DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
STATE FIRE TRAINING
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To: Statewide Training and Education Advisory Committee
State Board of Fire Services

From: Chris Fowler, Deputy State Fire Marshal III, Supervisor, CAL FIRE

SUBJECT/AGENDA ACTION ITEM:
Rope Rescue (2021)

Recommended Actions:
First read of the updated Rope Rescue curriculum.

Background Information:
SFT developed the Rope Rescue curriculum in alignment with National Fire Protection Association (NFPA) 1006: Standard for Technical Rescue Personnel Professional Qualifications, 2021 edition.

This curriculum was developed to ensure an effective and coordinated response to tower rescue operations.

Analysis/Summary of Issue:

Retirement of Rope Rescue (2017) Curriculum……June 30, 2024
Effective June 30, 2024, SFT will retire FSTEP Rope Rescue Awareness/Operations (2017) and Rope Rescue Technician (2017). On July 1, 2024, SFT will remove these curricula from the SFT course catalog and they will no longer be available.

As of September 2023, SFT is in discussion with CFTDA to determine the best timeline for the full retirement of LARRO from the college catalogs.

CTS Guide
SFT developed a CTS guide for Rope Rescue to document how training standards align with NFPA 1006 (2021). The CTS guide includes awareness, operations, and technician-level job performance requirements.

- Added five new certification training standards under OSFM authority

- 2-19: Constructing, Operating, and Directing the Operation of a Complex Rope Mechanical Advantage System
- 2-20: Constructing, Operating, and Directing the Operation of Ladder Rescue Systems
- 2-22: Negotiating an Edge in a Low-angle Environment
- 3-1: Construct, Operate, and Direct the Operation of a High-Directional
- 3-13: Constructing Tensioned Anchor Systems

Course Plans

- SFT developed two course plans using SFT's Rope Rescue Awareness/Operations and Technician and NFPA 1006 as a foundation
- Rope Rescue Awareness and Operations
  - Removed online prerequisite course work
  - Removed the following topics:
    - Topic 1-2: Rescue Technician Certification Process – Certification track isn't in place yet and this was removed from all other Rescue disciplines
    - Topic 2-4: Initiating a Discipline-Specific Search – It's not in NFPA 1006 and rope rescue occurs after someone has been discovered
    - Topic 2-5: Performing Ground Support Operations for Helicopter Activities - It's not in NFPA 1006 and isn't a specific part of rope rescue
    - Topic 2-6: Initiating Triage of Victims – It's not in NFPA 1006 and isn't a specific part of rope rescue
  - Added the following topics:
    - Topic 2-1: Introduction to Rope Rescue - Instructors teach but wasn't documented in course plan
    - Topic 2-2: Standards and Regulations – Align with other rescue disciplines
  - Merged the following 2017 topics into other 2021 topics:
    - Topic 2-7: Assisting a Team in Operation of the Haul Line
    - Topic 3-6: Constructing a Multiple-Point Anchor System
    - Topic 3-15: Operating and Directing a Lowering and a Raising System
    - Topic 3-27: Selecting, Constructing, and Using Travel Restrictions
  - Combined all of the "constructing" "operating" and "directing the operation of" topics around the same system into singular topics
- Rope Rescue Technician
  - Removed combination of Low Angle Rope Rescue Operational and Rescue Systems 1 as a prerequisite
  - Added the following topics that instructors cover but are not included in 2017 course plan:
    - Topic 2-1: Introduction to Rope Rescue Technician
    - Topic 2-2: Standards and Regulations
    - Topic 3-1: Selecting, Using, Inspecting, and Maintaining PPE and Rescue Equipment
    - Topic 3-2: Demonstrating Knots, Bends, and Hitches
    - Topic 4-1: Sizing Up a Rope Rescue Incident

        - Topic 4-2: Recognizing Incident Hazards and Initiating Isolation Procedures
        - Topic 4-3: Conducting a System Safety Check
        - Topic 5-1: Constructing Tensioned Anchor Systems
        - Topic 5-2: Constructing, Operating, and Directing the Operation of a High-Directional
    - NFPA changed Descending a Fixed Rope from an operations-level to a technician-level skill
    - Merged the following 2017 topics into other 2021 topics:
        - Topic 2-8: Performing the Transfer and Movement of a Suspended Victim While Suspended
        - Topic 2-11: Directing a Team in Operating a Rope Rescue System to Move a Suspended Load Horizontally

Instructor Task Book

- SFT developed the following instructor task books to promote instructor quality and consistency:
    - Rope Rescue Awareness and Operations (2021) Instructor Task Book
    - Rope Rescue Technician (2021) Instructor Task Book

Training Record

- SFT developed the following training records for students to use as verification of skills practiced and completed during the course:
    - Rope Rescue Awareness and Operations (2021) Training Record
    - Rope Rescue Technician (2021) Training Record

Existing Registered Instructors

SFT will authorize existing Rope Rescue Awareness/Operations (2017) and Rope Rescue Technician (2017) Registered Instructors to teach the corresponding 2021 courses. SFT will update Acadis.

In Process Rope Rescue (2017) Instructor Candidates

Candidates actively pursuing Rescue Awareness/Operations (2017) or Rope Rescue Technician (2017) instructor registration must submit all documentation by December 31, 2024. Anyone who applies to teach Rope Rescue (2021) on or after January 1, 2025, will be required to complete the New Instructor Registration requirements.

New Instructor Registration – Awareness and Operations

To become a Registered Instructor for this curriculum, a candidate must:

- Be an OSFM Registered Instructor
- Successfully complete SFT's Rope Rescue Awareness and Operations (2021) **or** Rope Rescue Awareness/Operations (2017) course
- Successfully complete the Rope Rescue Awareness and Operations (2021) Instructor Task Book
- Have a minimum of three (3) years' full-time or six (6) years' part-time/volunteer experience performing suppression/rescue duties within a recognized fire agency in California

- Provide a letter signed by their fire chief or authorized designee that verifies qualification to deliver Rope Rescue Awareness and Operations training
- Submit an SFT Instructor Registration Application
- Pay the registration fee

New Instructor Registration – Technician

To become a Registered Instructor for this curriculum, a candidate must:

- Be an OSFM Registered Instructor
- Successfully complete any SFT Rope Rescue Technician course **or** FEMA's Rope Rescue Technician course
- Successfully complete the Rope Rescue Technician (2021) Instructor Task Book
- Have a minimum of three (3) years' full-time or six (6) years' part-time/volunteer experience performing suppression/rescue duties within a recognized fire agency in California
- Provide a letter signed by their fire chief or authorized designee that verifies qualification to deliver Rope Rescue Technician training (all new instructor candidates)
- Provide a letter signed by their FEMA Task Force Leader that verifies FEMA Rope Rescue Technician instructor status (only candidates applying using FEMA qualifications)
- Submit an SFT Instructor Registration Application
- Pay the registration fee

Rope Rescue (2021) Implementation Plan

Issued: Month ##, 2023

OVERVIEW

This document is intended to provide information for all State Fire Training (SFT) stakeholders on the new Rope Rescue (2021) curriculum requirements. Stakeholders are encouraged to study this information carefully and seek clarification from SFT if questions arise.

The Rope Rescue (2021) curriculum is presented as a Fire Service Training and Education Program (FSTEP) course. SFT developed a new curriculum training standard (CTS) guide, two course plans, two instructor task books, and two student training records based on the current National Fire Protection Association (NFPA) Standard, NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021).

IMPLEMENTATION

Candidates entering the SFT system should enroll in the Rope Rescue (2021) courses and comply with the Rope Rescue requirements.

New Curriculum	Hours
Rope Rescue Awareness and Operations (2021)	**40 hours**
Rope Rescue Technician (2021)	**40 hours**

Rope Rescue (2021) Curriculum……..March 1, 2024

Retirement of Rope Rescue (2017) Curriculum……June 30, 2024
Effective June 30, 2024, SFT will retire FSTEP Rope Rescue Awareness/Operations (2017) and Rope Rescue Technician (2017). On July 1, 2024, SFT will remove these curricula from the SFT course catalog and they will no longer be available.

INSTRUCTOR REQUIREMENTS

Instructor Registration……..March 1, 2024
Instructors for the Rope Rescue (2021) curriculum must meet the SFT requirements for Registered Instructor. Instructors must have appropriate education and practical experience relating to the specific course content.

Existing Registered Instructors
SFT will authorize existing Rope Rescue Awareness/Operations (2017) and Rope Rescue Technician (2017) Registered Instructors to teach the corresponding 2021 courses. SFT will update Acadis.

In Process Rope Rescue (2017) Instructor Candidates

Candidates actively pursuing Rescue Awareness/Operations (2017) or Rope Rescue Technician (2017) instructor registration must submit all documentation postmarked on or before December 31, 2024. Anyone who applies to teach Rope Rescue (2021) on or after January 1, 2025, will be required to complete the New Instructor Registration requirements.

New Instructor Registration – Awareness and Operations
To become a Registered Instructor for this curriculum, a candidate must:

- Be an OSFM Registered Instructor
- Successfully complete SFT's Rope Rescue Awareness and Operations (2021) **or** Rope Rescue Awareness/Operations (2017) course
- Successfully complete the Rope Rescue Awareness and Operations (2021) Instructor Task Book
- Have a minimum of three (3) years' full-time or six (6) years' part-time/volunteer experience performing suppression/rescue duties within a recognized fire agency in California
- Provide a letter signed by their fire chief or authorized designee that verifies qualification to deliver Rope Rescue Awareness and Operations training
- Submit an SFT Instructor Registration Application
- Pay the registration fee

New Instructor Registration – Technician
To become a Registered Instructor for this curriculum, a candidate must:

- Be an OSFM Registered Instructor
- Successfully complete any SFT Rope Rescue Technician course **or** FEMA's Rope Rescue Technician course
- Successfully complete the Rope Rescue Technician (2021) Instructor Task Book
- Have a minimum of three (3) years' full-time or six (6) years' part-time/volunteer experience performing suppression/rescue duties within a recognized fire agency in California
- Provide a letter signed by their fire chief or authorized designee that verifies qualification to deliver Rope Rescue Technician training (all new instructor candidates)
- Provide a letter signed by their FEMA Task Force Leader that verifies FEMA Rope Rescue Technician instructor status (only candidates applying using FEMA qualifications)
- Submit an SFT Instructor Registration Application
- Pay the registration fee

POTENTIAL AGENCY IMPACTS

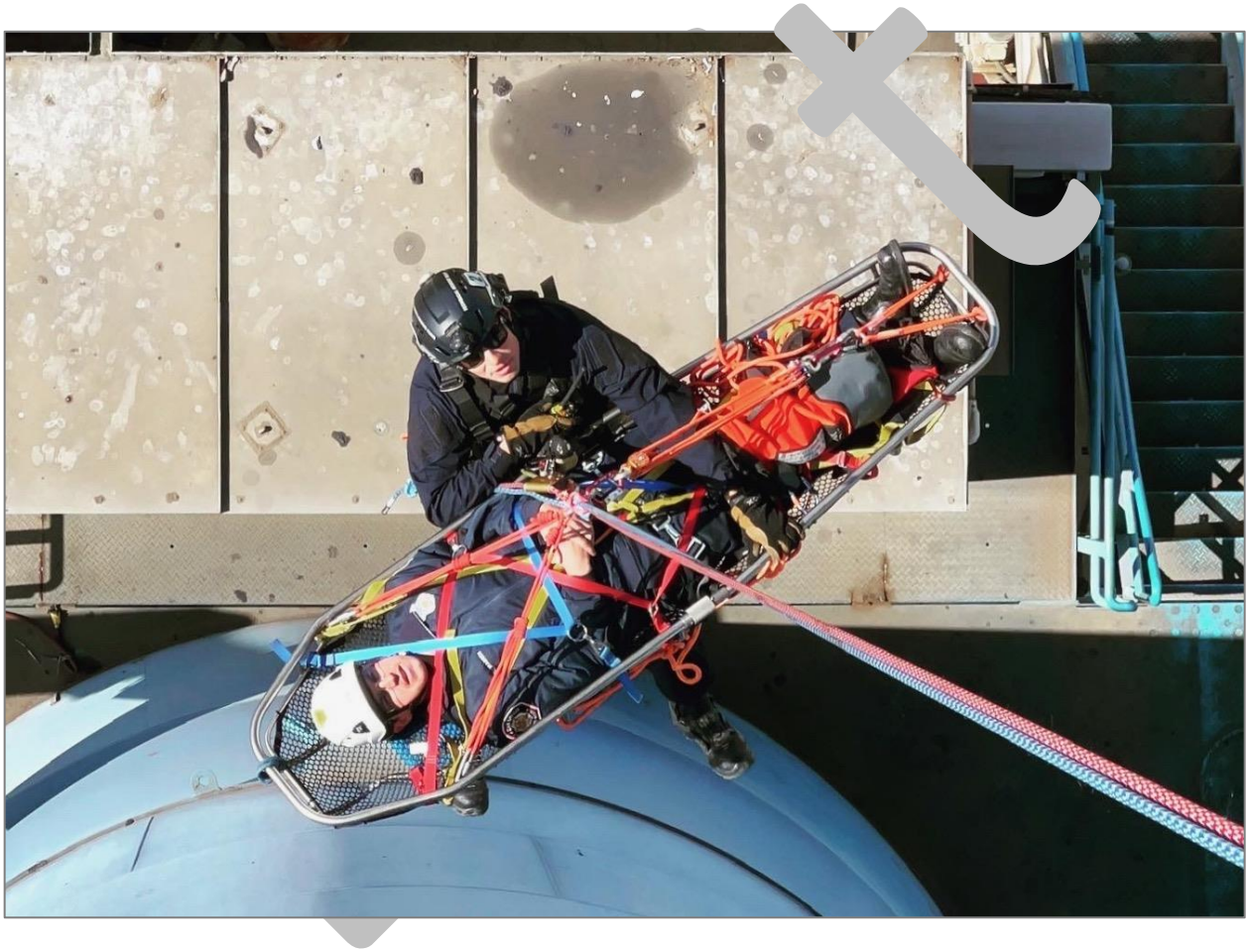
Fire agencies desiring to use the Rope Rescue (2021) curriculum as a requirement for their recruitment/promotion activities need to review the curriculum requirements to be sure that all agency training needs are met. After review, fire agencies should update their job specifications and recruitment 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 need to review the curriculum and seek approval from their curriculum committee / program sponsor, as appropriate. ARTPs should review the Rope Rescue (2021) curriculum and discuss potential impacts with their advisory committees.

Rope Rescue

(NFPA 1006: Rope Rescue Awareness/Operations/Technician)

Curriculum Training Standards Guide (2021)



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

Rope Rescue

Curriculum Training Standards Guide (2021)

Publication Date: Month Year

This CTS guide utilizes the following NFPA standards to provide the qualifications for State Fire Training's Rope Rescue (2021) curriculum:

- NFPA 1006: Technical Rescue Personnel Professional Qualifications (2021)

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).

Cover photo courtesy of Donald Chen, San Diego Fire-Rescue Department.

Published by State Fire Training.

Table of Contents

Acknowledgements

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

- Joe Tyler, Director
- Daniel Berlant, Acting State Fire Marshal
- Andrew Henning, Assistant Deputy Director: Fire and Life Safety, State Fire Training, Code Development and Analysis
- (Vacant), Chief of State Fire Training
- Mike Richwine, Chair, Statewide Training and Education Advisory Committee (STEAC); State Fire Marshal (retired), CAL FIRE

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- Matt Harris, Fire Chief, Big Sur Fire Department
- Fergus Johnson, Fire Fighter, Sacramento Fire Department
- Brook Mancinelli, Captain, San Francisco Fire Department
- Billy Milligan, Fire Fighter/USAR Training Manager, Riverside City Fire Department
- Justin Moore, Captain, Fresno City Fire Department
- Ryan Primosch, Apparatus Operator, Los Angeles City Fire Department
- Robert Stine, Fire Fighter/USAR Training Manager, San Bernardino County Fire

How to Read a CTS Guide

Overview

A curriculum training standard (CTS) guide lists the requisite knowledge, skills, and job performance requirements an individual must complete to become certified in a specific job function.

It also documents and justifies the OSFM-approved revisions to the curriculum's NFPA standard and identifies where each curriculum training standard is taught (course plan), tested (skill sheets), and validated (task book).

Individuals aspiring to meet State Fire Training's curriculum training standards must do so in accordance with the codes, standards, regulations, policies, and standard operating procedures applicable within their own agency or jurisdiction.

Format

Each curriculum training standard is comprised of eight sections.

Section Heading
Training standards are grouped by section headings that describe a general category. For example, the Fire Fighter 1 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 shaded gray.

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 to accomplish the job performance requirement.

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

Content Modification
This table documents and justifies any revisions to the NFPA standard that the development or validation cadres make during the development of a CTS guide.

Cross Reference
This table documents where each training standard is taught (course plan), tested (skill sheets), and validated (task book).

Rope Rescue

Section 1: Awareness

1-1: Assisting a Team in Operating a Haul Line

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.1.1

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. Describe personnel assignments
4. Describe operational commands

Requisite Skills

1. Recognize operational commands
2. Identify safety concerns during raising operations

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-2	Rope Rescue Awareness and Operations (2021) • Skill 36 • Skill 37 • Skill 39 • Skill 40	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 20 JPR 31

1-2: Sizing Up a Rope Rescue Incident

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.1.2

Job Performance Requirement

Size up a rope rescue incident, given background information and applicable reference materials, so that the scope of the 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, primary search parameters are identified, and information required to develop an initial incident action plan is obtained.

Requisite Knowledge

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

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 4-1 Rope Rescue Technician (2021) • Topic 4-1	Rope Rescue Awareness and Operations (2021) Skill 7 Rope Rescue Technician (2021) Skill 6	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 7 JPR 31 Rope Rescue Technician (2021) Instructor Task Book JPR 6 JPR 20

1-3: Recognizing Incident Hazards and Initiating Isolation Procedures

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.1.3

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, bystanders, and victims are minimized; and rescue time constraints are taken into account.

Requisite Knowledge

1. Describe 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. Describe operational requirement concerns
6. Describe common types of rescuer and victim risks
7. Describe risk/benefit analysis methods and practices
8. Describe hazard recognition, isolation methods, and terminology
9. Describe methods for controlling access to the scene
10. Describe types of technical references

Requisite Skills

1. Identify resource capabilities and limitations
2. Identify incident hazards
3. Assess potential hazards to rescuers and bystanders
4. Place scene control barriers
5. Operate control and mitigation equipment

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 4-4 Rope Rescue Technician (2021) • Topic 4-2	Rope Rescue Awareness and Operations (2021) • Skill 10 Rope Rescue Technician (2021) • Skill 7	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 10 JPR 31 Rope Rescue Technician (2021) Instructor Task Book • JPR 7 • JPR 20

1-4: Recognizing the Need for Technical Rescue Resources

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.1.4

Job Performance Requirement

Recognize the need for technical rescue resources at an operations- or technician-level incident, given AHJ guidelines, so that the need for additional resources is identified, the response system is initiated, the scene is secured and rendered safe until additional resources arrive, and awareness-level personnel are incorporated into the operational plan.

Requisite Knowledge

1. Describe operational protocols
2. Identify specific planning forms
3. Describe types of incidents common to the AHJ
4. Describe hazards
5. Describe incident support operations and resources
6. Describe safety measures

Requisite Skills

1. Apply operational protocols
2. Select specific planning forms based on the types of incidents
3. Identify and evaluate various types of hazards within the AHJ
4. Request support and resources
5. Determine the required safety measures

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 4-2	Rope Rescue Awareness and Operations (2021) • Skill 8	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 8 JPR 31

1-5: Supporting an Operations- or Technician-level Incident

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.1.5

Job Performance Requirement

Support an operations- or technician-level incident, given an incident, an assignment, an incident action plan, and resources from the tool cache, so that the assignment is carried out progress is reported to command, environmental concerns are managed, personnel rehabilitation is facilitated, and the incident action plan is supported.

Requisite Knowledge

1. Describe AHJ operational protocols
2. Describe hazard recognition
3. Describe incident management
4. Describe PPE selection
5. Describe resource selection and use
6. Describe scene support requirements

Requisite Skills

1. Apply operational protocols
2. Function within an incident management system
3. Follow and implement an incident action plan
4. Report the task progress status to a supervisor or incident command

Content Modification

Block	Modification	Justification
JPR	Changed “kit” to “cache”.	Agencies do not have specific rope rescue tool kits; they assemble tools as needed from their general tool cache.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 4-3	Rope Rescue Awareness and Operations (2021) • Skill 9	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 9 JPR 31

Section 2: Operations

2-1: Sizing Up a Rescue Incident

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - 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. Describe types of reference materials and their uses
2. Describe availability and capability of the resources
3. Describe elements of an incident 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. Read technical rescue reference materials
2. Gather information
3. Relay information
4. Use information-gathering sources

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 4-1 Rope Rescue Technician (2021) • Topic 4-1	Rope Rescue Awareness and Operations (2021) Skill 7 Rope Rescue Technician (2021) Skill 6	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 7 JPR 31 Rope Rescue Technician (2021) Instructor Task Book JPR 6 JPR 20

2-2: Maintaining Hazard-specific PPE

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.2

Job Performance Requirement

Maintain hazard-specific PPE, given clothing or equipment for the protection of the rescuers, inspection procedures, 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 preventative 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 record-keeping 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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 3-1	Rope Rescue Awareness and Operations (2021) Skill 1	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 4 JPR 31

2-3: Maintaining Rescue Equipment

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.3

Job Performance Requirement

Maintain rescue equipment, given maintenance logs and records, tools, and resources as indicated by the manufacturer's guidelines, inspection procedures, equipment replacement protocol, and organizational standard operating procedures, 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 function and operation of rescue equipment
2. Describe use of record-keeping 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 operational readiness of equipment
3. Complete logs and records
4. Select and use maintenance tools

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 3-2 Rope Rescue Technician (2021) • Topic 3-1	Rope Rescue Awareness and Operations (2021) N/A Rope Rescue Technician (2021) N/A	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 5 JPR 31 Rope Rescue Technician (2021) Instructor Task Book JPR 4

2-4: Demonstrating Knots, Bends, and Hitches

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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. Define rope terminology

Requisite Skills

1. Tie representative knots, bends, or hitches for the following purposes: end-of-line loop, midline loop, securing rope around desired objects, joining rope or webbing ends together, gripping rope

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 3-3 Rope Rescue Technician (2021) • Topic 3-2	Rope Rescue Awareness and Operations (2021) Skill 2 Skill 3 Skill 4 Skill 5 Skill 6 Rope Rescue Technician (2021) Skill 1 Skill 2 Skill 3 Skill 4 Skill 5	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 6 JPR 31 Rope Rescue Technician (2021) Instructor Task Book JPR 5 JPR 20

2-5: Constructing a Single-point Anchor System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - 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
3. Rig systems
4. Evaluate anchor points for required strength, location, and surface contour
5. Perform a system safety check

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) Topic 3-3 (RK5) • Topic 5-1 (RK1, RK2, RK3, RK4, RK6, RS1, RS2, RS3, RS4, RS5)	Rope Rescue Awareness and Operations (2021) Skill 12 Skill 13 Skill 14 Skill 15 Skill 16 Skill 17 Skill 18 Skill 19 Skill 20 Skill 21 Skill 22	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 12 JPR 31

2-6: Constructing a Multiple-point Anchor System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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, meets or exceeds the expected load, and does not interfere with rescue operations; equipment is visually inspected before being put in service; the integrity of the system is maintained throughout the operation; and the force will be distributed – proportionally or disproportionally – between more than one anchor point.

Requisite Knowledge

1. Describe 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 and applications
8. Describe selection and inspection criteria for hardware and software
9. Identify formulas needed to calculate safety factors for load distribution
10. Describe concepts of static loads versus dynamics 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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 5-1	Rope Rescue Awareness and Operations (2021) Skill 12 Skill 13 Skill 14 Skill 15 Skill 16 Skill 17 Skill 18 Skill 19 Skill 20 Skill 21 Skill 22	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 12 JPR 31

2-7: Conducting a System Safety Check

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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 system.

