

AMERICAN NATIONAL STANDARD

ANSI/ASSE Z359.1-2016

The Fall Protection Code

Part of the Fall Protection Code



AMERICAN SOCIETY OF
SAFETY ENGINEERS



The information and materials contained in this publication have been developed from sources believed to be reliable. However, the American Society of Safety Engineers (ASSE) as secretariat of the ANSI accredited Z359 Committee or individual committee members accept no legal responsibility for the correctness or completeness of this material or its application to specific factual situations. By publication of this standard, ASSE or the Z359 Committee does not ensure that adherence to these recommendations will protect the safety or health of any persons, or preserve property.

American National Standard

The Fall Protection Code

Secretariat

American Society of Safety Engineers

520 N. Northwest Highway
Park Ridge, Illinois 60068

Approved August 15, 2016

Effective August 14, 2017

American National Standards Institute, Inc.

American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer. Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution. The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he/she has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards. The American National Standards Institute does not develop standards and will in no circumstance give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretation should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

Caution Notice: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published November 2016 by

American Society of Safety Engineers
520 N. Northwest Highway
Park Ridge, Illinois 60068
(847) 699-2929 • www.asse.org

Copyright ©2016 by American Society of Safety Engineers
All Rights Reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

Printed in the United States of America

Foreword (This Foreword is not a part of American National Standard Z359.1-2016)

The first edition of ANSI/ASSE Z359.1, published in 1992, was the first American National Standard for personal fall arrest systems in non-construction occupations. It established requirements for performance, design, marking, qualification, instruction, training, inspection, use, maintenance and removal from service of full body harnesses, connectors, lanyards, energy absorbers, anchorage connectors, fall arresters, vertical lifelines and self-retracting lanyards.

This standard was reaffirmed in 1999 and revised in 2007. By the time the next revision appeared in 2007, it was accompanied by new ANSI/ASSE Z359 standards for managed fall protection program elements, positioning and travel restraint systems, and rescue systems. Additionally, the definitions common to all ANSI/ASSE Z359 standards were published in a separate standard. In the years since then, new standards have been developed for the products and systems covered by ANSI/ASSE Z359.1-2007, and the requirements of that standard have been superseded. This set of ANSI/ASSE Z359 standards is referred to collectively as the Fall Protection Code.

This edition of ANSI/ASSE Z359.1 therefore is a new standard in regards to technical content, not a simple revision of the requirements in the previous editions. The intent of this standard is to provide a key to understanding and applying the standards within the ANSI/ASSE Z359 Fall Protection Code, as well as a single point of reference to define compliance with the Code. This will allow organizations the ability to identify a single standard when accepting the Code as a single document, ANSI/ASSE Z359.1.

While a majority of the criteria within the product standards for the ANSI/ASSE Z359 Fall Protection Code is prepared to create consistency and minimum requirements for products offered by manufacturers and distributors, there is also a sizeable amount of information that is relevant for the user's organization. In addition to this standard, ANSI/ASSE Z359.2, *Minimum Requirements for a Comprehensive Managed Fall Protection Program*, should be the first document that someone within a user's organization should become familiar. Also, there is relevant information within the product standards that provides guidance on the use and limitations associated with the specific product category. Manufacturers and distributors are also required to provide this information in the instruction material provided with the product. The ANSI/ASSE Z359 Fall Protection Code now includes all fall protection risks and exposures excluding material handling operations or sports related activities.

The interdependence of the ANSI/ASSE Z359 standards is key to their use as a Fall Protection Code. Although the equipment aspect of fall protection is likely the most visible element, all of the standards must be implemented to create a safe and truly compliant fall protection system and program. For example, training, fall hazard surveys and procedures are critical to safely identifying, evaluating and controlling fall hazards based on the hierarchy of controls. The ANSI/ASSE Z359.2 standard contains these items and should be integral to your overall program. Furthermore, it is becoming more common, and in some instances a requirement, that a qualified person who is commonly an engineer, design the overall system. This act of design includes selecting the system, ensuring strength of the anchorage(s), specifying equipment components, preparing use and rescue procedures, and verifying the implementation of general and system-specific training. Requirements for engineered systems are found in ANSI/ASSE Z359.6.

The standards in the Fall Protection Code are constantly evolving, and are revised on a regular schedule in conformity to ANSI requirements. ANSI/ASSE Z359.1 will be kept up-to-date as new standards and revisions are developed and published. The use of national consensus standards is voluntary. Please note that the revised Code requires that all products meet the current version of the applicable standard when purchased. Product in use when new standards or revisions to existing standards become effective can continue to be used until they are removed from service.

