



Low Angle Rope Rescue Operational (2007)

Course Plan

Course Details

- Description:** Designed to equip the student with the techniques and methods for using rope, webbing, hardware friction devices, litters in low angle rescue situations. Areas covered include rope and related equipment, anchor systems, safety lines, stretcher lashing and rigging, mechanical advantage systems, and single-line and two-line rescue systems.
- Designed For:** All fire service and allied emergency response personnel
- Authority:** Office of the State Fire Marshal
- Prerequisites:** None
- Standard:** N/A
- Hours:** 24 hours
- Maximum Class Size:** 48
- Instructor Level:** Primary instructor
- Instructor/Student Ratio:** Student/Instructor ratio is 12:1 (48 student's maximum with four Primary Instructors)
- Restrictions:** This course requires a site with adequate materials and equipment to deliver the training according to the course outline.
- SFT Designation:** FSTEP

Required Resources

Instructor Resources

To teach this course, instructors need:

Required

- *Low Angle Rope Rescue Operational Instructor and Student Manual (State Fire Training)*

Online Instructor Resources

The following instructor resources are available online at

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

- Low Angle Rope Rescue Operational Instructor and Student Manual (State Fire Training)
- Student Task Book

Student Resources

To participate in this course, students need:

- *Low Angle Rope Rescue Operational Instructor and Student Manual (State Fire Training)*
- Student Task Book

Facilities, Equipment, and Personnel

An accredited Confined Space Rescue Technician (CSRT) Training Site has 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 CSRT curriculum. The following facilities, equipment, or personnel are required to deliver this course:

Facilities

- Standard classroom equipped for 48 students
- Whiteboards or easel pads with appropriate writing implements
- Projector/TV with appropriate laptop connections
- Wifi/Internet access
- Rehabilitation area
- Anchor points to perform rope evolutions.
- Area to demonstrate and practice skills (rescue knots, rescue/victim packaging, anchors, and rope systems).
- Open field sloping area.
- Top side working area, 50 feet long x 12 feet wide with a connected slope area, minimum 30 feet long x 10 feet wide at a 30°-60° angle. This area will support a two (2) squads or maximum of twenty-four (24) students.

Site Capacity

A Low Angle Rope Rescue Operational Training Site is evaluated on its ability to deliver the required training. A One-squad Site is the minimum and is capable of delivering training to twelve (12) students or one (1) squad. Additional sites may be capable of delivering training to a maximum of twenty-four (24), thirty-six (36), or 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 between twelve (12) and forty-eight (48) students.

- One-squad Site.
 - Supports the instruction for teaching one (1) squad, a maximum of twelve (12) students on the site.
 - One (1) Low Angle Rope Rescue Operational Primary Instructor is required for a student instructor ratio of 12:1.
 - For increased safety/span of control, it is recommended to have two (2) Low Angle Rope Rescue Operational Primary Instructors for a Level 1 site with a student/instructor ratio of 6:1.
- Two-squad Site.
 - Supports the instruction for teaching two (2) squads, a maximum of twenty-four (24) students on the site.
 - Two (2) Low Angle Rope Rescue Operational Primary Instructors are required for a student instructor ratio of 12:1.
 - For increased safety/span of control, it is recommended to have four (4) Low Angle Rope Rescue Operational Primary Instructors for a Level 2 site with a student/instructor ratio of 6:1.
- Three-squad Site.
 - Supports the instruction for teaching three (3) squads, a maximum of thirty-six (36) students on the site.
 - Three (3) Low Angle Rope Rescue Operational Primary Instructors are required for a student instructor ratio of 12:1.
 - For increased safety/span of control, it is recommended to have six (6) Low Angle Rope Rescue Operational Primary Instructors for a Level 3 site with a student/instructor ratio of 6:1.
- Four-squad Site.
 - Supports the instruction for teaching four (4) squads, a maximum of forty-eight (48) students on the site.
 - Four (4) Low Angle Rope Rescue Operational Primary Instructors are required for a student instructor ratio of 12:1.
 - For increased safety/span of control, it is recommended to have eight (8) Low Angle Rope Rescue Operational Primary Instructors for a Level 4 site with a student/instructor ratio of 6:1.