Requisite Knowledge

1. Describe system safety check procedures
2. Describe construction and operations of rope rescue systems and their individual components
3. Describe use of PPE
4. Describe equipment inspection criteria
5. Describe 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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 4-5 (RK1, RK7) Topic 7-2 (RK2, RK6) Topic 3-1 (RK3) Topic 3-2 (RK4, RK5) Rope Rescue Technician (2021) Topic 4-3	Rope Rescue Awareness and Operations (2021) Skill 11 Rope Rescue Technician (2021) Skill 8	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 11 JPR 31 Rope Rescue Technician (2021) JPR 8 JPR 20

2-8: Placing Edge Protection

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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. Describe materials and devices that can be used to protect ropes or webbing from sharp or abrasive edges
2. Describe fall protection measures
3. Describe 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. Protect personnel from falls while working near edges
3. Secure edge protection
4. Secure ropes or webbing in a specific location

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 6-1	Rope Rescue Awareness and Operations (2021) Skill 23	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 13 JPR 31

2-9: Constructing a Belay System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.9

Job Performance Requirement

Construct a system intended to provide belay within a single-tensioned rope 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 belay operator, the belay operator 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 devices used to provide belay
3. Describe application of knots
4. Describe rigging principles
5. Describe system safety check procedures

Requisite Skills

1. Select a system
2. Tie knots
3. Perform rigging
4. Attach to anchor system and load
5. Don and use hazard-specific PPE
6. Perform a system safety check

Content Modification

Block	Modification	Justification
JPR	Changed “within a single- or two-tensioned rope system” to “within a single-tensioned rope system”.	You cannot belay a two-tensioned rope system. This part of the task conflicts with the requirements in the standard.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) Topic 7-3 Topic 7-5	Rope Rescue Awareness and Operations (2021) Skill 26 Skill 28	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 16 JPR 18 JPR 31

2-10: Operating a Belay System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.10

Job Performance Requirement

Operate a system intended to provide belay within a single-tensioned rope system during lowering or raising operations, given an operating lowering or raising mechanical advantage system, a specified minimum travel distance for the load, a system, and a load, so that the potential fall factor is minimized, the belay is not actuated during normal lowering or raising operations, the belay system is prepared for actuation at all times during the operation, the load's position is continually monitored, and the belay operator moves rope through the belay device as designed.

Requisite Knowledge

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

Requisite Skills

1. Tend a belay device as designed
2. Tie approved knots
3. Assess system effectiveness
4. Properly attach a rope to a belay device
5. Don and use hazard-specific PPE
6. Perform a system safety check
7. Manage and communicate belay system status effectively

Content Modification

Block	Modification	Justification
JPR	Changed "within a single- or two-tensioned rope system" to "within a single-tensioned rope system".	You cannot belay a two-tensioned rope system. This part of the task conflicts with the requirements in the standard.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) Topic 7-3 • Topic 7-5	Rope Rescue Awareness and Operations (2021) Skill 26 Skill 28	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 16 JPR 18 JPR 31

2-11: Belaying a Falling Load

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.11

Job Performance Requirement

Belay a falling load in a high-angle environment, given a belay and a failed line creating 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 belay operator utilizes the belay device as designed, and the belay operator is not injured or otherwise incapacitated during operation 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
3. Use hazard-specific PPE
4. Recognize and arrest a falling load
5. Communicate belay system actuation

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 3-1 (RK3) Topic 7-3 (RK1) • Topic 7-4 (RK2, RK4)	Rope Rescue Awareness and Operations (2021) Skill 27	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 17 JPR 31

2-12: Constructing a Fixed Rope System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - 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 selection
2. Describe calculating expected loads
3. Describe incident evaluation operations are related to interference concerns and set up
4. Describe rigging principles
5. Describe system safety check procedures
6. Describe methods of evaluating system components for compromised integrity

Requisite Skills

1. Select effective knots
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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 7-2	Rope Rescue Awareness and Operations (2021) Skill 25	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 15 JPR 31

2-13: Constructing a Lowering System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.13

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. Describe capabilities and limitations of various lowering systems
3. Describe application of knots
4. Describe rigging principles
5. Describe system safety check procedures

Requisite Skills

1. Tie knots
2. Perform rigging
3. Attach to descent control device
4. Anchor system and load
5. Perform a system safety check

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-1	Rope Rescue Awareness and Operations (2021) Skill 29 Skill 30 Skill 31 Skill 32 Skill 33 Skill 34 Skill 35	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 19 JPR 31

2-14: Directing a Lowering Operation

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.14

Job Performance Requirement

Direct a lowering operation in 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, the load 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 descent control devices
2. Describe capabilities and limitations of various lowering systems in a high-angle environment
3. Describe operation of lowering systems in a high-angle environment
4. Describe personnel assignments
5. Describe operational commands

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-1	Rope Rescue Awareness and Operations (2021) Skill 29 Skill 30 Skill 31 Skill 32 Skill 33 Skill 34 Skill 35	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 19 JPR 31

2-15: Constructing a Simple Rope Mechanical Advantage System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.15

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 they 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. Describe capabilities and limitations of various simple rope mechanical advantage systems
3. Describe application of knots
4. Describe rigging principles
5. Describe system safety check procedures

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-2	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 20 JPR 31

2-16: Directing the Operation of a Simple Rope Mechanical Advantage System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.16

Job Performance Requirement

Direct a team in the operation of a simple rope mechanical advantage system in 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 operations; and potential problems are identified, communicated, and managed.

Requisite Knowledge

1. Describe principles of mechanical advantage
2. Describe capabilities and limitations of various simple rope mechanical advantage systems and high-angle raising operations
3. Describe correct operation of simple rope mechanical advantage systems
4. Describe personnel assignments
5. Describe operational commands

Requisite Skills

1. Direct personnel effectively
2. Use operational commands
3. Analyze system efficiency
4. Identify safety concerns
5. Perform a system safety check

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-2	Rope Rescue Awareness and Operations (2021) Skill 36 Skill 37 Skill 38 Skill 39 Skill 40 Skill 41 • Skill 42	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 20 JPR 31

2-17: Constructing a Compound Rope Mechanical Advantage System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.17

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 determination of incident needs as related to choosing compound rope systems
2. Describe elements of efficient design for compound rope systems
3. Describe knot 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. Describe rigging principles
8. Describe 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. Select effective knots
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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-3	Rope Rescue Awareness and Operations (2021) Skill 43 Skill 44 Skill 45	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 21 JPR 31

2-18: Directing the Operation of a Compound Rope Mechanical Advantage System

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.18

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, 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; operating commands are clearly communicated; and potential problems are identified, communicated, and managed.

Requisite Knowledge

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-3	Rope Rescue Awareness and Operations (2021) Skill 43 Skill 44 Skill 45	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 21 JPR 31

2-19: Constructing, Operating, and Directing the Operation of a Complex Rope Mechanical Advantage System

Authority

1. Office of the State Fire Marshal

Job Performance Requirement

Construct, operate, and direct the operation of a complex rope mechanical advantage system, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, rope rescue equipment, rescue personnel, a load, and a specified minimum travel distance for the load to be moved, 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; the system is connected to an anchor system and the load; 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. Describe the purpose of a complex rope mechanical advantage system
2. Describe types of complex rope mechanical advantage systems
3. Describe various complex rope mechanical advantage systems
4. Describe how to construct complex rope mechanical advantage systems
5. Identify safety concerns
6. Describe how to operate compound rope mechanical advantage systems
7. Describe how to direct the operation of a compound rope mechanical advantage system

Requisite Skills

1. Construct, operate, and direct the operation of a complex rope mechanical advantage system

Content Modification

Block	Modification	Justification
CTS	Added a new certification training standard.	NFPA does not cover complex rope mechanical advantage systems, but they are common in California.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-4	Rope Rescue Awareness and Operations (2021) Skill 46 Skill 47 Skill 48	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 22 JPR 31

2-20: Constructing, Operating, and Directing the Operation of Ladder Rescue Systems

Authority

1. Office of the State Fire Marshal

Job Performance Requirement

Construct, operate, and direct the operation of ladder systems, given fire service ladders and rope rescue equipment, so that the system constructed accommodates the load; operational interference is factored and minimized; the system is efficient; a system safety check is completed; 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. Describe the purpose of a ladder system
2. Identify ladder systems
3. Describe ladder systems
4. Describe how to construct a moving ladder system
5. Describe how to construct a ladder slide system
6. Describe how to construct a ladder A-frame system
7. Describe how to operate ladder systems
8. Identify safety considerations
9. Describe how to direct the operation of a ladder system
10. Explain safety considerations for ladder rescue systems

Requisite Skills

1. Construct, operate, and direct the operation of ladder rescue systems

Content Modification

Block	Modification	Justification
CTS	Added a new certification training standard.	NFPA does not cover ladder systems, but they are common in California.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-5	Rope Rescue Awareness and Operations (2021) Skill 49 Skill 50 Skill 51 Skill 52 Skill 53 Skill 54	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 23 JPR 31

2-21: Negotiating an Edge in a High-angle Environment

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.19

Job Performance Requirement

Negotiate an edge while attached to a rope rescue system during 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
2. Describe common hazards imposed by those projections and edges

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 9-1	Rope Rescue Awareness and Operations (2021) Skill 55	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 24 JPR 31

2-22: Negotiating an Edge in a Low-angle Environment

Authority

1. Office of the State Fire Marshal

Job Performance Requirement

Negotiate an edge while attached to a rope rescue system during a low-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 attached to an operating rope-based lowering and raising mechanical advantage systems
2. Describe common hazards imposed by those projections and edges

Requisite Skills

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

Content Modification

Block	Modification	Justification
CTS	Added new standard.	Individuals need to be able to negotiate an edge in a low-angle environment to carry out many rope rescue skills.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 9-1	Rope Rescue Awareness and Operations (2021) • Skill 55	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 24 JPR 31

2-23: Preparing for Victim Transfer

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.20

Job Performance Requirement

Prepare for transfer of victims, given diagnostic and packaging equipment and an actual or simulated EMS agency, so that rescuers and victims are protected from hazards, victim injuries or illnesses are managed, and victims are delivered to the EMS provider with information regarding the history of the rescue activity and victim conditions.

Requisite Knowledge

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

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 9-2	Rope Rescue Awareness and Operations (2021) • Skill 56 • Skill 57 • Skill 58	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 25 JPR 31

2-24: Directing a Litter-lowering and Litter-raising Operation

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.21

Job Performance Requirement

Direct a litter-lowering and litter-raising operation in a low-angle environment, given rescue personnel, 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 application and use of lowering and mechanical advantage system in the low-angle environment
2. Describe 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 management of a litter in a low-angle environment during raises and lowers
5. Describe personnel assignments
6. Describe operational commands

Requisite Skills

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

Content Modification

Block	Modification	Justification
RK4	Changed “high-angle” to “low-angle”.	This appears to be an error. The JPR only discusses low-angle environments.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 9-3 (RK3, RK4, RK5, RK6) Topic 8-1 (RK1, RK2)	Rope Rescue Awareness and Operations (2021) • Skill 59 • Skill 60	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 26 JPR 31

2-25: Operating as a Litter Tender

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.2.22

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. Describe 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. Describe common hazards imposed by the terrain

Requisite Skills

1. Select and use rescuer harnesses and PPE for common environments
2. Attach the life safety harness 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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 9-4	Rope Rescue Awareness and Operations (2021) • Skill 61 • Skill 62	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 27 JPR 31

2-26: Directing a Litter-lowering or Raising Operation

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.23

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 litter, a victim packaged in a litter to be moved, and 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 raise; tag lines are used to manage the littler during the lower and raise; the litter can be held in place when needed; operation methods to 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 use of tag lines for management of litter position during high-angle lowers and raises
4. Describe personnel assignments
5. Describe operational commands

Requisite Skills

1. Direct personnel
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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 8-1 (RK1, RK2) • Topic 9-5 (RK3, RK4, RK5)	Rope Rescue Awareness and Operations (2021) • Skill 63 • Skill 64	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 28 JPR 31

2-27: Terminating a Technical Rescue Operation

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.2.24

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, record keeping and documentation occur, and post event analysis is conducted.

Requisite Knowledge

1. Describe Incident Command functions and resources
2. Describe hazard identification and risk management strategies
3. Describe logistics and resource management
4. Describe personnel accountability systems
5. Describe AHJ-specific procedures or protocols related to personnel rehab

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

Content Modification

Block	Modification	Justification
RS2	Changed “risk analysis” to “Analyze risk”.	Grammar adjustment.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 10-1	Rope Rescue Awareness and Operations (2021) Skill 67	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 30 JPR 31

Section 3: Technician

3-1: Construct, Operate, and Direct the Operation of a High-Directional

Authority

1. Office of the State Fire Marshal

Job Performance Requirement

Construct, operate, and direct the operation of a natural, structural, or artificial high-directional, given a scenario, a rope rescue system, and materials from within the AHJ, so that the system constructed accommodates the load; operational interference is factored and minimized; the system is efficient; a system safety check is completed; 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. Describe the purpose of a high directional
2. Describe types of and uses for high-directionals
3. Describe how to construct a high directional
4. Describe how to operate a high directional
5. Identify the type of high-directional needed for different scenarios

Requisite Skills

1. Construct, operate, and direct the operation of a high-directional

Content Modification

Block	Modification	Justification
CTS	Added a new certification training standard.	NFPA does not address high directionals but many AHJs in California have structures that require them for rescue operations.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 5-2	Rope Rescue Technician (2021) • Skill 13 • Skill 14 • Skill 15	Rope Rescue Technician (2021) Instructor Task Book JPR 10 JPR 20

3-2: Directing a Team to Remove a Victim from a Feature

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - 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, the victim is removed and brough to a safe area for transfer to EMS.

Requisite Knowledge

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

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-2	Rope Rescue Technician (2021) • Skill 25	Rope Rescue Technician (2021) Instructor Task Book JPR 16 JPR 20

3-3: Directing a Team to Remove a Victim Suspended from Rope or Webbing

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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 techniques and systems for safe transfer of suspended victims from an existing anchored rope or webbing rescue system
2. Describe various techniques for handling suspended victims
3. Describe principles of suspension-induced injuries

Requisite Skills

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

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-3	Rope Rescue Technician (2021) • Skill 26	Rope Rescue Technician (2021) Instructor Task Book JPR 17 JPR 20

3-4: Transferring a Suspended Victim to a Separate Rope Rescue System while Suspended

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.3.3

Job Performance Requirement

While suspended from a rope rescue system, perform the transfer of a victim suspended from rope or webbing in a high-angle environment to a separate rope rescue lowering or mechanical advantage 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 task-specific selection criteria for victim transfer systems
2. Describe various physical and psychological victim management techniques
3. Describe PPE selection criteria
4. Describe design characteristics and intended purposes of various transfer systems
5. Describe rigging principles
6. Describe cause and effects of suspension-induced injuries
7. Describe methods to minimize common environmental hazards
8. Describe hazards created in high-angle environments

Requisite Skills

1. Choose victim transfer systems
2. Select and use PPE appropriate to the conditions
3. Perform a transfer of the victim from a static line to the lowering or mechanical advantage system
4. Reduce hazards for rescuers and victims
5. Determine specialized equipment needs for victim movement

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-3	Rope Rescue Technician (2021) • Skill 26	Rope Rescue Technician (2021) Instructor Task Book JPR 17 JPR 20

3-5: Rescuing a Victim Using a Litter Tender

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.3.4

Job Performance Requirement

Perform the activities of a litter tender in a high-angle raising or lowering operation, given a rope rescue system, a specified minimum travel distance for the litter tender, life safety harnesses, litters, bridles, and specified equipment necessary for the environment, so that the 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 task-specific criteria for life safety harnesses
2. Describe PPE selection criteria
3. Describe variations in litter design and intended purpose
4. Describe high-angle litter attachment principles
5. Describe techniques and practices for high-angle environments
6. Describe common hazards imposed by the various structures and terrain

Requisite Skills

1. Select and use rescuer harnesses and PPE for common environments
2. Attach the life safety harness to the rope rescue system
3. Maneuver the litter past obstacles or natural structural features
4. Manage the litter while attached to the rope rescue system
5. Evaluate surroundings for potential hazards

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-4	Rope Rescue Technician (2021) • Skill 26	Rope Rescue Technician (2021) Instructor Task Book JPR 18 JPR 20

3-6: Constructing a Rope Rescue System to Move a Suspended Load Along a Horizontal Path

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - 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 and vertical 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 on the load is efficient, and loads can be held in place or moved with minimal effort over the required distance.

Requisite Knowledge

1. Describe determination of 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. Describe incident site evaluation as related to interference concerns and obstacle negotiation
5. Describe rigging principles
6. Describe system safety check protocol
7. Describe common personnel assignments and duties
8. Describe common and critical operational commands
9. Describe 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 interference concerns 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 effectively

Content Modification

Block	Modification	Justification
JPR	Added “and vertical”.	The system needs to be able to support both types of movement to complete rescue operations.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-5	Rope Rescue Technician (2021) • Skill 28 • Skill 29 • Skill 30	Rope Rescue Technician (2021) Instructor Task Book JPR 19 JPR 20

3-7: Directing a Team to Move a Suspended Load Along a Horizontal Path

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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 and vertical 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. Describe determination of incident needs as related to operation of a system
2. Describe capabilities and limitations of various systems
3. Describe incident site evaluation as related to interference concerns and obstacle negotiation
4. Describe system safety check protocol
5. Describe procedures to evaluate system components for compromised integrity
6. Describe common personnel assignment and duties
7. Describe common and critical operational commands
8. Describe common problems and ways to minimize these problems
9. Describe ways to increase the efficiency of load movement

Requisite Skills

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

Content Modification

Block	Modification	Justification
JPR	Added “and vertical”.	The system needs to be able to support both types of movement to complete rescue operations.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-5	Rope Rescue Technician (2021) • Skill 28 • Skill 29 • Skill 30	Rope Rescue Technician (2021) Instructor Task Book JPR 19 JPR 20

3-8: Climbing and Traversing Natural Features or Manmade Structures

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.3.7

Job Performance Requirement

Climb and traverse natural features or man-made 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 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 tasks, and fall protection is maintained.

Requisite Knowledge

1. Describe application and limitations of climbing, positioning, and fall protection systems
2. Describe equipment commensurate with the organization's needs

Requisite Skills

1. Climb vertical or near-vertical paths using the surfaces provided by the environment or climbing aids used by the agency
2. Use positioning equipment to support the weight of the rescuer in a vertical or near-vertical environment permitting the rescuer to perform a task

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 6-4	Rope Rescue Technician (2021) • Skill 22 • Skill 23 • Skill 24	Rope Rescue Technician (2021) Instructor Task Book JPR 14 JPR 20

3-9: Interacting with a Person at Height in Crisis

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - 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. Identify indicators of a person in emotional crisis
2. Identify typical triggers that can cause individuals to become agitated or anxious
3. Describe methods of interacting to prevent harm to the rescuer and the subject
4. Describe best practices to de-escalate incidents involving persons in crisis

Requisite Skills

1. Use methods of approach that minimize the risk to the rescuer from subjects whose psychological or emotional state is unknown
2. Use interview techniques that provide insight to the motives and state of mind of the subject
3. Communicate and interact with the subject in a manner that does not escalate the incident

Content Modification

Block	Modification	Justification
RS1	Added “use”.	NFPA did not provide a verb.
RS2	Added “use”.	NFPA did not provide a verb.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 7-1	Rope Rescue Technician (2021) • Skill N/A	Rope Rescue Technician (2021) Instructor Task Book JPR 15

3-10: Ascending a Fixed Rope

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.3.9

Job Performance Requirement

Ascend a fixed rope in 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. Describe 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. Describe 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 rescuer harness, a system for ascending a fixed rope, and PPE for common environments
2. Attach the life safety harness 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 protentional hazards

Content Modification

Block	Modification	Justification

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 6-2	Rope Rescue Technician (2021) • Skill 19 • Skill 20 • Skill 21	Rope Rescue Technician (2021) Instructor Task Book JPR 12 JPR 20

3-11: Descending a Fixed Rope

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
    - Paragraph 5.3.10

Job Performance Requirement

Descend a fixed rope in 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. Describe task-specific selection criteria for life safety harnesses and systems for descending a fixed rope
2. Describe PPE selection criteria
3. Describe design, intended purpose, and operation of descent control devices utilized
4. Describe safe 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 rescuer harnesses, a system for descending a fixed rope, and PPE for common environments
2. Attach the life safety harness to the rope rescue system
3. Attach 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 protentional hazards

Content Modification

Block	Modification	Justification
RK3	Changed “Make attachment of the” to “Attach”.	Changed to simplify grammar and align with other skills.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Awareness and Operations (2021) • Topic 9-6 Rope Rescue Technician (2021) Topic 6-1	Rope Rescue Awareness and Operations (2021) Skill 65 Skill 66 Rope Rescue Technician (2021) Skill 16 Skill 17 Skill 18	Rope Rescue Awareness and Operations (2021) Instructor Task Book JPR 29 JPR 31 Rope Rescue Technician (2021) Instructor Task Book JPR 11 JPR 20

3-12: Escaping from a Jammed or Malfunctioning Device

Authority

1. NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)
   - Paragraph 5.3.11

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, and the system is suitable for the site, and the objective is reached.

Requisite Knowledge

1. Describe task-specific selection criteria for escape equipment and methods used for escape from a malfunctioning descent control device
2. Describe PPE selection criteria
3. Describe design, intended purpose, and operation of escape systems utilized
4. Describe safe 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 rescuer harnesses, a system for escaping a malfunctioning descent control device, and PPE for common environments
2. Attach the life safety harness to the rope rescue system
3. Attach 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 protentional hazards

Content Modification

Block	Modification	Justification
RK3	Changed “Make attachment of the” to “Attach”.	Changed to simplify grammar and align with other skills.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 6-3	Rope Rescue Technician (2021) • N/A	Rope Rescue Technician (2021) Instructor Task Book JPR 13

3-13: Constructing Tensioned Anchor Systems

Authority

1. Office of the State Fire Marshal

Job Performance Requirement

Construct single-point and multiple-point anchor systems, given life safety rope and other auxiliary rope rescue equipment, so that the chosen anchor system fits the incident needs, distributes force, 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 anchor selection criteria
2. Describe weight distribution issues and methods
3. Describe load types
4. Describe formulas to calculate load distribution
5. Describe how to construct anchor slings
6. Describe types and uses of tensioned anchor systems
7. Describe application of knots, bends, and hitches
8. Describe system safety check procedures

Requisite Skills

1. Construct tensioned anchors

Content Modification

Block	Modification	Justification
CTS	Added a new certification training standard.	NFPA doesn't address tensioned anchor systems but they are a critical component of rope rescue.

Cross Reference

Course Plan	Training Record	Task Book
Rope Rescue Technician (2021) • Topic 5-1	Rope Rescue Technician (2021) • Skill 9 • Skill 10 • Skill 11 • Skill 12	Rope Rescue Technician (2021) Instructor Task Book JPR 9 JPR 20

Rope Rescue Awareness and Operations (2021)

Course Plan

Course Details

Description: This course provides the knowledge and skills to prepare an emergency responder to conduct operations-level tower rescue operations in a safe and effective manner in accordance with AHJ policies and procedures. Topics include PPE and rope rescue equipment; incident size up, planning, and support; constructing anchor systems; placing edge protection; constructing and using fall protection systems; constructing and operating lowering systems, simple, compound, and complex rope mechanical advantage systems, and ladder rescue systems; rescue operations in low-angle and high-angle environments; and incident termination. This course incorporates awareness and operations training based on NFPA 1006 (2021).

Designed For: Fire fighters with three years' full-time or six years' part-time/volunteer experience and any emergency personnel who perform rope rescue operations.

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

Standard: Complete all activities and formative tests.

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

Hours (Total): 40 hours

(7.5 lecture / 32.5 application)

Maximum Class Size: 24

Instructor Level: SFT Rope Rescue Awareness and Operations Registered Instructor

Instructor/Student Ratio: 1:24 (lecture)

1:6 (application)

Restrictions: All instructors counted toward student ratios, including application components, must be SFT Registered Rope Rescue Awareness and Operations Instructors.

SFT Designation: FSTEP

Table of Contents

Required Resources

Instructor Resources

To teach this course, instructors may use:

- *Rope Rescue Technician Manual* (James A. Frank, CMC Rescue, Inc., current edition)
- *Technical Rescue Field Operations Guide* (Tom Pendley, Desert Rescue Research, current edition)
- *Fundamentals of Technical Rescue* (Jones & Bartlett Learning, current edition)
- *Fundamentals of Technical Rescue Toolkit* (Jones & Bartlett Learning, current edition)
- *National Park Service Technical Rescue Manual* (U.S. Department of the Interior, National Park Service, 11th edition, 2014)
- FIRESCOPE ICS 162
- National Fire Protection Association (NFPA)
    - 1006: Standard for Technical Rescue Personnel Professional Qualifications (current edition)
    - 2500: Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Service (current edition)
- American National Standards Institute (ANSI)
    - Z359 (fall protection)
    - Z490 (training)
    - 10.48 (safety practices)
- Occupational Safety and Health Administration (Fed/OSHA)
    - 1910.140 (fall protection systems)
- California Division of Occupational Safety and Health (Cal/OSHA)
    - 1670 (fall arrest, fall restraint, positioning devices)
    - 3270 (general access)
    - 3270.1 (use of rope access equipment)
- Full personal protective equipment per AHJ requirements (including helmet, eye protection, gloves, boots, long sleeve shirt, and pants)

Online Instructor Resources

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

- None

Student Resources

To participate in this course, students need:

- Any textbook chosen by the instructor
- Full personal protective equipment per AHJ requirements (including helmet, eye protection, gloves, boots, long sleeve shirt, and pants)

Facilities, Equipment, and Personnel

Facilities

The following facilities are required to deliver this course:

- Standard learning environment or facility, which may include:
  - Writing board or paper easel chart
  - Markers, erasers
  - Amplification devices
  - Projector and screen
  - Laptop or tablet with presentation or other viewing software
  - Internet access with appropriate broadband capabilities
- A Rope Rescue training site with the NFPA 1006 required facilities, structures, work areas, materials, props, tools, and equipment of adequate size, type, and quantity to fully and safely support the cognitive and psychomotor training required to deliver the curriculum

Equipment

Student safety is of paramount importance when conducting the type of high-risk training associated with this Rope Rescue (2021) course.