The ANSI/ASSE Z359 Committee solicits public input that may suggest the need for revisions to this standard. Such input should be sent to the Secretariat, ASC Z359, American Society of Safety Engineers, 520 N. Northwest Highway, Park Ridge, IL 60068.

This standard was developed and approved for submittal to ANSI by the American National Standards Committee on Standards for Fall Protection, ANSI/ASSE Z359. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the ANSI/ASSE Z359 Committee had the following members:

Randall Wingfield, Chair
 Thomas Kramer, P.E., CSP, Vice Chair
 Timothy R. Fisher, CSP, CHMM, ARM, CPEA, Secretary
 Ovidiu Munteanu, Assistant Secretary
 Jennie Dalesandro, Administrative Technical Support

Organization Represented	Name of Representative
3M	Raymond Mann Judd Perner
American Airlines American Society of Safety Engineers	Len Bradley Jubal D. Hamernik, Ph.D., P.E. John Stephen Frost, CSP
Bashlin Industries, Inc. Boeing Company	Bradley S. McGill Chuck Orebaugh Joey R. Junio, P.E.
Buckingham Mfg. Co., Inc.	James Rullo DeForest Canfield
Chevron	Craig Berkenmeier, ARM Joshua Ockmond, CSP
Clear Channel Outdoor	Jim Poage Dan Rossi
ClimbTech LLC	Karl Guthrie Eric Patrick
Dynamic Industries, Inc.	Gary LoPiccolo Brandon Muffoletto, CSP
Elk River, Inc.	Delisa Calhoun Erik Arendall
Ellis Fall Safety Solutions, LLC	J. Nigel Ellis, Ph.D., P.E., CSP, CPE John T. Whitty, P.E.
ExxonMobil Corporation FallTech	Freddie Johnson Dustin Hawkins Warren Faber
Flexible Lifeline Systems	Hugh Armstrong Michael Bailey, P.E.
General Motors Gorbelt Inc.	Ken Mahnick, P.E. Allen Baughman Kevin Duhamel
Gravitec Systems, Inc.	Randall Wingfield Dave Lough
Hartford Steam Boiler Inspection & Insurance Co.	Timothy Healey Jerry Kucharski, CFPS
High Engineering Corp.	William R. Parsons, P.Eng. Greg Small, P.Eng., M.Eng.

Honeywell Safety Products	Bradley Rohlf
Indianapolis Power and Light	Chris Huber
INSPEC International Ltd.	David Baldwin
ISEA – International Safety Equipment Association	David H. Pate, CUSA
Lawrence Livermore National Security	Paul Clarke, CEng, MIMechE
Liberty Mutual Group	Andrew Diamond, MInstP, BSc (Hons)
Lighthouse Safety LLC	Dan Shipp
LJB Inc.	Eric Miller
Martin/Martin Consulting Engineers	Louis Renner, CSP
Monsanto	Steve McConnell, CSP, CIH
MSA	Cal Sparks
Murdock Webbing Co. Inc.	Matthew Zaffini
National Association of Tower Erectors	John Corriveau
Pamela R. Huck, Inc.	Mark Benes
PenSafe	Thomas Kramer, P.E., CSP
Petzl America	Rupert Noton, CEng, MIStructE
Pigeon Mountain Industries, Inc.	Andrew Emmons, P.E.
Reliance Industries, LLC	Matthew Schneider, P.E.
Rigid Lifelines	Robert Kling, P.E., CSP
Rooftop Anchor, Inc.	Adam Chapin
Safety Connection, Inc.	Rob Willis
Safety Equipment Institute	Tim Bissett
Safety Through Engineering, Inc. (dba STE, Inc.)	Robert Golz
Shell Exploration & Production Co.	Greg Pilgrim
Skylotec North America, LP	Gordon Lyman
Southern Weaving Co.	Don Doty
	Pamela Huck, CSP
	Keith Smith
	Rick Vance
	Jeremiah Wangsgard
	Jeff Bowles
	Kim Hunter
	Dan Henn
	W. Joe Shaw
	Arnie Galpin, P.E.
	John Kemp
	Kynan Wynne
	Tyson Munford, P.E.
	Clint Honeycutt, Sr.
	Janice Honeycutt
	Steve Sanders
	Michael C. Wright, P.E., CPE, CSP
	Mark Williams
	Edward Grosse
	Gregory Byers
	Mark Conover
	Michael Masterson, Jr.
	Andrew Broadway
	Curtiss Burdette

Sparkling Clean Window Company & Surface
Solutions
SPRAT – Society of Professional Rope
Access Technicians

Sturges Manufacturing Co., Inc.

