

752 - §1910.752(h)

SENAC Workgroup

May 9, 1995

in 4/3/95 draft.

EX. 11C
ACCSH1995-2

01

(c) Site-Specific Erection Plan

(1) General requirements. The employer shall develop a site-specific erection plan which includes written text, notes and/or drawings describing provisions for the safety of employees during the process of steel erection.

(i) Pre-construction conference(s) and site inspection(s) shall be held between the erector and the controlling contractor prior to the start of steel erection to both develop and review the site-specific erection plan to meet the requirements of this section.

(ii) The site-specific erection plan shall be prepared by a qualified person.

(iii) A qualified person shall approve all changes in the site-specific erection plan.

(iv) A copy of the erection plan with all approved changes shall be maintained at the job site.

(v) All steel erection shall be conducted in accordance with the erection plan and under the supervision of a competent person.

(2) Components of the site-specific erection plan. All site-specific erection plans shall include the following elements.¹

(i) A sequence of erection activity, developed in coordination with the controlling contractor, that reflects the following considerations:

(A) material deliveries:

(B) material staging and storage; and

(C) coordination with other trades and construction activities.

¹Where a particular component does not apply, a brief explanation of why it does not apply shall be provided

(ii) A description of the crane and derrick selection and placement procedures including the following:

- (A) site preparation;
- (B) crane configuration;
- (C) path for overhead loads; and
- (D) critical lifts, including rigging supplies and equipment.

(iii) A description of steel erection activities and procedures including the following:

- (A) Stability considerations requiring temporary bracing and guying;
- (B) Anchor bolt notifications regarding repair, replacement and modifications;
- (C) Columns and beams (including joists and purlins);
- (D) Connections;
- (E) Decking; and
- (F) Ornamental and miscellaneous iron.

(iv) A description of the fall protection procedures that will be used to comply with §1926.760.

(v) A description of the procedures that will be used to protect employees from falling objects to comply with §1926.759.

(vi) A description of the procedures that will be used to store material both on the ground and on the structure.

(vii) A description of the procedures that will be used to protect

workers on the site from the hazards associated with steel erection activities.

(viii) A description of the special procedures required for hazardous non-routine tasks.

(ix) A certification that all employees have received training for performing steel erection operations as required per §1926.761 of this part.

(x) A list of the qualified and competent persons.

(xi) Identification of the person(s) responsible for stopping work due to adverse environmental conditions.

(xii) A list of the personal protective equipment that will be used during steel erection.

(xiii) A description of the procedures that will be utilized in the event of rescue or emergency response.

(3) The plan shall:

(i) Include the identification of the site and project; and

(ii) Be signed and dated by the qualified person(s) responsible for its preparation and modification.

Definitions:

Steel Erection means the erection of steel buildings, bridges and other structures, including the installation of steel flooring and roofing members and all planking and decking used during the process of erection.

Critical lift means a lift that (1) exceeds 75% of the capacity of the crane or derrick, or (2) requires the use of more than one crane or derrick, or (3) requires the use of support towers.

C:\AJOISTS2.511

WORKSHOP 5/10-5/11/95
OPEN WEB JOISTS

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The workshop attendees met two days per the above list. The proposed standard text for joist installation was developed and is enclosed herein. Five unresolved items for further consideration by the full SENRAC Committee are as follows:

- *1. Two bolts required during the initial connection for stabilization on each end of the joists.
- *2. Attachment of fall arrest systems to steel joists and joist girders. This is needed to provide ability to tie-off from the attached joists.
- *3. X-braced erection bridging required on all 23'-and-longer joists.
- *4. Placement of Construction loads during erection -prior to completion of bridging and final attachment.
- *5. OSHA strut joists: Need sufficient lateral stability prior to their having an anchorage point. Also, there is concern about sufficient carrying capacity to support the connector prior to their being X-bridged.

§1926.758 Steel Joists and Steel Joist Girders.

(a) General.