- The equipment listed below is the minimum for the delivery of this course.
- The student is responsible for providing all PPE and ensuring that all PPE meets AHJ and site requirements.
- For all tools and equipment, ensure that you have the power source, operating supplies (blades, fuel, etc.), cleaning supplies, and appropriate PPE.

The following equipment is required to deliver this course:

Quantity Per 12-person Squad	Required Equipment
Determined by scenario	Rope, static kernmantle, general use, with rope bag and rope logs
12	Rope, tie ropes and webbing, 15’
Determined by scenario	Rope rescue gear bags
2	Descent control devices
20	Carabiner, locking
Determined by scenario	Collection plate (per AHJ)
Determined by scenario	Edge protection (based on site needs)
6	Pulley, single (prusik minding where applicable)
2	Pulley, double
6	Prusik loop, short
6	Prusik loop, long
6	Webbing, orange, 1”x20’
6	Webbing, blue, 1”x15’

6	Webbing, yellow, 1”x12’
6	Webbing, green, 1”x6’
Determined by scenario	Anchor straps (commercial or tied on site)
12	Pickets, steel or equivalent with associated equipment
2	Sledgehammer
6	Harness, commercial Class III
1	Harness, commercial victim pelvic
1	Harness, commercial victim chest
1	Litter basket (with pre-rig or equivalent)
Determined by scenario	Ladder, fire service, length appropriate for site and skills
1	Ground cover
Recommended Equipment	
Determined by scenario	Litter wheel
Determined by scenario	Personal mechanical advantage (set of fours)
Determined by scenario	Swivels
Determined by scenario	Cord, 8mm x 33’
Determined by scenario	Ascenders (preferably hand held)
Determined by scenario	Pick-off straps
Determined by scenario	Load-release device, commercial or field assembled (required based on DCD used)
Determined by scenario	Picket plates
Determined by scenario	Backboard, long
Determined by scenario	Rescue manikin
Determined by scenario	Fire apparatus
Determined by scenario	Rope, static kernmantle, general use, 20’ sections
Determined by scenario	Pulley, knot passing
Determined by scenario	Energy absorber with lock (e.g., ASAP’SORBER)

The course provider or agency assumes all responsibility, liability, and maintenance for the engineering design, strength, stability, and adequacy of all props. The provider or agency further assumes all responsibility, liability, and maintenance for all tools, equipment, and supplies used at the site for the delivery of a Rope Rescue class.

Personnel

The following personnel are required to deliver this course:

- Any instructor counted toward student ratios must be an SFT Registered Rope Rescue Awareness and Operations (2021) Instructor.

Time Table

Segment	Lecture	Application	Unit Total
Unit 1: Introduction			
Topic 1-1: Orientation and Administration	0.50	0.0	
Unit 1 Totals	**0.50**	**0.0**	**0.50**
Unit 2: Introduction to Rope Rescue			
Topic 2-1: Introduction to Rope Rescue	0.25	0.0	
Topic 2-2: Standards and Regulations	0.25	0.0	
Unit 2 Totals	**0.50**	**0.0**	**0.50**
Unit 3: PPE and Equipment			
Topic 3-1: Selecting, Using, Inspecting, and Maintaining PPE	0.25	0.50	
Topic 3-2: Selecting, Using, Inspecting, and Maintaining Rescue Equipment	0.25	0.0	
Topic 3-3: Demonstrating Knots, Bends, and Hitches	0.25	0.50	
Unit 3 Totals	**0.75**	**1.0**	**1.75**
Unit 4: Incident Size Up, Planning, and Support			
Topic 4-1: Sizing Up a Rope Rescue Incident	0.25	0.25	
Topic 4-2: Recognizing the Need for Technical Rescue Resources	0.25	0.25	
Topic 4-3: Supporting an Operations- or Technician-level Incident	0.25	0.25	
Topic 4-4: Recognizing Incident Hazards and Initiating Isolation Procedures	0.25	0.25	
Topic 4-5: Conducting a System Safety Check	0.25	0.25	
Unit 4 Totals	**1.25**	**1.25**	**2.50**
Unit 5: Anchor Systems			
Topic 5-1: Constructing Anchor Systems	0.25	2.75	
Unit 5 Totals	**0.25**	**2.75**	**3.0**
Unit 6: Edge Protection			
Topic 6-1: Placing Edge Protection	0.25	1.0	
Unit 6 Totals	**0.25**	**1.0**	**1.25**
Unit 7: Fall Protection			
Topic 7-1: Using Fall Protection Systems	0.25	1.0	
Topic 7-2: Constructing a Fixed Rope System	0.25	1.0	
Topic 7-3: Constructing and Operating a Belay System	0.25	4.0	
Topic 7-4: Belaying a Falling Load	0.25	2.0	
Topic 7-5: Constructing and Operating a Twin-tension Rope System	0.25	3.0	

Unit 7 Totals	**1.25**	**11.0**	**12.25**
Unit 8: Rescue Systems			
Topic 8-1: Constructing, Operating, and Directing the Operation of a Lowering System	0.25	2.0	
Topic 8-2: Constructing, Operating, and Directing the Operation of a Simple Rope Mechanical Advantage System	0.25	2.0	
Topic 8-3: Constructing, Operating, and Directing the Operation of a Compound Rope Mechanical Advantage System	0.25	2.0	
Topic 8-4: Constructing, Operating, and Directing the Operation of a Complex Rope Mechanical Advantage System	0.25	2.0	
Topic 8-5: Constructing, Operating, and Directing the Operation of Ladder Rescue Systems	0.25	1.0	
Unit 8 Totals	**1.25**	**9.0**	**10.25**
Unit 9: Rescue Operations			
Topic 9-1: Negotiating an Edge	0.25	0.50	
Topic 9-2: Rescuing a Victim	0.25	1.0	
Topic 9-3: Lowering and Raising a Litter in a Low-Angle Environment	0.25	1.0	
Topic 9-4: Operating as a Litter Tender	0.25	0.50	
Topic 9-5: Lowering and Raising a Litter in a High-Angle Environment	0.25	1.0	
Topic 9-6: Descending a Fixed Rope	0.25	2.0	
Unit 9 Totals	**1.50**	**6.0**	**7.50**
Unit 10: Termination			
Topic 10-1: Terminating a Technical Rescue Operation	0.25	0.25	
Unit 10 Totals	**0.25**	**0.25**	**0.50**
Formative Assessments			
Determined by AHJ or educational institution	**0.0**	**0.0**	**0.0**
Summative Assessment			
Determined by AHJ or educational institution	**0.0**	**0.0**	**0.0**
Course Totals	**7.75**	**32.25**	**40.0**

Time Table Key

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

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

3. The Course Totals do not reflect time for lunch (1 hour) or breaks (10 minutes per 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, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, skills exercises, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives

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

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Unit 2: Introduction to Rope Rescue

Topic 2-1: Introduction to Rope Rescue

Terminal Learning Objective

At the end of this topic a student, given terrain and features common to the AHJ, will be able to identify rope rescue incidents common to the AHJ and factors that determine incident complexity so that rescuers are prepared to respond to rope rescue incidents.

Enabling Learning Objectives

1. Define "low-angle" rope rescue
   - Refers to an environment in which the load is predominantly supported by itself and not the rope rescue system
2. Define "high-angle" rope rescue
   - Refers to an environment in which the load is predominantly supported by the rope rescue system
3. Identify terrain and features common to the AHJ where rope rescue might be necessary
   - Urban environments
     - Residential
     - Commercial
     - Industrial
     - Other
   - Rural environments
     - Cliffs
     - Back country
     - Other
4. Identify technical rescue disciplines that incorporate or utilize rope rescue skills
   - Tower Rescue
   - Confined Space Rescue
   - Animal Technical Rescue
   - Trench Rescue
   - Water Rescue
   - Other
5. Identify factors that determine incident complexity
   - High vs. low angle
   - Access
   - Height
   - Number of victims
   - Victim position and condition
   - Risk to victim and rescuers
   - Tools or equipment required
   - Environmental hazards

Discussion Questions

1. What type of rope rescue incidents are common in your AHJ?

2. What factors determine incident complexity for a rope rescue?

Application

1. Determined by instructor

Instructor Notes

1. For ELOs that references the AHJ, adjust the course content to reflect AHJ-specific policies, practices, equipment, operations, tactics, etc.

CTS Guide Reference: None

Topic 2-2: Standards and Regulations

Terminal Learning Objective

At the end of this topic a student, given standards, regulations, policies, and procedures, will be able to identify industry and AHJ requirements, so that rope rescue operations are carried out in accordance with all applicable requirements.

Enabling Learning Objectives

1. Identify industry standards applicable to rope rescue
   - FIRESCOPE ICS 162
   - National Fire Protection Association (NFPA)
     - 1006: Standard for Technical Rescue Personnel Professional Qualifications
     - 2500: Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services
   - American National Standards Institute (ANSI)
     - Z359 (fall protection)
     - Z490 (training)
     - 10.48 (safety practices)
   - Other standards as defined by state and federal law
2. Identify industry regulations applicable to rope rescue
   - Occupational Safety and Health Administration (Fed/OSHA)
     - 1910.140 (fall protection systems)
   - California Division of Occupational Safety and Health (Cal/OSHA)
     - 1670 (fall arrest, fall restraint, positioning devices)
     - 3270 (general access)
     - 3270.1 (use of rope access equipment)
   - Other regulations as defined by state and federal law
3. Describe how Cal/OSHA 3270.1 applies
   - During training
   - During a rescue event
4. Identify AHJ policies and procedures
   - Determined by AHJ

Discussion Questions

1. What rope rescue policies and procedures do you have in your AHJ?
2. What other stakeholders might have standards and regulations that impact rope rescue?
3. How do standards and regulations for rope rescue training differ from those used for rope rescue operations?

Application

1. Determined by instructor

Instructor Notes

1. While training, all operations must adhere to Cal/OSHA rope access standard 3270.1.

CTS Guide Reference: None

Unit 3: PPE and Equipment

Topic 3-1: Selecting, Using, Inspecting, and Maintaining PPE

Terminal Learning Objective

At the end of this topic a student, given clothing or equipment for the protection of the rescuers, inspection procedures, cleaning and sanitation supplies, maintenance logs or records, and tools and resources indicated by the manufacturer's guidelines for assembly or disassembly of components during repair or maintenance, will be able to select, use, inspect, and maintain hazard-specific PPE so that PPE, tools, and equipment are appropriate to incident response needs, donned and worn correctly, and used in accordance with manufacturer specifications and all applicable policies and procedures; 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
   - Helmet
   - Head lamp
   - Eye protection
   - Gloves
   - Boots
   - Long sleeve shirt and pants
   - Harness (full body)
   - Radio/comms
2. Identify protections provided by PPE during rope rescue incidents
3. Identify limitations of PPE during rope rescue incidents
4. Identify when and how to don and doff PPE
   - Safety considerations
   - Manufacturer guidelines
   - AHJ policies and procedures
5. Describe how to use AHJ record-keeping systems
6. Describe maintenance requirements and procedures
   - Cleaning
   - Sanitizing
   - Infectious disease control
7. Describe how to use assembly and disassembly tools
8. Describe manufacturer and AHJ recommendations
9. Describe pre-use inspection procedures and determine operational readiness
10. Don and doff PPE
    - Select and use tools specific to the task
11. Inspect and maintain PPE
    - Identify wear and damage indicators for PPE

- Evaluate operational readiness of PPE
- Complete logs and records
- Use cleaning equipment, supplies, and reference materials

Discussion Question

1. What types of PPE does your AHJ have available for rope rescue operations?
2. What are your AHJ's PPE inspection guidelines?
3. What type of equipment logs do you use?
4. Where are your AHJ's maintenance logs and records kept?

Application

1. Don and doff PPE

Instructor Notes

1. Students will inspect and maintain their PPE daily as part of the class but are not required to perform inspection and maintenance as a skill.

CTS Guide Reference: CTS 2-2

Topic 3-2: Selecting, Using, Inspecting, and Maintaining Rescue Equipment

Terminal Learning Objective

At the end of this topic a student, given maintenance logs and records, tools, and resources as indicated by the manufacturer's guidelines, inspection procedures, equipment replacement protocol, and organizational standard operating procedure, will be able to select, use, inspect, and maintain rescue equipment, so that tools and equipment are appropriate to incident response needs and are used correctly in accordance with manufacturer specifications and all applicable policies and procedures; 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
    - Rope and rigging
        - Hardware
            - Carabiners
            - Pulleys
            - Descent control devices
        - Software
            - Rope
            - Webbing
            - Drop bags
    - Harnesses
        - Attachment points
            - Dorsal
            - Chest
            - Pelvic
            - Positioning
        - Size/fit
    - Self belay
        - Self-belaying device (e.g., ASAP®, quantum, etc.)
        - Shock absorbers (e.g., ASAP'Sorber, etc.)
    - Anchoring
        - Anchor straps
        - Wire rope chokers or slings
    - Specialty equipment
        - Mini mechanical advantage (haul) system
    - Victim Rescue
        - Stabilization
        - Packaging
        - Removal
2. Describe how to select and use maintenance tools
3. Describe methods for cleaning tools and equipment

- Cleaning
- Sanitizing
- Infectious disease control

4. Describe replacement protocols and procedures
5. Identify when and how to remove tools and equipment from service
   - Manufacturer guidelines
   - AHJ guidelines
   - Documentation and reporting requirements
6. Describe disposal methods
7. Describe AHJ standard operating procedures
8. Describe how to use record-keeping systems
9. Identify guidelines for cleaning, inspecting, and maintaining tools and equipment
   - Manufacturer guidelines
   - AHJ guidelines
   - NFPA 2500
   - Documentation and reporting requirements
10. Select, use, and maintain tools and equipment
    - Identify wear and damage indicators for rescue equipment
    - Evaluate operational readiness of equipment
    - Complete logs and records
    - Select and use maintenance tools

Discussion Questions

1. What is your AHJ's retirement or replacement criteria?
2. What does your AHJ use for proper equipment cleaning?
3. What are your AHJ's pre-use inspection procedures?

Application

1. Determined by instructor

Instructor Notes

1. ELO 1 – Use the course equipment list as the minimum requirements and then include any other tools and equipment common to your AHJ.
2. Consider showing equipment with both normal and excessive wear and out-of-service equipment.

CTS Guide Reference: CTS 2-3

Topic 3-3: Demonstrating Knots, Bends, and Hitches

Terminal Learning Objective

At the end of this topic a student, given ropes, webbing, and a list of knots used by the AHJ, 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 rope and webbing types
   - Material type
   - Construction
   - Rating
   - Use/purpose
2. Identify rope terminology
   - Running
   - Working
   - Standing
3. Describe knot efficiency
   - Easy to tie
   - Easy to untie
   - Easy to identify
   - Maintains rope strength
4. Describe when and how to use knots, bends, and hitches
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
   - Friction hitches

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?

Application

1. Demonstrate an end-of-line loop
2. Demonstrate a midline loop
3. Demonstrate securing rope around desired objects
4. Demonstrate joining rope or webbing ends together
5. Demonstrate friction hitches

Instructor Notes

1. None

CTS Guide Reference: CTS 4-4

Unit 4: Incident Size Up, Planning, and Support

Topic 4-1: Sizing Up a Rope Rescue Incident

Terminal Learning Objective

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

Enabling Learning Objectives

1. Describe components of a rope rescue size up
    - Number of victims
    - Victim location
        - Urban vs. rural
        - Front vs. back country
        - Above vs. below rescuer
        - Supported vs. unsupported
        - Time last seen (TLS)
        - Point last seen (PLS)
    - Victim condition
        - Physical
        - Emotional/psychological
        - Ability to participate in rescue
    - Anticipated hazards
    - Environmental conditions
    - Access and egress routes
        - Urban vs. rural
2. Describe a risk/benefit assessment
    - Rescue vs. recovery
    - Survivability profile
    - Current and forecasted weather
    - Terrain/feature conditions
    - Time of day
3. Describe types of reference materials and their uses
    - Target hazard pre-plan
    - AHJ policies and procedures
    - Owner/operator resources
4. Describe availability and capability of resources
5. Describe elements of an incident action plan and related information
6. Describe relationship of size-up to the incident management system

7. Describe information gathering techniques and how that information is used in the size-up process
    - Pre-incident
    - En route
    - On scene
    - Evolving
8. Describe basic search criteria for rope rescue incidents
9. Read technical rescue reference materials
10. Gather information
11. Relay information
12. Use information-gathering sources

Discussion Questions

1. What are some ways to gather information for your scene size up?
2. What policies and procedures does your AHJ use to analyze risk vs. benefit?
3. What specialty resources to support rope rescue are available in your AHJ?
4. What are your AHJ's PACE planning policies and procedures?

Application

1. Size up a rope rescue incident

Instructor Notes

1. Review a Training Action Plan (TAP) and walk the students through the components.

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

Topic 4-2: Recognizing the Need for Technical Rescue Resources

Terminal Learning Objective

At the end of this topic a student, given incident information, will be able to recognize the need for technical rescue resources, so that the need for additional resources is identified, the response system is initiated, the scene is secured and rendered safe until additional resources arrive, and awareness-level personnel are incorporated into the operational plan.

Enabling Learning Objectives

1. Describe resource types and deployment methods
   - Availability
   - Capabilities
   - Limitations
2. Describe operational protocols
   - Identify need for additional resources
   - Initiate response system
   - Secure scene and render safe until additional resources arrive
   - Incorporate personnel into operational plan
3. Describe how to complete specific planning forms
   - Determined by AHJ
   - Tactical worksheet
     - Application
     - Purpose
4. Describe types of incidents common to the AHJ
5. Describe hazards
6. Describe incident support operations and resources
   - Engine company
   - Truck company
   - Rescue company
   - EMS
   - Law enforcement
   - Responsible party
   - Other outside resources
7. Describe safety measures
8. Identify communications requirements, methods, and means
9. Apply operational protocols
10. Select specific planning forms based on types of incidents
11. Identify and evaluate various types of hazards within the AHJ
12. Match resources to operational needs
13. Request support and resources
14. Determine required safety measures

Discussion Questions

1. What factors determine when an incident requires additional or specialty resources?
2. What technical rescue resources are available in your AHJ? In surrounding agencies?

3. What process does your AHJ use to request resources?

Application

1. Recognize the need for technical rescue resources

Instructor Notes

1. None

CTS Guide Reference: CTS 1-4

Topic 4-3: Supporting an Operations- or Technician-level Incident

Terminal Learning Objective

At the end of this topic a student, given an incident, an assignment, an incident action plan, and resources from the tool cache, will be able to support an operations- or technician-level incident, so that the assignment is carried out, progress is reported to command, environmental concerns are managed, personnel rehabilitation is facilitated, and the incident action plan is supported.

Enabling Learning Objectives

1. Describe AHJ operational protocols
2. Describe hazard recognition
3. Describe incident management
4. Describe PPE selection
5. Describe resource selection and use
6. Describe scene support requirements
    - Scene control and access
    - Operational zones
    - Liaison with victims, family, bystanders, agency, etc.
    - Logistical support
        - Lighting
        - Shelter
        - Rehabilitation
    - Organization and tracking
    - Managing personnel rotations
7. Apply operational protocols
8. Function within an incident management system
9. Follow and implement an incident action plan
10. Report task progress status to a supervisor or incident command

Discussion Questions

1. What are your limitations operating at the awareness level?
2. What logistical support operations need to be addressed during a complex rope rescue incident?
3. What support resources are available in your AHJ?
4. What is your AHJ's rehab policy?

Application

1. Support an operations- or technician-level incident

Instructor Notes

1. None

CTS Guide Reference: CTS 1-5

Topic 4-4: Recognizing Incident Hazards and Initiating Isolation Procedures

Terminal Learning Objective

At the end of this topic a student, given scene control barriers, personal protective equipment (PPE), requisite equipment, and available specialized resources, 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, victims, and bystanders are minimized, and rescue time constraints are taken into account.

Enabling Learning Objectives

1. Describe types and natures of incident hazards
    - Structural integrity
    - Animal interference (snakes, birds, insects)
    - Physical hazards (falls, sharp objects, burns, exhaustion, dehydration, etc.)
    - Psychological hazards (fear, panic, etc.)
    - Falling objects
    - Environmental conditions (wind, heat, cold, etc.)
    - Victim behavior
2. Describe resource capabilities and limitations
3. Describe equipment types and their use
4. Describe hazard recognition and terminology
5. Describe isolation terminology, methods, equipment, and implementation
6. Identify operational requirement concerns
7. Describe common types of rescuer and victim risk
8. Describe risk/benefit analysis considerations
9. Describe methods for controlling access to the scene
10. Describe types of technical references
11. Identify resource capabilities and limitations
12. Identify incident hazards
13. Assess potential hazards to rescuers and bystanders
14. Place scene control barriers
15. Operate control and mitigation equipment

Discussion Questions

1. What type of risks and hazards can be present at a rope rescue incident?
2. What tools and equipment does your AHJ use to control or mitigate these risks and hazards?
3. What references or guides do you use in your AHJ?

Application

1. Recognize incident hazards and initiate isolation procedures

Instructor Notes

1. None

CTS Guide Reference: CTS 1-3

Topic 4-5: Conducting a System Safety Check

Terminal Learning Objective

At the end of this topic a student, given a rope rescue system and rescue personnel, 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
    - Perform physical and visual system checks
        - Inspect rope rescue system components for damage
        - Assess rope rescue system configuration
        - Secure equipment components
        - Inspect all rigging
        - Ensure system can accommodate anticipated load(s)
    - Apply and use PPE
    - Perform function test before life-loading the system
    - Confirm commands and hand signals
    - Announce actions and confirm acknowledgment before life-loading the system
2. Describe equipment replacement criteria
3. 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?

Application

1. Conduct a system safety check

Instructor Notes

1. None

CTS Guide Reference: CTS 2-7

Unit 5: Anchor Systems

Topic 5-1: Constructing Anchor Systems

Terminal Learning Objective

At the end of this topic a student, given life safety rope and other auxiliary rope rescue equipment, will be able to construct single-point and multiple-point anchor systems, so that the chosen anchor system fits the incident needs, distributes force, 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 anchor selection criteria
   - Natural (rock, tree, etc.)
   - Structural (buildings, bridges, towers, etc.)
   - Artificial (pickets, vehicles, etc.)
2. Describe types of anchor slings
   - Engineered (pre-assembled)
   - Improvised (tied on site)
3. Describe selection and inspection criteria for hardware and software
4. Describe weight distribution issues and methods
   - Load sharing
   - Focal/directional
5. Identify formulas to calculate safety factors for load distribution
6. Describe load types
   - Static
   - Dynamic
7. Describe how to construct anchor slings
   - Single loop
   - Multi loop
   - Basket/three-bight
   - Girth hitch
   - Double-locking girth hitch
   - Wrap three, pull two
   - Tensionless/no knot
   - Other (as determined by AHJ)
8. Describe how to use anchor slings to construct anchor systems
   - Single-point system
   - Two-point system
   - Three-point system
   - Tie-back system
   - Other (as determined by AHJ)

9. Describe rigging systems
    - Principles
    - Application
    - Limitations
    - Equipment
    - Critical angles
10. Describe application of knots, bends, and hitches
11. Describe system safety check procedures
    - Visual assessment
    - Physical assessment
    - Ongoing evaluation
    - Integrity concerns
12. Select rope and equipment
13. Tie knots, bends, and hitches as required by the AHJ
14. Rig systems
15. Evaluate anchor points for required strength, location, and surface contour
16. Perform a system safety check

Discussion Questions

1. What considerations go into anchor selection and construction?

Application

1. Construct a single loop single-point anchor system
2. Construct a multi loop single-point anchor system
3. Construct a basket/three-bight single-point anchor system
4. Construct a girth hitch single-point anchor system
5. Construct a double-locking girth hitch single-point anchor system
6. Construct a wrap three, pull two single-point anchor system
7. Construct a tensionless/no knot single-point anchor system
8. Construct a picket system
9. Construct a two-point anchor system
10. Construct a three-point anchor system
11. Construct a tie-back anchor system

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 2-5, CTS 2-6

Unit 6: Edge Protection

Topic 6-1: Placing Edge Protection

Terminal Learning Objective

At the end of this topic a student, given life safety rope or webbing traversing a sharp or abrasive edge, edge protection, and other auxiliary rope rescue equipment, 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. Describe materials and devices that can be used to protect ropes or webbing from sharp or abrasive edges
2. Describe fall protection measures
3. Identify dangers associated with sharp or abrasive edges
4. Describe methods for negotiating sharp or abrasive edges
5. Select protective devices for rope and webbing
6. Protect personnel from falls while working near edges
7. Secure edge protection
8. Secure ropes or webbing in a specific location

Discussion Questions

1. What types of edge protection are 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?

Application

1. Place edge protection

Instructor Notes

1. None

CTS Guide Reference: CTS 2-8

Unit 7: Fall Protection

Topic 7-1: Using Fall Protection Systems

Terminal Learning Objective

At the end of this topic a student, given a rope rescue incident, life-safety rope, auxiliary rope rescue equipment, and an anchor system, will be able to recognize, identify, and use typical fall protection equipment used by rescuers so that risk to rescuer and victim are minimized in low- and high-angle environments.

