

**SUBJECT:** Fall Protection in Construction

**PURPOSE:** This instruction establishes MNOSHA policy for issuing citations for lack of fall protection in construction, following standards for Fall Protection in the Construction Industry, sections 1926.500 through 1926.503 and appendices, which became effective in Minnesota on February 6, 1995.

**SCOPE:** This directive applies Division wide.

**REFERENCES:** Federal STD 03-11-002, Compliance Guidance in Residential Construction

**CANCELLATION:** This instruction supersedes MNOSHA Instruction STD 3-11.4, Fall Protection in Construction, dated June 16, 2011

**BACKGROUND:**

1926 Subpart M was intended to be the most comprehensive safety standard yet to deal with construction fall protection. The fall protection systems and procedures addressed in this standard are intended to prevent employees from falling off, onto, or through working levels and to protect employees from falling objects.

Subpart M requires that whenever construction employees are exposed to a fall of six feet or more, employers must take some action to protect workers from falling. This rule applies to all construction activities unless another construction standard specifically requires fall protection, such as for steel erection of buildings and for scaffolds.

Subpart M corrects problems which have arisen during enforcement of the previous fall protection standards; it either maintains or increases the requirements for protection from fall hazards, but does so using more performance-oriented criteria where possible, rather than specification-oriented language. Subpart M also consolidates and simplifies many of the previous fall protection provisions.

**NOTE:** On December 22, 2010 OSHA issued STD 03-11-002, Compliance Guidance in Residential Construction. This Directive rescinded STD 03-00-001, Interim Fall Protection Compliance Guidelines for Residential Construction, which allowed employers to use alternative methods for fall protection without demonstrating the infeasibility of conventional fall protection – guardrails, safety nets, or personal fall arrest systems. Beginning June 16, 2011, residential construction employers must comply with 29 CFR 1926.501(b)(13). See Items B.13 and C.1 for further guidance.

**ACTION:**

**A. SCOPE AND LIMITATIONS OF FALL PROTECTION STANDARDS**

1. **Scope.** Subpart M sets forth general requirements and criteria for all construction workplaces, but it does not cover every fall protection situation. There are other subparts which still apply to specific aspects of construction fall protection. It is intended that the general provisions of Subpart M and its criteria for fall protection systems will apply in those cases where an employee is exposed to a falling hazard of more than 6 feet to a lower level, and the hazard and/or the fall protection criteria are not specifically addressed in one of the following subparts or rules:

Subpart H	1926.250	Materials Handling, Storage, Use, and Disposal
Subpart L	1926.450	Scaffolding
Subpart N	1926.550	Cranes and Derricks
Subpart Q	1926.700	Concrete and Masonry Construction
Subpart R	1926.750	Steel Erection
Subpart S	1926.800	Underground Construction
Subpart T	1926.850	Demolition
Subpart V	1926.950	Power Transmission and Distribution
Subpart X	1926.1050	Stairways and Ladders
MN Rules	5207.0250	Walking Working Surfaces
MN Rules	5207.1100	Elevating Work Platform Equipment

For example, the scaffolding subpart requires that employers provide guardrails and personal fall arrest equipment for employees working on some types of scaffolds. While there are specifications for guardrails in 1926.451, there are no criteria for the use of personal fall arrest equipment. Under these circumstances, PPE used by the employees must satisfy the Subpart M criteria, while the guardrails must satisfy Subpart L (scaffolds) criteria.

2. Exceptions to Subpart M. There are two very important exceptions to the scope of Subpart M:
  - a. Employees making an inspection, investigation, or assessment of workplace conditions **prior to the actual start of construction work or after all construction work has been** completed are exempt.
  - b. Steel erection activities are exempt from the requirements of Subpart M except for that portion of Subpart R which refers to the criteria portion of Subpart M, 1926.502, Fall Protection Systems Criteria and Practices. See also STD 3-16.1, Steel Erection Directive.

