



# Standard Terminology Relating to Climbing and Mountaineering Equipment and Practices<sup>1</sup>

This standard is issued under the fixed designation F 1773; 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 approval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This terminology defines the terms that are unique to climbing and mountaineering and the statistical basis for rating a product's performance.

## 2. Referenced Documents

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

E 456 Terminology Relating to Quality and Statistics

E 1150 Definitions of Terms Relating to Fatigue<sup>3</sup>

## 3. Terminology

3.1 *Definitions of General Climbing and Mountaineering Terms*:

3.1.1 **aid climbing**, *n*—a technique of climbing that utilizes auxiliary devices as a means of ascent to supplement the natural features of the surface being climbed.

3.1.2 **belay**, *n*—a technique where a stationary person controls a rope connected to a moving climber in order to provide protection against a fall, or in the event of a fall, to catch the climber.

3.1.3 **belay**, *v*—to protect a climber with a belay.

3.1.4 **belayer**, *n*—a person who is belaying.

3.1.5 **bouldering**, *n*—a technique of climbing where climbers remain close to the ground and do not use a rope to safeguard their progress.

3.1.6 **climber**, *n*—a person engaging in the sport of climbing and mountaineering.

3.1.7 **climbing and mountaineering**, *n*—the sport of ascending, descending, and traversing on mountainous terrain, snow and ice, and natural and simulated rock surfaces.

3.1.8 **climbing and mountaineering equipment**, *n*—the equipment exclusively designed for use in climbing and mountaineering.

3.1.9 **free climbing**, *n*—a technique of climbing that uses only the natural features of the surface being climbed. In free climbing, equipment may be utilized to provide protection in the event of a fall, but is not used to assist progress.

3.1.10 **lead climbing**, *n*—the skill of climbing first up a pitch, utilizing a belayer, climbing rope, and intermediate protection anchors.

3.1.11 **rappel**, *n*—the set up of anchors and equipment used to rappel.

3.1.12 **rappel**, *v*—to descend by sliding down a rope using equipment or special technique, or both, which applies friction, thereby controlling the speed of descent.

3.1.13 **route**, *n*—the path chosen by a climber.

3.1.14 **self belay**, *n*—a technique of self protection employed by a climber using climbing and mountaineering equipment.

3.1.15 **soloining**, *n*—a technique of climbing where the climber is alone. A belay may or may not be used.

3.1.16 **top rope climbing**, *n*—a technique of climbing where the climber is safeguarded by a roped belay from above.

3.2 *Definitions of Climbing and Mountaineering Equipment Terms*:

3.2.1 **accessory cord**, *n*—ropes used for climbing and mountaineering purposes that are not designed to absorb fall impact energy.

3.2.2 **artificial climbing wall (ACW)**, *n*—a wall exclusively designed and built for climbing. The ACWs may be designed and used for lead climbing, top rope climbing or bouldering. The ACWs may be transportable or permanent.

3.2.3 **ascender**, *n*—a device used to ascend a rope.

3.2.4 **belay anchor**, *n*—an anchor used to secure the rope or belayer, or both, while belaying a climber. It also may be used with ropes while descending or lowering.

3.2.5 **belay bar**, *n*—a belay anchor made from pipe or a bar.

3.2.6 **belay device**, *n*—a mechanical device used to control the friction on a rope.

3.2.7 **belay station**, *n*—a place where belay anchors are located.

3.2.8 **bolt hanger**, *n*—a device which, when attached to a surface by the means of a bolt, is used to provide an anchor point.

3.2.9 **carabiner**, *n*—a self-closing, gated, load-bearing, connective device.

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee F08 on Sports Equipment and Facilities and is the direct responsibility of Subcommittee F08.21 on Climbing and Mountaineering.

Current edition approved May 1, 2004. Published May 2004. Originally approved in 1997. Last previous edition approved in 1997 as F 1773 – 97.

<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> Withdrawn.

3.2.10 **carabiner, locking**, *n*—a carabiner with a gate-locking mechanism.

3.2.11 **carabiner, nonlocking**, *n*—a carabiner without a gate-locking mechanism.

3.2.12 **chock**, *n*—a device that is placed in a crack or pocket in rock and designed to withstand a load applied through webbing, rope, wire, or a carabiner.

3.2.13 **chock, active**, *n*—a chock containing moving parts that control its width.

3.2.14 **chock, passive**, *n*—a chock containing no moving parts.

3.2.15 **crampon**, *n*—a foot-mounted piece of equipment with spikes designed to provide traction or support on snow and ice.

3.2.16 **descender**, *n*—a rappel device.

3.2.17 **floor anchor**, *n*—a belay anchor on the floor.

3.2.18 **harness**, *n*—a piece of equipment designed to be worn by a climber or mountaineer that provides an attachment point for a rope and a means to support the climber's body during climbing, resting, rappelling, or falling.

3.2.19 **harness, chest**, *n*—the part of a combination harness that fits around the upper part of the body.