Enabling Learning Objectives

1. Describe fall factor and its effects on anchors, equipment, and people
2. Define fall arrest
3. Define fall arrest attachments
4. Define fall restraint
5. Define fall restraint attachments
6. Define travel restraint
7. Describe fall protection devices and their applications
   - Energy absorber with lock (e.g., ASAP'SORBER)
   - Others
8. Operate fall protection

Discussion Question

1. What are the similarities and differences between fall arrest, fall restraint, and travel restriction equipment?
2. What equipment does your AHJ use for fall protection?
3. What are some methods to reduce impact force while using fall protection equipment?

Application

1. Operate fall protection equipment

Instructor Notes

1. Use Cal/OSHA 1670 to define the terms in ELOs 3, 4, 5, 6, and 7.
2. Use Fed/OSHA 1910.140 to define the term in ELO 8.
3. All equipment must be used in accordance with manufacturer's recommendations and Cal/OSHA's regulations.
4. Ensure that students are clear on the attachment points for equipment used during fall arrest and fall restraint.

CTS Guide Reference: None

Topic 7-2: Constructing a Fixed Rope System

Terminal Learning Objective

At the end of this topic a student, given an anchor system, a life safety rope, and rope rescue equipment, 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. Describe the purpose of a fixed rope system
   - Fall protection
   - Descending
   - Ascending
2. Describe how to construct a fixed rope system
   - Select knots, bends, and hitches
   - Evaluate expected loads
   - Rig system
   - Evaluate interference concerns related to incident operations and setup
   - Evaluate system components for compromised integrity
   - Perform safety check

Discussion Questions

1. How does your AHJ use fixed rope systems during rescue incidents?

Application

1. Construct a fixed rope system

Instructor Notes

1. None

CTS Guide Reference: CTS 2-12

Topic 7-3: Constructing and Operating a Belay System

Terminal Learning Objective

At the end of this topic a student, given life safety rope, anchor systems, PPE, rope rescue equipment, an operating lowering or raising mechanical advantage system, and a specified minimum travel distance for the load, will be able to construct and operate a dedicated belay system with a dedicated main during lowering or raising operations, so that the belay operator is not rigged into the equipment components of the system, the system is suitable to the site and is connected to an anchor system and the load, the system is capable of arresting a fall with minimal fall factor, 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 belay operator, the load's position is continually monitored, the belay operator moves rope through the belay device as designed.

Enabling Learning Objectives

1. Describe principles of belay systems
2. Describe belay devices
   - Application
   - Use
   - Capabilities
   - Limitations
3. Describe application of knots, bends, and hitches
4. Describe rigging principles
5. Describe proper operation of belay systems in conjunction with lowering and raising operations
6. Describe operational commands
7. Describe system safety check procedures
8. Select a system
9. Tie knots, bends, and hitches
10. Perform rigging
11. Attach to anchor system and load
12. Don and use task-specific PPE
13. Perform a system safety check
14. Operate a belay system
15. Assess system effectiveness
16. Properly attach a rope to a belay device
17. Communicate belay system status

Discussion Questions

1. What are some examples of belays used in your AHJ?
2. What commands does your AHJ during belay system operations?
3. How do you effectively minimize the fall factor?
4. Why is it important to stay attentive while belaying?

Application

1. Construct and operate a dedicated belay system with a dedicated main during lowering or raising operations

Instructor Notes

1. Refer to NFPA 1006 (2021) A.5.2.9 for clarification on single-tensioned and two-tensioned rope systems.

CTS Guide Reference: CTS 2-9, CTS 2-10

Topic 7-4: Belaying a Falling Load

Terminal Learning Objective

At the end of this topic a student, given a belay system and a failed line creating a dropped load, 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 belay operator utilizes the belay system as designed, and the belay operator is not injured or otherwise incapacitated during operation of the belay system.

Enabling Learning Objectives

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

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?

Application

1. Belay a falling load in a high-angle environment

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 7-5: Constructing and Operating a Twin-tension Rope System

Terminal Learning Objective

At the end of this topic a student, given life safety rope, anchor systems, PPE, rope rescue equipment, an operating lowering or raising mechanical advantage system, and a specified minimum travel distance for the load, will be able to construct and operate a twin-tension rope system (TTRS) during lowering or raising operations, so that the operator is not rigged into the equipment components of the system, the system is suitable to the site and is connected to an anchor system and the load, the system is capable of arresting a fall with minimal fall factor, a fall will not result in system failure, system actuation will not injure or otherwise incapacitate the operator, the load's position is continually monitored, and the operator moves rope through the devices as designed.

Enabling Learning Objectives

1. Describe TTRS principles
2. Describe TTRS devices
   - Application
   - Use
   - Capabilities
   - Limitations
3. Describe application of knots, bends, and hitches
4. Describe rigging principles
5. Describe proper operation of TTRS during lowering and raising operations
6. Describe operational commands
7. Describe system safety check procedures
8. Select a system
9. Tie knots, bends, and hitches
10. Perform rigging
11. Attach to anchor system and load
12. Don and use task-specific PPE
13. Perform a system safety check
14. Operate a TTRS
15. Assess system effectiveness

Discussion Questions

1. What are some examples of TTRS used in your AHJ?
2. What commands does your AHJ use during TTRS operations?
3. How do you effectively minimize the fall factor?
4. Why is it important to stay attentive while operating a TTRS?

Application

1. Construct and operate a TTRS during lowering or raising operations

Instructor Notes

1. Refer to NFPA 1006 (2021) A.5.2.9 for clarification on single-tensioned and two-tensioned rope systems.

CTS Guide Reference: CTS 2-9, CTS 2-10

Unit 8: Rescue Systems

Topic 8-1: Constructing, Operating, and Directing the Operation of a Lowering System

Terminal Learning Objective

At the end of this topic a student, given an anchor system, life safety rope(s), a descent control device, auxiliary rope rescue equipment, rescue personnel, a load, and a specified minimum travel distance for the load to be moved, will be able to construct, operate, and direct the operation of 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; 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 purpose of a lowering system
   - Lower a load in a controlled manner
2. Describe various descent control devices
   - Application
   - Use
   - Capabilities
   - Limitations
3. Describe capabilities and limitations of various lowering systems
   - Low-angle environment
   - High-angle environment
4. Describe how to construct a lowering system
   - Select rope and equipment
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Select and rig system
   - Perform system safety check
5. Identify safety concerns
   - Low-angle environment
   - High-angle environment
6. Describe how to operate lowering systems
   - Low-angle environment
   - High-angle environment
   - Knot passing
7. Describe how to direct a lowering operation
   - Direct personnel
   - Use operational commands
   - Analyze system efficiency

8. Construct, operate, and directing the operation of a lowering system

Discussion Questions

1. What different descent-control devices are used in your AHJ?
2. What are some advantages and disadvantages of different descent control devices?
3. What methods can be used for passing knots?

Application

1. Construct a lowering system in a low-angle environment
2. Operate a lowering system in a low-angle environment
3. Direct the operation of a lowering system in a low-angle environment
4. Construct a lowering system in a high-angle environment
5. Operate a lowering system in a high-angle environment
6. Direct the operation of a lowering system in a high-angle environment
7. Perform a knot pass during a lowering operation

Instructor Notes

1. None

CTS Guide Reference: CTS 2-13, CTS 2-14

Topic 8-2: Constructing, Operating, and Directing the Operation of a Simple Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic a student, given life safety rope, carabiners, pulleys, rope grab devices, auxiliary rope rescue equipment, rescue personnel, a load, a specified minimum travel distance for the load to be moved, and an anchor system, will be able to construct, operate, and direct the operation of 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; 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 operations; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe the purpose of a simple rope mechanical advantage system
   - Raise a load in a controlled manner
2. Describe principles of mechanical advantage
3. Describe types of simple rope mechanical advantage systems
   - 1:1
   - 2:1
   - 3:1
   - 4:1
   - 5:1
4. Describe various simple rope mechanical advantage systems
   - Application
   - Use
   - Forces
   - Capabilities
   - Limitations
5. Describe how to construct simple rope mechanical advantage systems
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Rig system
     - Include ability to convert from lowering to hauling
   - Perform system safety check
6. Identify safety concerns
   - Low-angle environment
   - High-angle environment
7. Describe how to operate simple rope mechanical advantage systems
   - Haul line operation
   - Low-angle environment
   - High-angle environment
   - Knot passing

8. Describe how to direct the operation of a simple rope mechanical advantage system
    - Assign and direct personnel
    - Use operational commands
    - Analyze system efficiency
9. Construct, operate, and direct the operation of a simple rope mechanical advantage system

Discussion Questions

1. What is a simple rope mechanical advantage system?
2. What are some common types of simple rope mechanical advantage systems?

Application

1. Construct a 3:1 simple rope mechanical advantage system
2. Operate a 3:1 simple rope mechanical advantage system
3. Direct the operation of a 3:1 simple rope mechanical advantage system
4. Construct a 5:1 simple rope mechanical advantage system
5. Operate a 5:1 simple rope mechanical advantage system
6. Direct the operation of a 5:1 simple rope mechanical advantage system
7. Perform a knot pass during a raising operation

Instructor Notes

1. None

CTS Guide Reference: CTS 1-1, CTS 2-15, CTS 2-16

Topic 8-3: Constructing, Operating, and Directing the Operation of a Compound Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic a student, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, and rope rescue equipment, rescue personnel, a load, and a specified minimum travel distance for the load to be moved, will be able to construct, operate, and direct the operation of a compound rope mechanical advantage system so that the system constructed accommodates 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; the system is connected to an anchor system and load; 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. Describe the purpose of a compound rope mechanical advantage system
   - Raise a load in a controlled manner
2. Describe types of compound rope mechanical advantage systems
3. Describe various compound rope mechanical advantage systems
   - Application
   - Use
   - Forces
   - Capabilities
   - Limitations
4. Describe how to construct compound rope mechanical advantage systems
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Rig system
     - Reduce excessive force to system components
   - Perform system safety check
   - Evaluate system components for compromised integrity
5. Identify safety concerns
   - Low-angle environment
   - High-angle environment
6. Describe how to operate compound rope mechanical advantage systems
   - Low-angle environment
   - High-angle environment
   - Interference/hazards
7. Describe how to direct the operation of a compound rope mechanical advantage system
   - Assign and direct personnel
   - Use operational commands
   - Analyze system efficiency

8. Construct, operate, and direct the operation of a compound rope mechanical advantage system

Discussion Questions

1. What is a compound rope mechanical advantage system?
2. What is are common types of compound rope mechanical advantage systems?
3. What are the advantages and disadvantages of compound mechanical advantage systems?

Application

1. Construct a compound rope mechanical advantage system
2. Operate a compound rope mechanical advantage system
3. Direct the operation of compound rope mechanical advantage system

Instructor Notes

1. None

CTS Guide Reference: CTS 2-17, CTS 2-18

Topic 8-4: Constructing, Operating, and Directing the Operation of a Complex Rope Mechanical Advantage System

Terminal Learning Objective

At the end of this topic a student, given a load, an anchor system, life safety rope, carabiners, pulleys, rope grab devices, rope rescue equipment, rescue personnel, a load, and a specified minimum travel distance for the load to be moved, will be able to construct, operate, and direct the operation of 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; the system is connected to an anchor system and the load; 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. Describe the purpose of a complex rope mechanical advantage system
   - Raise a load in a controlled manner
2. Describe types of complex rope mechanical advantage systems
3. Describe various complex rope mechanical advantage systems
   - Application
   - Use
   - Forces
   - Capabilities
   - Limitations
4. Describe how to construct complex rope mechanical advantage systems
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Rig system
     - Reduce excessive force to system components
   - Perform system safety check
   - Evaluate system components for compromised integrity
5. Identify safety concerns
   - Low-angle environment
   - High-angle environment
6. Describe how to operate compound rope mechanical advantage systems
   - Low-angle environment
   - High-angle environment
   - Interference/hazards
7. Describe how to direct the operation of a compound rope mechanical advantage system
   - Assign and direct personnel
   - Use operational commands
   - Analyze system efficiency

8. Construct, operate, and direct the operation of a complex rope mechanical advantage system

Discussion Questions

1. What is a complex rope mechanical advantage system?
2. What are some common types of complex rope mechanical advantage systems?
3. What are the advantages and disadvantages of complex mechanical advantage systems?

Application

1. Construct a complex rope mechanical advantage system
2. Operate a complex rope mechanical advantage system
3. Direct the operation of complex rope mechanical advantage system

Instructor Notes

1. None

CTS Guide Reference: CTS 2-19

Topic 8-5: Constructing, Operating, and Directing the Operation of Ladder Rescue Systems

Terminal Learning Objective

At the end of this topic a student, given fire service ladders and rope rescue equipment, will be able to construct, operate, and direct the operation of ladder systems so that the system constructed accommodates the load; operational interference is factored and minimized; the system is efficient; a system safety check is completed; 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. Describe the purpose of a ladder system
    - Raise, lower, or move load in a controlled manner
2. Identify ladder systems
    - Moving ladder
    - Ladder slide
    - Ladder A frame
3. Describe ladder systems
    - Components
    - Operational functions
    - When to use
4. Describe how to construct a moving ladder system
    - Select and apply knots, bends, and hitches
    - Evaluate expected loads
    - Rig system
        - Reduce excessive force to system components
    - Perform system safety check
    - Evaluate system components for compromised integrity
5. Describe how to construct a ladder slide system
    - Select and apply knots, bends, and hitches
    - Evaluate expected loads
    - Rig system
        - Reduce excessive force to system components
    - Perform system safety check
    - Evaluate system components for compromised integrity
6. Describe how to construct a ladder A-frame system
    - Select and apply knots, bends, and hitches
    - Evaluate expected loads
    - Rig system
        - Reduce excessive force to system components
    - Perform system safety check
    - Evaluate system components for compromised integrity

7. Describe how to operate ladder systems
    - Moving ladder
    - Ladder slide
    - Ladder A frame
8. Identify safety considerations
9. Describe how to direct the operation of a ladder system
    - Assign and direct personnel
    - Use operational commands
    - Analyze system efficiency
10. Explain safety considerations for ladder rescue systems
11. Construct, operate, and direct the operation of ladder rescue systems

Discussion Questions

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

Application

1. Construct a moving ladder system
2. Operate a moving ladder system
3. Construct a ladder slide system
4. Operate a ladder slide system
5. Construct a ladder A-frame system
6. Operate a ladder A-frame system

Instructor Notes

1. An A-frame ladder should only be used as an artificial high-point when no other viable option is available.

CTS Guide Reference: CTS 2-20

Unit 9: Rescue Operations

Topic 9-1: Negotiating an Edge

Terminal Learning Objective

At the end of this topic a student, 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, will be able to negotiate an edge while attached to a rope rescue system during low-angle and high-angle lowering and raising operations 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 common hazards imposed by projections and edges
   - Trips/falls
   - Sharps objects and edges
   - Broken/uneven/unstable terrain
   - Plants and animals
2. Describe techniques and practices for negotiating projections and edges along a travel path while attached to a functioning rope-based lowering and raising mechanical advantage system
   - Low-angle environment
   - High-angle environment
3. Select and use harness and PPE for common environments
4. Attach the rescuer to rope rescue system
5. Maneuver across projections and edges along travel path
6. 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?
3. What are some safety concerns during edge negotiation?

Application

1. Negotiate an edge while attached to a rope rescue system

Instructor Notes

1. None

CTS Guide Reference: CTS 2-21, CTS 2-22

Topic 9-2: Preparing a Victim for Transfer

Terminal Learning Objective

At the end of this topic a student, given a victim, a rope rescue system, diagnostic and packaging equipment, and an actual or simulated EMS agency, 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 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 how to establish victim rapport
2. Describe victim access methods
   - From above
   - From below
3. Describe victim assessment considerations
   - Mental status
     - Compliant
     - Combative
     - Unresponsive
   - Time constraints
     - How long has the victim been there?
     - How much longer can the victim remain there?
     - Suspension syndrome
   - Falls
     - Mechanism
   - Equipment
     - What does the victim have?
     - Is it accessible and usable for rescue?
   - Injury status
4. Describe victim stabilization considerations
   - Basic life support (BLS)
   - Advanced life support (ALS)
   - Fall prevention
5. Describe packaging methods
   - Commercial victim harness
   - Litter
   - Other (per AHJ)
6. Describe victim rescue methods
   - Assisted "walk out" (ambulatory victim)
   - Litter operations (non-ambulatory victim)
7. Describe how to transfer a victim to EMS
   - Victim transfer report
     - Rescue activity

    - Victim condition
  - Medical information management
  - Communication methods
8. Assess and stabilize a victim
9. Use victim immobilization, packaging, and treatment methods
10. 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?

Application

1. Assess and stabilize a victim
2. Package an ambulatory victim in a low-angle environment
3. Perform an ambulatory victim rescue in a low-angle environment

Instructor Notes

1. Topics 9-3, 9-4, and 9-5 cover litter rescues in-depth. Use this as an introduction to the concept and focus on ambulatory victims.

CTS Guide Reference: CTS 2-23

Topic 9-3: Lowering and Raising a Litter in a Low-Angle Environment

Terminal Learning Objective

At the end of this topic a student, 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, will be able to lower and raise or direct a litter-lowering or litter-raising operation, 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 purpose of a litter lower/raise operation
   - Transport rescuer and tools to victim
   - Rescue victim
2. Identify safety concerns in a low-angle environment
3. Describe litter-tender functions and limitations in the low-angle environment
4. Describe how to lower and raise a litter in a low-angle environment
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Attach litter to system
   - Perform system safety check
   - Manage litter position and movement
5. Describe how to direct a litter lowering and raising operation
   - Assign and direct personnel
   - Use operational commands
   - Analyze system efficiency
6. Lower and raise or direct a litter-lowering or litter-raising operation

Discussion Questions

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

Application

1. Raise and lower a litter in a low-angle environment
2. Direct a raising and lowering operation in a low-angle environment

Instructor Notes

1. None

CTS Guide Reference: CTS 2-24

Topic 9-4: Operating as a Litter Tender

Terminal Learning Objective

At the end of this topic a student, 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, 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. Describe task-specific selection criteria for life safety harnesses
2. Describe PPE selection criteria
3. Describe litters
   - Design
   - Intended purpose
4. Describe low-angle litter and rescuer attachment principles
   - Attach litter to system
   - Attach rescuer(s) to system
5. Describe rescue techniques and practices
   - Three-person litter tender
   - Other (per AHJ)
6. Describe common hazards imposed by terrain
7. Describe considerations for litter tender teams
   - Safe lifting techniques
   - Communication
   - Mobility and coordination
8. Select and use rescuer harnesses and PPE for common environments
9. Attach life safety harness to rope rescue system
10. Maneuver across terrain
11. Manage litter while supported by rope rescue system
12. Evaluate surroundings for potential hazards

Discussion Questions

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

Application

1. Package a victim in a litter in a low-angle environment
2. Perform a litter rescue as part of a three-person litter tender configuration in a low-angle environment

Instructor Notes

1. All rescuer attachment methods must adhere to industry standards and recommended best practices.
2. You must demonstrate a three-person litter tender configuration. You may add other configurations common to your AHJ.

CTS Guide Reference: CTS 2-25

Topic 9-5: Lowering and Raising a Litter in a High-Angle Environment

Terminal Learning Objective

At the end of this topic a student, 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, will be able to lower and raise a litter or 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 lower and raise; tag lines are used to manage the litter during 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 purpose of a litter lower/raise operation
   - Transport rescuer and tools to victim
   - Rescue victim
2. Identify safety concerns in a high-angle environment
3. Describe litter positioning options (vertical and horizontal)
4. Describe how to lower and raise a litter in a high-angle environment
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Attach litter to system
   - Perform system safety check
   - Manage litter movement and position
5. Lower and raise a litter or direct a litter-lowering or litter-raising operation in a high-angle environment
6. Describe how to direct a litter lowering and raising operation in a high-angle environment
   - Assign and direct personnel
   - Use operational commands
   - Analyze system efficiency

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 tools does your AHJ have to manage or maneuver a litter around hazards or obstacles?

Application

1. Raise and lower a litter in a high-angle environment
2. Direct a raising and lowering operation in a high-angle environment

Instructor Notes

1. None

CTS Guide Reference: CTS 2-26

Topic 9-6: Descending a Fixed Rope

Terminal Learning Objective

At the end of this topic a student, 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, will be able to descend a fixed rope in low-angle and high-angle environments so that the person descending is attached to the fixed rope in a manner that will not allow them 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 their 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. Describe task-specific selection criteria for PPE and life safety harnesses and systems for descending a fixed rope
2. Describe descent control devices
   - Design
   - Intended purpose
   - Operation
3. Describe safe rigging principles
4. Describe descending techniques
   - Low-angle environments
   - High-angle environments
   - Lock-off
5. Describe hazards associated with descending operations
   - Falling
   - Hand injuries
   - Unstable terrain
   - Prolonged suspension
   - Inversion
6. Select and use rescuer harnesses, a system for descending a fixed rope, and PPE for common environments
7. Attach life safety harness to rope rescue system
8. Attach descent control device to rope and life safety harness
9. Operate 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?

Application

1. Descend a fixed rope in a high-angle environment
2. Lock-off a descent control device (to facilitate hands-free operations)

Instructor Notes

1. Use contingency anchors on all fixed ropes. (See CMC *Rope Rescue Technician Manual.*)

CTS Guide Reference: CTS 3-11

Unit 10: Termination

Topic 10-1: Terminating a Technical Rescue Operation

Terminal Learning Objective

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

Enabling Learning Objectives

1. Describe Incident Command functions and resources
2. Describe PPE characteristics
   - PPE requirements change in IDLH vs non-IDLH
   - Decontamination, maintenance, and repair requirements
3. Describe hazard and risk identification
   - Reevaluate mitigated and ongoing hazards
   - Resources in transition
   - Complacency
   - Normalized deviance
   - Fatigue
4. Describe equipment removal procedures
   - When to leave in place
   - Systematic breakdown and removal
5. Describe isolation techniques
6. Identify statutory requirements
   - Determined by AHJ
7. Identify responsible parties
8. Describe logistics and resource management
9. Describe personnel accountability systems
   - PAR – personnel accountability report
10. Describe personnel rehab procedures or protocols
    - Determined by AHJ
11. Describe documentation and reporting requirements
    - Determined by AHJ
12. Describe post-incident analysis techniques
    - Determined by AHJ
    - Critical incident stress debriefing
13. Select and use hazard-specific PPE
14. Decontaminate PPE
15. Recognize hazards and analyze risk
16. Use barrier protection techniques
17. Implement data collection and record-keeping/reporting protocols

18. Conduct post-incident analysis activities

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?
4. Who are some examples of responsible parties that may assume responsibility for the scene when the incident terminates?
5. What critical incident stress management resources are available to you?

Application

1. Terminate a rope rescue incident

Instructor Notes

1. Students will participate in PAR, clean up, and inventory as part class participation.

CTS Guide Reference: CTS 2-27

Drill Ground Activities and Evolutions

The following components must be covered in the drill ground activities and/or evolutions but can be combined and completed in the order that best suites the props available and AHJ policies and procedures.

Students will conduct skills with an asterisk (*) individually. All other skills may be carried out as part of a rescue team.

