

# *Minnesota OSHA Residential Fall Protection Trusses and Roofing*



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**The Occupational Safety and Health Act requires employers to comply with safety and health standards promulgated by MNOSHA.**



# **Residential Fall Protection Program Update**

- **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.**

# Residential Fall Protection Program Update

**Effective June 16, 2011, employers utilizing alternative fall protection found in the rescinded 1999 Interim Fall Protection Compliance Guidelines for Residential Construction will be subject to MNOSHA citations if they fail to comply with 29 CFR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

# **Residential Fall Protection Program Update**

## **Why the rescission?**

- 1. Never intended to be a permanent resolution.**
- 2. Fall protection is safe and feasible for the vast majority of residential construction activities.**
- 3. OSHA received recommendations to rescind the interim directive.**
- 4. The residential fall protection requirements have always been established in Subpart M at 29 CFR 1926.501(b)(13). The new policy directive implements the standard as originally intended.**

# Falls are the leading cause for construction fatalities:



# The BLS Released Statistics Showing the Fall Fatalities in Residential Construction

<b>FATALITIES</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>TOTAL FALLS</b>	<b>134</b>	<b>130</b>	<b>110</b>	<b>93</b>	<b>78</b>
<b>FALLS FROM ROOFS</b>	<b>48</b>	<b>49</b>	<b>35</b>	<b>28</b>	<b>31</b>

Source: BLS CFOI Data

# *Fatality / Serious Injury in MN from residential falls*

- **1 year – 1 fatality / 6 serious injuries**
- **5 year – 1 fatality / 11 serious injuries**

## *MNOSHA inspection data*

- **Past 5 years;**
- **505 employers cited for residential fall protection.**
- **12% of all construction inspections.**
- **Avg. penalty \$1,600.00**

## *MNOSHA inspection data*

- **Past year;**
- **190 employers cited residential fall protection**
- **22 % of all construction inspections**
- **Avg. penalty \$2,300.00**

# **Significant Changes in the Residential Fall Protection Policy**

**Under the new directive employers must follow 1926.501(b)(13).**

**1926.501(b)(13) states ... workers “engaged in residential construction activities 6 feet (1.8 m) or more above lower levels shall be protected by:**

- guardrail systems**
- safety net system**
- personal fall arrest system**
- or by alternative fall protection measures allowed under 1926.501(b) for particular types of work”.**

## Guardrail



## Safety Net



## Personal Fall Arrest



# Other Methods Allowed Under 1926.501(b)

**1926.501(b)(2)(ii) - Controlled access zones and control lines can be used for some leading edge applications.**

**1926.501(b)(4)(i) and (ii) - Covers can be used to prevent workers from falling through holes.**



# Other Methods Allowed Under 1926.501(b)

**1926.501(b)(5) - Positioning devices can be used while working on the face of formwork or reinforcing steel**

**1926.501(b)(7)(i) and (ii) - Barricades, fences and covers can be used to prevent workers from falling into excavations.**



