



# Standard Guide for Training for Level I Rope Rescue (R1) Rescuer Endorsement<sup>1</sup>

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## 1. Scope

1.1 This guide is intended to be used in conjunction with, and as an add-on to, Guide [F2751](#) (or equivalent for other environments), to address specific skills required for a rescuer who participates in rope rescue as part of a larger rescue duty.

1.1.1 Specifically, a Rope Rescue Endorsement is intended to provide guidance whereby an endorsed rescuer (under qualified supervision) may assist and support basic rope rescue functions, including patient packaging, litter rigging, and basic rope rigging functions, in conjunction with other rescue duties.

1.1.2 This guide establishes the minimum training standard for an endorsed Level I Rope Rescuer as related to general, field, and rope rescue-specific knowledge and skills.

1.1.3 Endorsed Level I Rope Rescuers (LRT-R1) must work under direct supervision of qualified rope rescue personnel.

1.2 An endorsed LRT-R1 Rescuer rescues on the surface of the land only. This guide alone does not provide the minimum training requirements for rescuing in partially or fully collapsed structures, in or on water, in confined spaces, or underground (such as caves, mines, and tunnels).

1.3 An endorsed LRT-R1 Rescuer is required to have knowledge and skill sets pertaining to the basic roped evacuation and carryout components of rope rescue. Only basic knots, rigging, and other patient transport skills are required of an endorsed LRT-R1 Rescuer.

1.4 Type II teams which may utilize personnel trained to this guide are Kind A (wilderness), Kind B (urban), and Kind C (mountainous).

1.4.1 Further training may be required before an endorsed LRT-R1 Rescuer can actually participate on a particular kind of rope rescue team, depending on authority having jurisdiction regulations or policies.

1.5 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the

responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

[F1490 Terminology Relating to Search and Rescue](#) (Withdrawn 2011)<sup>3</sup>

[F1633 Guide for Techniques in Land Search](#)

[F1768 Guide for Using Whistle Signals During Rope Rescue Operations](#)

[F1993 Classification System of Human Search and Rescue Resources](#) (Withdrawn 2014)<sup>3</sup>

[F2047 Practice for Workers' Compensation Coverage of Emergency Services Volunteers](#)

[F2209 Guide for Training of Level I Land Search Team Member](#)

[F2751 Guide for Training of Support Level Land Rescue Team Member \(LRT-Support\) Member](#)

## 3. Terminology

3.1 For definitions of terms used in this guide, see Terminology [F1490](#), Guide [F1633](#), Classification [F1993](#), Practice [F2047](#), and other references within this guide.

3.2 Except where noted, this document shall use terminology as found in Guide [F2751](#).

3.3 *Definitions of Terms Specific to This Standard:*

3.3.1 *Rope Rescue Team, n*—a group of individuals performing high angle rescue on steep to vertical terrain using rope as a primary adjunct to safety.

3.3.2 *Rope Rescuer, Level I (LRT-R1 Rescuer), n*—a member of a rope rescue team who, as a minimum, meets the requirements of this guide. These requirements define the basic, entry, awareness, or similar level of land rope rescue knowledge and skills.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

#### 4. Significance and Use

4.1 This guide establishes a minimum standard for training Rope Rescuers as it relates to their general, field, and rope rescue specific knowledge and skills. A person trained to this guide is an endorsed Level I Rope Rescuer (LRT-R1 Rescuer).

4.1.1 Every person who is identified as an endorsed LRT-R1 Rescuer shall have met the requirements of this guide.

4.1.2 This guide is only the first level of training for rope rescue personnel and, in conjunction with Guide **F2209**, only establishes the minimum knowledge and skills required for a person to perform basic rope rescue of a subject. No other advanced skills are included or implied.

4.1.3 In addition to meeting the requirements of this guide, an LRT-R1 Rescuer shall also be adequately trained in the environment in which he is expected to work (i.e., wilderness, urban, etc.)

4.1.4 Nothing in this guide precludes an AHJ from adding additional requirements for its own members.

4.2 Endorsement to Level I Rope Rescue (LRT-R1 Rescuer) is not an indication that personnel possess adequate field skills or knowledge to make mission-critical decisions. These personnel are qualified to work primarily in terrain with limited exposure and hazard potential.