Surewerx/Peakworks

Tractel Inc.

Transport Workers Union
Travelers

Tritech Fall Protection Systems, Inc.

U.S. Air Force Safety Center

U.S. Bureau of Reclamation

U.S. Department of Interior – BSEE

U.S. Department of the Navy

UL LLC

United Auto Workers

Vertical Access LLC

Walt Disney Parks & Resorts

Western Area Power Administration

WJE

Sam Terry
Art Schneider

Loui McCurley
Cedric Smith
Richard Griffith
Tyler Griffith
Tim Accursi
Kenneth Lemke
Doug Knapp
Catalin Anesia
James Mark
Scott H. Richert, CSP, ARM, ALCM
Chris Moemke, EIT
John Seto, P.E
Mark S. Kantorowicz
Robert Baker
Shawn Smith, CSP
Shaun Reed
John M. Cushing, Jr.
Simon Baughman
Basil Tominna, P.E.
Shawn Smith, MEng, CSP
Beverly Wooten Stutts
Matthew S. Uptmor, OHST
Kelly Streeter, P.E.
Keith Luscinski
Ken Young, P.E.
Ian Bevan
Patrick T. Nies
Will Schnyer
Daniel Gach, AIA, NCARB
Jason Kamman, CSP, CHST

Subgroup Z359.1 had the following members:

Thomas Kramer, P.E., CSP, Chair
Kevin Goodwin, CSP
Marc Harkins
Dan Henn
Rupert Noton, CEEng, MIStructE
Judd Perner
Dan Shipp
Cal Sparks
Beverly Wooten Stutts

Contents

SECTION	PAGE
1. Scope, Purpose, Application, Exceptions and Interpretations.....	8
1.1 Scope.....	8
1.2 Purpose and Application	8
1.3 Exceptions.....	9
1.4 Interpretations	9
2. Definitions.....	9
3. Compliance	9
4. Required Sections of ANSI/ASSE Z359 Standards.....	12
Appendix A	14

STANDARD REQUIREMENTS

1. SCOPE, PURPOSE, APPLICATION, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope.

1.1.1 The Fall Protection Code is a set of standards that covers program management; system design; training; qualification and testing; equipment, component and system specifications for the processes used to protect workers at height in a managed fall protection program. This standard identifies those standards and establishes their role in the Code and their interdependence.

1.1.2 The Fall Protection Code encompasses standards for personal fall protection systems that incorporate a full body harness, intended to protect the user against falls from a height either by preventing or arresting free falls. In general, systems that prevent a free fall are preferable to systems that arrest a free fall. The types of systems that shall be addressed by this Fall Protection Code include:

- a) Fall restraint systems
- b) Work positioning systems
- c) Rope access systems
- d) Fall arrest systems
- e) Rescue systems

1.2 Purpose and Application.

1.2.1 This standard specifies minimum requirements for the processes, systems, sub-systems and components used in a managed fall protection program that meets all of the requirements of the ANSI/ASSE Z359 Fall Protection Code.

1.2.2 Before any product shall bear an ANSI/ASSE Z359 marking or be represented in any way as being in compliance with any ANSI/ASSE Z359 standard, the requirements of the associated product standard shall be met. ANSI/ASSE Z359.1 is not a product standard and therefore, no product shall be labeled as meeting ANSI/ASSE Z359.1 after the effective date of this standard.

EXPLANATORY INFORMATION

(Not part of American National Standard Z359.1)

E1.2.2 *The effective date of the ANSI/ASSE Z359.1-2016 standard is August 14, 2017.*

1.2.3 No claim of conformance, qualification or verification to any previous edition of ANSI/ASSE Z359.1 shall be made on or after the effective date of this standard.

1.2.4 The manufacturer shall not continue to mark any product, component or system as compliant with any previous edition of ANSI/ASSE Z359.1 after the effective date of this standard.

1.3 Exceptions.

1.3.1 The ANSI/ASSE Z359 product standards do not apply to material handling and sports related activities.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

2. DEFINITIONS

Refer to ANSI/ASSE Z359.0, *Definitions and Nomenclature Used for Fall Protection and Fall Arrest*, for definitions of terms used in this standard and all ANSI/ASSE Z359 standards.

