ANSI Z359 Standards: A Fall Protection Guidebook
Indiana Safety Conference – February 2014

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QUIZ CARDS

ANSI Z359 Standards: A Fall Protection Guidebook
Indiana Safety Conference – February 2014

1. **True or False**: The current OSHA fall protection general industry regulation was adopted in the early 1970s.

2. **True or False**: The ANSI Z359 standards are being rewritten as component-based standards.

3. **True or False**: Load testing is needed to certify all active fall protection systems.

Name: ____________________________ Title: ____________________________

Company: __________________________

Address: __________________________

City: _____________________________ State: ____________ ZIP: ____________

Phone: ___________________________ E-mail: ___________________________

☐ I have specific questions or requests concerning this program and have written them on the back of this card.

☐ I am interested in a copy of the following slide(s): ___________________________
LEARNING OBJECTIVES

- Summarize key changes from the ANSI Z359-2007 standards
- Describe recent and upcoming changes to the Z359 Fall Protection Code
- Explain how to best incorporate new standards into your program
CALL TO ACTION

1. Evaluate your existing systems
2. Consider changes to your training
3. Inform workers of key changes to standards
4. Determine which of the case studies apply to your organization and apply lessons learned

WHY IS THIS IMPORTANT?
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AGENDA

- Background – regulations and standards
- Which standard is current?
- Sample scenarios
- Overview of current and proposed fall protection standards

OSHA VS. ANSI

OSHA

- Is the law
- Regulations are created through the legislative process
- Significant challenge in creating and updating regulations

ANSI

- Voluntary standard
- State-of-the-art requirements
- Created by experts from all sides of the industry, including OSHA
AUDIENCE QUESTION
Does your policy reference ANSI standards?

<table>
<thead>
<tr>
<th>OSHA Draft Proposed Safety and Health Program Rule (core elements of a health and safety program), interpretation/letters &amp; memos; compliance directives</th>
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<tr>
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ANSI A14 series — ladders (portable & fixed)
ANSI A92 series — lifts

General Industry

Construction
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<td>ANSI/ITSDF B56.1 – fork lifts</td>
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<td></td>
<td><strong>ANSI Z359 component standards</strong></td>
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<td>Under development</td>
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<td><strong>ANSI Z359.1-1992</strong></td>
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<td>Fall arrest equipment</td>
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<td><strong>ANSI Z359-2007</strong></td>
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<td>Effective date: (11/24/07)</td>
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<td><strong>ANSI Z359.6, .12., .13</strong></td>
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**TOTAL FALL FATALITIES**

![Bar chart showing total fall fatalities from 1995 to 2011](chart.png)

Source: BLS Census of Fatal Occupational Injuries
TOTAL FALL FATALITIES

Source: BLS Census of Fatal Occupational Injuries

REGULATION HISTORY

- 1971 – 29CFR 1910 Subpart D was adopted
- May 2010 – OSHA issues proposed subparts D & I
- June 2014? – Adopted into law?
WHY UPDATE THE REGULATION?

- Prevent 20 workplace fatalities per year
  - This is less than 10%
- Prevent more than 3,700 injuries per year
- Reflect current industry practices and standards
- Harmonize with other OSHA regulations
- Provide greater compliance flexibility

PROPOSED OSHA 1910: KEY ISSUES

- Items of interest
  - Duty to provide fall protection at specific locations
  - List of abatement options
  - Requirement for fall hazard surveys
- Notable omissions
  - STD 1-1.13
  - Recent ANSI updates
AGENDA

- Background – regulations and standards
- Which standard is current?
- Sample scenarios
- Overview of current and proposed fall protection standards

WHICH STANDARD IS CURRENT?

- Past (pre November 2007)
    - Harnesses
    - Lanyards
    - PEA
    - Self-retracting devices
    - Etc.
WHICH STANDARD IS CURRENT?

- Present (November 2007 to 2013)
  - ANSI Z359 component standards, where applicable
    - ANSI Z359.12-2009 (connectors)
    - ANSI Z359.13-2013 (personal energy absorbers and lanyards)
    - ANSI Z359.14-2012 (Self-retracting devices)
  - ANSI Z359.1-2007, when component standard does not exist
    - Examples: harnesses, anchorage connector straps, vertical lifelines, fall arrestors

AUDIENCE QUESTION

What portion of your lanyards and SRDs meet current standards?
WHICH STANDARD IS CURRENT?

Future (2014 and beyond)

> ANSI Z359 component standards

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Most Current Standard</th>
<th>Proposed/Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-body harness</td>
<td>Z359.1</td>
<td>Z359.11</td>
</tr>
<tr>
<td>Connectors</td>
<td>Z359.12</td>
<td></td>
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<tr>
<td>PEA and lanyards</td>
<td>Z359.13</td>
<td></td>
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<tr>
<td>Self-retracting devices</td>
<td>Z359.14</td>
<td></td>
</tr>
<tr>
<td>Vertical lifelines</td>
<td>Z359.1</td>
<td>Z359.15</td>
</tr>
<tr>
<td>Ladder climbing devices</td>
<td>Z359.1</td>
<td>Z359.16</td>
</tr>
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<td>Horizontal lifelines</td>
<td>Z359.1</td>
<td>Z359.17</td>
</tr>
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AGENDA

- Background – regulations and standards
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CASE STUDY #1

- Organization is still using connectors that meet ANSI Z359.1-1992 (R1999) standard
- The issues:
  - Gate strength was 220 lbs. (front) and 350 lbs. (side)
  - Bending of connector not addressed
CASE STUDY #1

- The solution
  - Existing connectors safe, new connectors safer
  - Gate strength now 3,600 lbs.
    (front and side)
  - Use connectors that meet
    Z359.1-2007 or Z359.12-2009

CASE STUDY #2

- Organization is still using lanyards that meet ANSI Z359.1-2007 or earlier standards
- The issues:
  - Test mass for energy absorbers being increased to 282 lbs.
  - No equipment manufacturer has recalled a lanyard
CASE STUDY #2

- The solution
  - Use ANSI Z359.13-2013 rated lanyard and/or limit use of pre-2009 lanyards to 130 to 242 lbs.

