Changes in Fall Protection

The New A10.32-2013

Poll

- **What does your policy reference?**

Poll

- **Which standard(s) have you read?**

Poll

- **What industry are you from?**

Background

- Quick history of standard
- Why we need to have a process to determine what hazards exist and how to eliminate and mitigate them
- Why there is a need for selection and use and training of Fall Protection
- Why we need to know the limitations of the equipment and how to rescue

This Standard Applies:

- To users of fall protection
- To persons responsible for the selection, procurement, inspection, use, care and maintenance of the equipment.
- To those responsible for training and supervision of the users

General Requirements

- Each employer on the work site shall be responsible for analyzing the project to detect fall hazards to employees and shall eliminate the hazard, change the erection or demolition sequence, institute engineering controls, or provide protection against falls to the employees.

Planning

- Prior to the start of work on the project or phase, each employer shall conduct a survey of the job site, review drawings and conduct discussions as applicable with one or more of the following:
- Owner, engineer, general contractor and/or construction manager to define/eliminate fall hazards

The Plan

- The plan shall give preference to elimination of fall hazards and passive fall protection such as scaffolds, guardrails, secure covers on floor and barricades on wall openings and aerial lifts as opposed to fall arrest.
- At each location that a fall hazard cannot be eliminated and a worker is asked to rely on an active system a written JSA will explain why it cannot be eliminated and how it will be mitigated
- See ANSI/ASSE A10.33

At the start of a construction project and for critical stages of the work:

- A written fall prevention hazard analysis shall be conducted and a site specific fall prevention prepared and included in the project site specific safety plan.
- This plan shall describe potential hazards and actions required in order to eliminate or control each identified fall hazard.

The Site Specific fall protection plan shall define:

- Any areas or tasks for which passive protection cannot be provided
- The reason why such protection cannot be provided
- The name of the person who shall prepare the Job Safety Analysis (JSA)
- Retention responsibilities for the JSA

Appendix A
JOB/TASK SAFETY ANALYSIS

An onsite evaluation of a task or operation to identify potential hazards and determine necessary controls by breakdown of the task or operation into steps to establish safe work procedures.

Date: _____

Worksite Description_____

Activity Description, Describing Each Procedure and Result

Identify Hazards

Equipment and/or PPE to be Used

Controls, Inspection Procedures

List of Crew Assigned, Foreman, Competent Person, etc., w/Job Duties

Discussion

Approval

Specialized Training or Handouts (Circle answer) Yes No
Responsible Supervisor:_____ **Date:** _____
Competent Person: _____**Date:** _____
Approved: _____ **Date:**_____

Fall Arrest

- To the extent possible, personal fall arrest systems, when stopping a fall, shall be rigged such that an employee can neither free fall more than 6 feet (1.8m), nor contact any lower level or obstruction.

- The minimum required clearance for the fall arrest system shall be determined by a competent or qualified person before the system is placed into service. Adequate clearance shall be available throughout the path of worker movement consistent with the site geometry and performance of the components of the personal fall arrest system.

Training

- The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the site-specific hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards. Relevant federal, state and local regulatory requirements, procedures and standards shall also be included as outlined in the JSA.

The employer shall assure that each employee has been trained as necessary by a competent or qualified person in the following areas: the nature of fall hazards in the work area; the correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used; the use and operation of personal fall arrest systems, safety net systems and other protection to be used.

- Employees shall demonstrate an understanding on at least the following: how the individual components function together as a system to restrain or arrest a fall; proper donning and adjustment; proper tie off procedure; inspection and maintenance procedure; rescue procedure; learning how equipment is to be used on the specific project and unique hazards.

- Employee training shall include lectures, demonstrations and hands-on experience performing tasks. Training must include determination of the total fall distance in order to establish safe working heights in accordance with the manufacturer's programmed instructional material.

Rescue

- Employees shall be trained in self rescue or alternate means shall be provided for prompt rescue in the event of a fall.