E2 Rather than providing a separate section for definitions and nomenclature in each standard, it was decided that with the release of the standards in 2007, all items would be collected and put into a single standard. As standards are added and revised, the definitions and nomenclature standard will be updated accordingly. ANSI/ASSE Z359.0 is available as a free download from the ASSE website: www.asse.org.

3. COMPLIANCE

3.1 General.

3.1.1 A complete fall protection program shall be in compliance with the ANSI/ASSE Z359 Fall Protection Code when all of the applicable requirements of this section are met.

3.1.2 Personal fall protection equipment used while working at height shall only be part of a complete personal fall protection system.

3.1.3 The fall protection program shall be designed and conducted in conformity with ANSI/ASSE Z359.2.

3.1.4 Equipment used in the fall protection program shall conform to the requirements of the applicable

ANSI/ASSE Z359 standards listed in Section 3.2 and 3.3.

3.1.5 Engineer-designed fall protection systems shall conform to the requirements of ANSI/ASSE Z359.6.

3.2 Component Oriented Standards.

3.2.1 General Requirements. Product standards bearing an ANSI/ASSE Z359 designation establish requirements for the performance, design, marking, qualification, instructions, inspection, maintenance and removal from service of fall protection products. See Appendix A for descriptions of these standards.

3.2.2 Full Body Harnesses. Full body harnesses shall meet the requirements of ANSI/ASSE Z359.11.

3.2.3 Connecting Components. Connecting components such as snaphooks, carabiners, O-Rings, D-Rings, buckles and adjusters shall meet the requirements of ANSI/ASSE Z359.12.

3.2.4 Personal Energy Absorbers and Energy Absorbing Lanyards. Personal energy absorbers and energy absorbing lanyards shall meet the requirements of ANSI/ASSE Z359.13.

3.2.5 Self-Retracting Devices. Self-retracting devices shall meet the requirements of ANSI/ASSE Z359.14.

3.2.6 Single Anchor Vertical Lifelines and Fall Arresters. Single anchor vertical lifelines and fall arresters shall meet the requirements of ANSI/ASSE Z359.15.

E3.2 All component-oriented product standards are numbered with a scheme that includes two digits, starting at the body support device and ending at the anchorage. Therefore, ANSI/ASSE Z359.11 is the first component-oriented product standard and therefore, it addresses the requirements for a full body harness. Also, ANSI/ASSE Z359.18 addresses anchorage connectors which are commonly the terminus of component-oriented products.

3.2.7 Anchorage Connectors. Anchorage connectors shall meet the requirements of ANSI/ASSE Z359.18.

3.3 System Oriented Standards.

3.3.1 General Requirements. System standards bearing an ANSI/ASSE Z359 designation establish requirements for the performance, design, marking, qualification, instruction, training, use, maintenance and removal from use of system-based products. See Appendix A for descriptions of these standards.

3.3.2 Positioning and Restraint Systems. Equipment used in positioning and restraint systems, including lanyards and associated hardware, shall meet the requirements of ANSI/ASSE Z359.3.

3.3.3 Rescue Systems. Equipment used in assisted-rescue and self-rescue systems shall meet the requirements of ANSI/ASSE Z359.4.

3.4 Conformity Assessment.

3.4.1 As required by the component-oriented and system-oriented standards, qualification and verification testing of all equipment shall be conducted in accordance with the requirements of ANSI/ASSE Z359.7.

3.4.2 Manufacturers shall not claim product compliance to portions or segments of component or system oriented ANSI/ASSE Z359 standards. Products shall meet all of the requirements of the applicable ANSI/ASSE Z359 standards.

3.4.3 All products marked as being compliant with the respective ANSI/ASSE Z359 standard shall meet all applicable requirements specified in the respective ANSI/ASSE Z359 standard.

E3.4.3 *The current version of the standards can be obtained from the ASSE website: www.asse.org. ANSI/ASSE standards are commonly referred to in an abbreviated manner (e.g. ANSI/ASSE Z359.1) whereas a full standard number will include a suffix denoting the year of publication. When a new edition is published, it automatically supersedes any previous editions of the standard.*

4. REQUIRED SECTIONS OF ANSI/ASSE Z359 STANDARDS

All ANSI/ASSE Z359 component-oriented and system-oriented standards contain the following sections:

a. Requirements. This section contains at least the following information for a product, as applicable:

- User weight limits.
- Design criteria.
- Materials, terminations (splices, stitching, swaging and other technologies), impact/deployment indicators.
- Activation forces.
- Static strength and performance.
- Environmental conditioning.
- Dynamic strength and performance.
- Abrasion testing.
- Subcomponents.
- Component specific tests.
- Common misuse configuration tests specific to component or system.

b. Qualification Testing. This section contains at least the following information for a product, as applicable:

- Drop test structure.
- Test weight.
- Test lanyard.
- Test instrumentation.
- Quick release mechanism.
- Static tensile test equipment.
- Test specimens.
- Corner frequency.
- Abrasion tester.
- Calculating average force.
- Component specific static and dynamic performance tests.
- Common misuse configuration tests specific to the component type or system.

