

# OSHA Residential Construction Fall Protection

Don't fall without Protection!

November 12, 2013 1:00 PM  
Presented by Chris Hine  
Housing and Land Development Specialist, PHRC

STD 03-11-002

29 CFR 1926.501 (b)(13) & 1926.503



Pennsylvania Housing Research Center

[www.engr.psu.edu/phrc](http://www.engr.psu.edu/phrc)

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SOUND CHECK - You should be hearing music at this time. If you are having problems hearing the music:

- 1) Make sure your speakers are turned on and adjust the volume.
- 2) Run the Audio Setup Wizard found in the "Meeting" menu under "Manage My Settings"
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## Poll #1 – Who's who?



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## Interpretation

- The information contained in this presentation is believed to be accurate
- Other parties or stakeholders may offer differing opinions or interpretations



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## Objectives

- Who is requiring and enforcing the fall protection requirements?
- Why is Residential fall protection important?
- What areas on a Residential construction site require fall protection?
- What are the key components to complying with the Residential fall protection regulation?



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## Who is OSHA?

As part of the United States Department of Labor, Congress created the Occupational Safety and Health Administration (OSHA) through the Occupational Safety and Health Act of 1970.

Part of OSHA's mission is to assure safe and healthful working conditions for working men and women by setting and enforcing standards.



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## The Background

- **STD 03-11-002; Compliance Guidance for Residential Construction was issued December 16, 2010.**
- **STD 03-11-002 rescinds STD 03-00-001, dated June 18, 1999, Interim Fall Protection Compliance Guidelines for Residential Construction.**



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## How did we get here?

- **Why the rescission??**
  - STD 03-00-001 was never intended to be a permanent resolution.
  - Statistics show that fatalities from falls are consistently high for residential construction activities
  - Since the interim policy was enacted there have been significant advances in the types and capability of commercially available fall protection equipment
  - Fatalities from falls are the number one cause of death in residential construction



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## Current Regulation

- **Effective June 16, 2011, employers utilizing alternative fall protection found in the rescinded 1999 Interim Fall Protection Compliance Guidelines for Residential Construction will be subject to OSHA citations if they fail to comply with 29 CFR 1926.501 (b)(13)**



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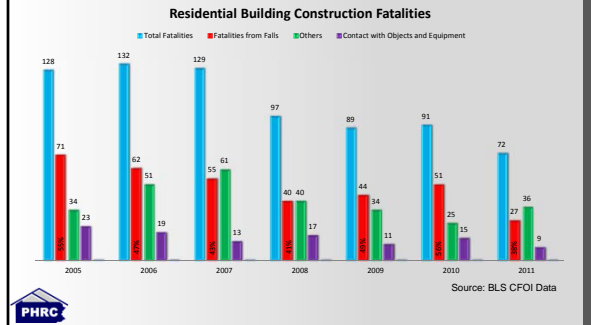
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## Residential Construction Fatalities




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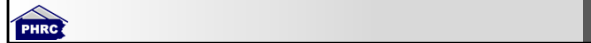
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## Monetary implications if found non-compliant

In May of 2013 a New England framing contractor was faced with proposed fines.

- The break down...
  - ◆ \$14,300 in fines for wood and metal trusses inadequately braced during installation
  - ◆ \$75,900 in fines for lack of fall protection training, no eye protection and not grounding electrical cords

**And the big one.....**




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## Monetary implications if found non-compliant

- **\$200,500** in fines for employees performing work that was exposed to falls ranging from 9 feet up to 30 feet with **inadequate fall protection safeguards**

That is a total of **\$290,700** in proposed fines




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## Where is fall protection required?

1. Unprotected sides and edges
2. Leading edges
3. Holes
4. Steep roofs
5. Wall openings



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## 1. “Unprotected sides and edges”

- Each employee on a walking/working surface (horizontal and vertical) with an unprotected side or edge which is **6 feet or more above a lower level** shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

Section: 1926.501(b)(1)  
Source: [www.osha.gov](http://www.osha.gov)  
Standard Number: 1926.502  
Title: Fall protection systems criteria and practices



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## 2. “Leading edges”

- Each employee who is constructing a leading edge **6 feet or more above lower levels** shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems

Section: 1926.501(b)(2)  
Source: [www.osha.gov](http://www.osha.gov)  
Standard Number: 1926.502  
Title: Fall protection systems criteria and practices



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## “Leading edges”

(cont’d)

- **Leading edge** - The edge of a floor, roof, or formwork for a floor or other walking/working surface which changes location as additional floor, roof, decking or formwork sections are placed or constructed. A leading edge is considered to be an “unprotected side and edge” during periods when it is not actively and continuously under construction.

