidates and agencies are vested in the current Low Angle Rope Rescue Operational (2007), Rope Rescue Technician (2013), Rescue Systems 1 Rope Rescue (Module 1), Rescue Systems 1 Ladder Rescue Systems (Module 3), therefore, the existing curriculum will be available for delivery during the transition period.

Rope Rescue Awareness/Operations (2017) ..... Available September 1, 2020

Rope Rescue Technician (2017) ..... Available September 1, 2020

New Curriculum	Hours
Rope Rescue Awareness/Operations (2017)	40 Hours
Rope Rescue Technician (2017)	40 Hours

Low Angle Rope Rescue Operational (2007) Curriculum..... Phase out June 30, 2021
Effective July 1, 2021, Low Angle Rope Rescue Operational (2007) curriculum will be retired.

Rope Rescue Technician (2013) Curriculum..... Phase out June 30, 2021
Effective July 1, 2021, Rope Rescue Technician (2013) curriculum will be retired.

Rescue Systems 1: Rope Rescue (Module 1) Curriculum..... Phase out June 30, 2021
Effective July 1, 2021, Rescue Systems 1: Rope Rescue (Module 1) curriculum will be retired.

Rescue Systems 1: Rope Rescue (Module 1) Curriculum..... Phase out June 30, 2021
Effective July 1, 2021, Rescue Systems 1: Ladder Rescue Systems (Module 3) curriculum will be retired.

INSTRUCTOR REQUIREMENTS

Instructor Registration ..... Available September 1, 2020

Existing Instructors
Due to the significant changes in both the NFPA standards, curriculum and the requirements to instruct, existing instructors will need to meet the requirements listed below.

Rope Rescue Awareness/Operations
SFT Registered Instructors for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1) must meet the following requirements in order to instruct Rope Rescue Awareness/Operations (2017):

- Rope Rescue Awareness/Operations Instructor Update Course (8 hours)
- Completion of Rope Rescue Technician (2017) course; **OR**
- SFT Registered Instructor for Rope Rescue Technician (2013)

Rope Rescue Technician
SFT Registered Instructors for Rope Rescue Technician (2013) will be authorized to instruct Rope Rescue Technician (2017).

New Instructors
New instructors for the Rope Rescue Awareness/Operations (2017) and Rope Rescue Technician (2017) shall meet the SFT requirements for Registered Primary Instructors, and in addition will be required to complete the following:

- Rope Rescue Awareness/Operations (2017)
- Rope Rescue Technician (2017)
- Rope Recue Instructor Task Book (2017)
    - Student teaching experience shall be monitored and approved by an SFT Primary Instructor for Rope Rescue Awareness/Operations or Rope Rescue Technician delivering an SFT registered Rope Rescue Awareness/Operations (2017) course or Rope Rescue Technician (2017) course. Must complete a minimum of two Rope Rescue Awareness/Operations courses to complete 2 separate deliveries with 2 separate instructors to complete the instructor task book. This requirement may require additional courses to complete the instructor task book.
- Letter of experience from approved signature authority or designee
- IS-100, IS-200, IS-700 and IS-800 (SFT, CAL FIRE, FEMA, NWCG)

Rank and Professional Experience:

- Held the rank of Fire Fighter and/or performed rescue duties within a Recognized Fire Agency in California for a minimum of three (3) years.
- Instructed a minimum of two deliveries of Rope Rescue Awareness/Operations (2019), which shall be documented in the Task Book.

Currency Requirement
To maintain Primary Instructor status, the Instructor shall deliver an approved SFT Rope Rescue Awareness/Operations (2017) course or Rope Rescue Technician (2017) course once every three (3) years. For those instructors not meeting the currency requirement, the Instructor shall either work under an approved qualified instructor or take the course. A letter or form ICS225 shall be submitted to update the qualifications.

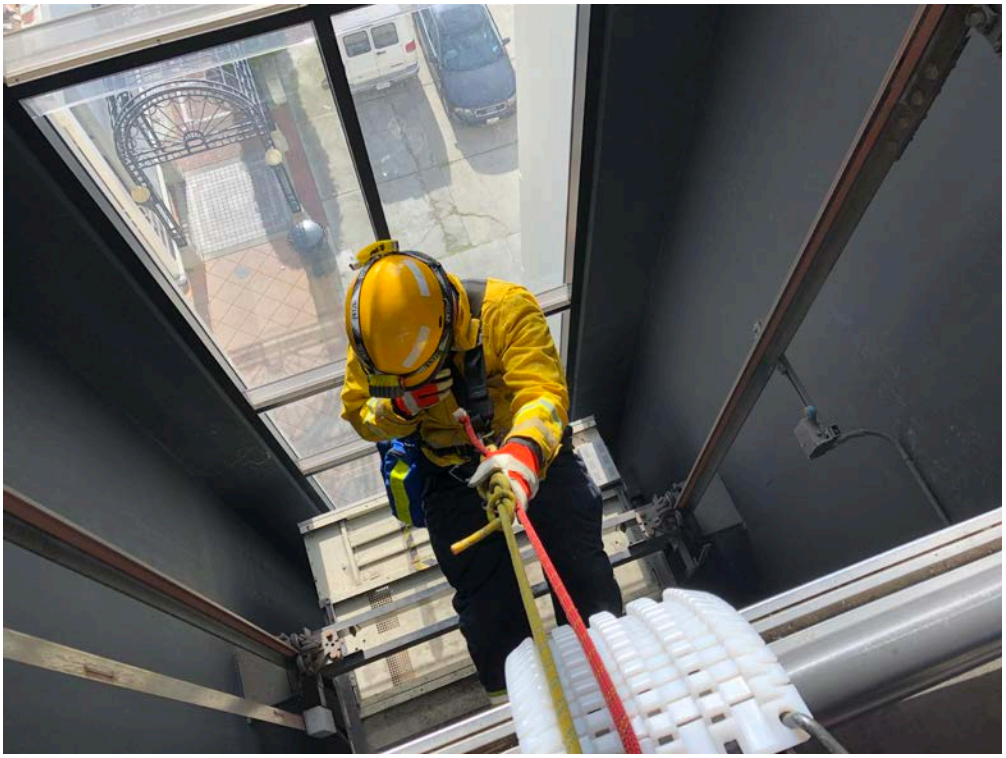
POTENTIAL AGENCY IMPACTS

Fire agencies that opt to utilize the Executive Chief Fire Officer (ECFO) Certification or Curriculum as a requirement for their recruitment/promotion activities need to review the ECFO Curriculum and Certification requirements to ensure that all agency training needs are met. After review, Fire Agencies should update the job specifications and recruitment documentation to reflect these new courses and certification requirements.

Accredited Regional Training Programs (ARTP), Accredited Local Academies (ALA), community colleges and all other local delivery venues should review the curriculum and seek approval from their curriculum committee / program sponsor, as appropriate. ARTPs should review the new ECFO curriculum and discuss potential impacts with their advisory committees.

Rope Rescue
Awareness–Operations-Technician

Certification Training Standards Guide
Published September 2020



California Department of Forestry and Fire Protection
Office of the State Fire Marshal
State Fire Training

Rope Rescue
Awareness-Operations-Technician

Certification Training Standards Guide
Published September 2020

This CTS guide utilizes the following NFPA standards to provide the qualifications for State Fire Training's Fire Fighter I certification:

- NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)

State Fire Training coordinated the development of this CTS guide. Before its publication, the Statewide Training and Education Advisory Committee (STEAC) and the State Board of Fire Services (SBFS) recommended this CTS guide for adoption by the Office of the State Fire Marshal (OSFM).

Published by State Fire Training
2251 Harvard Street, Suite 400
Sacramento, CA 95815
(916) 568-3800

Cover photo courtesy of Jeff Hakola, City of Merced Fire Department

Table of Contents

State Fire Training

Mission

To enable the California Fire Service to safely protect life and property through education, training, and certification.

The California Fire Services Training and Education System

The California Fire Service Training and Education System (CFSTES) was established to provide a single statewide focus for fire service training in California. CFSTES is a composite of all the elements that contribute to the development, delivery, and administration of training for the California fire service. The authority for the central coordination of this effort is vested in State Fire Training within the Office of the State Fire Marshall with oversight provided by the State Board of Fire Services.

CFSTES facilitates, coordinates, and assists in the development and implementation of standards and certification for the California fire service.

CFSTES:

1. Administers the California Fire Academy System
1. Provides accredited courses leading to certification and approved standardized training programs for local and regional delivery
2. Administers the national accreditation process in California
3. Publishes certification training standards, course plans, and certification task books for each certified job function within the California fire service

CFSTES is a fire service system developed by the fire service, for the fire service. It is only as successful and effective as the people involved in it.

Acknowledgments

State Fire Training appreciates the hard work and accomplishments of those who built the solid foundation on which this program continues to grow.

State Fire Training gratefully acknowledges the following individuals and organizations for their diligent efforts and contributions that made the development and publication of this document possible.

CAL FIRE

Thom Porter
Director, CAL FIRE

Mike Richwine
Acting State Fire Marshal

Vacant
Assistant State Fire Marshal

Andrew Henning
Chief, State Fire Training

John Binaski
Chair, STEAC

Cadre - 2019 Update

Leadership

Joe Bunn
Cadre Lead
Fire Service Training Specialist III, Office of the State Fire Marshal
Encinitas Fire Department, Deputy Chief (retired) CA-TF8

Jim Eastman
Cadre Lead
Training Specialist III, Office of the State Fire Marshal
Deputy Chief (ret.), Sacramento Metro Fire Department

Rick Lum
Cadre Lead
Fire Service Training Specialist III, Office of the State Fire Marshal

Laura Garwood
Cadre Editor
California State University, Sacramento

Development Cadre

Paul Gonzales
Fire Engineer, San Jose Fire Department

Billy Milligan
Firefighter, City of Riverside Fire Department

Kevin Frye
Fire Captain, Los Angeles County Fire Department

Richard Wayne Chapman
Job Title, CMC Orange County Fire Authority (retired)

Brian Sippel
Fire Captain, Sacramento Fire Department

Aide Barbat
Battalion Chief, San Diego Fire and Rescue

Jeff Hakola
Fire Engineer, City of Merced Fire Department

Darius Luttrop
Fire Captain, San Francisco Fire Department

Ryan Primosch
Apparatus Operator, City of Los Angeles Fire Department

Greg Belk
Battalion Chief, CAL FIRE

Seth Whisnand
Fire Engineer, Kern County Fire Department

Partners

State Fire Training also extends special acknowledgement and appreciation to the Conference and Training Services Unit with the College of Continuing Education at California State University, Sacramento, for its ongoing meeting logistics and curriculum development support, innovative ideas, and forward-thinking services. This collaboration is made possible through an interagency agreement between CAL FIRE and Sacramento State.

The development and publication of the 2013 Fire Fighter I CTS guide was funded in part by the Assistance to Firefighters Grant Program from the U.S. Department of Homeland Security. State Fire Training is grateful to the U.S. Department of Homeland Security for its financial contribution toward the completion of this project.

How to Read a CTS Guide

State Fire Training develops a Certification Training Standards (CTS) Guide for a variety of job functions in the fire service such as firefighter, driver/operator, fire instructor, and company officer. The CTS guide lists the requisite knowledge and skills and the job performance requirements a person is expected to complete in order to become certified in a specific function.

Each CTS guide serves as a foundation for the certification programs recommended for adoption by the Office of the State Fire Marshal. Any certification program must be based on job-related knowledge and measurable performance standards. To master the knowledge and skills needed for specialized operations, individuals will require additional training to augment the performance standards included in the CTS guide.

Within the CTS guide, it is impossible to capture the different policies and procedures of each organization in the California fire service. Individuals aspiring to meet State Fire Training's certification training standards must do so in accordance with the codes, standards, regulations, policies, and standard operating procedures applicable within their own department or jurisdiction.

Format

Section Heading

Training standards are grouped by section headings that describe a general category. For example, the Fire Fighter I CTS guide includes the following section headings: NFPA Requirements, Fire Department Communications, Fireground Operations, and Preparedness and Maintenance.

Training Standard Title

The training standard title provides a general description of the performance requirement contained within the individual standard.

Authority

The CTS guide references each individual standard with one or more paragraphs of the corresponding National Fire Protection Association (NFPA) Professional Qualifications. This ensures that each fire service function within California's certification system meets or exceeds NFPA standards.

When California requirements exceed the NFPA standard, the CTS guide cites the Office of the State Fire Marshal as the authority and prints the corresponding information in *italics*.

Job Performance Requirements

This segment includes a written statement that describes a specific job-related task, the items an individual needs to complete the task, and measurable or observable outcomes.

Requisite Knowledge

This segment lists the knowledge that an individual must acquire in order to accomplish the job performance requirement.

Requisite Skills

This segment lists the skills that an individual must acquire in order to accomplish the job performance requirement.

Tracking Table

The tracking table documents and justifies any significant revisions to the NFPA standard that the development or validation cadres make during the development of a CTS guide.

1-1: Recognizing the Need for Support Resources

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.1

Job Performance Requirement

Recognize the need for support resources, given a specific type of rescue incident, so that a resource cache is managed, scene lighting is provided for the tasks to be undertaken, environmental concerns are managed, personnel rehabilitation is facilitated, and the support operation facilitates rescue operational objectives.

Requisite Knowledge

1. *Identify* equipment organization and tracking methods
2. *Identify* lighting resource type(s)
3. *Identify* shelter and thermal control options
4. *Identify* rehab criteria

Requisite Skills

1. Track equipment inventory
2. Identify lighting resources and structures for shelter and thermal protection
3. *Identify* rehab areas
4. *Describe managing* personnel rotations

Tracking Table

Block	Modification	Justification

1-2: Recognizing Incident Hazards and Initiating Isolation Procedures

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.2

Job Performance Requirement

Recognize incident hazards and initiate isolation procedures, given scene control barriers, personal protective equipment (PPE), requisite equipment, and available specialized resources, so that all hazards are identified, resource application fits the operational requirements, hazard isolation is considered, risks to rescuers and victims are minimized, and rescue time constraints are taken into account.

Requisite Knowledge

1. *Identify* resource capabilities and limitations
2. *Describe* types and nature of incident hazards
3. *Describe* equipment types and their use
4. *Describe* isolation terminology, methods, equipment, and implementation
5. *Identify* operational requirement concerns
6. *Describe* common types of rescuer and victim risk
7. *Describe* risk/benefit analysis methods and practices
8. *Identify* types of technical references

Requisite Skills

1. Identify resource capabilities and limitations
2. Identify incident hazards
3. *Describe how to* assess victim viability (risk/benefit)
4. *Describe* technical references
5. Place scene control barriers
6. Operate control and mitigation equipment

Tracking Table

Block	Modification	Justification

1-3: Recognizing Needed Resources for a Rescue Incident

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.3

Job Performance Requirement

Recognize needed resources for a rescue incident, given incident information, a means of communication, resources, tactical worksheets, personnel accountability protocol, applicable references, and standard operating procedures, so that references are utilized, personnel are accounted for, necessary resources are deployed to achieve desired objectives, incident actions are documented, rescue efforts are coordinated, the command structure is established, task assignments are communicated and monitored, and actions are consistent with applicable regulations.

Requisite Knowledge

1. *Describe* incident management system
2. *Describe* tactical worksheet application and purposes
3. *Describe* accountability protocols
4. *Describe* resource types and deployment methods
5. *Describe* documentation methods and requirements
6. *Describe* availability, capabilities, and limitations of rescuers and other resources
7. *Identify* communication problems and needs
8. *Identify* communications requirements, methods, and means
9. *Describe* types of tasks and assignment responsibilities
10. *Describe* policies and procedures of the agency
11. *Identify* technical references related to the type of rescue incident

Requisite Skills

1. *Describe the implementation of* an incident management system
2. *Describe how to complete* tactical worksheets
3. Evaluate incident information
4. Match resources to operational needs
5. Operate communications equipment
6. *Describe the management of* incident communications
7. Communicate in a manner so that objectives are met

Tracking Table

Block	Modification	Justification
5.1.3	Removed skill: Use reference materials	Taught in 5.1.2

1-4: Initiating a Discipline-Specific Search

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.4

Job Performance Requirement

Initiate a discipline-specific search, given hazard-specific PPE, equipment pertinent to search mission, an incident location, and victim investigative information, so that search parameters are established; the victim profile is established; the entry and exit of all people either involved in the search or already within the search area are questioned and the information is updated and relayed to command; the personnel assignments match their expertise; all victims are located as quickly as possible; applicable technical rescue concerns are managed; risks to searchers are minimized; and all searchers are accounted for.

Requisite Knowledge

1. *Describe* local policies and procedures
2. *Describe* how to operate in the site-specific search environment

Requisite Skills

1. *Determine the potential for* enter*ing*, maneuver*ing* in, and exit*ing* the search environment
2. Provide for and perform self-escape/self-rescue

Tracking Table

Block	Modification	Justification

1-5: Performing Ground Support Operations for Helicopter Activities

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.5

Job Performance Requirement

Perform ground support operations for helicopter activities, given a rescue scenario/incident, helicopter, operational plans, PPE, requisite equipment, and available specialized resources, so that rescue personnel are aware of the operational characteristics of the aircraft and demonstrate operational proficiency in establishing and securing landing zones and communicating with aircraft personnel until the assignment is complete.

Requisite Knowledge

1. *Identify* ground support operations relating to helicopter use and deployment
2. *Identify* operation plans for helicopter service activities
3. *Describe* type-specific PPE
4. *Describe* aircraft familiarization and hazard areas specific to helicopters
5. *Describe* scene control and landing zone requirements
6. *Identify* aircraft safety systems
7. *Describe* communications protocols

Requisite Skills

1. Provide ground support operations
2. Review standard operating procedures for helicopter operations
3. Use PPE
4. Establish and control landing zones
5. Communicate with aircrews

Tracking Table

Block	Modification	Justification

1-6: Initiating Triage of Victims

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.6

Job Performance Requirement

Initiate triage of victims, given triage tags and local protocol, so that rescue versus recovery factors are assessed, triage decisions reflect resource capabilities, severity of injuries is determined, and victim care and rescue priorities are established in accordance with local protocol.

Requisite Knowledge

1. *Describe* types and systems of triage according to local protocol
2. *Identify* resource availability
3. *Identify* methods to determine injury severity
4. *Describe* ways to manage resources
5. *Describe* prioritization requirements

Requisite Skills

1. Use triage materials, techniques, and resources
2. Categorize victims correctly

Tracking Table

Block	Modification	Justification

1-7: Assisting a Team in Operation of the Haul Line

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.1.7

Job Performance Requirement

Assist a team in operation of the haul line of a rope mechanical advantage system raising operation, given rescue personnel, an established rope rescue system, a load to be moved, and an anchor system, so that the movement is controlled; a reset is accomplished; the load can be held in place when needed; commands are followed in direction of the operation; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Describe* principles of mechanical advantage
2. *Describe* operation of a haul line in a raising operation
3. *Identify* personnel assignments
4. *Describe* operational commands

Requisite Skills

1. *Follow* operational commands
2. Identify safety concerns during raising operations

Tracking Table

Block	Modification	Justification

Section 2: Rope Rescue Operations

2-1: Sizing Up a Rescue Incident

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.1

Job Performance Requirement

Perform size up *of* a rescue incident, given background information and applicable reference materials, 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.

Requisite Knowledge

1. *Assess* types of reference materials and their uses
2. *Describe* availability and capability of the resources
3. *Describe* elements of an action plan and related information
4. *Describe* relationship of size-up to the incident management system
5. *Describe* information-gathering techniques and how that information is used in the size-up process

Requisite Skills

1. *Explain* technical rescue reference materials
2. Gather information
3. Relay information
4. Use information-gathering sources

Tracking Table

Block	Modification	Justification

2-2: Inspecting and Maintaining PPE

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.2

Job Performance Requirement

Inspect and maintain hazard-specific PPE, given clothing or equipment for the protection of the rescuers, cleaning and sanitation supplies, maintenance logs or records, and such tools and resources as are indicated by the manufacturer's guidelines for assembly or disassembly of components during repair or maintenance, so that damage, defects, and wear are identified and reported or repaired, equipment functions as designed, and preventive maintenance has been performed and documented consistent with the manufacturer's recommendations.

Requisite Knowledge

1. *Describe* functions, construction, and operation of PPE
2. *Describe* use of recordkeeping systems of the AHJ
3. *Describe* requirements and procedures for cleaning, sanitizing, and infectious disease control
4. *Describe* use of provided assembly and disassembly tools
5. *Describe* manufacturer and department recommendations
6. *Describe* pre-use inspection procedures
7. *Describe* ways to determine operational readiness.

Requisite Skills

1. Identify wear and damage indicators for PPE
2. Evaluate operational readiness of PPE
3. Complete logs and records
4. Use cleaning equipment, supplies, and reference materials
5. Select and use tools specific to the task

Tracking Table

Block	Modification	Justification

2-3: Inspecting and Maintaining Rescue Equipment

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.3

Job Performance Requirement

Inspect and maintain rescue equipment, given maintenance logs and records, tools, and resources as indicated by the manufacturer's guidelines, equipment replacement protocol, and organizational standard operating procedure, so that the operational status of equipment is verified and documented, all components are checked for operation, deficiencies are repaired or reported as indicated by standard operating procedure, and items subject to replacement protocol are correctly disposed of and changed.

Requisite Knowledge

1. *Describe* functions and operations of rescue equipment
2. *Describe* use of recordkeeping systems
3. *Describe* manufacturer and organizational care and maintenance requirements
4. *Describe* selection and use of maintenance tools
5. *Describe* replacement protocol and procedures
6. *Describe* disposal methods
7. *Describe* organizational standard operating procedures

Requisite Skills

1. Identify wear and damage indicators for rescue equipment
2. Evaluate operation readiness of equipment
3. Complete logs and records
4. Select and use maintenance tools

Tracking Table

Block	Modification	Justification

2-4: Demonstrating Knots, Bends, and Hitches

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.4

Job Performance Requirement

Demonstrate knots, bends, and hitches, given ropes, webbing, and a list of knots used by the agency, so that the knots are dressed, recognizable, and backed up as required.

Requisite Knowledge

1. *Describe* knot efficiency
2. *Describe* knot utilization
3. *Describe* rope construction
4. *Identify* rope terminology

Requisite Skills

1. Tie representative knots, bends, *and* hitches for the following purposes:
    - End-of-line loop
    - Midline loop
    - Securing rope around desired objects
    - Joining rope or webbing ends together
    - Gripping rope

Tracking Table

Block	Modification	Justification

2-5: Constructing a Single-Point Anchor System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.5

Job Performance Requirement

Construct a single-point anchor system, given life safety rope and other auxiliary rope rescue equipment, so that the chosen anchor system fits the incident needs, meets or exceeds the expected load, and does not interfere with rescue operations; an efficient anchor point is chosen; the need for redundant anchor points is assessed and used as required; the anchor system is inspected and loaded prior to being placed into service; and the integrity of the system is maintained throughout the operation.

Requisite Knowledge

1. *Describe* application of knots
2. *Describe* rigging principles
3. *Describe* anchor selection criteria
4. *Describe* system safety check procedures
5. *Describe* rope construction
6. *Describe* rope rescue equipment applications and limitations

Requisite Skills

1. Select rope and equipment
2. Tie knots, *bends, and hitches as required by the AHJ*
3. Rig systems
4. Evaluate anchor points for required strength, location, and surface contour
5. Perform a system safety check

Tracking Table

Block	Modification	Justification
RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-6: Constructing a Multiple-Point Anchor System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.6

Job Performance Requirement

Construct a multiple-point anchor system, given life safety rope and other auxiliary rope rescue equipment, so that the chosen anchor system fits the incident needs, the system strength meets or exceeds the expected load and does not interfere with rescue operations, equipment is visually inspected prior to being put in service, the nearest anchor point that will support the load is chosen, the anchor system is system safety checked prior to being placed into service, the integrity of the system is maintained throughout the operation, and weight will be distributed between more than one anchor point.

Requisite Knowledge

1. *Describe the* relationship of angles to forces created in the rigging of multiple-point anchor systems
2. *Describe* safety issues in choosing anchor points
3. *Describe* system safety check methods that allow for visual and physical assessment of system components
4. *Describe* methods to evaluate the system during operations
5. *Describe* integrity concerns
6. *Describe* weight distribution issues and methods
7. *Describe* knots, *bends, and hitches* and *their* applications
8. *Describe* selection and inspection criteria for hardware and software
9. *Describe* formulas needed to calculate safety factors for load distribution
10. *Describe* concepts of static loads versus dynamic loads

Requisite Skills

1. Determine incident needs as related to choosing anchor systems
2. Select effective knots
3. Determine expected loads
4. Evaluate incident operations as related to interference concerns and setup
5. Choose anchor points
6. Perform a system safety check
7. Evaluate system components for compromised integrity

Tracking Table

Block	Modification	Justification

RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-7: Conducting a System Safety Check

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.7

Job Performance Requirement

Conduct a system safety check, given a rope-rescue system and rescue personnel, so that a physical/visual check of the system is made to ensure proper rigging, a load test is performed prior to life-loading the system, and verbal confirmation of these actions is announced and acknowledged before life-loading the rope-rescue system.

Requisite Knowledge

1. *Describe* system safety check procedures
2. *Explain* construction and operation of rope rescue systems and their individual components
3. *Describe* use of PPE
4. *Describe* equipment inspection criteria
5. *Identify* signs of equipment damage
6. *Describe* principles of rigging
7. *Describe* equipment replacement criteria

Requisite Skills

1. Apply and use PPE
2. Inspect rope rescue system components for damage
3. Assess a rope rescue system for configuration
4. Secure equipment components
5. Inspect all rigging
6. Perform a system safety check

Tracking Table

Block	Modification	Justification

2-8: Placing Edge Protection

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.8

Job Performance Requirement

Place edge protection, given life safety rope or webbing traversing a sharp or abrasive edge, edge protection, and other auxiliary rope rescue equipment, so that the rope or webbing is protected from abrasion or cutting, the rescuer is safe from falling while placing the edge protection, the edge protection is secure, and the rope or webbing is securely placed on the edge protection.

Requisite Knowledge

1. *Explain* materials and devices that can be used to protect ropes or webbing from sharp or abrasive edges
2. *Describe* fall *prevention or* protection measures
3. *Identify* dangers associated with sharp or abrasive edges
4. *Describe* methods for negotiation of sharp or abrasive edges

Requisite Skills

1. Select protective devices for rope and webbing
2. Provide personnel fall *prevention or* protection while working near edges
3. Secure edge protection
4. Secure ropes or webbing in a specific location

Tracking Table

Block	Modification	Justification

2-9: Constructing a Belay System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.9

Job Performance Requirement

Construct a belay system, given life safety rope, anchor systems, PPE, and rope rescue equipment, so that the system is capable of arresting a fall, a fall will not result in system failure, the system is not loaded unless actuated, actuation of the system will not injure or otherwise incapacitate the belayer, the belayer is not rigged into the equipment components of the system, and the system is suitable to the site and is connected to an anchor system and the load.

Requisite Knowledge

1. *Describe* principles of belay systems
2. *Describe* capabilities and limitations of various belay devices
3. *Describe* application of knots, rigging principles, and system safety check procedures

Requisite Skills

1. Select a *belay* system *or two-tensioned rope system (TTRS)*
2. Tie knots, *bends, and hitches*
3. Perform rigging
4. Attach to anchor system and load
5. Don and use task-specific PPE
6. Perform a system safety check

Tracking Table

Block	Modification	Justification
RKS	Added bends and hitches	Better description, more accurate/all-encompassing

2-10: Operating a Belay System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.10

Job Performance Requirement

Operate a belay system during a lowering or raising operation, given an operating lowering or raising mechanical advantage system, a specified minimum travel distance for the load, a belay system, and a load, so that the potential fall factor is minimized, the belay device system is not actuated during operation of the primary rope rescue system, the belay system is prepared for actuation at all times during the operation, the belayer is attentive at all times during the operation, the load's position is continually monitored, and the belayer moves rope through the belay device as designed.

Requisite Knowledge

1. *Describe* application and use of belay devices
2. *Describe* proper operation of belay systems in conjunction with normal lowering and raising operations
3. *Describe* operational commands

Requisite Skills

1. *Operate* a belay system as designed
2. Tie approved knots, *bends, and hitches*
3. Assess system effectiveness
4. Attach a *rope* to a belay device
5. Don and use task-specific PPE
6. Perform a system safety check
7. Communicate belay system status

Tracking Table

Block	Modification	Justification
RK	Removed "Properly" from attach a rope to a belay device	Unnecessary
RK	Removed "Manage and" from communicate belay system status	Overlaps with #1
RK	Removed "effectively" from communicate belay system status	Unnecessary
RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-11: Belaying a Falling Load

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.11

Job Performance Requirement

Belay a falling load in a high-angle environment, given a belay system and a dropped load, so that the belay line is not taut until the load is falling, the belay device is actuated when the load falls, the fall is arrested in a manner that minimizes the force transmitted to the load, the belayer utilizes the belay system as designed, and the belayer is not injured or otherwise incapacitated during actuation of the belay system.

Requisite Knowledge

1. *Describe* application and use of belay devices
2. *Describe* effective emergency operation of belay devices to arrest falls
3. *Describe* use of PPE
4. *Describe* operating procedures

Requisite Skills

1. Operate a belay system as designed
2. Tie approved knots, *bends, and hitches*
3. Use task-specific PPE
4. Recognize and arrest a falling load
5. Communicate belay system actuation

Tracking Table

Block	Modification	Justification
RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-12: Constructing a Fixed Rope System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.12

Job Performance Requirement

Construct a fixed rope system, given an anchor system, a life safety rope, and rope rescue equipment, so that the system constructed can accommodate the load, is efficient, and is connected to an anchor system and the load, and a system safety check is performed and the results meet the incident requirements for descending or ascending operations.

Requisite Knowledge

1. *Describe* knot, *bend, and hitch* selection
2. *Explain* calculating expected loads
3. *Explain* incident evaluation operations as related to interference concerns and setup
4. *Explain* rigging principles
5. *Describe* system safety check procedures
6. *Describe* methods of evaluating system components for compromised integrity

Requisite Skills

1. Select effective knots*, bends, and hitches*
2. Calculate expected loads
3. Use rigging principles
4. Evaluate incident operations as related to interference concerns and setup
5. Perform a system safety check
6. Evaluate system components for compromised integrity

Tracking Table

Block	Modification	Justification
RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-13: Ascending a Fixed Rope

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.13

Job Performance Requirement

Ascend a fixed rope in a *low-angle and a* high-angle environment, given an anchored fixed rope system, a specified minimum distance for the rescuer, a system to allow ascent of a fixed rope, a structure, a belay system, a life safety harness worn by the person ascending, and PPE, so that the person ascending is secured to the fixed rope in a manner that will not allow him or her to fall; the person ascending is attached to the rope by means of an ascent control device(s) with at least two points of contact; injury to the person ascending is minimized; the person ascending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the person ascending can convert his or her ascending system to a descending system; obstacles are negotiated; the system is suitable for the site; and the objective is reached.