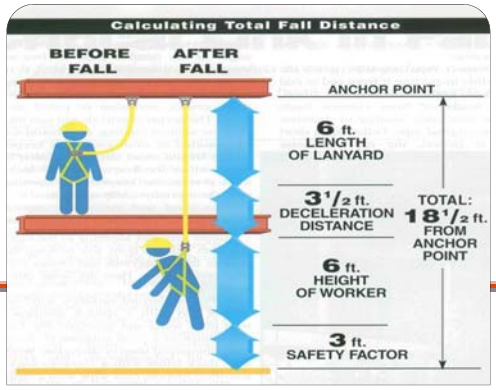
- A site-specific rescue plan shall be developed and included as part of the site-specific fall prevention plan which will provide for a prompt, efficient and safe rescue for employees.

- All rescuers shall be provided with adequate training, equipment and personal protective equipment where needed.

- When equipment solely designed for rescue is available, it shall be identified as such, and kept in a separate location from daily use fall arrest systems meeting the ANSI/ASSE A10.32 or ANSI/ASSE Z359 standards. See ANSI/ASSE A10.26.

Equipment Selection

- If the hazard cannot be eliminated or controlled passively, then appropriate fall arrest equipment must be selected to restrict the individual or arrest a fall, should it occur.



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AGENDA

Now that you have reviewed the standard, what's next?

- Selection
- Use
- Training

CALL TO ACTION

1. Use less PPE, more engineering controls
2. Focus on certified systems, not certified equipment
3. Perform a fall hazard survey
4. Evaluate your training

ANSI Z359-2007 FAMILY OF STANDARDS

- Z359.0: Definitions and nomenclature
- Z359.1: Personal fall arrest systems
- Z359.2: Comprehensive managed fall protection program
- Z359.3: Positioning and travel restraint systems
- Z359.4: Assisted-rescue and self-rescue systems

RECENT EQUIPMENT STANDARDS

- ANSI Z359.12-2009
  - > Connectors
- ANSI Z359.13-2009
  - > Energy absorbers and lanyards
- ANSI Z359.14-2012
  - > Self-retracting devices

OTHER RECENT Z359 STANDARDS

- ANSI Z359.6-2009
  - > Specifications and design requirements for active fall-protection systems
- ANSI Z359.7-2011
  - > Requirements for Third-Party & Self-Certification for Personal Fall Arrest Systems (PFAS)

FUTURE Z359 STANDARDS

- ANSI Z359.11-20XX
  - > Safety Requirements for Full Body Harness
- ANSI Z359.15-20XX
  - > Safety Requirements for Lifelines and Fall Arresters
- ANSI Z359.16-20XX
  - > Safety Requirements for Lifelines, Rails, and Fall Arresters for Fixed Ladder Fall Arrest Systems
- ANSI Z359.17-20XX
  - > Safety Requirements for Horizontal Lifelines
- ANSI Z359.18-20XX
  - > Safety Requirements for Anchorage Connectors

KEY EQUIPMENT CHANGES

- Gate strength
- Test weight
- 12 foot free-fall lanyards
- SRL edge testing
- SRL “fast fall arrest”

ANCHORAGE V. ANCHORAGE CONNECTOR

Anchorage	• Supports forces applied to the system
Anchorage Connector	• Interface between the anchorage and the system

ANCHORAGE V. ANCHORAGE CONNECTOR

MAIN CONSIDERATIONS

- Strength
- Serviceability
  - Fall clearance
  - Consistency of options
  - Compatibility
  - Procedures
  - Installation

STRENGTH AND SERVICEABILITY

- ANSI Z359.6-2009
  - Best resource
  - Considers multiple worker falls
- ANSI Z359.2-2007
  - Certified: 2 times the arresting force for fall arrest
  - Non-certified: 5,000 pounds for fall arrest

STRENGTH AND SERVICEABILITY

- Don't
  - Have a competent person designate a 5,000-pound anchorage without any guidance
  - Have a P.E. without fall protection experience designate anchorages
  - Assume a Qualified Person has expertise to understand strength aspects
  - Forget documentation

INCONSISTENCIES

- Who erects and dismantles scaffolding, nets and fall protection systems
- Load rating of nets vs. fall arrest anchorages