# Alternative Methods Allowed Under 1926.501(b)

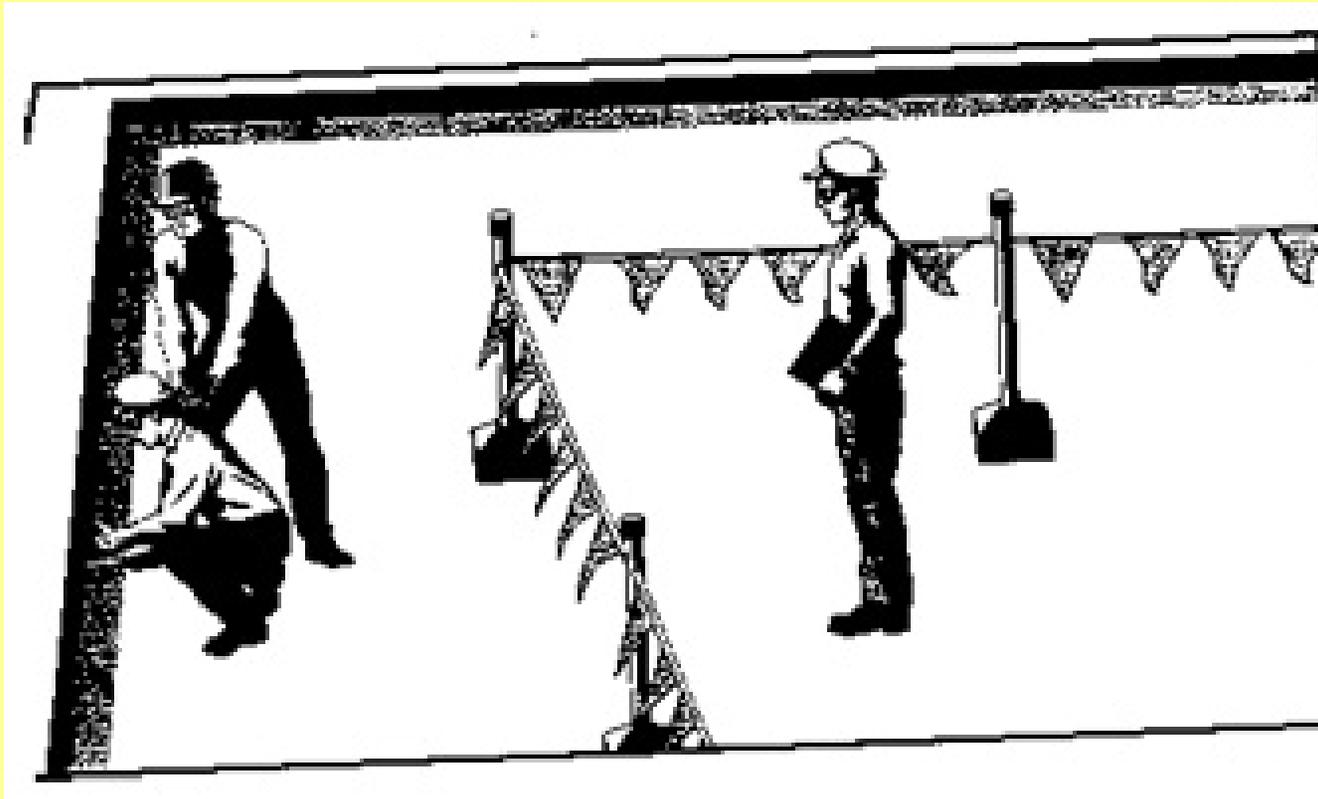
**1926.501(b)(8)(i) - Equipment guards can be used to prevent workers from falling into dangerous equipment.**



# **Alternative Methods Allowed Under 1926.501(b)**

**1926.501(b)(10) - A combination of a warning line system and safety monitoring system can be used for roofing work on low-slope (4:12 or less) roofs. Or, on roofs 50-feet (15.25 m) or less in width, the use of a safety monitoring system without a warning line system is permitted.**

# Warning Line system and Safety Monitoring System



# Definition of Residential Construction

In order to be classified as residential construction, two elements must be met:

1. The end-use of the structure being built must be as a home, i.e., a dwelling; and
2. The structure being built must be constructed using traditional wood frame construction materials and methods.

**\*The limited use of steel I-beams to help support wood framing does not disqualify a structure from being considered residential construction.**

# Residential Construction

**Cold-formed metal studs will be considered within the bounds of traditional wood frame construction materials and methods.**



# Residential Construction



**The use of masonry brick or block in exterior walls will be treated as falling within the scope of traditional wood frame construction materials and methods.**

# Training Requirements

**Under 29 CFR 1926.503, workers exposed to fall hazards must be trained to recognize potential fall hazards and in the procedures to be followed to minimize those hazards.**



# Guardrail Systems



**Here we see a 2nd floor perimeter completely protected by a guardrail system.**

# Guardrail Systems



**Brackets for engineered guardrail systems can either be side mounted or deck mounted. Either way, employers should look to the manufacturer instructions or the recommendations of a registered professional engineer for proper installation.**

# Guardrail Systems



**Guardrails in place during re-roofing activities.**

# Guardrail Systems



**Note: The picture shows a lack of protection for the rake edge so some means of protecting this worker (guardrail, safety nets or PFAS) must be used.**

