



ROPE RESCUE TECHNICIAN

Course Plan

FSTEP

- Course:** Rope Rescue Technician (2013)
- Hours:** 40
- Designed For:** All fire service and allied emergency response personnel
- Description:** This course will prepare participants to undergo competency testing for high angle rescue. The scope of the program is to familiarize participants with the high angle environment and experience; and for them to safely participate in the engineering and operation of simple to complex rescue systems
- Prerequisites:** Rescue Systems 1 (2009) and Low Angle Rope Rescue Operations (LARRO)
OR Rescue Systems 1 (prior to 2009)
- Certification:** None
- Class Size:** 48
- Student/Instructor Ratio:** 12:1
- Instructor Ratio:** 6:1 during highline operations
 *Senior Instructor required for 1-4 module delivery. Senior Instructor cannot be a Primary Instructor in 3 or 4 module classes
- Restrictions:** Training site meets site requirements and equipment standards.

REQUIRED STUDENT MATERIALS	EDITION	VENDORS
▪ Rope Rescue Technician Instructor/Student Guide	2013	SFT
REQUIRED INSTRUCTOR MATERIALS		
▪ Rope Rescue Technician Instructor/Student Guide	2013	SFT
▪ Rope Rescue Technician PowerPoint Presentation	2013	SFT
VENDORS		
SFT	State Fire Training Website http://osfm.fire.ca.gov/training/technicalrescue.php	
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NOTE: Chapters with the Skills Verification (SV) designator (Chapters 2-5) contain LARRO and RS1 rope skills that must be verified before the student may continue with the Rope Rescue Technician course. New skills are also included in these chapters

CHAPTER 1: COURSE INTRODUCTION1:00

Terminal Learning Objective: The student will be able to identify the course goals, planned activities to achieve those goals, and the requirements for successfully completing the Rope Rescue Technician course.

Enabling Learning Objectives:

1. Describe the course, including course objectives, syllabus, and calendar of events.
2. Demonstrate rescuer and victim safety during all Rope Rescue Technician exercises.
3. Select and use all personal protective equipment.
4. Describe the student evaluation process.

CHAPTER 2: ROPE RESCUE EQUIPMENT 2:00

Terminal Learning Objective: The student will demonstrate the proper use of the equipment used in the Rope Rescue Technician course.

Enabling Learning Objectives:

1. Describe the use/misuse of the rope rescue equipment.
2. Describe the inspection/maintenance of the rope rescue equipment.
3. Use, inspect, and maintain all rope rescue equipment.



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CHAPTER 3: KNOTS, BENDS, AND HITCHES 2:00

Terminal Learning Objective: The student will identify and properly tie knots, bends, and hitches.

Enabling Learning Objectives:

1. Tie a tensionless hitch.
2. Tie optional knots, bends, and hitches as required.

CHAPTER 4: ANCHOR SYSTEMS (SV) 2:00

Terminal Learning Objective: The student will demonstrate anchor selection and anchor system construction.

Enabling Learning Objectives:

1. Describe system safety factors, critical angles, and force multipliers.
2. Describe considerations when selecting anchors.
3. Describe the types of anchors.
4. Construct the required anchor systems.

CHAPTER 5: HIGH ANGLE VICTIM PACKAGING 2:00

Terminal Learning Objective: The student will package a victim in a high angle environment.

Enabling Learning Objectives:

1. Package an ambulatory victim in a commercial victim harness.
2. Package an ambulatory victim in an improvised webbing harness.
3. Package a non-ambulatory victim in a rescue litter.

CHAPTER 6: TRAVEL RESTRICTION 2:00

Terminal Learning Objective: The student will demonstrate the selection, construction, and use of travel restriction for rescuers.

Enabling Learning Objectives:

1. Construct a travel restriction system.
2. Attach a rescuer to a travel restriction system.

CHAPTER 7: BELAY SYSTEMS 1:00

Terminal Learning Objective: The student will demonstrate proper technique to belay a load in the event of a failure of the main line.

