

# ANSI/ASSP Z459.1-2021

Safety Requirements for Rope Access Systems

Part of the Fall Protection Code

PREVIEW ONLY



AMERICAN SOCIETY OF  
**SAFETY PROFESSIONALS**



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**ANSI/ASSP Z459.1 – 2021**

**American National Standard**

**Safety Requirements for  
Rope Access Systems**

PREVIEW ONLY

Secretariat

**American Society of Safety Professionals**  
520 N. Northwest Highway  
Park Ridge, Illinois 60068

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## Foreword

(This Foreword is not a part of American National Standard Z459.1 – 2021.)

Rope access is a method of working at height, typically using synthetic fiber kernmantle ropes and associated equipment, used to gain access to, be supported at and as a means of egress from a place of work. It is a viable means of achieving 100% fall protection as long as program requirements, the system of work applied by competent technicians, and component and element requirements are adequately met.

Supporting and enabling users of rope access to achieve this complete system of work, in which program management, equipment, competence and supervision are equally important, is the primary intent of this standard. The absence or failure of any part of the complete work system can reduce safety or even render the entire rope access program null.

**History:** This standard is the first edition of a standard intended to address rope access. It is intended to enhance and build upon the language found in earlier editions of ANSI/ASSP Z359.2 regarding rope access. In the case of conflicting information, this document should take precedence.

**Standard Perspective:** This standard is intended for use by all persons concerned with the use of rope access methods for work at height, including technicians, safety managers, specifiers, rope access supervisors, purchasing personnel, trainers, clients and regulatory authorities.

In the spirit of encompassing an as-yet undeveloped area of fall protection standards, this document addresses:

- Program Requirements
- System Requirements, and
- Component and Element Requirements

Equipment specifications and performance criteria for systems, subsystems and components used in rope access methods are covered in this standard as they relate to both the rope access progress system and the rope access backup system. Requirements for adequate training and verification of knowledge and skills through pre-planning efforts prior to the initiation of the job address the needs of both the rope access technician and their manager(s). This standard establishes criteria relevant to rope access program requirements, system requirements, component and element requirements, and personnel requirements for rigging and training.

ANSI Z459.1 is overseen by the ANSI Z359 Committee. The Z359 Committee solicits public input that may suggest revisions to the standard. Such input should be sent to the Secretariat, American Society of Safety Professionals, 520 N. Northwest Highway, Park Ridge, Illinois 60068.

**Normative Requirements:** This standard uses the single column format. The normative requirements appear aligned to the left margin. To meet the requirements of this standard, machinery, equipment and process suppliers and users must conform to these normative requirements. These requirements typically use the verb “shall.”

*NOTE: The informative or explanatory notes in this standard appear indented, in italics, in a reduced font size, which is an effort to provide a visual signal to the reader that this is an informative note, not normative text, and is not to be considered part of the requirements of this standard; this text is advisory in nature only. The suppliers and users are not required to conform to the informative note. The informative note is presented in this manner in an attempt to enhance readability and to provide explanation or guidance to the sections they follow.*

**Revisions:** The Z359 Committee welcomes proposals for revisions to this standard. Revisions are made to the standard periodically (usually every five years from the date of the standard) to incorporate changes that appear necessary or desirable, as demonstrated by experience gained from the application of the standard. Proposals should be as specific as possible, citing the relevant section number(s), the proposed wording, and the reason for the proposal. Pertinent documentation would enable the Z459.1 Committee to process the changes in a timely manner.

**Interpretations:** Upon a request in writing to the Secretariat, the Z359 Committee will render an interpretation of any requirement of the standard. The request for interpretation should be clear, citing the relevant section number(s) and phrased as a request for a clarification of a specific requirement. Oral interpretations are not provided.

Only the Z359 Committee (through the Z359 Secretariat) is authorized to provide any interpretation of this standard.

**Approval:** Neither the Z359 Committee nor the American National Standards Institute (ANSI) approves, certifies, rates or endorses any item, construction, proprietary device or activity.

**Appendices:** Appendices are included in most standards to provide the user with additional information related to the subject of the standard. Appendices are not part of the approved standard.

**Committee Meetings:** The Z359 Committee meets on a regular basis. Persons wishing to attend a meeting should contact the Secretariat for information.

**Standard Approval:** This standard was developed and approved for submittal to ANSI by the Z359 Committee. Approval of the standard does not necessarily imply that all members voted for its approval. At the time of its approval, the ANSI Z359 Standards Committee had the following members:

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## AMERICAN NATIONAL STANDARD Z459.1 SAFETY REQUIREMENTS FOR ROPE ACCESS SYSTEMS

### 1. Scope, Purpose, Application, Exceptions and Interpretations

#### 1.1 Scope

**1.1.1** This standard sets forth accepted practices for rope access work. It is applicable for use in any environment where ropes are suspended from or connected to a structure or natural feature and used as the primary means of access, egress or support and as the primary means of secondary protection against a fall.

