



VOSH PROGRAM DIRECTIVE: 12-251C

ISSUED: December 1, 2010

SUBJECT: Safety Standards for Steel Erection, §§1926.750 through 1926.759, 1926.760 (d) and (e); and 1926.761; Revised Final Rule

A. Purpose.

This directive memorializes and continues for field personnel the various changes to the Safety Standards for Steel Erection, including the following:

CHANGE III: non-mandatory technical amendment to Structural Steel Assembly, §1926.754(a);

CHANGE II: the revocation of slip resistance of skeletal structural steel, §1926.753(c)(3); and

CHANGE I: the 2001 revisions to both the Steel Erection standard and §1926.500.

***Note:** The Virginia unique Safety Standards for Fall Protection in Steel Erection, 16 VAC25-145, which previously had been CHANGE II of this directive, now can be found in VOSH Program Directive 12-253.*

This Program Directive is an internal guideline, not a statutory or regulatory rule, and is intended to provide instructions to VOSH personnel regarding internal operation of the Virginia Occupational Safety and Health Program and is solely for the benefit of the program. This document is not subject to the Virginia Register Act or the Administrative Process Act; it does not have general application and is not being enforced as having the force of law.

B. Scope.

This directive applies to all VOSH personnel.

C. References.

CHANGE III: 75 FR 27428 (May 17, 2010).

CHANGE II: 71 FR 2879 (January 18, 2006).

CHANGE I: 66 FR 5195 (January 18, 2001).

D. Cancellations.

CHANGE III: VOSH Program Directive 12-251B (June 1, 2006).

CHANGE II: VOSH Program Directive 12-251A (May 1, 2005).

CHANGE I: VOSH Program Directive 12-251 (November 1, 2001).

VOSH Program Directive 12-203 (February 15, 1996).

E. Action.

Directors and Managers shall ensure that the changes in this directive are followed and that compliance officers are familiar with the contents of the revisions to the standard.

F. Effective Dates.

CHANGE III: November 15, 2010.

CHANGE II: June 15, 2006.

CHANGE I: January 18, 2002.

G. Expiration Date.

Not Applicable.

H. Background and Summary.

CHANGE III: Federal OSHA added the nonmandatory note to address a May 15, 2004, fatal highway accident on an interstate highway in Colorado. In the accident, a passenger vehicle passed under an overpass that was being widened. The bracing used to temporarily support a partially installed steel girder collapsed, and the girder fell to the highway below, shearing off the top of the vehicle, and killing the three occupants of the car.

An investigation by the National Transportation Safety Board (NTSB) determined the probable cause of the accident was the insufficient design and installation of the girder's temporary bracing systems. The NTSB also found that a registered engineer did not approve the design which violated national highway safety provisions. Federal Highway Administration (FHWA) regulations generally require employers involved in national highway system construction projects to comply with a number of standards, policies, and specifications published by the American Association of State Highway and Transportation Officials ("AASHTO").

For bridge construction projects (e.g., temporary bracing systems), the federal highway regulations incorporate by reference the AASHTO's Standard Specifications for Highway Bridges, 15th edition, 1992. The 1992 specification requires a registered engineer to prepare and to seal working drawings for "falsework," or temporary framing to support truss structures, in many cases.

Federal OSHA added a nonmandatory technical amendment in the form of a note to the final rule for the Safety Standards for Steel Erection in 29 CFR 1926.754 (a), Structural Steel Assembly. This technical amendment provides information on existing Federal Highway Administration (FHWA) regulations that may apply to employers engaged in activities covered by federal OSHA's steel erection standards.

At its meeting on August 18, 2010, the Safety and Health Codes Board adopted the federal-identical revisions to this final rule, with an effective date of November 15, 2010.

CHANGE II: Revocation of Slip Resistance of Skeletal Structural Steel.

The revised final rule for steel erection (subpart “R”) addresses the hazards that have been identified as the major causes of injuries and fatalities in the steel erection industry. The slip resistance provision at §1926.754 (c)(3) was not intended to be the sole or primary means of protecting workers from fall hazards. Rather, it was intended to complement other requirements in the steel erection standard as part of a collective strategy for reducing these fall-related injuries and fatalities.

The basis of the slip resistance requirement in §1926.754(c)(3) is that the coating used on the structural steel walking surface must have achieved a minimum average slip resistance of 0.50 [when wet] when measured, using the appropriate American Society for Testing and Materials (ASTM) standard test method. In the preamble to the final rule, OSHA noted that the two ASTM standard test methods had not yet been validated through statements of precision and bias, documentation that the test method, in laboratory tests, has been shown to have an acceptable degree of repeatability and reproducibility.