## B. KEY PROVISIONS OF SUBPART M

1. Ensuring the Structural Integrity of All Walking/Working Surfaces [1926.501(a)(2)]. This paragraph requires employers to ensure the structural integrity of all walking/working surfaces before employees are permitted to be on those surfaces. There are no criteria in Subpart M for what constitutes "ensuring". As such, the OSHI will have to use the same guidelines as when evaluating compliance with 1926.20(b)(2) which addresses inspections of job sites, materials, and equipment by a designated competent person.
2. Fall Protection for Employees Working 6 Feet or More Above a Lower Level [1926.501(b)(1)]. This paragraph expresses the basic idea behind Subpart M, in that it requires fall protection for employees working on a walking/working surface with an unprotected side or edge 6 feet or more above a lower level, by use of guardrail systems, safety net systems, or personal fall arrest systems. The 6 feet rule applies to all workers and is measured from the employee's working level to the level below the employee regardless what that level is called, there is no "ground to eave" for example.

At times employers may propose a "safe distance" argument to investigators. This situation will usually be noted on large roofs or floor decks, where the employer contends the workers were 10, 25, or even 150 feet from an unprotected edge. The employer may further argue that the worker is in the middle of the floor working and will never approach the floor edge. Since no one can guarantee the work conditions and the complete job movements of all employees, Federal OSHA has determined that there are no "safe distances" from an unprotected side or edge that would render fall protection

unnecessary. Some method of fall protection must be utilized on all elevated work surfaces six feet or more above a lower level.

HOWEVER: a Federal OSHA letter of interpretation, dated 12-15-03, does address this "safe distance" issue more specifically and MNOSHA will follow its guidelines. Summary of 12-15-03 interp:

**Use of Warning Lines for Trades Other Than Roofers, (Such as but not limited to, HVAC, Electrical, Plumbers, Carpenters, Concrete workers).**

At fifteen feet from the edge, a warning line, combined with effective work rules, can be expected to prevent workers from going past the line and approaching the edge. Also, at that distance, the failure of a barrier to restrain a worker from unintentionally crossing it would not place the worker in immediate risk of falling off the edge. Therefore, where all of the following is met MNOSHA will consider the employer to be in compliance:

1. A warning line is used 15 feet or more from the edge;
2. The warning line meets or exceeds the requirements in 1926.502(f)(2);
3. No work or work-related activity is to take place in the area between the warning line and the edge;
4. The employer effectively implements a work rule prohibiting the employees from going past the warning line.

**The surface on which the warning line system is utilized must be flat or low slope only.** The use of warning lines closer than 15 feet from the edge is not permitted as a substitute for conventional fall protection for non-roofing trades. Furthermore, when non-roofing trades use a warning line system in accordance with the policy described above, the workers must use conventional fall protection when they are outside the protection of the warning line. (End of letter summary)

1926.501(b)(1) covers all walking/working surfaces, including previously uncategorized examples such as wall top edges/plates, column tops and roof sheathing. In addition, 1926.501(b)(15) covers surfaces not already addressed, so as to afford coverage for most any fall hazard situation, which can include window sills, trusses and joists.

**NOTE: There are many Federal letters of interpretations (interps) issued since 1995 concerning Subpart M. The interpretations are helpful in assisting OSHA in enforcing the standards. Many of the interps were reviewed prior to amending this policy. Unless a specific interp is actually referred to for use in this policy, the OSHI must consult with their Director/Supervisor before implementing the provisions of that interp.**

3. Conventional Fall Protection Systems [1926.502(b), (c) and (d)]. There is no preferred choice in the selection of guardrail systems, safety net systems, or personal fall arrest systems. The employers can choose whichever option they deem to fit their situation the best. The only exception is for 1926.501(b)(6), Ramps, Runways, and Other Walkways, which specifies guardrail systems only.
  - a. Guardrails [1926.502(b)]. Subpart M is a performance standard and does **not** specify a "standard guardrail" as the previous standards did. It does give a minimum requirement for a guardrail system as consisting of at least a top rail and a midrail (or its equivalent). The toeboard requirement is not automatic; there must be a falling object hazard to require toeboards. Subpart M is very

liberal in allowing almost any material to be used for guardrails, except steel or plastic banding, as long as the materials meet the criteria listed in 1926.502(b). A significant change in subpart M is that the standards do **not** allow for a single strand wire rope to be used as a "guardrail equivalent".