***E4** This section provides a way to understand how to read the ANSI/ASSE Z359 standards. There are common sections within each type of standard and those sections are described here to better allow the user of these standards to identify where to go to answer questions and learn more information. Each section can be useful for a specific audience that may use the standard.*

***E4.b** ANSI/ASSE Z359.7 was developed to provide guidance on minimum requirements for third-party testing laboratories and product manufacturer testing laboratories when testing fall protection products for conformance with the ANSI/ASSE Z359 standards. In addition to providing testing requirements, ANSI/ASSE Z359.7 also includes the minimum amount of test specimens required for qualification or verification testing and specifies that all ANSI/ASSE Z359 related testing shall be conducted in an ISO 17025 accredited laboratory.*

c. Markings and Instructions. This section contains the following information for a product, as applicable:

- Marking requirements.
- Instruction requirements.

d. User Inspection, Maintenance and Storage of Equipment. This section provides the following information for a product, as applicable:

- Inspection.
- Maintenance.
- Storage.

e. References. This section contains a listing of all standards, government regulations, laws, technical documents and other documents referred to in the standard, including the publisher and date of the relevant edition.

APPENDIX A:

The following is a list of all current [ANSI/ASSE Z359](#) standards with their Section 1 information included.

[ANSI/ASSE Z359.0-2012, Definitions and Nomenclature Used for Fall Protection and Fall Arrest](#)**1. SCOPE, PURPOSE, APPLICATION, EXCEPTIONS AND INTERPRETATIONS**

1.1 Scope. This standard establishes the definitions and nomenclature used for the Z359 Fall Protection Code.

1.2 Purpose and Application.

1.2.1 This standard addresses definitions and nomenclature for the Z359 Fall Protection Code.

1.3 Exceptions.

1.3.1 The scope of these standards does not include window cleaner belts or sports-related activities.

1.3.2 Body belts, window cleaner belts, chest-waist harnesses and chest harnesses, even when referred to as body supports, are not addressed by the provisions of these standards.

1.3.3 Systems that incorporate horizontal lifelines and personal protective systems for activities such as climbing, man riding, work positioning, rescue and evacuation may suitably incorporate components or subsystems specified herein. When incorporated into such systems, however, those systems, subsystems and components are not within the scope of these standards.

1.3.4 Variance from the requirements of these standards are permissible in isolated instances of practical difficulties when applying it at the user level, but only when it is clearly evident that an equivalent degree of protection is implemented.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

[ANSI/ASSE Z359.2-2007, Minimum Requirements for a Comprehensive Managed Fall Protection Program](#)**1. SCOPE, PURPOSE, APPLICATIONS, EXCEPTIONS AND INTERPRETATIONS****1.1 Scope.**

1.1.1 This standard establishes guidelines and requirements for an employer's managed fall protection program, including policies, duties and training; fall protection procedures; eliminating and controlling fall hazards; rescue procedures; incident investigations; and evaluating program effectiveness.

1.1.2 This standard is for use by organizations where employees are exposed to fall hazards.

1.2 Purpose and Applications.

1.2.1 Developing and implementing a comprehensive managed fall protection program is the most effective method to: identify, evaluate and eliminate (or control) fall hazards through planning; ensure proper training of personnel exposed to fall hazards; ensure proper installation and use of fall protection and rescue systems; and implement safe fall protection and rescue procedures.

1.2.2 This standard covers the hierarchy of fall protection, including eliminating fall hazards, passive fall protection, fall restraint, fall arrest and administrative controls.

ANSI/ASSE Z359.3-2007, Safety Requirements for Positioning and Travel Restraint Systems

1. SCOPE, PURPOSE, APPLICATIONS, EXCEPTIONS AND INTERPRETATIONS

1.1 **Scope.** This standard establishes requirements for the performance, design, marking, qualification, test methods, and instructions of lanyards and harnesses comprising personal positioning and travel restraint systems for authorized persons within the capacity range of 130 pounds to 310 pounds (59kg to 140kg).