Drill ground activities must incorporate the following learning objectives:

- Size up a rope rescue incident
- Recognize the need for technical rescue resources
- Support an operations- or technician-level incident
- Recognize incident hazards and initiate isolation procedures
- Conduct a system safety check
- Terminate a rope rescue incident

Drill ground activities must address the following operations:

- PPE and Equipment
    - Don and doff PPE *
    - Demonstrate an end-of-line loop *
    - Demonstrate a midline loop *
    - Demonstrate securing rope around desired objects *
    - Demonstrate joining rope or webbing ends together *
    - Demonstrate friction hitches *
- Anchor Systems
    - Construct a single loop single-point anchor system *
    - Construct a multi loop single-point anchor system *
    - Construct a basket/three-bight single-point anchor system *
    - Construct a girth hitch single-point anchor system *
    - Construct a double-locking girth hitch single-point anchor system *
    - Construct a wrap three, pull two single-point anchor system *
    - Construct a tensionless/no knot single-point anchor system *
    - Construct a picket system *
    - Construct a two-point anchor system *
    - Construct a three-point anchor system *
    - Construct a tie-back anchor system *
- Edge Protection
    - Place edge protection
- Fall Protection
    - Operate fall protection equipment *
    - Construct a fixed rope system

    - Construct and operate a dedicated belay system with a dedicated main during lowering or raising operations
    - Belay a falling load in a high-angle environment *
    - Construct and operate a TTRS during lowering or raising operations
- Rescue Systems
    - Construct a lowering system in a low-angle environment
    - Operate a lowering system in a low-angle environment
    - Direct the operation of a lowering system in a low-angle environment
    - Construct a lowering system in a high-angle environment
    - Operate a lowering system in a high-angle environment
    - Direct the operation of a lowering system in a high-angle environment
    - Perform a knot pass during a lowering operation
    - Construct a 3:1 simple rope mechanical advantage system
    - Operate a 3:1 simple rope mechanical advantage system
    - Direct the operation of a 3:1 simple rope mechanical advantage system
    - Construct a 5:1 simple rope mechanical advantage system
    - Operate a 5:1 simple rope mechanical advantage system
    - Direct the operation of a 5:1 simple rope mechanical advantage system
    - Perform a knot pass during a raising operation
    - Construct a compound rope mechanical advantage system
    - Operate a compound rope mechanical advantage system
    - Direct the operation of compound rope mechanical advantage system
    - Construct a complex rope mechanical advantage system
    - Operate a complex rope mechanical advantage system
    - Direct the operation of complex rope mechanical advantage system
    - Construct a moving ladder system
    - Operate a moving ladder system
    - Construct a ladder slide system
    - Operate a ladder slide system
    - Construct a ladder A-frame system
    - Operate a ladder A-frame system

Drill ground activities must incorporate the following rescue scenarios:

- Negotiate an edge while attached to a rope rescue system *
- Assess and stabilize a victim
- Package an ambulatory victim in a low-angle environment
- Perform an ambulatory victim rescue in a low-angle environment
- Raise and lower a litter in a low-angle environment
- Direct a raising and lowering operation in a low-angle environment
- Package a victim in a litter in a low-angle environment *
- Perform a litter rescue as part of a three-person litter tender configuration in a low-angle environment
- Raise and lower a litter in a high-angle environment

- Direct a raising and lowering operation in a high-angle environment
- Descend a fixed rope in a high-angle environment *
- Lock-off a descent control device (to facilitate hands-free operations) *

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 deliver the course.

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

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

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

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

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

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

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

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

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

Rope Rescue Technician (2021)

Course Plan

Course Details

Description: This course provides the knowledge and skills to prepare an emergency responder to conduct operations-level tower rescue operations in a safe and effective manner in accordance with AHJ policies and procedures. Topics include PPE and rope rescue equipment; incident size up, planning, and support; constructing anchor systems; ascending and descending a fixed rope; escaping from a jammed or malfunctioning device; climbing and traversing natural features and manmade structures; rescuing victims from a feature, suspended from rope or webbing, and using a litter; and moving a suspended load along a horizontal and vertical path. This course incorporates technician training based on NFPA 1006 (2021).

Designed For: Fire fighters with three years' full-time or six years' part-time/volunteer experience and any emergency personnel who perform rope rescue operations.

Prerequisites: Rope Rescue Awareness and Operations (2017 or 2021)
or
Low Angle Rope Rescue **and** Rescue Systems 1

Standard: Complete all activities and formative tests.

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

Hours (Total): 40 hours

(5 lecture / 35 application)

Maximum Class Size: 24

Instructor Level: SFT Rope Rescue Technician Registered Instructor

Instructor/Student Ratio: 1:24 (lecture)

1:6 (application)

Restrictions: All instructors counted toward student ratios, including application components, must be SFT Registered Rope Rescue Technician Instructors.

SFT Designation: FSTEP

Table of Contents

Required Resources

Instructor Resources

To teach this course, instructors may use:

- Manuals for artificial high-directionals
- *Rope Rescue Technician Manual* (James A. Frank, CMC Rescue, Inc., current edition)
- *Technical Rescue Field Operations Guide* (Tom Pendley, Desert Rescue Research, current edition)
- *National Park Service Technical Rescue Manual* (U.S. Department of the Interior, National Park Service, 11th edition, 2014)
- FIRESCOPE ICS 162
- National Fire Protection Association (NFPA)
    - 1006: Standard for Technical Rescue Personnel Professional Qualifications (current edition)
    - 2500: Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Service (current edition)
- American National Standards Institute (ANSI)
    - Z359 (fall protection)
    - Z490 (training)
    - 10.48 (safety practices)
- Occupational Safety and Health Administration (Fed/OSHA)
    - 1910.140 (fall protection systems)
- California Division of Occupational Safety and Health (Cal/OSHA)
    - 1670 (fall arrest, fall restraint, positioning devices)
    - 3270 (general access)
    - 3270.1 (use of rope access equipment)
- Full personal protective equipment per AHJ requirements (including helmet, eye protection, gloves, boots, long sleeve shirt, and pants)

Online Instructor Resources

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

- None

Student Resources

To participate in this course, students need:

- Any textbook or application (app) chosen by the instructor
- Full personal protective equipment per AHJ requirements (including helmet, eye protection, gloves, boots, long sleeve shirt, and pants)

Facilities, Equipment, and Personnel

Facilities

The following facilities are required to deliver this course:

- Standard learning environment or facility, which may include:
  - Writing board or paper easel chart
  - Markers, erasers
  - Amplification devices
  - Projector and screen
  - Laptop or tablet with presentation or other viewing software
  - Internet access with appropriate broadband capabilities
- A Rope Rescue training site with the NFPA 1006 required facilities, structures, work areas, materials, props, tools, and equipment of adequate size, type, and quantity to fully and safely support the cognitive and psychomotor training required to deliver the curriculum

Equipment

Student safety is of paramount importance when conducting the type of high-risk training associated with this Rope Rescue (2021) course.

- The equipment listed below is the minimum for the delivery of this course.
- The student is responsible for providing all PPE and ensuring that all PPE meets AHJ and site requirements.
- For all tools and equipment, ensure that you have the power source, operating supplies (blades, fuel, etc.), cleaning supplies, and appropriate PPE.

The following equipment is required to deliver this course:

Quantity Per 12-person Squad	Required Equipment
Determined by scenario	Rope, static kernmantle, general use, with rope bag and rope logs
12	Rope, tie ropes and webbing, 15’
Determined by scenario	Rope rescue gear bags
2	Descent control devices
40	Carabiner, locking
Determined by scenario	Collection plate (per AHJ)
Determined by scenario	Edge protection (based on site needs)
12	Pulley, single (prusik minding where applicable)
4	Pulley, double
12	Prusik loop, short
12	Prusik loop, long
12	Webbing, orange, 1”x20’
12	Webbing, blue, 1”x15’

12	Webbing, yellow, 1”x12’
12	Webbing, green, 1”x6’
Determined by scenario	Anchor straps (commercial or tied on site)
6	Harness, commercial Class III
2	Harness, commercial victim pelvic
2	Harness, commercial victim chest
1	Litter basket (with pre-rig or equivalent)
2	Ground cover
4	Ascenders
2	Etriers
3	Work positioning straps (e.g., Petzl Grillion or similar)
1	Pulley, knot passing
3	Double bypass lanyards
2	Personal mechanical advantage (set of fours)
1	Artificial high direction (e.g., Arizona Vortex, TerrAdapter)
2	Self-trailing belay with energy absorber (e.g., ASAP’SORBER)
Recommended Equipment	
Determined by scenario	Load cell
Determined by scenario	Swivels
Determined by scenario	Cord, 8mm x 33’
Determined by scenario	Ladder, fire service, appropriate length for site and skills
Determined by scenario	Pick-off straps
Determined by scenario	Load-release device, commercial or field assembled (required based on DCD used)
Determined by scenario	Picket plates
Determined by scenario	Backboard, long
Determined by scenario	Rescue manikin
Determined by scenario	Fire apparatus
Determined by scenario	Rope, static kernmantle, general use, 20’ sections
Determined by scenario	Pickets, steel or equivalent with associated equipment
Determined by scenario	Sledgehammer
Determined by scenario	Personal progress capture device (e.g., Croll)

Training Props

The following training props are required to deliver this course:

- Structure
    - 20 feet minimum height with working roof that is of sound and safe engineering design

- An environment for high-angle evolutions where the load is predominately supported by the rope rescue system (if working without a tower or structure)
- Area to demonstrate and practice skills (rescue knots, rescue/victim packaging, anchors, and rope systems)
- A minimum vertical distance of 10 to 20 feet
- A minimum 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 litter tender

The course provider or agency assumes all responsibility, liability, and maintenance for the engineering design, strength, stability, and adequacy of all props. The provider or agency further assumes all responsibility, liability, and maintenance for all tools, equipment, and supplies used at the site for the delivery of a Rope Rescue class.

Personnel

The following personnel are required to deliver this course:

- Any instructor counted toward student ratios must be an SFT Registered Rope Rescue Technician (2021) Instructor.

Time Table

Segment	Lecture	Application	Unit Total
Unit 1: Introduction			
Topic 1-1: Orientation and Administration	0.50	0.0	
Unit 1 Totals	**0.50**	**0.0**	**0.50**
Unit 2: Introduction to Rope Rescue			
Topic 2-1: Introduction to Rope Rescue	0.25	0.0	
Topic 2-2: Standards and Regulations	0.25	0.0	
Unit 2 Totals	**0.50**	**0.0**	**0.50**
Unit 3: PPE and Equipment			
Topic 3-1: Selecting, Using, Inspecting, and Maintaining PPE and Rescue Equipment	0.25	0.0	
Topic 3-2: Demonstrating Knots, Bends, and Hitches	0.25	0.50	
Unit 3 Totals	**0.50**	**0.50**	**1.0**
Unit 4: Incident Size Up, Planning, and Support			
Topic 4-1: Sizing Up a Rope Rescue Incident	0.25	0.50	
Topic 4-2: Recognizing Incident Hazards and Initiating Isolation Procedures	0.25	0.50	
Topic 4-3: Conducting a System Safety Check	0.25	0.50	
Unit 4 Totals	**0.75**	**1.50**	**2.25**
Unit 5: Anchor Systems			
Topic 5-1: Constructing Tensioned Anchor Systems	0.25	2.0	
Topic 5-2: Constructing, Operating, and Directing the Operation of a High-Directional	0.25	2.0	
Unit 5 Totals	**0.50**	**4.0**	**4.50**
Unit 6: Rescue Skills			
Topic 6-1: Descending a Fixed Rope	0.25	4.0	
Topic 6-2: Ascending a Fixed Rope	0.25	4.0	
Topic 6-3: Escaping from a Jammed or Malfunctioning Device	0.25	0.0	
Topic 6-4: Climbing and Traversing Natural Features or Manmade Structures	0.25	4.0	
Unit 6 Totals	**1.0**	**12.0**	**13.0**
Unit 7: Rescue Operations			
Topic 7-1: Interacting with a Person at Height in Crisis	0.25	0.0	
Topic 7-2: Removing a Victim from a Feature	0.25	4.0	
Topic 7-3: Removing a Victim Suspended from Rope of Webbing	0.25	4.0	
Topic 7-4: Rescuing a Victim Using a Litter	0.25	4.0	

Topic 7-5: Moving a Suspended Load Along a Horizontal and Vertical Path	0.25	5.0	
Unit 7 Totals	**1.25**	**17.0**	**18.25**
Formative Assessments			
Determined by AHJ or educational institution	**0.0**	**0.0**	**0.0**
Summative Assessment			
Determined by AHJ or educational institution	**0.0**	**0.0**	**0.0**
Course Totals	**5.0**	**35.0**	**40.0**

Time Table Key

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

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

3. The Course Totals do not reflect time for lunch (1 hour) or breaks (10 minutes per 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, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, skills exercises, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives

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

Discussion Questions

1. Determined by instructor

Application

1. Determined by instructor

Unit 2: Introduction to Rope Rescue Technician

Topic 2-1: Introduction to Rope Rescue Technician

Terminal Learning Objective

At the end of this topic a student, given terrain and features common to the AHJ, will be able to identify rope rescue incidents common to the AHJ and factors that determine incident complexity so that rescuers are prepared to respond to rope rescue incidents.

Enabling Learning Objectives

1. Define “low-angle” rope rescue
   - Refers to an environment in which the load is predominantly supported by itself and not the rope rescue system
2. Define “high-angle” rope rescue
   - Refers to an environment in which the load is predominantly supported by the rope rescue system
3. Describe terrain and features common to the AHJ where rope rescue might be necessary
   - Urban environments
     - Residential
     - Commercial
     - Industrial
     - Other
   - Rural environments
     - Cliffs
     - Back country
     - Other
4. Describe how rope rescue skills are integrated into other technical rescue disciplines
   - Tower Rescue
   - Confined Space Rescue
   - Animal Technical Rescue
   - Trench Rescue
   - Water Rescue
   - Other
5. Identify factors that determine incident complexity
   - High vs. low angle
   - Access
   - Height
   - Number of victims
   - Victim position and condition
   - Risk to victim and rescuers
   - Tools or equipment required
   - Environmental hazards

Discussion Questions

1. What type of rope rescue incidents have you been part of at the awareness or operations level?
2. What factors determine incident complexity for a rope rescue?

Application

1. Determined by instructor

Instructor Notes

1. For ELOs that references the AHJ, adjust the course content to reflect AHJ-specific policies, practices, equipment, operations, tactics, etc.

CTS Guide Reference: None

Topic 2-2: Standards and Regulations

Terminal Learning Objective

At the end of this topic a student, given standards, regulations, policies, and procedures, will be able to identify industry and AHJ requirements, so that rope rescue operations are carried out in accordance with all applicable requirements.

Enabling Learning Objectives

1. Identify industry standards applicable to rope rescue
   - FIRESCOPE ICS 162
   - National Fire Protection Association (NFPA)
     - 1006: Standard for Technical Rescue Personnel Professional Qualifications
     - 2500: Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services
   - American National Standards Institute (ANSI)
     - Z359 (fall protection)
     - Z490 (training)
     - 10.48 (safety practices)
   - Other standards as defined by state and federal law
2. Identify industry regulations applicable to rope rescue
   - Occupational Safety and Health Administration (Fed/OSHA)
     - 1910.140 (fall protection systems)
   - California Division of Occupational Safety and Health (Cal/OSHA)
     - 1670 (fall arrest, fall restraint, positioning devices)
     - 3270 (general access)
     - 3270.1 (use of rope access equipment)
   - Other regulations as defined by state and federal law
3. Describe how Cal/OSHA 3270.1 applies
   - During training
   - During a rescue event
4. Identify AHJ policies and procedures
   - Determined by AHJ

Discussion Questions

1. What rope rescue policies and procedures do you have in your AHJ?
2. What other stakeholders might have standards and regulations that impact rope rescue?
3. How do standards and regulations for rope rescue technician differ from those used for rope rescue operations?

Application

1. Determined by instructor

Instructor Notes

1. While training, all operations must adhere to Cal/OSHA rope access standard 3270.1.

CTS Guide Reference: None

Unit 3: PPE and Equipment

Topic 3-1: Selecting, Using, Inspecting, and Maintaining PPE and Rescue Equipment

Terminal Learning Objective

At the end of this topic a student, given maintenance logs and records, tools, and resources indicated by the manufacturer's guidelines, inspection procedures, equipment replacement protocol, and organizational standard operating procedure, will be able to select, use, inspect, and maintain PPE and rescue equipment, so that tools and equipment are appropriate to incident response needs and are used correctly in accordance with manufacturer specifications and all applicable policies and procedures; 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, construction, and operation of PPE
    - Helmet
    - Head lamp
    - Eye protection
    - Gloves
    - Boots
    - Long sleeve shirt and pants
    - Harness (full body)
    - Radio/comms
2. Describe equipment certification, testing, and rating standards
3. Describe functions and operations of rescue equipment
    - Rope and rigging
        - Hardware
            - Carabiners/connectors
            - Pulleys
            - Descent control devices
        - Software
            - Rope
            - Webbing
            - Drop bags
    - Harnesses
        - Attachment points
            - Dorsal
            - Chest
            - Pelvic
            - Positioning
        - Size/fit

- Self belay
    - Self-belaying device (e.g., ASAP®, quantum, etc.)
    - Shock absorbers (e.g., ASAP'Sorber, etc.)
- Anchoring
    - Anchor straps
    - Wire rope chokers or slings
- Specialty equipment
    - Mini mechanical advantage (haul) system
    - Bypass lanyards
    - Positioning devices
    - Ascenders
    - Artificial high directional
- Victim Rescue
    - Stabilization
    - Packaging
    - Removal

4. Describe how to select and use maintenance tools
5. Describe methods for cleaning tools and equipment
    - Cleaning
    - Sanitizing
    - Infectious disease control
6. Describe replacement protocols and procedures
7. Identify when and how to remove tools and equipment from service
    - Manufacturer guidelines
    - AHJ guidelines
    - Documentation and reporting requirements
8. Describe disposal methods
9. Describe AHJ standard operating procedures
10. Describe how to use record-keeping systems
11. Describe guidelines for cleaning, inspecting, and maintaining tools and equipment
    - Manufacturer guidelines
    - AHJ guidelines
    - NFPA 2500
    - Documentation and reporting requirements
12. Describe how to select, use, and maintain tools and equipment
    - Describe wear and damage indicators for rescue equipment
    - Evaluate operation readiness of equipment
    - Complete logs and records
    - Select and use maintenance tools

Discussion Questions

1. What are your AHJ's pre-use inspection procedures?
2. What does your AHJ use for proper equipment cleaning?
3. What is your AHJ's out-of-service protocol?

Application

1. Determined by instructor

Instructor Notes

1. ELO 3 – Use the course equipment list as the minimum requirements and then include any other tools and equipment common to your AHJ.
2. Show equipment with both normal and excessive wear and out-of-service equipment.

CTS Guide Reference: CTS 2-3

Topic 3-2: Demonstrating Knots, Bends, and Hitches

Terminal Learning Objective

At the end of this topic a student, given ropes, webbing, and a list of knots used by the AHJ, 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 rope and webbing types
   - Material type
   - Construction
   - Rating
   - Use/purpose
2. Identify rope terminology
   - Running
   - Working
   - Standing
3. Describe knot efficiency
   - Easy to tie
   - Easy to untie
   - Easy to identify
   - Maintains rope strength
4. Describe when and how to use knots, bends, and hitches
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
   - Friction hitches

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?

Application

1. Demonstrate an end-of-line loop
2. Demonstrate a midline loop
3. Demonstrate securing rope around desired objects
4. Demonstrate joining rope or webbing ends together
5. Demonstrate friction hitches

Instructor Notes

1. None

CTS Guide Reference: CTS 2-4

Unit 4: Incident Size Up, Planning, and Support

Topic 4-1: Sizing Up a Rope Rescue Incident

Terminal Learning Objective

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

Enabling Learning Objectives

1. Describe components of a rope rescue size up
   - Number of victims
   - Victim location
   - Victim condition
   - Anticipated hazards
   - Environmental conditions
   - Access and egress routes
2. Describe a risk/benefit assessment
   - Rescue vs. recovery
   - Survivability profile
   - Current and forecasted weather
   - Terrain/feature conditions
   - Time of day
3. Describe types of reference materials and their uses
   - Target hazard preplan
   - AHJ policies and procedures
   - Owner/operator resources
4. Describe availability and capability of resources
5. Describe elements of an incident action plan and related information
6. Describe relationship of size-up to the incident management system
7. Describe information gathering techniques and how that information is used in the size-up process
   - Pre-incident
   - En route
   - On scene
   - Evolving
8. Describe basic search criteria for rope rescue incidents
9. Read technical rescue reference materials
10. Gather information
11. Relay information
12. Use information-gathering sources

Discussion Questions

1. How does a technician's size up differ from an initial or operations-level size up?
2. What policies and procedures does your AHJ use to analyze risk vs. benefit?
3. What specialty resources to support rope rescue are available in your AHJ?
4. What are your AHJ's PACE planning policies and procedures?

Application

1. Size up a rope rescue incident

Instructor Notes

1. None

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

Topic 4-2: Recognizing Incident Hazards and Initiating Isolation Procedures

Terminal Learning Objective

At the end of this topic a student, given a rope rescue incident, scene control barriers, personal protective equipment (PPE), requisite equipment, and available specialized resources, 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, victims, and bystanders are minimized, and rescue time constraints are taken into account.

Enabling Learning Objectives

1. Describe types and nature of incident hazards
    - Structural integrity
    - Animal interference (snakes, birds, insects)
    - Physical hazards (falls, sharp objects, burns, exhaustion, dehydration, etc.)
    - Psychological hazards (fear, panic, etc.)
    - Falling objects
    - Environmental conditions (wind, heat, cold, etc.)
    - Victim behavior
2. Describe resource capabilities and limitations
3. Describe equipment types and their use
4. Describe hazard recognition and terminology
5. Describe isolation terminology, methods, equipment, and implementation
6. Describe operational requirement concerns
7. Describe common types of rescuer and victim risk
8. Describe risk/benefit analysis considerations
9. Describe methods for controlling access to the scene
10. Describe types of technical references
11. Identify resource capabilities and limitations
12. Identify incident hazards
13. Assess potential hazards to rescuers and bystanders
14. Place scene control barriers
15. Operate control and mitigation equipment

Discussion Questions

1. What type of risks and hazards are associated with rope rescue technician operations?
2. What tools and equipment does your AHJ use to control or mitigate these risks and hazards?
3. What references or guides do you use in your AHJ?

Application

1. Recognize incident hazards and initiate isolation procedures

Instructor Notes

1. None

CTS Guide Reference: CTS 1-3

Topic 4-3: Conducting a System Safety Check

Terminal Learning Objective

At the end of this topic a student, given a rope rescue system and rescue personnel, 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
    - Perform physical and visual system checks
        - Inspect rope rescue system components for damage
        - Assess rope rescue system configuration
        - Secure equipment components
        - Inspect all rigging
        - Ensure system can accommodate anticipated load(s)
    - Apply and use PPE
    - Perform function test before life-loading the system
    - Confirm commands and hand signals
    - Announce actions and confirm acknowledgment before life-loading the system
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
8. 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?

Application

1. Conduct a system safety check

Instructor Notes

1. ELOs 2 through 7 are covered extensively in Rope Rescue Awareness and Operations. This should be a brief refresh.

CTS Guide Reference: CTS 2-7

Unit 5: Anchor Systems

Topic 5-1: Constructing Tensioned Anchor Systems

Terminal Learning Objective

At the end of this topic a student, given life safety rope and other auxiliary rope rescue equipment, will be able to construct single-point and multiple-point anchor systems, so that the chosen anchor system fits the incident needs, distributes force, 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 anchor selection criteria
   - Rated
   - Non-rated
2. Describe weight distribution issues and methods
   - Load sharing
   - Focal/directional
3. Describe load types
   - Static
   - Dynamic
4. Describe formulas to calculate load distribution
   - System safety factors
   - Critical angles
   - Force multipliers
5. Describe how to construct anchor slings
6. Describe types and uses of tensioned anchor systems
   - Pretensioned back ties
   - Front ties
   - Focused floating
   - Deflected
   - Other (per AHJ)
7. Describe application of knots, bends, and hitches
8. Describe system safety check procedures
   - Visual assessment
   - Physical assessment
   - Ongoing evaluation
   - Integrity concerns
9. Construct 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 you pretension a back tie?

Application

1. Construct a pretensioned back tie anchor system
2. Construct a front tie anchor system
3. Construct a focused floating anchor system
4. Construct a deflected anchor system

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 3-13

Topic 5-2: Constructing, Operating, and Directing the Operation of a High-Directional

Terminal Learning Objective

At the end of this topic a student, given a scenario, a rope rescue system, and materials from within the AHJ, will be able to construct, operate, and direct the operation of a natural, structural, or artificial high-directional so that the system constructed accommodates the load; operational interference is factored and minimized; the system is efficient; a system safety check is completed; 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. Describe the purpose of a high directional
   - Raise, lower, or move load in a controlled manner
   - Ease an edge transition
   - Reduce friction
2. Describe types of and uses for high-directionals
   - Types
     - Natural
     - Structural
     - Artificial
   - Components
   - Uses
   - Functional Operations
   - Forces
3. Describe how to construct a high directional
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Rig system
     - Reduce excessive force to system components
   - Perform system safety check
   - Evaluate system components for compromised integrity
4. Describe how to operate a high directional
   - Assign and direct personnel
   - Use operational commands
   - Analyze system efficiency
5. Identify the type of high-directional needed for different scenarios
6. Construct, operate, and direct the operation of a high-directional

Discussion Questions

1. What tools and materials could be used to construct a high-directional?
2. What is resultant force?
3. What artificial high directionals does your AHJ have?

