



Designation: F3027 – 18

## Standard Guide for Training of Personnel Operating in Mountainous Terrain (Mountain Endorsement)<sup>1</sup>

This standard is issued under the fixed designation F3027; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This guide establishes the minimum training, including general and field knowledge, skills, and abilities, for search and rescue personnel who conduct operations in mountainous terrain.

1.2 A Mountain Endorsement is intended only for those individuals capable of operating in the difficult conditions found in mountainous terrain, at altitudes that may have a negative impact on human physiology.

1.3 Specifically, Mountain-Endorsed individuals may, under qualified supervision, perform their normal duties safely and effectively in mountainous terrain.

1.4 A Mountain Endorsement alone is not sufficient to indicate that an individual has the knowledge, skills, and/or abilities to perform any specific duties, including search and rescue operations, other than those defined within this guide.

1.5 This guide alone does not provide the minimum training requirements for performing operations in partially or fully collapsed structures, in- or on-water, in confined spaces, underground (such as in caves, mines, and tunnels), or in an alpine environment.

1.6 A Mountain-Endorsed individual may be a member of a Mountainous Land Search Team or Task Force or Group, as defined in Guide [F1993](#).

1.7 Mountain-Endorsed SAR personnel must work under qualified supervision, as deemed appropriate by the Authority Having Jurisdiction (AHJ).

1.8 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.9 *This international standard was developed in accordance with internationally recognized principles on standard-*

*ization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Referenced Documents

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

[F1773](#) Terminology Relating to Climbing, Mountaineering, Search and Rescue Equipment and Practices

[F1993](#) Classification System of Human Land Search and Rescue Resources

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

[F2752](#) Guide for Training for Level I Rope Rescue (R1) Rescuer Endorsement

[F3068](#) Guide for Contents and Use of a Position Task Book (PTB)

[F3222](#) Terminology Relating to F32 Land Search and Rescue Standards and Guides

#### 2.2 Other References:

National Wildfire Coordinating Group (NWCG) publication PMS 304-2, “Fitness and Work Capacity”

“Mountaineering: The Freedom of the Hills,” 8th ed., Ronald C. Eng and Julie Van Pelt, eds.

### 3. Terminology

#### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *alpine ice axe, n*—as defined by the UIAA (Union Internationale Des Associations D’Alpinisme), a Type B ice tool (the UIAA Basic type) with lower strength, for use in general circumstances, as on glacier for snow hiking, for ski mountaineering, etc., and which meets the requirements of UIAA 152 or CE EN 13089:2011.

3.2 For definitions of other terms used in this guide, see Terminology [F1773](#), Terminology [F3222](#), and Guides [F1993](#), [F2209](#), and [F2752](#).

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee [F32](#) on Search and Rescue and is the direct responsibility of Subcommittee [F32.03](#) on Personnel, Training and Education.

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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.

#### 4. Significance and Use

4.1 This guide establishes a minimum standard for training of SAR personnel who conduct operations in mountainous terrain.

4.1.1 Mountain-Endorsed individuals are required to have, at a minimum, the knowledge, skills, and abilities pertaining to safe movement individually, or as a member of a team, in mountainous terrain.

4.1.2 Every person who is identified as Mountain Endorsed shall meet the requirements of this guide.

4.1.3 Mountain-Endorsed individuals shall be entitled to add the prefix “Mountain Endorsed”) to their current training levels.

4.2 This guide only establishes the minimum knowledge, skills, and abilities required for a person to operate in mountainous terrain as a part of a larger team. No other skills are included or implied.

4.3 Mountain Endorsement only indicates that personnel are qualified to operate safely and effectively in mountainous terrain in their normal area of operations.

4.3.1 A Mountain Endorsement alone does not indicate that an individual possesses adequate field skills and knowledge to make mission-critical decisions.

4.4 This guide is an outline of the topics required for training or evaluating a Mountain-Endorsed individual, and may be used to assist in the development of a training document or program.

4.5 This guide can be used to evaluate a document to determine if its content includes the topics necessary for training individuals to operate in the mountainous environment. Likewise, this guide can be used to evaluate an existing training program to see if it meets the requirements in this guide.

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

4.7 This guide does not stand alone and must be used with other ASTM Standards to identify the knowledge, skills, and abilities needed to conduct search and/or rescue in the mountainous environment.

4.8 Though this guide establishes only minimum standards, it does not imply that a Mountain-Endorsed individual is a “trainee,” “probationary,” or other similarly termed member of an organization.

4.8.1 The AHJ is responsible for determining the requirements and qualifications for its team member ratings.

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

4.9 A Mountain-Endorsed individual shall document his or her training by completion of a position task book, compliant with Guide **F3068**, or by field demonstration under qualified supervision.

4.10 Where proficiency in a skill or ability must be demonstrated, unless stated otherwise it shall be demonstrated for initial qualification, and as often as required by the AHJ.

#### 5. General Knowledge

5.1 The AHJ shall verify that a Mountain-Endorsed person possesses both attitude and aptitude for working in mountainous terrain:

5.1.1 The individual must demonstrate the ability to function effectively in highly exposed locations, at altitude, in the conditions normal to that terrain;

5.1.2 The individual must demonstrate the ability to move safely and effectively anywhere in that terrain.

5.2 Mountain-Endorsed individuals shall demonstrate knowledge of the following:

5.2.1 The differences between wilderness travel and mountain travel.

5.2.2 Human functional and survival needs in cold, windy, and wet environments, including:

5.2.2.1 Clothing (suitable for all four seasons);

5.2.2.2 Shelter, both emergency and extended stay;

5.2.2.3 Nutrition;

5.2.2.4 Hydration;

5.2.2.5 Hygiene;

5.2.2.6 Sanitation;

5.2.2.7 Individual and team safety issues specific to operating in mountainous terrain.

5.2.3 Medical conditions such as:

5.2.3.1 Acute Mountain Sickness (AMS);

5.2.3.2 High Altitude Pulmonary Edema (HAPE);

5.2.3.3 High Altitude Cerebral Edema (HACE);

5.2.3.4 Hypothermia;

5.2.3.5 Snow blindness;

5.2.3.6 Frostbite.

5.2.4 Risks and hazards specific to mountainous terrain, and methods for avoiding or mitigating them. Such risks and hazards include:

5.2.4.1 Personal fall;

5.2.4.2 Rock fall;

5.2.4.3 Severe and rapidly changing weather;

5.2.4.4 Avalanches if avalanches occur within the normal response area;

5.2.4.5 Rapidly rising water and flash floods.

5.3 If avalanches occur within the normal response area, or if required by the AHJ, Mountain-Endorsed individuals shall have, at a minimum, American Institute for Avalanche Research and Education (AIARE) Level 1, National Ski Patrol (NSP) Level 1, American Avalanche Association (AAA) Level 1, or equivalent avalanche safety and rescue training.

#### 6. Skills and Abilities Specific to Mountainous Terrain

6.1 Mountain-Endorsed individuals shall possess and carry sufficient Personal Protective Equipment (PPE) and gear to function effectively in mountainous terrain while maintaining personal safety. This PPE and gear shall include, at a minimum, the following:

6.1.1 Head protection (helmet);

6.1.2 Hand protection (gloves);

6.1.3 Eye protection (glasses/goggles/shield);

6.1.4 Sufficient clothing, appropriate to the environment and terrain;