4.3 This guide *by itself* is not a complete training document. It is only an outline of the topics required for training or evaluating an endorsed LRT-R1 Rescuer. It may, however, be used in the development of, or as part of, a complete training document or program.

4.3.1 This guide does not stand alone and must be used with the referenced documents to provide the specific information needed by an endorsed LRT-R1 Rescuer or AHJ.

4.4 Though this guide establishes only minimum standards, it does not imply that an endorsed LRT-R1 Rescuer is a “trainee,” “probationary,” or other similar term member of an AHJ. It is up to the AHJ to determine the requirements and qualifications for member ratings.

4.5 Because technical rope rescue is inherently dangerous and Rope Rescuers are frequently required to perform rigorous activities in adverse conditions, regional, and national safety standards shall be included in agency policies and procedures. Rope Rescuers shall complete all activities in the safest possible manner and shall follow national, federal, state, provincial, and local safety standards as they apply to the Rope Rescuer.

4.6 This guide can be used to evaluate a document to determine if its content meets the necessary topics for training an endorsed LRT-R1 Rescuer. Likewise, the guide can be used to evaluate an existing training program to see if it meets the requirements of this guide.

4.7 The knowledge and skills requirements in the following sections are not presented in any particular order and do not represent a training sequence.

4.8 Except where a physical skill needs to be shown, it is up to the AHJ to determine the best way to evaluate a person’s knowledge. This may be by written exam, oral exam, demonstration, or by some combination of the three.

#### 5. General Knowledge and Skills

##### 5.1 *General Requirements:*

5.1.1 As a prerequisite, LRT-R1 Rescuer shall possess some training, certification, or endorsement in the environment in which he is expected to work (urban, wilderness, mountainous, etc.).

5.1.2 For Land Rescue Personnel, meeting the requirements of Guide **F2751** shall be considered sufficient for meeting the requirements of **5.1.1**.

5.1.3 AHJ shall verify that endorsee possesses both attitude and aptitude for working at height, e.g. comfort with limited exposure, ability to move over the surface of terrain.

##### 5.2 *Personal Equipment:*

5.2.1 LRT-R1 Rescuer shall possess and carry, as a minimum, sufficient Personal Protective Equipment (PPE) and equipment to maintain personal safety while working on or around a rope rescue. Suitability of equipment shall be verified by the AHJ to include but not be limited to:

5.2.1.1 Head protection (helmet).

5.2.1.2 Hand protection (gloves).

5.2.1.3 Harness.

5.2.1.4 Slings/lanyards (for personal use).

5.2.1.5 Ascending equipment.

5.2.1.6 Eye protection (glasses/goggles/shield).

5.2.1.7 Adequate clothing.

5.2.1.8 Connectors (carabiners).

5.2.1.9 Descending equipment.

5.2.2 Additional rope rescue equipment necessary for an endorsed LRT-R1 Rescuer to safely participate on a rope rescue varies by type of rope rescue, team assignment, season, environment, and terrain.

5.2.3 An LRT-R1 Rescuer shall explain the reasons to carry, and explain or demonstrate the use of, all personal rope rescue equipment required by the AHJ.

5.2.4 LRT-R1 Rescuer shall be able to inspect PPE and personal rope rescue equipment for the purpose of identifying wear, damage, and operational readiness.

5.2.5 LRT-R1 Rescuer shall demonstrate ability to exercise appropriate maintenance procedures, including cleaning, as well as maintenance of equipment logs and records.

##### 5.3 *Team equipment:*

5.3.1 LRT-R1 Rescuer shall be familiar with team rope rescue equipment identified and commonly used by the AHJ. Such equipment may include, but not be limited to:

5.3.1.1 Medical equipment.

5.3.1.2 Patient packaging equipment.

5.3.1.3 Ropes.

5.3.1.4 Anchor slings.

5.3.1.5 Rope grab devices.

5.3.1.6 Litters.

5.3.1.7 Communications equipment.

5.3.1.8 Lowering devices.

5.3.1.9 Connectors and other hardware.

5.3.2 An endorsed LRT-R1 Rescuer shall explain the reasons to carry, and explain or demonstrate the use of, all rope rescue equipment required by the AHJ.

5.3.3 LRT-R1 Rescuer shall be able to inspect team equipment for the purpose of identifying wear, damage and operational readiness.