Application

1. Construct an artificial high directional
2. Operate an artificial high directional
3. Direct the operation of a high directional

Instructor Notes

1. Refer to manuals for artificial high directionals.

CTS Guide Reference: CTS 3-1

Unit 6: Rescue Skills

Topic 6-1: Descending a Fixed Rope

Terminal Learning Objective

At the end of this topic a student, 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, will be able to descend a fixed rope in high-angle environments so that the person descending is attached to the fixed rope in a manner that will not allow them 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 their 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. Describe task-specific selection criteria for PPE and life safety harnesses and systems for descending a fixed rope
2. Describe descent control devices
   - Design
   - Intended purpose
   - Operation
3. Describe safe rigging principles
4. Describe descending techniques
   - Lock-off
5. Describe hazards associated with descending operations
   - Falling
   - Hand injuries
   - Unstable terrain
   - Prolonged suspension
   - Inversion
6. Select and use rescuer harnesses, a system for descending a fixed rope, and PPE for common environments
7. Attach life safety harness to the rope rescue system
8. Attach descent control device to rope and life safety harness
9. Operate 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?

Application

1. Descend a fixed rope in a high-angle environment
2. Lock-off a descent control device (to facilitate hands-free operations)

3. Descend past a knot or obstruction

Instructor Notes

1. Use contingency anchors on all fixed ropes. (See CMC *Rope Rescue Technician Manual.*)

CTS Guide Reference: CTS 3-11

Topic 6-2: Ascending a Fixed Rope

Terminal Learning Objective

At the end of this topic a student, 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, 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 them 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 their harness; the system will not be stressed to the point of failure; the person ascending can convert their 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. Describe task-specific selection criteria for PPE and life safety harnesses and systems for ascending a fixed rope
2. Describe ascent control devices
   - Design
   - Intended purpose
   - Operation
3. Describe rigging principles
4. Describe ascending techniques
5. Describe common hazards associated with ascending operations
   - Falling
   - Hand injuries
   - Unstable terrain
   - Prolonged suspension
   - Inversion
   - Frustration (rope rage)
   - Fatigue
6. Describe how to convert ascending systems to descending systems
7. Select and use rescuer harnesses, a system for ascending a fixed rope, and PPE for common environments
8. Attach life safety harness to rope rescue system
9. Configure ascent control devices to form a system for ascending a fixed rope
10. Make connections to ascending system
11. Maneuver around existing environment and system-specific obstacles
12. Convert ascending system to a descending system while suspended from the fixed rope
13. Evaluate surroundings for potential hazards

Discussion Questions

1. What ascending system(s) do(es) your AHJ use?
2. When does your AHJ convert an ascending system to a descending system?

Application

1. Ascend a fixed rope in a high-angle environment
2. Convert an ascending system to a descending system while suspended from a fixed rope
3. Ascend past a knot or obstruction

Instructor Notes

1. Use contingency anchors on all fixed ropes. (See CMC *Rope Rescue Technician Manual.*)

CTS Guide Reference: CTS 3-10

Topic 6-3: Escaping from a Jammed or Malfunctioning Device

Terminal Learning Objective

At the end of this topic a student, 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, will be able 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 them 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. Describe task-specific selection criteria for PPE, equipment, and methods used to escape a jammed or malfunctioning descent control device
2. Describe escape systems
   - Design
   - Intended purpose
   - Operation
3. Describe safe rigging principles
4. Describe escape techniques for high-angle environments
   - Jammed
     - Unweight system
     - Disentangle jam
     - Reinstall rope
     - Reweight system
   - Malfunctioning
     - Unweight system
     - Remove malfunctioning device
     - Replace device or descend by alternate means
5. Describe converting ascending systems to descending systems
6. Describe common hazards posed by malfunctioning descent control devices
7. Select and use rescuer harness, a system for escaping a malfunctioning descent control device, and PPE for common environments
8. Attach life safety harness to rope rescue system
9. Attach descent control device to rope and life safety harness
10. Attach and operate escape system to remove rescuer from malfunctioning descent control device while maintaining patent attachment to fixed rope and belay
11. Use escape system to maneuver upward or downward from malfunctioning descent control device
12. Evaluate surroundings for potential hazards

Discussion Questions

1. What is a possible cause of a jammed device?

2. What equipment is needed for self-rescue in this scenario?

Application

1. Determined by instructor

Instructor Notes

1. Ascending and descending past an obstacle or knot (in Topics 6-1 and 6-2) uses the same skill set. Instructor may create an additional application if time permits

CTS Guide Reference: CTS 3-12

Topic 6-4: Climbing and Traversing Natural Features or Manmade Structures

Terminal Learning Objective

At the end of this topic a student, given equipment used by the AHJ and a task that reflects the anticipated rescue environment, 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 climbing, positioning, and fall prevention equipment used by AHJ
2. Describe climbing, positioning, and fall prevention systems
   - Application
   - Limitations
   - Fall factors
   - Risks
3. Describe system safety check protocol
4. Perform system safety checks
5. Climb vertical or near-vertical paths using surfaces provided by environment or AHJ climbing aids
6. Transition horizontally between structural elements and rescue system
7. Use positioning equipment to support rescuer's weight in a vertical or near-vertical environment permitting rescuer to perform a task

Discussion Questions

1. What type of scenarios or environments might require climbing and traversing?
2. What climbing aids does your AHJ use?
3. What are some methods to reduce impact force during protected climbing?
4. What equipment does your AHJ use to ensure 100% tie off?

Application

1. Climb a vertical or near-vertical path using a 100% tie off or vertical lifeline fall protection system
2. Transition horizontally between structural elements and rescue system using a 100% tie off fall protection system
3. Place and use work positioning equipment permitting the rescuer to perform a task

Instructor Notes

1. None

CTS Guide Reference: CTS 3-8

Unit 7: Rescue Operations

Topic 7-1: Interacting with a Person at Height in Crisis

Terminal Learning Objective

At the end of this topic a student, given an environment consistent with the AHJ's mission, AHJ policies and procedures, and a person in a crisis scenario, 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. Identify indicators of a person in emotional crisis
2. Identify typical triggers that can cause individuals to become agitated or anxious
3. Describe methods of interacting to prevent harm to rescuer and subject
   - Maintain a safe distance
   - Do not stand directly in front of, behind, or beneath subject
   - Communicate and interact in a manner that does not escalate incident
   - Use interview techniques that provide insight to subject's motives and state of mind
4. Describe best practices to deescalate incidents involving persons in crisis
5. Describe AHJ crisis-intervention resources
6. Use methods of approach that minimize the risk to the rescuer

Discussion Questions

1. What are your AHJ's protocols for managing people in emotional or psychological crisis?
2. What are some local or national support resources?

Application

1. Determined by instructor

Instructor Notes

1. Focus on minimizing risk to responders and AHJ resources and protocols.
2. Consider referencing:
   - 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://psychiatry.uw.edu/wp-content/uploads/2020/04/4.-SAMHSA-PFA-disaster-02.pdf

CTS Guide Reference: CTS 3-9

Topic 7-2: Removing a Victim from a Feature

Terminal Learning Objective

At the end of this topic a student, 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, 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 PPE selection and criteria
2. Describe techniques for handling stranded victims without inducing a fall
    - Communicate with victim
        - Establish rapport
        - Assess victim
            - Physical condition
            - Psychological condition
        - Give instructions
    - Secure victim
        - To a temporary fixed point
            - Quick action to secure victim from falling while other actions occur
        - To rope rescue system
            - For rescue operation
    - Package victim
        - Commercial victim harness
        - Litter
        - Other (per AHJ)
3. Describe how to access a victim
    - Bottom up
    - Top down
4. Describe techniques and systems for safe transfer of stranded victims from a natural or manmade feature
    - Lower to victim, lower to surface/structure
        - Team-based rescue
        - Rescuer-based rescue
    - Lower to victim, raise to surface/structure
        - Team-based rescue
5. Describe system safety check protocol
    - Rescuer and victim both connected to a redundant system
6. Reduce hazards for rescuers and victims
7. Determine condition of the stranded victim
8. Determine specialized equipment needs for victim movement

9. Select and construct systems for rapid removal of stranded victims from natural or manmade features
10. Manage operation of selected system

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?

Application

1. Rescue a victim stranded on or clinging to a natural or manmade feature in a high-angle environment

Instructor Notes

1. While training, all operations must adhere to Cal/OSHA rope access standard 3270.1.

CTS Guide Reference: CTS 3-2

Topic 7-3: Removing a Victim Suspended from Rope or Webbing

Terminal Learning Objective

At the end of this topic a student, given a victim suspended by a harness attached to anchored rope or webbing, a rope rescue system, and a means of removing the victim to the ground or other safe area, and specialized equipment necessary for the environment, 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, while also suspended, 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, undesirable victim movement during the transfer is minimized, 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 PPE selection and criteria
2. Describe how to access a victim
   - Bottom up
   - Top down
3. Describe various techniques for handling suspended victims
   - Communicate with victim
     - Establish rapport
     - Assess victim
       - Physical condition
       - Psychological condition
     - Give instructions
   - Evaluate condition of victim's suspension materials
   - Secure victim (if needed to reinforce their equipment)
   - Package victim (if needed)
     - Commercial victim harness
     - Litter
     - Other (per AHJ)
   - Transfer victim from static line to lowering or raising system
4. Describe transfer systems
   - Design characteristics
   - Intended purpose
   - Rigging principles
   - Use
5. Describe techniques for safe transfer to rope rescue system
   - Lower to victim, lower to surface/structure
     - Team-based rescue
     - Rescuer-based rescue
   - Lower to victim, raise to surface/structure

    - Team-based rescue
  - Ascend to victim, lower to surface/structure
    - Team-based rescue
    - Rescuer-based rescue
6. Describe principles, causes, and effects of suspension-induced injuries
7. Describe methods to minimize common environmental hazards
8. Describe system safety check protocol
   - Rescuer and victim both connected to a redundant system
9. Choose victim transfer systems
10. Select and use PPE appropriate to conditions
11. Reduce hazards for rescuers and victims
12. Determine condition of suspended victim
13. Determine specialized equipment needs for victim movement
14. Select and construct systems for rapid removal of victims from lanyards, rope, or webbing
15. Manage operation of the selected system
16. Transfer victim from a static line to lowering or raising system

Discussion Questions

1. What is suspension trauma?
2. What is your EMS' suspension trauma protocol?
3. What are the differences between a team-based and a rescuer-based pickoff?
4. Why would you choose one or the other?
5. How do you transfer a victim to the rescue system without shock-loading the system?

Application

1. Transfer a victim suspended from rope or webbing in a high-angle environment from a static line to a lowering or raising system (rescuer suspended)

Instructor Notes

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

CTS Guide Reference: CTS 3-3, CTS 3-4

Topic 7-4: Rescuing a Victim Using a Litter

Terminal Learning Objective

At the end of this topic a student, 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, 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 task-specific selection criteria for life safety harnesses
2. Describe PPE selection criteria
3. Describe litters
   - Design
   - Intended purpose
4. Describe high-angle litter attachment principles
   - Attach litter to system
     - Horizontal configuration
     - Vertical configuration
     - Adjustable configuration
   - Attach rescuer(s) to system
     - Two points of attachment
     - Ability to travel above and below litter
5. Describe how to package a victim in a litter
   - Victim on a surface
   - Victim suspended above a surface
6. Describe techniques and practices for high-angle environments
   - Lower to victim, lower to surface/structure
   - Lower to victim, raise to surface/structure
   - Ascend to victim, lower to surface/structure
7. Describe common hazards imposed by environment
8. Describe system safety check protocol
9. Select and use rescuer harness and PPE for common environments
10. Attach life safety harness to rope rescue system
11. Maneuver litter past obstacles or natural structural features
12. Manage litter while attached to rope rescue system
13. Demonstrate tender's vertical positioning independent of litter during transit
14. Evaluate surroundings for potential hazards

Discussion Questions

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

Application

1. Tend a litter, including positioning above and below the litter, in a high-angle environment

Instructor Notes

1. None

CTS Guide Reference: CTS 3-5

Topic 7-5: Moving a Suspended Load Along a Horizontal and Vertical Path

Terminal Learning Objective

At the end of this topic a student, given rescue personnel, life safety rope, rope rescue equipment, and suitable anchors capable of supporting the load, will be able to construct, operate, and direct the operation of a rope rescue system intended to move a suspended rescue load along a horizontal and vertical 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 controlled and efficient; and load is held in place when needed or moved with minimal effort over the required distance; operating methods do not stress the system to the point of failure; and potential problems are identified, communicated, and managed.

Enabling Learning Objectives

1. Describe the purpose of a high-line system
   - Move a suspended load along a horizontal path
2. Describe types of high-line systems
   - Horizontal
   - Offsets
   - Cross hauls
   - Deflections
   - Track lines
3. Describe various systems
   - Application
   - Use
   - Forces
   - Capabilities
   - Limitations
   - Capacity ratings
4. Describe how to evaluate site for hazards, interference, and obstacle negotiation
5. Describe how to construct a high-line system
   - Select and apply knots, bends, and hitches
   - Evaluate expected loads
   - Rig system
     - Methods for limiting excessive force to system components
   - Perform system safety check
6. Describe common problems and ways to minimize these problems during construction
7. Describe ways to increase the efficiency of load movement
8. Describe how to operate a high-line system
   - Horizonal position
   - Vertical position
9. Describe how to direct the operation of a high-line system

- Assign and direct personnel
- Use common and critical operational commands
- Analyze system efficiency
- Identify obstacles or voids to be negotiated
- Manage load movement
- Evaluate for potential problems

10. Construct, operate, and direct the operation of a system to move a suspended load horizontally and vertically

Discussion Questions

1. What are the different systems used for horizontal movement?
2. What system does your AHJ use?
3. What are some communication challenges in operating horizontal rope rescue systems?
4. How can forces change during the operation of a horizontal rope rescue system?

Application

1. Construct a high-line capable of horizonal and vertical movement
2. Move a suspended rescue load horizontally and vertically on a high-line system
3. Direct the operation of a high-line 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 3-6, CTS 3-7

Drill Ground Activities and Evolutions

The following components must be covered in the drill ground activities and/or evolutions but can be combined and completed in the order that best suites the props available and AHJ policies and procedures.

Students will conduct skills with an asterisk (*) individually. All other skills may be carried out as part of a rescue team.

Drill ground activities must incorporate the following learning objectives:

- Size up a rope rescue incident
- Recognize incident hazards and initiate isolation procedures
- Conduct a system safety check

Drill ground activities must address the following operations:

- Demonstrate an end-of-line loop *
- Demonstrate a midline loop *
- Demonstrate securing rope around desired objects *
- Demonstrate joining rope or webbing ends together *
- Demonstrate friction hitches *
- Construct a pretensioned back tie anchor system
- Construct a front tie anchor system
- Construct a focused floating anchor system
- Construct a deflected anchor system
- Construct an artificial high directional
- Operate an artificial high directional
- Direct the operation of a high directional
- Descend a fixed rope in a high-angle environment *
- Lock-off a descent control device (to facilitate hands-free operations) *
- Descend past a knot or obstruction *
- Ascend a fixed rope in a high-angle environment *
- Convert an ascending system to a descending system while suspended from the fixed rope *
- Ascend past a knot or obstruction *
- Climb a vertical or near-vertical path using a 100% tie off or vertical lifeline fall protection system *
- Transition horizontally between structural elements and rescue system using a 100% tie off fall protection system *
- Place and use work positioning equipment permitting the rescuer to perform a task *

Drill ground activities must incorporate the following rescue scenarios:

- Rescue a victim stranded on or clinging to a natural or manmade feature in a high-angle environment *
- Transfer a victim suspended from rope or webbing in a high-angle environment from a static line to a lowering or raising system (rescuer suspended) *
- Tend a litter, including positioning above and below the litter, in a high-angle environment *
- Construct a high-line capable of horizonal and vertical movement
- Move a suspended rescue load horizontally and vertically on a high-line system
- Direct the operation of a high-line system

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 deliver the course.

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

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

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

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

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

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

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

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

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

Rope Rescue Awareness and Operations (2021) Training Record

Name: _____

SFT ID Number: _____

Students will conduct skills with an asterisk (*) individually. All other skills may be carried out as part of a rescue team.

Skill		Course Plan Topic	Evaluator Initials
1.	Don and doff PPE *	3-1	
2.	Demonstrate an end-of-line loop *	3-3	
3.	Demonstrate a midline loop *	3-3	
4.	Demonstrate securing rope around desired objects *	3-3	
5.	Demonstrate joining rope or webbing ends together *	3-3	
6.	Demonstrate friction hitches *	3-3	
7.	Size up a rope rescue incident	4-1	
8.	Recognize the need for technical rescue resources	4-2	
9.	Support an operations- or technician-level incident	4-3	
10.	Recognize incident hazards and initiate isolation procedures	4-4	
11.	Conduct a system safety check	4-5	
12.	Construct a single loop single-point anchor system *	5-1	
13.	Construct a multi loop single-point anchor system *	5-1	
14.	Construct a basket/three-bight single-point anchor system *	5-1	
15.	Construct a girth hitch single-point anchor system *	5-1	
16.	Construct a double-locking girth hitch single-point anchor system *	5-1	
17.	Construct a wrap three, pull two single-point anchor system *	5-1	
18.	Construct a tensionless/no knot single-point anchor system *	5-1	
19.	Construct a picket system *	5-1	
20.	Construct a two-point anchor system *	5-1	

21.	Construct a three-point anchor system *	5-1	
22.	Construct a tie-back anchor system *	5-1	
23.	Place edge protection	6-1	
24.	Operate fall protection equipment *	7-1	
25.	Construct a fixed rope system	7-2	
26.	Construct and operate a dedicated belay system with a dedicated main during lowering or raising operations	7-3	
27.	Belay a falling load in a high-angle environment *	7-4	
28.	Construct and operate a TTRS during lowering or raising operations	7-5	
29.	Construct a lowering system in a low-angle environment	8-1	
30.	Operate a lowering system in a low-angle environment	8-1	
31.	Direct the operation of a lowering system in a low-angle environment	8-1	
32.	Construct a lowering system in a high-angle environment	8-1	
33.	Operate a lowering system in a high-angle environment	8-1	
34.	Direct the operation of a lowering system in a high-angle environment	8-1	
35.	Perform a knot pass during a lowering operation	8-1	
36.	Construct a 3:1 simple rope mechanical advantage system	8-2	
37.	Operate a 3:1 simple rope mechanical advantage system	8-2	
38.	Direct the operation of a 3:1 simple rope mechanical advantage system	8-2	
39.	Construct a 5:1 simple rope mechanical advantage system	8-2	
40.	Operate a 5:1 simple rope mechanical advantage system	8-2	
41.	Direct the operation of a 5:1 simple rope mechanical advantage system	8-2	
42.	Perform a knot pass during a raising operation	8-2	
43.	Construct a compound rope mechanical advantage system	8-3	
44.	Operate a compound rope mechanical advantage system	8-3	
45.	Direct the operation of compound rope mechanical advantage system	8-3	
46.	Construct a complex rope mechanical advantage system	8-4	

47.	Operate a complex rope mechanical advantage system	8-4	
48.	Direct the operation of complex rope mechanical advantage system	8-4	
49.	Construct a moving ladder system	8-5	
50.	Operate a moving ladder system	8-5	
51.	Construct a ladder slide system	8-5	
52.	Operate a ladder slide system	8-5	
53.	Construct a ladder A-frame system	8-5	
54.	Operate a ladder A-frame system	8-5	
55.	Negotiate an edge while attached to a rope rescue system *	9-1	
56.	Assess and stabilize a victim	9-2	
57.	Package an ambulatory victim in a low-angle environment	9-2	
58.	Perform an ambulatory victim rescue in a low-angle environment	9-2	
59.	Raise and lower a litter in a low-angle environment	9-3	
60.	Direct a raising and lowering operation in a low-angle environment	9-3	
61.	Package a victim in a litter in a low-angle environment *	9-4	
62.	Perform a litter rescue as part of a three-person litter tender configuration in a low-angle environment	9-4	
63.	Raise and lower a litter in a high-angle environment	9-5	
64.	Direct a raising and lowering operation in a high-angle environment	9-5	
65.	Descend a fixed rope in a high-angle environment *	9-6	
66.	Lock-off a descent control device (to facilitate hands-free operations) *	9-6	
67.	Terminate a rope rescue incident	10-1	

A candidate has successfully completed the skill when they perform it to the corresponding Terminal Learning Objective standard found in State Fire Training's Rope Rescue Awareness and Operations course.

SFT Course ID: _____

Course Delivery Date: _____

Instructor of Record: _____

Instructor SFT ID Number: _____

Rope Rescue Technician (2021)
Training Record

Name: _____

SFT ID Number: _____

Students will conduct skills with an asterisk (*) individually. All other skills may be carried out as part of a rescue team.

Skill		Course Plan Topic	Evaluator Initials
1.	Demonstrate an end-of-line loop *	3-2	
2.	Demonstrate a midline loop *	3-2	
3.	Demonstrate securing rope around desired objects *	3-2	
4.	Demonstrate joining rope or webbing ends together *	3-2	
5.	Demonstrate friction hitches *	3-2	
6.	Size up a rope rescue incident	4-1	
7.	Recognize incident hazards and initiate isolation procedures	4-2	
8.	Conduct a system safety check	4-3	
9.	Construct a pretensioned back tie anchor system	5-1	
10.	Construct a front tie anchor system	5-1	
11.	Construct a focused floating anchor system	5-1	
12.	Construct a deflected anchor system	5-1	
13.	Construct an artificial high directional	5-2	
14.	Operate an artificial high directional	5-2	
15.	Direct the operation of a high directional	5-2	
16.	Descend a fixed rope in a high-angle environment *	6-1	
17.	Lock-off a descent control device (to facilitate hands-free operations) *	6-1	
18.	Descend past a knot or obstruction *	6-1	
19.	Ascend a fixed rope in a high-angle environment *	6-2	
20.	Convert an ascending system to a descending system while suspended from the fixed rope *	6-2	

21.	Ascend past a knot or obstruction *	6-2	
22.	Climb a vertical or near-vertical path using a 100% tie off or vertical lifeline fall protection system *	6-4	
23.	Transition horizontally between structural elements and rescue system using a 100% tie off fall protection system *	6-4	
24.	Place and use work positioning equipment permitting the rescuer to perform a task *	6-4	
25.	Rescue a victim stranded on or clinging to a natural or manmade feature in a high-angle environment *	7-2	
26.	Transfer a victim suspended from rope or webbing in a high-angle environment from a static line to a lowering or raising system (rescuer suspended) *	7-3	
27.	Tend a litter, including positioning above and below the litter, in a high-angle environment *	7-4	
28.	Construct a high-line capable of horizonal and vertical movement	7-5	
29.	Move a suspended rescue load horizontally and vertically on a high-line system	7-5	
30.	Direct the operation of a high-line system	7-5	

A candidate has successfully completed the skill when they perform it to the corresponding Terminal Learning Objective standard found in State Fire Training's Rope Rescue Technician course.

SFT Course ID: _____

Course Delivery Date: _____

Instructor of Record: _____

Instructor SFT ID Number: _____

Rope Rescue Awareness and Operations

(NFPA 1006: Rope Rescue, Awareness/Operations/Technician)

Instructor Task Book (2021)

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

Overview

Authority

This instructor task book includes the training standards set forth in:

- NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)

Published: Month Year

Published by: State Fire Training, PO Box 944246, Sacramento, CA 94244-2460

Cover photo courtesy of Donald Chen, Donald Chen, San Diego Fire-Rescue Department.

Purpose

The State Fire Training instructor task book is a performance-based document. It lists the minimum requirements a candidate must meet to teach a specific State Fire Training course or course series.

Assumptions

Except for 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 job performance requirement (JPR) shall be evaluated after the candidate initiates the task book.

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 if the candidate meets the initiation requirements for 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 three years of its initiation date. Otherwise, a candidate must initiate a new task book using the curriculum's current published version.

Roles and Responsibilities

Candidate

The candidate is the individual pursuing instructor registration.

Initiation

The candidate shall:

1. Complete the Initiation Requirements section.
   - Please print.
2. Complete a block on the Signature Verification page with a handwritten signature.

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 the Completion Requirements section.
3. Sign and date the Candidate verification section on the Review and Approval page with a handwritten signature.
4. Obtain their fire chief's handwritten (not stamped) signature on the Fire Chief verification section on the Review and Approval page.
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).