*NOTE: This standard includes minimum program, equipment, component and element requirements for the use and application of the two-rope system, including both progress system and backup system, required for use during rope access work.*

**1.1.2** Where applicable, this standard establishes requirements for the performance, design, marking, qualification, test methods and instructions of key equipment comprising rope access systems for authorized rope access technicians within the capacity range of 130 pounds to 310 pounds (59kg to 141kg).

**1.1.3** This standard should be used in conjunction with other fall protection requirements standards in order to achieve a balanced managed fall protection program.

*NOTE: Additional guidance on training, use, maintenance, removal from service of rope access systems is addressed in ANSI/ASSP Z359.2, Minimum Requirements for a Comprehensive Managed Fall Protection Program, which provides the requirements for overall program management.*

#### 1.2 Purpose

**1.2.1** This standard addresses minimum requirements for system planning and use as well as, design, manufacture and testing of equipment used for rope access.

**1.2.2** This standard addresses principles and equipment for rope access systems.

*NOTE: Parts of these systems may be similar in appearance to that used for restraint, positioning or fall arrest. However, because such equipment differs in design, use and application, the user should exercise caution to not confuse rope access equipment with these conventional systems.*

**1.2.2.1** This standard addresses all forms of rope access that involve movement up or down and working while being suspended from ropes. This may include traversing, aid climbing, lead climbing and other forms of suspended access.

**1.2.3** This standard addresses all aspects of an effective rope access program, which is not limited to equipment only. The comprehensive rope access program shall be written to include provision for:

- effective management;
- competence specific to rope access;
- suitable equipment.

*NOTE: Rope access technicians, designers, safety managers, competent rope access technicians, purchasing personnel, trainers, clients and regulatory authorities should always consider the entire system of work to ensure correct operation of a rope access system:*

- *system management and planning;*
- *certification of competent rope access technicians and appropriate team composition;*
- *equipment selection, use and maintenance;*
- *proper organization and execution of working methods.*

*Other factors may also warrant consideration depending upon the nature and location of work to be performed, competence and experience of rope access technicians and variation in regulatory requirements.*

*Additional guidance toward competence and management of a comprehensive managed fall protection program may be found in ANSI/ASSP Z359.2, Minimum Requirements for a Comprehensive Managed Fall Protection Program.*

**1.2.4** This document sets forth the provisions that equipment must meet in order to bear the marking “Z459.1” or be represented in any way as being in compliance with this standard.

**1.2.5** This document sets forth the intent that before any person shall engage in rope access work, they shall be properly trained in the necessary skills and possess the knowledge specific to rope access, and their competency in rope access be verified by the employer’s rope access program administrator.

*NOTE: Additional information regarding appropriate training for authorized rope access technicians may be found in the authorized rope access technician section of Z359.2. Additional information regarding appropriate training for rope access competent rope access technicians may be found in the competent rope access technician section of Z359.2.*

**1.2.6** In this standard, values for measurement are followed by an equivalent in parentheses, but only the first stated value shall be regarded as the requirement. Equivalent values in parentheses are not considered as the requirement, as these values can be approximate.

**1.2.7** Unless otherwise specified, the values stated in this standard are expressed as nominal values. Except for temperature limits, values which are not stated as maxima or minima shall be subject to a tolerance of  $\pm 5\%$ . Unless otherwise specified, the ambient temperature for testing shall be between 35°F and 100°F and all other temperature limits shall be subject to an accuracy of  $\pm 2^\circ\text{F}$ .

**1.2.8** Products, systems and programs shall be compliant to requirements of this standard (effective date) within 12 months after the standard’s publication date.

**1.2.9** For the purposes of this standard, the terms “Authorized Rope Access Technician,” “Competent Rope Access Technician,” “Qualified Rope Access Person,” and “Rope Access Program Administrator” shall have the meanings unique to rope access as defined in Section 2.

**1.3 Exceptions**

**1.3.1** Body belts are not addressed by this standard unless incorporated into a full body harness.

**1.3.2** When a rope access technician uses fall protection that is identified as conventional fall protection, and/or that falls under the scope of another applicable standard, the standards applicable to that type of protection shall be met.

*NOTE: Conventional methods of fall protection, as referenced in this document, refer to systems for fall arrest, restraint, positioning and/or rescue as found in ANSI/ASSP Z359.1, The Fall Protection Code.*

**1.3.3** This standard is not intended to apply to recreational use of ropes or to methods used by professional emergency response personnel.