- b. Safety nets [1926.502(c)]. This paragraph expands on the minimal provisions of the previous paragraph 1926.105, and applies to installation, testing, repair and specifications for safety nets.
- c. Personal Fall Arrest Systems [1926.502(d)]. This paragraph has several additions and revisions to the old 1926.104, and two new critical provisions which went into effect on January 1, 1998:
  - i. Snaphooks. Under 1926.502(d)(5), non-locking snaphooks can still be used with properly sized compatible members only until 1/1/98. Under 1926.502(d)(6), unless the snaphook is a 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 to which another snaphook or other connector is attached;
    - to a horizontal lifeline; or
    - to any object which is incompatibly shaped or dimensioned in relation to the snaphook such that unintentional disengagement could occur by the connected object being able to depress the snaphook keeper and release itself.
  - ii. Body harness/belts. Effective 1/1/98, body belts are not an acceptable part of a personal fall arrest system. Body belts can only be used as part of a positioning device system.
- d. Fall Restraint System Application: There is currently little detailed information available on fall restraint system application. A Federal interpretation letter dated 11-2-95 regarding their use states, "*although the standard does not mention them, it is perfectly acceptable to use fall restraint systems to protect employees from fall hazards*". Fall restraint systems are defined under the Steel Erection Subpart R as a *fall protection system which prevents the user from falling any distance*. Recent ANSI /ASSE A10.32-2004, Fall Protection Systems for Construction and Demolition Operations, defines it as, "*A combination of equipment to prevent a user from reaching a point where a fall could occur from an elevated work surface*". The restraint system, unlike fall arrest systems, *can utilize body belts or harnesses*. Restraint systems must be looked at using the case-by-case approach. Because of the very limited information and experience factor available concerning restraint systems, OSHI's must consult with their Supervisors when responding to questions from stakeholders or encountering restraint systems issues in the field. There is some mention of restraint systems in the preamble to Subpart R, page 5204, but the Fall Protection Standard Subpart M, does not address restraints. There are two Federal interpretations (November 2, 1995) which state *that OSHA has no specific standards for restraint systems, but recommends at a minimum, that fall restraint systems should have the capacity to withstand at least twice the maximum expected force that is needed to restrain a person from exposure to the fall hazard. In determining this force, consideration should be given to site-specific factors such as the force generated by the person walking, leaning, or sliding down the*

*working surface*. The restraint system can allow the person to come within inches of the perimeter edge as long as it prevents the employee from falling over the edge. ANSI A10.32 does have some guidance concerning the restraint systems; they shall be designed by a Qualified Person, installed and used under the supervision of a Competent Person, the restraint system shall eliminate the possibility of a free fall, the Anchorage shall be capable of supporting at least 5000 pounds per user attached or shall be designed, installed and used under the supervision of a Qualified Person as part of a complete safety system which maintains a safety factor of at least two.

Restraint systems are best utilized on horizontal surfaces only. Calculations for anchorages and energy generated from bodies falling, rolling, sliding, on inclined surfaces are very difficult to effectively conduct and monitor. MNOSHA policy is that the restraint system cannot be utilized for a person already in the danger zone, such as those working on a steep slope installing decking or shingles unless anchorage calculations have been conducted and approved by an engineer competent in such matters. Workers in almost all of those situations should be utilizing positioning or fall arrest systems. MNOSHA will recognize the 2x safety factor for restraint systems designed by a Qualified Person, and installed and used under the supervision of a Competent Person, for horizontal or nearly horizontal surfaces only.

