

## Are Your Window Cleaners CERTIFIED for High-Rise Work?

New requirements for Fall Protection in Rope Access Systems. Don't be liable; are your contracted window cleaners compliant with ANSI Z359.8?

ANSI Z359.8 States in 1.1, 2.12.1 – 2.12.3 that persons engaging in rope access shall have received appropriate training and certification in rope access.

E5 – Rope Access Technician certification requires that each authorized person be trained and tested in self-rescue and partner rescue techniques.

This does not mean some “in house training.” It means certification from a nationally recognized organization. At present time there are three such organizations. International Window Cleaning Association (IWCA), Society of Professional Rope Access Technicians (SPRAT) and International Rope Access Trade Association (IRATA)

Brite-Way has a history of being very proactive in the area of safety training and rope access certification, this has been all voluntary. Until now, the only requirement to be called a “Professional High Rise Company” was you were able to afford a hunk of rope. NOT ANYMORE.

Brite-Way is very proud of the fact that we do not have to play “catch-up” to be compliant. We not only have one of these certifications as required, we are one of the few companies in the U.S. with all three certifications.

Certification has always translated into superior safety for our workers and less liability for our customers. The only difference is now, it's not voluntary, it's mandatory!

Respectfully Yours,

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# Safety Requirements for Fall Protection in Rope Access Systems

## STANDARD REQUIREMENTS

## EXPLANATORY INFORMATION

*(Not part of the standard)*

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

1.1 *Scope* – This document establishes fall protection requirements for workers suspended by rope as the primary means of support. Persons engaging in the rope access fall protection techniques described in this document shall have received appropriate training and certification in rope access.

This document does not apply to emergency response or emergency response training, except as provided in Section 5.

#### 1.2 *Purpose and Application*

1.2.1 The purpose of this document is to provide information and guidance on fall protection practices and procedures for rope access work.

1.2.2 This standard is intended to be used by certified rope access workers working under appropriate supervision using accepted rope access work practices.

1.2.3 Equipment in this standard is intended for use by authorized persons within the capacity range of 130 pounds to 310 pounds (59 kg to 140 kg).

1.3 *Exceptions* – Regulatory agencies may have requirements that are different from this standard.

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

### 2. *Definitions*

2.1 *aid climbing*: A method of vertical or lateral movement in which the climber moves from one

E1 This document provides guidance for appropriate use of secondary safety equipment (ie, Fall Protection) when conducting rope access work. It is recommended that the user refer to other standards governing safe practices in all elements of rope access work in addition to the fall-safety specific guidelines found in this document.

E1.1 Rope Access Work is clearly distinguished by the fact that the Rope Access Worker (authorized person) is suspended by rope as the primary support as opposed to other primary means of support such as ladders, scaffolds, floors and other structures. For this reason the extent of training and level of competency for the authorized person must be specific to rope access.

E.2 Please refer to ANSI/ASSE Z359.0, *Definitions and Nomenclature Used for Fall Protection and Fall Arrest*, for definitions of terms used in this documents. Definitions found in ANSI/ASSE Z359.8, *Safety Requirements for Rope Access Systems*, are not in the current edition of Z359.0

anchor point to another closely placed anchor point.

**2.2 rope access anchor connector:** The terminating component of a rope access system that is intended to support any forces applied to the rope access system.

**2.2.1 main anchor connector:** main anchors are located at the top of and provide the primary support for the life-safety system.

**2.3.2 anchor connector, deviation:** Deviation anchors change the direction of the rope system. In common practice, the ropes do not connect to a deviation anchor, but run through a carabiner or connector.

**2.3.3 anchor connector, intermediate:** An intermediate anchor is a type of anchor located below the main anchor and used to direct the ropes away from the fall line.

**2.3.4 anchor connector, load sharing:** Several anchorages connected together to provide sufficient strength for a single anchor.

**2.4 belaying:** The operation of a safety backup system by a rope access worker for the purpose of arresting the fall of another rope access worker.

**2.5 Dynamic Rope:** Rope which is capable of arresting a freefall of a rope access worker with a limited impact force

**2.6 fall factor:** The maximum distance a person could fall, divided by the length of the rope attaching the person to the anchorage point.

**2.7 fall prevention:** Equipment, system, or structure that prevents a fall from occurring.

**2.8 kernmantle rope:** A rope design consisting of two elements: an interior core (kern) and an outer sheath (mantle).

**2.9 low stretch rope:** Rope that has an elongation greater than 6% and less than 10% at 10% of minimum breaking strength. See also Static Rope.

**2.10 main line:** The primary rope used for descending, ascending or positioning.

**2.11 minimum breaking strength:** A value three standard deviations below the mean of the maximum force applied to five or more specimens before failure when tested.

**2.12 rope access technician:** A person who has the appropriate training, experience and certifi-

cation to use an industrial rope access system and perform the duties required according to the assigned level of responsibility.