SAFETY NETS V. ANCHORAGES

- Two types of fall arrest systems: collective v. personal
- Both support an impact force from a falling object
- Both prevent the worker from striking the level below
- Components for both types have a 5,000-pound capacity

SAFETY NETS V. ANCHORAGES

- Safety nets:
  - > 400 pound weight
  - > Redundancy in components, connections and structure
  - > Require drop test or analysis
- Fall arrest system:
  - > 282 pound weight
  - > Little to no redundancy
  - > Eyeball or analysis

ANSI A10.32 AND Z359.2 STANDARD

- Non-certified fall arrest anchorages
  - > Shall be capable of supporting at least 5,000 pounds for fall arrest
  - > Designated by a competent person
- Certified fall arrest anchorages:
  - > Shall support two times the arresting force
  - > Designed by a qualified person

ANSI Z359.6 STANDARD

- Drawings and specifications
- Equipment, materials, and other design requirements
- Safety criteria
- Fall protection system loads and forces
- Clearances for fall arrest systems
- Design assumptions and analytical methods

CERTIFIED VS. NON-CERTIFIED

- Certified
  - > Documentation that the system meets the requirements of this standard
- Certified anchorage
- Non-certified anchorage
  - > Non-certified anchorages must consist of unquestionably strong elements of a structure

WHO PERFORMS CERTIFICATION?

- OSHA
  - > Qualified person?
- ANSI
  - > A10.32 and Z359.2: Qualified person
    - Alternative is non-certified by competent person
  - > Z359.6: Qualified person that is an engineer

WHO PERFORMS CERTIFICATION?

- Qualified person
- Ideally P.E. + C.S.P.
  - > Structural = physical strength and performance
  - > Safety = equipment specification and behavioral aspects

LIMITATIONS

- Certified by qualified person
  - > Few qualified persons
  - > In-house staff lack experience
  - > OJT required for either engineering or safety
  - > Costs of hiring a qualified person
  - > Response time for urgent needs

LIMITATIONS

- Non-certified by competent person
  - > Depends on competent person's judgment
  - > Violation of building code (law) in some cases
  - > Some elements may not be adequate for the higher loads
  - > Subjective determination
  - > Decision only defended with a load test
  - > "Non-certified" has negative connotations

USE OF PPE

- Don'ts:
  - > Allow competent person to identify an anchorage without any guidance from a professional engineer or qualified person
  - > Just give a worker a harness and lanyard (or dual-legged SRL units)
  - > Extract from OSHA testimony

HLL "LOOK-A-LIKE"

HLL "LOOK-A-LIKE"

PROMPT RESCUE

- Factors to consider in planning for response
  - Hanging vertically in a harness can cause loss of consciousness even in the absence of trauma or blood loss
  - The body's tolerance to suspension trauma varies from person to person
  - Rescuing a worker quickly after a fall is at least as critical as protecting the worker from a fall

From "Does 911 Work for Rescue?" by Robert N. Aguiluz (September 2003)

TRAINING – WHO?

- Authorized person
  - > Those working at heights
- Competent person
  - > Safety personnel
  - > Engineers involved in project planning and execution
  - > Those responsible for training and inspection
  - > Supervisors - skilled trades and maintenance groups
  - > Operations personnel involved with work at heights

TRAINING CONTENT

- Compliance vs. improving safety
  - > Behavior changes when workers can apply what they've learned
  - > AND choose to do so

TRAINING CONTENT

- Content should address competent person duties
  - > Background knowledge
  - > Identification of fall hazards
  - > Selection of abatement solutions and systems
  - > Inspection and approval of PPE
  - > Development and application of system use and rescue procedures

TRAINING DELIVERY

- Instructor qualifications
  - > Specific expertise in fall protection
  - > Knowledge of regulations and standards
  - > Understanding of equipment use and limitations
  - > Experience training adult learners
  - > General presentation skills
  - > References

TRAINING DELIVERY

- Training methods
  - > Lecture
  - > Multi-media applications
  - > Hands-on exercises
  - > Practical

MOST EFFECTIVE TRAINING

- Variety of media used
- Qualified instructor
- Academic + hands-on
- Practical application
- Customized content