Requisite Knowledge

1. *Identify* task-specific selection criteria for life safety harnesses and systems for ascending a fixed rope
2. *Describe* PPE selection criteria
3. *Describe* design and intended purpose of ascent control devices utilized
4. *Explain* rigging principles
5. *Describe* techniques for high-angle environments
6. *Describe* converting ascending systems to descending systems
7. *Describe* common hazards posed by maneuvering and harnessing

Requisite Skills

1. Select and use harness, a system for ascending a fixed rope, and PPE for common environments
2. Attach the *rescuer* to the rope rescue system
3. Configure ascent control devices to form a system for ascending a fixed rope
4. Make connections to the ascending system
5. Maneuver around existing environment and system-specific obstacles
6. Convert the ascending system to a descending system while suspended from the fixed rope
7. Evaluate surroundings for potential hazards

Tracking Table

Block	Modification	Justification

	Remove rescuer from Select and use harness, a system for ascending a fixed rope	Redundant
	Replace the life safety harness with “the rescuer” in Attach the rescuer to the rope rescue system	More clear
JPR	Added “low-angle” to the JPR	They should cover both.

2-14: Descending a Fixed Rope

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.14

Job Performance Requirement

Descend a fixed rope in a *low-angle and a* high-angle environment, given an anchored fixed-rope system, a specified minimum travel distance for the rescuer, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and PPE, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the speed of descent is controlled; injury to the person descending is minimized; the person descending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Requisite Knowledge

1. *Identify* task-specific selection criteria for life safety harnesses and systems for descending a fixed rope
2. *Describe* PPE selection criteria
3. *Describe the* design, intended purpose, and operation of descent control devices utilized
4. *Describe* safe rigging principles *and* techniques for high-angle environments
5. *Identify* common hazards posed by maneuvering and harnessing

Requisite Skills

1. Select and use harness, a system for descending a fixed rope, and PPE for common environments
2. Attach the rescuer to the rope rescue system
3. Make attachment of the descent control device to the rope and life safety harness
4. Operate the descent control device
5. Maneuver around existing environment and system-specific obstacles
6. Evaluate surroundings for potential hazards

Tracking Table

Block	Modification	Justification
RS	Replace “life safety harness” with “rescuer” in attach the rescuer to the rope rescue system	More clear
RS	Remove rescuer from Select and use harness, a system for ascending a fixed rope	Redundant

JPR	Added “low-angle” to the JPR	They should cover both.

2-15: Escaping from a Malfunctioning Device

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.2.15

Job Performance Requirement

Demonstrate the ability to escape from a jammed or malfunctioning device during a fixed rope descent in a high-angle environment, given an anchored fixed-rope system with a simulated malfunctioning descent control device, a system to allow escape from the malfunctioning device, a belay system, a life safety harness worn by the person descending, and PPE, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the means for escape will allow the rescuer to escape either upward or downward from the malfunctioning descent control device; injury potential to the rescuer is minimized; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Requisite Knowledge

1. *Identify* task-specific selection criteria for escape equipment and methods used for escape from a malfunctioning descent control device
2. *Identify* PPE selection criteria
3. *Describe the* design, intended purpose, and operation of escape systems utilized
4. *Explain* rigging principles
5. *Describe* techniques for high-angle environments
6. *Describe* common hazards posed by malfunctioning descent control devices

Requisite Skills

1. Select and use harness, a system for escaping a malfunctioning descent control device, and PPE for common environments
2. Attach the *rescuer* to the rope rescue system
3. Make attachment of the descent control device to the rope and life safety harness
4. Attach and operate the escape system to remove the rescuer from the malfunctioning descent control device while maintaining patent attachment to the fixed rope and belay
5. Use the escape system to maneuver upward or downward from the malfunctioning descent control device
6. Evaluate surroundings for potential hazards

Tracking Table

Block	Modification	Justification
	Removed “safe” from explain rigging principles	Should not be taught unsafely

RS	Replace “life safety harness” with “rescuer” in attach the rescuer to the rope rescue system	More clear
RS	Remove rescuer from Select and use harness, a system for ascending a fixed rope	Redundant

2-16: Constructing a Lowering System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.16

Job Performance Requirement

Construct a lowering system, given an anchor system, life safety rope(s), *a* descent control device, and auxiliary rope rescue equipment, so that the system can accommodate the load, is efficient, is capable of controlling the descent, is capable of holding the load in place or lowering with minimal effort over the required distance, and is connected to an anchor system and the load.

Requisite Knowledge

1. *Describe* capabilities and limitations of various descent control devices
2. *Identify* capabilities and limitations of various lowering systems
3. *Describe* application of knots, *bends, and hitches;* rigging principles; and system safety check procedures

Requisite Skills

1. Tie knots, *bends, and hitches*
2. Perform rigging
3. Attach to descent control device, anchor system, and load
4. Perform a system safety check

Tracking Table

Block	Modification	Justification
RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-17: Operating and Directing a Lowering and a Raising System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.2.17

Job Performance Requirement

Operate and direct a lowering *and a raising system* in a *low-angle and a* high-angle environment, given rescue personnel, an established lowering system, a specified minimum travel distance for the load, and a load to be moved, so that the movement is controlled, *a knot is passed,* the load can be held in place when needed, *the system is converted to a raise,* operating methods do not stress the system to the point of failure, rope commands are used to direct the operation, and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Describe* application and use of descent control devices
2. *Describe* capabilities and limitations of various lowering systems in a *low- and* high-angle environment
3. *Identify knot, bend, and hitch selection*
4. *Describe* operation of lowering systems in a low- and a high-angle environment
5. *Describe operation of raising systems in a low- and high-angle environment*
6. *Identify* personnel assignments
7. *Identify* operational commands

Requisite Skills

1. *Operate a lowering and a raising system*
2. *Convert a lowering operation to a raising operation*
3. *Pass a knot in a lowering and a raising operation*
4. Direct *the operation*
5. Use operational commands
6. Analyze system efficiency
7. Manage movement of the load in a *low- and a* high-angle environment
8. Identify safety concerns in a *low- and a* high-angle environment
9. Perform a system safety check

Tracking Table

Block	Modification	Justification
RK	Added Identify knot, bend, and hitch selection	Necessary to support JPR
RS	Changed “personnel” to “the operation” in Direction the operation	Direct personnel to do what? Unclear. Better supports JPR

JPR	Added low-angle	Need to know how to do both
JPR	Added a knot is passed	It is an important skill not covered elsewhere.
JPR	Added the system is converted to a raise	It is an important skill not covered elsewhere.
JPR	Changed to Operate and direct a lowering and raising system	They construct and direct but do not actually operate, and that is necessary.

2-18: Constructing a Simple Rope Mechanical Advantage System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.18

Job Performance Requirement

Construct a simple rope mechanical advantage system, given life safety rope, carabiners, pulleys, rope grab devices, and auxiliary rope rescue equipment, so that the system constructed can accommodate the load, is efficient, and is connected to an anchor system and the load.

Requisite Knowledge

1. *Describe* principles of mechanical advantage
2. *Identify* capabilities and limitations of various simple rope mechanical advantage systems
3. *Describe* application of knots, *bends, and hitches*
4. *Describe* rigging principles
5. *Describe* system safety check procedures

Requisite Skills

1. Select rope and equipment
2. Tie knots, *bends, and hitches*
3. Choose and rig systems
4. Attach the mechanical advantage system to the anchor system and load
5. Perform a system safety check

Tracking Table

Block	Modification	Justification
RS	Added bends and hitches	Better description, more accurate/all-encompassing

2-19: Operating and Directing a Team in Operating a Simple Rope Mechanical Advantage System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.2.19

Job Performance Requirement

Operate and direct a team in the operation of a simple rope mechanical advantage system in a *low-angle and a* high-angle raising operation, given rescue personnel, an established rope rescue system incorporating a simple rope mechanical advantage system, a specified minimum travel distance for the load, a load to be moved, and an anchor system, so that the movement is controlled, a reset is accomplished, the load can be held in place when needed, operating methods do not stress the system to the point of failure, commands are used to direct the operation, and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Describe* principles of mechanical advantage
2. *Identify* capabilities and limitations of various simple rope mechanical advantage systems and *low-angle and* high-angle raising operations
3. *Describe knot, bend, and hitch selection*
4. *Describe* correct operation of simple rope mechanical advantage systems
5. *Identify* personnel assignments
6. *Identify* operational commands

Requisite Skills

1. *Operate the simple rope mechanical advantage system*
2. Direct personnel
3. Use operational commands
4. Analyze system efficiency
5. Identify safety concerns
6. Perform a system safety check

Tracking Table

Block	Modification	Justification
	Removed “effectively” from direct personnel	Should always be effective
	Added *Describe* knot, *bend, and hitch* selection	Necessary to support JPR

2-20: Constructing a Compound Rope Mechanical Advantage System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.20

Job Performance Requirement

Construct a compound rope mechanical advantage system, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, so that the system constructed accommodates the load and reduces the force required to lift the load, operational interference is factored and minimized, the system is efficient, a system safety check is completed, and the system is connected to an anchor system and the load.

Requisite Knowledge

1. *Describe* incident needs as related to choosing compound rope systems
2. *Describe* elements of efficient design for compound rope systems
3. *Describe* knot, *bend, and hitch* selection
4. *Describe* methods for reducing excessive force to system components
5. *Describe* evaluation of incident operations as related to interference concerns and setups
6. *Describe* rope commands
7. *Explain* rigging principles
8. *Identify* system safety check procedures
9. *Describe* methods of evaluating system components for compromised integrity

Requisite Skills

1. Determine incident needs as related to choosing compound rope systems
2. *Tie* knots, *bends, and hitches*
3. Calculate expected loads
4. Evaluate incident operations as related to interference concerns and setups
5. Perform a system safety check
6. Evaluate system components for compromised integrity

Tracking Table

Block	Modification	Justification
	Change “determination of” to “describe” incident needs as related to choosing compound rope systems	Reduces excess wording, same meaning
	Change “select” to “tie” knots, added bends and hitches	Better description, more accurate/all-encompassing

2-21: Constructing a Complex Rope Mechanical Advantage System

Authority

1. *Office of the State Fire Marshal*

Job Performance Requirement

Construct a complex rope mechanical advantage system, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, so that the system constructed accommodates the load and reduces the force required to lift the load, operational interference is factored and minimized, the system is efficient, a system safety check is completed, and the system is connected to an anchor system and the load.

Requisite Knowledge

1. *Describe incident needs as related to choosing complex rope systems*
2. *Describe elements of efficient design for complex rope systems*
3. *Describe knot, bend, and hitch selection*
4. *Describe methods for reducing excessive force to system components*
5. *Describe evaluation of incident operations as related to interference concerns and setups*
6. *Describe rope commands*
7. *Explain rigging principles*
8. *Identify system safety check procedures*
9. *Describe methods of evaluating system components for compromised integrity*

Requisite Skills

1. *Determine incident needs as related to choosing complex rope systems*
2. *Tie knots, bends, and hitches*
3. *Calculate expected loads*
4. *Evaluate incident operations as related to interference concerns and setups*
5. *Perform a system safety check*
6. *Evaluate system components for compromised integrity*

Tracking Table

Block	Modification	Justification
	Added JPR	Not covered in NFPA

2-22: Directing the Operation of a Compound Rope Mechanical Advantage System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.2.21

Job Performance Requirement

Direct the operation of a compound rope mechanical advantage system in a high-angle environment, given a rope rescue system incorporating a compound rope mechanical advantage system and a load to be moved, and a specified minimum travel distance for the load, so that a system safety check is performed; a reset is accomplished and the movement is controlled; the load can be held in place when needed; operating methods do not stress the system to the point of failure; operational commands are clearly communicated; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Identify* methods to determine incident needs
2. *Describe* types of interference concerns
3. *Describe* rope commands
4. *Describe* system safety check protocol*s*
5. *Describe* procedures for continued evaluation of system components for compromised integrity
6. *Identify* common personnel assignments and duties
7. *Describe* methods for controlling a load's movement
8. *Identify* system stress issues during operations
9. *Describe* management methods for common problems

Requisite Skills

1. Determine incident needs
2. Evaluate incident operations as related to interference concerns
3. Complete a system safety check
4. Continually evaluate system components for compromised integrity
5. Direct personnel
6. Communicate commands
7. Analyze system efficiency
8. Manage load movement
9. Identify concerns

Tracking Table

Block	Modification	Justification
RK	common and critical commands	Encompassed above in Describe rope commands
RS	Removed “effectively”	Should always be done effectively

2-23: Directing the Operation of a Complex Rope Mechanical Advantage System

Authority

- *Office of the State Fire Marshal*

Job Performance Requirement

Direct the operation of a complex rope mechanical advantage system in a high-angle environment, given a rope rescue system incorporating a complex rope mechanical advantage system and a load to be moved, and a specified minimum travel distance for the load, so that a system safety check is performed; a reset is accomplished and the movement is controlled; the load can be held in place when needed; operating methods do not stress the system to the point of failure; operational commands are clearly communicated; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Identify methods to determine incident needs*
2. *Describe types of interference concerns*
3. *Describe rope commands*
4. *Describe system safety check protocols*
5. *Describe procedures for continued evaluation of system components for compromised integrity*
6. *Identify common personnel assignments and duties*
7. *Describe methods for controlling a load's movement*
8. *Identify system stress issues during operations*
9. *Describe management methods for common problems*

Requisite Skills

1. *Determine incident needs*
2. *Evaluate incident operations as related to interference concerns*
3. *Complete a system safety check*
4. *Continually evaluate system components for compromised integrity*
5. *Direct personnel*
6. *Communicate commands*
7. *Analyze system efficiency*
8. *Manage load movement*
9. *Identify concerns*

Tracking Table

Block	Modification	Justification
	Added JPR	Not covered in NFPA

2-24: Negotiating an Edge While Attached to a Rope Rescue System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.22

Job Performance Requirement

Negotiate an edge while attached to a rope rescue system during *a low-angle and* a high-angle lowering and raising operation, given a rope rescue system, a specified minimum travel distance for the rescuer, life safety harnesses, an edge to negotiate during the lower and raise, and specialized equipment necessary for the environment, so that risk to the rescuer is minimized, the means of attachment to the rope rescue system is secure, and all projections and edges are negotiated while minimizing risks to the rescuer or equipment.

Requisite Knowledge

1. *Describe* techniques and practices for negotiating existing projections and edges along the travel path while suspended from operating rope-based lowering and raising mechanical advantage systems and common hazards imposed by those projections and edges

Requisite Skills

1. Select and use harness and PPE for common environments
2. Attach the *rescuer* to the rope rescue system
3. Maneuver across existing projections and an edge along the travel path
4. Evaluate surroundings for potential hazards

Tracking Table

Block	Modification	Justification
	Added low-angle	Should cover both
	Removed “rescuer” from “rescuer harness”	Redundant
	Replaced “life safety harness” with “rescuer”	More clear

2-25: Accessing, Assessing, Stabilizing, Packaging, and Transferring Victims

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.23

Job Performance Requirement

Access, assess, stabilize, package, and transfer victims, given diagnostic and packaging equipment and an actual or simulated EMS agency, so that rescuers and victim are protected from hazards, the victim's injuries or illnesses are managed, and the victim is delivered to the appropriate EMS provider with information regarding the history of the rescue activity and victim's condition.

Requisite Knowledge

1. *Describe* victim and scene assessment methods
2. *Explain* victim treatment, immobilization, and packaging methods
3. *Describe* medical information management and communication methods

Requisite Skills

1. Use victim immobilization, packaging, and treatment methods
2. Provide victim transfer reports, both verbally and in written format

Tracking Table

Block	Modification	Justification
	Removed appropriate to the situation	Should not be using inappropriate methods

2-26: Operating and Directing a Litter-Lowering and Litter-Raising System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.2.24

Job Performance Requirement

Operate and direct a litter-lowering and litter-raising *system* in a low-angle environment, given rescue personnel, (a) litter tender(s), an established lowering/mechanical advantage system, a specified minimum travel distance for the load, and a victim packaged in a litter to be moved, so that the litter is attached to the lowering/raising and belay systems; movement is controlled; litter tender(s) are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Describe the* application and use of lowering and mechanical advantage system in the low-angle environment
2. *Describe the* capabilities and limitations of various lowering and mechanical advantage systems in a low-angle environment
3. *Describe* litter-tender functions and limitations in the low-angle environment
4. *Describe the* management of a litter in a low-angle environment during raises and lowers
5. *Identify* personnel assignments
6. *Identify* operational commands

Requisite Skills

1. *Operate a litter-lowering and litter-raising system*
2. Direct *operation*
3. Use operational commands
4. Analyze system efficiency
5. Manage movement of the litter in a *low*-angle environment
6. Identify safety concerns in a *low*-angle litter operation
7. Perform a system safety check

Tracking Table

Block	Modification	Justification
	Changed “Direct personnel” to “Direct operation”	Direct them to do what? More clear
	Changed “high-angle” to “low-angle”	Appears to be typo; now it reflects the JPR.

2-27: Operating as a Litter Tender

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.25

Job Performance Requirement

Operate as a litter tender in a low-angle lowering or raising operation, given a rope rescue system, a specified minimum travel distance for the litter tender, life safety harnesses, litters, bridles, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized, the means of attachment to the rope rescue system is secure, and the terrain is negotiated while minimizing risks to equipment or persons.

Requisite Knowledge

1. *Identify* task-specific selection criteria for life safety harnesses
2. *Describe* PPE selection criteria
3. *Describe* variations in litter design and intended purpose
4. *Describe* low-angle litter attachment principles
5. *Describe* techniques and practices for low-angle environments
6. *Identify* common hazards imposed by the terrain

Requisite Skills

1. Select and use harness and PPE for common environments
2. Attach the *rescuer* to the rope rescue system
3. Maneuver across the terrain
4. Manage the litter while suspended from the rope rescue system
5. Evaluate surroundings for potential hazards

Tracking Table

Block	Modification	Justification
	Removed “rescuer” from rescuer harness	Redundant
	Changed “life safety harness” to “rescuer”	More clear

2-28: Directing a Litter-Lowering or Litter-Raising Operation

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.2.26

Job Performance Requirement

Direct a litter-lowering or litter-raising operation in a high-angle environment, given rescue personnel, an established lowering/mechanical advantage system, a specified minimum travel distance for the load, a victim packaged in a litter to be moved, and a means for negotiating edges and projections along the travel path, so that the litter is attached to the lowering/raising and belay systems, an edge is negotiated during a lower and *a* raise; tag lines are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Describe* application and use of lowering and mechanical advantage system in the high-angle environment
2. *Describe* capabilities and limitations of various lowering and mechanical advantage systems in a high-angle environment
3. *Describe the* use of tag lines for management of litter position during high-angle lowers and raises
4. *Identify* personnel assignments
5. *Identify* operational commands
6. *Describe litter positioning options (vertical and horizontal)*

Requisite Skills

1. Direct *operation*
2. Use operational commands
3. Analyze system efficiency
4. Manage movement of the litter in a *high*-angle environment
5. Identify safety concerns in a *high*-angle environment
6. Perform a system safety check

Tracking Table

Block	Modification	Justification
	Change “personnel” to “operation”	Direct them to what? More clear
	Change “low-angle” to “high-angle”	Appears to be typo; aligns with JPR

2-29: Terminating a Technical Rescue Operation

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.2.27

Job Performance Requirement

Terminate a technical rescue operation, given an incident scenario, assigned resources, and site safety data, 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, recordkeeping and documentation occur, and postevent analysis is conducted.

Requisite Knowledge

1. *Identify* 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

Requisite Skills

1. Recognize hazards
2. Analyze risk
3. Use site control equipment and methods
4. Use data collection and management systems
5. Use asset and personnel tracking systems

Tracking Table

Block	Modification	Justification
	Changed Hazard recognition to recognize hazards	Wasn't a verb
	Changed Risk analysis to analyze risk	Wasn't a verb
	Deleted "of" from "use of"	Wasn't a verb

Section 3: Rope Rescue Technician

3-1: Directing a Team in Operating a Rope Rescue System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.3.1

Job Performance Requirement

Direct a team in the operation of a rope rescue system to remove a victim stranded on or clinging to a natural or manmade feature in a high-angle environment, given a victim stranded on or clinging to a feature and a means of removal of the victim to the ground or other safe area, so that risks to victims and rescuers are minimized, injury to the victim is minimized, the means of attachment to the rope rescue system is maintained, and the victim is removed and brought to a safe area for transfer to EMS.

Requisite Knowledge

1. *Describe system safety check protocol*
2. *Describe* techniques and systems for safe transfer of stranded victims from a natural or manmade feature
3. *Describe* various techniques for handling stranded victims without inducing a fall

Requisite Skills

1. *Perform system safety checks*
2. Reduce hazards for rescuers and victims
3. Determine condition of the stranded victim
4. Select and construct systems for rapid removal of stranded victims from natural or manmade features
5. Manage operation of the selected system
6. Determine specialized equipment needs for victim movement

Tracking Table

Block	Modification	Justification
RK	Add *Describe system safety check protocol*	Adding this to each JPR as a critical element
RS	Add *Perform system safety checks*	Adding this to each JPR as a critical element

3-2: Directing a Team in Operating a Rope Rescue System to Remove a Victim

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.3.2

Job Performance Requirement

Direct a team in the operation of a rope rescue system to remove a victim suspended from rope or webbing in a high-angle environment, given a victim suspended by a harness attached to anchored rope or webbing, systems for removal of the victim from the rope or webbing, and a means of removal of the victim to the ground or other safe area, so that risks to victims and rescuers are minimized, injury to the victim is minimized, the means of attachment to the rope rescue system is maintained, the victim is removed from the rope or webbing, and the victim is brought to a safe area for transfer to EMS.

Requisite Knowledge

1. *Describe system safety check protocol*
2. *Describe* techniques and systems for safe transfer of suspended victims from an existing anchored rope or webbing to a rope rescue system
3. *Identify* various techniques for handling suspended victims
4. *Describe causes and effects of suspension-induced injuries*

Requisite Skills

1. *Perform system safety checks*
2. Reduce hazards for rescuers and victims
3. Determine condition of the suspended victim
4. Select and construct systems for rapid removal of victims from lanyards or rope or webbing
5. Manage operation of the selected system
6. Determine specialized equipment needs for victim movement

Tracking Table

Block	Modification	Justification
RK	Changed *Describe* principles of suspension-induced injuries to match the next topic's *Describe* cause*s* and effects of suspension-induced injuries	Makes more sense and appears to be the same thing.
RK	Add *Describe system safety check protocol*	Adding this to each JPR as a critical element

RS	Add *Perform system safety checks*	Adding this to each JPR as a critical element

3-3: Performing the Transfer and Movement of a Suspended Victim While Suspended

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.3.3

Job Performance Requirement

While suspended from a rope rescue system, perform the transfer and movement of a victim suspended from rope or webbing in a high-angle environment to a separate rope rescue lowering or *raising* system, given a rope rescue system, a specified minimum travel distance for the victim, victim transfer systems, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized; undesirable victim movement during the transfer is minimized; the means of attachment to the rope rescue system is maintained; the victim is removed from the static line and lowered or raised to a stable surface; victim positioning is managed to reduce adverse effects associated with suspension-induced injuries; selected specialized equipment facilitates efficient victim movement; and the victim can be transported to the local EMS provider.

Requisite Knowledge

1. *Describe system safety check protocol*
2. *Identify* task-specific selection criteria for victim transfer systems
3. *Describe* various physical and psychological victim management techniques
4. *Select* PPE
5. *Identify* design characteristics and intended purpose of various transfer systems
6. *Describe* rigging principles
7. *Describe* causes and effects of suspension-induced injuries
8. *Identify* methods to minimize common environmental hazards created in high-angle environments

Requisite Skills

1. *Perform system safety checks*
2. Reduce hazards for rescuers and victims
3. Choose victim transfer systems, select and use PPE
4. Perform a transfer of the victim from a static line to the lowering or *raising* system
5. Determine specialized equipment needs for victim movement

Tracking Table

Block	Modification	Justification
RK	Changed PPE selection criteria to select PPE	More clear.

RS	Removed appropriate to the conditions	We don't teach them to do it wrong.
JPR and RS	Replaced "mechanical advantage" with "raising."	Makes more sense.
RK	Add *Describe system safety check protocol*	Adding this to each JPR as a critical element
RS	Add *Perform system safety checks*	Adding this to each JPR as a critical element

3-4: Performing the Activities of a Litter Tender

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.3.4

Job Performance Requirement

Perform the activities of a litter tender in a high-angle lowering or raising operation, given a rope rescue system, a specified minimum travel distance for the *litter and* litter tender, life safety harnesses, litters, bridles, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized, the means of attachment to the rope rescue system is secure, and the travel path is negotiated while minimizing risks to equipment or persons.

Requisite Knowledge

1. *Describe system safety check protocol*
2. *Identify* task-specific selection criteria for life safety harnesses
3. *Select* PPE
4. *Describe* variations in litter design and intended purpose
5. *Describe* high-angle litter attachment principles
6. *Describe* techniques and practices for high-angle environments
7. *Describe* common hazards imposed by the various structures and terrain

Requisite Skills

1. *Perform system safety checks*
2. Select and use rescuer harness and PPE for common environments
3. Attach the life safety harness to the rope rescue system
4. Maneuver the litter past obstacles or natural structural features
5. Manage the litter while attached to the rope rescue system
6. *Demonstrate tender's vertical positioning independent of litter during transit*
7. Evaluate surroundings for potential hazards

Tracking Table

Block	Modification	Justification
RK	Changed PPE selection criteria to select PPE	More clear.
RS	*Demonstrate tender's vertical positioning independent of litter during transit*	To ensure students can position themselves above and below the litter to negotiate obstacles
RK	Add *Describe system safety check protocol*	Adding this to each JPR as a critical element

RS	Add *Perform system safety checks*	Adding this to each JPR as a critical element

3-5: Participating as a Member of a Team in Constructing a Horizontal Rope Rescue System

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.3.5

Job Performance Requirement

Participate as a member of a team in the construction of a rope rescue system intended to move a suspended rescue load along a horizontal path to avoid an obstacle, given rescue personnel, life safety rope, rope rescue equipment, and a suitable anchor capable of supporting the load, so that personnel assignments are made and clearly communicated; the system constructed can accommodate the load; tension applied within the system will not exceed the rated capacity of any of its components' parts; a system safety check is performed; movement o*f* the load is efficient; and loads can be held in place or moved with minimal effort over the required distance.

Requisite Knowledge

1. *Determine* incident needs as related to operation of a system
2. *Describe* capabilities and limitations of various systems (including capacity ratings)
3. *Describe* methods for limiting excessive force to system components
4. *Evaluate* incident site as related to *hazards* and obstacle negotiation
5. *Describe* rigging principles
6. *Describe* system safety check protocol
7. *Identify* common personnel assignments and duties
8. *Identify* common and critical operational commands
9. *Identify* common problems and ways to minimize these problems during construction

Requisite Skills

1. Determine incident needs as related to construction of a system
2. Evaluate an incident site as related to *hazards* and setup
3. Identify the obstacles or voids to be negotiated
4. Select a system for defined task
5. Perform system safety checks
6. Use rigging principles that will limit excessive force to system components
7. Communicate with personnel

Tracking Table

Block	Modification	Justification

RS	Removed effectively	We don't teach them to do it wrong.
RK	Changed interference concerns to hazards	More clear and all-encompassing, plus common terminology
RS	Changed interference concerns to hazards	More clear and all-encompassing, plus common terminology

3-6: Directing a Team in Operating a Rope Rescue System to Move a Suspended Rescue Load

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.3.6

Job Performance Requirement

Direct a team in the operation of a rope system to move a suspended rescue load along a horizontal path, given rescue personnel, an established system, a target for the load, a load to be moved, and PPE, so that the movement is controlled; the load is held in place when needed; operating methods do not stress the system to the point of failure; personnel assignments are made; tasks are communicated; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. *Determine* incident needs as related to the operation of a system
2. *Describe* capabilities and limitations of various systems
3. *Evaluate* incident site as related to *hazards* and obstacle negotiation
4. *Describe* system safety check protocol
5. *Describe* procedures to evaluate system components for compromised integrity
6. *Identify* common personnel assignments and duties
7. *Identify* common and critical operational commands
8. *Identify* common problems and ways to minimize or manage those problems
9. *Describe* ways to increase the efficiency of load movement

Requisite Skills

1. Determine incident needs
2. Select personnel
3. Communicate with personnel
4. Evaluate system components for compromised integrity
5. *Perform* a system safety check
6. Manage movement of the load
7. Evaluate for any potential problems

Tracking Table

Block	Modification	Justification
RS	Changed “complete” to “perform”	Consistency
RS	Removed effectively	We’re teaching it wrong

RK	Changed interference concerns to hazards	More clear and all-encompassing, plus common terminology

3-7: Climbing and Traversing Using Climbing Aids

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
   - Paragraph 5.3.7

Job Performance Requirement

Climb and traverse natural features or manmade structures that require the use of climbing aids, positioning equipment, or fall prevention systems to prevent the fall or unwanted movement of the rescuer, given *a specified minimum travel distance,* the equipment used by the agency and a task that reflects the anticipated rescue environment, so that the objective is achieved, the rescuer can perform the required task, and fall prevention is maintained.

Requisite Knowledge

1. *Describe system safety check protocol*
2. *Describe* application and limitations of climbing, positioning, and fall *prevention* systems, *including horizontal lifelines*
3. *Describe the fall factor for and risks associated with different systems used by the AHJ*
4. *Describe* equipment used by the AHJ

Requisite Skills

1. *Perform system safety checks*
2. Climb vertical or near-vertical paths using the surfaces provided by the environment or climbing aids used by the agency
3. *Transition horizontally between structural elements and the rescue system*
4. *Use* positioning equipment to support the weight of the rescuer in a vertical or near-vertical environment permitting the rescuer to perform a task

Tracking Table

Block	Modification	Justification
RK	Add *Describe system safety check protocol*	Adding this to each JPR as a critical element
RS	Add *Perform system safety checks*	Adding this to each JPR as a critical element
RK	Replaced “equipment commensurate with the organization’s needs” with “used by the AHJ”	More simple and clear
given	Added *a specified minimum travel distance*	Consistent with the rest of the curriculum
JPR, RKS	Change fall protection to fall prevention	Fall protection implies a standard that the fire service cannot meet.

RK	Added *including horizontal lifelines*	Cover skills from tower
RS	Added *Transition horizontally between structural elements and the rescue system*	Cover skills from tower
JPR	Removed ascend and descend	This is redundant, covered by “climb” and “traverse,” and it will likely disappear from the next NFPA revision.

3-8: Interacting with a Person in Emotional or Psychological Crisis

Authority

1. NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017)
    - Paragraph 5.3.8

Job Performance Requirement

Interact with a person at height who is in an emotional or psychological crisis, given an environment consistent with the mission of the agency, the policies and procedures of the organization, and a person in a crisis scenario, so that the condition is recognized and communicated to the team, the rescuer is prevented from harm, and the actions of the rescuer do not escalate the incident.