# Guardrail Systems



**Here we see a roof fully protected by a guardrail system...ready to go.**

# Safety Net Systems



**These nets have been positioned to prevent falls to the interior of the building.**

# Safety Net Systems

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

**From 1926.502(c)(2)**

# Personal Fall Arrest System

- **A Personal Fall Arrest System (PFAS) must include the following components:**
  - **Anchorage**
  - **Body Harness**
  - **Connector/Lanyard**
- **A PFAS may also include a lanyard, deceleration device, or lifeline.**

# Personal Fall Arrest System Anchor Point



# Personal Fall Arrest System Connector/Lanyard



# Horizontal Line



# Horizontal Line



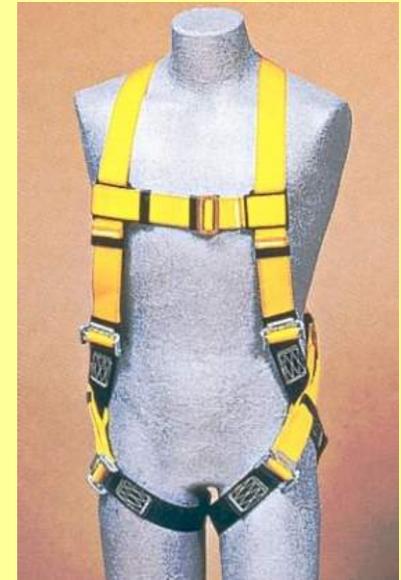
# Personal Fall Restraint System

Although the standard does not mention personal fall restraint systems, OSHA has previously stated that it accepts a properly utilized fall restraint system in lieu of a personal fall arrest system when the restraint system is rigged in such a way that prevents the worker from being exposed to the fall hazard.



# Personal Fall Restraint System

**Fall restraint can be a body belt or full body harness.**



**Must be tied off so that the worker cannot go past the unprotected side or edge, no matter where the work is on the walking/working surface.**

**Lanyards should be adjustable to take up slack when workers move about.**

# Other Work Methods

Employers also have the option of having workers work from:

Scaffolds (in compliance with Subpart L)

Ladders (in compliance with Subpart X)

Aerial lifts (in compliance with 29 CFR 1926.453) instead of complying with 1926.501(b)(13)

# Other Work Methods



**Platform Ladders**



**Step Ladder**

# Ladders

**Ladders:** For certain truss-setting jobs, platform and stepladders can provide a stable work platform for workers. They can be particularly helpful when set up inside a building.

# Other Work Methods



**Bakers / Perry Scaffolds**

# Other Work Methods



**Here is an example of a wall bracket, or top plate, scaffold system: (carpenter's bracket scaffold)**

- **systems for rolling trusses**
- **cutting rafter tails**
- **hanging fascia.**

# Carpenter's Bracket Scaffold

1926.452(g)(1) – For carpenter's bracket scaffolds only, a bolt extending through to the opposite side of the structure's wall shall be used to secure the scaffold in place.

# Other Work Methods



**This contractor is working with trusses from this wall bracket/top plate scaffold system.**

# Other Work Methods



**The positioning of an engineered guardrail system allows easy access for sheathing, roofing and utility installation.**

# Scaffolds

**Scaffolds:** When properly constructed and used, internal and external scaffolds can provide suitable protection for truss-setting tasks. For example, bracket scaffolds placed on the inside or outside of a building provide large, stable walking and working areas for workers. To ensure safe use and appropriate load limits for bracket scaffold systems, workers should always follow the manufacturer's instructions or consult a qualified person.

# Lifts



**Extensible Boom Aerial lift**

# Rough-Terrain Forklift



**Rough-terrain Forklift with basket attachment**

# Other Work Methods

## Extensible Boom Aerial Lift

Alternative for reaching heights if properly used.  
PFAS or fall restraint must be worn and lanyard attached to boom or basket when working from an aerial lift - 1926.453(b)(2)(v).



