

**North Carolina Department of Labor
Occupational Safety and Health Division**

Raleigh, North Carolina

Field Information System

Operational Procedure Notice 109B

Subject: Fall Protection Requirements for Residential Construction

A. Purpose.

This operational procedure notice (OPN) clarifies parts of 29 CFR 1926 Subpart M which address problems unique to residential type construction work. This instruction describes and clarifies the fall protection measures that are acceptable in North Carolina for compliance with 29 CFR 1926.501(b)(13), "Residential Construction."

B. Scope.

This OPN applies to all residential construction activities, and does not affect any general industry activities, such as, but not limited to tree trimming, that take place at residential sites.

C. References.

- 29 CFR Part 1926 Subpart M, "Fall Protection," effective February 6, 1995.
- STD 03-11-002 – Compliance Guidance for Residential Construction, December 16, 2010.

D. Discussion.

On December 16, 2010, OSHA issued STD 03-11-002, Compliance Guidance for Residential Fall Protection. This new STD cancelled an earlier directive, OSHA Instruction STD 03-00-001 (STD 3-0.1A), Plain Language Revision of OSHA Instruction STD 3.1, Interim Fall Protection Compliance Guidelines for Residential Construction, dated June 18, 1999, and replaces it with new compliance guidance.

The North Carolina Department of Labor (NCDOL), Occupational Safety and Health (OSH) Division did not use the original federal instruction and decided instead to establish state-specific fall protection guidance in OPN 109 and later OPN 109A. The OSH Division reviewed STD 03-11-002 and determined that NCDOL policy provides more specific guidance, but revised Appendix A of this OPN to include additional information from STD 03-11-002.

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E. **Action.**

OSH Division compliance supervisors and compliance officers (CSHO's) will use the guidelines and procedures in this OPN for the enforcement of Subpart M related to residential construction.

F. **Expiration.**

OPN 109A is cancelled. This OPN is effective on the date of signature. It will remain in effect until revised or cancelled by the director.

Signed on Original

Ed Lewis
Safety Standards Officer

Signed on Original

Allen McNeely
Director

2/24/2011

Date of Signature

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Appendix A: Fall Protection Requirements for Residential Construction

A. Definition.

For the purpose of this OPN, the term "residential construction" is interpreted as covering construction work that satisfies the following two elements: (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 built using wood frame construction materials and methods. The limited use of structural steel in a predominantly wood-frame home, such as a steel I-beam to help support wood framing, does not disqualify a structure from being considered residential construction. Some small institutional and commercial structures fit this definition, as well as parts of a large commercial structure (for example, a medical facility using residential type of construction and materials), but such coverage does not mean that the entire structure is covered by this directive. The terms "residential type construction" and "light construction" will be accepted as synonymous with "residential construction."

Accordingly, the OSH Division will consider it within the bounds of "traditional wood frame construction materials and methods" to use cold-formed sheet metal studs in framing.

Because the same fall protection methods are likely to be used in the construction of homes built with wood framed and masonry brick or block exterior walls, the division has decided that it is consistent with the original purpose of 1926.501(b)(13) to treat the construction of residences with masonry brick or block in the exterior walls as residential construction.

In accord with the discussion above, and for purposes of the interpretation of "residential construction" adopted herein, "traditional wood frame construction materials and methods" will be characterized by:

Framing materials: Wood (or equivalent cold-formed sheet metal stud) framing, not steel or concrete; wooden floor joists and roof structures.

Exterior wall structure: Wood (or equivalent cold-formed sheet metal stud) framing or masonry brick or block.

Methods: Traditional wood frame construction techniques.

B. Fall Protection Plans.

1. Discussion.

Subpart M clarifies the duty to provide fall protection for employees engaged in

residential construction in 1926.501(b)(13). The rule requires contractors to use a fall protection plan if they cannot use one of the conventional means of fall protection (guardrails, personal fall arrest systems (PFAS), or safety nets). The rule further provides that employers who demonstrate that it is infeasible or creates a greater hazard to use conventional fall protection must establish the supporting rationale in a fall protection plan that meets the requirements of 1926.502(k). This standard addresses fall protection plans, and the alternative measures that will be implemented to protect employees.