1.2 Purpose and Application.

1.2.1 This standard addresses minimum guidelines for the system design, manufacture, and testing of personal work positioning and travel restraint equipment.

1.2.2 This standard addresses positioning systems and travel restraint systems. These systems shall not be used as a primary fall arrest system. Positioning systems shall be supplemented with a secondary fall protection system.

1.2.3 Before any equipment shall bear the marking "Z359.3" or be represented in any way as being in compliance with this standard, the requirements of this standard shall be met.

1.3 Exceptions.

1.3.1 The requirements of this standard do not apply where an industry or operation has adopted a nationally recognized standard that provides at least equivalent protection.

1.3.2 Body belts are not addressed by this standard for work positioning or travel restraint unless incorporated into a work positioning harness or full body harness.

1.3.3 This standard does not address the lowering function of any descent device or any motorized means of accessing a work location.

1.4 **Interpretations.** Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

[ANSI/ASSE Z359.4-2013, Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components](#)

1. SCOPE, PURPOSE, APPLICATION, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope. This standard establishes requirements for the performance, design, marking, qualification, instruction, training, use, maintenance and removal from service of connectors, harnesses, lanyards, anchorage connectors, winches/hoists, descent control devices, rope tackle blocks and self-retracting lanyards with integral rescue capability comprising rescue systems, utilized in pre-planned self-rescue and assisted-rescue applications for one to two persons.

1.2 Purpose and Application. The purpose of this standard is to establish criteria to ensure suitability of the equipment and methods defined herein for use in rescue situations where a fall hazard exists.

Rescue system elements, components or subsystems meeting the requirements of this standard may not be represented as complying with or used in personal fall arrest systems (PFAS) claiming compliance with ANSI/ASSE Z359.1 or other relevant Z359 standards unless the requirements of that standard are additionally met. The requirements of this standard supersede any corresponding requirements in ANSI/ASSE Z359.1-2007 American National Standard.

1.3 Exceptions.

1.3.1 The requirements of this standard do not address sport-related activities, rope access rescue techniques utilized by certified rescue technicians or other tasks that have established national consensus standards. However, this does not preclude use of equipment addressed within this standard for such activities where appropriate.

1.3.2 The competent person shall determine the suitability of equipment addressed within this standard for activities conducted in hazardous atmospheres.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

[ANSI/ASSE Z359.6-2009, Specifications and Design Requirements for Active Fall Protection Systems](#)

1. SCOPE, PURPOSE, APPLICATIONS, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope.

1.1.1 This standard is intended for engineers with expertise in designing fall protection systems. It specifies requirements for the design and performance of complete active fall protection systems, including travel restraint and vertical and horizontal fall arrest systems.

1.2 Purpose and Application.

1.2.1 This standard has been developed as a consensus document to provide uniform practice in the design of active fall protection systems. The intention is to provide design criteria for routine use and not to provide specific criteria for infrequently encountered problems which occur.

1.2.2 This standard involves the application of the last option from the hierarchy of fall protection – active fall protection systems. Other options for employee protection should be considered prior to the employer selecting the use of an active fall protection system.

1.3 Exceptions.

1.3.1 This standard is not intended as a substitute for testing and certification of individual components of fall protection equipment in accordance with applicable ANSI/ASSE Z359 equipment standards.

1.3.2 This standard does not cover the design of passive fall protection systems such as guardrails and nets, except where such passive systems are also designed to serve as anchorage and/or anchorage connector subsystems for active fall protection systems covered by this standard.

1.3.3 This standard does not cover the design of positioning systems.

1.3.4 This standard does not cover the determination of structural strength and behavior of components or anchorages of active fall protection systems. It does, however, establish the safety criteria once the strengths and behaviors are known. Such strengths and behaviors are determined by analytical testing or engineering methods and by AISC, ACI, NDS or other design standards for the materials and structural systems being used. The IBC, ASCE, state and local building codes shall be referenced by the designer of active fall protection systems.

1.3.5 This standard does not specify design or performance requirements for fall arrest equipment or systems that have been manufactured and successfully tested in accordance with the requirements of another ANSI/ASSE Z359 standard.

1.3.6 This standard does not supersede the requirements of applicable occupational safety and health regulations. Where the requirements in this standard differ from legislated requirements, the most conservative requirement shall be followed.