3.2.20 **harness, combination**, *n*—a harness consisting of a sit harness and chest harness.

3.2.21 **harness, full-body**, *n*—a harness that fits around the upper part, the waist, and thighs of the body.

3.2.22 **harness, sit**, *n*—a harness that fits around the waist and thighs of the body. Sometimes referred to as a *seat harness*.

3.2.23 **helmet**, *n*—a piece of equipment designed to provide protection to climbers' heads from falling objects and the impact of a fall.

3.2.24 **ice tool**, *n*—a hand-held piece of equipment designed to assist climbers and mountaineers on ice or hard snow.

3.2.25 **kernmantle construction**, *n*—a method of making cord and rope by braiding a sheath or cover (mantle) over a core (kern) of parallel, twisted, or braided strands.

3.2.26 **low elongation ropes**, *n*—ropes with low elongation or stretch properties used principally for static loads. Low elongation ropes sometimes are referred to as *static ropes*.

3.2.27 **piton**, *n*—*ice*, a device designed to be hammered into ice to provide a belay or protection anchor.

3.2.28 **piton**, *n*—*rock*, a device designed to be driven by a hammer into a crack in rock to provide a belay or protection anchor.

3.2.29 **protection anchors**, *n*—anchors used to secure a climbing rope while leading a climb or to lower off one.

3.2.30 **pulley**, *n*—a device containing a grooved wheel over which a rope runs to reduce friction and change the angle of pull.

3.2.31 **rappel device**, *n*—a friction device used on a rope to control the speed while rappelling.

3.2.32 **rock protection**, *n*—equipment designed to provide protection and belay anchors in rock.

3.2.33 **rope**, *n*—wound or woven length of filaments, provided in various diameters, lengths, and elasticity depending on specific end use.

*climbing*, *n*—a rope of kernmantle construction, specifically designed to provide support, facilitate movement, and pro-

tect a climber by cushioning the impact of a fall. Climbing ropes sometimes are referred to as dynamic ropes.

*double*, *n*—a half rope.

*half*, *n*—a climbing rope that must be used with another half rope with one or both ropes being attached to protection anchors.

*single*, *n*—a climbing rope that may be used alone.

*twin*, *n*—a special type of half rope in which both rope strands are used as one with both running through the same protection anchors.

3.2.34 **runner**, *n*—a sewn or tied loop of webbing or rope designed to support a load.

3.2.35 **quick draw**, *n*—a short runner.

3.2.36 **screw, ice** *n*—a device designed to be screwed into ice to provide a belay or protection anchor.

3.2.37 **sling**, *n*—a runner.

3.2.38 **snow anchor**, *n*—a device driven into or buried in snow to provide a belay or protection anchor.

3.2.39 **webbing**, *n*—a flat or tubular length of woven fabric used for a variety of purposes in climbing and mountaineering.

### 3.3 Other Terms:

3.3.1 **attribute data**, *n*—observed values or determinations which indicate the presence or absence of specific characteristics.

#### E 456

3.3.2 **laboratory performance rating**, *n*—the rating of a product's performance defined by a standard test method.

3.3.3 **laboratory rated strength**, *n*—the strength defined by a standard test method that 99.7 %, or more, of a population exceeds. The number shall be derived using a 3-s rating. Rated strength shall be expressed in metric units of force, kilonewtons (kN).

3.3.4 **lot**, *n*—a definite quantity of a product or material accumulated under conditions that are considered uniform for sampling.

#### E 456

3.3.5 **performance rating**, *n*—the rating of a product's performance defined by a standard test method.

3.3.6 **population**, *n*—the totality of items or units of material under consideration.

#### E 456

3.3.7 **sample**, *n*—a group of items, observations, test results, or portions of material, taken from a large collection (population) of items, observations, test results, or quantities of material that serves to provide information that may be used as a basis for making a decision concerning the larger collection.

#### E 456

3.3.8 **sample average** ( $\bar{x}$ ), *n*—the sum of all the observed values in a sample divided by the sample size. It is a point estimate of the population mean.

#### E 1150

3.3.9 **sample standard deviation** (*s*), *n*—the square root of the sample variance. It is a point estimate of the population standard deviation, a measure of the *spread* of the frequency distribution of a population. Sample standard deviation is defined as follows:

$$s = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n(n-1)}} \quad (1)$$

where:

- $s$  = sample standard deviation,
- $n$  = number of units in a sample, and
- $x$  = sample property being measured.

**E 1150**

3.3.10 **three s rating (3s)**,  $n$ —a statistical method used to derive rated strength, using the formula:

$$\text{Rated Strength} = \bar{x} - 3(s) \quad (2)$$

where:

- $\bar{x}$  = tested sample's average ultimate strength, and
- $s$  = tested sample's standard deviation.

3.3.11 **ultimate strength**,  $n$ —the maximum force sustained as defined by a standard test method.

3.3.12 **variable data**,  $n$ —measurements that vary and may take any of a specified set of numerical values.

**E 456**

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