Representatives of the coatings industry indicated that it would take time to develop new coatings to meet the requirement. Therefore, federal OSHA delayed the provision’s effective date until July 18, 2006, because the evidence in the record indicated that it was reasonable to expect these developments to be completed by that date. (71 FR 2879)

The slip-resistance provision was challenged in the U.S. Court of Appeals for the D.C. Circuit by the Steel Coalition and the Resilient Floor Covering Institute. On April 3, 2003, OSHA entered into a settlement agreement with those petitioners. OSHA agreed to provide the petitioners and other interested parties with a further opportunity to present evidence on the progress that has been made on slip resistant coatings and test methods. OSHA agreed to then evaluate the evidence and issue a final rule, not later than January 18, 2006, reaffirming, amending, or revoking the requirements in §1926.754(c)(3).

Subsequently, on July 15, 2004, OSHA conducted a limited reopening of the rulemaking record, as part of a settlement to resolve legal challenges to the slip resistance provision. OSHA asked for comments on whether suitable and appropriate test methods and slip-resistant coatings could reasonably be expected to be available by July 2006. In the settlement agreement, OSHA also committed to publishing a notice by January 18, 2006, reaffirming, amending, or revoking the provision. On January 18, 2006, OSHA decided to revoke the requirements in §1926.754(c)(3). (71 FR 2879)

At the time the final rule was issued, ASTM had developed testing methods for two testing machines; however, under ASTM rules, these standards were provisional, pending the completion of precision and bias statements for each. A precision and bias statement is documentation that the test method, in laboratory tests, has been shown to have an acceptable degree of repeatability and reproducibility. OSHA believed that completion of the precision and bias statements was critical to validate these test methods before they could be deemed acceptable for measuring slip resistance under the Standard. (71 FR 2880)

ASTM’s technical developments, which needed to occur for employers to comply with the provision by its effective date of July 18, 2006, have not occurred. The ability to comply with the slip resistance provision depended upon two technical developments: (1) completed industry protocols for slip testing equipment; and (2) the availability of suitable slip resistant coatings.

Rulemaking comments indicated that the test methods were not likely to be completed by the July effective date because ASTM would not have completed the required validation process. Comments also indicated that ASTM would likely withdraw the test methods altogether because they are brand-specific rather than generic. Lack of completed test methods delayed the development of suitable slip resistant coatings. Additionally, there had not been adequate testing of coatings to determine whether they have sufficient durability in the variety of applications in which they will be used, especially in corrosive environments.

The revoked testing methods specified in Appendix B of 1926 subpart R (Steel Erection) are:

- Standard Test Method for Using a Portable Inclinable Articulated Strut Slip Tester (ASTM F1677-96); and
- Standard Test Method for Using a Variable Incidence Tribometer (ASTM F1679-96)

At its meeting on March 7, 2006, the Safety and Health Codes Board adopted the federal-identical revisions to this final rule, with an effective date of June 15, 2006.

CHANGE I: Federal Subpart “R” except 1926.760 (a), (b), and (c).

The previous steel erection standard had been in place with minor changes since federal OSHA’s inception 30 years ago. This complete revision provides greater protection and eliminates ambiguity and confusion. To develop this standard, federal OSHA employed negotiated rulemaking using an advisory committee, the Steel Erection Negotiated Rulemaking Advisory Committee (SENAC).

a. Section 1926.500: Fall Protection for Construction NOT in Steel Erection.

In addition to revisions to the federal Steel Erection standard in Subpart “R”, the Fall Protection standard in subpart M was also amended. Part 1926.500(a)(2)(iii) was amended to clarify that fall protection in steel erection is covered exclusively by Subpart “R”, with the exception of towers and tanks. Section 1926.500(a)(2)(v) explains that §1926.105 covers employees engaged in the erection of tanks and communication and broadcast towers. Section 1926.500(a)(3)(iv) was revised to specifically exclude the erection of tanks and communication and broadcast towers from the scope of §1926.502. The erection of tanks and communication and broadcast towers will continue to be covered by §1926.104.

- b. Subpart “R”: Steel Erection Standards.** Subpart “R” of Part 1926 was revised to enhance protections provided to workers engaged in steel erection and to update the general provisions that address steel erection. The final rule sets performance-oriented criteria, where possible, to protect employees from steel erection related hazards such as working under loads; hoisting; landing and placing decking; column stability; double connections; hoisting; landing and placing steel joists; and falls to lower levels. To effectuate this, the final rule contains requirements for hoisting and rigging, structural steel assembly, beam and column connections, joist erection, systems-engineered metal building erection, fall protection and training.

The revised final steel erection standard modified and strengthened the standard it replaced in a number of areas. Key provisions of the revised steel erection standard include:

Site Layout and Construction Sequence

- Requires certification of proper curing of concrete in footings, piers, etc. for steel columns.
- Requires controlling contractor to provide erector with a safe site layout including pre-planning routes for hoisting loads.

Site Specific Erection Plan

- Requires pre-planning of key erection elements, including coordination with controlling contractor before erection begins, in certain circumstances.