4. Holes [1926.501(b)(4)]. Subpart M uses the term "hole" to define any gaps or voids two inches or more in their least dimension, on any walking/working surface. There is no distinction between floor holes and floor openings.
5. Dangerous Equipment [1926.501(b)(8)]. Under this paragraph, fall hazard situations over equipment which is dangerous due to form or function must be protected by conventional fall protection systems, without exception.
6. Leading Edges [1926.501(b)(2)]. This fall protection concept requires a significant evaluation of the jobsite work process. A leading edge means the edge of a floor, roof, or formwork for a floor, or other walking/working surface, (such as a deck), which changes location as additional sections are placed, formed, or constructed.

Workers at the leading edge may continually work in one forward direction, without protection from guardrails, nets, or personal fall arrest systems, using a Fall Protection Plan as outlined in 1926.502(k) and Appendix E of Subpart M. Leading edge work using 1926.502(k) criteria is only used as an option when the employer can demonstrate that it is infeasible or it creates a greater hazard to use one of the three conventional systems of fall protection. Only workers engaged in leading edge work may be in the Controlled Access Zone.

An example of leading edge work is the construction of a floor deck using 4 x 8 sheets of plywood laid on a series of joists.

7. Fall Protection Plan [1926.502(k)]. The option of establishing a written Fall Protection Plan can only be used for leading edge work, precast concrete erection work, or in residential construction when it can be demonstrated that it is infeasible or creates a greater hazard to use conventional fall protection equipment.

**The Fall Protection Plan must be on the jobsite, and it must meet every point covered in 1926.502(k).**

Any such plan must be prepared by a qualified person, with the plan developed specifically for the jobsite where the leading edge or precast concrete construction work is being performed.

**There is a presumption that it is usually feasible and safer to implement at least one of the three conventional fall protection systems than to establish a fall protection plan. Accordingly, the employer has the burden of establishing for each work site that it is more appropriate to implement a plan which complies with 1926.502(k) than implementing any of the conventional fall protection systems. There are no "automatic" workplace situations where an employer can simply choose to use a Leading Edge Fall Protection Plan in lieu of conventional fall protection.**

8. Controlled Access Zone (CAZ) [1926.502(g)]. The standard contains extensive requirements for CAZs, most commonly as a guardrail system at the sides and a control line behind the workers to control access to the leading edge.
9. Safety Monitoring Systems [1926.502(h)]. OSHIs must use the criteria in 1926.502(h) to evaluate the monitor's actions.

Under 1926.501(b)(10), safety monitoring systems can be used in conjunction with a warning line system to protect employees during the performance of roofing work on roofs of 4 in 12 pitch or less. When such a roof is 50 feet (15.25 m) or less in width, a safety monitoring system can be used alone, i.e., without a warning line system. Under 1926.501(b)(13), if the employer can demonstrate that the use of conventional fall protection would be infeasible or create a greater hazard, monitors may be used as part of an employer's written fall protection plan under 1926.502(k).

10. Overhand Bricklaying and Related Work [1926.501(b)(9)]. This work process can utilize the CAZ without a safety monitor system and does not require the justification process of 1926.502(k).
11. Precast Concrete Erection [1926.501(b)(12)]. This work process can utilize the site specific leading edge 1926.502(k) Fall Protection Plan provisions, but the plan must justify why conventional fall protection cannot be used on the jobsite. The plan must be documented and on-site.
12. Training Program and Certification [1926.503(a) and (b)]. The employer must provide a training program for each employee who might be exposed to fall hazards and a certification of training is required.

**The training records certification must be maintained on the jobsite.** The written certification record shall contain the name of the employee trained, the dates of training, and the signature of the trainer or the employer. If the current employer is relying on prior training, then the record must indicate the date the current employer determined that the prior training was adequate.