A qualified evaluator is a Registered Rope Rescue Awareness and Operations Instructor designated by the candidate's fire chief (or authorized designee). For instructor task books that do not require fire chief initiation, academy instructors serve as or designate evaluators.

All evaluators shall:

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

Fire Chief

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

Initiation

The fire chief shall:

1. Review and understand the candidate's instructor task book requirements and responsibilities.
2. Complete a block on the Signature Verification page with a handwritten signature.
3. Designate qualified evaluators.

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:

1. A copy of the completed task book (candidate may retain the original)
2. All supporting documentation
3. Payment

State Fire Training
Attn: Instructor Registration
PO Box 944246
Sacramento, CA 94244-2460

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 career 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 instructor task book is one step in the instructor registration process. Please refer to the *State Fire Training Procedures Manual* for the complete list of qualifications required to teach Rope Rescue Awareness and Operations (2021).

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

The candidate meets one of the following prerequisites.

1. OSFM Instructor 1, Training Instructor I, or Fire Instructor I certification
2. OSFM Registered Instructor

Include documentation to verify prerequisite requirements when you submit your instructor task book unless verification is already documented in your SFT User Portal.

Education

The candidate has completed the following courses.

1. Rope Rescue Awareness and Operations (2021) **or** Rope Rescue Awareness/Operations (2017)

Include documentation to verify education requirements when you submit your instructor 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 instructor 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

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 shaded in gray.

All JPRs must be completed within a California fire agency or State Fire Training Accredited Regional Training Programs (ARTP).

Each JPR shall be evaluated after the candidate initiates the task book.

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.
- In the tables, E1 represents the candidate's first evaluation and E2 represents their second evaluation.

Examples of correct and incorrect evaluation:

Correct: Task completed during two separate courses and evaluated by two separate individuals.

1. Assemble a comprehensive burn plan ("burn book") that contains all documentation necessary to conduct a live fire training evolution in accordance with NFPA standards and the policies and procedures of State Fire Training (SFT) and the authority having jurisdiction (AHJ).	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe purpose of a live fire burn plan	AAA123	2/8/18	JAS	BBB123	5/15/18	CWJ
b. Identify components of a live fire burn plan ("burn book")	AAA123	2/8/18	JAS	BBB123	5/15/18	CWJ
c. Identify records-retention requirements for burn plans	AAA123	2/8/18	JAS	BBB123	5/15/18	CWJ

Incorrect: Task completed twice during one course but evaluated by two separate individuals.

1. Assemble a comprehensive burn plan ("burn book") that contains all documentation necessary to conduct a live fire training evolution in accordance with NFPA standards and the policies and procedures of State Fire Training (SFT) and the authority having jurisdiction (AHJ).	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe purpose of a live fire burn plan	AAA123	2/8/18	JAS	AAA123	2/8/18	CWJ
b. Identify components of a live fire burn plan ("burn book")	AAA123	2/8/18	JAS	AAA123	2/8/18	CWJ
c. Identify records-retention requirements for burn plans	AAA123	2/8/18	JAS	AAA123	2/8/18	CWJ

Incorrect: Task completed during two separate courses but evaluated by the same individual.

1. Assemble a comprehensive burn plan ("burn book") that contains all documentation necessary to conduct a live fire training evolution in accordance with NFPA standards and the policies and procedures of State Fire Training (SFT) and the authority having jurisdiction (AHJ).	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe purpose of a live fire burn plan	AAA123	2/8/18	JAS	BBB123	5/15/18	JAS
b. Identify components of a live fire burn plan ("burn book")	AAA123	2/8/18	JAS	BBB123	5/15/18	JAS
c. Identify records-retention requirements for burn plans	AAA123	2/8/18	JAS	BBB123	5/15/18	JAS

Course Administration and Application

1. Course administration and orientation	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Complete and submit course scheduling request						
b. Order student textbooks (if applicable)						
c. Identify facility requirements						
d. Confirm facilities set up and safety						
e. Identify classroom requirements						
f. Confirm equipment (based on number of students)						
g. Complete instructor assignments						
h. Organize skill stations (location, equipment, timing, complexity)						
i. Confirm prop set up and safety						
j. Complete class rosters						
k. Review course syllabus						

Introduction to Rope Rescue

2. Introduction to Rope Rescue (Topic 2-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Define “low-angle” rope rescue						
b. Define “high-angle” rope rescue						
c. Identify terrain and features common to the AHJ where rope rescue might be necessary						
d. Identify technical rescue disciplines that incorporate or utilize rope rescue skills						
e. Identify factors that determine incident complexity						
3. Standards and Regulations (Topic 2-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Identify industry standards applicable to rope rescue						
b. Identify industry regulations applicable to rope rescue						
c. Describe how Cal/OSHA 3270.1 applies						
d. Identify AHJ policies and procedures						

PPE and Equipment

4. Select, Use, Inspect, and Maintain PPE (Topic 3-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe functions, construction, and operation of PPE						

b. Identify protections provided by PPE during rope rescue incidents						
c. Identify limitations of PPE during rope rescue incidents						
d. Identify when and how to don and doff PPE						
e. Describe how to use AHJ record-keeping systems						
f. Describe maintenance requirements and procedures						
g. Describe how to use assembly and disassembly tools						
h. Describe manufacturer and AHJ recommendations						
i. Describe pre-use inspection procedures and determine operational readiness						
j. Don and doff PPE						
k. Inspect and maintain PPE						
5. Select, Use, Inspect, and Maintain Rescue Equipment (Topic 3-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe functions and operations of rescue equipment						
b. Describe how to select and use maintenance tools						
c. Describe methods for cleaning tools and equipment						
d. Describe replacement protocols and procedures						
e. Identify when and how to remove tools and equipment from service						
f. Describe disposal methods						
g. Describe AHJ standard operating procedures						
h. Describe how to use record-keeping systems						

i. Identify guidelines for cleaning, inspecting, and maintaining tools and equipment						
j. Select, use, and maintain tools and equipment						
6. Demonstrate Knots, Bends, and Hitches (Topic 3-3)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe rope and webbing types						
b. Identify rope terminology						
c. Describe knot efficiency						
d. Describe when and how to use knots, bends, and hitches						
e. Tie representative knots, bends, and hitches						

Incident Size Up, Planning, and Support

7. Size Up a Rope Rescue Incident (Topic 4-1)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe components of a rope rescue size up						
b. Describe a risk/benefit assessment						
c. Describe types of reference materials and their uses						
d. Describe availability and capability of resources						
e. Describe elements of an incident action plan and related information						
f. Describe relationship of size-up to the incident management system						

g. Describe information gathering techniques and how that information is used in the size-up process						
h. Describe basic search criteria for rope rescue incidents						
i. Read technical rescue reference materials						
j. Gather information						
k. Relay information						
l. Use information-gathering sources						
8. Recognize the Need for Technical Rescue Resources (Topic 4-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe resource types and deployment methods						
b. Describe operational protocols						
c. Describe how to complete specific planning forms						
d. Describe types of incidents common to the AHJ						
e. Describe hazards						
f. Describe incident support operations and resources						
g. Describe safety measures						
h. Identify communications requirements, methods, and means						
i. Apply operational protocols						
j. Select specific planning forms based on types of incidents						
k. Identify and evaluate various types of hazards within the AHJ						
l. Match resources to operational needs						

m. Request support and resources						
n. Determine required safety measures						
9. Support an Operations- or Technician-level Incident (Topic 4-3)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe AHJ operational protocols						
b. Describe hazard recognition						
c. Describe incident management						
d. Describe PPE selection						
e. Describe resource selection and use						
f. Describe scene support requirements						
g. Apply operational protocols						
h. Function within an incident management system						
i. Follow and implement an incident action plan						
j. Report task progress status to a supervisor or incident command						
10. Recognize Incident Hazards and Initiate Isolation Procedures (Topic 4-4)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe types and natures of incident hazards						
b. Describe resource capabilities and limitations						
c. Describe equipment types and their use						
d. Describe hazard recognition and terminology						

e. Describe isolation terminology, methods, equipment, and implementation						
f. Identify operational requirement concerns						
g. Describe common types of rescuer and victim risk						
h. Describe risk/benefit analysis considerations						
i. Describe methods for controlling access to the scene						
j. Describe types of technical references						
k. Identify resource capabilities and limitations						
l. Identify incident hazards						
m. Assess potential hazards to rescuers and bystanders						
n. Place scene control barriers						
o. Operate control and mitigation equipment						
11. Conduct a System Safety Check (Topic 4-5)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe system safety check procedures						
b. Describe equipment replacement criteria						
c. Perform a system safety check						

Anchor Systems

12. Construct Anchor Systems (Topic 5-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe anchor selection criteria						
b. Describe types of anchor slings						
c. Describe selection and inspection criteria for hardware and software						
d. Describe weight distribution issues and methods						
e. Identify formulas to calculate safety factors for load distribution						
f. Describe load types						
g. Describe how to construct a single loop anchor sling						
h. Describe how to construct a multi-loop anchor sling						
i. Describe how to construct a basket/three-bight anchor sling						
j. Describe how to construct a girth hitch anchor sling						
k. Describe how to construct a double-locking girth hitch anchor sling						
l. Describe how to construct a wrap three, pull two anchor sling						
m. Describe how to construct a tensionless/no knot anchor sling						
n. Describe how to use anchor slings to construct a single-point anchor system						
o. Describe how to use anchor slings to construct a two-point anchor system						

p. Describe how to use anchor slings to construct a three-point anchor system						
q. Describe how to use anchor slings to construct a tie-back anchor system						
r. Describe rigging systems						
s. Describe application of knots, bends, and hitches						
t. Describe system safety check procedures						
u. Select rope and equipment						
v. Tie knots, bends, and hitches as required by the AHJ						
w. Rig systems						
x. Evaluate anchor points for required strength, location, and surface contour						
y. Perform a system safety check						

Edge Protection

13. Place Edge Protection (Topic 6-1)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe materials and devices that can be used to protect ropes or webbing from sharp or abrasive edges						
b. Describe fall protection measures						
c. Identify dangers associated with sharp or abrasive edges						
d. Describe methods for negotiating sharp or abrasive edges						
e. Select protective devices for rope and webbing						

f. Protect personnel from falls while working near edges						
g. Secure edge protection						
h. Secure ropes or webbing in a specific location						

Fall Protection

14. Use Fall Protection Systems (Topic 7-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe fall factor and its effects on anchors, equipment, and people						
b. Define fall arrest						
c. Define fall arrest attachments						
d. Define fall restraint						
e. Define fall restraint attachments						
f. Define travel restraint						
g. Describe fall protection devices and their applications						
h. Operate fall protection						
15. Construct a Fixed Rope System (Topic 7-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe the purpose of a fixed rope system						
b. Describe how to construct a fixed rope system						

16. Construct and Operate a Belay System (Topic 7-3)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe principles of belay systems						
b. Describe belay devices						
c. Describe application of knots, bends, and hitches						
d. Describe rigging principles						
e. Describe proper operation of belay systems in conjunction with lowering and raising operations						
f. Describe operational commands						
g. Describe system safety check procedures						
h. Select a system						
i. Tie knots, bends, and hitches						
j. Perform rigging						
k. Attach to anchor system and load						
l. Don and use task-specific PPE						
m. Perform a system safety check						
n. Operate a belay system						
o. Assess system effectiveness						
p. Properly attach a rope to a belay device						
q. Communicate belay system status						

17. Belay a Falling Load (Topic 7-4)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe effective emergency operation of belay devices to arrest falls						
b. Describe operating procedures						
c. Operate a belay system as designed						
d. Tie approved knots, bends, and hitches						
e. Use task-specific PPE						
f. Recognize and arrest a falling load						
g. Communicate belay system actuation						
18. Construct and Operate a Twin-tension Rope System (Topic 7-5)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe TTRS principles						
b. Describe TTRS devices						
c. Describe application of knots, bends, and hitches						
d. Describe rigging principles						
e. Describe proper operation of TTRS during lowering and raising operations						
f. Describe operational commands						
g. Describe system safety check procedures						
h. Select a system						
i. Tie knots, bends, and hitches						

j. Perform rigging						
k. Attach to anchor system and load						
l. Don and use task-specific PPE						
m. Perform a system safety check						
n. Operate a TTRS						
o. Assess system effectiveness						

Rescue Systems

19. Construct, Operate, and Direct the Operation of a Lowering System (Topic 8-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe the purpose of a lowering system						
b. Describe various descent control devices						
c. Describe capabilities and limitations of various lowering systems						
d. Describe how to construct a lowering system						
e. Identify safety concerns						
f. Describe how to operate lowering systems						
g. Describe how to direct a lowering operation						
h. Construct, operate, and directing the operation of a lowering system						

20. Construct, Operate, and Direct the Operation of a Simple Rope Mechanical Advantage System (Topic 8-2)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe the purpose of a simple rope mechanical advantage system						
b. Describe principles of mechanical advantage						
c. Describe a 1:1 simple rope mechanical advantage system						
d. Describe a 2:1 simple rope mechanical advantage system						
e. Describe a 3:1 simple rope mechanical advantage system						
f. Describe a 4:1 simple rope mechanical advantage system						
g. Describe a 5:1 simple rope mechanical advantage system						
h. Describe various simple rope mechanical advantage systems						
i. Describe how to construct simple rope mechanical advantage systems						
j. Identify safety concerns						
k. Describe how to operate simple rope mechanical advantage systems						
l. Describe how to direct the operation of a simple rope mechanical advantage system						
m. Construct, operate, and direct the operation of a simple rope mechanical advantage system						
21. Construct, Operate, and Direct the Operation of a Compound Rope Mechanical Advantage System (Topic 8-3)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe the purpose of a compound rope mechanical advantage system						

b. Describe types of compound rope mechanical advantage systems						
c. Describe various compound rope mechanical advantage systems						
d. Describe how to construct compound rope mechanical advantage systems						
e. Identify safety concerns						
f. Describe how to operate compound rope mechanical advantage systems						
g. Describe how to direct the operation of a compound rope mechanical advantage system						
h. Construct, operate, and direct the operation of a compound rope mechanical advantage system						
22. Construct, Operate, and Direct the Operation of a Complex Rope Mechanical Advantage System (Topic 8-4)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe the purpose of a complex rope mechanical advantage system						
b. Describe types of complex rope mechanical advantage systems						
c. Describe various complex rope mechanical advantage systems						
d. Describe how to construct complex rope mechanical advantage systems						
e. Identify safety concerns						
f. Describe how to operate compound rope mechanical advantage systems						
g. Describe how to direct the operation of a compound rope mechanical advantage system						

h. Construct, operate, and direct the operation of a complex rope mechanical advantage system						
23. Construct, Operate, and Direct the Operation of Ladder Rescue Systems (Topic 8-5)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe the purpose of a ladder system						
b. Identify ladder systems						
c. Describe ladder systems						
d. Describe how to construct a moving ladder system						
e. Describe how to construct a ladder slide system						
f. Describe how to construct a ladder A-frame system						
g. Describe how to operate ladder systems						
h. Identify safety considerations						
i. Describe how to direct the operation of a ladder system						
j. Explain safety considerations for ladder rescue systems						
k. Construct, operate, and direct the operation of ladder rescue systems						

Rescue Operations

24. Negotiate an Edge (Topic 9-1)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe common hazards imposed by projections and edges						

b. Describe techniques and practices for negotiating projections and edges along a travel path while attached to a functioning rope-based lowering and raising mechanical advantage system						
c. Select and use harness and PPE for common environments						
d. Attach the rescuer to rope rescue system						
e. Maneuver across projections and edges along travel path						
f. Evaluate surroundings for potential hazards						
25. Prepare a Victim for Transfer (Topic 9-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe how to establish victim rapport						
b. Describe victim access methods						
c. Describe victim assessment considerations						
d. Describe victim stabilization considerations						
e. Describe packaging methods						
f. Describe victim rescue methods						
g. Describe how to transfer a victim to EMS						
h. Assess and stabilize a victim						
i. Use victim immobilization, packaging, and treatment methods						
j. Provide victim transfer reports, both verbally and in written format						

26. Lower and Raise a Litter in a Low-Angle Environment (Topic 9-3)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe the purpose of a litter lower/raise operation						
b. Identify safety concerns in a low-angle environment						
c. Describe litter-tender functions and limitations in the low-angle environment						
d. Describe how to lower and raise a litter in a low-angle environment						
e. Describe how to direct a litter lowering and raising operation						
f. Lower and raise or direct a litter-lowering or litter-raising operation						
27. Operate as a Litter Tender (Topic 9-4)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe task-specific selection criteria for life safety harnesses						
b. Describe PPE selection criteria						
c. Describe litters						
d. Describe low-angle litter and rescuer attachment principles						
e. Describe rescue techniques and practices						
f. Describe common hazards imposed by terrain						
g. Describe considerations for litter tender teams						
h. Select and use rescuer harnesses and PPE for common environments						
i. Attach life safety harness to rope rescue system						

j. Maneuver across terrain						
k. Manage litter while supported by rope rescue system						
l. Evaluate surroundings for potential hazards						
28. Lower and Raise a Litter in a High-Angle Environment (Topic 9-5)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe the purpose of a litter lower/raise operation						
b. Identify safety concerns in a high-angle environment						
c. Describe litter positioning options (vertical and horizontal)						
d. Describe how to lower and raise a litter in a high-angle environment						
e. Lower and raise a litter or direct a litter-lowering or litter-raising operation in a high-angle environment						
f. Describe how to direct a litter lowering and raising operation in a high-angle environment						
29. Descend a Fixed Rope (Topic 9-6)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe task-specific selection criteria for PPE and life safety harnesses and systems for descending a fixed rope						
b. Describe descent control devices						
c. Describe safe rigging principles						
d. Describe descending techniques						
e. Describe hazards associated with descending operations						
f. Select and use rescuer harnesses, a system for descending a fixed rope, and PPE for common environments						

g. Attach life safety harness to rope rescue system						
h. Attach descent control device to rope and life safety harness						
i. Operate descent control device						
j. Maneuver around existing environment and system-specific obstacles						
k. Evaluate surroundings for potential hazards						

Termination

30. Terminate a Technical Rescue Incident (Topic 10-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe Incident Command functions and resources						
b. Describe PPE characteristics						
c. Describe hazard and risk identification						
d. Describe equipment removal procedures						
e. Describe isolation techniques						
f. Identify statutory requirements						
g. Identify responsible parties						
h. Describe logistics and resource management						
i. Describe personnel accountability systems						
j. Describe personnel rehab procedures or protocols						
k. Describe documentation and reporting requirements						

l. Describe post-incident analysis techniques						
m. Select and use hazard-specific PPE						
n. Decontaminate PPE						
o. Recognize hazards and analyze risk						
p. Use barrier protection techniques						
q. Implement data collection and record-keeping/reporting protocols						
r. Conduct post-incident analysis activities						

Application

31. Set Up, Demonstrate, and Oversee Drill Ground Operations and/or Demonstrations	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Size up a rope rescue incident						
b. Recognize the need for technical rescue resources						
c. Support an operations- or technician-level incident						
d. Recognize incident hazards and initiate isolation procedures						
e. Conduct a system safety check						
f. Terminate a rope rescue incident						
g. Don and doff PPE						
h. Demonstrate an end-of-line loop						
i. Demonstrate a midline loop						

j. Demonstrate securing rope around desired objects						
k. Demonstrate joining rope or webbing ends together						
l. Demonstrate friction hitches						
m. Construct a single loop single-point anchor system						
n. Construct a multi loop single-point anchor system						
o. Construct a basket/three-bight single-point anchor system						
p. Construct a girth hitch single-point anchor system						
q. Construct a double-locking girth hitch single-point anchor system						
r. Construct a wrap three, pull two single-point anchor system						
s. Construct a tensionless/no knot single-point anchor system						
t. Construct a picket system						
u. Construct a two-point anchor system						
v. Construct a three-point anchor system						
w. Construct a tie-back anchor system						
x. Place edge protection						
y. Operate fall protection equipment						
z. Construct a fixed rope system						
aa. Construct and operate a dedicated belay system with a dedicated main during lowering or raising operations						
bb. Belay a falling load in a high-angle environment						

cc. Construct and operate a TTRS during lowering or raising operations						
dd. Construct a lowering system in a low-angle environment						
ee. Operate a lowering system in a low-angle environment						
ff. Direct the operation of a lowering system in a low-angle environment						
gg. Construct a lowering system in a high-angle environment						
hh. Operate a lowering system in a high-angle environment						
ii. Direct the operation of a lowering system in a high-angle environment						
jj. Perform a knot pass during a lowering operation						
kk. Construct a 3:1 simple rope mechanical advantage system						
ll. Operate a 3:1 simple rope mechanical advantage system						
mm. Direct the operation of a 3:1 simple rope mechanical advantage system						
nn. Construct a 5:1 simple rope mechanical advantage system						
oo. Operate a 5:1 simple rope mechanical advantage system						
pp. Direct the operation of a 5:1 simple rope mechanical advantage system						
qq. Perform a knot pass during a raising operation						
rr. Construct a compound rope mechanical advantage system						
ss. Operate a compound rope mechanical advantage system						
tt. Direct the operation of compound rope mechanical advantage system						
uu. Construct a complex rope mechanical advantage system						

vv. Operate a complex rope mechanical advantage system						
ww. Direct the operation of complex rope mechanical advantage system						
xx. Construct a moving ladder system						
yy. Operate a moving ladder system						
zz. Construct a ladder slide system						
aaa. Operate a ladder slide system						
bbb. Construct a ladder A-frame system						
ccc. Operate a ladder A-frame system						
ddd. Negotiate an edge while attached to a rope rescue system						
eee. Assess and stabilize a victim						
fff. Package an ambulatory victim in a low-angle environment						
ggg. Perform an ambulatory victim rescue in a low-angle environment						
hhh. Raise and lower a litter in a low-angle environment						
iii. Direct a raising and lowering operation in a low-angle environment						
jjj. Package a victim in a litter in a low-angle environment						
kkk. Perform a litter rescue as part of a three-person litter tender configuration in a low-angle environment						
lll. Raise and lower a litter in a high-angle environment						
mmm. Direct a raising and lowering operation in a high-angle environment						
nnn. Descend a fixed rope in a high-angle environment						

ooo. Lock-off a descent control device (to facilitate hands-free operations)						

Completion Requirements

The following requirements must be completed prior to submitting this task book.

Experience

The candidate meets the following experience requirements.

- Have a minimum of three years' full-time or six years' volunteer or part-time paid suppression/rescue experience in a recognized fire agency in California

Agency	Experience	Start Date	End Date

Include documentation to verify prerequisite requirements when you submit your instructor task book unless verification is already documented in your SFT User Portal.

Position

State Fire Training confirms that there are no position requirements for instructor registration.

Updates

The candidate has completed and enclosed all updates to this instructor task book released by State Fire Training since its initial publication.

Number of enclosed updates: _____

Completion Timeframe

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

Initiation Date (see Initiation Date under Initiation Requirements): _____

Review and Approval

Candidate

Candidate (please print): _____

I, the undersigned, am the person applying to teach Rope Rescue Awareness and Operations. 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 documents may be cause for rejection or revocation.

Signature: _____ Date: _____

Fire Chief

Candidate's Fire Chief (please print): _____

I, the undersigned, am the person authorized to verify the candidate's qualifications to teach Rope Rescue Awareness and Operations. 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 documents may be cause for rejection.

Signature: _____ Date: _____

Rope Rescue Technician

(NFPA 1006: Rope Rescue, Awareness/Operations/Technician)

Instructor Task Book (2021)

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

Overview

Authority

This instructor task book includes the training standards set forth in:

- NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications (2021)

Published: Month Year

Published by: State Fire Training, PO Box 944246, Sacramento, CA 94244-2460

Cover photo courtesy of Donald Chen, Donald Chen, San Diego Fire-Rescue Department.

Purpose

The State Fire Training instructor task book is a performance-based document. It lists the minimum requirements a candidate must meet to teach a specific State Fire Training course or course series.

Assumptions

Except for 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 job performance requirement (JPR) shall be evaluated after the candidate initiates the task book.

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 if the candidate meets the initiation requirements for 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 three years of its initiation date. Otherwise, a candidate must initiate a new task book using the curriculum's current published version.

Roles and Responsibilities

Candidate

The candidate is the individual pursuing instructor registration.

Initiation

The candidate shall:

1. Complete the Initiation Requirements section.
   - Please print.
2. Complete a block on the Signature Verification page with a handwritten signature.

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 the Completion Requirements section.
3. Sign and date the Candidate verification section on the Review and Approval page with a handwritten signature.
4. Obtain their fire chief's handwritten (not stamped) signature on the Fire Chief verification section on the Review and Approval page.
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).

A qualified evaluator is a Registered Rope Rescue Technician Instructor designated by the candidate's fire chief (or authorized designee). For instructor task books that do not require fire chief initiation, academy instructors serve as or designate evaluators.