CASE STUDY #3

- Leading edge application for SRLs and VLLs
- The issues:
  - Some SRLs do not work in a horizontal arrangement
  - Energy absorber is located close to the anchorage instead of close to body
CASE STUDY #3

The solution

> For SRLs, purchase equipment that meets the ANSI Z359.14-2012 standard

> For VLLs, provide protection to lifeline and keep energy absorber close to body
CASE STUDY #4

- A company decides that “ballast” style anchorage is the best solution

- The issues:
  - There is not an ANSI Z359 standard that addresses this yet
  - These systems are dependent on the surface and other conditions
  - In many cases, they move

CASE STUDY #4

- The solution
  - Critically evaluate and get site-specific data
  - It will be at least several months before this is addressed in ANSI Z359.18-20XX
CASE STUDY #5

- Proprietary horizontal system is needed

The issues:

- There is not an ANSI Z359 standard that addresses this yet
- Price by "turnkey" installers can vary greatly
- "Bridging documents" are often absent

The solution

- Critically evaluate, have a preliminary design and prepare a specification to "qualify" systems
- It will be months before they are addressed in ANSI Z359.17
CASE STUDY #6

- Horizontal lifelines desired, and the workers weight exceeded 250 pounds

The issues:
- Most “proprietary” horizontal lifeline systems are only intended for a 220 lbs (100kg) user weight (European standards)
- Test mass for energy absorbers being increased to 282 lbs.

The solution
- De-rate horizontal lifeline or use new lanyards that meet ANSI Z359.13-2013
- Verify the maximum user weight for your specific system
CASE STUDY #7

Load testing seems to be needed for my system

The issues:
> The only information in an ANSI standard (I14.1) has been withdrawn and addresses this incompletely
> What do I load it to and will this load damage it?
> What should I load test?

The solution
> Prepare a project-specific load testing manual and plan
> It will be at least 1-2 years before ANSI (Z359.6) addresses this
CASE STUDY #8

- No documentation exists for an existing horizontal lifeline system
  - Workers need to use it for an upcoming maintenance project

CASE STUDY #8

- The solution: system certification
  - Follow guidelines in ANSI Z359.6
    - Appropriate for identified hazards?
    - Adequate anchorages and structural support?
    - Appropriate use and rescue procedures?
    - Appropriate training for users?
CERTIFICATION RECORD

Design  Construction  Operations  Training  Inspection

AGENDA

- Background – regulations and standards
- Which standard is current?
- Sample scenarios
- Overview of current and proposed fall protection standards
ANSI Z359-2007 FAMILY OF STANDARDS

- Z359.0: Definitions and nomenclature
- Z359.1: Safety requirements for personal fall arrest systems...
- Z359.2: Minimum requirements for a comprehensive managed fall protection program
- Z359.3: Safety requirements for positioning and travel restraint systems
- Z359.4: Safety requirements for assisted-rescue and self-rescue systems...

ANSI Z359-2009 FAMILY OF STANDARDS

- Z359.6: Specifications and design requirements for active fall-protection systems
- Z359.12: Connecting Components for Personal Fall Arrest Systems
- Z359.13: Personal Energy Absorbers and Energy Absorbing Lanyards (updated in 2013)
RECENT Z359 STANDARDS

- ANSI Z359.7-2011
  > Requirements for Third-Party & Self-Certification for Personal Fall Arrest Systems (PFAS)
- ANSI Z359.14-2012
  > Safety Requirements for Self Retracting Devices

FUTURE Z359 STANDARDS

- ANSI Z359.8-20XX
  > Rope Access Systems
- ANSI Z359.9-20XX
  > Safety Requirements/Personal Equipment for Protection Against Falls - Descending Devices
FUTURE Z359 STANDARDS

- ANSI Z359.11-20XX
  > Safety Requirements for Full Body Harness
- ANSI Z359.15-20XX
  > Safety Requirements for Vertical Lifelines and Fall Arrestors
- ANSI Z359.16-20XX
  > Safety Requirements for Ladder Climbing Systems
- ANSI Z359.17-20XX
  > Safety Requirements for Horizontal Lifelines
- ANSI Z359.18-20XX
  > Safety Requirements for Anchorage Connectors

QUIZ CARDS
• True or false: The current OSHA fall protection general industry regulation was adopted in the early 1970s.

TRUE

• True or false: The ANSI Z359 standards are being rewritten as component-based standards.

TRUE
• True or false: Load testing is needed to certify all active fall protection systems.

FALSE
Thank you for choosing to attend this session. I am committed to making the time you spend in this session worthwhile, so please ask questions throughout my presentation. I will also be available after my session to continue discussions if necessary.

With recent and forthcoming changes to the ANSI Z359 fall protection standards, the landscape of the fall protection industry is changing. During this presentation you will learn about these changes and how they will impact your organization’s fall protection program.

Presentation Outline:

I. Background
   • Statistics
   • Regulations and standards overview
II. Equipment standards
   • Current
   • Future
III. Sample scenarios
   • Issues and solutions
IV. Overview of current and proposed standards
   • ANSI Z359 Fall Protection Code
V. Call to action

If you would like to receive more information about this presentation, please give me a call or send me an email. Again, thanks for being here.

Kevin Wilcox, P.E., C.S.P. – LJB Inc.
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KWilcox@LJBinc.com