Chapter 6 Rope Rescue

6.1 General Requirements. The job performance requirements defined in 6.1.1 through 6.1.10 shall be met prior to certification in rope rescue.

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

(A)* *Requisite Knowledge:* Critical angles and effects and risks of exceeding the critical angle, safety issues in choosing anchor points, system safety check methods that allow for visual and physical assessment of system components, methods to evaluate the system during operations, integrity concerns, weight distribution issues and methods, knots and applications, selection and inspection criteria for hardware and software, formulas needed to calculate safety factors for load distribution, and the concepts of static loads versus dynamic loads.

(B) *Requisite Skills:* The ability to determine incident needs as related to choosing anchor systems, select effective knots, calculate expected loads, evaluate incident operations as related to interference concerns and set-up, choose anchor points, perform system safety check, and evaluate system components for compromised integrity.

6.1.2 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, 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.

(A) *Requisite Knowledge:* Determination of incident needs as related to choosing compound rope systems, the elements of efficient design for compound rope systems, knot selection, methods for reducing excessive force to system components, evaluation of incident operations as related to interference concerns and set-up, rope commands, rigging principles, system safety check procedures, and methods of evaluating system components for compromised integrity.

(B) *Requisite Skills:* The ability to determine incident needs as related to choosing compound rope systems, select effective knots, calculate expected loads, evaluate incident operations as related to interference concerns and set-up, perform system safety check, and evaluate system components for compromised integrity.

6.1.3 Construct a fixed rope system, given an anchor system, 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.

(A) *Requisite Knowledge:* Knot selection, calculating expected loads, incident evaluation operations as related to interference concerns and set-up, rigging principles, system safety check procedures, and methods of evaluating system components for compromised integrity.

(B) *Requisite Skills:* The ability to select effective knots, calculate expected loads, use rigging principles, evaluate incident operations as related to interference concerns and set-up, perform system safety check, and evaluate system components for compromised integrity.

6.1.4 Direct the operation of a compound rope mechanical advantage system, given a rope rescue system incorporating a compound rope mechanical advantage system and a load to be moved, so that a system safety check is performed; 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.

(A) *Requisite Knowledge:* Methods to determine incident needs, types of interference concerns, rope commands, system safety check protocol, procedures for continued evaluation of system components for compromised integrity, common personnel assignments and duties, common and critical commands, methods for controlling a load's movement, system stress issues during operations, and management methods for common problems.

(B) *Requisite Skills:* The ability to determine incident needs, evaluate incident operations as related to interference concerns, complete a system safety check, continually evaluate system components for compromised integrity, direct personnel effectively, communicate commands, analyze system efficiency, manage load movement, and identify concerns.

6.1.5 Complete an assignment while suspended from a rope rescue system, given a rope rescue system, an assignment, lifesafety 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, selected specialized equipment facilitates efficient rescuer movement, and specialized equipment does not unduly increase risks to rescuers or victims.

(A) *Requisite Knowledge:* Task-specific selection criteria for lifesafety harnesses, personal protective equipment selection criteria, variations in litter design and intended purpose, rigging principles, techniques and practices for high-angle environments, and common hazards posed by improper maneuvering and harnessing.

(B) *Requisite Skills:* The ability to select and use rescuer harness and personal protective equipment for common environments, attach the life safety harness to the rope rescue system, maneuver around existing environment and system-specific obstacles, perform work while suspended from the rope rescue system, and evaluate surroundings for potential hazards.

6.1.6 Move a victim in a high-angle or vertical environment, given a rope rescue system, victim transfer devices, and specialized equipment necessary for the environment, so that risks to victims and rescuers are minimized, undesirable victim movement within the transfer device is minimized, the means of attachment to the rope rescue system is maintained, the victim is removed from the hazard, selected specialized equipment facilitates efficient victim movement, and the victim can be transported to the local EMS provider.