The OSH Division anticipates that alternative fall protection measures may be established by contractors whose employees are engaged in the activities discussed in Appendix E of Subpart M. The burden of proof of infeasibility rests with the employer. It is important to recognize that the term, "infeasible" is not synonymous with "inconvenient." If commonly used, industry accepted, and cost effective fall protection measures appropriate for the activity are feasible for the employer who claims infeasibility, the OSH Division will not accept infeasibility as a defense, and will support and uphold the professional judgment of the compliance officer issuing the citation(s).

2. Plan Administration.

a. Employer enforcement.

The employer is required to enforce the fall protection plan. The crew supervisor/foreman should have the authority to issue disciplinary warnings to employees for failure to follow the requirements of the plan. The unsafe practices or conditions must be corrected immediately and should be reported to the safety and/or personnel department for possible disciplinary action.

b. Changes to the fall protection plan.

- i. **Designation of competent person** - the employer must designate a competent person to approve changes to the plan.
- ii. **Approval required** - changes to the plan may not be made unless approved by the competent person.
- iii. **Plan review** - the competent person must review the plan as the job progresses to determine if additional practices, procedures, or training need to be implemented. The employer shall notify and, if necessary, train workers in the new procedures.

c. Accident investigations/plan review.

All accidents resulting in injury to workers shall be reported and investigated. To help prevent further accidents, the investigation must be documented so that the cause and means of prevention can be identified. In the event of a fall or other serious incident, the plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented.

C. **Infeasibility.**

The OSH Division recognizes that some phases of residential construction have unique problems in a changing workplace, and implementation of fall protection systems may be infeasible or create a greater hazard. The construction activities identified in paragraph D. below may be exempted from fall protection system requirements if the CSHO determines:

1. The fall protection plan reasonably determines that fall protection systems are infeasible for that activity, or create a greater hazard; and,
2. The fall protection plan and observed work practices implement appropriate precautions, procedures or work practices which minimize employee exposure to fall hazards; and,
3. The fall protection plan and/or safe work practices is implemented under the supervision of a competent person and the plan/safe work practices will be in writing; and,
4. Documented training records are available for all persons engaged in the activity.

D. **Construction Activities.** The following construction activities may be exempt if they meet the infeasibility criteria in paragraph C.

1. Working on top of foundation walls and formwork.

- a. Straddling the wall or formwork could be considered a safe work practice. Walking along the top would not.

2. Working atop unsheathed floor joists.

- a. An employee misstep is likely to cause a fall only to the level the employee is standing or walking on, and will probably not result in

serious injury.

- b. If less than six feet, the first row of sheathing will be installed from the ground. If six feet or greater, the first row of sheathing will be installed from ladders, carpenter bracket scaffolds, etc.
- c. Once the first row of sheathing is down, climb atop the sheathing and continue with the second row. (It is understood that employees will be in harm's way for brief periods while installing the second row but will have received special training to recognize the hazards).
- d. After the second row of sheathing is installed, anchorage points can be placed in appropriate locations for employees to use PFASs (i.e.: harnesses with retractable or rope grabs) while completing the decking operation.
- e. Pass the decking up through the floor joist if the exterior fall is six feet or greater, which will prevent the employee from being pulled over the side. If material is pulled from over the side, that employee must be in a fall restraint system.
- f. The hazard becomes greater when the worker moves near the perimeter of the structure or near a large floor hole. If feasible, floor over holes such as chimney/hearth holes, HVAC channels, etc.

3. Erecting exterior walls.

- a. Once the floor is completely sheathed, a warning notification of some sort will be delineated 6six feet in from all perimeter sides of the structure. The warning notification could be a bright orange line painted on the sheathing.
- b. Employees will be trained that they can work inside these lines without fall protection but if work is required outside the lines, PFASs are required. An example would be where most of the wall being built would be inside the "safe zone" but one employee would be responsible for nailing the bottom plate. That employee could very well be outside the "safe zone" and would be required to use fall protection. The bottom plate should be toe nailed for stability during the nailing process and raising the wall.
- c. After all the exterior walls are raised and braced, the window and door openings should have guard rails installed at the appropriate height (this may be done while the wall unit is on the floor). Any large openings such

as stairwells, atriums, etc. should have the permanent walls installed and or guardrails built.