All evaluators shall:

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

Fire Chief

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

Initiation

The fire chief shall:

1. Review and understand the candidate's instructor task book requirements and responsibilities.
2. Complete a block on the Signature Verification page with a handwritten signature.
3. Designate qualified evaluators.

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:

1. A copy of the completed task book (candidate may retain the original)
2. All supporting documentation
3. Payment

State Fire Training
Attn: Instructor Registration
PO Box 944246
Sacramento, CA 94244-2460

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 career 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 instructor task book is one step in the instructor registration process. Please refer to the *State Fire Training Procedures Manual* for the complete list of qualifications required to teach Rope Rescue Technician (2021).

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

The candidate meets one of the following prerequisites.

1. OSFM Instructor 1, Training Instructor I, or Fire Instructor I certification
2. OSFM Registered Instructor

Include documentation to verify prerequisite requirements when you submit your instructor task book unless verification is already documented in your SFT User Portal.

Education

The candidate has completed the following courses.

1. Rope Rescue Technician (SFT or FEMA*)

   * FEMA candidates must also be an OSFM Registered Instructor.

Include documentation to verify education requirements when you submit your instructor 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 instructor 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

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 shaded in gray.

All JPRs must be completed within a California fire agency or State Fire Training Accredited Regional Training Programs (ARTP).

Each JPR shall be evaluated after the candidate initiates the task book.

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.
- In the tables, E1 represents the candidate's first evaluation and E2 represents their second evaluation.

Examples of correct and incorrect evaluation:

Correct: Task completed during two separate courses and evaluated by two separate individuals.

1. Assemble a comprehensive burn plan ("burn book") that contains all documentation necessary to conduct a live fire training evolution in accordance with NFPA standards and the policies and procedures of State Fire Training (SFT) and the authority having jurisdiction (AHJ).	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe purpose of a live fire burn plan	AAA123	2/8/18	JAS	BBB123	5/15/18	CWJ
b. Identify components of a live fire burn plan ("burn book")	AAA123	2/8/18	JAS	BBB123	5/15/18	CWJ
c. Identify records-retention requirements for burn plans	AAA123	2/8/18	JAS	BBB123	5/15/18	CWJ

Incorrect: Task completed twice during one course but evaluated by two separate individuals.

1. Assemble a comprehensive burn plan ("burn book") that contains all documentation necessary to conduct a live fire training evolution in accordance with NFPA standards and the policies and procedures of State Fire Training (SFT) and the authority having jurisdiction (AHJ).	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe purpose of a live fire burn plan	AAA123	2/8/18	JAS	AAA123	2/8/18	CWJ
b. Identify components of a live fire burn plan ("burn book")	AAA123	2/8/18	JAS	AAA123	2/8/18	CWJ
c. Identify records-retention requirements for burn plans	AAA123	2/8/18	JAS	AAA123	2/8/18	CWJ

Incorrect: Task completed during two separate courses but evaluated by the same individual.

1. Assemble a comprehensive burn plan ("burn book") that contains all documentation necessary to conduct a live fire training evolution in accordance with NFPA standards and the policies and procedures of State Fire Training (SFT) and the authority having jurisdiction (AHJ).	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe purpose of a live fire burn plan	AAA123	2/8/18	JAS	BBB123	5/15/18	JAS
b. Identify components of a live fire burn plan ("burn book")	AAA123	2/8/18	JAS	BBB123	5/15/18	JAS
c. Identify records-retention requirements for burn plans	AAA123	2/8/18	JAS	BBB123	5/15/18	JAS

Course Administration and Application

1. Course administration and orientation	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Complete and submit course scheduling request						
b. Order student textbooks (if applicable)						
c. Identify facility requirements						
d. Confirm facilities set up and safety						
e. Identify classroom requirements						
f. Confirm equipment (based on number of students)						
g. Complete instructor assignments						
h. Organize skill stations (location, equipment, timing, complexity)						
i. Confirm prop set up and safety						
j. Complete class rosters						
k. Review course syllabus						

Introduction to Rope Rescue

2. Introduction to Rope Rescue (Topic 2-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Define “low-angle” rope rescue						
b. Define “high-angle” rope rescue						
c. Describe terrain and features common to the AHJ where rope rescue might be necessary						
d. Describe how rope rescue skills are integrated into other technical rescue disciplines						
e. Identify factors that determine incident complexity						
3. Standards and Regulations (Topic 2-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Identify industry standards applicable to rope rescue						
b. Identify industry regulations applicable to rope rescue						
c. Describe how Cal/OSHA 3270.1 applies						
d. Identify AHJ policies and procedures						

PPE and Equipment

4. Select, Use, Inspect, and Maintain PPE and Rescue Equipment (Topic 3-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe functions, construction, and operation of PPE						

b. Describe equipment certification, testing, and rating standards						
c. Describe functions and operations of rescue equipment						
d. Describe how to select and use maintenance tools						
e. Describe methods for cleaning tools and equipment						
f. Describe replacement protocols and procedures						
g. Identify when and how to remove tools and equipment from service						
h. Describe disposal methods						
i. Describe AHJ standard operating procedures						
j. Describe how to use record-keeping systems						
k. Describe guidelines for cleaning, inspecting, and maintaining tools and equipment						
l. Describe how to select, use, and maintain tools and equipment						
5. Demonstrate Knots, Bends, and Hitches (Topic 3-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe rope and webbing types						
b. Identify rope terminology						
c. Describe knot efficiency						
d. Describe when and how to use knots, bends, and hitches						
e. Tie representative knots, bends, and hitches						

Incident Size Up, Planning, and Support

6. Size Up a Rope Rescue Incident (Topic 4-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe components of a rope rescue size up						
b. Describe a risk/benefit assessment						
c. Describe types of reference materials and their uses						
d. Describe availability and capability of resources						
e. Describe elements of an incident action plan and related information						
f. Describe relationship of size-up to the incident management system						
g. Describe information gathering techniques and how that information is used in the size-up process						
h. Describe basic search criteria for rope rescue incidents						
i. Read technical rescue reference materials						
j. Gather information						
k. Relay information						
l. Use information-gathering sources						
7. Recognize Incident Hazards and Initiate Isolation Procedures (Topic 4-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe types and natures of incident hazards						
b. Describe resource capabilities and limitations						

c. Describe equipment types and their use						
d. Describe hazard recognition and terminology						
e. Describe isolation terminology, methods, equipment, and implementation						
f. Identify operational requirement concerns						
g. Describe common types of rescuer and victim risk						
h. Describe risk/benefit analysis considerations						
i. Describe methods for controlling access to the scene						
j. Describe types of technical references						
k. Identify resource capabilities and limitations						
l. Identify incident hazards						
m. Assess potential hazards to rescuers and bystanders						
n. Place scene control barriers						
o. Operate control and mitigation equipment						
8. Conduct a System Safety Check (Topic 4-3)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe system safety check procedures						
b. Perform a system safety check						

Anchor Systems

9. Construct Tensioned Anchor Systems (Topic 5-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe anchor selection criteria						
b. Describe weight distribution issues and methods						
c. Describe load types						
d. Describe formulas to calculate load distribution						
e. Describe how to construct anchor slings						
f. Describe types and uses of tensioned anchor systems						
g. Describe application of knots, bends, and hitches						
h. Describe system safety check procedures						
i. Construct tensioned anchors						
10. Construct, Operate, and Direct the Operation of a High-Directional (Topic 5-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe the purpose of a high directional						
b. Describe types of and uses for high-directionals						
c. Describe how to construct a high directional						
d. Describe how to operate a high directional						
e. Identify the type of high-directional needed for different scenarios						
f. Construct, operate, and direct the operation of a high-directional						

Rescue Skills

11. Descend a Fixed Rope (Topic 6-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Describe task-specific selection criteria for PPE and life safety harnesses and systems for descending a fixed rope						
b. Describe descent control devices						
c. Describe safe rigging principles						
d. Describe descending techniques						
e. Describe hazards associated with descending operations						
f. Select and use rescuer harnesses, a system for descending a fixed rope, and PPE for common environments						
g. Attach life safety harness to the rope rescue system						
h. Attach descent control device to rope and life safety harness						
i. Operate descent control device						
j. Maneuver around existing environment and system-specific obstacles						
k. Evaluate surroundings for potential hazards						
12. Ascend a Fixed Rope (Topic 6-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe task-specific selection criteria for PPE and life safety harnesses and systems for ascending a fixed rope						
b. Describe ascent control devices						
c. Describe rigging principles						

d. Describe ascending techniques						
e. Describe common hazards associated with ascending operations						
f. Describe how to convert ascending systems to descending systems						
g. Select and use rescuer harnesses, a system for ascending a fixed rope, and PPE for common environments						
h. Attach life safety harness to rope rescue system						
i. Configure ascent control devices to form a system for ascending a fixed rope						
j. Make connections to ascending system						
k. Maneuver around existing environment and system-specific obstacles						
l. Convert ascending system to a descending system while suspended from the fixed rope						
m. Evaluate surroundings for potential hazards						
13. Escape from a Jammed or Malfunctioning Device (Topic 6-3)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe task-specific selection criteria for PPE, equipment, and methods used to escape a jammed or malfunctioning descent control device						
b. Describe escape systems						
c. Describe safe rigging principles						
d. Describe escape techniques for high-angle environments						
e. Describe common hazards posed by malfunctioning descent control devices						

f. Select and use rescuer harness, a system for escaping a malfunctioning descent control device, and PPE for common environments						
g. Attach life safety harness to rope rescue system						
h. Attach descent control device to rope and life safety harness						
i. Attach and operate escape system to remove rescuer from malfunctioning descent control device while maintaining patent attachment to fixed rope and belay						
j. Use escape system to maneuver upward or downward from malfunctioning descent control device						
k. Evaluate surroundings for potential hazards						
14. Climb and Traverse Natural Features or Manmade Structures (Topic 6-4)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe climbing, positioning, and fall prevention equipment used by AHJ						
b. Describe climbing, positioning, and fall prevention systems						
c. Describe system safety check protocol						
d. Perform system safety checks						
e. Climb vertical or near-vertical paths using surfaces provided by environment or AHJ climbing aids						
f. Transition horizontally between structural elements and rescue system						

Rescue Operations

15. Interact with a Person at Height in Crisis (Topic 7-1)	Course Code (E1)	Date (E1)	Initials (E1)	Course Code (E2)	Date (E2)	Initials (E2)
a. Identify indicators of a person in emotional crisis						
b. Identify typical triggers that can cause individuals to become agitated or anxious						
c. Describe methods of interacting to prevent harm to rescuer and subject						
d. Describe best practices to deescalate incidents involving persons in crisis						
e. Describe AHJ crisis-intervention resources						
f. Use methods of approach that minimize the risk to the rescuer						
16. Remove a Victim from a Feature (Topic 7-2)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe PPE selection and criteria						
b. Describe techniques for handling stranded victims without inducing a fall						
c. Describe how to access a victim						
d. Describe techniques and systems for safe transfer of stranded victims from a natural or manmade feature						
e. Describe system safety check protocol						
f. Determine condition of the stranded victim						
g. Determine specialized equipment needs for victim movement						

h. Select and construct systems for rapid removal of stranded victims from natural or manmade features						
i. Manage operation of selected system						
17. Remove a Victim Suspended from Rope of Webbing (Topic 7-3)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe PPE selection and criteria						
b. Describe how to access a victim						
c. Describe various techniques for handling suspended victims						
d. Describe transfer systems						
e. Describe techniques for safe transfer to rope rescue system						
f. Describe principles, causes, and effects of suspension-induced injuries						
g. Describe methods to minimize common environmental hazards						
h. Describe system safety check protocol						
i. Choose victim transfer systems						
j. Select and use PPE appropriate to conditions						
k. Reduce hazards for rescuers and victims						
l. Determine condition of suspended victim						
m. Determine specialized equipment needs for victim movement						
n. Select and construct systems for rapid removal of victims from lanyards, rope, or webbing						
o. Manage operation of the selected system						

p. Transfer victim from a static line to lowering or raising system						
18. Rescue a Victim Using a Litter (Topic 7-4)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Describe task-specific selection criteria for life safety harnesses						
b. Describe PPE selection criteria						
c. Describe litters						
d. Describe high-angle litter attachment principles						
e. Describe how to package a victim in a litter						
f. Describe techniques and practices for high-angle environments						
g. Describe common hazards imposed by environment						
h. Describe system safety check protocol						
i. Select and use rescuer harness and PPE for common environments						
j. Attach life safety harness to rope rescue system						
k. Maneuver litter past obstacles or natural structural features						
l. Manage litter while attached to rope rescue system						
m. Demonstrate tender's vertical positioning independent of litter during transit						
n. Evaluate surroundings for potential hazards						
19. Move a Suspended Load Along a Horizontal and Vertical Path (Topic 7-5)	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**

a. Describe the purpose of a high-line system						
b. Describe types of high-line systems						
c. Describe various systems						
d. Describe how to evaluate site for hazards, interference, and obstacle negotiation						
e. Describe how to construct a high-line system						
f. Describe common problems and ways to minimize these problems during construction						
g. Describe ways to increase the efficiency of load movement						
h. Describe how to operate a high-line system						
i. Describe how to direct the operation of a high-line system						
j. Construct, operate, and direct the operation of a system to move a suspended load horizontally and vertically						

Application

20. Set Up, Demonstrate, and Oversee Drill Ground Operations and/or Demonstrations	**Course Code (E1)**	**Date (E1)**	**Initials (E1)**	**Course Code (E2)**	**Date (E2)**	**Initials (E2)**
a. Demonstrate an end-of-line loop						
b. Demonstrate a midline loop						
c. Demonstrate securing rope around desired objects						
d. Demonstrate joining rope or webbing ends together						
e. Demonstrate friction hitches						

f. Size up a rope rescue incident						
g. Recognize incident hazards and initiate isolation procedures						
h. Conduct a system safety check						
i. Construct a pretensioned back tie anchor system						
j. Construct a front tie anchor system						
k. Construct a focused floating anchor system						
l. Construct a deflected anchor system						
m. Construct an artificial high directional						
n. Operate an artificial high directional						
o. Direct the operation of a high directional						
p. Descend a fixed rope in a high-angle environment						
q. Lock-off a descent control device (to facilitate hands-free operations)						
r. Descend past a knot or obstruction						
s. Ascend a fixed rope in a high-angle environment						
t. Convert an ascending system to a descending system while suspended from the fixed rope						
u. Ascend past a knot or obstruction						
v. Climb a vertical or near-vertical path using a 100% tie off or vertical lifeline fall protection system						
w. Transition horizontally between structural elements and rescue system using a 100% tie off fall protection system						
x. Place and use work positioning equipment permitting the rescuer to perform a task						

y. Rescue a victim stranded on or clinging to a natural or manmade feature in a high-angle environment						
z. Transfer a victim suspended from rope or webbing in a high-angle environment from a static line to a lowering or raising system (rescuer suspended)						
aa. Tend a litter, including positioning above and below the litter, in a high-angle environment						
bb. Construct a high-line capable of horizonal and vertical movement						
cc. Move a suspended rescue load horizontally and vertically on a high-line system						
dd. Direct the operation of a high-line system						

Completion Requirements

The following requirements must be completed prior to submitting this task book.

Experience

The candidate meets the following experience requirements.

- Have a minimum of three years' full-time or six years' volunteer or part-time paid suppression/rescue experience in a recognized fire agency in California

Agency	Experience	Start Date	End Date

Include documentation to verify prerequisite requirements when you submit your instructor task book unless verification is already documented in your SFT User Portal.

Position

State Fire Training confirms that there are no position requirements for instructor registration.

Updates

The candidate has completed and enclosed all updates to this instructor task book released by State Fire Training since its initial publication.

Number of enclosed updates: _____

Completion Timeframe

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

Initiation Date (see Initiation Date under Initiation Requirements): _____

Review and Approval

Candidate

Candidate (please print): _____

I, the undersigned, am the person applying to teach Rope Rescue Technician. 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 documents may be cause for rejection or revocation.

Signature: _____ Date: _____

Fire Chief

Candidate's Fire Chief (please print): _____

I, the undersigned, am the person authorized to verify the candidate's qualifications to teach Rope Rescue Technician. 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 documents may be cause for rejection.

Signature: _____ Date: _____

Rope Rescue (2021)
Interim Procedures

Issued: Month 2023

Procedure Changes

Edition:	May 2020 edition of the State Fire Training Procedures Manual
Effective Date:	Month, ##, 2023 (anticipated)
Section Changes:	Update the following sections: • Remove 6.7.19: Rope Rescue Technician (RRT) – Instructor Levels • Revise 6.7.20: Rope Rescue Technician (RRT) – Primary Instructor • Remove 6.7.21: Rope Rescue Technician (RRT) –Senior Instructor
Justification:	Following approval by the State Board of Fire Services (SBFS), the new Rope Rescue (2021) curriculum will go into effect on March 1, 2024. The new curriculum provides directive for Instructor qualifications.
SFT Contact:	SFT Staff assigned to Instructor Registration.
Note:	Using the May 2020 edition of the State Fire Training Procedures Manual: • Remove Sections 6.7.19 and 6.7.21 • Revise Section 6.7.20

~~6.7.19: ROPE RESCUE TECHNICIAN (RRT) – INSTRUCTOR LEVELS~~

~~6.7.19.1: Primary Instructor Trainee~~

~~A. Primary Instructor Trainee is the entry level for becoming a Registered RRT Primary Instructor.~~

~~B. An individual is considered a Primary Instructor Trainee while he or she completes the RRT Primary Instructor Trainee Task Book.~~
~~1. Trainees have two years after beginning the task book to complete its requirements.~~
~~2. The applicant must submit the task book for instructor registration within one year of completing it.~~

~~C. Under direct supervision of a Registered RRT Senior Instructor, the Primary Instructor Trainee shall:~~
~~1. Assist in classroom and field exercise setup~~
~~2. Support the logistics of the component(s) he or she is training to teach~~
~~3. Instruct no more than 50% of a single course delivery~~
~~4. Carry out all other related tasks as assigned by the Registered Senior Instructor~~
~~5. Satisfactorily complete the Primary Instructor Trainee Task Book~~

~~D. State Fire Training (SFT) does not register RRT Primary Instructor Trainees.~~

~~6.7.19.2: Primary Instructor~~

~~A. A Registered RRT Primary Instructor is qualified to teach one squad (up to 12 students) in an RRT course.~~

~~B. In addition to the responsibilities required of all SFT Registered Primary Instructors (See **6.2.7: Responsibilities**.), Registered RRT Primary Instructors, under the supervision of a Registered RRT Senior Instructor, are also required to:~~
~~1. Set up the classroom and field exercises~~
~~2. Administer any psychomotor skills exams~~
~~3. Evaluate student/team performance and sign each student's task book~~
~~4. Coordinate and monitor all safety aspects of the course~~

~~6.7.19.3: Senior Instructor Trainee~~

~~A. Senior Instructor Trainee is the entry level for becoming a Registered RRT Senior Instructor.~~

~~B. An individual is considered a Senior Instructor Trainee while he or she completes the RRT Senior Instructor Trainee Task Book.~~
~~1. Trainees have two years after beginning the task book to complete its requirements.~~

2. The applicant must submit the task book for instructor registration within one year of completing it.

C. Under direct supervision of a Registered RRT Senior Instructor, the Senior Instructor Trainee shall:
   1. Ensure all objectives and minimum requirements of the course curriculum are met
   2. Function as the safety officer and monitor all safety aspects of the course
   3. Supervise and evaluate any primary instructor
   4. Carry out all other related tasks as assigned by the Registered Senior Instructor
   5. Satisfactorily complete the Senior Instructor Trainee Instructor Task Book

D. SFT does not register RRT Senior Instructor Trainees.

6.7.19.4: Senior Instructor

A. A Registered RRT Senior Instructor is required for any delivery of an RRT course.

B. In addition to the responsibilities required of all Registered SFT Senior Instructors (See **6.3.6: Responsibilities**.), Registered RRT Senior Instructors are also required to comply with **5.1.11: Record Keeping**.

6.7.20: ROPE RESCUE ~~TECHNICIAN (RRT) – PRIMARY~~ INSTRUCTOR

6.7.20.1: Eligible Courses

Table 6.7.20.1: Rope Rescue ~~T – Primary~~ Instructor Eligible Courses

CFSTES Courses	FSTEP Courses
• None	• Rope Rescue Awareness and Operations • Rope Rescue Technician

6.7.20.2: General Qualifications

A. ~~An RRT Primary Instructor Trainee or~~ A Rope Rescue 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. ~~An RRT Primary Instructor Trainee or~~ A Rope Rescue Awareness and Operations Registered ~~Primary~~ Instructor must have attended and passed:
   1. SFT Rope Rescue Awareness and Operations (2021) or Rope Rescue Awareness/Operations (2017) ~~Technician~~
   ~~2. I-200: Basic ICS~~

B. A Rope Rescue Technician Registered Instructor must have attended and passed:
   a. SFT Rope Rescue Technician or FEMA Rope Rescue Technician

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 Primary Instructor Trainee candidate has two years after starting his or her RRT Primary Instructor Trainee Task Book to complete the task book requirements.~~

B. A Rope Rescue Instructor candidate for either Awareness and Operations or Technician must complete a task book within three years of its initiation date. Otherwise, a candidate must initiate a new task book using the curriculum's current published version

C. ~~An RRT Primary~~ A Rope Rescue Instructor candidate ~~Trainee~~ must satisfy all instructor requirements and become a Registered ~~RRT Primary~~ Instructor within one year of completing ~~his or her~~ their task book.

~~D. All components within the RRT Primary Instructor Task Book must be verified and signed by a Registered RRT Senior Instructor.~~

~~E. Task book completion requires teaching in at least two SFT RRT courses as a Primary Instructor Trainee.~~

6.7.20.7: Professional Experience

A. ~~An RRT Primary Instructor Trainee or Registered Primary~~ A Rope Rescue Instructor shall meet the professional experience qualifications listed below.
   1. Performing in an "acting" capacity does not qualify.

Table 6.7.20.7: ~~RRT – Primary Instructor~~ Rope Rescue Professional Experience

FSTEP Courses	Experience
• Rope Rescue Awareness and Operations • Rope Rescue Technician	• ~~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)~~ • Have a minimum of three (3) years' full-time or six (6) years' part-time/volunteer experience performing suppression/rescue duties within a recognized fire agency in California

~~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~~
~~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 Instructor Task Book~~

6.7.20.~~9~~8: Application~~ – Primary Instructor~~

A. See **6.2.3: Application Process**.

6.7.20.~~10~~9: Maintenance

A. A Registered ~~RRT Primary~~ Rope Rescue Instructor shall teach at least two SFT Rope Rescue ~~Technician~~ courses every four years.

~~6.7.21: ROPE RESCUE TECHNICIAN (RRT) – SENIOR INSTRUCTOR~~

~~6.7.21.1: Eligible Courses~~

~~Table 6.7.21.1: RRT – Senior Instructor Eligible Courses~~

~~CFSTES Courses~~	~~FSTEP Courses~~
~~• None~~	~~• Rope Rescue Technician~~

~~6.7.21.2: General Qualifications~~

~~A. An RRT Senior Instructor Trainee or Registered Senior Instructor shall meet the qualifications required of all State Fire Training (SFT) Registered Senior Instructors.~~

~~1. See **6.3.1: Qualifications**.~~

~~6.7.21.3: Course Work~~

~~A. Same as a Registered RRT Primary Instructor.~~

~~1. See **6.7.20.3: Course Work**.~~

~~6.7.21.4: Instructor Requirements~~

~~A. An RRT Senior Instructor Trainee shall be currently registered as an RRT Primary Instructor in good standing.~~

~~6.7.21.5: Teaching Experience~~

~~A. Taught at least two SFT Rope Rescue Technician courses within the past four years~~

~~6.7.21.6: Task Book~~

~~A. An RRT Senior Instructor Trainee has two years after starting his or her RRT Senior Instructor Trainee Task Book to complete the task book requirements.~~

~~B. An RRT Senior Instructor Trainee must satisfy all instructor requirements and become a Registered RRT Senior Instructor within one year of completing the task book.~~

~~C. All components within the RRT Senior Instructor Task Book must be verified and signed by a Registered RRT Senior Instructor.~~

~~1. A minimum of two Registered RRT Senior Instructor evaluators are required.~~

~~D. Task book completion requires teaching in at least two SFT RRT courses as a Senior Instructor Trainee.~~

~~6.7.21.7: Professional Experience~~

~~A. Same a Registered RRT Primary Instructor~~

~~1. See **6.7.20.7: Professional Experience**.~~

~~6.7.21.8: Application – Senior 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. Verification of Registered Primary Instructor status~~

~~3. Senior RRT Instructor Task Book~~

~~6.7.21.9: Application – Senior Instructor~~

~~A. See **6.3.3 Application Process**.~~

~~6.7.21.10: Maintenance~~

~~A. A Registered RRT Senior Instructor shall teach at least two SFT Rope Rescue Technician courses every four years.~~