Site Requirements

The following are minimum requirements for a Low Angle Rope Rescue Operational Training Site:

- The facilities and props should be in close proximity to each other to facilitate timeframes.
- 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.
- The requesting agency further assumes all responsibility, liability, and maintenance for all tools, equipment, and supplies used at the site for the delivery of Low Angle Rope Rescue Operational classes. This includes, but is not limited to, ladders, ropes, rescue hardware and software.

Equipment Standards

- The equipment listed below is the minimum for each Low Angle Rope Rescue Operational Training Site to support one (1) squad or twelve (12) students.
- Student safety is of paramount importance when conducting the type of high-risk training associated with a Low Angle Rope Rescue Operational course.

Equipment Standards

Equipment Inventory (All Equipment Must Be NFPA "G" Rated)	Size	Required	Desired
Anchor plate		3	4
Apparatus, fire	Large	2 per site (optional)	
Backboard, long		Optional	1
Brake bar rack		2	4
Carabiner		25	
Commercial Class II harness	Small	2	
Commercial Class II harness	Medium	4	
Commercial Class II harness	Large	4	
Commercial Class II harness	Extra large	4	
Commercial victim seat harness		1	4
Edge protection		2	
Figure eight descender		4	
Gibbs ascender		1	
Ladder	14'	1 per site (optional)	

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Ladder	24'	1 per site (optional)	
Load-releasing device		3	4
Low stretch kernmantle rope	½"x150'	3	4
Low stretch kernmantle rope	½"x20'	2	4
Picket, steel	1"x4'	15 per site	
Prusik loop	Short	6	
Prusik loop	Long	6	
Pulley: PMP or standard	2" or 4"	3	6
Pulley: Prusik minding	2" or 4"	2	
Rescue litter		2	4
Rescue litter pre-rig with 4 prusiks and 6 carabiners		2	4
Rescue mannequin		1 per site (optional)	
Sledge hammer	8 – 10 lb.	2 per site	
Spider straps		Optional	2
Tie rope	15'	13	
Webbing, blue tubular	1"x15'	13	
Webbing, green tubular	1"x5'	6	
Webbing, orange tubular	1"x20'	13	
Webbing, yellow tubular	1"x12'	6	

Time Table

Segment	Time		
Orientation Module:			
Introduction	1.0		
Rope Rescue Equipment	1.0		
Rescue Knots and Hitches	1.0		
Anchor Systems	2.0		
Rescuer and Ambulatory Victim Packaging	1.0		
Types of Rescue Litters and Victim Packaging	2.0		
System Attachments and Fall Restraint	1.0		
Three Main Components of a Low Angle Rope Rescue System	2.0		
Belay/Safety Line Systems	1.0		
Descending and Ascending Techniques	2.0		
Lower/Raise (Mechanical Advantage) Systems	3.0		
Load-releasing Methods	1.0		
Rescue Scene Organization and Management	1.0		
Litter Walkouts (Optional)	1.0		
Ladder Systems (Optional)	2.0		
Evolutions	5.0		
Evolutions (Optional)	2.0		
Course Totals	24.0		

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 and the acquired structure selected for training. 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.

Objectives

Course Objectives

1. Information on rope rescue equipment, rescue knots and hitches, anchor systems, system attachments and fall restraint, belay/safety line systems, load-releasing devices.
2. Methods and techniques used to inspect and maintain rescue rope, webbing, and hardware.
3. Methods and techniques to tie knots and package victims and rescuers.
4. Methods and techniques for using rescue equipment to build lower/raise systems.
5. Information on rescue scene organization and management.
6. An opportunity to demonstrate and apply basic low angle rope rescue techniques.
7. Optional information on litter walkouts and ladder systems used in low angle rope rescue operations.