- d. This process continues until all exterior walls are erected and then the walls will act as fall protection for employees.

4. Setting roof trusses.

- a. Set the gable end truss first and brace it off to the outside of the home and the interior of the home. The truss system is designed to operate as a complete system, therefore utilization of a truss as a PFAS attachment point before the system is complete could lead to truss failure/collapse, and result in unnecessary injuries to both workers attached and on the work surface below. (All manufacturers recommend permanent bracing has to be in for the system to be structurally sound).
- b. The employer shall have no more than two individuals in the webbing of the trusses. The employer shall have a competent person in the area of work monitoring all work processes prior to the use of PFAS. All fastening of trusses to wall top plates shall be performed from approved scaffolding inside the walls or ladders. No work is allowed while standing on the top plate of the wall.
- c. After the last truss is installed, all permanent bracing shall be installed prior to starting the sheathing of the roof. After the permanent bracing is installed, the first course of sheathing shall be installed from within the webbing. Once the first course of sheathing is installed, the truss system shall be utilized for PFAS attachment points. PFAS shall be utilized for all remaining work on the roof structure.
- d. Piggy-back trusses shall only be installed after the main roof structure is complete, including all permanent bracing and roof sheathing. Piggy-back trusses shall be installed utilizing PFAS. It is highly recommended that the fall protection system includes the use of a retractable lanyard with built-in fall arrester. **Note:** This guidance does not preempt any manufacturer's recommendation for bracing. Always follow the manufacturer's recommendations for installation and bracing.
- e. Recommend securing a "snappy strap/roof bracket" on the fifth truss before leaving the ground for a tie off point before it leaves the ground and others as necessary throughout the house. Most probable locations are the center truss and fifth from the end.

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5. Stick framing of roof systems.

- a. Structures tend to be weak and unstable in the early stages, making tie-off infeasible. Scaffolds and or ladders could protect workers more effectively than the job-made walk boards commonly used.
- b. For the use of site-made scaffolds while working at the ridge pole, the scaffold should be built to support 4 times the working load. Guardrails should be installed, if feasible. If not feasible, the worker should utilize a PFAS attached to an attachment point on the ridge pole once the competent person has determined that the ridge pole is structurally supported/braced enough to be used as an attachment point.

6. Installing roof sheathing.

- a. After all trusses have been installed and braced in accordance with manufacturer recommendations, install the first row of sheathing from within the truss webbing/bottom chord. Install the first row of paper and then install a slide guard across the first row of sheathing. Hook up the fall protection device selected, crawl on the installed sheathing and continue to complete the roof sheathing requirements.
- b. Suggest leaving the anchor points for the roofer and other trades who have to access the roof area.

7. Installing or disassembling fall-protection systems.

- a. Employees are temporarily and necessarily exposed to fall hazards while installing or disassembling fall-protection systems. CSHO's will not issue citations for this short-term employee exposure, provided appropriate precautions are taken while the work is done.

E. **Site Specific Plans Interpretation.** The following North Carolina interpretation loosens the requirement for "site specific" fall protection plans found in 1926.502(k)(1):

"For residential construction, the fall protection plan need not be singularly site specific, but must be applicable to the site and structure, and contain no extraneous material. However, a unique site and/or structure may make a site-specific plan necessary."

Explanation: This relaxation of the requirement for site-specific fall-protection plans will allow a residential builder who builds almost-identical structures on multiple sites to have one, two, or several standardized plans for many structures. However, an all-encompassing "canned" plan which contains material not applicable to the structure at issue is not acceptable. Compliance officers should validate applicability and

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implementation of the plan on the jobsite.

F. **Roof Pitch.** The OSH Division recognizes the Subpart M roof pitch of 4 in 12 as the differentiation line between steep-slope and low-slope roofs, and the differences in fall protection system possibilities. Further differentiations and caveats in steep-slope roofs (i.e., greater than 4 in 12) which affect fall protection requirements are not recognized in North Carolina. Devices such as slide guards and chicken ladders are considered helpful on steep roofs where foot traction is inadequate, but they are not considered adequate substitutes for fall protection systems.