2.12.1 *rope access Qualified Person* : a person with appropriate certification and extensive knowledge, training, and experience in fall protection in the rope access field who is capable of designing, analyzing, evaluating and specifying fall protection and rope access systems to the extent required by this standard and who is authorized by the employer to be responsible for managing the employers rope access program.

2.12.2 *rope access Competent Person* : An individual who is appropriately certified and designated by the employer and who, by training, knowledge, and experience is capable of the implementation, supervision, and monitoring of the employers fall protection and rope access program.

2.12.3 *rope access Authorized Person* : For purposes of this standard, a person appropriately certified and assigned by the employer to perform rope access duties.

2.14 *rope access fall arrestor*: A device used by a rope access technician to lock onto the rope to arrest a fall

2.15 *safe working load (SWL)*: The designated maximum working load of an item of equipment as calculated by dividing the MBS by a safety factor.

2.16 *Safety backup rope*: Rope used to protect against falls if the authorized person slips or the primary support, anchor or positioning mechanism fails.

E2.16 Also known as safety, secondary, belay, or backup rope

2.17 *safety factor*: The minimum strength of the system divided by the maximum anticipated load expressed as a ratio.

2.18 *static rope*: Rope that has an elongation of 6% or less at 10% of minimum breaking strength. See also Low Stretch Rope.

### 3. System Requirements

E3 The foundational concept of rope access is built around there being two separate systems: one for support, the other for fall protection. It is recognized and commonly accepted that the primary system may include rope, aid climbing, or other associated techniques.

3.1 The main line and the safety line of a rope access system shall meet the requirements of this standard

3.2 Each main line and safety line shall be connected to an anchorage that meets the requirements of this standard.

3.2.1 The main line and the safety line shall be independent; each shall have its own separate attachment point to the anchor and should be separately fixed to the worker's harness. This does not preclude both lines being attached to a single harness attachment point.

3.3 The rope access fall arrestor used to connect the worker to the safety line shall meet the requirements of this standard.

3.3.1 When used as a component in the safety backup system, the rope access fall arrestor shall always be positioned at or above the waist level of the authorized person.

3.4 Lanyards used for safety backup in rope access shall be used in such a way such that any fall shall not exceed 2 ft free fall and 4kN force.

3.5 Rope Access Carabiners used as components of the rope access safety system shall be self-closing and of a locking design.

3.6 Harnesses use for rope access work shall meet the requirements of this standard outlined in section 4.3

#### 4. *Fall Protection Equipment Components for Rope Access*

##### 4.1 General Requirements

E3.2 Rope access fall protection anchorages include the main line anchor, safety line anchor, rebelay anchor, and the anchor for any other line that will have direct support of the worker. Properly planned anchorages should be used. In some cases, anchorages must be installed prior to use. In such cases, a Qualified Person with experience in Rope Access Anchoring Systems should design an anchor point to be installed. In other cases, there will be a need to devise an anchor point from existing structures. Possible appropriate anchor points include but are not limited to steel members, I-beams, suitable trees of good size and mass, large boulders, heavy equipment, appropriately sized vehicles, and specially designed anchor points.

E3.3 The fall arrestor should always be used as high as practicable

E3.4 Lanyards used in rope access may be constructed of webbing or rope, and may adjustable in length. Rope lanyards may be terminated by sewing or by a knot.

E3.4 These Lanyards may be interchangeable between the access system and the safety backup system.

E3.5 Locking designs can include screw and spring collars that are designed to prevent gates from opening accidentally during use.

4.1.1 Elements and components connected together in any rope access system shall be compatible.

4.1.2 Equipment used to support a person on rope must be such that it cannot be accidentally removed, dislodged or unfastened from the rope while a person is suspended from it.

4.1.3 Equipment used in Rope Access systems must be used in such a way that it may not be accidentally dropped.

#### 4.2 *Certification*

4.2.1 Only components that have a current certificate that verifies the minimum breaking strength, or other certification as to reliability, shall be used in the rope access safety system. All certificates shall be backed by either sample testing to failure, or proof testing on individual items, and a proven quality assurance program, in accordance with an appropriate standard. Equipment shall be only used in the manner indicated by the manufacturer.

4.2.2 Corrosion protection- All metal items, parts, and components of this section shall meet the corrosion protection requirements as specified in ANSI Z359.1.

4.3 *Harnesses* - Harnesses used for rope access work shall meet the following requirements.

4.3.1 Harnesses shall be of the full-body type, be constructed of synthetic materials, and shall be designed to support the user in a free-hanging position. Harnesses shall have at minimum attachment points at the front waist and sternum.

4.3.2 All D-rings or other permanently affixed attachment point hardware intended to be used singly (waist, sternal, or dorsal) shall be rated to a minimum of 22.2 kN (5,000 lbs.).

4.3.2.1 The manufacturer shall ensure that all permanently attached D Rings or connectors connected to the dorsal safety backup attachment point on the harness shall be subject to proof load testing to 3,600 pounds (16kN) in accordance with ANSI Z359.1, section 4.3.2. Failure shall be cracking, breaking, or permanent deformation visible to the unaided eye.