- (1) In steel framing, where steel joists or steel joist girders are utilized and columns are not framed in at least two directions with solid web structural steel members, the steel joist or steel joist girder shall be specified by the project engineer of record (**Note: consider limiting this to joists 60 feet or less**) to allow one erector to release the hoisting cables without the need for erection bridging and shall be field-bolted at or near columns to provide lateral stability to the column during erection.
- (2) Bottom chords of joist girders at columns shall be stabilized to prevent rotation during erection.
- (3) Steel joists shall not be placed on any support structure unless such structure is safely bolted, welded or otherwise adequately stabilized.
- (4) When steel joist(s) are landed on structures they shall be adequately secured to prevent unintentional displacement prior to installation.
- (5) Connections of steel joists in excess of 20 feet in length to steel structures must be fabricated to allow field bolting to provide stability during erection.

OR

- (5) Connections of steel joists to support structures shall be bolted, welded or otherwise adequately secured to provide stability during erection and the method of attachment shall be specified on the contract drawings.
- (6) Steel joists and steel joist girders shall not be used as an anchorage point for a fall arrest system unless ~~both ends are secured~~ and the anchorage point ~~otherwise~~ meets the requirements of §1926.760.
- (7) Modifications shall not be made to steel joists that affect the strength of the joist without approval of the Engineer of Record.

(b) Attachment of Steel Joists and Steel Joist Girders

(1) All "K" Series steel joist shall be attached to the support structure with a minimum of two 1/8 inch (3 mm) fillet welds 1 inch (25 mm) long or with two 1/2 inch (13 mm) bolts, or the equivalent.

(2) All "LH", "DLH" Series steel joists and steel joist girders shall be attached the support structure with a minimum of two 1/4 inch (6 mm) fillet welds 2 inches (51 mm) long, or with two 3/4 inch (19 mm) bolts, or the equivalent.

TABLE A: ERECTION BRIDGING FOR SHORT SPAN JOISTS

(add table)

TABLE B: ERECTION BRIDGING FOR LONG SPAN JOISTS

(add table)

(c) Erection of Steel Joists. One end of all steel joists shall be attached to the support structure before allowing the weight of an erector on the steel joist.

(1) On steel joists that span 60 feet or less that do not require erection bridging per Tables A and B, **only one erector** shall be allowed on the joist until all bridging is installed and anchored.

(2) Erectors shall not be allowed on other joists except in accordance with Section 1926.758 (d).

(3) During erection where temporary bridging anchorage is required, it shall be designated by the project Engineer of Record

(d) Erection Bridging

(1) Where the span of the steel joist is equal to or greater than the span shown in Tables A and B, the following shall apply:

- (i) The row of erection bridging nearest the midspan of the steel joist shall be bolted diagonal bridging;
 - (ii) Hoisting cables shall not be released until this bolted diagonal erection bridging is installed; and
 - (iii) A maximum of one erector is allowed on these spans until all other bridging is installed and anchored.
- (2) Where the span of the steel joist is over 60 feet through 100 feet the following shall apply:
- (i) The two rows of erection bridging nearest the third points of the steel joist shall be bolted diagonal bridging;
 - (ii) Hoisting cables shall not be released until this bolted diagonal erection bridging is installed; and
 - (iii) A maximum of two erectors is allowed on these spans until all other bridging is installed and anchored.
- (3) Where the span of the steel joist is over 100 feet through 144 feet the following shall apply:
- (i) All rows of bridging shall be bolted diagonal bridging;
 - (ii) Hoisting cables shall not be released until all bridging is installed; and
 - (iii) A maximum of two erectors is allowed on these spans until all other bridging is installed and anchored.
- (4) For steel members spanning over 144 feet, the erection methods shall be in accordance with Sec. 1926.757.
- (5) Where any joist specified in paragraphs (c)(1) and (d)(1), (2), and (3)

of this section are bottom chord bearing joists, there shall be a row of bolted diagonal bridging provided near the support(s). This bridging shall be installed prior to releasing the hoisting cable(s).