1.3.7 In ANSI standards, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard. Notes accompanying sections do not include requirements or alternative requirements; the purpose of the e-column accompanying a section is to separate from the text explanatory or informative material. Notes to tables and figures are considered part of the table or figure and may be written as requirements. Legends to equations and figures are considered requirements.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

ANSI/ASSE Z359.7-2011, Qualification and Verification Testing of Fall Protection Products

1. SCOPE, PURPOSE, APPLICATIONS, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope. This standard specifies requirements for qualification and verification testing of ANSI/ASSE Z359, Fall Protection Code, products. It includes requirements for third-party testing, witness testing and manufacturer testing of fall protection products to the requirements of the ANSI/ASSE Z359 standards.

1.2 Purpose and Application.

1.2.1 This standard specifies minimum requirements for third-party testing laboratories and product manufacturer testing laboratories when testing fall protection products against the ANSI/ASSE Z359 standards.

1.2.2 This standard specifies minimum requirements for test equipment and the number of test specimens to be used when testing fall protection products against the ANSI/ASSE Z359 standards.

1.2.3 Before any product shall bear an ANSI/ASSE Z359 marking or be represented in any way as being in compliance with any ANSI/ASSE Z359 standard, the requirements of this standard as well as the associated product standard shall be met.

1.3 Exceptions.

1.3.1 Performance and design requirements for individual products are specified in the respective product standard from the ANSI/ASSE Z359, Fall Protection Code, standards.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

[ANSI/ASSE Z359.11-2014, Safety Requirements for Full Body Harnesses](#)

1. SCOPE, PURPOSE, APPLICATION, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope. This standard establishes requirements for the performance, design, marking, qualification, instruction, training, test methods, inspection, use, maintenance and removal from service of full body harnesses (FBH). FBHs are used for fall arrest, positioning, travel restraint, suspension and/or rescue applications for users within the capacity range of 130 to 310 pounds (59 to 140 kg).

1.2 Purpose and Application.

1.2.1 This standard applies to FBHs used in occupations requiring personal protection against falls from heights and if required, shall allow for the specialized functions of travel restraint, positioning, suspension and/or rescue.

1.2.2 This standard applies only to FBHs and auxiliary equipment designed specifically for use as part of the FBH.

1.2.3 This standard is intended to be used by the manufacturers, distributors, purchasers and users of FBHs, as well as testing, certifying and regulating bodies.

1.2.4 Before any FBH shall bear the marking ANSI Z359.11, or be represented in any way as being in compliance with this standard, all applicable requirements of this standard shall be met.

1.2.5 FBHs which meet this standard are intended to be used with other components of a system that limits maximum arrest force to 1,800 pounds (8 kN) or less.

1.2.6 Units. 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. Values in parentheses may be approximate.

1.2.6.1 Tolerances. 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 +/- 5%. Unless otherwise specified, the ambient temperature for testing shall be between 35°F and 100°F (2°C and 38°C) and the temperature limits shall be subject to an accuracy of +/- 2°F (+/- 1°C).

1.2.7 The requirements of this standard supersede any corresponding requirements in ANSI/ASSE Z359.1, Z359.3 and Z359.4 American National Standards.

1.2.8 This standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed in Section 8. For dated references, subsequent amendments to or revisions of any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

1.3 Exceptions.

1.3.1 This standard does not apply to body belts which are not attached to a FBH.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

1.5 The requirements of this standard supersede any corresponding requirements in the ANSI/ASSE Z359.1-2007, Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components.

ANSI/ASSE Z359.12-2009, Connecting Components for Personal Fall Arrest Systems

1. SCOPE, PURPOSE, APPLICATIONS, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope. This standard establishes requirements for the performance, design, marking, qualification, test methods and removal from service of connectors.

1.1.1 Body belts, window cleaner belts, chest-waist harnesses and chest harnesses, even when referred to as body supports, are not addressed by the provisions of this fall protection standard.

1.2 Purpose and Applications.

1.2.1 This standard addresses only components that are used in the interconnection of a complete unit, intended to be used as a primary single link to a permanent anchorage connector, and/or intended to be used as a primary attachment point.

1.2.2 This standard addresses fall protection hardware used in occupations requiring personal protection against falls from heights and applies to the manufacturers, distributors, purchasers and users of such equipment.

1.2.3 Before any equipment shall bear the marking of the connector standard or be represented in any way as being in compliance with this standard, all requirements of this standard shall be met.