5.3.4 LRT-R1 Rescuer shall demonstrate ability to exercise appropriate maintenance procedures, including cleaning, as well as maintenance of logs and records.

#### 5.4 *Communications:*

5.4.1 LRT-R1 Rescuer shall be familiar and conversant in the use of whistle signals as found in Guide **F1768**.

## 6. Rope Rescue Concepts and Capabilities

6.1 LRT-R1 Rescuer shall be able to explain how the following basic concepts affect rope rescue:

- 6.1.1 Loads and forces.
- 6.1.2 Fall line.
- 6.1.3 Friction.
- 6.1.4 Secondary/backup systems.

#### 6.2 *Rope Rescue Capabilities:*

6.2.1 LRT-R1 Rescuer shall demonstrate ability to size up a rope rescue incident.

6.2.2 LRT-R1 Rescuer shall demonstrate ability to (based on size-up information) determine type of rope rescue, the number and location of victims, and assess resource needs.

6.2.3 LRT-R1 Rescuer shall demonstrate ability to recognize and manage potential site hazards.

6.2.4 LRT-R1 Rescuer shall demonstrate ability to assess risk-benefits of a rope rescue operation and mitigate reasonably predictable types of rope rescuer and victim risk.

6.2.5 LRT-R1 Rescuer shall demonstrate ability to identify and discuss factors that affect rope rescue efficiency, including (but not limited to):

- 6.2.5.1 Accuracy.
- 6.2.5.2 Speed.
- 6.2.5.3 Available personnel.
- 6.2.5.4 Terrain.
- 6.2.5.5 Weather.
- 6.2.5.6 Darkness.
- 6.2.5.7 Rope rescuer condition.
- 6.2.5.8 Subject condition.

6.2.6 LRT-R1 Rescuer shall demonstrate ability to identify different types of patient transport devices (litters) appropriate for steep and high angle use and discuss advantages/disadvantages of each.

6.2.7 LRT-R1 Rescuer shall be able to safely and effectively perform independently in the normal operating environment for a period of at least 12 h.

6.2.8 LRT-R1 Rescuer should be prepared for rescue operations conducted during the day or at night on terrain and seasonal conditions reasonably expected in the team's normal area of operation.

6.2.9 LRT-R1 Rescuer shall demonstrate ability to understand and make necessary adjustments for (including avoidance of) hazardous environments.

6.2.10 LRT-R1 Rescuer shall demonstrate ability to safely and effectively perform rope rescue duties within an incident management system.

6.2.11 LRT-R1 Rescuer shall be able to define common rope rescue team functions including but not limited to:

- 6.2.11.1 Raising/lowering system operator.
- 6.2.11.2 Litter attendant.
- 6.2.11.3 Safety.
- 6.2.11.4 Belayer.
- 6.2.11.5 Edge attendant.
- 6.2.11.6 Team leader.

#### 6.3 *Rope Rescue Techniques:*

6.3.1 LRT-R1 Rescuer shall demonstrate ability to locate and access a patient on low angle to steep terrain in normal operating environment.

6.3.2 LRT-R1 Rescuer shall demonstrate ability to determine and maintain a point of access to subject on low angle to steep terrain.

6.3.3 LRT-R1 Rescuer shall demonstrate understanding of concepts and consequences of fall line in low angle to steep terrain.

6.3.4 LRT-R1 Rescuer shall have basic knot tying skills, including ability to tie at least one of each of the following types of knots/bends:

- 6.3.4.1 End-loop around an object.
- 6.3.4.2 A midline loop.
- 6.3.4.3 Bend to join two ropes.

6.3.5 LRT-R1 Rescuer shall understand basic anchoring concepts, including:

- 6.3.5.1 Selection of anchor materials.
- 6.3.5.2 Strength, alignment, and limitation of anchors.
- 6.3.5.3 Proficiency in rigging single point anchors.
- 6.3.5.4 Familiarity with multi-point anchors.

6.3.6 LRT-R1 Rescuer shall have sufficient skills to participate in low angle litter evacuation procedures, including:

- 6.3.6.1 Main line rigging.
- 6.3.6.2 Belay line rigging.
- 6.3.6.3 Litter rigging.
- 6.3.6.4 Haul systems.

## 7. Keywords

7.1 Extrication; Rescue; Rope; SAR; Technical Rescue; USAR

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