The certification of training record can be prepared in any format the employer chooses, and can include, but is not limited to, preprinted forms, computer generated lists, or 3 x 5 cards.

The items listed in 1926.503(a)(2) are the fall protection items which the trainer as a competent person must know, and not necessarily the items the trainee needs to know.

13. Residential Construction [1926.501(b)(13)]. NOTE: On December 22, 2010 OSHA issued STD 03-11-002, Compliance Guidance in Residential Construction. This Directive rescinded STD 03-00-001, Interim Fall Protection Compliance Guidelines for Residential Construction, which allowed employers to use alternative methods for fall protection without demonstrating the infeasibility of conventional fall protection – guardrails, safety nets, or personal fall arrest systems. Beginning June 16, 2011, residential construction employers must comply with 29 CFR 1926.501(b)(13).

The definition for residential construction is as follows: **The end-use of the structure being built must be as a home (i.e., a dwelling) and the structure being built must be considered using traditional wood frame construction materials and methods.** Where there is confusion as to which standards apply, the OSHI must discuss the situation with their Director/Supervisor before allowing the work to be addressed as residential.

Wall openings, floor holes, unguarded stairs, snow removal, crane operation, should be addressed as regular Subpart M.

a.) Residential construction is characterized by:

- 1.) Materials: Wood framing (not structural steel, metal, poured concrete, or concrete block); wooden floor joists and roof structures, and;
- 2.) Methods: Traditional wood frame construction techniques.

b.) MNOSHA recognizes steel studs as the equivalent for these purposes as 2 x 4 wooden studs in modern residential construction. Where a building is constructed with steel studs, the building qualifies as residential construction where it meets all other criteria for residential construction.

c.) The use of any of the following alone would not exclude a structure from the scope of this instruction:

- 1.) One steel I-beam in the main floor structure
- 2.) Poured concrete (or concrete block) foundation walls
- 3.) A stucco exterior
- 4.) Metal stud framing instead of wood stud framing

d.) Where all other criteria are met, the following examples would qualify under this instruction:

- 1.) Building a stick-frame house that has metal stud frame roof trusses instead of wood frame roof trusses.
- 2.) Building a home with stick-built framing on foundation walls made of concrete and block or poured concrete.

e.) Based upon the above reasoning, the following examples would not qualify under this instruction:

- 1.) Building a wood frame structure with concrete floors that are not on grade. This does not include the thin lightweight concrete overlaying on wood floors.
- 2.) Building an all stick-framed structure that will be used as a church with an on-grade concrete slab that serves as the ground floor.
- 3.) Installing wood trusses on a 12 x 24 masonry garage.
- 4.) Timber-frame construction.

## C. CITATION GUIDELINES

1. Residential Construction. For tracking purposes, all residential construction fall protection violations, regardless of the type of fall hazard covered by Subpart M, (e.g., a

floor edge, a roofing fall, a wall opening, etc.), are to be issued as a **grouped** citation under 1926.501(b)(13) **and** the specific hazard paragraph. For example, an unprotected hole would be cited as 1926.501(b)(13) and (b)(4). Since the (b)(13) designation will be included with other fall hazards, it will not be counted towards the repeat criteria, only the vertical standard noted will be.

The training content criteria itself must still follow the requirements of 1926.503 in Subpart M.

2. Precast Concrete Erection. All precast concrete fall protection violations are to be issued as a **grouped** citation under 1926.501(b)(12) **and** the specific hazard paragraph, for example, 1926.501(b)(12) and (b)(4).
3. Overhand Bricklaying. All overhand bricklaying fall protection violations are to be issued as a **grouped** citation under 1926.501(b)(9)(i) **and** the specific hazard paragraph, for example, 1926.501(b)(9)(i) and (b)(4).
4. Low Slope Roof Construction. For commercial roofing applications such as schools and offices. Low slope roofing remains defined as less than or equal to a slope of 4 in 12, (vertical to horizontal). Low slope roof construction fall protection violations are to be issued under 1926.501(b)(10) if no other hazards exist. When other hazards exist such as (b)(4) holes were noted on the roof where employees were working separate citations for each hazard will be issued. There is no height limitation for using the safety monitor system unless there are weather issues. Note: for other work activity which is not considered roofing, such as carpenters observed building a shed on a flat roof, if they are exposed to fall hazards to the lower elevations or ground, (b)(1) should be cited, since a completed flat roof is also considered to be a walking working surface.