Requisite Knowledge

1. *Describe system safety check protocol*
2. *Describe* indicators of a person in emotional crisis
3. *Identify* typical triggers that can cause individuals to become agitated or anxious
4. *Describe* methods of interacting to prevent harm to the rescuer and the subject
5. *Identify* best practices to deescalate incidents involving persons in crisis
6. *Describe crisis-intervention resources of the AHJ*

Requisite Skills

1. *Perform system safety checks*
2. Methods of approach that minimize the risk to the rescuer from subjects whose psychological or emotional state is unknown
3. Interview techniques that provide insight to the motives and state of mind of the subject
4. Communicating and interacting with the subject in a manner that does not escalate the incident

Tracking Table

Block	Modification	**Justification**
RK	Add *Describe system safety check protocol*	Adding this to each JPR as a critical element
RS	Add *Perform system safety checks*	Adding this to each JPR as a critical element
RK	Add Describe crisis-intervention resources of the AHJ	The most important part is to know what the AHJ's resources and protocols are since this isn't in many training resources.

3-9: Evaluating the Scenario and Constructing Tensioned Anchors

Authority

1. *Office of the State Fire Marshal*

Job Performance Requirement

Evaluate the needs of the scenario and construct a variety of tensioned anchor systems, given a variety of scenarios, a rope rescue system, and a variety of materials from within the AHJ.

Requisite Knowledge

1. *Describe system safety factors, critical angles, and force multipliers for a variety of tensioned anchor systems, such as:*
   - *Pretensioned back ties*
   - *Front-ties*
   - *Focused floating anchors*
2. *Describe types of and uses for a variety of tensioned anchor systems*

Requisite Skills

1. *Construct a variety of tensioned anchors*

Tracking Table

Block	Modification	**Justification**

3-10: Evaluating a Scenario and Constructing and Employing a High-Directional

Authority

1. *Office of the State Fire Marshal*

Job Performance Requirement

Evaluate the needs of the scenario and construct and employ a natural, structural, or artificial high-directional, given a variety of scenarios, a rope rescue system, and a variety of materials from within the AHJ.

Requisite Knowledge

1. *Describe types of and uses for high-directionals*
2. *Describe forces associated with high-directionals*
3. *Identify the type of high-directional needed for different scenarios*

Requisite Skills

1. *Construct and use a high-directional*

Tracking Table

Block	Modification	Justification

Rope Rescue Operations

Course Plan

Course Details

Certification: Rescue Technician

CTS Guide: Rope Rescue Operations

Description: This course provides information on low-angle and high-angle rescue, familiarizing participants with operation of simple, complex, and compound rope rescue systems in the low- and high-angle environment.

Designed For: All fire service and allied emergency response personnel

Prerequisites: Precourse work (online)
IS-100: Introduction to the Incident Command System
IS-200: ICS for Single Resources and Initial Action Incidents
IS-700: National Incident Management System, An Introduction
IS-800: National Response Framework, An Introduction

Standard: Attend entire course. Complete all activities and any formative tests. Complete all summative tests with a minimum score of 80%.

Hours: Lecture: 12:15

Activities: 26:45

Testing: 1:00

Hours (Total): 40:00

Maximum Class Size: 24

Instructor Level: Primary

Instructor/Student Ratio: 24:1 lecture, 12:1 low-angle activities, 6:1 high-angle activities

Restrictions: Training site meets site requirements and equipment standards

SFT Designation: CFSTES

Required Resources

Instructor Resources

To teach this course, instructors need one or more of the following:

- Rope Rescue Manual, current edition, CMC Rescue, Inc., ISBN: 978-009845878-5 (applies to 2017 edition) (available as hard copy, online, or as an app)
- The Essential Technical Rescue Field Operations Guide (DRR), current edition, by Tom Pendley, Desert Rescue Research, ISBN: 978-0-692-90153-3 (applies to 2017 edition) (available as hard copy, and app, or online)
- Fundamentals of Technical Rescue, Jones and Bartlett, current edition, ISBN: 978-0-7637-3837-2 (applies to 2010 edition)
- Fire Service Technical Search and Rescue, current edition, International Fire Service Training Association, ISBN: 978-087939580-3 (applies to 2015 edition)

To teach this course, instructors may use the following:

- Fundamentals of Technical Rescue Toolkit, Jones and Bartlett, current edition, ISBN: 978-0763776954 (applies to 2011 edition)

Online Instructor Resources

The following instructor resources are available online at http://osfm.fire.ca.gov/training/instructorscorner.php:

- Operational checklist
- California Code of Regulations, Title 8, Section 1670 Personal Fall Protection (dir.ca.gov)
- California Code of Regulations, Title 8, Section 3270.1 Use of Rope Access Equipment (dir.ca.gov)

Student Resources

To participate in this course, students need:

- Any textbooks selected by the instructor
- Helmet, gloves, eye protection, and any other safety equipment required by the AHJ
- Student materials such as paper, pens, pencils

To participate in this course, students may need:

- Knee pads

Facilities and Equipment

The following facilities and equipment are required to deliver this course:

- Side openings to accommodate simultaneous operations of ladder systems.
- High and low anchor points appropriately placed for use with each operation

- Open field area to accommodate simultaneous operations, ladder "A" frame, ladder gin, and pickets
- Area to lower a student one story through an opening using an interior leaning ladder (minimum 8 feet)
- Structure, 30 feet minimum height with working roof that is of sound and safe engineering design
- Topside working area, 50 feet long x 12 feet wide with a connected slope area, minimum 30 feet long x 10 feet wide at a 30–60° angle; area supports two (2) squads or maximum of twenty-four (24) students
- Area to demonstrate and practice skills (rescue knots, rescue/victim packaging, anchors, and rope systems)
- Open field sloping area
- All high angle evolutions performed in an environment in which the load is predominately supported by the rope rescue system
- A minimum vertical distance of 10 to 20 feet
- A minimum required ascending distance of 10 to 20 feet
- An obstacle to negotiate while ascending and descending
- An obstacle to negotiate during lowering and raising operations

Equipment List:
Note: All equipment must be NFPA compliant or purpose-designed (i.e., prusiks).

Item	Size Description	Number	Notes
Anchor plate		6	
Apparatus, fire (large)	Large	Optional	
Backboard, long		Optional	
Descent control device used by the AHJ		8	
Carabiner (locking)		80	
Commercial Class III harness (variety of sizes)	Small	12	Still being determined if need Class II.
Commercial victim seat harness		2	
Commercial victim chest harness		2	
Cord	8mm x 33'	Optional	
Edge protection		Enough	Edge protection can be manufactured (rope rollers, etc) or improvised (split fire hose, etc). There shall be adequate amounts of edge protection available for concurrent running scenarios.

Edge roller		Enough	
Ascenders		4	While Gibbs Ascenders™ are acceptable, handled ascenders are preferred.
Ladder 24'		Enough	
Ladder 14'		Enough	
Litter tender straps		Optional	
Litter wheel		Optional	
Load-releasing device		6	Commercial or field assembled (with webbing or cordelette) complete with General Use carabiners. These carabiners are in addition to the amounts specified under the carabiner and prusik categories.
Kernmantle rope	150'	6	
Kernmantle rope	20’	4	
Picket, steel	1"x4'	12	
Prusik loop	Short	20	
Prusik loop	Long	20	
Pulley: standard	2" or 4"	8	
Pulley: prusik minding	2" or 4"	8	All 16 can be prusik minding
Pulley: double	2" or 4"	2	
Pulley: knot passing		1	
Rescue litter		2	
Rescue litter pre-rig with 4 prusiks and 6 carabiners		2	Commercial or field assembled complete with general use carabiners and prusiks; if field assembled these carabiners and prusiks are in addition to the amounts specified under the carabiner and prusik categories.
Rescue mannequin		Optional	
Sledgehammer	8–10 lb.	2	
Spider straps		Optional	
Tie rope	15'	24	
Webbing, blue tubular	1"x15'	24	
Webbing, green tubular	1"x5'	12	
Webbing, orange tubular	1"x20'	24	

Webbing, yellow tubular	1"x12'	12	
Pick off strap		2	
Etriers		2	Can be commercial or field assembled from one inch tubular webbing.
Mini MA system		Optional	
Swivels		Optional	

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, 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. What is a formative test? What is a summative test?

Activities

1. To be determined by the instructor.

Topic 1-2: Rescue Technician Certification Process

Terminal Learning Objective

At the end of this topic, a student will be able to identify different levels in the Rescue Technician certification track, the courses and requirements for [Level #] certification, and be able to describe the capstone task book and testing process.

Enabling Learning Objectives

1. Identify the different levels of certification in the Rescue Technician certification track

- Rope Rescue Operations
- Rope Rescue Technician
- Structural Collapse Specialist I
- Structural Collapse Specialist II

2. Identify the courses required for Rope Rescue Operations
   - Rope Rescue Operations
   - ICS-100: Introduction to the Incident Command System
   - ICS-200: ICS for Single Resources and Initial Action Incidents
   - IS-700: National Incident Management System, An Introduction
   - IS-800: National Response Framework, An Introduction
3. Identify any other requirements for Rope Rescue Operations
4. Describe the capstone task book process
   - Complete all prerequisites and course work
   - Submit application and fees to request capstone task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training
5. Describe the capstone testing process
   - Complete course work
   - Schedule online capstone test
   - Schedule skills evaluation test

Discussion Questions

1. How many levels are there in the Rescue Technician certification track? What are they?

Activities

1. To be determined by the instructor.

Unit 2: Rope Rescue Awareness

Topic 2-1: Recognizing the Need for Support Resources

Terminal Learning Objective

At the end of this topic, given a specific type of rescue incident, the student will be able to recognize the need for support resources, so that a resource cache is managed, scene lighting is provided for the tasks to be undertaken, environmental concerns are managed, personnel rehabilitation is facilitated, and the support operation facilitates rescue operational objectives.

Enabling Learning Objectives

1. Identify equipment organization and tracking methods
2. Identify lighting resource type(s)

3. Identify shelter and thermal control options
4. Identify rehab criteria
5. Track equipment inventory
6. Identify lighting resources and structures for shelter and thermal protection
7. Identify rehab areas
8. Describe managing personnel rotations

Discussion Questions

9. What support resources are available in your AHJ?
10. What is your AHJ's rehab policy?

Activities

1. To be determined by the instructor.

Instructor Notes

1. The instructor may choose to present the awareness-level material (Unit 2) as precourse work.

CTS Guide Reference: CTS 1-1

Topic 2-2: Recognizing Incident Hazards and Initiating Isolation Procedures

Terminal Learning Objective

At the end of this topic, given scene control barriers, personal protective equipment (PPE), requisite equipment, and available specialized resources, the student will be able to recognize incident hazards and initiate isolation procedures, so that all hazards are identified, resource application fits the operational requirements, hazard isolation is considered, risks to rescuers and victims are minimized, and rescue time constraints are taken into account.

Enabling Learning Objectives

1. Identify resource capabilities and limitations
2. Describe types and nature of incident hazards
3. Describe equipment types and their use
4. Describe isolation terminology, methods, equipment, and implementation
5. Identify operational requirement concerns
6. Describe common types of rescuer and victim risk
7. Describe risk/benefit analysis methods and practices
8. Identify types of technical references
9. Identify resource capabilities and limitations
10. Identify incident hazards
11. Describe how to assess victim viability (risk/benefit)
12. Describe technical references
13. Place scene control barriers
14. Operate control and mitigation equipment

Discussion Questions

1. What electronic references do you use in your AHJ?

2. What are common hazards found in your environment?
3. What national and state typed resources do you have in and around your AHJ?
4. What are your limitations operating at the awareness level?

Activities

1. To be determined by the instructor.

Instructor Notes

1. National and state typed resources might include NIMS and FIRESCOPE.

CTS Guide Reference: CTS 1-2

Topic 2-3: Recognizing Needed Resources for a Rescue Incident

Terminal Learning Objective

At the end of this topic, given incident information, a means of communication, resources, tactical worksheets, personnel accountability protocol, applicable references, and standard operating procedures, the student will be able to recognize needed resources for a rescue incident, so that references are utilized, personnel are accounted for, necessary resources are deployed to achieve desired objectives, incident actions are documented, rescue efforts are coordinated, the command structure is established, task assignments are communicated and monitored, and actions are consistent with applicable regulations.

Enabling Learning Objectives

1. Describe incident management system
2. Describe tactical worksheet application and purposes
3. Describe accountability protocols
4. Describe resource types and deployment methods
5. Describe documentation methods and requirements
6. Describe availability, capabilities, and limitations of rescuers and other resources
7. Identify communication problems and needs
8. Identify communications requirements, methods, and means
9. Describe types of tasks and assignment responsibilities
10. Describe policies and procedures of the agency
11. Identify technical references related to the type of rescue incident
12. Describe the implementation of an incident management system
13. Describe how to complete tactical worksheets
14. Evaluate incident information
15. Match resources to operational needs
16. Operate communications equipment
17. Describe the management of incident communications
18. Communicate in a manner so that objectives are met

Discussion Questions

1. What are the applicable regulations?
2. What information should be included on a tactical worksheet?
3. What are some kinds of communication equipment used in your AHJ?

Activities

1. Instructor must create an activity directing students to fill out the AHJ's tactical worksheet.

Instructor Notes

1. This activity can be done at a different point in the course.
2. The activity will help reinforce the personnel accountability process and resource tracking.

CTS Guide Reference: CTS 1-3

Topic 2-4: Initiating a Discipline-Specific Search

Terminal Learning Objective

At the end of this topic, given hazard-specific PPE, equipment pertinent to search mission, an incident location, and victim investigative information, the student will be able to initiate a discipline-specific search, so that search parameters are established, the victim profile is established, the entry and exit of all people either involved in the search or already within the search area are questioned and the information is updated and relayed to command, the personnel assignments match their expertise, all victims are located as quickly as possible, applicable technical rescue concerns are managed, risks to searchers are minimized, and all searchers are accounted for.

Enabling Learning Objectives

1. Describe local policies and procedures
2. Describe how to operate in the site-specific search environment
3. Determine the potential for entering, maneuvering in, and exiting the search environment
4. Provide for and perform self-escape/self-rescue

Discussion Questions

1. What questions would you ask an on-scene witnesses and reporting parties?
2. What equipment is pertinent to the search mission?
3. What types of PPE might be applicable to different types of hazards?
4. What are the components of the nationally recognized search marking system?

Activities

1. To be determined by instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 1-4

Topic 2-5: Performing Ground Support Operations for Helicopter Activities

Terminal Learning Objective

At the end of this topic, given a rescue scenario/incident, helicopter, operational plans, PPE, requisite equipment, and available specialized resources, the student will be able to perform ground support operations for helicopter activities, so that rescue personnel are aware of the operational characteristics of the aircraft and demonstrate operational proficiency in

establishing and securing landing zones and communicating with aircraft personnel until the assignment is complete.

Enabling Learning Objectives

1. Identify ground support operations relating to helicopter use and deployment
2. Identify operation plans for helicopter service activities
3. Describe type-specific PPE
4. Describe aircraft familiarization and hazard areas specific to helicopters
5. Describe scene control and landing zone requirements
6. Identify aircraft safety systems
7. Describe communications protocols
8. Provide ground support operations
9. Review standard operating procedures for helicopter operations
10. Use PPE
11. Establish and control landing zones
12. Communicate with aircrews

Discussion Questions

1. What are the hazard areas for different types of helicopters?
2. What helicopter resources are available in your AHJ?
3. What are the landing zone requirements for different helicopter types?
4. How do you communicate with aircrews on the ground and in the air?

Activities

1. To be determined by instructor

Instructor Notes

1. The instructor should refer to the current version of the IRPG.

CTS Guide Reference: CTS 1-5

Topic 2-6: Initiating Triage of Victims

Terminal Learning Objective

At the end of this topic, given triage tags and local protocol, the student will be able to initiate triage of victims, so that rescue versus recovery factors are assessed, triage decisions reflect resource capabilities, severity of injuries is determined, and victim care and rescue priorities are established in accordance with local protocol.

Enabling Learning Objectives

1. Describe types and systems of triage according to local protocol
2. Identify resource availability
3. Identify methods to determine injury severity
4. Describe ways to manage resources
5. Describe prioritization requirements
6. Use triage materials, techniques, and resources
7. Categorize victims correctly

Discussion Questions

1. What are the resources available to perform triage?

2. Do you have a standard for triage in your AHJ?

Activities

1. To be determined by the instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 1-6

Topic 2-7: Assisting a Team in Operation of the Haul Line

Terminal Learning Objective

At the end of this topic, given rescue personnel, an established rope rescue system, a load to be moved, and an anchor system, the student will be able to assist a team in operation of the haul line of a rope mechanical advantage system raising operation, so that the movement is controlled; a reset is accomplished; the load can be held in place when needed; commands are followed in direction of the operation; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe principles of mechanical advantage
2. Describe operation of a haul line in a raising operation
3. Identify personnel assignments
4. Describe operational commands
5. Follow operational commands
6. Identify safety concerns during raising operations

Discussion Questions

1. What are your roles and responsibilities as a awareness level member?

Activities

1. To be determined by the instructor

Instructor Notes

1. None

CTS Guide Reference: CTS 1-7

Unit 3: Rope Rescue Operations

Topic 3-1: Sizing Up a Rescue Incident

Terminal Learning Objective

At the end of this topic, given background information and applicable reference materials, the student will be able to perform size up of a 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. Assess types of reference materials and their uses
2. Describe availability and capability of the resources
3. Describe elements of an action plan and related information
4. Describe relationship of size-up to the incident management system
5. Describe information-gathering techniques and how that information is used in the size-up process
6. Explain technical rescue reference materials
7. Describe search parameters
8. Use information-gathering sources

Discussion Questions

1. What are some applicable reference materials?
2. What are the components of an IAP?
3. What are common search techniques?

Activities

1. To be determined by the instructor.

Instructor Notes

1. The instructor must review a Training Action Plan (TAP) and walk the students through the components.

CTS Guide Reference: CTS 2-1

Topic 3-2 Inspecting and Maintaining PPE

Terminal Learning Objective

At the end of this topic, given clothing or equipment for the protection of the rescuers, cleaning and sanitation supplies, maintenance logs or records, and such tools and resources as are indicated by the manufacturer's guidelines for assembly or disassembly of components during repair or maintenance, the students will be able to inspect and maintain hazard-specific PPE so that damage, defects, and wear are identified and reported or repaired, equipment functions as designed, and preventive maintenance has been performed and documented consistent with the manufacturer's recommendations.

Enabling Learning Objectives

1. Describe functions, construction, and operation of PPE
2. Describe use of record keeping systems of the AHJ

3. Describe requirements and procedures for cleaning, sanitizing, and infectious disease control
4. Describe maintenance procedures and use of provided assembly and disassembly tools
5. Describe manufacturer and department recommendations
6. Describe preuse inspection procedures
7. Describe ways to determine operational readiness.
8. Identify wear and damage indicators for PPE
9. Evaluate operational readiness of PPE
10. Complete logs and records
11. Use cleaning equipment, supplies, and reference materials
12. Select and use tools specific to the task

Discussion Questions

1. What are your AHJ's PPE inspection guidelines?
2. What type of equipment logs do you use?
3. Where are your AHJ's maintenance logs and records kept?

Activities

1. Have students make an equipment inspection and fill out an inspection log.

Instructor Notes

1. Show an example of a equipment log.

CTS Guide Reference: CTS 2-2

Topic 3-3 Inspecting and Maintaining Rescue Equipment

Terminal Learning Objective

At the end of this topic, given maintenance logs and records, tools, and resources as indicated by the manufacturer's guidelines, equipment replacement protocol, and organizational standard operating procedure, the student will be able to inspect and maintain rescue equipment, so that the operational status of equipment is verified and documented, all components are checked for operation, deficiencies are repaired or reported as indicated by standard operating procedure, and items subject to replacement protocol are correctly disposed of and changed.

Enabling Learning Objectives

1. Describe functions and operations of rescue equipment
2. Describe selection and use of maintenance tools
3. Describe replacement protocol and procedures
4. Describe criteria for placing equipment out of service
5. Describe organizational standard operating procedures
6. Identify wear and damage indicators for rescue equipment
7. Evaluate operation readiness of equipment
8. Complete logs and records
9. Describe use of recordkeeping systems
10. Describe manufacturer and organizational care and maintenance requirements

Discussion Questions

1. What are retirement or replacement criteria?
2. What does your AHJ use for proper cleaning of the equipment?
3. What are your AHJ's preuse inspection procedures?

Activities

1. To be determined by the instructor.

Instructor Notes

1. Consider showing equipment with normal and excessive wear and out-of-service equipment.

CTS Guide Reference: CTS 2-3

Topic 3-4 Demonstrating Knots, Bends, and Hitches

Terminal Learning Objective

At the end of this topic, given ropes, webbing, and a list of knots used by the agency, the students will be able to demonstrate knots, bends, and hitches, so that the knots are dressed, recognizable, and backed up as required.

Enabling Learning Objectives

1. Describe knot efficiency
2. Describe knot utilization
3. Describe rope construction
4. Identify rope terminology
5. Tie representative knots, bends, and hitches for the following purposes:
   - End-of-line loop
   - Midline loop
   - Securing rope around desired objects
   - Joining rope or webbing ends together
   - Gripping rope

Discussion Questions

1. What is the difference between a knot, a bend, and a hitch?
2. What are the names of the parts of a rope?

Activities

1. The instructor must create an activity directing students to tie all of the knots, bends, and hitches listed in the instructor notes.

Instructor Notes

CTS Guide Reference: CTS 2-4

Topic 3-5 Constructing a Single-Point Anchor System

Terminal Learning Objective

At the end of this topic, given life safety rope and other auxiliary rope rescue equipment, the student will be able to construct a single-point anchor system, so that the chosen anchor system fits the incident needs, meets or exceeds the expected load, and does not interfere with rescue operations; an efficient anchor point is chosen; the need for redundant anchor

points is assessed and used as required; the anchor system is inspected and loaded prior to being placed into service; and the integrity of the system is maintained throughout the operation.

Enabling Learning Objectives

1. Describe application of knots
2. Describe rigging systems and principles
3. Describe system safety check procedures
4. Describe rope and webbing construction
5. Describe rope rescue equipment applications and limitations
6. Select equipment
7. Tie knots, bends, and hitches as required by the AHJ
8. Evaluate anchor points for required strength, location, and surface contour
9. Perform a system safety check

Discussion Questions

1. What criteria are we looking for when considering anchor selection?
2. What are the differences in the regulations between fall restraint versus fall protection?

Activities

1. The instructor must create an activity directing students to construct a single-point anchor system and determine or estimate the expected load.

Instructor Notes

1. Reference: California Code of Regulations, Title 8, Section 1670 Personal Fall Protection
2. Reference: California Code of Regulations, Title 8, Section 3270.1 Use of Rope Access Equipment
3. The instructor must cover pickets.

CTS Guide Reference: CTS 2-5

Topic 3-6: Constructing a Multiple-Point Anchor System

Terminal Learning Objective

At the end of this topic, given life safety rope and other auxiliary rope rescue equipment, the student will be able to construct a multiple-point anchor system, so that the chosen anchor system fits the incident needs, the system strength meets or exceeds the expected load and does not interfere with rescue operations, equipment is visually inspected prior to being put in service, the nearest anchor point that will support the load is chosen, the anchor system is system safety checked prior to being placed into service, the integrity of the system is maintained throughout the operation, and weight will be distributed between more than one anchor point.

Enabling Learning Objectives

1. Describe the relationship of angles to forces created in the rigging of multiple-point anchor systems
2. Describe safety issues in choosing anchor points

3. Describe system safety check methods that allow for visual and physical assessment of system components
4. Describe methods to evaluate the system during operations
5. Describe integrity concerns
6. Describe weight distribution issues and methods
7. Describe knots, bends, and hitches and their applications
8. Describe selection and inspection criteria for hardware and software
9. Describe formulas needed to calculate safety factors for load distribution
10. Describe concepts of static loads versus dynamic loads
11. Determine incident needs as related to choosing anchor systems
12. Select effective knots
13. Determine expected loads
14. Evaluate incident operations as related to interference concerns and setup
15. Choose anchor points
16. Perform a system safety check
17. Evaluate system components for compromised integrity

Discussion Questions

1. What criteria are we looking for when considering anchor selection?
2. What impact do the angles have on the forces created?

Activities

1. The instructor should create an activity directing students to construct a multiple-point anchor system.

Instructor Notes

1. The instructor must discuss how these tasks will be performed in a variety of environments, including environments with less equipment (e.g., rapid extraction module support [REMS]).
2. Reference: California Code of Regulations, Title 8, Section 1670 Personal Fall Protection
3. Reference: California Code of Regulations, Title 8, Section 3270.1 Use of Rope Access Equipment

CTS Guide Reference: CTS 2-6

Topic 3-7: Conducting a System Safety Check

Terminal Learning Objective

At the end of this topic, given a rope-rescue system and rescue personnel, the student will be able to conduct a system safety check, so that a physical/visual check of the system is made to ensure proper rigging, a load test is performed prior to life-loading the system, and verbal confirmation of these actions is announced and acknowledged before life-loading the rope-rescue system.

Enabling Learning Objectives

1. Describe system safety check procedures

2. Explain construction and operation of rope rescue systems and their individual components
3. Describe equipment inspection criteria
4. Identify signs of equipment damage
5. Describe principles of rigging
6. Describe equipment replacement criteria
7. Apply and use PPE
8. Inspect rope rescue system components for damage
9. Assess a rope rescue system for configuration
10. Secure equipment components
11. Inspect all rigging
12. Perform a system safety check

Discussion Questions

1. What are the key components of a system safety check?
2. Who does your AHJ recognize as authorized to perform a system safety check?

Activities

1. The instructor must create an activity directing students to conduct a system safety check.

Instructor Notes

1. The instructor must use an operational checklist, including one specific to the AHJ, covering at a minimum the items on the checklist provided in the instructor resources for training exercises.
2. The instructor may choose to combine constructing, operating, and performing a safety check on a system in one activity.

CTS Guide Reference: CTS 2-7

Topic 3-8: Placing Edge Protection

Terminal Learning Objective

At the end of this topic, given life safety rope or webbing traversing a sharp or abrasive edge, edge protection, and other auxiliary rope rescue equipment, the students will be able to place edge protection, so that the rope or webbing is protected from abrasion or cutting, the rescuer is safe from falling while placing the edge protection, the edge protection is secure, and the rope or webbing is securely placed on the edge protection.

Enabling Learning Objectives

1. Explain materials and devices that can be used to protect ropes or webbing from sharp or abrasive edges
2. Describe fall prevention or protection measures
3. Identify dangers associated with sharp or abrasive edges
4. Describe methods for negotiation of sharp or abrasive edges
5. Select protective devices for rope and webbing
6. Provide personnel fall prevention or protection while working near edges

7. Secure edge protection
8. Secure ropes or webbing in a specific location

Discussion Questions

1. What are the different types of edge protection available in your AHJ?
2. What methods does your AHJ use to secure edge protection?
3. What hazards are associated with not using edge protection?

Activities

1. To be determined by the instructor.

Instructor Notes

1. The instructor must address both the low-angle and high-angle environment.
2. The instructor must bring in different types of edge protection to show the students.
3. The instructor can create a standalone activity or build edge protection into a system.

CTS Guide Reference: CTS 2-8

Topic 3-9: Constructing a Belay System

Terminal Learning Objective

At the end of this topic, given life safety rope, anchor systems, PPE, and rope rescue equipment, the student will be able to construct a belay system, so that the system is capable of arresting a fall, a fall will not result in system failure, the system is not loaded unless actuated, actuation of the system will not injure or otherwise incapacitate the belayer, the belayer is not rigged into the equipment components of the system, and the system is suitable to the site and is connected to an anchor system and the load.

Enabling Learning Objectives

1. Describe principles of belay systems
2. Describe capabilities and limitations of various belay devices
3. Describe application of knots, bends, and hitches; rigging principles; and system safety check procedures
4. Construct a belay system
5. Tie knots, bends, and hitches
6. Perform rigging
7. Don and use task-specific PPE
8. Perform a system safety check

Discussion Questions

1. What are the differences between a slack (e.g., tandem prusik) belay and a tensioned (e.g., TTRS) belay?
2. What are some examples of belays used in your AHJ?

Activities

1. The instructor must create an activity directing students to construct a slack (e.g., tandem prusik) belay or a tensioned (e.g., TTRS) belay.

Instructor Notes

1. The instructor should refer to NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017), A.5.2.9, which discusses two-tension rope systems (TTRS).

CTS Guide Reference: CTS 2-9

Topic 3-10: Operating a Belay System

Terminal Learning Objective

At the end of this topic, given an operating lowering or raising mechanical advantage system, a specified minimum travel distance for the load, a belay system, and a load, the student will be able to operate a belay system during a lowering or raising operation, so that the potential fall factor is minimized, the belay device system is not actuated during operation of the primary rope rescue system, the belay system is prepared for actuation at all times during the operation, the belayer is attentive at all times during the operation, the load's position is continually monitored, and the belayer moves rope through the belay device as designed.

Enabling Learning Objectives

1. Describe application and use of belay devices
2. Describe proper operation of belay systems in conjunction with lowering and raising operations
3. Describe operational commands
4. Operate a belay system
5. Tie approved knots, bends, and hitches
6. Assess system effectiveness
7. Perform a system safety check
8. Communicate belay system status

Discussion Questions

1. What commands does your AHJ use in the operation of a belay system?
2. How do you effectively minimize the fall factor?
3. Why is it important to stay attentive while belaying?

Activities

1. The instructor must create an activity directing students to operate a belay system.

Instructor Notes

1. The instructor must address both the low-angle and high-angle environment.
2. The instructor may choose to combine operating a belay as part of a system into one activity.

CTS Guide Reference: CTS 2-10

Topic 3-11: Belaying a Falling Load

Terminal Learning Objective

At the end of this topic, given a belay system and a dropped load, the student will be able to belay a falling load in a high-angle environment, so that the belay line is not taut until the load is falling, the belay device is actuated when the load falls, the fall is arrested in a manner that minimizes the force transmitted to the load, the belayer utilizes the belay

system as designed, and the belayer is not injured or otherwise incapacitated during actuation of the belay system.

Enabling Learning Objectives

1. Describe application and use of belay devices
2. Describe effective emergency operation of belay devices to arrest falls
3. Describe use of PPE
4. Describe operating procedures
5. Operate a belay system
6. Tie approved knots, bends, and hitches
7. Use task-specific PPE
8. Recognize and arrest a falling load

Discussion Questions

1. What is the proper action in response to a belay line actuation?
2. What are your AHJ's policies for recovering from a line failure?

Activities

1. The instructor must create an activity simulating an unexpected jerk of the belay system as outlined in NFPA 1006, A.5.2.11.

