

## **Steel Erection**

### **Additional Resources:**

- [Complete OSHA Standard](#)

### **Controlling Contractor**

The controlling contractor has several responsibilities under this standard, including:

Providing written notification to the steel erector that the concrete is of sufficient strength to support loads imposed during steel erection. 1926.752(a)(1)

Providing written notification to the steel erector that any repairs, replacements and modifications to anchor bolts are in accordance with 1926.755(b). 1926.752(a)(2)

Ensuring that the following are provided and maintained:

- Adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected and means and methods for pedestrian and vehicular control. 1926.752(c)(1)
- A firm, properly graded, drained area, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector's equipment. 1926.752(c)(2)
- Custody of fall protection: Fall protection provided by the steel erector shall remain in place only if the controlling contractor directs the steel erector to leave it in place and has inspected and accepted control and responsibility of the fall protection prior to authorizing persons other than steel erectors to work in the area. 1926.760(e)

### **Fall Protection**

Except for connectors and employees working in a controlled decking zone, each employee engaged in a steel erection activity who is on a walking/working surface with an unprotected side or edge more than 15' above a lower level shall be protected from fall hazards.

1926.760(a)(1)

Connectors more than two stories or 30' above a lower level, whichever is less, or at heights over 15' and up to 30' above a lower level shall be provided with a personal fall arrest system, positioning device system or fall restraint, or be provided with other means of protection from fall hazards. 1926.760(b)

Controlled decking zones (CDZ) may be established in that area of the structure over 15' and up to 30' above a lower level where metal decking is initially being installed and forms the leading edge of a work area. 1926.760(c)

In addition, the following applies:

- Cranes being used in steel erection activities shall be visually inspected prior to each shift by a competent person; the inspection shall include observation for deficiencies during operation. 1926.753(c)(1)(i)
- Routes for suspended loads shall be pre-planned to ensure that no employee is required to work directly below a suspended load except for initial connecting or hooking or unhooking the load. 1926.753(d)(1)
- Hooks with self-closing safety latches or their equivalent shall be used to prevent components from slipping out of the hook. 1926.753(d)(2)(ii)
- All loads shall be rigged by a qualified rigger. 1926.753(d)(2)(iii)

Multiple lifts ("Christmas treeing") shall only be performed if a multiple lift rigging assembly is used; a maximum of 5 members are hoisted per lift; only beams and similar structural members are lifted; employees are trained in multiple lift procedures; and the crane is used according to manufacturer's specifications. 1926.753(e)(1)

Multiple lift components shall have a 5 to 1 safety factor. 1926.753(e)(3)

Multiple lift rigging assembly shall be rigged with members attached at their center of gravity and maintained reasonably level; rigged from top down; and rigged at least 7' apart. 1926.753(e)(4)

Members in a multiple lift shall be set from the bottom up. 1926.753(e)(5)

Controlled load lowering shall be used whenever the load is over connectors. 1926.753(e)(6)

A fully planked or decked floor or nets shall be maintained within two stories or 30', whichever is less, directly under any erection work being performed. 1926.754(b)(3)

All columns shall be anchored by a minimum of 4 anchor rods (anchor bolts).  
1926.755(a)

When making double connections at columns or at a beam web over a column, at least one bolt with its wrench-tight nut shall remain connected to the first member unless a shop or field attached seat or equivalent connection device is supplied with the member to secure the first member and prevent the column from being displaced. 1926.756(c)(1)

Where constructability does not allow a steel joist to be installed at the column, an alternate means of stabilizing joists shall be installed on both sides near the column and shall provide equivalent stability; be designed by a qualified person; be shop installed; be included in the erection drawings. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted and the joist is stabilized.  
1926.757(a)(2)

No bundle of decking may be placed on steel joists until all bridging has been installed and anchored and all joist bearing ends attached, unless (all conditions must be met) the employer has determined from a qualified person and documented in a site-specific erection plan that the structure is capable of supporting the load; the bundle of decking is placed on a minimum of 3 steel joists; the joists are attached at both ends; at least one row of bridging is installed and anchored ;the total weight of the bundle does not exceed 4,000 pounds and shall be placed within 1' of the bearing surface of the joist end. 1926.757(e)(4) and (5)

All materials, equipment and tools not in use while aloft shall be secured from displacement. 1926.759(a)

Training shall be provided for all employees exposed to fall hazards. Special training shall be provided to connectors, workers in controlled decking zones and those rigging for multiple lifts. 1926.761(c)