Hoisting and Rigging

- Provides additional crane safety for steel erection.
- Minimizes employee exposure to overhead loads through pre-planning and work practice requirements.
- Prescribes proper procedure for multiple lifts (Christmas-treeing).

Structural Steel Assembly

- Provides safer walking/working surfaces by eliminating tripping hazards and minimizes slips through new slip resistance requirements.
- Provides specific work practices regarding safely landing deck bundles and promoting the prompt protection from fall hazards in interior openings.

Column Anchorage

- Requires 4 anchor bolts per column along with other column stability requirements.
- Requires procedures for adequacy of anchor bolts that have been modified in the field.

Beams and Columns

- Eliminates extremely dangerous collapse hazards associated with making double connections at columns.

Open Web Steel Joists

- Requirements minimizing collapse of lightweight steel joists by addressing need for erection bridging and method of attachment.
- Requirements for bridging terminus anchors with illustrations and drawings in a non-mandatory appendix (provided by Steel Joist Institute)
- New requirements to minimize collapse in placing loads on steel joists.

Systems-Engineered Metal Buildings

- Requirements to minimize collapse in the erection of these specialized structures which account for a major portion of steel erection in this country.

Falling Object Protection

- Performance provisions that address hazards of falling objects in steel erection.

Fall Protection

- Federal §1926.760 (a), (b) and (c) are not adopted. See the attached Virginia unique regulation for enforcement of fall protection covered by these paragraphs.

Training

- Requires qualified person to train exposed workers in fall protection.
- Requires qualified person to train exposed workers engaged in special, high risk activities.

Structures excluded from coverage under the scope of the standard are as follows:

- steel electrical transmission towers;
- steel communication and broadcast towers;
- steel water towers;
- steel light towers;
- steel tanks; and
- reinforced and pre-cast concrete structures

Although the Safety and Health Codes Board adopted almost all of federal OSHA's revised Safety Standards for Steel Erection as §1926.750 through §1926.761, upon the recommendation of the Department, **the following were not adopted by the Board:**

§1926.760(a) setting a 15-foot fall protection requirement for steel erection;

§1926.760(b) providing "Connectors" with fall hazard protection at 15-30 feet above a lower level;

§1926.760(c) permitting the use of Control Decking Zones (CDZ)

Therefore, the above three subsections are not enforceable in Virginia.

The Board did, however, adopt subsections (d) and (e) of §1926.760, where (d) provides criteria for fall protection equipment to meet requirements in §1926.502; and (e) requires that custody of fall protection equipment remain in the area where steel erection activity has been completed.

During its October 18, 2001 meeting, the Safety and Health Codes Board adopted federal-identical changes to this final rule, with an effective date of January 18, 2002.

Courtney M. Malveaux
Commissioner

Attachments: CHANGE III: 75 FR 27428 (May 17, 2010)
CHANGE II: None. 71 FR 2879 (January 18, 2006)
CHANGE I: None. 66 FR 5195 (January 18, 2001) Subpart “R”
66 FR 37137 (July 17, 2001) Delayed Effective Dates for Subpart “R”

E-Attachments: CHANGE III: http://www.osha.gov/FedReg_ osha_ pdf/FED20100517.pdf
CHANGE II: http://www.osha.gov/FedReg_ osha_ pdf/FED20060118.pdf
CHANGE I: http://www.osha.gov/FedReg_ osha_ pdf/FED20010118.pdf
http://www.osha.gov/FedReg_ osha_ pdf/FED20010717.pdf

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**Safety Standards for Steel Erection, Subpart R, §§1926.750 through 1926.759, 1926.760(d) and (e) and
1926.761, Revised Final Rule; and
Amendment to Subpart M, Fall Protection, §1926.500**

Revocation of Slip Resistance of Skeletal Structural Steel, §1926.754(c)(3); Final Rule

As Adopted by the
Safety and Health Codes Board

Dates:

CHANGE I: October 18, 2002

CHANGE II: March 7, 2006



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Dates:

CHANGE I: January 18, 2003

CHANGE II: June 1, 2006

**SAFETY STANDARDS FOR STEEL ERECTION; FINAL RULE;
TECHNICAL AMENDMENT TO STRUCTURAL STEEL ASSEMBLY,
16 VAC 25-175-1926.754(a)**

As Adopted by the
Safety and Health Codes Board

Date: August 18, 2010



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: November 15, 2010

16 VAC 25-175-1926.754(a), Structural Steel Assembly

When the regulations, as set forth in the Technical Amendment to Structural Steel Assembly, 16 VAC 25-175-1926.754 (a)(4) of the Final Rule for Safety Standards for Steel Erection, §1926.754 (a), are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms

VOSH Equivalent

29 CFR

VOSH Standard

Assistant Secretary

Commissioner of Labor and Industry

Agency

Department

May 17, 2010

November 15, 2010