Instructor Notes

1. The instructor may simulate one line of a TTRS failing so that the students transfer the load to the other line.

CTS Guide Reference: CTS 2-11

Topic 3-12: Constructing a Fixed Rope System

Terminal Learning Objective

At the end of this topic, given an anchor system, a life safety rope, and rope rescue equipment, the student will be able to construct a fixed rope system, so that the system constructed can accommodate the load, is efficient, and is connected to an anchor system and the load, and a system safety check is performed and the results meet the incident requirements for descending or ascending operations.

Enabling Learning Objectives

1. Explain rigging principles
2. Select effective knots, bends, and hitches
3. Calculate expected loads
4. Use rigging principles
5. Evaluate interference concerns as related to the incident operations and setup
6. Perform a system safety check
7. Evaluate system components for compromised integrity

Discussion Questions

1. What are your AHJ's protocols for constructing a fixed rope system?
2. What is a contingency anchor?

Activities

1. The instructor must create an activity directing students to construct a fixed rope system using a contingency anchor.

Instructor Notes

1. The instructor must address both the low-angle and high-angle environment.

CTS Guide Reference: CTS 2-12

Topic 3-13: Descending a Fixed Rope

Terminal Learning Objective

At the end of this topic, given an anchored fixed-rope system, a specified minimum travel distance for the rescuer, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and PPE, the student will be able to descend a fixed rope in a low-angle and a high-angle environment, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the speed of descent is controlled; injury to the person descending is minimized; the person descending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Enabling Learning Objectives

1. Identify task-specific selection criteria for life safety harnesses and systems for descending a fixed rope
2. Describe PPE selection criteria
3. Describe the design, intended purpose, and operation of descent control devices utilized
4. Describe safe rigging principles and techniques for low- and high-angle environments
5. Identify common hazards posed by harness use
6. Select and use harness, a system for descending a fixed rope, and PPE for common environments
7. Attach the rescuer to the rope rescue system
8. Make attachment of the descent control device to the rope and life safety harness
9. Operate the descent control device
10. Maneuver around existing environment and system-specific obstacles
11. Evaluate surroundings for potential hazards

Discussion Questions

1. What descending system(s) do(es) your AHJ use?
2. What is the difference between an autostop descender and a manual descender?

Activities

1. The instructor must create an activity directing students to descend a minimuim required distance and negotiate obstacles in a low-angle and a high-angle environment.

Instructor Notes

1. The instructor must use contingency anchors on all fixed ropes.

CTS Guide Reference: CTS 2-14

Topic 3-14: Constructing a Lowering System

Terminal Learning Objective

At the end of this topic, given an anchor system, life safety rope(s), a descent control device, and auxiliary rope rescue equipment, the student will be able to construct a lowering system, so that the system can accommodate the load, is efficient, is capable of controlling the descent, is capable of holding the load in place or lowering with minimal effort over the required distance, and is connected to an anchor system and the load.

Enabling Learning Objectives

1. Describe capabilities and limitations of various descent control devices
2. Identify capabilities and limitations of various lowering systems
3. Describe application of knots, bends, and hitches; rigging principles; and system safety check procedures
4. Tie knots, bends, and hitches
5. Perform rigging
6. Attach to descent control device, anchor system, and load
7. Perform a system safety check

Discussion Questions

1. What different descent-control devices are used in your AHJ?
2. What considerations could be made for a raising system?

Activities

1. The instructor must create an activity directing students to construct a lowering system.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-16

Topic 3-15: Operating and Directing a Lowering and a Raising System

Terminal Learning Objective

At the end of this topic, given rescue personnel, an established lowering system, a specified minimum travel distance for the load, and a load to be moved, the student will be able to operate and direct a lowering and a raising system in a low-angle and a high-angle environment, so that the movement is controlled, a knot is passed, the load can be held in place when needed, the system is converted to a raise, operating methods do not stress the system to the point of failure, rope commands are used to direct the operation, and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe application and use of descent control devices
2. Describe capabilities and limitations of various lowering systems in a low- and high-angle environment

3. Identify knot, bend, and hitch selection
4. Describe operation of lowering systems in a low- and high-angle environment
5. Describe operation of raising systems in a low- and high-angle environment
6. Identify personnel assignments
7. Identify operational commands
8. Operate a lowering and a raising system
9. Convert a lowering operation to a raising operation
10. Pass a knot in a lowering and a raising operation
11. Use a load-releasing method
12. Direct the operation
13. Use operational commands
14. Analyze system efficiency
15. Manage movement of the load in a low- and high-angle environment
16. Identify safety concerns in a low- and high-angle environment
17. Perform a system safety check

Discussion Questions

1. What are methods for passing a knot?
2. What must be taken into account when performing a lowering or raising operation?

Activities

1. The instructor must create an activity directing students to perform and direct a lowering and raising operation in a low-angle and a high-angle environment.

Instructor Notes

1. The instructor must discuss how these operations will be performed in a variety of environments, including environments with less equipment (e.g., rapid extraction module support[REMS]).

CTS Guide Reference: CTS 2-17

Topic 3-16: Constructing a Simple Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic, given life safety rope, carabiners, pulleys, rope grab devices, and auxiliary rope rescue equipment, the student will be able to construct a simple rope mechanical advantage system, so that the system constructed can accommodate the load, is efficient, and is connected to an anchor system and the load.

Enabling Learning Objectives

1. Describe principles of mechanical advantage
2. Identify capabilities and limitations of various simple rope mechanical advantage systems
3. Describe application of knots, bends, and hitches
4. Describe rigging principles
5. Describe system safety check procedures
6. Select rope and equipment

7. Tie knots, bends, and hitches
8. Choose and rig systems
9. Attach the mechanical advantage system to the anchor system and load
10. Perform a system safety check

Discussion Questions

1. Define a simple rope mechanical advantage system.
2. What is a common type of simple rope mechanical advantage system?

Activities

1. The instructor must create an activity directing students to construct a simple rope mechanical advantage system.

Instructor Notes

1. Have the students explain how to quantify a simple rope mechanical advantage system

CTS Guide Reference: CTS 2-18

Topic 3-17: Operating and Directing a Team in Operating a Simple Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic, given rescue personnel, an established rope rescue system incorporating a simple rope mechanical advantage system, a specified minimum travel distance for the load, a load to be moved, and an anchor system, the student will be able to operate and direct a team in the operation of a simple rope mechanical advantage system in a low-angle and a high-angle raising operation, so that the movement is controlled, a reset is accomplished, the load can be held in place when needed, operating methods do not stress the system to the point of failure, commands are used to direct the operation, and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe principles of mechanical advantage
2. Identify capabilities and limitations of various simple rope mechanical advantage systems and low-angle and high-angle raising operations
3. Describe knot, bend, and hitch selection
4. Describe correct operation of simple rope mechanical advantage systems
5. Identify personnel assignments
6. Identify operational commands
7. Operate the simple rope mechanical advantage system
8. Direct personnel
9. Use operational commands
10. Analyze system efficiency
11. Identify safety concerns
12. Perform a system safety check

Discussion Questions

1. What are the advantages and disadvantages of simple mechanical advantage systems?

2. What are operational commands used for directing simple mechanical advantage system operations?

Activities

1. The instructor must create an activity directing students to operate and direct a team in the operation of a simple rope mechanical advantage system in a low-angle and a high-angle raising operation.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-19

Topic 3-18: Constructing a Compound Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, the student will be able to construct a compound rope mechanical advantage system, so that the system constructed accommodates the load and reduces the force required to lift the load, operational interference is factored and minimized, the system is efficient, a system safety check is completed, and the system is connected to an anchor system and the load.

Enabling Learning Objectives

1. Describe incident needs as related to choosing compound rope systems
2. Describe elements of efficient design for compound rope systems
3. Describe knot, bend, and hitch selection
4. Describe methods for reducing excessive force to system components
5. Describe evaluation of incident operations as related to interference concerns and setups
6. Describe rope commands
7. Explain rigging principles
8. Identify system safety check procedures
9. Describe methods of evaluating system components for compromised integrity
10. Determine incident needs as related to choosing compound rope systems
11. Tie knots, bends, and hitches
12. Calculate expected loads
13. Evaluate incident operations as related to interference concerns and setups
14. Perform a system safety check
15. Evaluate system components for compromised integrity

Discussion Questions

1. Define a compound rope mechanical advantage system.
2. What is a common type of compound rope mechanical advantage system?

Activities

1. The instructor must create an activity directing students to construct a compound rope mechanical advantage system.

Instructor Notes

1. Have the students explain how to quantify a compound rope mechanical advantage system.

CTS Guide Reference: CTS 2-20

Topic 3-19: Constructing a Complex Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, the student will be able to construct a complex rope mechanical advantage system, so that the system constructed accommodates the load and reduces the force required to lift the load, operational interference is factored and minimized, the system is efficient, a system safety check is completed, and the system is connected to an anchor system and the load.

Enabling Learning Objectives

1. Describe incident needs as related to choosing complex rope systems
2. Describe elements of efficient design for complex rope systems
3. Describe knot, bend, and hitch selection
4. Describe methods for reducing excessive force to system components
5. Describe evaluation of incident operations as related to interference concerns and setups
6. Describe rope commands
7. Explain rigging principles
8. Identify system safety check procedures
9. Describe methods of evaluating system components for compromised integrity
10. Determine incident needs as related to choosing complex rope systems
11. Tie knots, bends, and hitches
12. Calculate expected loads
13. Evaluate incident operations as related to interference concerns and setups
14. Perform a system safety check
15. Evaluate system components for compromised integrity

Discussion Questions

1. Define a complex rope mechanical advantage system.
2. What is a common type of complex rope mechanical advantage system?

Activities

1. The instructor must create an activity directing students to construct a complex rope mechanical advantage system.

Instructor Notes

1. Have the students explain how to quantify a complex rope mechanical advantage system

CTS Guide Reference: CTS 2-21

Topic 3-20: Operating and Directing the Operation of a Compound Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic, given a rope rescue system incorporating a compound rope mechanical advantage system and a load to be moved, and a specified minimum travel distance for the load, the student will be able to operate and direct the operation of a compound rope mechanical advantage system in a low-angle and a high-angle environment, so that a system safety check is performed; a reset is accomplished and the movement is controlled; the load can be held in place when needed; operating methods do not stress the system to the point of failure; operational commands are clearly communicated; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Identify methods to determine incident needs
2. Describe types of interference concerns
3. Describe rope commands
4. Describe system safety check protocols
5. Describe procedures for continued evaluation of system components for compromised integrity
6. Identify common personnel assignments and duties
7. Describe methods for controlling a load's movement
8. Identify system stress issues during operations
9. Describe management methods for common problems
10. Determine incident needs
11. Evaluate incident operations as related to interference concerns
12. Complete a system safety check
13. Continually evaluate system components for compromised integrity
14. Operate the compound rope mechanical advantage syste
15. Direct personnel
16. Communicate commands
17. Analyze system efficiency
18. Manage load movement
19. Identify concerns

Discussion Questions

1. What are the advantages and disadvantages of compound mechanical advantage systems?
2. What are operational commands used for directing compound mechanical advantage system operations?

Activities

1. The instructor must create an activity directing students to operate and direct a team in the operation of a compound rope mechanical advantage system in a low-angle and a high-angle raising operation.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-22

Topic 3-21: Operating and Directing the Operation of a Complex Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic, given a rope rescue system incorporating a complex rope mechanical advantage system and a load to be moved, and a specified minimum travel distance for the load, the student will be able to direct the operation of a complex rope mechanical advantage system in a low-angle and a high-angle environment, so that a system safety check is performed; a reset is accomplished and the movement is controlled; the load can be held in place when needed; operating methods do not stress the system to the point of failure; operational commands are clearly communicated; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Identify methods to determine incident needs
2. Describe types of interference concerns
3. Describe rope commands
4. Describe system safety check protocols
5. Describe procedures for continued evaluation of system components for compromised integrity
6. Identify common personnel assignments and duties
7. Describe methods for controlling a load's movement
8. Identify system stress issues during operations
9. Describe management methods for common problems
10. Determine incident needs
11. Evaluate incident operations as related to interference concerns
12. Complete a system safety check
13. Continually evaluate system components for compromised integrity
14. Operate a complex rope mechanical advantage system
15. Direct personnel
16. Communicate commands
17. Analyze system efficiency
18. Manage load movement
19. Identify concerns

Discussion Questions

1. What are the advantages and disadvantages of complex mechanical advantage systems?

2. What are operational commands used for directing complex mechanical advantage system operations?

Activities

1. The instructor must create an activity directing students to operate and direct a team in the operation of a complex rope mechanical advantage system in a low-angle and a high-angle raising operation.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-23

Topic 3-22: Negotiating an Edge While Attached to a Rope Rescue System

Terminal Learning Objective

At the end of this topic, given a rope rescue system, a specified minimum travel distance for the rescuer, life safety harnesses, an edge to negotiate during the lower and raise, and specialized equipment necessary for the environment, the student will be able to negotiate an edge while attached to a rope rescue system during a low-angle and a high-angle lowering and raising operation, so that risk to the rescuer is minimized, the means of attachment to the rope rescue system is secure, and all projections and edges are negotiated while minimizing risks to the rescuer or equipment.

Enabling Learning Objectives

1. Describe techniques and practices for negotiating existing projections and edges along the travel path while suspended from operating rope-based lowering and raising mechanical advantage systems and common hazards imposed by those projections and edges
2. Select and use harness and PPE for common environments
3. Attach the rescuer to the rope rescue system
4. Maneuver across existing projections and an edge along the travel path
5. Evaluate surroundings for potential hazards

Discussion Questions

1. What are some ways your AHJ negotiates an edge?
2. What are some different types of edges that may need to be negotiated?

Activities

1. The instructor must create an activity directing students to negotiate an edge while attached to a rope rescue system.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-24

Topic 3-23: Accessing, Assessing, Stabilizing, Packaging, and Transferring Victims

Terminal Learning Objective

At the end of this topic, given diagnostic and packaging equipment and an actual or simulated EMS agency, the student will be able to access, assess, stabilize, package, and transfer victims, so that rescuers and victim are protected from hazards, the victim's injuries or illnesses are managed, and the victim is delivered to the appropriate EMS provider with information regarding the history of the rescue activity and victim's condition.

Enabling Learning Objectives

1. Describe victim and scene assessment methods
2. Explain victim treatment, immobilization, and packaging methods
3. Describe medical information management and communication methods
4. Use victim immobilization, packaging, and treatment methods
5. Provide victim transfer reports, both verbally and in written format

Discussion Questions

1. What packaging equipment and methods does your AHJ use?
2. What information should be passed on to the EMS provider?

Activities

1. The instructor must create an activity directing students to package victims.

Instructor Notes

1. The instructor should cover both ambulatory and nonambulatory victim packaging.
2. The instructor should cover victim packaging for a litter and various other victim packaging devices.

CTS Guide Reference: CTS 2-25

Topic 3-24: Operating and Directing a Litter-Lowering and Litter-Raising System in a Low-Angle Environment

Terminal Learning Objective

At the end of this topic, given rescue personnel, (a) litter tender(s), an established lowering/mechanical advantage system, a specified minimum travel distance for the load, and a victim packaged in a litter to be moved, the student will be able to operate and direct a litter-lowering and litter-raising system in a low-angle environment, so that the litter is attached to the lowering/raising and belay systems; movement is controlled; litter tender(s) are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe the application and use of lowering and mechanical advantage system in the low-angle environment
2. Describe the capabilities and limitations of various lowering and mechanical advantage systems in a low-angle environment
3. Describe litter-tender functions and limitations in the low-angle environment

4. Describe the management of a litter in a low-angle environment during raises and lowers
5. Identify personnel assignments
6. Identify operational commands
7. Operate a litter-lowering and litter-raising system
8. Direct operation
9. Use operational commands
10. Analyze system efficiency
11. Manage movement of the litter in a low-angle environment
12. Identify safety concerns in a low-angle litter operation
13. Perform a system safety check

Discussion Questions

1. What type of litter rig does your AHJ use?
2. What is the configuration for a low-angle litter bridle?

Activities

1. The instructor must create an activity directing students to operate and direct a litter-lowering and litter-raising system in a low-angle environment.

Instructor Notes

1. The instructor must discuss how these operations will be performed in a variety of environments, including environments with less equipment (e.g., rapid extraction module support[REMS]).

CTS Guide Reference: CTS 2-26

Topic 3-25: Operating as a Litter Tender

Terminal Learning Objective

At the end of this topic, given a rope rescue system, a specified minimum travel distance for the litter tender, life safety harnesses, litters, bridles, and specialized equipment necessary for the environment, the student will be able to operate as a litter tender in a low-angle lowering or raising operation, so that risks to victims and rescuers are minimized, the means of attachment to the rope rescue system is secure, and the terrain is negotiated while minimizing risks to equipment or persons.

Enabling Learning Objectives

1. Identify task-specific selection criteria for life safety harnesses
2. Describe PPE selection criteria
3. Describe variations in litter design and intended purpose
4. Describe low-angle litter attachment principles
5. Describe techniques and practices for low-angle environments
6. Identify common hazards imposed by the terrain
7. Select and use harness and PPE for common environments
8. Attach the rescuer to the rope rescue system
9. Maneuver across the terrain

10. Manage the litter while suspended from the rope rescue system
11. Evaluate surroundings for potential hazards

Discussion Questions

1. What are the various methods for attaching litter tenders to the system? Which does your AHJ use?

Activities

1. The instructor must create an activity in which students serve on a three- and a four-person evolution.

Instructor Notes

1. The instructor should reinforce safe lifting techniques, communication, and coordination of a litter team.

CTS Guide Reference: CTS 2-27

Topic 3-26: Directing a Litter-Lowering or Litter-Raising Operation in a High-Angle Environment

Terminal Learning Objective

At the end of this topic, given rescue personnel, an established lowering/mechanical advantage system, a specified minimum travel distance for the load, a victim packaged in a litter to be moved, and a means for negotiating edges and projections along the travel path, the student will be able to direct a litter-lowering or litter-raising operation in a high-angle environment, so that the litter is attached to the lowering/raising and belay systems, an edge is negotiated during a lower and a raise; tag lines are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe application and use of lowering and mechanical advantage system in the high-angle environment
2. Describe capabilities and limitations of various lowering and mechanical advantage systems in a high-angle environment
3. Describe the use of tag lines for management of litter position during high-angle lowers and raises
4. Describe litter positioning options (vertical and horizontal)
5. Identify personnel assignments
6. Identify operational commands
7. Direct operation
8. Use operational commands
9. Analyze system efficiency
10. Manage movement of the litter in a high-angle environment
11. Identify safety concerns in a high-angle environment
12. Perform a system safety check

Discussion Questions

1. What type of litter rig does your AHJ use?
2. What is the configuration for a high-angle litter bridle?
3. What are differences between the high-angle bridle setup and a low-angle bridle setup?

Activities

1. The instructor must create an activity directing students to operate and direct a litter-lowering and litter-raising system in a high-angle environment.

Instructor Notes

1. The instructor must discuss how these operations will be performed in a variety of environments, including environments with less equipment (e.g., rapid extraction module support[REMS]).

CTS Guide Reference: CTS 2-28

Topic 3-27: Selecting, Constructing, and Using Travel Restrictions

Terminal Learning Objective

At the end of this topic, given life-safety rope and other auxiliary rope rescue equipment and an anchor system that meets the incident needs, the student will be able to select, construct, and use travel restriction for rescuers in a low-angle and a high-angle environment, so that the rescuer is restricted from falling.

Enabling Learning Objectives

1. Select an anchor
2. Construct an adjustable travel restriction system
3. Attach a rescuer to a travel restriction system
4. Use travel restriction in a low-angle and a high-angle environment

Discussion Questions

1. What are the considerations for a travel restriction system?
2. What are the components of a travel restriction system?

Activities

1. The instructor must create an activity directing students to select, construct, and use travel restrictions in a low-angle and high-angle environment.

Instructor Notes

1. Reference: California Code of Regulations, Title 8, Section 1670 Personal Fall Protection
2. Reference: California Code of Regulations, Title 8, Section 3270.1 Use of Rope Access Equipment

CTS Guide Reference: CTS 2-29

Topic 3-28: Constructing and Operating Ladder Rescue Systems

Terminal Learning Objective

At the end of this topic, given fire service ladders and rope rescue equipment, the student will be able to construct and operate systems to move patients from a low place to a high

place, a high place to a low place, and across uneven terrain, so that the hazards are mitigated, the obstacles are negotiated, and the risks to the patient are minimized.

Enabling Learning Objectives

1. Describe the components and operational functions of the seven ladder systems
   - Moving ladder slide
   - Ladder slide
   - Exterior leaning ladder
   - Interior leaning ladder
   - Cantilever ladder
   - Ladder gin
   - Ladder A frame
2. Describe the components and operational functions of the mechanical advantage system used in a ladder rescue system
3. Explain safety considerations for ladder rescue systems
4. Construct and operate ladder rescue systems

Discussion Questions

1. What are the different types of fire service ladders?
2. What are hazards associated with ladder rescue systems?

Activities

1. The instructor must create an activity directing students to construct all ladder systems listed in ELO 1 and operate systems to move patients from a low place to a high place, a high place to a low place, and across uneven terrain.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-30

Topic 3-29: Terminating a Technical Rescue Operation

Terminal Learning Objective

At the end of this topic, given an incident scenario, assigned resources, and site safety data, the student 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, recordkeeping and documentation occur, and postevent analysis is conducted.

Enabling Learning Objectives

1. Identify 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. Recognize hazards
7. Analyze risk

8. Use site control equipment and methods
9. Use data collection and management systems
10. Use asset and personnel tracking systems

Discussion Questions

1. What are the considerations for a personnel accountability report (PAR)?
2. What are the components of an after-action review?
3. What are hazards associated with terminating an incident, including equipment breakdown and decontamination?

Activities

1. The instructor must create an activity directing students to conduct a PAR, clean up, and take inventory.

Instructor Notes

1. The instructor should cover all relevant documentation.

CTS Guide Reference: CTS 2-31

Time Table

Segment	Lecture Time	Activity Time	Total Unit Time
Unit 1: Introduction			
Topic 1-1: Orientation and Administration			
Lecture	0:30		
Activity 1-1: To be determined by instructor		0:00	
Topic 1-2: Rescue Technician Certification Process			
Lecture	0:30		
Activity 1-2: To be determined by instructor		0:00	
Unit 1 Totals	**1:00**	**0:00**	**1:00**
Unit 2: Rope Rescue Awareness			
Topic 2-1: Recognizing the Need for Support Resources			
Lecture	0:15		
Activity 2-1: To be determined by instructor		0:00	
Topic 2-2: Recognizing Incident Hazards and Initiating Isolation Procedures			
Lecture	0:15		
Activity 2-2: To be determined by instructor		0:00	
Topic 2-3: Recognizing Needed Resources for a Rescue Incident			
Lecture	0:15		
Activity 2-3: Recognizing Needed Resources for a Rescue Incident		0:15	
Topic 2-4: Initiating a Discipline-Specific Search			
Lecture	0:15		
Activity 2-4: To be determined by instructor		0:00	
Topic 2-5: Performing Ground Support Operations for Helicopter Activities			
Lecture	0:15		

Segment	Lecture Time	Activity Time	Total Unit Time
Activity 2-5: To be determined by instructor		0:00	
Topic 2-6: Initiating Triage of Victims			
Lecture	0:15		
Activity 2-6: To be determined by instructor		0:00	
Topic 2-7: Assisting a Team in Operation of the Haul Line			
Lecture	0:00		
Activity 2-7: To be determined by instructor		0:15	
Unit 2 Totals	**1:30**	**0:30**	**2:00**
Unit 3: Rope Rescue Operations			
Topic 3-1: Sizing Up a Rescue Incident			
Lecture	0:15		
Activity 3-1: To be determined by instructor		0:00	
Topic 3-2: Inspecting and Maintaining PPE			
Lecture	0:15		
Activity 3-2: Inspecting and Maintaining PPE		0:30	
Topic 3-3: Inspecting and Maintaining Rescue Equipment			
Lecture	0:30		
Activity 3-3: To be determined by instructor		0:00	
Topic 3-4: Demonstrating Knots, Bends, and Hitches			
Lecture	0:30		
Activity 3-4: Demonstrating Knots, Bends, and Hitches		1:00	
Topic 3-5: Constructing a Single-Point Anchor System			
Lecture	0:30		
Activity 3-5: Constructing a Single-Point Anchor System		0:30	
Topic 3-6: Constructing a Multiple-Point Anchor System			
Lecture	0:30		

Segment	Lecture Time	Activity Time	Total Unit Time
Activity 3-6: Constructing a Multiple-Point Anchor System		0:30	
Topic 3-7: Conducting a System Safety Check			
Lecture	0:15		
Activity 3-7: Conducting a System Safety Check		0:15	
Topic 3-8: Placing Edge Protection			
Lecture	0:15		
Activity 3-8: To be determined by instructor		0:15	
Topic 3-9: Constructing a Belay System			
Lecture	0:15		
Activity 3-9: Constructing a Belay System		0:45	
Topic 3-10: Operating a Belay System			
Lecture	0:15		
Activity 3-10: Operating a Belay System		1:00	
Topic 3-11: Belaying a Falling Load			
Lecture	0:15		
Activity 3-11: Belaying a Falling Load		0:45	
Topic 3-12: Constructing a Fixed Rope System			
Lecture	0:15		
Activity 3-12: Constructing a Fixed Rope System		0:30	
Topic 3-13: Descending a Fixed Rope			
Lecture	0:15		
Activity 3-13: Descending a Fixed Rope		2:00	
Topic 3-14: Constructing a Lowering System			
Lecture	0:15		
Activity 3-14: Constructing a Lowering System		0:30	
Topic 3-15: Operating and Directing a Lowering and a Raising System			
Lecture	0:15		
Activity 3-15: Operating and Directing a Lowering and a Raising System		1:00	

Segment	Lecture Time	Activity Time	Total Unit Time
Topic 3-16: Constructing a Simple Rope Mechanical Advantage System			
Lecture	0:15		
Activity 3-16: Constructing a Simple Rope Mechanical Advantage System		1:00	
Topic 3-17: Operating and Directing a Team in Operating a Simple Rope Mechanical Advantage System			
Lecture	0:15		
Activity 3-17: Operating and Directing a Team in Operating a Simple Rope Mechanical Advantage System		1:00	
Topic 3-18: Constructing a Compound Rope Mechanical Advantage System			
Lecture	0:15		
Activity 3-18: Constructing a Compound Rope Mechanical Advantage System		0:45	
Topic 3-19: Constructing a Complex Rope Mechanical Advantage System			
Lecture	0:15		
Activity 3-19: Constructing a Complex Rope Mechanical Advantage System		0:45	
Topic 3-20: Operating and Directing the Operation of a Compound Rope Mechanical Advantage System			
Lecture	0:15		
Activity 3-20: Operating and Directing the Operation of a Compound Rope Mechanical Advantage System		0:45	
Topic 3-21: Operating and Directing the Operation of a Complex Rope Mechanical Advantage System			
Lecture	0:15		
Activity 3-21: Operating and Directing the Operation of a Complex Rope Mechanical Advantage System		0:45	
Topic 3-22: Negotiating an Edge While Attached to a Rope Rescue System			
Lecture	0:30		

Segment	Lecture Time	Activity Time	Total Unit Time
Activity 3-22: Negotiating an Edge While Attached to a Rope Rescue System		1:30	
Topic 3-23: Accessing, Assessing, Stabilizing, Packaging, and Transferring Victims			
Lecture	0:30		
Activity 3-23: Accessing, Assessing, Stabilizing, Packaging, and Transferring Victims		1:30	
Topic 3-24: Operating and Directing a Litter-Lowering and Litter-Raising System in a Low-Angle Environment			
Lecture	0:15		
Activity 3-24: Operating and Directing a Litter-Lowering and Litter-Raising System in a Low-Angle Environment		1:00	
Topic 3-25: Operating as a Litter Tender			
Lecture	0:30		
Activity 3-25: Operating as a Litter Tender		1:30	
Topic 3-26: Directing a Litter-Lowering or Litter-Raising Operation in a High-Angle Environment			
Lecture	0:15		
Activity 3-26: Directing a Litter-Lowering or Litter-Raising Operation in a High-Angle Environment		1:00	
Topic 3-27: Selecting, Constructing, and Using Travel Restrictions			
Lecture	0:15		
Activity 3-27: Selecting, Constructing, and Using Travel Restrictions		1:00	
Topic 3-28: Constructing and Operating Ladder Rescue Systems			
Lecture	1:00		
Activity 3-28: Constructing and Operating Ladder Rescue Systems		4:00	
Topic 3-29: Terminating a Technical Rescue Operation			
Lecture	0:15		

Segment	Lecture Time	Activity Time	Total Unit Time
Activity 3-29: Terminating a Technical Rescue Operation		0:15	
Unit 3 Totals	**9:45**	**26:15**	**37:00**
Lecture, Activity, and Unit Totals:	**12:15**	**26:45**	**39:00**

Course Totals

Total Lecture Time (LT)	12:15
Total Activity Time (AT)	26:45
Total Testing Time (TT)	1:00
Total Course Time	**40:00**

Rope Rescue Technician

Course Plan

Course Details

Description: This course provides information on high-angle rescue, familiarizing participants with operation of simple, complex, and compound rope rescue systems in the high-angle environment.

Designed For: All fire service and allied emergency response personnel

Prerequisites: Rope Rescue Operations

Standard: Attend entire course. Complete all activities and any formative tests. Complete all summative tests with a minimum score of 80%.

Hours: Lecture: 7:45

Activities: 31:15

Testing: 1:00

Hours (Total): 40:00

Maximum Class Size: 24

Instructor Level: Primary

Instructor/Student Ratio: 24:1 lecture, 6:1 high-angle activities

Restrictions: Training site meets site requirements and equipment standards

SFT Designation: FSTEP

Required Resources

Instructor Resources

To teach this course, instructors need:

- Manuals for artificial high-directionals
- Rope Rescue Manual, current edition, CMC Rescue, Inc., ISBN: 978-009845878-5 (applies to 2017 edition) (available as hard copy, online, or as an app)
- The Essential Technical Rescue Field Operations Guide (DRR), current edition, by Tom Pendley, Desert Rescue Research, ISBN: 978-0-692-90153-3 (applies to 2017 edition) (available as hard copy, and app, or online)
- NFPA 1670, 1006, 1983, 1858

Online Instructor Resources

The following instructor resources are available online at https://osfm.fire.ca.gov/divisions/state-fire-training/fstep-curriculum/:

- Operational checklist
- California Code of Regulations, Title 8, Section 1670 Personal Fall Protection (dir.ca.gov)
- California Code of Regulations, Title 8, Section 3270.1 Use of Rope Access Equipment (dir.ca.gov)
- Skills list

Student Resources

To participate in this course, students need:

- Any textbooks selected by the instructor
- Helmet, gloves, eye protection, and any other safety equipment required by the AHJ
- Student materials such as paper, pens, pencils

To participate in this course, students may need:

- Knee pads

Facilities and Equipment

The following facilities are required to deliver this course:

- Structure, 20 feet minimum height with working roof that is of sound and safe engineering design
- Area to demonstrate and practice skills (rescue knots, rescue/victim packaging, anchors, and rope systems)

- All high angle evolutions performed in an environment in which the load is predominately supported by the rope rescue system
- A minimum vertical distance of 10 to 20 feet
- A minimum required ascending distance of 10 to 20 feet
- A minimum horizontal travel distance of 20 feet and vertical height of 20 feet measured from the ground to loaded midspan is required for horizontal load movement activities
- An obstacle to negotiate while ascending and descending
- An obstacle to negotiate during lowering and raising operations
- An edge problem to be negotiated during the litter tender activities

The following equipment is required to deliver this course:
Note: All equipment must be NFPA compliant or purpose-designed (i.e., prusiks). Given changing technologies, instructor may choose to bring and demonstrate additional equipment or update these items with equipment that meets the same requirements.