(6) When bolted diagonal erection bridging is required by this section:

- (i) This bridging must be clearly indicated on the erection drawing;
- (ii) The erection drawing shall be the exclusive indicator of the proper placement of this bridging; and
- (iii) Shop installed attachment clips, or functional equivalents, must be provided where the bridging bolts to the joists.
- (iv) When two pieces of bridging are attached to the joist by a common bolt, the nut that secures the first piece of bridging shall not be removed from the bolt for the attachment of the second.
- (v) Bridging attachments shall not protrude above the top chord of the joist.

(e) Landing and Placing Loads.

- (1) During the construction period, any contractor placing a load on steel joists shall provide means for adequate distribution of concentrated loads so that the carrying capacity of any steel joist is not exceeded.
- (2) No loads other than the weight of the erector(s) is allowed on the steel joist until either:
 - (i) The steel joists are straightened and plumbed, all erection and all other bridging is installed and anchored, and all joist bearing ends are attached; or
 - (ii) The employer has determined on the basis of information received from a qualified person, that the structure or portion of the structure is capable of supporting the load.

(3) The edge of the construction load must be placed within ± 2 feet (.67 M) of the bearing surface of the joist end.

~~(i) Metal deck bundles shall be limited to the amount of deck to be laid in that bay.~~

~~(ii) Metal deck bundles shall be limited to the amount of deck to be laid in adjoining bays if placed directly over the structural supporting member dividing the two adjoining bays.~~

Definitions:

Steel joists mean open web, secondary load-carrying members of 144 feet or less suitable for the support of floors and roofs. This does not include structural steel trusses.

Steel joist girders mean open web, primary load-carrying members suitable for the support of floors and roofs. This does not include structural steel trusses

Steel truss means an open web member designed of structural steel components by the project engineer of record. For the purposes of this subpart it is considered equivalent to a solid web structural member.

Erection bridging means the bolted diagonal bridging that is required to be installed prior to releasing the hoisting cables from the steel joists and prior to an erector(s) being on the joist.

Clip means a device that is attached to the steel joist that allows the bolting of bridging to the steel joist.

Bridging anchor means the attachment point for the terminus of a line of bridging.

Project engineer of record means

Construction load means any load other than the weight of the erector(s), the joists and the bridging.

1926.755 Structural Steel Assembly (new)

(d) Decking

(1) Hoisting, Landing and Placing of Deck bundles.

(i) Bundles of deck shall be checked for proper tightness so wind cannot loosen sheets or work the bundles apart. Tightness shall be periodically checked and additional securement shall be used as needed.

(ii) Bundle packaging strapping shall never be used for hoisting.

(iii) No loose items such as dunnage, flashing, or other materials may be placed on the top of deck bundles to be hoisted. If the hoisting of such items is necessary, they shall be secured to the bundles to ensure they cannot be displaced or fall during the hoisting process.

(iv) The employer shall determine on the basis of information received from a qualified person that the structure or portion of the structure upon which the deck bundles are landed is capable of supporting the weight of the deck bundles.

(v) Bundles shall not be landed on framing members until they have been properly connected, supported, and/or adequately bridged. Bundles shall be placed near or on main supporting members adjacent to a column or wall when practical.

(vi) Bundles shall be landed on framing members so that proper support is provided to allow deck bundles to be unbanded without dislodging the bundles from the supports.

(2) Roof and Floor Openings.

May 12, 1995

(i) Metal deck at roof and floor openings shall be installed in the following manner:

(A) Where structural design and constructability allows, framed deck openings shall have structural members turned down to allow continuous deck installation.

(B) Where structural design allows, roof and floor openings shall be covered during the decking process.

(C) Once openings are cut in metal decking employees shall be provided fall protection in accordance with 1926.760(C) of this part or otherwise filled.

(3) A derrick floor must be fully decked and/or planked and the steel member connections completed to support the intended floor loading. Temporary loads on a derrick floor shall be distributed over the underlying support members to assure no local overloading of the deck material.

May 12, 1995

1926.760 Fall Protection (new)

- (i) Employees outside the controlled access zone who are on walking/working surfaces shall be protected from falling through roof and floor openings by nets, personal fall arrest systems, covers or guardrails systems around such openings.