Under 1926.501(b)(13), if the employer can demonstrate that the use of conventional fall protection would be infeasible or create a greater hazard, monitors may be used as part of an employer's written fall protection plan under 1926.502(k).

5. Steep Roof Construction. If not a part of residential construction, Subpart M specifically requires guardrail systems, safety net systems or personal fall arrest systems for fall protection. When not a part of residential construction, steep roof construction fall protection violations are to be issued under 1926.501(b)(11). Employers may use catch platform systems if they are adequately installed, such as a scaffold meeting the requirements of subpart L.
6. Working Over or Near Water. This section is covered by 1926.106- Working Over or Near Water.
7. Hard Hats. Although 1926.501(c) requires the use of hard hats, the emphasis of this paragraph is to provide employee protection from falling objects. Therefore, OSHIs should use 1926.100(a) and .28(a) to cite for failure to provide and require the use of hard hats and 1926.501(c) to cite for failure to provide barriers to falling objects (e.g., toeboards).
8. Formwork. While 1926.501(b)(5) covers fall hazards from formwork surfaces in excess of 6 feet, Subpart M does not address the fall hazards of climbing the forms. When Symons ® brand or other similar plywood and metal form systems are used, which may not have adequate climbing members, employees are to use proper access such as ladders and scaffolds, to reach the various elevations. Cite for lack of proper access under 1926.703(a)(1) or 1926.1051(a), whichever is more appropriate.

9. Fall Protection Plan. When the employer has demonstrated that it is infeasible or creates a greater hazard to use a guardrail system, safety net system or personal fall arrest system, the employer can utilize a fall protection plan. If the fall protection plan for residential construction is not written, site-specific, or otherwise fails to meet the requirements of 1926.502(k), the violation should be cited as a grouped citation of 1926.501(b)(13) and the specific fall protection paragraph. Deficiencies in the residential fall protection plan shall be rated and cited according to the construction CRG guidelines for the specific fall hazards. Non-mandatory Appendix E of Subpart M contains a sample fall protection plan, which, while not enforceable, may be useful to OSHIs in determining the adequacy of an employer's fall protection plan.
  
10. Fall Protection Training. Deficiencies in fall protection training, which is covered under 1926.503(a-c), shall be rated and cited according to the construction CRG guidelines used for fall hazards. For example, if employees who have not received adequate training are exposed to 20 foot fall hazards, then it is rated and cited similar to a fall of 20 feet.

Documentation of fall protection training is required. Citations for failing to provide training, or for inadequate training, shall be issued where the OSHI can document that training did not occur or was deficient. Statements made during employee interviews and observations made during the walkaround that show how the training requirements were not met shall be documented in the case file.

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For the MNOSHA Management Team

Distribution: OSHA Compliance and WSC Director

Attachment: Appendix A Construction Fall Protection Requirements (matrix)

NOTICE: Minnesota OSHA Directives are used exclusively by MNOSHA personnel to assist in the administration of the OSHA program and in the proper interpretation and application of occupational safety and health statutes, regulations, and standards. They are not legally binding declarations and they are subject to revision or deletion at any time without notice.



Residential Construction	X	X	X													X*
Wall Openings	X	X	X													
Other Walking/Working Surfaces	X	X	X													

\*Must show infeasibility or greater hazard.

\*\*Roof width less than 50 feet wide.