# Lifts

- **Lifts:** Depending on the building layout and the tasks involved, lifts (e.g., aerial, scissor) may be options for setting trusses. Lifts provide a stable, elevated platform from which workers can operate. Workers must follow all safety procedures and conduct all operations from inside the lift basket.

# Other Work Methods



**Working at heights cannot be eliminated, but there are ways to minimize exposure to falls. Assemble as many parts of the building as possible on the ground.**

# Other Work Methods



**Flying pre-assembled structures into place will minimize worker exposure to fall hazards.**

# Other Work Methods



**Here a contractor installed the building wrap prior to flying this section into place.**

# Other Work Methods



**Some contractors are even pre-positioning portions of the guardrail system on the ground.**

# Other Work Methods



**Pre-installed fall protection**

# *FALL HAZARDS*



**All sites have unprotected sides and edges, wall openings, or floor holes at some point during construction.**

**If these sides and openings are not protected, injuries from falls can happen.**

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**There's no reason to work like this ...**

# *PFAS*



**You can work like this.**

# *Fall Hazard*



# Guardrail System



# Fall Hazard



# Guardrail System



# Fall Protection Plan 1926.502(k)

- **If an employer can demonstrate that conventional fall protection is infeasible or presents a greater hazard, the employer shall develop and implement a fall protection plan that complies with 1926.502(k).**



# **29 CFR 1926.501(b)(13)**

**If the employer can demonstrate that it is infeasible or creates a greater hazard to use the required fall protection systems, the employer must instead develop and implement a written site specific fall protection plan in accordance with 29 CFR 1926.502(k).**

**MNOSHA does not consider "economic infeasibility" to be a basis for failing to provide conventional fall protection.**

# **29 CFR 1926.501(b)(13)**

**MNOSHA expects that the fall protection methods listed in 1926.501(b)(13) can be used without significant safety or feasibility problems for the vast majority of residential construction activities.**

# Definition: Qualified Person

- **"Qualified" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project - 1926.32(m). (This could be the owner, supervisor, etc.).**

# Definition: Competent Person

- **“Competent Person” means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them – 1926.32(f). (This could be the owner, supervisor, etc.).**

# Significant Changes in the Residential Fall Protection Policy



- **Under 1926.502(k) the fall protection plan:**
  - **Must be written.**
  - **Must be site-specific.**
  - **The plan must be prepared by a “qualified person” - 1926.502(k)(1).**
  - **Be developed specifically for the site where the residential construction work is being performed 1926.502(k)(1).**

# *Significant Changes*

- **Must be maintained up to date – 1926.502(k)(1).**
- **All changes shall be approved by a qualified person – 1926.502(k)(2).**
- **Shall be maintained on the site – 1926.502(k)(3).**
- **Shall be implemented under the supervision of a competent person – 1926.502(k)(4).**
- **Shall include documentation of reasons why conventional fall protection systems are infeasible or create a greater hazard – 1926.502(k)(5).**

# *Significant Changes*

- **Shall include a written discussion of the alternative work practices to be used that will eliminate or reduce the possibility of a fall – 1926.502(k)(6).**



# **Fall Protection Plan Safety Monitor Duties**

- **For a safety monitoring system under 1926.502(h) the monitor must:**
  - **Be a competent person.**
  - **Warn workers of fall dangers.**
  - **Be on same working level and within visual sighting.**
  - **Be close enough to communicate orally.**
  - **Not have responsibilities which take attention away from monitoring.**

# **Workplace Safety Consultation Grant Program**

- **The Program:**
  - **Awards funds up to \$10,000 to qualifying employers**
  - **Qualified applicants must be able to match the grant money awarded**
  - **Must use the award to complete a project that reduces the risk of injury or illness to employees**
  - **Grant project must be based on a hazard assessment**

# *In Closing*

- Visit the OSHA Construction webpage for additional residential fall protection compliance assistance and guidance materials:

[www.osha.gov/doc/residential\\_fall\\_protection.html](http://www.osha.gov/doc/residential_fall_protection.html)

- For Fall Protection Standards for States with OSHA-approved State Plans, please visit:

<http://www.osha.gov/dcsp/osp/statestandards.html>

**\*The enforcement date for the new directive was June 16, 2011.**



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