May 12, 1995

1926.751 Definitions (additional definitions needed)

Metal Deck and Decking Materials: Metal deck is a commercially manufactured, structural grade, cold rolled metal panel formed into a series of parallel ribs and includes products such as bar gratings, checker plate, expanded metal panels, etc. After installation and proper fastening, these decking materials serves a combination of functions including, but not limited to, the following:

1. Serve as a structural element designed in combination with the structure to resist, distribute and transfer loads, stiffen the structure and provide a diaphragm action;
2. Serve as a working platform;
3. Serve as a form for concrete slabs;
4. Serve as a support for roofing systems;
5. Serve as a finished floor or roof.

Decking Hole: A gap or void more than 2 inches and less than 12 inches in its least dimension in a floor, roof or other walking/working surface. (Note - Subpart M, Section 1926.500(b))

Opening: A gap or void 12 inches or more in its least dimension in a floor, roof or other walking/working surface. (Note - Precast/Prestress Plan, page 40748 of Subpart M)

Controlled Access Zone (CAZ): An area in which certain work (e.g., initial installation and placement of metal deck) may take place without the use of guardrail systems, personal fall arrest systems or safety net systems and access to the zone is controlled. (Note - Section 1926.501(b)(9) of Subpart M)

Leading Edge: The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as deck) which

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changes location as additional floor, roof, decking or formwork sections are placed, formed or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Unprotected Sides and Edges: Any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp or runway where there is no wall or guardrail system at least 39 inches (1.0 M) high.

Section 1926.760 Fall Protection

(b)(3)(ii) Leading Edge (Decking)

(1) When metal deck is initially being installed and is forming the leading edge of a work area, the work area must be designated as a Controlled Access Zone (CAZ).

(a) Controlled Access Zones.

Controlled access zones and their use shall conform to the following provisions:

(1) When used to control access to areas where leading edge and initial securement of metal deck and other operations connected with leading edge work are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.

(i) When installing metal deck, a control line shall be erected not less than 6 feet (1.8 m) nor more than 60 feet (18 m) from the leading edge.

(ii) The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.

(iii) The control line shall be connected on each side to a guardrail system, wall, stanchion or other suitable anchorage.

(2) Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:

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(i) Each line shall be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.

(ii) Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) from the walking/working surface.

(iii) Each line shall have a minimum breaking strength of 200 pounds (.88 kN).

(3) On floors and roofs controlled access zones shall be utilized as necessary, to enclose all points of access, material handling areas and storage areas.

(4) Access to the controlled access zone shall be restricted to those workers placing metal decking in leading edge work.

(2) Notwithstanding subsection (b)(3)(ii)(1) above, an employee who is initially installing metal deck and who is constructing a leading edge in excess of 30 feet(--m) or two floors, whichever is less, above a lower level, shall be protected from falling by the use of guardrail systems, safety net systems or personal fall arrest systems. Exception: When the employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, the employer shall develop and implement a fall protection plan which meets the requirements of Section 1926.760(k).

Covering Roof and Floor Openings.

(1) Coverings of roof and floor openings shall be capable of supporting, without failure the greater of either:

(A) 30 psf for roofs and 50 psf for floors;
or

(B) twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.

(2) All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment or employees.

(3) All covers shall be painted fluorescent orange or shall be marked with the word "HOLE" or "COVER" to provide warning of the hazard.

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1926.751 Definitions

Shear Connectors: Shear connectors are headed steel studs, steel bars, steel lugs and similar devices.

Shear connectors develop composite action between steel and concrete elements of a structure.

Shear connectors are first attached to structural steel members and concrete is later placed in a manner that fully covers and endorses the shear connectors.

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(e) Shear Connectors:

Installing shear connectors on composite floors, roofs and bridge decks - When shear connectors are utilized in construction of composite floors, roofs and bridge decks, employees shall lay-out and install (weld) the shear studs, lugs, bars and other devices after decking has been installed; using the deck as a working platform. Shear connectors may not be installed from within a controlled access zone (CA2).