Enabling Learning Objectives:

1. Define key points regarding the operation of a belay.
2. Catch a load with a belay.

CHAPTER 8: MAIN LINE SYSTEMS- LOWERING AND RAISING 2:00

Terminal Learning Objective: The student will demonstrate how to construct a lowering system and convert to a raising system using simple and compound mechanical advantage.

Enabling Learning Objectives:

1. Describe system safety factors, critical angles, and force multipliers.
2. Construct and operate a lowering system.
3. Convert a lowering system to a raising system using a compound 9:1.
4. Construct and operate a simple 5:1 "pig rig."



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CHAPTER 9: LOAD RELEASING METHODS 1:00

Terminal Learning Objective: The student will construct and operate a load releasing device.

Enabling Learning Objectives:

1. Demonstrate proper technique when transferring a load (e.g. an inadvertently loaded belay or converting from a raising to a lowering system).

CHAPTER 10: RESCUE SCENE ORGANIZATION AND MANAGEMENT 1:00

Terminal Learning Objective: The student will implement the Incident Command System (ICS).

Enabling Learning Objectives:

2. Size up a rescue incident
3. Create objectives, strategy and tactics
4. Give operational and safety briefings.
5. Implement rescue scene organization, management, and assign positions.
6. Use command and control in rope rescue operations.
7. Terminate the incident.

CHAPTER 11: KNOT PASSING 2:00

Terminal Learning Objective: The student will pass a knot through a lowering and raising system.

Enabling Learning Objectives:

1. Pass a knot through a friction device.
2. Pass a knot through a belay during lowering and raising operations.
3. Pass a knot through a change of direction pulley during a raising operation on the mainline.

CHAPTER 12: ASCENDING AND DESCENDING 3:00

Terminal Learning Objective: The student will construct, ascend, and descend a fixed rope in a high angle environment.

Enabling Learning Objectives:

1. Construct a fixed rope system.
2. Ascend a fixed rope.
3. Negotiate an obstacle (e.g. pass a knot or crux) while ascending a fixed rope.
4. Convert an ascending system to a descending system.
5. Descend a fixed rope.
6. Negotiate an obstacle (e.g. pass a knot or crux) while descending a fixed rope.

CHAPTER 13: PICK-OFFS 3:00

Terminal Learning Objective: The student will perform a victim pick off.

Enabling Learning Objectives:

1. Construct a two line system for a pick off.
2. Attach a victim to a two line system.
3. Perform a pick-off of a supported/suspended victim.
4. Perform a pick-off of an unsupported victim.

CHAPTER 14: PROTECTED CLIMBING 3:00

Terminal Learning Objective: The student will perform a protected climb on a natural or manmade structure.

Enabling Learning Objectives:

1. Climb a manmade structure utilizing a bottom belay or Double Bypass Lanyard; or
2. Climb a landscape feature (e.g. arborist tree rescue) utilizing a bottom belay.



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CHAPTER 15: HIGH ANGLE LITTER RIGGING AND TENDING	4:00
Terminal Learning Objective: The student will rig and tend an occupied rescue litter in a high angle environment.	
Enabling Learning Objectives:	
1. Package a patient into a rescue litter.	
2. Attach the occupied rescue litter to a rope rescue system with a litter tender.	
3. Tend the litter basket operation both above and below the basket.	
4. Negotiate obstacles and manipulate the occupied litter while being raised and lowered.	
5. Move the occupied litter up and over an edge.	
CHAPTER 16: ARTIFICIAL HIGH DIRECTIONALS	3:00
Terminal Learning Objective: The students will construct and rig an artificial high directional.	
Enabling Learning Objectives:	
1. Construct an artificial high directional.	
2. Rig a high directional.	
CHAPTER 17: HIGHLINES	6:00
Terminal Learning Objective: The students will construct and operate a reeving highline with a midpoint drop to transport rescuers, equipment, and an occupied litter from one elevated location to another.	
Enabling Learning Objectives:	
1. Describe system safety factors, critical angles, and force multipliers.	
2. Construct and operate a reeving highline system to perform a midpoint drop.	
3. Move an occupied litter with an attendant from one elevated location to another above an obstacle or projection.	
Total Hours	40:00



SITE REQUIREMENTS AND EQUIPMENT STANDARDS

A Rope Rescue Technician (RRT) Training Site must have facilities, structures, work areas, materials, and equipment of adequate size, type, and quantity to fully and safely support the technical and manipulative training required to deliver the RRT curriculum.