Item	Size Description	Number	Notes
Anchor plate		6	
Anchor straps		Optional	
Apparatus, fire (large)	Large	Optional	
Backboard, long		Optional	
Descent control device used by the AHJ		8	
Carabiner (locking)		80	
Commercial Class III harness (variety of sizes)		12	
Commercial victim seat harness		2	
Commercial victim chest harness		2	
Cord	8mm x 33'	Optional	
Edge protection		Based on Facility Needs	Edge protection can be manufactured (rope rollers, etc) or improvised (split fire hose, etc). There shall be adequate amounts of edge protection available for concurrent running scenarios.
Edge roller		Optional	
Ascenders		4	While Gibbs Ascenders™ are acceptable, handled ascenders are preferred.
Ladder 24'		Based on Facility	

		Needs	
Ladder 14'		Based on Facility Needs	
Double bypass lanyards		Optional	
Litter wheel		Optional	
Load-releasing device		6	Commercial or field assembled (with webbing or cordelette) complete with general use carabiners. These carabiners are in addition to the amounts specified under the carabiner and prusik categories.
Kernmantle rope	150'	6	
Kernmantle rope	20’	4	
Picket, steel	1"x4'	Optional	
Prusik loop	Short	20	
Prusik loop	Long	20	
Pulley: standard	2" or 4"	8	
Pulley: prusik minding	2" or 4"	8	All 16 can be prusik minding
Pulley: double	2" or 4"	2	
Pulley: knot passing		1	
Rescue litter		2	
Litter bridle		2	Commercial or field assembled complete with carabiners and prusiks; if field assembled, carabiners and prusiks are in addition to the numbers specified under the carabiner and prusik categories. Must include an attachment point for the litter tender.
Rescue mannequin		Optional	
Sledgehammer	8–10 lb.	Optional	
Spider straps		Optional	
Tie rope	15'	24	
Webbing, blue tubular	1"x15'	24	
Webbing, green tubular	1"x5'	12	
Webbing, orange tubular	1"x20'	24	
Webbing, yellow tubular	1"x12'	12	

Pick off strap		2	
Etriers		2	Can be commercial or field assembled from one-inch tubular webbing.
Mini MA system		Optional	
Artificial high-directional		1	Can be a commercial or improvised high-directional made of 4x4 lumber. One artificial high-directional per station.
Swivels		Optional	

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, 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. What is a formative test? What is a summative test?

Activities

1. To be determined by the instructor.

Unit 2: Rope Rescue Technician

Topic 2-1: Evaluating a Scenario and Constructing Tensioned Anchor Systems

Terminal Learning Objective

At the end of this topic, given a variety of scenarios, a rope rescue system, and a variety of materials from within the AHJ, a student will be able to evaluate the needs of the scenario and construct a variety of tensioned anchor systems.

Enabling Learning Objectives

1. Describe system safety factors, critical angles, and force multipliers for a variety of tensioned anchor systems, such as:
   - Pretensioned back ties
   - Front ties
   - Focused floating anchors
2. Describe types of and uses for a variety of tensioned anchor systems
3. Construct a variety of tensioned anchors

Discussion Questions

1. What is the purpose of a focused floating anchor?
2. When might you need to use a pretensioned back tie?
3. Why would a back tie be pretensioned?

Activities

1. The instructor must create an activity directing students to construct a variety of tensioned anchor systems and asses the safety factors, critical angles, and force multipliers.

Instructor Notes

1. The instructor should heavily emphasize anchor angles.

CTS Guide Reference: CTS 3-9

Topic 2-2: Ascending a Fixed Rope

Terminal Learning Objective

At the end of this topic, given an anchored fixed rope system, a specified minimum distance for the rescuer, a system to allow ascent of a fixed rope, a structure, a belay system, a life safety harness worn by the person ascending, and PPE, the student will be able to ascend a fixed rope in a high-angle environment, so that the person ascending is secured to the fixed rope in a manner that will not allow him or her to fall; the person ascending is attached to the rope by means of an ascent control device(s) with at least two points of contact; injury to the person ascending is minimized; the person ascending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the person ascending can convert his or her ascending system to a descending system; obstacles are negotiated; the system is suitable for the site; and the objective is reached.

Enabling Learning Objectives

1. Identify task-specific selection criteria for life safety harnesses and systems for ascending a fixed rope
2. Describe PPE selection criteria
3. Describe design and intended purpose of ascent control devices utilized
4. Explain rigging principles
5. Describe techniques for ascending in high-angle environments
6. Describe converting ascending systems to descending systems
7. Describe common hazards posed by harness use

8. Select and use harness, a system for ascending a fixed rope, and PPE for common environments
9. Attach the rescuer to the rope rescue system
10. Configure ascent control devices to form a system for ascending a fixed rope
11. Make connections to the ascending system
12. Maneuver around existing environment and system-specific obstacles
13. Convert the ascending system to a descending system while suspended from the fixed rope
14. Evaluate surroundings for potential hazards

Discussion Questions

1. What ascending system(s) do(es) your AHJ use?
2. What methods are used in your AHJ to convert the ascending system to a descending system?

Activities

1. The instructor must create an activity directing students to ascend a minimuim required distance and negotiate obstacles in a high-angle environment.

Instructor Notes

1. The instructor must use contingency anchors on all fixed ropes.
2. The descent from this initial ascension does not meet the next standard. Students must complete a separate descent as part of the next topic (Topic 2-3).

CTS Guide Reference: CTS 2-13

Topic 2-3: Descending a Fixed Rope

Terminal Learning Objective

At the end of this topic, given an anchored fixed-rope system, a specified minimum travel distance for the rescuer, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and PPE, the student will be able to descend a fixed rope in a high-angle environment, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the speed of descent is controlled; injury to the person descending is minimized; the person descending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Enabling Learning Objectives

1. Identify task-specific selection criteria for life safety harnesses and systems for descending a fixed rope
2. Describe PPE selection criteria
3. Describe the design, intended purpose, and operation of descent control devices utilized
4. Describe safe rigging principles and techniques for high-angle environments
5. Identify common hazards posed by harness use

6. Select and use harness, a system for descending a fixed rope, and PPE for common environments
7. Attach the rescuer to the rope rescue system
8. Make attachment of the descent control device to the rope and life safety harness
9. Operate the descent control device
10. Maneuver around existing environment and system-specific obstacles
11. Evaluate surroundings for potential hazards

Discussion Questions

1. What descending system(s) do(es) your AHJ use?
2. What is the difference between an autostop descender and a manual descender?

Activities

1. The instructor must create an activity directing students to descend a minimum required distance and negotiate obstacles in a high-angle environment.

Instructor Notes

1. The instructor must use contingency anchors on all fixed ropes.
2. If the students have covered this topic at the operations level, it need not be retaught.

CTS Guide Reference: CTS 2-14

Topic 2-4: Escaping from a Malfunctioning Device

Terminal Learning Objective

At the end of this topic, given an anchored fixed-rope system with a simulated malfunctioning descent control device, a system to allow escape from the malfunctioning device, a belay system, a life safety harness worn by the person descending, and PPE, the student will be able to demonstrate the ability to escape from a jammed or malfunctioning device during a fixed rope descent in a high-angle environment, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the means for escape will allow the rescuer to escape either upward or downward from the malfunctioning descent control device; injury potential to the rescuer is minimized; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Enabling Learning Objectives

1. Identify task-specific selection criteria for escape equipment and methods used for escape from a malfunctioning descent control device
2. Identify PPE selection criteria
3. Describe the design, intended purpose, and operation of escape systems utilized
4. Explain rigging principles
5. Describe techniques for escaping a jammed device in high-angle environments
6. Describe common hazards posed by malfunctioning descent control devices
7. Select and use harness, a system for escaping a malfunctioning descent control device, and PPE for common environments

8. Attach the rescuer to the rope rescue system
9. Make attachment of the descent control device to the rope and life safety harness
10. Attach and operate the escape system to remove the rescuer from the malfunctioning descent control device while maintaining patent attachment to the fixed rope and belay
11. Use the escape system to maneuver upward or downward from the malfunctioning descent control device
12. Evaluate surroundings for potential hazards

Discussion Questions

1. What is a possible cause of a jammed device?
2. What additional equipment is needed for self-rescue in this scenario?

Activities

1. The instructor must create an activity directing students to escape from a jammed or malfunctioning device.

Instructor Notes

1. The activity in this topic may be combined with other activities, such as descending.

CTS Guide Reference: CTS 2-15

Topic 2-5: Evaluating a Scenario and Constructing and Employing a High-Directional

Terminal Learning Objective

At the end of this topic, given a variety of scenarios, a rope rescue system, and a variety of materials from within the AHJ, a student will be able to evaluate the needs of the scenario and construct and employ a natural, structural, or artificial high-directional.

Enabling Learning Objectives

1. Describe types of and uses for high-directionals
2. Describe forces associated with high-directionals
3. Identify the type of high-directional needed for different scenarios
4. Construct and use a high-directional

Discussion Questions

1. What tools and materials could be used to construct a high-directional?
2. What is a resultant?

Activities

1. The instructor must create an activity directing students to construct a high-directional.

Instructor Notes

1. Refer to Rescue Techniques in the CMC Rope Rescue Manual.
2. Refer to the DRR section entitled Artificial High-Directional.
3. Refer to manuals for artificial high-directionals.
4. The instructor may choose to have a static display of a high-directional prior to the activity, have the students deconstruct it, and then have them reconstruct their own.

CTS Guide Reference: CTS 3-10

Topic 2-6 Directing a Team in Operating a Rope Rescue System to Remove a Stranded Victim

Terminal Learning Objective

At the end of this topic, given a victim stranded on or clinging to a feature and a means of removal of the victim to the ground or other safe area, a student will be able to direct a team in the operation of a rope rescue system to remove a victim stranded on or clinging to a natural or manmade feature in a high-angle environment, so that risks to victims and rescuers are minimized, injury to the victim is minimized, the means of attachment to the rope rescue system is maintained, and the victim is removed and brought to a safe area for transfer to EMS.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Describe techniques and systems for safe transfer of stranded victims from a natural or manmade feature
3. Describe various techniques for handling stranded victims without inducing a fall
4. Reduce hazards for rescuers and victims
5. Determine condition of the stranded victim
6. Select and construct systems for rapid removal of stranded victims from natural or manmade features
7. Manage operation of the selected system
8. Determine specialized equipment needs for victim movement

Discussion Questions

1. What are the differences between a team-based and a rescuer-based pickoff?
2. Why would you choose one or the other?
3. What victim packaging options are used by your AHJ?

Activities

1. The instructor must create an activity having students perform a pickoff of a stranded or clinging victim.

Instructor Notes

1. None

CTS Guide Reference: CTS 3-1

Topic 2-7: Directing a Team in Operating a Rope Rescue System to Remove a Suspended Victim

Terminal Learning Objective

At the end of this topic, given a victim suspended by a harness attached to anchored rope or webbing, systems for removal of the victim from the rope or webbing, and a means of removal of the victim to the ground or other safe area, a student will be able to direct a team in the operation of a rope rescue system to remove a victim suspended from rope or

webbing in a high-angle environment, so that risks to victims and rescuers are minimized, injury to the victim is minimized, the means of attachment to the rope rescue system is maintained, the victim is removed from the rope or webbing, and the victim is brought to a safe area for transfer to EMS.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Describe techniques and systems for safe transfer of suspended victims from an existing anchored rope or webbing to a rope rescue system
3. Identify various techniques for handling suspended victims
4. Describe principles of suspension-induced injuries
5. Reduce hazards for rescuers and victims
6. Determine condition of the suspended victim
7. Select and construct systems for rapid removal of victims from lanyards or rope or webbing
8. Manage operation of the selected system
9. Determine specialized equipment needs for victim movement

Discussion Questions

1. What is suspension trauma?
2. What are the differences between a team-based and a rescuer-based pickoff?
3. Why would you choose one or the other?

Activities

1. The instructor must create an activity having students perform a pickoff of a suspended victim.

Instructor Notes

1. For safety reasons, do not leave a live simulated victim suspended for five minutes or longer.

CTS Guide Reference: CTS 3-2

Topic 2-8: Performing the Transfer and Movement of a Suspended Victim While Suspended

Terminal Learning Objective

At the end of this topic, given a rope rescue system, a specified minimum travel distance for the victim, victim transfer systems, and specialized equipment necessary for the environment, while suspended from a rope rescue system a student will be able to perform the transfer and movement of a victim suspended from rope or webbing in a high-angle environment to a separate rope rescue lowering or raising system, so that risks to victims and rescuers are minimized; undesirable victim movement during the transfer is minimized; the means of attachment to the rope rescue system is maintained; the victim is removed from the static line and lowered or raised to a stable surface; victim positioning is managed to reduce adverse effects associated with suspension-induced injuries; selected specialized equipment facilitates efficient victim movement; and the victim can be transported to the local EMS provider.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Identify task-specific selection criteria for victim transfer systems
3. Describe various physical and psychological victim management techniques
4. Select PPE
5. Identify design characteristics and intended purpose of various transfer systems
6. Describe rigging principles
7. Describe causes and effects of suspension-induced injuries
8. Identify methods to minimize common environmental hazards created in high-angle environments
9. Reduce hazards for rescuers and victims
10. Choose victim transfer systems, select and use PPE
11. Perform a transfer of the victim from a static line to the lowering or raising system
12. Determine specialized equipment needs for victim movement

Discussion Questions

1. How can you transfer a victim to the rescue system without shockloading?
2. What are different methods of victim transfer?

Activities

1. The instructor must create an activity having students perform a transfer of and move a suspended victim.

Instructor Notes

1. This topic may be combined with the prior topic, Directing a Team in Operating a Rope Rescue System to Remove a Suspended Victim.

CTS Guide Reference: CTS 3-3

Topic 2-9: Performing the Activities of a Litter Tender in a High-Angle Operation

Terminal Learning Objective

At the end of this topic, given a rope rescue system, a specified minimum travel distance for the litter and litter tender, life safety harnesses, litters, bridles, and specialized equipment necessary for the environment, a student will be able to perform the activities of a litter tender in a high-angle lowering or raising operation, so that risks to victims and rescuers are minimized, the means of attachment to the rope rescue system is secure, and the travel path is negotiated while minimizing risks to equipment or persons.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Identify task-specific selection criteria for life safety harnesses
3. Select PPE
4. Describe variations in litter design and intended purpose
5. Describe high-angle litter attachment principles
6. Describe techniques and practices for high-angle environments
7. Describe common hazards imposed by the various structures and terrain
8. Select and use rescuer harness and PPE for common environments

9. Attach the life safety harness to the rope rescue system
10. Maneuver the litter past obstacles or natural structural features
11. Manage the litter while attached to the rope rescue system
12. Demonstrate tender's vertical positioning independent of litter during transit
13. Evaluate surroundings for potential hazards

Discussion Questions

1. What methods can the litter tender use to attach to the litter?
2. Why might a litter tender be required?

Activities

1. The instructor must create an activity directing students to tend the litter, including having them position themselves above and below the litter.

Instructor Notes

1. The intent for ELO 11 is to ensure students demonstrate positioning themselves above and below the litter to negotiate obstacles or perform a litter scoop.

CTS Guide Reference: CTS 3-4

Topic 2-10: Participating as a Member of a Team in Constructing a Horizontal Rope Rescue System

Terminal Learning Objective

At the end of this topic, given rescue personnel, life safety rope, rope rescue equipment, and a suitable anchor capable of supporting the load, a student will be able to participate as a member of a team in the construction of a rope rescue system intended to move a suspended rescue load along a horizontal path to avoid an obstacle, so that personnel assignments are made and clearly communicated; the system constructed can accommodate the load; tension applied within the system will not exceed the rated capacity of any of its components' parts; a system safety check is performed; movement of the load is efficient; and loads can be held in place or moved with minimal effort over the required distance

Enabling Learning Objectives

1. Determine incident needs as related to operation of a system
2. Describe capabilities and limitations of various systems (including capacity ratings)
3. Describe methods for limiting excessive force to system components
4. Evaluate incident site as related to hazards and obstacle negotiation
5. Describe rigging principles
6. Describe system safety check protocol
7. Identify common personnel assignments and duties
8. Identify common and critical operational commands
9. Identify common problems and ways to minimize these problems during construction
10. Determine incident needs as related to construction of a system
11. Evaluate an incident site as related to hazards and setup
12. Identify the obstacles or voids to be negotiated
13. Select a system for defined task

14. Perform system safety checks
15. Use rigging principles that will limit excessive force to system components
16. Communicate with personnel

Discussion Questions

1. What are the different systems used for horizontal movement?
2. What does your AHJ use?

Activities

1. To be determined by instructor.

Instructor Notes

1. This topic is intended to include, but is not restricted to, systems such as high lines, two-rope offsets, deflection, tracking, and guiding lines.
2. Activity 2-11 covers this topic and the next.

CTS Guide Reference: CTS 3-5

Topic 2-11: Directing a Team in Operating a Rope Rescue System to Move a Suspended Load Horizontally

Terminal Learning Objective

At the end of this topic, given rescue personnel, an established system, a target for the load, a load to be moved, and PPE, a student will be able to direct a team in the operation of a rope system to move a suspended rescue load along a horizontal path, so that the movement is controlled; the load is held in place when needed; operating methods do not stress the system to the point of failure; personnel assignments are made; tasks are communicated; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Determine incident needs as related to the operation of a system
2. Describe capabilities and limitations of various systems
3. Evaluate incident site as related to hazards and obstacle negotiation
4. Describe system safety check protocol
5. Describe procedures to evaluate system components for compromised integrity
6. Identify common personnel assignments and duties
7. Identify common and critical operational commands
8. Identify common problems and ways to minimize or manage those problems
9. Describe ways to increase the efficiency of load movement
10. Determine incident needs
11. Select personnel
12. Communicate with personnel
13. Evaluate system components for compromised integrity
14. Perform a system safety check
15. Manage movement of the load
16. Evaluate for any potential problems

Discussion Questions

1. What are some communication challenges in operating horizontal rope rescue systems?

2. How can forces change during the operation of a horizontal rope rescue system?

Activities

1. The instructor must create an activity directing students to construct a rope rescue system and move a suspended rescue load along a horizontal path.

Instructor Notes

1. The activity for this topic and the prior topic are combined into one.
2. The instructor must consider additional safety measures while operating a horizontal rope rescue system. Refer to instructor resources.

CTS Guide Reference: CTS 1-6

Topic 2-12: Climbing and Traversing Using Climbing Aids

Terminal Learning Objective

At the end of this topic, given a specified minimum travel distance, the equipment used by the agency and a task that reflects the anticipated rescue environment, a student will be able to climb and traverse natural features or manmade structures that require the use of climbing aids, positioning equipment, or fall prevention systems to prevent the fall or unwanted movement of the rescuer, so that the objective is achieved, the rescuer can perform the required task, and fall prevention is maintained.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Describe application and limitations of climbing, positioning, and fall prevention systems, including horizontal lifelines
3. Describe the fall factor for and risks associated with different systems used by the AHJ
4. Describe equipment used by the AHJ
5. Perform system safety checks
6. Climb vertical or near-vertical paths using the surfaces provided by the environment or climbing aids used by the agency
7. Transition horizontally between structural elements and the rescue system
8. Use positioning equipment to support the weight of the rescuer in a vertical or near-vertical environment permitting the rescuer to perform a task

Discussion Questions

1. What climbing aids does your AHJ use?
2. What are some methods to reduce impact force during protected climbing?

Activities

1. The instructor must create an activity directing students to climb and traverse natural features or manmade structures that require the use of climbing aids, positioning equipment, or fall prevention systems.

Instructor Notes

1. The line that students are climbing on must have the ability to lower the students to a safe location in the event of an emergency.
2. Refer to NFPA 1006 (2017) 4.3.3 for information on ELO #7.

CTS Guide Reference: CTS 3-7

Topic 2-13: Interacting with a Person in Emotional or Psychological Crisis

Terminal Learning Objective

At the end of this topic, given an environment consistent with the mission of the agency, the policies and procedures of the organization, and a person in a crisis scenario, a student will be able to interact with a person at height who is in an emotional or psychological crisis, so that the condition is recognized and communicated to the team, the rescuer is prevented from harm, and the actions of the rescuer do not escalate the incident.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Describe indicators of a person in emotional crisis
3. Identify typical triggers that can cause individuals to become agitated or anxious
4. Describe methods of interacting to prevent harm to the rescuer and the subject
5. Identify best practices to deescalate incidents involving persons in crisis
6. Describe crisis-intervention resources of the AHJ
7. Perform system safety checks
8. Methods of approach that minimize the risk to the rescuer from subjects whose psychological or emotional state is unknown
9. Interview techniques that provide insight to the motives and state of mind of the subject
10. Communicating and interacting with the subject in a manner that does not escalate the incident

Discussion Questions

1. What are your AHJ's protocols for managing emotional or psychological crises?
2. What are some local or national resources for dealing with emotional or psychological crises?

Activities

1. To be determined by the instructor.

Instructor Notes

1. Focus on minimizing risk to responders and the AHJ's resources and protocols.
2. This is a good time to discuss fall factors and ensuring your system is appropriate for the situation.
3. Instructor may refer to:
   - National Alliance of Mental Illness "How to Help Someone in Crisis": https://www.nami.org/Blogs/NAMI-Blog/September-2017/How-to-Help-Someone-in-Crisis
   - Suicide Prevention Resource Center: https://www.sprc.org/settings/first-responders
   - SAMHSA "Psychological First Aid for First Responders": https://store.samhsa.gov/system/files/nmh05-0210.pdf

CTS Guide Reference: CTS 3-8

Time Table

Segment	Lecture Time	Activity Time	Total Unit Time
Unit 1: Introduction			
Topic 1-1: Orientation and Administration			
Lecture	1:00		
Activity 1-1: To be determined by instructor		0:00	
Unit 1 Totals	**1:00**	**0:00**	**1:00**
Unit 2: [Unit Title]			
Topic 2-1: Evaluating a Scenario and Constructing Tensioned Anchor Systems			
Lecture	0:15		
Activity 2-1: Constructing and Assessing Tensioned Anchor Systems		1:45	
Topic 2-2: Ascending a Fixed Rope			
Lecture	0:15		
Activity 2-2: Ascending a Fixed Rope		3:45	
Topic 2-3: Descending a Fixed Rope			
Lecture	0:15		
Activity 2-3: Descending a Fixed Rope		2:15	
Topic 2-4: Escaping from a Malfunctioning Device			
Lecture	0:15		
Activity 2-4: Escaping from a Malfunctioning Device		2:45	
Topic 2-5: Evaluating a Scenario and Constructing and Employing a High-Directional			
Lecture	1:00		
Activity 2-5: Constructing a High-Directional		3:00	
Topic 2-6: Directing a Team in Operating a Rope Rescue System to Remove a Stranded Victim			
Lecture	0:15		
Activity 2-6: Performing a Pickoff of a Stranded Victim		2:00	
Topic 2-7: Directing a Team in Operating a Rope Rescue System to Remove a Suspended Victim			

Segment	Lecture Time	Activity Time	Total Unit Time
Lecture	0:15		
Activity 2-7: Performing a Pickoff of a Suspended Victim		2:00	
Topic 2-8: Performing the Transfer and Movement of a Suspended Victim While Suspended			
Lecture	0:15		
Activity 2-8: Transferring and Moving a Suspended Victim		1:15	
Topic 2-9: Performing the Activities of a Litter Tender in a High-Angle Operation			
Lecture	0:30		
Activity 2-9: Tending the Litter		3:30	
Topic 2-10: Participating as a Member of a Team in Constructing a Horizontal Rope Rescue System			
Lecture	1:00		
Activity 2-10: To be determined by instructor.		0:00	
Topic 2-11: Directing a Team in Operating a Rope Rescue System to Move a Suspended Load Horizontally			
Lecture	1:00		
Activity 2-11: Constructing a System and Moving a Suspended Load		6:00	
Topic 2-12: Climbing, Ascending, Descending, and Traversing Using Climbing Aids			
Lecture	1:00		
Activity 2-12: Climbing, Ascending, Descending, and Traversing Using Climbing Aids		3:00	
Topic 2-13: Interacting with a Person in Emotional or Psychological Crisis			
Lecture	0:30		
Activity 2-13: To be determined by instructor		0:00	
Unit 3 Totals	**6:45**	**31:15**	**38:00**
Lecture, Activity, and Unit Totals:	**7:45**	**31:15**	**39:00**

Course Totals

Total Lecture Time (LT)	7:45
Total Activity Time (AT)	31:15
Total Testing Time (TT)	1:00
Total Course Time	**40:00**

Rope Rescue Operational

Student Task Book

March 2020

California Department of Forestry and Fire Protection
Office of the State Fire Marshall
State Fire Training

Rope Rescue Operational

Student Task Book

March 2020

Candidate: _____

SFT ID Number: _____

Fire Agency: _____

Issued By: _____

Issued Date: _____

This Student Task Book includes the training standards based on NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2017) and NFPA 1670 Standard for Operations and Training for Technical Search and Rescue Incidents (2017).

Published by:

State Fire Training, 2251 Harvard Street, Suite 400, Sacramento CA 95815

(916) 568-2911

Table of Contents

Purpose and Process

The State Fire Training Student Task Book is a performance-based document. It lists the Classroom, Experience or Position, and Job Performance requirements for course completion.

Purpose

The Task Book focuses on a single State Fire Training course and identifies the minimum requirements necessary to perform the duties of the course. Completion of this student Task Book verifies that the candidate has the required experience, hold the required rank or position, and has demonstrated the job performance requirements to obtain that course completion certificate

Responsibilities

Registered Instructor Responsibilities

A Registered instructor will only issue the Task Book after verifying the candidate has:

- ICS-100: Introduction to the Incident Command System
- ICS-200: ICS for Single Resource and Initial Action Incidents
- IS-700: National Incident Management System, An Introduction
- IS-800: National Response Framework, An Introduction

Candidate Responsibilities

The candidate is the individual pursing the course completion. All candidates shall:

- Complete the Experience, Position, and Job Performance Requirements
- Sign and date the Candidate verification statement with an original wet-ink signature.
- Retain a copy of the completed student Task Book

Evaluator Responsibilities

An evaluator is any Registered Instructor at the course conducted in accordance of to the Course Plan.

A task book may have more than one evaluator. All evaluators shall:

- Complete a block on the Signature Verification page with an original wet-ink signature.
- Review and understand the candidate's task book requirements and responsibilities.
- Verify the candidate's successful completion of one or more job performance requirements through observation and review.

- Sign all appropriate lines in the task book with an original wet-ink signature to record demonstrated performance skills

Completion Process

When you receive your Task Book:

1. Thoroughly review the Experience, Position, and Job Performance Requirement segments to make sure that you understand them
2. Complete the Experience segment.
3. Complete the Position segment.
4. Complete each requirement in the Job Performance Requirements segment and ensure that an evaluator signs and dates each one to verify completion.

Signature Verification

The following individuals have the authority to verify portions of this certification task book using the signatures recorded below.

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Task Book Requirements

Experience

The candidate meets one of the following requirements for experience.

☐

☐

Course Performance Requirements

Course Performance Requirements

All job performance requirements must be performed in accordance with the standards of the authority having jurisdiction (AHJ) and/or the National Fire Protection Association (NFPA) 1670 and 1006 standards regarding awareness and operational requirements for rope rescue.

Recognizing the Need for Support Resources

(NFPA 1006: 5.1.1) (CTS 1-1)

Describe the resources needed to support a rope rescue type of incident

_____ Describe methods of organizing and tracking resources

_____ Describe lighting resources.

_____ Describe managing on scene personnel:

- Personnel work rotations and rehab criteria
- Personnel rehab areas

Date Completed **Evaluator Verification**

Recognizing Incident Hazards and Initiating Isolation Procedures

(NFPA 1006: 5.1.2) (CTS #1-2)

Describe the hazards associated with a rope rescue incident and identify isolation procedures to reduce risk to rescuers.

____ Describe methods of controlling unsafe work areas

____ Describe methods of identifying hazards around the work area

____ Describe Lock-out, Tag-out procedures

Date Completed **Evaluator Verification**

Recognizing Needed Resources for a Rescue Incident

(NFPA 1006: 5.1.3) (CTS 1-3)

Describe the use of a tactical worksheet to maintain personnel accountability during a rope rescue incident.

____ Describe the incident command structure for a rope rescue

____ Describe the AHJ policy and procedure for completing a tactical worksheet

- Who is responsible for filling it out?

Date Completed **Evaluator Verification**

Initiating a Discipline-Specific Search

(NFPA 1006: 5.1.4) (CTS 1-4)

Describe what search methods are conducted at a rope rescue incident.

____ Describe the following search methods

- Grid Search
- Line Search
- Windshield Search

____ Describe the following search types

- Recon
- Rapid/Hasty
- Primary
- Secondary

____ Describe what questions rescue personnel need to ask on-scene witnesses or reporting parties

Date Completed **Evaluator Verification**

Performing Ground Support Operations for Helicopter Activities

(NFPA 1006: 5.1.5) (CTS 1-5)

Describe the requirements for securing a helicopter landing zone and communicating with aircraft personnel

____ Describe the landing zone requirements for different helicopter types

____ Describe the proper safety equipment required by personnel at the landing zone

____ Describe the communication methods between aircraft and ground personnel

Date Completed **Evaluator Verification**

Initiating Triage of Victims

(NFPA 1006: 5.1.6) (CTS 1-6)

Describe types and systems of triaging victims according to local protocol.