M E M O R A N D U M

TO: Senrac
FROM: James E. Cole *JEC*
DATE: May 12, 1995
RE: Report of the Structural Steel Work Group to Senrac from James E. Cole, Chairman

On May 12, 1995, between 9:00 a.m. and 12:00 noon the above work group consisting of (copy of attendance list is attached Appendix A) met and considered the following topics:

1. Anchor Bolts
2. Double Connections
3. Splices
4. Shear studs and other similar tripping hazards

Attached you will find the Work Group's recommendations to the Committee with respect to each of these subjects.

Our recommendation concerning Anchor Bolts is attached as Appendix 1. Our recommendation concerning Double Connections is attached as Appendix 2. Our recommendation concerning Splices is attached as Appendix 3. Our recommendation concerning Shear studs and other similar tripping hazards is attached as Appendix 4

Attachment
JEC:jlp

**Ironworkers International Headquarters
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May 12, 1995

STEEL WORKGROUP

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APPENDIX 1
1926.756 ANCHOR BOLTS

(a) General requirements for erection stability.

(1) All columns shall be anchored by a minimum of 4 anchor bolts which shall be located at the corner of the base plate.

(2) Columns shall be set on level finished floors, pre-grouted leveling plates, leveling nuts, or shim packs placed at each corner of the column base plate.

(3) Unstable columns shall be guyed or braced where deemed necessary by a competent person.

(4) Column Anchor Bolt Assemblies, including the welding of the column to the base plate shall be designed to resist a 300 lb. lateral load in each direction at the top of the column shaft.

(b) Repair, Replacement or Field Modification.

(1) Anchor bolts may not be repaired, replaced or field modified without the approval of the Project Engineer of Record.

(2) Such approval must indicate any requirements for special column guying or bracing as a result of the repair, replacement or modification.

(3) Prior to the erection of a column, the steel erector must receive written notification from the Controlling Contractor if there has been any repair, replacement or modification of the anchor bolts of that column as required by section 1926.753(a)(1)(ii).

APPENDIX 2

1926.757 Beams, Columns, Girders and Steel Trusses

(a) General. During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with not less than two bolts per connection drawn up wrench tight.

(b) Double Connections at Columns and/or at Beam Webs Over A Column. When two structural members on opposite sides of a column web or a beam web over a column share common connection holes, a minimum of one bolt with its wrench tight nut may not be loosened or removed for the connection of the second member unless a shop attached seat or similar device is present to secure the first member so that the column is always secured against displacement. When seats are provided, the connection between the seat and the structural member that it supports shall be bolted together before the nuts are removed for the double connection.

Definitions: (To be added to definition section)

Seat: A piece of steel mounted to a structural member beneath a connection point, designed to support an incoming member that is to be connected to the first member. Typically an angle or "T" section is welded or bolted to a piece below a connection area.

Double connection: An attachment method where the connection point is intended for two pieces of steel which share common bolts on either side of a central piece.

Clipped connection: A splice plate on the end of a

structural member intended for use in a double connection which has a notch at the bottom and/or top to allow the bolt(s) of the first member placed on the opposite side of the central member to remain in place. The notch(s) fits around the nut or bolt head of the opposing member to allow the second member to be bolted up without removing the bolts holding the first member. (See diagrams)

(c) Landing/Placing Loads

APPENDIX 3

Column Splices shall be designed to resist a 300 lb lateral load in each direction at the top of the column shaft.

1926.752 General Specifications

(a) Walking/Working Surfaces

(1) Shear Studs & Other Similar Tripping Hazards

(i) During the erection of skeletal steel, shear studs, reinforcing bars, deformed studs, and threaded studs, or similar devices shall not be attached to the top flanges of beams, joists or beam attachments such that they project vertically from or horizontally across the top flange of the member until after the decking, or other working surface, is installed.

Copy
SENKAC -- TRAINING

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Product of the "training" workgroup of SENKAC meeting in St. Louis, May 10 and 11, 1995.