(A) GOALS

- (1) Set minimum performance training objectives for RRT training programs.
- (2) Identify those performance objectives a RRT Training Site must be capable of supporting.
- (3) Provide the means to ensure proper curriculum delivery.
- (4) RRT Training Sites will meet the minimum requirements to support curriculum delivery.
 - (a) A completed "Request for FSTEP Course Scheduling" providing the dates and location of the upcoming course.
 - (b) The names of all RRT instructors must be included with the request to support class size.

(B) SITE CAPACITY

An RRT Training Site is evaluated on its ability to support the required training. A One-squad site is the minimum and is capable of delivering training up to twelve (12) students or one (1) squad. Additional sites may be necessary to support the training for twenty-four (24) students, and up to a maximum of forty eight (48) students simultaneously. Each capacity level represents the maximum number of students or squads that may be taught on the site at any given time. This maximum number will be determined based on the suitability of the site to safely train (12), twenty four (24), thirty six (36), or forty eight (48) students.

- (1) One-squad site.
 - (a) Supports the instruction of one (1) squad, a maximum of twelve (12) students on the site.
 - (b) One (1) RRT Senior Instructor is required for a student instructor ratio of 12:1*.
- (2) Two-squad site.
 - (a) Supports the instruction of two (2) squads, a maximum of twenty-four (24) students on the site.
 - (b) One (1) RRT Primary Instructor and one (1) RRT Senior Instructor are required for a student instructor ratio of 12:1*.
- (3) Three-squad site.
 - (a) Supports the instruction of three (3) squads, a maximum of thirty-six (36) students on the site.
 - (b) Three (3) RRT Primary Instructors are required for a student instructor ratio of 12:1*.
 - (c) One (1) RRT Senior Instructor is required.
- (4) Four-squad site.
 - (a) Supports the instruction of four (4) squads, a maximum of forty eight (48) students on the site.
 - (b) Four (4) RRT Primary Instructors are required for a student instructor ratio of 12:1*.
 - (c) One (1) RRT Senior Instructor is required.

* Two (2) SFT registered RRT instructors are required for each highline

(C) SITE REQUIREMENTS

RRT Sites will be inspected by a RRT Senior Instructor for compliance with the RRT Site Requirements and Equipment Standards. The following are minimum requirements for a RRT Training Site:

- (1) The requesting agency assumes all responsibility, liability, and maintenance for the engineering design, strength, stability, and adequacy of all props including anchor points and tie offs.
- (2) The requesting agency further assumes all responsibility, liability, and maintenance for all tools, equipment, and supplies used at the site for the delivery of RRT classes. This includes, but is not limited to,



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ladders, ropes, rescue hardware and software.

- (3) Additionally, the site must meet the following:
- (a) All high angle evolutions shall be performed in an environment in which the load is predominately supported by the rope rescue system.
 - (b) A minimum vertical distance of 20' is required for all high angle evolutions.
 - (c) A minimum horizontal travel distance of 20' and vertical height of 20' measured from the ground to loaded mid span is required for highline evolutions.
 - (d) The minimum required ascending distance is 20'.
 - (e) The minimum required protected climb distance is 20'.
 - (f) There must be an obstacle to negotiate while litter tending.
 - (g) There must be an obstacle to negotiate while ascending and descending.
 - (h) There must be an edge problem that the team must negotiate for the litter tender evolution.

(D) FACILITIES

- (1) Classroom of adequate size and capability (audio/visual aids) to support classroom training.
- (2) Wash areas.
- (3) Bathrooms.
- (4) Rehabilitation area.
- (5) Safe and adequate parking.

(E) EQUIPMENT LIST AND STANDARDS

The following is a list of the minimum equipment that is required to conduct a Rope Rescue Technician course. Refer to the section (F) ENDNOTES for additional information.