Source: [www.osha.gov](http://www.osha.gov)  
Section 1926.500(b) Definitions



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## 3. “Holes”

- **“Holes”** Each employee on a walking/working surface shall be protected from fall through holes (including skylights) more than **6 feet above lower levels**, by personal fall arrest system, covers, or guardrail system around such holes.

Section: 1926.501(b)(4)  
Source: [www.osha.gov](http://www.osha.gov)  
Standard Number: 1926.502  
Title: Fall protection systems criteria and practices



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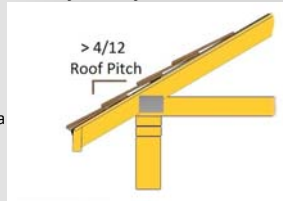
## 4. “Steep roofs”

- Each employee on a steep roof with unprotected sides and edges **6 feet or more above lower levels** shall be protected from falling by guardrail systems with toeboards, safety net systems, or PFAS.

Section: 1926.501(b)(11)  
Source: [www.osha.gov](http://www.osha.gov)  
Standard Number: 1926.502  
Title: Fall protection systems criteria and practices

- ♦ Steep roof – A roof having a slope greater than 4 in 12

Source: [www.osha.gov](http://www.osha.gov)  
Section 1926.500(b) Definitions



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## 5. "Wall openings"

- Each employee working on, at, above or near wall openings where the outside bottom edge of the wall opening is **6 feet or more above lower levels** and the inside bottom edge of the wall opening is less than **39 inches above the walking/working surface**, shall be protected from falling by the use of guardrail systems, a safety net system, or a PFAS.

Section: 1926.501(b)(14)  
Source: [www.osha.gov](http://www.osha.gov)  
Standard Number: 1926.502  
Title: Fall protection systems criteria and practices



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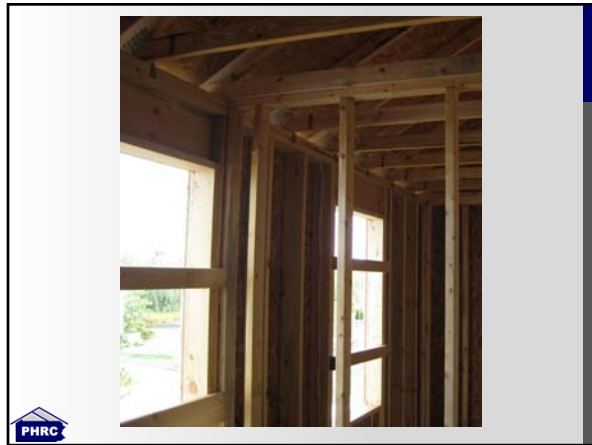
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## POLL # 2: Head Count

\* Password to print certificates for CEU's: OSHAReg13



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## Conventional Fall Protection Systems

- Guardrail Systems
- Safety Net Systems
- Personal Fall Arrest Systems (PFAS)



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## Guardrail systems 1926.502(b)

- The following are requirements for Guardrail systems:
  - 1926.502(b)(1) - Top edge of rail 42" +/- 3"
    - ◆ When using stilts, the height of the top rail shall be increased an amount equal to the height of the stilts.
  - 1926.502(b)(3) - Top rail must withstand a force of 200 pounds applied laterally within 2" of the top edge.



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## Guardrail systems 1926.502(b)

- The following are requirements for Guardrail systems: *cont'd*
  - 1926.502(b)(2)(i) - Mid rails shall be installed at the halfway point.
  - 1926.502(b)(5) – Mid rails must withstand a force of 150 pounds applied in any direction.
  - 1926.502(b)(6) – Guardrail to be surfaced as to prevent injury from punctures or lacerations and to prevent the snagging of clothing.



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## Guardrail systems 1926.502(b)



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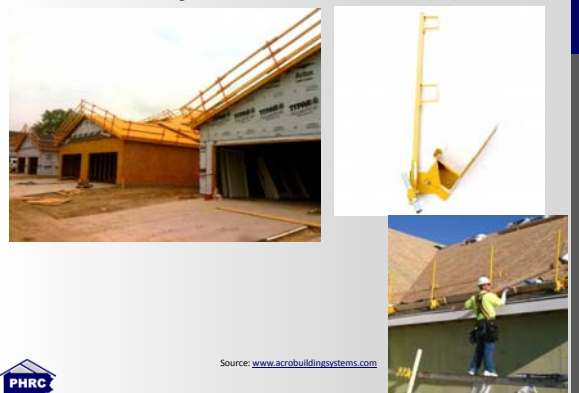
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## Guardrail systems 1926.502(b)



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## Safety Net System 1926.502(c)

- The following are requirements for Safety Net Systems:
  - 1926.502(c)(1) - To be installed as close as practicable under walking/working surface but in no case more than 30 feet below such level.
  - 1926.502(c)(3) – Shall be installed with sufficient clearance to prevent contact with structures below.
  - 1926.502(c)(4) – Net shall be capable of absorbing an impact force of a drop test or a “competent person” shall certify the net installation is in compliance.