4.3.2.2 The manufacturer shall ensure that all

permanently attached D Rings or connectors connected to the frontal safety backup attachment point on the harness shall be subject to proof load testing to 2,500 pounds (11.1kN) in accordance with ANSI Z359.1, section 4.3.2. Failure shall be cracking, breaking, or permanent deformation visible to the unaided eye.

4.3.3 Harnesses shall be certified as meeting ANSI/ASSE Z359.1 (07).

#### 4.4 Carabiners and Connectors

4.4.1 All connectors used as a component of the safety backup system shall meet the requirements set forth in ANSI Z359.1 section 3.2.1.4

#### 4.5 Screw-Links

4.5.1 Screw-Links used in rope access shall be made of materials suitable to meet the requirements of this standard. Any screw-link used as primary support for the rope access technician must have an MBS of 22.2 kN (5000 lbs.) with gate screwed closed. The strength of the major axis must be clearly displayed on the connectors.

4.5.2 Screw-links shall be individually proof-tested to 16 kN along the major axis Proof testing of connectors shall be conducted by loading each individual item in accordance with ANSI Z359.1, Connector Proof load testing.

#### 4.7 Rope Grabs and Ascending Devices

4.7.1 Rope Access Fall Arrestors used for safety backup shall meet the requirements of ANSI Z359.1 section 3.2.6

4.7.2 Ascenders or Rope Grabs intended exclusively for progressing along rope, hauling, or other utility purposes shall not be used for safety backup.

#### 4.8 Ropes

4.8.1 Static or low-stretch ropes used for life safety purposes shall be of a kernmantle construction and be compliant with Cordage Institute 1801 Low Stretch and Static Kernmantle Life Safety Rope.

E4.4 This section refers to connectors used as a component of the safety backup system.

E4.7.2 Rope grabs designed for progressing along a rope or hauling a rope may also be intended by the manufacturer to function as a safety backup device. All such devices, whether a rope grab or a fall arrester, shall be used according to manufacturers specifications.

E4.8 Ropes of other synthetic materials or design might be preferable for use in certain specific situations. In such cases great caution should be exercised in verifying their suitability for the work

4.8.2 Ropes used for rope access safety backup purposes must have a minimum breaking strength sufficient to supply the users' desired calculated system safety factor, including rope terminations.

4.8.3 Ropes used for rope access safety backup purposes must be made from synthetic fiber sufficient to achieve performance similar to or better than polyamide

4.8.4 Where a fall in excess of a factor .25 fall might occur, dynamic rope shall be used in place of static or low stretch rope. Dynamic safety rope shall be compliant with UIAA (or comparable) standards for single climbing ropes.

#### 4.9. Anchorage

4.9.1 A rope access safety backup anchorage shall be capable of withstanding a minimum load 5000# in the intended direction of pull or 2x the maximum arresting load.

4.9.2 Installed permanent anchorage connectors, such as expansion anchors or glue-in anchors shall be pull-tested to 6 kN in all directions of potential loading to verify proper installation. Permanent anchors shall be tagged to indicate proper installation per these requirements. The tag shall include the date of pull-test, and this standard number : ANSI Z359.8

#### 4.10 Directional Deviations

4.10.1 Directional Deviations shall be capable of supporting at least 2x the potential load and the consequences of failure shall be assessed and mitigated. (Illustrations needed)

#### 4.11 Care and Inspection of Equipment

4.11.1 Employer shall demonstrate that all equipment is used, inspected and maintained in accordance with manufacturer's instructions. Provisions shall be made for the retirement of equipment as necessary.

4.11.2 Inspection of fall protection equipment for rope access should follow the protocols listed in ANSI Z359.2.5.5.2

4.11.3 Employer shall establish and monitor a

E4.8.2 The use of properly applied swages, sewn loops, or properly tied knots are all considered acceptable practice for creating terminations in rope for rope access. Any termination used shall not reduce the strength of the rope below the required system strength for whatever system is being used. According to tests performed by the Cordage Institute, knots commonly used in rope access applications possess mean efficiencies as follow: Bowline- 63.3%; Figure eight-73.3%; Butterfly- 72%; Double Fisherman's- 78%

E4.9 Where it is impractical or infeasible to place Anchorages outside of the Access Zone, consideration shall be given to ensuring the safety of workers in this zone.

E4.10 Directional Deviations may also be called 'redirects'

E4.10.1 Since deviations are only used to redirect the rope, consequences of failure must be assessed and mitigated. If the angle or the consequences of failure are significant the line should be re-anchored.

4.11.4 Employer shall ensure that equipment is protected from damage during the course of its use.

5. *Rescue Procedures*

Refer to ANSI/ASSE Z359.2, Section 6 *Rescue Procedures* for minimum rope access rescue requirements.

E5 Rope Access Technician certification requires that each authorized person be trained and tested in self-rescue and partner rescue techniques