[ANSI/ASSE Z359.13-2013. Personal Energy Absorbers and Energy Absorbing Lanyards](#)

1. SCOPE, PURPOSE, APPLICATIONS, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope.

1.1.1 This standard establishes requirements for the performance, design criteria, marking, qualification and verification testing, instructions, inspections, maintenance and removal from service of personal energy absorbers and energy absorbing lanyards for users within the capacity range of 130 to 310 pounds (59 - 140 kg.).

1.1.2 This standard is for use by organizations where employees are exposed to fall hazards.

1.2 Purpose and Applications.

1.2.2 Before any equipment shall bear the marking Z359.13 (personal energy absorbers and energy absorbing lanyards) or be represented in any way as being in compliance with this standard, all requirements of this standard shall be met.

1.3 Exceptions. The requirements of this standard do not address window cleaning belts and sports related activities.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

1.5 The requirements of this standard supersede any corresponding requirements in the ANSI/ASSE Z359.1-2007, Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components.

[ANSI/ASSE Z359.14-2014. Safety Requirements for Self-Retracting Devices For Personal Fall Arrest and Rescue Systems](#)

1. SCOPE, PURPOSE, APPLICATION, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope. This standard establishes requirements for the performance, design, qualification testing, markings and instructions, inspections, maintenance and storage, and removal from service of self-retracting devices (SRDs) including self-retracting lanyards (SRLs), self-retracting lanyards with integral rescue capability (SRL-Rs), and self-retracting lanyards with leading edge capability (SRL-LEs). This standard establishes requirements for SRDs intended for use in personal fall arrest or rescue systems for authorized persons within the capacity range of 130 to 310 pounds (59 to 141kg).

1.2 Purpose and Application.

1.2.1 This standard addresses self-retracting devices used in occupations requiring personal protection against falls from heights and applies to the manufacturers, distributors, purchasers and authorized persons who use such equipment.

The requirements of this standard supersede any corresponding requirements in either the ANSI/ASSE Z359.1-2007 or ANSI/ASSE Z359.4-2007 American National Standards.

1.2.2 Before any equipment shall bear the marking Z359.14 or be represented in any way as being in compliance with this standard, all applicable requirements of this standard shall be met including initial qualification and ongoing verification testing according to ANSI/ASSE Z359.7.

1.3 Self-Retracting Device Classifications. Self-retracting devices shall be classified according to dynamic performance (see Section 3.1.9) as follows:

Class A: Maximum arrest distance of 24 inches (610mm).

Class B: Maximum arrest distance of 54 inches (1,372mm).

1.4 Exceptions.

1.4.1 The requirements of this standard do not address material handling and sports-related activities.

1.4.2 Variance from the requirements of this standard are permissible in isolated instances of practical difficulties when applying it at the authorized person level, but only when it is clearly evident that an equivalent degree of protection is thereby secured.

1.5 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

[ANSI/ASSE Z359.15-2014, Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems](#)

1. SCOPE, PURPOSE, APPLICATION, EXCEPTIONS AND INTERPRETATIONS

1.1 Scope. This standard establishes requirements for the design criteria, qualification testing (performance requirements), marking and instructions, user inspections, maintenance and storage and removal from service of single anchor lifelines and fall arresters for users within the capacity range of 130 to 310 pounds (59 to 140 kg).

1.2 Purpose and Application.

1.2.1 This standard addresses minimum guidelines for the design, manufacture and testing of single anchor lifelines and fall arresters.

1.2.2 This standard applies to single anchor lifelines and fall arresters used in fall arrest applications.

1.2.3 Before any equipment shall bear the marking Z359.15 or be represented in any way as being in compliance with this standard, all requirements of this standard shall be met through qualification and verification testing according to ANSI/ASSE Z359.7.

1.2.4 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 +/- 5%. Unless otherwise specified, the ambient temperature for testing shall be between 35°F (1.6°C) and 100°F (37.7°C) and the temperature limits shall be subject to an accuracy of +/- 2°F (+/- 1°C).

1.2.5 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 the requirement, as these values can be approximate.

1.3 Exceptions.

1.3.1 The requirements of this standard do not address window cleaning belts and sports-related activities.

1.3.2 The requirements of this standard do not address horizontal lifelines.

1.3.3 The requirements of this standard do not address fall arresters used on horizontal lifelines.

1.3.4 The requirements of this standard do not apply to rope adjusters used in positioning or travel restraint systems.

1.4 Interpretations. Requests for interpretations of this standard shall be in writing and addressed to the Secretariat of this standard.

1.5 The requirements of this standard supersede any corresponding requirements in the ANSI/ASSE Z359.1-2007, Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components.