STEEL ERECTION -- The term "steel erection activities" means the erection of skeleton steel members (structural steel) in or on buildings and non-building structures. It includes initial connecting moving point-to-point, installing metal floor or roof decking, welding, bolting, rigging, and similar activities -----

QUALIFIED EMPLOYEES engaged in steel erection shall be provided fall protection by safety belts, safety harnesses, ladders, scaffolds, safety nets, suspended personnel work platforms, or stationary or mechanical work platforms; whenever the potential fall distance exceeds

Employees who have not completed a U.S. Department of Labor B.A.T. approved apprenticeship program or equivalent course for fall protection during structural steel erection, are subject to the fall protection requirements of Subpart M1926.500.

QUALIFIED EMPLOYEES shall be trained in: The nature of fall hazards, the ability to recognize fall hazards, and the ability to abate fall hazards to the extent possible.

- (ii) The correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used;
- (iii) The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;
- (iv) The role of each employee in the safety monitoring system when this system is used;

SUSPENDED PERSONNEL WORK PLATFORMS -- Personnel boxes complying with the regulations can be used either to gain access onto the structure or as working platforms. When used for access, the box should, where possible, be landed on a firm, level surface which is wide enough to fully support it. People should enter or leave the box one at a time and the alighting area should allow them to climb in and out of the box easily and safely. There should also be a safe means of access to the place of work from the box. When boxes are used as a working platform for making connections on an open framework, people should not attempt to leave the box at height unless a safety harness is used by each steel rigger to secure themselves to the box or structure.

Whenever possible, connectors shall straddle the beam instead of walking along the top flange.

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Prepared by
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DRAFT
SENRAC Drafting Workgroup
April 26, 1995

"GAP PLUGGING
WORKGROUP"

to unload components from trucks and for the hoisting of components when multiple chokers are used to support the components. Spreaders are commercially manufactured by rigging suppliers with known, marked and certified capacities.

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§1926.752 General Specifications

(a) Structural Stability shall be maintained at all times during the erection process.

(1) Unless the engineer of record certifies that the structural integrity during the erection process is maintained as a result of the design, then the requirements of (2) apply.

(2) The following steps shall be taken to maintain the structural integrity:

(i) Guying and Bracing: (A) The sequence of permanently fastening and bracing shall be such as to maintain the stability of the structure at all times during construction; or (B) The structure shall be adequately guyed to prevent racking and collapse.

(ii) For multi-story structures, the following additional requirements shall apply: (A) The permanent floors shall be installed as the erection of structural members progresses, and there shall be not more than eight stories between the erection floor and the upper-most permanent floor. (B) At no time shall there be more than four floors or 48 feet (14.6 m) of unfinished bolting or welding above the foundation or uppermost permanently secured floor.

New:
Restatement
of existing
Subpart E.

~~(b) Shear Studs:~~

~~(1) Shear studs, reinforcing bars, deformed studs or similar anchors~~

See
Code
Manual

~~shall not be shop welded to the top flanges of beams, joists or beam attachments such that they project vertically from or horizontally across the top flange.~~

~~(2) Employers shall not permit employees to work from or walk on the top surface of a flange or other steel member, where shear studs, reinforcing bars, deformed studs or similar anchors project vertically from the top flange or horizontally across the top flange.~~

(c) Site-Specific Erection (and Safety) Plan

§1926.753 Site Layout and Construction Sequence

(a) Contractor/Steel Erector Coordination

(1) Approval to Begin Steel Erection. Before authorizing the commencement of steel erection, the contractor must provide the steel erector with the following written notifications:

(i) The concrete in the footings, piers or walls or the mortar in the masonry piers or walls has attained, on the basis of an appropriate ASTM standard test method of field cured samples, either 75% of the intended minimum compressive design strength or sufficient strength to support the loads superimposed during steel erection.

(ii) Any repairs, replacements and modifications to the anchor bolts were conducted in accordance with §1926.756(b).

(2)

(b) Overhead protection. All hoisting operations in Steel Erection shall be preplanned to avoid employee exposure to the hazards associated with overhead loads.