____ Describe rescue priorities and victim care during a rope rescue

Date Completed **Evaluator Verification**

Assisting a Team in Operation of the Haul Line

(NFPA 1006: 5.1.7) (CTS 1-7)

Describe how to assist as haul team member on a mechanical advantage system during a raising operation

____ Describe the operational commands for hauling and stopping

____ Describe the procedures as a haul person

- Rotating on/off the line
- Spacing between haulers

Date Completed **Evaluator Verification**

Sizing up a Rescue Incident

(NFPA 1006: 5.2.1) (CTS 2-1)

Describe the elements of a rope rescue size-up

____ Identify the:

- Incident location
- Number of victims
- Victim condition
- Type of Rescue (High Angle, Low Angle, Ladder, etc)
- Resource needs

____ Define what a low angle rescue environment

____ Define what a high angle rescue environment

Date Completed **Evaluator Verification**

Inspecting and Maintaining PPE

1. NFPA 1006: 5.2.2) (CTS 2-2)

Inspect PPE for damage, defects or wear in accordance with manufactures guidelines

____ Describe record keeping systems for PPE

____ Describe requirements for cleaning, sanitizing, and infectious disease control

____ Demonstrate how to inspect PPE

Date Completed **Evaluator Verification**

Introduction to Rope Rescue Equipment

Identify hardware and software equipment used in rope rescue

____ Describe the components, use/misuse, construction, size / dimension, and types of:

- Kernmantle Rescue Rope
- Prussik Loops
- Webbing
- Load Releasing Devices
- Descent Control Devices (ex. Figure Eight with Ears, MPD, Brake Bar Rack)
- Carabineers
- Commercial victim and rescuer harnesses
- Rescue Pulley
- Mechanical Grab Devices
- Anchor Plate or Ring
- Edge Protection
- Rescuer Harnesses
- Patient Packaging Devices

Date Completed **Evaluator Verification**

Inspecting and Maintaining Rescue Equipment

NFPA 1006: 5.2.3) (CTS 2-2)

Inspect and evaluate rescue equipment in accordance with manufactures specifications for proper operation

____ Demonstrate inspecting rescue equipment for damage or defects

- Software equipment (Rope, cord, webbing, harnesses, etc)
- Hardware equipment (Carabineers, Brake Bar Racks, MPD, Ascenders, Pulleys, etc)

____ Describe criteria for retiring or removing rescue equipment from service

____ Describe proper methods for identifying equipment removed from service

Date Completed **Evaluator Verification**

Demonstrate Knots, Bends and Hitches

(NFPA 1006: 5.2.4) (CTS 2-4)

Tie the following knots, bends and hitches

- Figure Eight Stopper Knot
- Figure Eight on a Bight
- Figure Eight Follow Through
- Figure Eight Bend
- Overhand Knot
- Double Overhand Knot
- Clove Hitch (webbing a rope)
- Double Overhand on a Bight
- Round Turn and Two Half Hitches
- Tensionless Hitch
- Butterfly Knot
- Attach a 3 Wrap Prussik

____ Describe proper tail lengths for knots, bends and hitches

____ Describe the following rope terminology

- Loop
- Round Turn
- Bend
- Bight
- Bitter end
- Running end

____ Describe rope and webbing construction

____ Describe manufacture tensile strengths of various ropes and webbing.

- Life lines verse Accessory Cordage

Date Completed **Evaluator Verification**

Construct a Single-Point Anchor System

(NFPA 1006: 5.2.5) (CTS 2-5)

Demonstrate constructing a single point anchor system

____ Demonstrate methods of evaluating potential natural or manmade anchors for their:

- Integrity
- Strength for expected load
- Location for use
- Surface contour concern

____ Describe anchor terminology as it applies to a single point system

- Marginal
- Bombproof

____ Demonstrate tying a single point anchor system with both webbing and rope

- Single Loop Girth HItch (Lark's Foot)
- Double Loop Girth Hitch (Lark's Foot)
- Locking Girth Hitch (Locking Larks Foot)
- Single Loop Basket Sling (Three Bight)
- Single Loop Anchor Sling
- Multi-loop Anchor Sling
- Wrap Three Pull Two Anchor Sling
- 1-1-1 Inline Windlass Picket System
- Triangle Picket System
- Tensionless Hitch (No-Knot)

____ Perform a safety check of the single point anchor system

Date Completed **Evaluator Verification**

Construct a Multiple-Point Anchor System

(NFPA 1006: 5.2.6) (CTS #2-6)

Demonstrate constructing a multiple point anchor system

____ Demonstrate methods of evaluating potential natural or manmade anchors for their:

- Integrity
- Strength for expected load
- Location for use
- Surface contour concerns
- Angle / Vector force

____ Describe anchor terminology as it applies to a multiple point system

- Marginal
- Bombproof

____ Demonstrate tying a multiple point anchor system with both webbing and rope

- Two-Point load sharing
- Two-point self adjusting
- Three-point self adjusting
- Tagged Anchor system
- Back-tied Anchor system

____ Describe load concerns for distributing systems

- Critical angles
- Shock loading effects
- Load Focusing

Date Completed **Evaluator Verification**

Conduct a System Safety Check

(NFPA 1006: 5.2.7) (CTS 2-7)

Conduct an inspection of all rigging components prior to life-loading the rope rescue system(s)

____ Describe safety check procedures

____ Perform physical inspection of all components for proper connections, knots, rigging and safe operation

____ Visually check and evaluate the system(s) for rigging errors or problems

____ Describe a rope rescue safety check list

Place Edge Protection

(NFPA 1006: 5.2.8) (CTS 2-8)

Demonstrate installing edge protection to reduce edge trauma to rescue equipment

____ Describe materials that may be used for edge protection to protect rope rescue equipment against

- Abrasion
- Cuts
- Heat
- Contaminants

____ Demonstrate methods of securing edge protection

Construct a Belay System

Construct a Belay System capable of arresting a falling load

____ Describe the principles of a belay system(s)

____ Describe capabilities and limitations of various belay devices

____ Construct a belay system following the AHJ operating protocols

- Tandem Prussiks
- NFPA 1983 "G" rated belay device

____ Evaluate the need for a Load Releasing Hitch

____ Describe the difference between a slack (e.g., tandem prussik) belay system and a tensioned (e.g. Twin Tension Rope System) belay.

____ Demonstrate attaching the load to the belay system

____ Conduct a safety check of the completed belay system

(NFPA 5.2.9)

Date Completed **Evaluator Verification**

Operate a Belay System

Operate a Belay System during a lowering and raising operating so a fall factor is minimized and the belay system is prepared for actuation at all times.

____ Describe the application and function of belay devices

- Tandem Prussiks
- NFPA 1983 "G" rated belay device

____ Describe the proper operation of the belay system

- Lowering operations
- Raising operations

____ Describe operational commands

- Communicate belay system status

____ Describe importance of attentive belayer

____ Operate the belay system in lowering and raising operations

(NFPA 5.2.10)

Date Completed **Evaluator Verification**

Belay a Falling Load

Belay a falling load in a high angle rescue environment where the fall is arrested in manner that minimizes the forces transmitted to a load.

____ Demonstrate ways to minimize force(s) transmitted to the anchor and the falling load while operating a belay line

____ Describe your AHJ protocol for an activated belay system from a fall

____ Describe the difference between a slack belay(e.g., tandem prussik, Rescue 540) system and a tensioned (e.g. Twin Tension Rope System) belay system:

- How activation occurs
- How the load is held
- How to release or transfer the load
- How to reset the system

____ Describe your AHJ policies for recovering from a system failure

____ Demonstrate how to transfer a belay/safety line holding an arrested load back onto the main line (If applicable to your AHJ)

____ Demonstrate how to a re-establish a Twin Tensioned Rescue System after an arrested load is applied (If applicable to your AHJ)

(NFPA 5.2.11)

Date Completed **Evaluator Verification**

Construct a Fixed Rope System

Construct a fixed rope system to accommodate the anticipated load, is efficient and connects to an anchor for ascending or descending operations.

____ Identify interference concerns during set up

____ Describe your AHJ's protocol for constructed a fixed rope system

____ Demonstrate constructing a fixed rope system for both low angle and high angle environments

- Lowering operations
- Raising operations

____ Describe operational commands

- Communicate belay system status

____ Describe importance of attentive belayer

____ Operate the belay system in lowering and raising operations

(NFPA 5.2.12)

Date Completed **Evaluator Verification**

Descend a Fixed Rope

Descend a fixed rope with a decent control device in a low angle and high angle environment over an obstacle with a belay/safety line attached to the rescuer.

____ Describe appropriate PPE for descending a fixed rope

____ Describe descent control device(s) used by our AHJ

- Design
- Rigging Principles
- Operation

____ Reeve the descent control device(s) used by our AHJ to a life safety rope

____ Verbalize commands used before, during and after descending a fixed rope

____ Demonstrate attaching descent control device to the appropriate donned harness

____ Demonstrate descend a fixed line with a decent control device(s) used by your AHJ

____ Demonstrate locking off the descent control device

(NFPA 5.2.14)

Date Completed **Evaluator Verification**

Escape from a Malfunctioning Device

Demonstrate escaping a simulated jammed or malfunctioning descent control device during a fixed rope descent in a high angle environment so the rescuer will not be allowed to fall.

____ Identify proper PPE used while escaping a jammed/malfunctioning descent control device

____ Identify proper attachment of belay/safety line to the rescuer harness according to your AHJ

____ Demonstrate ways to perform a self-rescue from a jammed/malfunctioning descent control device(s) while attached to a rescuer harness while suspended

- Tying off / Lock off device during decent
- (NFPA 5.2.15)

Date Completed **Evaluator Verification**

Construct a Lowering System

Construct a lowering system capable of holding the load in place and controlling the lower with minimal effort over a required distance.

____ Describe capabilities and limitations of the descent control device(s) used by your AHJ

____ Describe the application of knots, bends and hitches

____ Describe the rigging components of the lowering system used by your AHJ

- Main Line
- Twin Tension Rescue System (if applicable)

____ Evaluate the need for a Load Releasing Hitch

____ Construct a lowering system for;

- Low Angle Rescue
- High Angle Rescue
- With a Change of Direction (COD)

____ Describe the safety system check procedures utilize by your AHJ

____ Demonstrate attaching the load to the lowering system

- Single Rescuer attachment with ambulatory victim rigging (e.g Pick Off)
- Rigid Frame Litter (Litter Basket)
- Soft sided retrieval device (e.g. SKED, Transverse Rescue, SpecPAK)

(NFPA 5.2.16)

Date Completed **Evaluator Verification**

Operate and Direct a Lowering and a Raising Operation

Operate and direct an established lowering system and convert the system to a raising system in both low angle and high angle rescue operations.

____ Communicate safety checks prior to beginning operation

____ Use operational commands to direct operations

____ Operate descent control device to lower the load

____ Demonstrate passing a knot

- During lowering
- During raising

____ Describe the principles of a converting a lowering system to a raising system

____ Demonstrate converting a lowering system to a raising system while supporting the load

(NFPA 5.2.17)

Date Completed **Evaluator Verification**

Construct a Simple Mechanical Advantage System

Construct a Mechanical Advantage (M.A.) system to accommodate the load when connected.

____ Describe the principles of a simple mechanical advantage

____ Identify capabilities and limitations of simple mechanical advantage systems

- Odd M.A Systems
- Even M.A Systems
- Rope usage
- System reset concerns

____ Demonstrate constructing mechanical advantage system(s) used by the AHJ

- Within the systems main line
- As a “Piggy Back” system attached to the main line

____ Demonstrate converting a lowering system to a mechanical advantage hauling system used by your AHJ.

____ Demonstrate “resetting” a mechanical advantage system for a repeated haul

____ Demonstrate increasing the mechanical advantage of the system.

____ Describe the advantages and disadvantage mechanical advantage systems

- Simple Systems

(NFPA 5.2.18)

Date Completed **Evaluator Verification**

Operate and Direct a Team Operating a Simple Mechanical Advantage System

Operate and direct a team in the operation of a mechanical advantage system in a low angle and a high angle operation.

____ Use operational commands while directing team

____ Identify the proper mechanical advantage for the load

- Simple Systems

____ Perform system safety checks

____ Demonstrate hauling the load with the mechanical advantage system used by your AHJ

- Simple Systems

____ Manage and direct personnel in mechanical advantage system reset(s).

____ Manage passing a knot while hauling with a mechanical advantage system

____ Demonstrate “resetting” the mechanical advantage system for a repeated haul

____ Evaluate mechanical advantage system for efficiency.

(NFPA 5.2.19)

Date Completed **Evaluator Verification**

Construct a Compound Rope Mechanical Advantage System

Construct a Mechanical Advantage (M.A.) system to accommodate the load when connected.

____ Describe the principles of a compound and complex mechanical advantage

____ Identify capabilities and limitations of simple, compound, and complex mechanical advantage systems

- Odd M.A Systems
- Even M.A Systems
- Rope usage
- System reset concerns

____ Demonstrate constructing mechanical advantage system(s) used by the AHJ

- Within the systems main line
- As a “Piggy Back” system attached to the main line

____ Demonstrate converting a lowering system to a mechanical advantage hauling system used by your AHJ.

____ Demonstrate “resetting” a mechanical advantage system for a repeated haul

____ Demonstrate increasing the mechanical advantage of the system.

____ Describe the advantages and disadvantage mechanical advantage systems

- Compound Systems

- Even M.A Systems
- Rope usage
- System reset concerns

____ Demonstrate constructing mechanical advantage system(s) used by the AHJ

- Within the systems main line

- As a “Piggy Bag” system attached to the main line

____ Demonstrate converting a lowering system to a mechanical advantage hauling system used by your AHJ.

____ Demonstrate “resetting” a mechanical advantage system for a repeated haul

____ Demonstrate increasing the mechanical advantage of the system.

____ Describe the advantages and disadvantage mechanical advantage systems

- Simple Systems
- Compound Systems
- Complex System
- Even M.A Systems
- Rope usage
- System reset concerns

____ Demonstrate constructing mechanical advantage system(s) used by the AHJ

- Within the systems main line

- As a “Piggy Bag” system attached to the main line

____ Demonstrate converting a lowering system to a mechanical advantage hauling system used by your AHJ.

____ Demonstrate "resetting" a mechanical advantage system for a repeated haul

____ Demonstrate increasing the mechanical advantage of the system.

____ Describe the advantages and disadvantage mechanical advantage systems

- Simple Systems
- Compound Systems
- Complex System

(NFPA 5.2.20)

Date Completed **Evaluator Verification**

Operate and Direct a Team Operating a Compound and Rope Mechanical Advantage System

Operate and direct a team in the operation of a mechanical advantage system in a low angle and a high angle operation.

____ Use operational commands while directing team

____ Identify the proper mechanical advantage for the load

- Compound Systems

____ Perform system safety checks

____ Demonstrate hauling the load with the mechanical advantage system used by your AHJ

- Compound Systems

____ Manage and direct personnel in mechanical advantage system reset(s).

____ Manage passing a knot while hauling with a mechanical advantage system

____ Demonstrate "resetting" the mechanical advantage system for a repeated haul

____ Evaluate mechanical advantage system for efficiency.

(NFPA 5.2.21)

Date Completed **Evaluator Verification**

Negotiate an Edge While Attached to a Rope Rescue System

Negotiate an edge while attached to a rope rescue system during a low angle and a high angle lowering and raising operation.

____ Use operational commands while negotiating edges and projections

____ Describe techniques and practices for negotiating edges and projections while suspended from a rope rescue system

____ Manage negotiating the edges and projection while suspended from a rope based lowering system and mechanical advantage raising system.

____ Manage potential hazards along traveled pathway while attached to rope system

____ Describe equipment used to aid in negotiating edges and projections

(NFPA 5.2.22)

Date Completed **Evaluator Verification**

Access, Assess, Stabilize, Package and Transfer Victims

Access, assess, stabilize, and package victim(s) to: manage injuries, protect against hazards, and transfer to appropriate EMS care.

____ Explain victim treatment, immobilization and packaging methods

____ Describe victim packaging equipment

- Ambulatory victims
- Non-Ambulatory victims
- Rigid frame packaging equipment
- Soft sided packaging equipment

____ Demonstrate stabilizing and packaging victim(s) into equipment used by AHJ

- Rigid litter baskets
- Soft sided litters
- Harnesses

____ Describe transfer of care protocols used by your AHJ

(NFPA 5.2.23)

Date Completed **Evaluator Verification**

Operate and Direct a Litter-Lowering and Litter-Raising System in a Low Angle Environment

Operate and direct a litter lowering and litter raising system in a low-angle environment.

____ Describe litter tender functions and limitations in the low-angle environment

____ Describe operational commands in managing the litter during lowering and raising evolutions

____ Identify personnel assignments

____ Demonstrate rigging and attaching the main and belay line rope to the litter for a low angle rescue

____ Describe measures to protect the victim while packaged in the litter

____ Perform a system safety check

____ Use operational commands

____ Direct a lowering system and raising system in a low angle environment with a litter attached

(NFPA 5.2.24)

Date Completed **Evaluator Verification**

Operate as a Litter Tender

Operate as a litter tender in a low-angle lowering and raising operation.

____ Describe PPE and harness selection criteria for litter tenders

____ Describe rescuer and litter attachment principles to the rope rescue system for a low-angle rescue

____ Attach rescuers to the rope rescue system

- 3 Rescuer configuration
- 4 Rescuer configuration

____ Identify common hazards imposed by the low angle terrain

____ Manage the litter while suspended from the rope system during lowering and raising evolutions

____ Use operational commands while operating as a litter tender

(NFPA 5.2.25)

Date Completed **Evaluator Verification**

Operate and Direct a Litter-Lowering and Litter-Raising System in a High Angle Environment

Operate and direct a litter lowering and litter raising system in a high-angle environment (non tended).

____ Describe the application and use of lowering and mechanical advantage systems in the high angle environment

____ Describe capabilities and limitations of various lowering and mechanical advantage systems in a high angle environment

____ Describe the use of tag lines for managing the litter position during high angle lowers and raises

____ Describe litter positioning options

- Vertical
- Horizontal

____ Construct and attach a litter bridal system used by your AHJ to the rope system for high angle rescue

- For a non-tended litter

____ Identify personnel assignments

____ Use operational commands

____ Perform a system safety check

____ Direct a lowering system and raising system in a high angle environment with a litter attached

____ Manage movement of the litter in a high angle environment with taglines.

(NFPA 5.2.26)

Date Completed **Evaluator Verification**

Select, Construct, and Use Travel Restrictions

Select, construct and used travel restrictions for rescuers in a low-angle and high-angle environment so the rescuer is restricted from falling.

____ Describe anchor selection criteria

____ Construct an adjustable travel restriction system

____ Attached to travel resctriction system

____ Use travel restriction system

Date Completed **Evaluator Verification**

Construct and Operate a Ladder Rescue System

Construct and operate a ladder rescuer system to move patients from a low place to a high place, high place to a low place, and across uneven terrain.

____ Describe the components and operational functions of the ladder systems

- Moving ladder slide
- Ladder slide
- Exterior leaning ladder
- Interior leaning ladder
- Cantilever ladder
- Ladder gin
- Ladder “A” frame

____ Construct and operate the ladder systems

- Moving ladder slide
- Ladder slide
- Exterior leaning ladder
- Interior leaning ladder
- Cantilever ladder
- Ladder gin
- Ladder “A” frame

____ Describe the components and operational functions of the mechanical advantage system used in a ladder rescuer system

____ Explain safety considerations for ladder rescue systems

____ Perform a system safety check

____ Use operational commands

Date Completed **Evaluator Verification**

Terminating a Technical Rescue Operation

Terminate a technical rescue operation.

____ Describe personnel accountability systems used by your AHJ

____ Describe personnel rehab protocols

____ Use site control equipment to identify hazards and minimize risk

____ Perform an After Action Review (AAR)

____ Perform equipment inventory

(NFPA 5.2.27)

Date Completed **Evaluator Verification**

Verification

Candidate

Candidate: _____

Candidate's Printed Name

I, the undersigned, am the person applying for course completion. I hereby certify under penalty of perjury under the laws of the State of California, that completion of all experience, position, and job performance requirements made herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documents may be cause for rejection or revocation.

Date Completed **Evaluator Verification**

Instructor

I verify that the candidate has met all requirements for this course completion certificate.

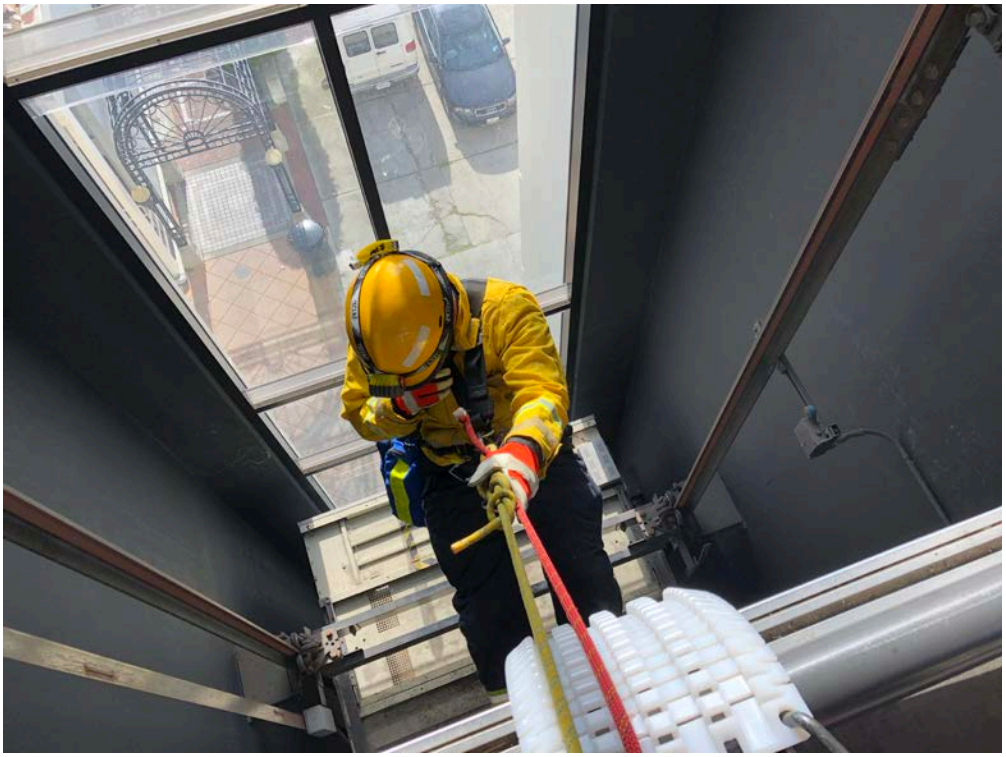
SFT ID Number **SFT Registered Instructor Printed Name**

Date Completed **SFT Registered Instructor Signature**

Rescue Technician

(NFPA Title)

Certification Task Book (2017)



California Department of Forestry and Fire Protection
Office of the State Fire Marshal
State Fire Training

Overview

Authority

This certification task book includes the certification training standards set forth in the Technical Rescue Certification Training Standards Guide (2017) which is based on NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017).

Published: Month Year

Published by: State Fire Training, 2251 Harvard Street, Suite 400, Sacramento, CA 95815

Cover photo courtesy of Jeff Hakola, City of Merced Fire Department.

Purpose

The State Fire Training certification task book is a performance-based document that identifies the minimum requirements necessary to perform the duties of that certification. Completion of a certification task book verifies that the candidate has the required experience, holds the required position, and has demonstrated the job performance requirements to obtain that certification.

Assumptions

With the exception of the Fire Fighter and Emergency Vehicle Technician (EVT) certifications, a candidate may begin the task book initiation process upon completion of all required education components (courses).

Each JPR shall be evaluated after the task book is initiated.

An evaluator may verify satisfactory execution of a job performance requirement (JPR) through the following methods:

- First-hand observation
- Review of documentation that verifies prior satisfactory execution

State Fire Training task books do not count towards the NWCG task book limit. There is no limit to the number of State Fire Training task books a candidate may pursue at one time as long as the candidate meets the initiation requirements of each.

It is the candidate's responsibility to routinely check the State Fire Training website for updates to an initiated task book. All State Fire Training issued updates to an initiated task book are required for task book completion.

A candidate must complete a task book within five years of its initiation date. Otherwise, a candidate must initiate a new task book using the certification's current published version.

Roles and Responsibilities

Candidate

The candidate is the individual pursuing certification.

Initiation

The candidate shall:

1. Complete all Initiation Requirements.
    - Please print or type.

Completion

The candidate shall:

1. Complete all Job Performance Requirements.
    - Ensure that an evaluator initials, signs, and dates each task to verify completion.
2. Complete all Completion Requirements.
3. Sign and date the candidate verification statement under **Review and Approval** with a handwritten signature.
4. Obtain their fire chief's handwritten (not stamped) signature on the fire chief verification section.
5. Create and retain a physical or high-resolution digital copy of the completed task book

Submission

The candidate shall:

1. Submit a copy (physical or digital) of the completed task book and any supporting documentation to State Fire Training.
    - See Submission and Review below.

A candidate should not submit a task book until they have completed all requirements and obtained all signatures. State Fire Training will reject and return an incomplete task book.

Evaluator

An evaluator is any individual who verifies that the candidate can satisfactorily execute a job performance requirement (JPR).

An evaluator may verify satisfactory execution through the following methods:

- First-hand observation
- Review of documentation that verifies prior satisfactory execution

A qualified evaluator is designated by the candidate's fire chief* and holds an equivalent or higher-level certification. If no such evaluator is present, the fire chief shall designate an individual with more experience than the candidate and a demonstrated ability to execute the job performance requirements.

A task book evaluator may be, but is not required to be, a registered skills evaluator who oversees a State Fire Training certification exam.

A certification task book may have more than one evaluator.

All evaluators shall:

1. Complete a block on the **Signature Verification** page with a handwritten signature.
2. Review and understand the candidate's certification task book requirements and responsibilities.
3. Verify the candidate's successful completion of one or more job performance requirements through observation or review.
    - Do not evaluate any job performance requirement (JPR) until after the candidate initiates the task book.
    - Sign all appropriate lines in the certification task book with a handwritten signature or approved digital signature (e.g. Docusign or Adobe Sign) to record demonstrated performance of tasks.

* For certification task books that do not require fire chief initiation, academy instructors serve as or designate evaluators.

Fire Chief

The fire chief is the individual who initiates (when applicable) and then reviews and confirms the completion of a candidate's certification task book.

A fire chief may identify an authorized designee already on file with State Fire Training to fulfill any task book responsibilities assigned to the fire chief. (See *State Fire Training Procedures Manual*, 4.2.2: Authorized Signatories.)

Completion

The fire chief shall:

1. Confirm that the candidate has obtained the appropriate signatures to verify successful completion of each job performance requirement.

- Ensure that all **Job Performance Requirements** were evaluated after the initiation date.

2. Confirm that the candidate meets the **Completion Requirements**.
3. Sign and date the Fire Chief verification statement under **Review and Approval** with a handwritten signature.
    - If signing as an authorized designee, verify that your signature is on file with State Fire Training.

Submission and Review

A candidate should not submit a task book until they have completed all requirements and obtained all signatures. State Fire Training will reject and return an incomplete task book.

To submit a completed task book, please send the following items to the address below:

- A copy of the completed task book (candidate may retain the original)
- All supporting documentation
- Payment

State Fire Training
Attn: Certification
2251 Harvard Street, Suite 400
Sacramento, CA 95815

State Fire Training reviews all submitted task books.

- If the task book is complete, State Fire Training will authorize the task book and retain a digital copy of the authorized task book in the candidate's State Fire Training file.
- If the task book is incomplete, State Fire Training will return the task book with a notification indicating what needs to be completed prior to resubmission.

Completion of this certification task book is one step in the certification process. Please refer to the *State Fire Training Procedures Manual* for the complete list of qualifications required for certification.

Initiation Requirements

The following requirements must be completed prior to initiating this task book.

Candidate Information

Name: _____

SFT ID Number: _____

Fire Agency: _____

Initiation Date: _____

Prerequisites

State Fire Training confirms that there are no prerequisites for initiating this certification task book.

Education

The candidate has completed the following course(s) online.

- IS-100: Introduction to the Incident Command System
- IS-200: ICS for Single Resources and Initial Action Incidents
- IS-700: National Incident Management System, An Introduction
- IS-800: National Response Framework, An Introduction

Include documentation to verify course completion requirements when you submit your task book unless verification is already documented in your SFT User Portal.

Fire Chief Approval

State Fire Training confirms that a Fire Chief's approval is not required to initiate this task book.

Signature Verification

The following individuals have the authority to verify portions of this certification task book using the signature recorded below.

Please print except for the Signature line where a handwritten signature is required. Add additional signature pages as needed.

Name:		**Name:**	
Job Title:		Job Title:	
Organization:		Organization:	
Signature:		Signature:	
Name:		**Name:**	
Job Title:		Job Title:	
Organization:		Organization:	
Signature:		Signature:	
Name:		**Name:**	
Job Title:		Job Title:	
Organization:		Organization:	
Signature:		Signature:	
Name:		**Name:**	
Job Title:		Job Title:	
Organization:		Organization:	
Signature:		Signature:	
Name:		**Name:**	
Job Title:		Job Title:	
Organization:		Organization:	
Signature:		Signature:	

Job Performance Requirements

The candidate must complete each job performance requirement (JPR) in accordance with the standards of the authority having jurisdiction (AHJ) or the National Fire Protection Association (NFPA), whichever is more restrictive.

When California requirements exceed or require revision to the NFPA standard, the corresponding Office of the State Fire Marshal-approved (OSFM) additions or revisions appear in *italics*.

All JPRs must be completed within a California fire agency or State Fire Training Accredited Regional Training Program (ARTP).

For JPRs that are not part of a candidate's regular work assignment or are a rare event, the evaluator may develop a scenario or interview that supports the required task and evaluate the candidate to the stated standard.

Each JPR shall be evaluated after the candidate initiates the task book.