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## Safety Net System 1926.502(c)

- The following are requirements for Safety Net Systems:
  - 1926.502(c)(2) – Safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet



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## Safety Net System 1926.502(c)



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## Personal Fall Arrest System 1926.502(d)

- A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Source- [www.osha.gov](http://www.osha.gov)  
Section 1926.500(b) Definitions



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## Personal Fall Arrest System 1926.502(d)

### • The following are requirements for Personal Fall Arrest Systems (PFAS):

- A PFAS shall consist of the following components:
  - ♦ Connectors 1926.502(d)(1)-(6)
  - ♦ Lanyard/Lifeline 1926.502(d)(9)-(14)
  - ♦ Anchorage 1926.502(d)(15)
  - ♦ Body Harness 1926.502(d)(18)



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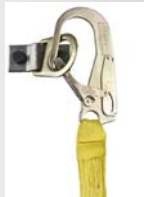
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## Connectors

### • Snaphooks

- Shall be sized to be compatible with the member to which they are connected



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## Connectors

### • Snaphooks

- Shall be **locking type** and designed for the following connections, snaphooks shall not be engaged:
  - ♦ Directly to webbing, rope or wire rope
  - ♦ To each other
  - ♦ To a dee-ring that has another snaphook attached
  - ♦ To a horizontal life line; or
  - ♦ To any object which is incompatibly shaped that may cause unintentional disengagement



[www.millerfallprotection.com](http://www.millerfallprotection.com)

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## Connectors

### • Dee-rings



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## Lanyard/Lifeline

- Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds 1926.502(d)(9)

**BUT...**

- Self-retracting lanyards with automatically limit free fall distance to 2 feet shall sustain a minimum tensile load of 3,000 pounds



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## Lanyard/Lifeline

- Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds 1926.502(d)(9)
  - Self-retracting lanyards which do not limit free fall distance to 2 feet or less, ripstitch lanyards, and tearing / deforming lanyards shall be capable of sustaining a minimum tensile load of 5000 pounds.



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## Anchorage

- 1926.502(d)(15) – Anchorage intended for PFAS shall be installed independent from other anchorage systems such as the supports for suspended platforms and must also be capable of supporting at least 5,000 pounds per employee or shall be designed, installed, and used as follows:
  - Completed installation of PFAS must maintain a safety factor of at least two
  - Installed under the supervision of a qualified person
- As always, refer back to the manufactures installation instructions for proper application of products being used.



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## Full Body Harness



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## What is a full Body Harness?

- **Body Harness** – A design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

Source: [www.osha.gov](http://www.osha.gov)  
Section 1926.500(b) Definitions



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## Can I use a Body Belt in place of a Body Harness?

- Effective January 1, 1998, body belts are **not** acceptable as part of a **Personal Fall Arrest System (PFAS)**



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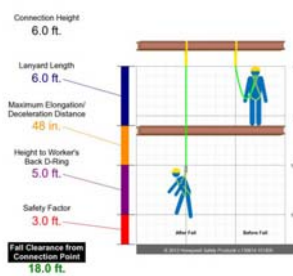
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## Recap of PFAS



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## Fall Protection Plan

- 1926.501(b)(13) "Residential Construction"

- Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of paragraph (k) of 1926.502.
- [www.osha.gov/doc/residential\\_fall\\_protection/sample\\_fall\\_protection.doc](http://www.osha.gov/doc/residential_fall_protection/sample_fall_protection.doc)



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**EXAMPLE: Sample Fall Protection Plan for Residential Construction**

**Sample Fall Protection Plan for Residential Construction (Insert Company Name)**

This Fall Protection Plan is Specific For The Following Project:

Location of Job: \_\_\_\_\_

Date Plan Prepared or Revised: \_\_\_\_\_

Prepared By: \_\_\_\_\_

Plan Approved By: \_\_\_\_\_

Plan Reapproved By: \_\_\_\_\_

The following Fall Protection Plan is a sample program prepared for the protection of anyone associated with this Fall Protection Plan. This Fall Protection Plan must be developed and evaluated on a job by job basis. It is recommended that you discuss the contents of this Fall Protection Plan with your Safety Director prior to using it on a job.