Revised

(c) Stairs shall be fabricated to allow for installation during the initial framing process, delivered with the structural framing and maintained up to the completed deck level.

or

(c) Stairs meeting the requirements of Section 1052 of this Part shall be fabricated and installed at the time of initial framing. The principal means of access/egress to all decked floors shall be by stairs.

§1926.754 Hoisting and Rigging

(a) General.

(1) Cranes.

Revised

(i) In addition to the requirements of §1926.550 of this part, cranes being used in steel erection activities shall be inspected prior to each shift by a competent person, including observation for deficiencies during operation. At a minimum, this inspection shall include the following:

(A) all control mechanisms for maladjustments that interfere with proper operation;

(B) all control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter;

(C) all safety devices;

(D) all hydraulic hoses, and particularly those which flex in normal operation of crane functions;

(E) hooks and latches for deformation, chemical damage, cracks, and wear;

(F) rope reeving for compliance with crane manufacturer's specifications;

(G) electrical apparatus for malfunctioning, signs of excessive deterioration, dirt, and moisture accumulation;

(H) hydraulic system for proper fluid level; and

(I) tires for recommended inflation pressure.

(ii) If any deficiencies are identified, an immediate determination must be made as to whether the deficiency constitutes a hazard.

(iii) If the deficiency is determined to constitute a hazard the crane shall be removed from service until the deficiency is corrected.

(iv) The employer shall prepare a certification record which includes the date the crane items were inspected; the signature of the person who inspected the crane items; and a serial number, or other identifier, for the crane inspected. The most recent certification record shall be maintained on file until a new one is prepared.

(2) A qualified rigger shall inspect the rigging prior to each shift in accordance with §1926.251 of this Part.

(3) The headache ball, hook or load shall not be used to transport personnel except as provided in §1926.550(g) of this part.

(4) Safety latches on hooks shall not be defeated except when hoisting and placing columns, purlins and single joists.

Needs discussion on ~~the~~^{it}-8- when this is necessary & under what conditions it will be permitted.

to provide lateral stability during construction.

(b) Purlins shall not be placed on any structural steel framework unless such frame work is safely bolted, welded or otherwise adequately secured.

(c) Purlins shall not be used as an anchorage point for a fall arrest system unless both ends are secured and the anchorage point otherwise meets the requirements of section §1926.760.

(d) During the initial placement of roof purlins and wall girts at least one bolt per connection shall be made provided that the bolts shall be installed in holes at the opposite sides of a vertical flange to prevent rolling.

(e) Until purlins are fully bolted, they shall only be used as a walking/working surface by connectors when allowed by the site specific erection plan established under §1926.752.

§1926.759 Falling Object Protection

(a) General Requirements.

(1) Containers shall be provided for storing or carrying materials such as rivets, bolts, drift pins, welding rods, clamps, shackles, and all necessary hand tools.

(2) All materials, equipment, and containers used aloft shall be secured against accidental displacement.

(3) When bolts or drifts pins are being knocked out, means shall be provided to keep them from falling.

(4) Impact wrenches shall be provided with a locking device for retaining the socket.

(5) When rivet heads are knocked off, or backed out, means shall be provided to keep them from falling.

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Subpart R.

(b) Overhead Protection.

(1) The employer shall not permit employees to work below an active work station unless overhead protection (such as netting, planking or decking) is provided.

(2) Such protection shall be capable of supporting, without failure, a load of not less than 50 pounds per square foot.

§1926.760 Fall Protection

(a) General Requirements

(1) Fall protection provided by the erector shall not be left remaining in an area to be used by other trades after the steel erection activity is completed, unless the owner or his authorized representative:

(i) assumes responsibility for accepting and maintaining this protection;

(ii) assures that it is adequate for the protection of all other affected trades;

(iii) assures that it complies with all applicable safety regulations when being used by other trades;

(iv) indemnifies the erector from any damages incurred as a result of the safety protections use by other trades;

(v) removes the safety equipment when no longer required; and

(vi) returns it to the erector in the same condition as it was received.