Job Performance Requirements

Rope Rescue Awareness

1. Recognize the need for support resources, given a specific type of rescue incident, so that a resource cache is managed, scene lighting is provided for the tasks to be undertaken, environmental concerns are managed, personnel rehabilitation is facilitated, and the support operation facilitates rescue operational objectives. (NFPA 1006: 5.1.1) (CTS 1-1)

   Evaluator Signature: _____ Date Verified: _____

2. Recognize incident hazards and initiate isolation procedures, given scene control barriers, personal protective equipment (PPE), requisite equipment, and available specialized resources, so that all hazards are identified, resource application fits the operational requirements, hazard isolation is considered, risks to rescuers and victims are minimized, and rescue time constraints are taken into account. (NFPA 1006: 5.1.2) (CTS #1-2)

   Evaluator Signature: _____ Date Verified: _____

3. Recognize needed resources for a rescue incident, given incident information, a means of communication, resources, tactical worksheets, personnel accountability protocol, applicable references, and standard operating procedures, so that references are utilized, personnel are accounted for, necessary resources are deployed to achieve

desired objectives, incident actions are documented, rescue efforts are coordinated, the command structure is established, task assignments are communicated and monitored, and actions are consistent with applicable regulations. (NFPA 1006: 5.1.3) (CTS 1-3)

Evaluator Signature: _____ Date Verified: _____

4. Initiate a discipline-specific search, given hazard-specific PPE, equipment pertinent to search mission, an incident location, and victim investigative information, so that search parameters are established; the victim profile is established; the entry and exit of all people either involved in the search or already within the search area are questioned and the information is updated and relayed to command; the personnel assignments match their expertise; all victims are located as quickly as possible; applicable technical rescue concerns are managed; risks to searchers are minimized; and all searchers are accounted for. (NFPA 1006: 5.1.4) (CTS 1-4)

   Evaluator Signature: _____ Date Verified: _____

5. Perform ground support operations for helicopter activities, given a rescue scenario/incident, helicopter, operational plans, PPE, requisite equipment, and available specialized resources, so that rescue personnel are aware of the operational characteristics of the aircraft and demonstrate operational proficiency in establishing and securing landing zones and communicating with aircraft personnel until the assignment is complete. (NFPA 1006: 5.1.5) (CTS 1-5)

   Evaluator Signature: _____ Date Verified: _____

6. Initiate triage of victims, given triage tags and local protocol, so that rescue versus recovery factors are assessed, triage decisions reflect resource capabilities, severity of injuries is determined, and victim care and rescue priorities are established in accordance with local protocol. (NFPA 1006: 5.1.6) (CTS 1-6)

   Evaluator Signature: _____ Date Verified: _____

7. Assist a team in operation of the haul line of a rope mechanical advantage system raising operation, given rescue personnel, an established rope rescue system, a load to be moved, and an anchor system, so that the movement is controlled; a reset is accomplished; the load can be held in place when needed; commands are followed in direction of the operation; and potential problems are identified, communicated, and managed. (NFPA 1006: 5.1.7) (CTS 1-7)

   Evaluator Signature: _____ Date Verified: _____

Rope Rescue Operations

8. Perform size up *of* a rescue incident, given background information and applicable reference materials, 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. (NFPA 1006: 5.2.1) (CTS 2-1)

Evaluator Signature: _____ Date Verified: _____

9. Inspect and maintain hazard-specific PPE, given clothing or equipment for the protection of the rescuers, cleaning and sanitation supplies, maintenance logs or records, and such tools and resources as are indicated by the manufacturer's guidelines for assembly or disassembly of components during repair or maintenance, so that damage, defects, and wear are identified and reported or repaired, equipment functions as designed, and preventive maintenance has been performed and documented consistent with the manufacturer's recommendations. (NFPA 1006: 5.2.2) (CTS 2-2)

Evaluator Signature: _____ Date Verified: _____

10. Inspect and maintain rescue equipment, given maintenance logs and records, tools, and resources as indicated by the manufacturer's guidelines, equipment replacement protocol, and organizational standard operating procedure, so that the operational status of equipment is verified and documented, all components are checked for operation, deficiencies are repaired or reported as indicated by standard operating procedure, and items subject to replacement protocol are correctly disposed of and changed. (NFPA 1006: 5.2.3) (CTS 2-3)

Evaluator Signature: _____ Date Verified: _____

11. Demonstrate knots, bends, and hitches, given ropes, webbing, and a list of knots used by the agency, so that the knots are dressed, recognizable, and backed up as required. (NFPA 1006: 5.2.4) (CTS 2-4)

Evaluator Signature: _____ Date Verified: _____

12. Construct a single-point anchor system, given life safety rope and other auxiliary rope rescue equipment, so that the chosen anchor system fits the incident needs, meets or exceeds the expected load, and does not interfere with rescue operations; an efficient anchor point is chosen; the need for redundant anchor points is assessed and used as required; the anchor system is inspected and loaded prior to being placed into service; and the integrity of the system is maintained throughout the operation. (NFPA 1006: 5.2.5) (CTS 2-5)

Evaluator Signature: _____ Date Verified: _____

13. Construct a multiple-point anchor system, given life safety rope and other auxiliary rope rescue equipment, so that the chosen anchor system fits the incident needs, the system strength meets or exceeds the expected load and does not interfere with rescue

operations, equipment is visually inspected prior to being put in service, the nearest anchor point that will support the load is chosen, the anchor system is system safety checked prior to being placed into service, the integrity of the system is maintained throughout the operation, and weight will be distributed between more than one anchor point. (NFPA 1006: 5.2.6) (CTS #2-6)

Evaluator Signature: _____ Date Verified: _____

14. Conduct a system safety check, given a rope-rescue system and rescue personnel, so that a physical/visual check of the system is made to ensure proper rigging, a load test is performed prior to life-loading the system, and verbal confirmation of these actions is announced and acknowledged before life-loading the rope-rescue system. (NFPA 1006: 5.2.7) (CTS 2-7)

Evaluator Signature: _____ Date Verified: _____

15. Place edge protection, given life safety rope or webbing traversing a sharp or abrasive edge, edge protection, and other auxiliary rope rescue equipment, so that the rope or webbing is protected from abrasion or cutting, the rescuer is safe from falling while placing the edge protection, the edge protection is secure, and the rope or webbing is securely placed on the edge protection. (NFPA 1006: 5.2.8) (CTS 2-8)

Evaluator Signature: _____ Date Verified: _____

16. Construct a belay system, given life safety rope, anchor systems, PPE, and rope rescue equipment, so that the system is capable of arresting a fall, a fall will not result in system failure, the system is not loaded unless actuated, actuation of the system will not injure or otherwise incapacitate the belayer, the belayer is not rigged into the equipment components of the system, and the system is suitable to the site and is connected to an anchor system and the load. (NFPA 1006: 5.2.9) (CTS 2-9)

Evaluator Signature: _____ Date Verified: _____

17. Operate a belay system during a lowering or raising operation, given an operating lowering or raising mechanical advantage system, a specified minimum travel distance for the load, a belay system, and a load, so that the potential fall factor is minimized, the belay device system is not actuated during operation of the primary rope rescue system, the belay system is prepared for actuation at all times during the operation, the belayer is attentive at all times during the operation, the load's position is continually monitored, and the belayer moves rope through the belay device as designed. (NFPA 1006: 5.2.10) (CTS 2-10)

Evaluator Signature: _____ Date Verified: _____

18. Belay a falling load in a high-angle environment, given a belay system and a dropped load, so that the belay line is not taut until the load is falling, the belay device is actuated

when the load falls, the fall is arrested in a manner that minimizes the force transmitted to the load, the belayer utilizes the belay system as designed, and the belayer is not injured or otherwise incapacitated during actuation of the belay system. (NFPA 1006: 5.2.11) (CTS 2-11)

Evaluator Signature: _____ Date Verified: _____

19. Construct a fixed rope system, given an anchor system, a life safety rope, and rope rescue equipment, so that the system constructed can accommodate the load, is efficient, and is connected to an anchor system and the load, and a system safety check is performed and the results meet the incident requirements for descending or ascending operations. (NFPA 1006: 5.2.12) (CTS 2-12)

Evaluator Signature: _____ Date Verified: _____

20. Ascend a fixed rope in a *low-angle and a* high-angle environment, given an anchored fixed rope system, a specified minimum distance for the rescuer, a system to allow ascent of a fixed rope, a structure, a belay system, a life safety harness worn by the person ascending, and PPE, so that the person ascending is secured to the fixed rope in a manner that will not allow him or her to fall; the person ascending is attached to the rope by means of an ascent control device(s) with at least two points of contact; injury to the person ascending is minimized; the person ascending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the person ascending can convert his or her ascending system to a descending system; obstacles are negotiated; the system is suitable for the site; and the objective is reached. (NFPA 1006: 5.2.13) (CTS 2-13)

Evaluator Signature: _____ Date Verified: _____

21. Descend a fixed rope in a *low-angle and a* high-angle environment, given an anchored fixed-rope system, a specified minimum travel distance for the rescuer, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and PPE, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the speed of descent is controlled; injury to the person descending is minimized; the person descending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached. (NFPA 1006: 5.2.14) (CTS 2-14)

Evaluator Signature: _____ Date Verified: _____

22. Demonstrate the ability to escape from a jammed or malfunctioning device during a fixed rope descent in a high-angle environment, given an anchored fixed-rope system with a simulated malfunctioning descent control device, a system to allow escape from

the malfunctioning device, a belay system, a life safety harness worn by the person descending, and PPE, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the means for escape will allow the rescuer to escape either upward or downward from the malfunctioning descent control device; injury potential to the rescuer is minimized; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached. (NFPA 1006: 5.2.15) (CTS 2-15)

Evaluator Signature: _____ Date Verified: _____

23. Construct a lowering system, given an anchor system, life safety rope(s), *a* descent control device, and auxiliary rope rescue equipment, so that the system can accommodate the load, is efficient, is capable of controlling the descent, is capable of holding the load in place or lowering with minimal effort over the required distance, and is connected to an anchor system and the load. (NFPA 1006: 5.2.16) (CTS 2-16)

Evaluator Signature: _____ Date Verified: _____

24. *Operate and* direct a lowering *and a raising system* in a *low-angle and a* high-angle environment, given rescue personnel, an established lowering system, a specified minimum travel distance for the load, and a load to be moved, so that the movement is controlled, *a knot is passed,* the load can be held in place when needed, *the system is converted to a raise,* operating methods do not stress the system to the point of failure, rope commands are used to direct the operation, and potential problems are identified, communicated, and managed. (NFPA 1006: 5.2.17) (CTS 2-17)

Evaluator Signature: _____ Date Verified: _____

25. Construct a simple rope mechanical advantage system, given life safety rope, carabiners, pulleys, rope grab devices, and auxiliary rope rescue equipment, so that the system constructed can accommodate the load, is efficient, and is connected to an anchor system and the load. (NFPA 1006: 5.2.18) (CTS 2-18)

Evaluator Signature: _____ Date Verified: _____

26. *Operate and* direct a team in the operation of a simple rope mechanical advantage system in a *low-angle and a* high-angle raising operation, given rescue personnel, an established rope rescue system incorporating a simple rope mechanical advantage system, a specified minimum travel distance for the load, a load to be moved, and an anchor system, so that the movement is controlled, a reset is accomplished, the load can be held in place when needed, operating methods do not stress the system to the point of failure, commands are used to direct the operation, and potential problems are identified, communicated, and managed. (NFPA 1006: 5.2.19) (CTS 2-19)

Evaluator Signature: _____ Date Verified: _____

27. Construct a compound rope mechanical advantage system, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, so that the system constructed accommodates the load and reduces the force required to lift the load, operational interference is factored and minimized, the system is efficient, a system safety check is completed, and the system is connected to an anchor system and the load. (NFPA 1006: 5.2.20) (CTS 2-20)

Evaluator Signature: _____ Date Verified: _____

28. *Construct a complex rope mechanical advantage system, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, so that the system constructed accommodates the load and reduces the force required to lift the load, operational interference is factored and minimized, the system is efficient, a system safety check is completed, and the system is connected to an anchor system and the load.* (OSFM) (CTS 2-21)

Evaluator Signature: _____ Date Verified: _____

29. Direct the operation of a compound rope mechanical advantage system in a high-angle environment, given a rope rescue system incorporating a compound rope mechanical advantage system and a load to be moved, and a specified minimum travel distance for the load, so that a system safety check is performed; a reset is accomplished and the movement is controlled; the load can be held in place when needed; operating methods do not stress the system to the point of failure; operational commands are clearly communicated; and potential problems are identified, communicated, and managed. (NFPA 1006: 5.2.21) (CTS 2-22)

Evaluator Signature: _____ Date Verified: _____

30. *Direct the operation of a complex rope mechanical advantage system in a high-angle environment, given a rope rescue system incorporating a complex rope mechanical advantage system and a load to be moved, and a specified minimum travel distance for the load, so that a system safety check is performed; a reset is accomplished and the movement is controlled; the load can be held in place when needed; operating methods do not stress the system to the point of failure; operational commands are clearly communicated; and potential problems are identified, communicated, and managed.* (OSFM) (CTS 2-23)

Evaluator Signature: _____ Date Verified: _____

31. Negotiate an edge while attached to a rope rescue system during *a low-angle and* a high-angle lowering and raising operation, given a rope rescue system, a specified minimum travel distance for the rescuer, life safety harnesses, an edge to negotiate

during the lower and raise, and specialized equipment necessary for the environment, so that risk to the rescuer is minimized, the means of attachment to the rope rescue system is secure, and all projections and edges are negotiated while minimizing risks to the rescuer or equipment. (NFPA 1006: 5.2.22) (CTS 2-24)

Evaluator Signature: _____ Date Verified: _____

32. Access, assess, stabilize, package, and transfer victims, given diagnostic and packaging equipment and an actual or simulated EMS agency, so that rescuers and victim are protected from hazards, the victim's injuries or illnesses are managed, and the victim is delivered to the appropriate EMS provider with information regarding the history of the rescue activity and victim's condition. (NFPA 1006: 5.2.23) (CTS 2-25)

Evaluator Signature: _____ Date Verified: _____

33. *Operate and* direct a litter-lowering and litter-raising *system* in a low-angle environment, given rescue personnel, (a) litter tender(s), an established lowering/mechanical advantage system, a specified minimum travel distance for the load, and a victim packaged in a litter to be moved, so that the litter is attached to the lowering/raising and belay systems; movement is controlled; litter tender(s) are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed. (NFPA 1006: 5.2.24) (CTS 2-26)

Evaluator Signature: _____ Date Verified: _____

34. Operate as a litter tender in a low-angle lowering or raising operation, given a rope rescue system, a specified minimum travel distance for the litter tender, life safety harnesses, litters, bridles, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized, the means of attachment to the rope rescue system is secure, and the terrain is negotiated while minimizing risks to equipment or persons. (NFPA 1006: 5.2.25) (CTS 2-27)

Evaluator Signature: _____ Date Verified: _____

35. Direct a litter-lowering or litter-raising operation in a high-angle environment, given rescue personnel, an established lowering/mechanical advantage system, a specified minimum travel distance for the load, a victim packaged in a litter to be moved, and a means for negotiating edges and projections along the travel path, so that the litter is attached to the lowering/raising and belay systems, an edge is negotiated during a lower and *a* raise; tag lines are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed. (NFPA 1006: 5.2.26) (CTS 2-28)

Evaluator Signature: _____ Date Verified: _____

36. Terminate a technical rescue operation, given an incident scenario, assigned resources, and site safety data, 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, recordkeeping and documentation occur, and postevent analysis is conducted. (NFPA 1006: 5.2.27) (CTS 2-29)

Evaluator Signature: _____ Date Verified: _____

Rope Rescue Technician

37. Direct a team in the operation of a rope rescue system to remove a victim stranded on or clinging to a natural or manmade feature in a high-angle environment, given a victim stranded on or clinging to a feature and a means of removal of the victim to the ground or other safe area, so that risks to victims and rescuers are minimized, injury to the victim is minimized, the means of attachment to the rope rescue system is maintained, and the victim is removed and brought to a safe area for transfer to EMS. (NFPA 1006: 5.3.1) (CTS 3-1)

Evaluator Signature: _____ Date Verified: _____

38. Direct a team in the operation of a rope rescue system to remove a victim suspended from rope or webbing in a high-angle environment, given a victim suspended by a harness attached to anchored rope or webbing, systems for removal of the victim from the rope or webbing, and a means of removal of the victim to the ground or other safe area, so that risks to victims and rescuers are minimized, injury to the victim is minimized, the means of attachment to the rope rescue system is maintained, the victim is removed from the rope or webbing, and the victim is brought to a safe area for transfer to EMS. (NFPA 1006: 5.3.2) (CTS 3-2)

Evaluator Signature: _____ Date Verified: _____

39. While suspended from a rope rescue system, perform the transfer and movement of a victim suspended from rope or webbing in a high-angle environment to a separate rope rescue lowering or *raising* system, given a rope rescue system, a specified minimum travel distance for the victim, victim transfer systems, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized; undesirable victim movement during the transfer is minimized; the means of attachment to the rope rescue system is maintained; the victim is removed from the static line and lowered or raised to a stable surface; victim positioning is managed to reduce adverse effects associated with suspension-induced injuries; selected specialized equipment facilitates efficient victim movement; and the victim can be transported to the local EMS provider. (NFPA 1006: 5.3.3) (CTS 3-3)

Evaluator Signature: _____ Date Verified: _____

40. Perform the activities of a litter tender in a high-angle lowering or raising operation, given a rope rescue system, a specified minimum travel distance for the *litter and* litter tender, life safety harnesses, litters, bridles, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized, the means of attachment to the rope rescue system is secure, and the travel path is negotiated while minimizing risks to equipment or persons. (NFPA 1006: 5.3.4) (CTS 3-4)

    Evaluator Signature: _____ Date Verified: _____

41. Participate as a member of a team in the construction of a rope rescue system intended to move a suspended rescue load along a horizontal path to avoid an obstacle, given rescue personnel, life safety rope, rope rescue equipment, and a suitable anchor capable of supporting the load, so that personnel assignments are made and clearly communicated; the system constructed can accommodate the load; tension applied within the system will not exceed the rated capacity of any of its components' parts; a system safety check is performed; movement o*f* the load is efficient; and loads can be held in place or moved with minimal effort over the required distance. (NFPA 1006: 5.3.5) (CTS 3-5)

    Evaluator Signature: _____ Date Verified: _____

42. Direct a team in the operation of a rope system to move a suspended rescue load along a horizontal path, given rescue personnel, an established system, a target for the load, a load to be moved, and PPE, so that the movement is controlled; the load is held in place when needed; operating methods do not stress the system to the point of failure; personnel assignments are made; tasks are communicated; and potential problems are identified, communicated, and managed. (NFPA 1006: 5.3.6) (CTS 3-6)

    Evaluator Signature: _____ Date Verified: _____

43. Climb and traverse natural features or manmade structures that require the use of climbing aids, positioning equipment, or fall protection systems to prevent the fall or unwanted movement of the rescuer, given *a specified minimum travel distance,* the equipment used by the agency, and a task that reflects the anticipated rescue environment so that the objective is achieved, the rescuer can perform the required task, and fall protection is maintained. (NFPA 1006: 5.3.7) (CTS 3-7)

    Evaluator Signature: _____ Date Verified: _____

44. Interact with a person at height who is in an emotional or psychological crisis, given an environment consistent with the mission of the agency, the policies and procedures of the organization, and a person in a crisis scenario, so that the condition is recognized and communicated to the team, the rescuer is prevented from harm, and the actions of the rescuer do not escalate the incident. (NFPA 1006: 5.3.8) (CTS 3-8)

Evaluator Signature: _____ Date Verified: _____

45. *Evaluate the needs of the scenario and construct a variety of tensioned anchor systems, given a variety of scenarios, a rope rescue system, and a variety of materials from within the AHJ.* (OSFM) (CTS 3-9)

Evaluator Signature: _____ Date Verified: _____

46. Ascend a fixed rope in a *low-angle and a* high-angle environment, given an anchored fixed rope system, a specified minimum distance for the rescuer, a system to allow ascent of a fixed rope, a structure, a belay system, a life safety harness worn by the person ascending, and PPE, so that the person ascending is secured to the fixed rope in a manner that will not allow him or her to fall; the person ascending is attached to the rope by means of an ascent control device(s) with at least two points of contact; injury to the person ascending is minimized; the person ascending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the person ascending can convert his or her ascending system to a descending system; obstacles are negotiated; the system is suitable for the site; and the objective is reached. (NFPA 1006: 5.2.13) (CTS 2-13)

47. *Evaluate the needs of the scenario and construct and employ a natural, structural, or artificial high-directional, given a variety of scenarios, a rope rescue system, and a variety of materials from within the AHJ.* (OSFM) (CTS 3-10)

Evaluator Signature: _____ Date Verified: _____

Completion Requirements

The following requirements must be completed prior to submitting this task book.

Experience

The candidate meets the following experience requirements.

- Experience requirement
- Experience requirement

Agency	Experience	Start Date	End Date

State Fire Training confirms that there are no experience requirements for this job function certification.

Position

The candidate meets the position qualifications for this level of certification. The position requirement is met when the applicant fulfills the role of the specific duties as defined by the fire chief.

- Position/description

State Fire Training confirms that there are no position requirements for this job function certification.

Updates

The candidate has completed and enclosed all updates to this certification task book released by State Fire Training since its initial publication.

Number of enclosed updates: _____

Completion Timeframe

The candidate has completed all requirements documented in this certification task book within five years of its initiation date.

Initiation Date (see Initiation Date under **Initiation Requirements**): _____

Review and Approval

Candidate

Candidate (please print): _____

I, the undersigned, am the person applying for certification. I hereby certify under penalty of perjury under the laws of the State of California, that the completion of all requirements documented herein is true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documentation may be cause for rejection or revocation.

Signature and Date: _____

Fire Chief

Candidate's Fire Chief (please print): _____

I, the undersigned, am the person authorized to verify the candidate's qualifications for certification. I hereby certify under penalty of perjury under the laws of the State of California, that the completion of all requirements documented herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documentation may be cause for rejection.

Signature and Date: _____

Instructor: Rope Rescue Technician

Course Plan

Course Details

Description: This course provides the knowledge and skills that prepare an instructor to teach the new Rope Rescue Operations and Technician courses.

Designed For: Individuals who wish to qualify to teach State Fire Training's Rope Rescue Operations or Rope Rescue Technician courses

Authority: NFPA 1006: Technical Rescue Personnel Professional Qualifications (2017)

Office of the State Fire Marshal

Prerequisites: Low Angle Rope Rescue Operations (LARRO)

or

Rescue Systems 1 (prior to 2009)

and

Rescue Systems 1 (2009)

or

Rope Rescue Operations (current)

Standard: Attend all class sessions and complete all mandatory activities and skills

Hours: 13.25 hours (5.25 lecture / 8.0 application)

(AHJ determines practice and assessment times)

Maximum Class Size: 20

Instructor Level: Primary instructor

Instructor/Student Ratio:	Two primary instructors at all times
Restrictions:	See Facilities, Equipment, and Personnel requirements (page 5)
SFT Designation:	FSTEP

Table of Contents

Required Resources

Instructor Resources

To teach this course, instructors need:

- Rope Rescue Operations course plan (2020)
- Rope Rescue Technician course plan (2020)
- Rope Rescue Manual, current edition, CMC Rescue, Inc., ISBN: 978-009845878-5 (applies to 2017 edition)
- NFPA 1006, Standard for Technical Rescue Personnel Professional Qualifications (current edition)

Online Instructor Resources

The following instructor resources are available online at https://osfm.fire.ca.gov/divisions/state-fire-training/instructor-registration/

- Skills list

Student (Instructor Trainee) Resources

To participate in this course, students need:

- Any textbooks selected by the instructor
- Helmet, gloves, eye protection, and any other safety equipment required by the AHJ
- Student materials such as paper, pens, pencils

To participate in this course, students may need:

- Knee pads

Facilities and Equipment

The following facilities are required to deliver this course:

- Side openings to accommodate simultaneous operations of ladder systems
- High and low anchor points appropriately placed for use with each operation
- Open field area to accommodate simultaneous operations, ladder "A" frame, ladder gin, and pickets
- Area to lower a student one story through an opening using an interior leaning ladder (minimum 8 feet)
- Structure, 30 feet minimum height with working roof that is of sound and safe engineering design
- Topside working area, 50 feet long x 12 feet wide with a connected slope area, minimum 30 feet long x 10 feet wide at a 30–60° angle; area supports two (2) squads or maximum of twenty-four (24) students

- Area to demonstrate and practice skills (rescue knots, rescue/victim packaging, anchors, and rope systems)
- Open field sloping area
- Structure, 20 feet minimum height with working roof that is of sound and safe engineering design
- Area to demonstrate and practice skills (rescue knots, rescue/victim packaging, anchors, and rope systems)
- All high angle evolutions performed in an environment in which the load is predominately supported by the rope rescue system
- A minimum vertical distance of 10 to 20 feet
- A minimum required ascending distance of 10 to 20 feet
- A minimum horizontal travel distance of 20 feet and vertical height of 20 feet measured from the ground to loaded midspan is required for horizontal load movement activities
- An obstacle to negotiate while ascending and descending
- An obstacle to negotiate during lowering and raising operations
- An edge problem to be negotiated during the litter tender activities

The following equipment is required to deliver this course:
Note: All equipment must be NFPA compliant or purpose-designed (i.e., prusiks). Given changing technologies, instructor may choose to bring and demonstrate additional equipment or update these items with equipment that meets the same requirements.

Item	Size Description	Number	Notes
Anchor plate		6	
Anchor straps		Optional	
Apparatus, fire (large)	Large	Optional	
Backboard, long		Optional	
Descent control device used by the AHJ		8	
Carabiner (locking)		80	
Commercial Class III harness (variety of sizes)		12	
Commercial victim seat harness		2	
Commercial victim chest harness		2	
Cord	8mm x 33'	Optional	
Edge protection		Based on Facility Needs	Edge protection can be manufactured (rope rollers, etc.) or improvised (split fire hose, etc.). There shall be adequate amounts of edge protection available for

			concurrent running scenarios.
Edge roller		Optional	
Ascenders		4	While Gibbs Ascenders™ are acceptable, handled ascenders are preferred.
Ladder 24'		Based on Facility Needs	
Ladder 14'		Based on Facility Needs	
Double bypass lanyards		Optional	
Litter wheel		Optional	
Load-releasing device		6	Commercial or field assembled (with webbing or cordelette) complete with general use carabiners. These carabiners are in addition to the amounts specified under the carabiner and prusik categories.
Kernmantle rope	150'	6	
Kernmantle rope	20’	4	
Picket, steel	1"x4'	Optional	
Prusik loop	Short	20	
Prusik loop	Long	20	
Pulley: standard	2" or 4"	8	
Pulley: prusik minding	2" or 4"	8	All 16 can be prusik minding
Pulley: double	2" or 4"	2	
Pulley: knot passing		1	
Rescue litter		2	
Litter bridle		2	Commercial or field assembled complete with carabiners and prusiks; if field assembled, carabiners and prusiks are in addition to the numbers specified under the carabiner and prusik categories. Must include an attachment point for the litter tender.
Rescue mannequin		Optional	
Sledgehammer	8–10 lb.	Optional	

Spider straps		Optional	
Tie rope	15'	24	
Webbing, blue tubular	1"x15'	24	
Webbing, green tubular	1"x5'	12	
Webbing, orange tubular	1"x20'	24	
Webbing, yellow tubular	1"x12'	12	
Pick off strap		2	
Etriers		2	Can be commercial or field assembled from one-inch tubular webbing.
Mini MA system		Optional	
Artificial high-directional		1	Can be a commercial or improvised high-directional made of 4x4 lumber. One artificial high-directional per station.
Swivels		Optional	

Time Table

Segment	Lecture	Application	Unit Total
Unit 1: Introduction			
Topic 1-1: Orientation and Administration	0.5	0.0	
Topic 1-2: Rescue Technician Certification Process	0.25	0.0	
Topic 1-3: Instructor Requirements	0.25	0.0	
Topic 1-4: The Curriculum Development Process and Course Plans	0.25	0.0	
Unit 1 Totals	**1.25**	**0.0**	**1.25**
Unit 2: Awareness			
Topic 2-1: Describing Equipment	0.25	0.0	
Unit 2 Totals	**0.25**	**0.0**	**0.25**
Unit 3: Operations			
Topic 3-1: Constructing a Belay System	0.25	0.75	
Topic 3-2: Descending a Fixed Rope	0.25	0.75	
Topic 3-3: Directing a Litter Lowering or Raising Operation in a High Angle Environment	0.25	0.75	
Topic 3-4: Selecting, Constructing, and Using Travel Restriction	0.25	0	
Topic 3-5: Constructing and Operating Ladder Rescue Systems	1.0	3.0	
Unit 3 Totals	**2.0**	**5.25**	**7.25**
Unit 4: Technician			
Topic 4-1: Escaping from a Malfunctioning Device	0.25	1.75	
Topic 4-2: Participating as a Member of a Team in Constructing a Horizontal Rope Rescue System	1.0	1.0	
Topic 4-3: Interacting with a Person in Emotional or Psychological Crisis	0.5	0.0	
Unit 4 Totals	**1.75**	**2.75**	**4.5**
Summative Assessment			
Determined by AHJ or educational institution	**TBD**	**TBD**	**TBD**
Skills Practice (Lab / Sets and Reps)			
Determined by AHJ or educational institution	**TBD**	**TBD**	**TBD**
Course Totals	**5.25**	**8.0**	**13.25**

Time Table Key

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

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

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

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

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, an instructor trainee will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, applications, resources, evaluation methods, and participation requirements.

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
    - Applications
    - Required student resources
    - Class participation requirements

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Instructor Notes

1. None

Topic 1-2: Technical Rescue Continuing Education Series

Terminal Learning Objective

At the end of this topic, an instructor trainee will be able to identify the training courses in the Technical Rescue–specific continuing education series.

Enabling Learning Objectives

1. Identify the different levels of certification in the Technical Rescue continuing education track
   - Confined Space Rescue Technician
   - Rescue Systems 1: Basic Rescue Skills
   - Rescue Systems 2: Advanced Rescue Skills
   - Rescue Systems 3: Structural Collapse Technician
   - Rope Rescue Technician
   - Trench Rescue Technician
2. Identify the courses required for Rope Rescue Operations
   - Rope Rescue Operations
   - ICS-100: Introduction to the Incident Command System
   - ICS-200: ICS for Single Resources and Initial Action Incidents
   - IS-700: National Incident Management System, An Introduction
   - IS-800: National Response Framework, An Introduction
3. Describe the capstone task book process
   - Complete all prerequisites and course work
   - Submit application and fees to request capstone task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training

Discussion Questions

1. To be determined by the instructor.

Application

1. To be determined by the instructor.

Topic 1-3: Instructor Requirements

Terminal Learning Objective

At the end of this topic, an instructor trainee, given instructor requirements, will be able to identify the State Fire Training (SFT) requirements for becoming a registered SFT Rope Rescue Technician instructor.

Enabling Learning Objectives

1. Identify desirable traits of a rope rescue training instructor
    - Intrinsic motivation
    - Lifelong learner
    - Humility
    - Good listener
    - Respected by peers
    - Communication skills
    - Problem-solving skills
    - Aptitude for science
2. Identify SFT requirements for Rope Rescue Technician instructors
    - SFT primary instructor qualifications
        - *State Fire Training Procedures Manual*
    - Coursework
        - Existing SFT Registered Instructors for Low Angle Rope Rescue Operational (2007) or Rescue Systems 1: Rope Rescue (Module 1):
            - Rope Rescue Awareness/Operations Instructor Update Course (8 hours)
            - Completion of Rope Rescue Technician (2017) course
        - Existing SFT Registered Instructor for Rescue Systems 1: Ladder Systems (Module 3)
            - Complete the Rope Rescue Operations (2017) Course
            - Complete the Rope Rescue Technician (2017) Course
        - Existing SFT Registered Instructors for Rope Rescue Technician (2013):
            - None
        - New SFT Registered Instructors for Rope Rescue Operations (2017) or Rope Rescue Technician (2017):
            - Rope Rescue Operations (2017)
            - Rope Rescue Technician (2017)
            - IS-100, IS-200, IS-700 and IS-800 (SFT, CAL FIRE, FEMA, NWCG)
    - Teaching
        - Teach a minimum of two deliveries of Rope Rescue Operations (2019) under the supervision of a registered instructor
    - Rope Recue Instructor Task Book (2017)
        - Initiated on the final day of Instructor: Rope Rescue Technician

    - The mechanism through which instructor trainees demonstrate proficiency of the knowledge and skills identified and described in Instructor: Rope Rescue Technician
    - Each task must be performed twice
        - The two instances must occur during two different courses
        - The same evaluator cannot sign off on the same task twice
    - Instructor trainee teaching experience shall be monitored and approved by an SFT Primary Instructor for Rope Rescue/Operations or Rope Rescue Technician delivering a SFT registered Rope Rescue/Operations (2017) course or Rope Rescue Technician (2017) course. Must teach a minimum of two complete Rope Rescue/Operations courses with two separate instructors to complete the instructor task book. This may require additional courses to complete the instructor task book.
    - Task books must be completed within three years of initiation
- Experience
    - Letter of experience from approved signature authority or designee
    - Held the rank of fire fighter and/or performed rescue duties within a Recognized Fire Agency in California for a minimum of three (3) years.
- Authority having jurisdiction (AHJ) verification
    - A letter from the instructor trainee's AHJ verifying the individual's qualifications to deliver live fire training
- Maintaining currency
    - Deliver an approved SFT Rope Rescue/Operations course or Rope Rescue Technician course once every three years .
    - To update or renew a primary instructor status, either work under an approved qualified instructor or take the course.
    - Submit a letter or form ICS225 to update the qualifications.