**1. Statement of Company Policy**

This company name hereby declares its dedication to the protection of its employees from the job site. The purpose of this plan is to establish safety and health programs and to ensure that every employee who works for this company name has adequate fall protection and that the appropriate resources to address these hazards.

Each employee will be trained in these procedures and will adhere to them except when it is necessary to correct or modify the plan. The user is responsible for ensuring that the plan is followed and that the appropriate resources to address these hazards are available and used as intended.

It is the responsibility of the employer to ensure that all employees understand and adhere to the procedures of this plan and to follow the instructions of the user. The user is responsible for ensuring that the plan is followed and that the appropriate resources to address these hazards are available and used as intended.

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Source: [https://www.osha.gov/dcspp/compliance\\_assistance/sampleprograms.html#Fall Protection](https://www.osha.gov/dcspp/compliance_assistance/sampleprograms.html#Fall%20Protection)



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## Highlights of the Fall Protection Plan

- One qualified, competent & trained person must be listed to retain responsibility for implementing the plan

- Safety Monitor (1926.502(h))
  - ♦ Shall be a competent person
  - ♦ Shall recognize fall hazards
  - ♦ Shall warn other employees that are unaware of fall hazards
  - ♦ Shall be on the same working level and within visual sighting distance
  - ♦ Shall be close enough to communicate orally
  - ♦ Shall **not** have other responsibilities which could take attention away from the monitoring function



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## Highlights of the Fall Protection Plan

- Areas or tasks

- Roof
- Floors
- Walls



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## Highlights of the Fall Protection Plan

- Installation procedures for listed areas or tasks

- Setting of roof trusses
- Installation of floor joists and sheathing
- Erecting exterior walls

- Changes to the plan can be approved by the qualified person

- Must have a Controlled Access Zone (CAZ)



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## Controlled Access Zones 1926.502(g)

- An area in which certain work (e.g., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Source: [www.osha-slc.gov](http://www.osha-slc.gov)  
Section 1926.500(b) Definitions

- Must be part of a Fall Protection Plan



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## Controlled Access Zones (CAZ) Control Line

- When used to control access to areas where leading edge work is taking place, the CAZ shall be defined by a control line



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## Controlled Access Zones (CAZ) Control Line

- Shall be placed not less than 6 feet but not more than 25 feet from the unprotected or leading edge work area (exceptions do exist)
  - Precast concrete – 6 feet to 60 feet
  - Overhand brick laying – 10 feet to 15 feet



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## Positioning device systems 1926.502(e)

- A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

Source- [www.osha.gov](http://www.osha.gov)  
Section 1926.500(b) Definitions

- This is not the same as a Personal Fall Arrest System
- This device shall be rigged such that an employee cannot free fall more than 2 feet
- Body belts are permitted



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## Training Program 1926.503

- It is the responsibility for the employer to provide a training program to each employee who may be exposed to fall hazards



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## Requirements for Training

- The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the following training areas: *(items on next slide)*



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## Training Subjects

- **Must be trained in:**
  - The nature of fall hazards in the work area
  - The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems being used
  - Proper use, operation and storage of the fall protection system being used
  - The role of employees in fall protection plans



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## Proper Certification of Training

- Certification of latest training must be documented and maintained



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## Summary

- Major areas for concern
  - Unprotected sides and edges
  - Leading edges
  - Holes
  - Steep roofs
  - Wall openings



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## Summary

- Conventional fall prevention
  - Guardrail Systems
  - Safety Net Systems
  - Personal Fall Arrest Systems (PFAS)
- Fall protection plan
  - Roofs
  - Floors
  - Walls
  - CAZ



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## Summary

- How can following these regulations help you?
  - It can save you and your company from paying heavy fines!!



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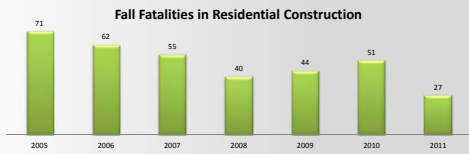
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## Summary

- But most importantly, this is *not* a statistic you want to be associated with.
  - 350 deaths in Residential Construction from falls alone over a 7 year period.



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# Are YOUR employees PROTECTED?



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## References

- <https://www.osha.gov/doc/topics/residential-protection/index.html>
- <http://www.bls.gov/iif/oshcfoi1.htm>



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## OSHA Residential Construction Fall Protection

### Questions & Evaluations

chine@engr.psu.edu

<http://www.cvent.com/d/m4qmbq/4W>

Next Month's Webinar: *Soils Considerations for Builders*  
Tuesday, December 10, 2013 1:00 PM

Presented By: CMT Laboratories



Pennsylvania Housing Research Center

[www.engr.psu.edu/phrc](http://www.engr.psu.edu/phrc)

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