

NORTH CAROLINA DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH DIVISION
RALEIGH, NORTH CAROLINA

Standards Notice - 12
(Revision 1)

TO: All Supervisors, Consultants, Safety Officers, Industrial Hygienists, and Staff

SUBJECT: Fall Protection in Structural Steel Erection

A. Standards

1. 29 CFR 1926.28(a) The employer is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where this part indicates the need for using such equipment to reduce the hazards to the employees.
2. 29 CFR 1926.104(a) Lifelines, safety belts, and lanyards shall be used only for employee safeguarding.
3. 29 CFR 1926.105(a) Safety nets shall be provided when workplaces are more than 25 feet above the ground or water surface, or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or safety belts is impractical.
4. 29 CFR 1926.105(c)(1) Nets shall extend 8 feet beyond the edge of the work surface where employees are exposed and shall be installed as close under the work surface as practical but in no case more than 25 feet below such work surfaces. Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.
5. 29 CFR 1926.500(d)(1) Every open-sided floor or platform 6 feet or more above adjacent floor or ground level shall be guarded by a standard guardrail, or the equivalent, as specified in paragraph (f)(1)(i) of this section, on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder.
6. 29 CFR 1926.750(b)(1)(ii) On buildings or structures not adaptable to temporary floors, and where scaffolds are not used, safety nets shall be installed and maintained wherever the potential fall distance exceeds two stories or 25 feet. The nets shall be hung with sufficient clearance to prevent contacts with the surface or structures below.
7. 29 CFR 1926.750(b)(1)(iii) Floor periphery-safety railing. A safety railing of 1/2-inch wire rope or equal shall be installed, approximately 42 inches high, around the periphery of all temporary metal-decked floors of tiered buildings and other multi-floored structures during structural steel assembly.
8. 29 CFR 1926.750(b)(2)(i) Where skeleton steel erection is being done, a tightly planked substantial floor shall be maintained within two stories or 30 feet, whichever is less, below and directly under that portion of each tier of beams on which any work is being performed, except when gathering and stacking temporary floor planks on a lower floor, in preparation for transferring such planks for use on an upper floor. Where such a floor is not practical, paragraph (b)(1)(ii) of this section applies.
9. 29 CFR 1926.750(b)(2)(iii) When gathering and stacking temporary floor planks from the panel, the employees assigned to such work shall be protected by safety belts with safety lines attached to catenary line or other substantial anchorage.

10. 29 CFR 1926.752(k) Employees shall be provided with safety belts in accordance with 1926.104 when they are working on float scaffolds.

B. Other References

1. Standards Notice 21. Subject: Steel Erection

C. Discussion

Continued confusion and uncertainty exists over the application of fall protection and related safety devices and personal protective equipment requirements to steel erection operations. This Standard Notice is intended to further clarify the requirements and to establish a standard interpretation to be enforced by all construction Safety Officers. The basic areas of question are:

1. At what height is fall protection required?
2. What constitutes acceptable fall protection?

D. Interpretation

1. The basic guidelines on any construction site for fall protection are 1926.500(d)(1) requiring guardrail protection on any work platform 6 feet or more above adjacent surfaces and 1926.28(a) requiring protection in any situation where the hazard of falling is reduced by personal protective equipment. These standards apply to all operations on any construction site except as otherwise specified in the Standards, such as scaffold platforms. Based on the definition of steel erection set forth in Standards Notice 21, operations involving the handling, fitting, fastening, and dismantling of structural and plate steel are exempt from the basic height guidelines above, but operation such as placing and fastening temporary flooring or decking (less than 18 inches thick) are not, no matter who does it (1926.750(b)(2)(iii)).

In steel erection operations conforming to the definition in Standards Notice 21, the basic personal fall protection must be provided in any situation where the hazard of falling exists in accordance with 1926.28 or 1926.750 (b)(1)(iii). Where structural steel is being connected, temporary floor or decking shall be maintained within two stories or 30 feet (or whichever is less) directly below the operations, 1926.750(b)(2)(i); or, in the absence of this and where scaffolding is not used, safety nets shall be installed and maintained within 20 feet 1926.750(b)(1)(ii), including perimeter work.

2. The guidelines for what constitutes acceptable fall protection are fairly clearly presented in the referenced Standards including 1926.104 for safety belts and lifelines; 1926.105 for safety nets; 1926.500(f) for guardrails; 1926.750(b) for safety nets, temporary floors, safety railings, and safety belts in specific steel operations. The best method for positive protection of exposed employees is safety belt and lifeline properly secured. In situations where safety belts cannot be used, then the alternatives of safety nets or temporary flooring or decking must be employed. When such methods are used, protection must extend at least 8 feet beyond the perimeter of building in areas below exposed employees, this includes connecting operations.

E. Summary

All employees are entitled to safe and healthful working conditions, including protection against falling during steel erection operations. In recognition of the difficulties and complexities of steel erection operations, special considerations are made allowing greater distance of fall potential for certain operations and protection methods. Protection is required and must be used, even on building perimeters. Steel erection is determined by the specific operations involved not by the type of contractor or the title of the employer or employee.

As with any other standard, violations are based on observed or potential exposure of employees, (See Operations Manual, Chapter IX.) If a Safety Officer observes an employee exposed to a hazard of falling, he must determine what, if any, protection has been provided and whether it is adequate for the hazard involved. Some type of protection must be provided in every case. The Safety Officer must be careful to

cite the most applicable standard and properly document all facts involved. In most cases, photographs should be taken and labeled clearly.

F. Inquiries

Questions on the content or application of this Standards Notice should be directed to the Safety and Health Engineering Section of the Office of Occupational Safety and Health, North Carolina Department of Labor.

Michael R. Peeler
OSHA Standards Engineer

R.P. Boylston
OSHA Director