Rope Rescue Technician Equipment List and Standards

Description	Up to 12 students or 1 squad	Each subsequent 12 person squad
Anchor Plate *	6	6
Backboard	1	See Endnote A
Descent Control Device *	8	8
Carabiners (locking)*	40	40
Commercial Class III Harness	6	6
Commercial Victim Seat Harness	1	1
Edge Protection	See Endnote B	See Endnote B
Ascenders	4 See Endnote C	0
Load Releasing Device	6 See Endnote D	4 See Endnote D
Low stretch/static kernmantle rescue rope 150 foot * (12.5 mm)	6 See Endnote E	6 See Endnote E
Low stretch/static kernmantle rescue rope 20 foot * (12.5 mm)	2	0
Pickets, steel (or equivalent)	Optional	Optional
Prusik Loop, Short (8mm)	10	10
Prusik Loop, Long (8mm)	10	10
Pulley *	15 See Endnote F	15 See Endnote F
Rescue litter	1	1
Rescue litter pre-rig	See Endnote G	See Endnote G
Sledge hammer	See Endnote H	See Endnote H



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Spider straps		Optional	Optional
Tie ropes (12.5mm)		14	N/A
Webbing, green *	1" x 5'	12	12
Webbing, yellow *	1" x 12'	12	12
Webbing, blue *	1" x 15'	12	12
Webbing, orange *	1" x 20'	12	12
Knot passing pulley *		1	0
Pick-off strap *		2	0
Etriers		2	0
		See Endnote I	
Double bypass lanyard		Optional	Optional
Mini MA system		See Endnote J	See Endnote J
Artificial High Directional		See Endnote K	See Endnote K
Swivels *		Optional	Optional
		See Endnote L	See Endnote L
Equipment to Belay a Falling Load		See Endnote M	0

* Indicates must meet NFPA 1983 "G" rating

(F) ENDNOTES

- A. 1 backboard per site
- B. Edge protection can be manufactured (rope rollers, etc.) or improvised (split fire hose, etc.). There shall be adequate amounts of edge protection available for concurrent running scenarios.
- C. While Gibbs Ascenders™ are acceptable, handled ascenders are preferred.
- D. Commercial or field assembled (webbing or cordelette) complete with General Use carabiners. These carabiners are in addition to the amounts specified under the carabiner and prusik categories.
- E. Each rope of the two track highline must be one continuous length of rope. If your highline span is greater than 150 feet you must acquire longer ropes to span the gap. You may also need a longer reeve line rope.
- F. 5 of the 15 pulleys must be single sheave prusik minding. 2 of the 15 should be double sheave prusik minding. Subsequent squads may not require additional double sheave pulleys.
- G. Commercial or field assembled complete with General Use carabiners and prusiks, if field assembled these carabiners and prusiks are in addition to the amounts specified under the carabiner and prusik categories.
- H. If pickets are used a sledge hammer is required.
- I. Can be commercial or field assembled from one inch tubular webbing.
- J. If performing the optional litter scoop evolution, a mini MA system will be needed to lower and raise the foot end of the litter. Can be commercial or improvised.
- K. Can be a commercial (Arizona Vortex™, Terradaptor™, etc.) or improvised high directional (4x4 lumber). . If concurrent highline stations are being run, one additional artificial high directional per highline must be provided for each highline scenario.
- L. "G" rated pulleys that have a built in swivel will satisfy this option.
- M. This can be accomplished by having a person perform a hard, unexpected jerk on the end of the belay system. Whatever method the instructor chooses to demonstrate this skill, it SHALL NOT be performed using a live load.

Additional Notes:

1. Instructors at "Agency Specific" classes that use the CMC MPD™, Traverse 540 Rescue Belay™, and other similar devices may use these devices during the class.
2. Instructors at "open enrollment" classes should continue to show "traditional" methods of lowering & raising to their students (i.e. RPM). This does not mean that devices like the CMC MPD™, Traverse 540 Rescue Belay™, and other similar devices cannot be shown to students.