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Instructor Notes

1. None

Topic 1-4: The Curriculum Development Process and Course Plans

Terminal Learning Objective

At the end of this topic, an instructor trainee, given a course plan and the State Fire Training curriculum development process, will be able to describe the SFT curriculum development process and deliverables, identify reasons for creating the Rope Rescue Technician courses, identify the authorizing authorities, and describe the content and elements of the Rope Rescue Technician courses.

Enabling Learning Objectives

1. Identify current State Fire Training resources
2. Identify applicable sections of NFPA 1006 and 1670
3. Describe the SFT curriculum development process, including:
   - How a cadre is selected
   - The documents developed
   - The process of adoption
4. Describe the content of the course
5. Identify the class size and instructor to instructor trainee ratios
6. Identify the course details

Discussion Questions

1. What textbook is required for the class?
2. Have you had any experience performing the ELOs in this course?
3. How does a terminal learning objective differ from an enabling learning objective?

Application

1. To be determined by instructor

Instructor Notes

None

Unit 2: Awareness

Topic 2-1: Describing Equipment

Terminal Learning Objective

At the end of this topic, given rope rescue equipment, the an instructor trainee will be able to describe rope rescue software and hardware equipment and its components.

Enabling Learning Objectives

1. Describe the components, use, types, construction, size/dimension and ratings, inspection, and maintenance of the following:
    - Kernmantle rescue rope
    - Prusik loop
    - Webbing
    - Load-releasing device
    - Commercial harness (Class III)
    - Carabiner
    - Brake bar rack
    - Figure eight plate with ears
    - Rescue pulley
    - Descent control device (determined by the AHJ)
    - Anchor plate
    - Edge protection

Discussion Questions

1. What are general use and technical use ratings?
2. What is “functional equivalent” equipment?

Application

1. To be determined by instructor

Instructor Notes

1. None

Unit 3: Operations

Topic 3-1: Constructing a Belay System

Terminal Learning Objective

At the end of this topic, given life safety rope, anchor systems, PPE, and rope rescue equipment, an instructor trainee will be able to construct a belay system, so that the system is capable of arresting a fall, a fall will not result in system failure, the system is not loaded unless actuated, actuation of the system will not injure or otherwise incapacitate the belayer, the belayer is not rigged into the equipment components of the system, and the system is suitable to the site and is connected to an anchor system and the load.

Enabling Learning Objectives

1. Describe principles of belay systems
2. Describe capabilities and limitations of various belay devices
3. Describe application of knots, bends, and hitches; rigging principles; and system safety check procedures
4. Construct a belay system
5. Tie knots, bends, and hitches
6. Perform rigging
7. Don and use task-specific PPE
8. Perform a system safety check

Discussion Questions

1. How can you minimize slack in a belay system?
2. What type of belay system will share a load under tension?
3. What are some safety concerns with having slack in a belay system?

Application

1. The instructor must create an activity directing instructor trainees to construct a slack (e.g., tandem prusik) belay or a tensioned (e.g., TTRS) belay.

Instructor Notes

1. The instructor should refer to NFPA 1006 Technical Rescue Personnel Professional Qualifications (2017), A.5.2.9, which discusses two-tension rope systems (TTRS).

CTS Guide Reference: CTS 2-9

Topic 3-2: Descending a Fixed Rope

Terminal Learning Objective

At the end of this topic, given an anchored fixed-rope system, a specified minimum travel distance for the rescuer, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and PPE, an instructor trainee will be able to descend a fixed rope in a low-angle and a high-angle environment, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the speed of descent is controlled; injury to the person descending is minimized; the person descending can stop at any point on the fixed rope and rest suspended by his or her harness; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Enabling Learning Objectives

1. Identify task-specific selection criteria for life safety harnesses and systems for descending a fixed rope
2. Describe PPE selection criteria
3. Describe the design, intended purpose, and operation of descent control devices utilized
4. Describe safe rigging principles and techniques for low- and high-angle environments
5. Identify common hazards posed by harness use
6. Select and use harness, a system for descending a fixed rope, and PPE for common environments
7. Attach the rescuer to the rope rescue system
8. Make attachment of the descent control device to the rope and life safety harness
9. Operate the descent control device
10. Maneuver around existing environment and system-specific obstacles
11. Evaluate surroundings for potential hazards

Discussion Questions

1. What descending system(s) do(es) your AHJ use?
2. What is the difference between an auto stop descender and a manual descender?
3. Why is the auto stop descender safer than the manual descender?

Application

1. The instructor must create an activity directing instructor trainees to descend a minimum required distance and negotiate obstacles in a low-angle and a high-angle environment.

Instructor Notes

1. The instructor must use contingency anchors on all fixed ropes.

CTS Guide Reference: CTS 2-14

Topic 3-3: Directing a Litter-Lowering or Litter-Raising Operation in a High-Angle Environment

Terminal Learning Objective

At the end of this topic, given rescue personnel, an established lowering/mechanical advantage system, a specified minimum travel distance for the load, a victim packaged in a litter to be moved, and a means for negotiating edges and projections along the travel path, an instructor trainee will be able to direct a litter-lowering or litter-raising operation in a high-angle environment, so that the litter is attached to the lowering/raising and belay systems, an edge is negotiated during a lower and a raise; tag lines are used to manage the litter during the lower and raise; the litter can be held in place when needed; operating methods do not stress the system to the point of failure; rope commands are used to direct the operation; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe application and use of lowering and mechanical advantage system in the high-angle environment
2. Describe capabilities and limitations of various lowering and mechanical advantage systems in a high-angle environment
3. Describe the use of tag lines for management of litter position during high-angle lowers and raises
4. Describe litter positioning options (vertical and horizontal)
5. Identify personnel assignments
6. Identify operational commands
7. Direct operation
8. Use operational commands
9. Analyze system efficiency
10. Manage movement of the litter in a high-angle environment
11. Identify safety concerns in a high-angle environment
12. Perform a system safety check

Discussion Questions

1. What type of litter rig does your AHJ use?
2. What is the configuration for a high-angle litter bridle?
3. What are differences between the high-angle bridle setup and a low-angle bridle setup?
4. What are the safest ways to configure a high and low angle bridal setup?

Application

1. The instructor must create an activity directing instructor trainees to operate and direct a litter-lowering and litter-raising system in a high-angle environment.

Instructor Notes

1. The instructor must discuss how these operations will be performed in a variety of environments, including environments with less equipment (e.g., rapid extraction module support [REMS]).

CTS Guide Reference: CTS 2-28

Topic 3-4: Selecting, Constructing, and Using Travel Restrictions

Terminal Learning Objective

At the end of this topic, given life-safety rope and other auxiliary rope rescue equipment and an anchor system that meets the incident needs, an instructor trainee will be able to select, construct, and use travel restriction for rescuers in a low-angle and a high-angle environment, so that the rescuer is restricted from falling.

Enabling Learning Objectives

1. Select an anchor
2. Construct an adjustable travel restriction system
3. Attach a rescuer to a travel restriction system
4. Use travel restriction in a low-angle and a high-angle environment

Discussion Questions

1. What are the considerations for a travel restriction system?
2. What are the components of a travel restriction system?
3. What is the setup of a travel restriction for one or more rescuers using the same anchor?

Application

1. The instructor must create an activity directing instructor trainees to select, construct, and use travel restrictions in a low-angle and high-angle environment.

Instructor Notes

1. Reference: California Code of Regulations, Title 8, Section 1670 Personal Fall Protection
2. Reference: California Code of Regulations, Title 8, Section 3270.1 Use of Rope Access Equipment

CTS Guide Reference: CTS 2-29

Topic 3-5: Constructing and Operating Ladder Rescue Systems

Terminal Learning Objective

At the end of this topic, given fire service ladders and rope rescue equipment, an instructor trainee will be able to construct and operate systems to move patients from a low place to a high place, a high place to a low place, and across uneven terrain, so that the hazards are mitigated, the obstacles are negotiated, and the risks to the patient are minimized.

Enabling Learning Objectives

1. Describe the components and operational functions of the seven ladder systems
   - Moving ladder slide
   - Ladder slide
   - Exterior leaning ladder
   - Interior leaning ladder
   - Cantilever ladder
   - Ladder gin
   - Ladder A frame
2. Describe the components and operational functions of the mechanical advantage system used in a ladder rescue system
3. Explain safety considerations for ladder rescue systems
4. Construct and operate ladder rescue systems

Discussion Questions

1. What are the different types of fire service ladders?
2. What are the weight capacities of each fire service ladder?
3. What are hazards associated with ladder rescue systems?
4. How can you mitigate the hazards associated with ladder rescue systems?

Application

1. The instructor must create an activity directing instructor trainees to construct all ladder systems listed in ELO 1 and operate systems to move patients from a low place to a high place, a high place to a low place, and across uneven terrain.

Instructor Notes

1. None

CTS Guide Reference: CTS 2-30

Unit 4: Technician

Topic 4-1: Escaping from a Malfunctioning Device

Terminal Learning Objective

At the end of this topic, given an anchored fixed-rope system with a simulated malfunctioning descent control device, a system to allow escape from the malfunctioning device, a belay system, a life safety harness worn by the person descending, and PPE, an instructor trainee will be able to demonstrate the ability to escape from a jammed or malfunctioning device during a fixed rope descent in a high-angle environment, so that the person descending is attached to the fixed rope in a manner that will not allow him or her to fall; the person descending is attached to the rope by means of a descent control device; the means for escape will allow the rescuer to escape either upward or downward from the malfunctioning descent control device; injury potential to the rescuer is minimized; the system will not be stressed to the point of failure; the system is suitable for the site; and the objective is reached.

Enabling Learning Objectives

1. Identify task-specific selection criteria for escape equipment and methods used for escape from a malfunctioning descent control device
2. Identify PPE selection criteria
3. Describe the design, intended purpose, and operation of escape systems utilized
4. Explain rigging principles
5. Describe techniques for escaping a jammed device in high-angle environments
6. Describe common hazards posed by malfunctioning descent control devices
7. Select and use harness, a system for escaping a malfunctioning descent control device, and PPE for common environments
8. Attach the rescuer to the rope rescue system
9. Make attachment of the descent control device to the rope and life safety harness
10. Attach and operate the escape system to remove the rescuer from the malfunctioning descent control device while maintaining patent attachment to the fixed rope and belay
11. Use the escape system to maneuver upward or downward from the malfunctioning descent control device
12. Evaluate surroundings for potential hazards

Discussion Questions

1. What is a possible cause of a jammed device?
2. How do you escape from a jammed decent control device?
3. What additional equipment is needed for self-rescue in this scenario?

Application

1. The instructor must create an activity directing instructor trainees to escape from a jammed or malfunctioning device.

Instructor Notes

1. The activity in this topic may be combined with other activities, such as descending.

CTS Guide Reference: CTS 2-15

Topic 4-2: Participating as a Member of a Team in Constructing a Horizontal Rope Rescue System

Terminal Learning Objective

At the end of this topic, given rescue personnel, life safety rope, rope rescue equipment, and a suitable anchor capable of supporting the load, an instructor trainee will be able to participate as a member of a team in the construction of a rope rescue system intended to move a suspended rescue load along a horizontal path to avoid an obstacle, so that personnel assignments are made and clearly communicated; the system constructed can accommodate the load; tension applied within the system will not exceed the rated capacity of any of its components' parts; a system safety check is performed; movement of the load is efficient; and loads can be held in place or moved with minimal effort over the required distance

Enabling Learning Objectives

1. Determine incident needs as related to operation of a system
2. Describe capabilities and limitations of various systems (including capacity ratings)
3. Describe methods for limiting excessive force to system components
4. Evaluate incident site as related to hazards and obstacle negotiation
5. Describe rigging principles
6. Describe system safety check protocol
7. Identify common personnel assignments and duties
8. Identify common and critical operational commands
9. Identify common problems and ways to minimize these problems during construction
10. Determine incident needs as related to construction of a system
11. Evaluate an incident site as related to hazards and setup
12. Identify the obstacles or voids to be negotiated
13. Select a system for defined task
14. Perform system safety checks
15. Use rigging principles that will limit excessive force to system components
16. Communicate with personnel

Discussion Questions

1. What are the different systems used for horizontal movement?
2. What does your AHJ use?
3. How do you minimize the forces on rope when building a horizontal rope rescue system?

Application

1. The instructor must create an activity directing students to construct a rope rescue system.

Instructor Notes

1. This topic is intended to include, but is not restricted to, systems such as high lines, two-rope offsets, deflection, tracking, and guiding lines.

CTS Guide Reference: CTS 3-5

Topic 4-3: Interacting with a Person in Emotional or Psychological Crisis

Terminal Learning Objective

At the end of this topic, given an environment consistent with the mission of the agency, the policies and procedures of the organization, and a person in a crisis scenario, an instructor trainee will be able to interact with a person at height who is in an emotional or psychological crisis, so that the condition is recognized and communicated to the team, the rescuer is prevented from harm, and the actions of the rescuer do not escalate the incident.

Enabling Learning Objectives

1. Describe system safety check protocol
2. Describe indicators of a person in emotional crisis
3. Identify typical triggers that can cause individuals to become agitated or anxious
4. Describe methods of interacting to prevent harm to the rescuer and the subject
5. Identify best practices to deescalate incidents involving persons in crisis
6. Describe crisis-intervention resources of the AHJ
7. Perform system safety checks
8. Methods of approach that minimize the risk to the rescuer from subjects whose psychological or emotional state is unknown
9. Interview techniques that provide insight to the motives and state of mind of the subject
10. Communicating and interacting with the subject in a manner that does not escalate the incident

Discussion Questions

1. What are your AHJ's protocols for managing emotional or psychological crises?
2. What are some local or national resources for dealing with emotional or psychological crises?
3. How would you safely deal with a person in a crisis incident?

Application

1. To be determined by the instructor.

Instructor Notes

1. Focus on minimizing risk to responders and the AHJ's resources and protocols.
2. This is a good time to discuss fall factors and ensuring your system is appropriate for the situation.
3. Instructor may refer to:
    - National Alliance of Mental Illness "How to Help Someone in Crisis": https://www.nami.org/Blogs/NAMI-Blog/September-2017/How-to-Help-Someone-in-Crisis
    - Suicide Prevention Resource Center: https://www.sprc.org/settings/first-responders
    - SAMHSA "Psychological First Aid for First Responders": https://store.samhsa.gov/system/files/nmh05-0210.pdf

CTS Guide Reference: CTS 3-8

Acknowledgments

State Fire Training gratefully acknowledges the following individuals and organizations for their diligent efforts and contributions that made the development and publication of this document possible.

Cadre Leadership

- Joe Bunn, Cadre Lead, Fire Service Training Specialist III, Office of the State Fire Marshal Encinitas Fire Department, Deputy Chief (retired) CA-TF8
- Jim Eastman, Cadre Lead, Training Specialist III, Office of the State Fire Marshal, Deputy Chief (retired), Sacramento Metro Fire Department
- Rick Lum, Cadre Lead, Training Specialist, Office of the State Fire Marshal, Fire Captain (retired) CAL FIRE
- Laura Garwood, Cadre Editor, California State University, Sacramento

Cadre Participants

- Paul Gonzales, Fire Engineer, San Jose Fire Department
- Billy Milligan, Firefighter, City of Riverside Fire Department
- Kevin Frye, Fire Captain, Los Angeles County Fire Department
- Richard Wayne Chapman, Assistant School Director, CMC Rescue, Fire Captain (retired) Orange County Fire Authority
- Brian Sippel, Fire Captain, Sacramento Fire Department
- Aide Barbat, Battalion Chief, San Diego Fire and Rescue
- Jeff Hakola, Fire Engineer, City of Merced Fire Department
- Darius Luttrop, Fire Captain, San Francisco Fire Department
- Ryan Primosch, Apparatus Operator, City of Los Angeles Fire Department
- Greg Belk, Battalion Chief, CAL FIRE
- Seth Whisnand, Fire Engineer, Kern County Fire Department

Partners

State Fire Training also extends special acknowledgement and appreciation to the Conference and Training Services Unit with the College of Continuing Education at California State University, Sacramento, for its ongoing meeting logistics and curriculum development support, innovative ideas, and forward-thinking services. This collaboration is made possible through an interagency agreement between CAL FIRE and Sacramento State.

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 course and provide credit for their completion. Instructors use course plans to develop syllabi and lesson plans for course delivery.

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

Required Resources
The Required Resources segment identifies the resources, equipment, facilities, and personnel required to delivery 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 in order 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.

Instructor-Rope Technician

Student Task Book

June 2020

California Department of Forestry and Fire Protection
Office of the State Fire Marshall
State Fire Training

Instructor-Rope Technician

Student Task Book

June 2020

Candidate: _____

SFT ID Number: _____

Fire Agency: _____

Issued By: _____

Issued Date: _____

This Student Task Book includes the training standards based on NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2017) and NFPA 1670 Standard for Operations and Training for Technical Search and Rescue Incidents (2017).

Published by:

State Fire Training, 2251 Harvard Street, Suite 400, Sacramento CA 95815

(916) 568-2911

Table of Contents

Purpose and Process

The State Fire Training Student Task Book is a performance-based document. It lists the Classroom, Experience or Position, and Job Performance requirements for course completion.

Purpose

The Task Book focuses on a single State Fire Training course and identifies the minimum requirements necessary to perform the duties of the course. Completion of this student Task Book verifies that the candidate has the required experience, hold the required rank or position, and has demonstrated the job performance requirements to obtain that course completion certificate

Responsibilities

Registered Instructor Responsibilities

A Registered instructor will only issue the Task Book after verifying the candidate has:

- ICS-100: Introduction to the Incident Command System
- ICS-200: ICS for Single Resource and Initial Action Incidents
- IS-700: National Incident Management System, An Introduction
- IS-800: National Response Framework, An Introduction

Candidate Responsibilities

The candidate is the individual pursing the course completion. All candidates shall:

- Complete the Experience, Position, and Job Performance Requirements
- Sign and date the Candidate verification statement with an original wet-ink signature.
- Retain a copy of the completed student Task Book

Evaluator Responsibilities

An evaluator is any Registered Instructor at the course conducted in accordance of to the Course Plan.

A task book may have more than one evaluator. All evaluators shall:

- Complete a block on the Signature Verification page with an original wet-ink signature.
- Review and understand the candidate's task book requirements and responsibilities.
- Verify the candidate's successful completion of one or more job performance requirements through observation and review.

- Sign all appropriate lines in the task book with an original wet-ink signature to record demonstrated performance skills

Completion Process

When you receive your Task Book:

1. Thoroughly review the Experience, Position, and Job Performance Requirement segments to make sure that you understand them
2. Complete the Experience segment.
3. Complete the Position segment.
4. Complete each requirement in the Job Performance Requirements segment and ensure that an evaluator signs and dates each one to verify completion.

Signature Verification

The following individuals have the authority to verify portions of this certification task book using the signatures recorded below.

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Name: _____ **Name:** _____

Job Title: _____ **Job Title:** _____

Organization: _____ **Organization:** _____

Signature:_____ **Signature:**_____

Task Book Requirements

Experience

The candidate meets one of the following requirements for experience.

☐

☐

Course Performance Requirements

Course Performance Requirements

All job performance requirements must be performed in accordance with the standards of the authority having jurisdiction (AHJ) and/or the National Fire Protection Association (NFPA) 1670 and 1006 standards regarding awareness and operational requirements for rope rescue.

Instructor Requirements

Describe the process for becoming a Rope Rescue Operations Instructor

_____ Identify courses

_____ Identify rank/experience

_____ Identify the number of classes delivered and Instructor sign offs

Date Completed **Evaluator Verification**

The Curriculum Development Process and Course Plans

Describe the process SFT uses to develop curriculum.

____ Describe how SFT selects cadres

____ Describe how course plans are developed

____ Describe the process of course adoption

Date Completed **Evaluator Verification**

Describing Equipment

Describe the use of rope rescue equipment

____ Describe “functional equivalent equipment

____ Describe Technical and general use ratings

Date Completed **Evaluator Verification**

Constructing a Belay System

Construct a belay system, so that the system is capable of arresting a fall, a fall will not result in system failure, the system is not loaded unless actuated, actuation of the system will not injure or otherwise incapacitate the belayer, the belayer is not rigged into the equipment components of the system, and the system is suitable to the site and is connected to an anchor system and the load

____ Describe the pros/cons of tandem prussik belay system

____ Describe the pros/cons of two tensioned rope systems (TTRS)

____ Demonstrate constructing a belay system.

Date Completed **Evaluator Verification**

Descending a Fixed Rope

Describe how to tie off a fixed rope and descend the rope in a high and low angle environment.

_____ Describe the selection of descent control device

_____ Demonstrate descending a fixed rope in a high/low angle environment

____ Demonstrate tying off the selected descent control device

Date Completed **Evaluator Verification**

Directing a Litter-Lowering or Litter-Raising Operation in a High-Angle

Direct an effective operation, where a litter will have to negotiate an edge in a lower/raising in a high angle environment, tag lines are used and litter can be held in place if needed.

_____ Describe application and use of lowering and mechanical advantage system in the high-angle environment

_____ Describe the commands used

_____ Describe the use of tag lines

_____ Describe the system efficiency

_____ Describe any safety concerns

_____ Demonstrate directing a litter lower and raise operation in ahigh angle environment.

Date Completed **Evaluator Verification**

Selecting, Constructing, and Using Travel Restrictions

Describe how to construct a travel restriction to restrict a rescuer from falling.

____ Describe a suitable anchor

____ Demonstrate constructing an adjustable travel restriction

Date Completed	Evaluator Verification

Constructing and Operating Ladder Rescue Systems

Demonstrate constructing the following ladder rescue systems:

- Moving ladder slide
- Ladder slide
- Ladder gin
- Ladder “A’ frame
- Cantilever ladder
- Interior and exterior leaning ladder

Date Completed **Evaluator Verification**

Escaping from a Malfunctioning Device

____ Describe some techniques of escaping a jammed descent control device

____ Describe hazards posed by a malfunctioning descent control devices in a high angle environment

____ Demonstrate escaping a jammed DCD

Date Completed **Evaluator Verification**

Participating as a Member of a Team in Constructing a Horizontal Rope Rescue System

You will be able to assist with selecting an appropriate anchor, equipment selection and constructing a horizontal rope rescue system

____ Describe capabilities and limitations of various systems (including capacity ratings)

____ Describe rigging principles

____ Describe how to minimize forces on rope when constructing horizontal rope systems

____ Demonstrate assisting in constructing a horizontal rope system

Date Completed **Evaluator Verification**

Interacting with a Person in Emotional or Psychological Crisis

____ Describe what are your AHJ's protocols for managing emotional or psychological crises?

____ Describe how would you deal with a person in emotional crisis

Date Completed **Evaluator Verification**

Verification

Candidate

Candidate: _____

Candidate's Printed Name

I, the undersigned, am the person applying for course completion. I hereby certify under penalty of perjury under the laws of the State of California, that completion of all experience, position, and job performance requirements made herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documents may be cause for rejection or revocation.

Date Completed **Evaluator Verification**

Instructor

I verify that the candidate has met all requirements for this course completion certificate.

SFT ID Number **SFT Registered Instructor Printed Name**

Date Completed **SFT Registered Instructor Signature**

Rope Rescue Instructor Interim Procedures

Issued: September 2020

Procedure Changes

Edition:	January 2019 edition of the State Fire Training Procedures Manual
Effective Date:	September 1, 2020
Section Change:	Modify Sections 6.7.20: Rope Rescue – Primary Instructor
Justification:	SFT updated the Rope Rescue Technician course and added a new Rope Rescue Awareness/Operations course based on NFPA 1006. Additionally, the instructor requirements have been updated.
SFT Contact	Contact SFT Staff assigned to Instructor Registration.
Note:	*All new text appears in underline. All deleted text appears in ~~strikeout~~*

6.7: INSTRUCTIONAL DISCIPLINES

6.7.20: ROPE RESCUE ~~TECHNICIAN (RRT)~~ – PRIMARY INSTRUCTOR

6.7.20.1: Eligible Courses

Table 6.7.20.1: ~~RRT~~ Rope Rescue – Primary Instructor Eligible Courses

CFSTES Courses	FSTEP Courses
• None	• Rope Rescue Technician (2013) • Rope Rescue Awareness/Operations (2017) • Rope Rescue Technician (2017)

6.7.20.2: General Qualifications

A. An ~~RRT~~ Rope Rescue Primary Instructor Trainee or Registered Primary Instructor shall meet the qualifications required of all State Fire Training (SFT) Registered Primary Instructors.
   1. See **6.2.1: Qualifications**.

~~B. A National Fire Protection Association (NFPA) Rope Rescue Technician Instructor may be eligible to attend an SFT Rope Rescue Technician Instructor update course and be recognized as a Registered SFT (primary or senior) RRT Instructor.~~
   ~~1. To seek eligibility, the candidate must:~~
      ~~i. Be a Registered SFT Instructor in good standing~~

~~ii. Have completed the following courses:~~
~~a. SFT Rescue Systems 1~~
~~b. SFT Low Angle Rope Rescue Operations~~
~~c. I-200: Basic ICS~~
~~iii. Currently teach and possess currency (three-year cycle) at the NFPA 1006 and 1670 Rope Rescue Technician level~~
~~iv. Have taught a minimum of 40 hours at the technician level course during the past three years~~

6.7.20.3: Course Work

A. A~~n RRT~~Rope Rescue Technician (2013) Primary Instructor Trainee or Registered Primary Instructor must have attended and passed:

1. SFT Rope Rescue Technician
2. I-200: Basic ICS

B. A Rope Rescue Awareness/Operations (2017) or Rope Rescue Technician (2017) Registered Primary Instructor must have attended and passed:
1. Rope Rescue Awareness/Operations (2017)
2. Rope Rescue Technician (2017)
3. IS-100, IS-200, IS-700 and IS-800 (SFT, CAL FIRE, FEMA, NWCG)

6.7.20.4: Instructor Requirements

A. See **6.2.1.2: Instructor Requirements**.

6.7.20.5: Teaching Experience

A. None

6.7.20.6: Task Book

A. An ~~RRT~~ Rope Rescue Primary Instructor Trainee has ~~two~~ three years after starting his or her RRT Primary Instructor Trainee Task Book to complete the task book requirements.

B. An ~~RRT~~ Rope Rescue Primary Instructor Trainee must satisfy all instructor requirements and become a Registered RRT Primary Instructor within one year of completing his or her task book.

C. All components within the ~~RRT~~ Rope Rescue Primary Instructor Task Book must be verified and signed by a Registered RRT ~~Senior~~ Instructor.

D. ~~Task book completion requires teaching in at least two SFT RRT courses as a Primary Instructor Trainee.~~ A Primary Instructor candidate for Rope Rescue Primary Instructor must successfully perform each of the tasks listed in the Instructor Task Book twice. The two instances must occur during two different registered courses. The same evaluator cannot sign off on the same task twice.

6.7.20.7: Professional Experience

A. An ~~RRT~~ Rope Rescue Primary Instructor Trainee or Registered Primary Instructor shall meet the professional experience qualifications listed below.
   1. Performing in an "acting" capacity does not qualify.

Table 6.7.20.7: ~~RRT~~ Rope Rescue – Primary Instructor Professional Experience

FSTEP Courses	Experience
• Rope Rescue Technician (2013) • Rope Rescue Awareness/Operations (2017) • Rope Rescue Technician (2017)	• Perform rescue duties for a minimum of three years within a recognized California fire agency (e.g., being a member of an identifiable rescue team)

6.7.20.8: Application – Primary Instructor Trainee

A. The applicant shall submit the following items to the Registered RRT Senior Instructor who will oversee the evaluation:
   1. A current resume listing education, position, and experience
   2. A copy of a course completion certificate ~~from SFT Rope Rescue Technician and I-200: Basic ICS~~ for required courses
   3. A copy of SFT Instructor I and Instructor II certificates or verification of the qualifying equivalents
   4. A verification letter signed by the Fire Chief, or his or her authorized designee, describing the applicant's specific background as it relates to his or her teaching experience and his or her experience.

i. See **4.1.1: Letters of Verification**.

5. A blank Primary ~~RRT~~ Rope Rescue Instructor Task Book
   i. For Rope Rescue Technician (2013), submit a Rope Rescue Technician Primary Instructor Task Book.
   ii. For Rope Rescue Awareness/Operations (2017) or Rope Rescue Technician (2017), Rope Rescue Instructor Task Book.

6.7.20.9: Application – Primary Instructor

A. See 6.2.3: Application Process.

6.7.20.10: Maintenance

A. A Registered RRT Primary Instructor shall teach at least ~~two~~ three SFT Rope Rescue Technician courses every four years.

6.7.20.11: Rope Rescue Awareness/Operations (2017) Instructor Update

A. A Registered Instructor for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1) must meet the following requirements must meet the Instructor Update requirements, to become a Primary Registered Instructor for Rope Rescue Awareness/Operations (2017).

B. A Registered Instructor for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1) have until December 31, 2021 to meet the Instructor Update requirements and apply to State Fire Training.

C. A Registered Instructor for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1) must meet the following Instructor Update. The Registered Instructor must have attended and passed or met the following requirements:
   1. Rope Rescue Awareness/Operations Instructor Update Course (8 hours); or
   2. Completion of Rope Rescue Technician (2017) course; or
   3. SFT Registered Instructor for Rope Rescue Technician (2013)

D. A Registered Instructor for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1) shall submit a course completion diplomas for each course listed in the Instructor Update to SFT through the SFT User Portal.

E. A Registered Instructor for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1) who does not submit all Instructor Update documents

to SFT by December 31, 2021, will lose their Registered Primary Instructor for Registered Instructor for Low Angle Rope Rescue Operational (2007) and/or Rescue Systems 1: Rope Rescue (Module 1), and will be required to reapply to SFT under the new requirements.

6.7.20.12: Rope Rescue Technician (2017) Instructor Update

A. SFT Registered Instructors for Rope Rescue Technician (2013) will be authorized to instruct Rope Rescue Technician (2017).