(A) *Requisite Knowledge:* Task-specific selection criteria for patient transfer devices, various carrying techniques, personal protective equipment selection criteria, design characteristics and intended purpose of various transfer devices, rigging principles, methods to minimize common environmental hazards and hazards created in high-angle environments.

(B) *Requisite Skills:* The ability to choose patient transfer devices, select and use personal protective equipment appropriate to the conditions, attach a transfer device to the rope rescue system, reduce hazards for rescuers and victims, and determine specialized equipment needs for victim movement.

6.1.7 Direct a team in the construction of a highline system, given rescue personnel, life safety rope, rope rescue equipment, and suitable anchor system 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 component parts, system safety check is performed, movement on the system is efficient, and loads can be held in place or moved with minimal effort over the desired distance.

(A) *Requisite Knowledge:* Determination of incident needs as related to operation of highline systems, capabilities and limitations of various highline systems (including capacity ratings), incident site evaluation as related to interference concerns and obstacle negotiation, rigging principles, system safety check protocol, common personnel assignments and duties, common and critical operational commands, and common highline problems and ways to minimize these problems during construction.

(B) *Requisite Skills:* The ability to determine incident needs as related to construction of highline systems, evaluate an incident site as related to interference concerns and setup, identify the obstacles or voids to be negotiated with the highline, select a highline system for defined task, perform system safety checks, use rigging principles, and communicate with personnel effectively.

6.1.8 Direct a team in the operation of a highline system, given rescue personnel, an established highline system, a load to be moved, and personal protective equipment, 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 and tasks are communicated, and potential problems are identified, communicated, and managed.

(A) *Requisite Knowledge:* Ways to determine incident needs as related to the operation of highline systems, capabilities and limitations of various highline systems, incident site evaluation as related to interference concerns and obstacle negotiation, system safety check protocol, procedures to evaluate system components for compromised integrity, common personnel assignments and duties, common and critical operational commands, common highline problems and ways to minimize or manage those problems, and ways to increase the efficiency of load movement.

(B) *Requisite Skills:* The ability to determine incident needs, complete a system safety check, evaluate system components for compromised integrity, select personnel, communicate with personnel effectively, manage movement of the load, and evaluate for potential problems.

6.1.9 Ascend a fixed rope, given an anchored fixed rope system, a system to allow ascent of a fixed rope, a structure, a belay system, a life safety harness worn by the person ascending, and personal protective equipment, 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 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, and the system is suitable for the site and objective is reached.

(A) *Requisite Knowledge:* Task-specific selection criteria for lifesafety harnesses and systems for ascending a fixed rope, personal protective equipment selection criteria, design and intended purpose of ascent control devices utilized, rigging principles, techniques for high-angle environments, converting ascending systems to descending systems, and common hazards posed by maneuvering and harnessing.

(B) *Requisite Skills:* The ability to select and use rescuer harness, a system for ascending a fixed rope, and personal protective equipment for common environments; attach the life safety harness to the rope rescue system; configure ascent control devices to form a system for ascending a fixed rope; make connections to the ascending system; maneuver around existing environment and system-specific obstacles; convert the ascending system to a descending system while suspended from the fixed rope; and evaluate surroundings for potential hazards.

6.1.10 Descend a fixed rope, given an anchored fixed-rope system, a system to allow descent of a fixed rope, a belay system, a life safety harness worn by the person descending, and personal protective equipment, 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, and the system is suitable for the site and objective is reached.

(A) *Requisite Knowledge:* Task-specific selection criteria for life safety harnesses and systems for descending a fixed rope; personal protective equipment selection criteria; design, intended purpose, and operation of descent control devices utilized; safe rigging principles; techniques for high-angle environments; and common hazards posed by maneuvering and harnessing.

(B) *Requisite Skills:* The ability to select and use rescuer harness, a system for descending a fixed rope, and personal protective equipment for common environments; attach the life safety harness to the rope rescue system; make attachment of the descent control device to the rope and life safety harness; operate the descent control device; maneuver around existing environment and system-specific obstacles; and evaluate surroundings for potential hazards.