



MIOSHA Fact Sheet

Construction Safety & Health Division

Steel Erection and Fall Protection

Steel erection continues to be a high hazard occupation. However, planning and forethought can provide employees with a safer work environment that will allow employers to maximize productivity and minimize costs due to lost time accidents. Falls are the number one leading cause of accidents and fatalities in the Michigan construction industry and are the most serious hazard that steel workers are exposed to.

Part 26, Steel Erection, Rule 2645(1) requires fall protection for employees engaged in steel erection activity, when they are exposed to a fall of more than 15 feet above a lower level. Fall protection includes *guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems*. Specific fall protection provisions in Part 26 cover **Connectors** and employees working in a **Controlled Decking Zone**.

Connectors:

Part 26, Rule 2646 details the requirements and procedures to be followed for connectors' use of fall protection.

Who is a Connector? A connector is an employee who, working with hoisting equipment, is placing and connecting structural members or components. In the Part 26 rule making process, it was intended that the definition be as narrow as possible, and the final definition of a connector carries out this intention. The definition is very specific; connection is distinguished from other steel erection activities by the elements of the definition. For example, spreading and securing bar joists by hand would not be considered connecting, since that work is not done with hoisting equipment. Therefore, an employee is a 'connector' **only** when working with 'hoisting equipment'. This includes placing components as they are received from hoisting equipment, and then connecting those components while hoisting equipment is overhead.

What is Hoisting Equipment? Hoisting equipment includes but is not limited to; commercially manufactured cranes, derricks, tower cranes, barge mounted derricks or cranes, gin poles, gantry hoist systems and fork trucks. The definition specifically excludes a "come-a-long" as being considered hoisting equipment.

Connector Fall Protection Requirements: When an employee is determined to be a connector in accordance with the definitions, the following provisions apply:

- At heights more than 30 feet, connectors must be provided and use fall protection. Fall protection includes *guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems*.
- At heights more than 15 feet and up to 30 feet, connectors must wear fall protection equipment with the ability to be tied off, unless guardrail systems or safety net systems are in place. The equipment worn would include full body harness, lanyard with appropriate deceleration device, and suitable anchorage equipment.

Employees Working in a Controlled Decking Zone (CDZ):

Part 26, Rule 2648 details the requirements and procedures to be followed for use of a CDZ.

While metal decking is being installed, the installers must be protected by the use of *guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems* when they are exposed to a fall of more than 15 feet above a lower level. Installation of perimeter safety cables must be installed as soon as the metal deck is installed and prior to final deck attachments being completed. A CDZ may be established in an area of the structure of more than 15 feet and up to 30 feet above a lower level where the metal decking is being initially installed, and forms a **leading edge** of a work area.

What is a Leading Edge? A leading edge is the unprotected side and edge of a floor, roof, or formwork for a floor, or other walking/working surface, such as a deck, which **changes location** as additional floor, roof, decking, or formwork sections are placed, formed or constructed.

CDZ Worker Fall Protection and Other Requirements: In a CDZ all of the following provisions apply:

- Employees working at the leading edge in the CDZ shall be protected from fall hazards of 2 stories or 30 feet whichever is less. Fall protection includes *guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems*.
- Access to a CDZ shall be limited to those employees engaged in leading edge work.
- The boundaries of the CDZ shall be designated and clearly marked. The CDZ shall not be more than 90 feet wide and 90 feet deep from any leading edge. The CDZ shall be clearly marked by the use of control lines or the equivalent.
- Each employee working in a CDZ shall have completed CDZ training in accordance with Part 26, Rule 2655(3).
- Unsecured decking in a CDZ shall not be more than 3000 square feet.
- Safety deck attachments shall be performed in the CDZ from the leading edge back to the control line and shall have not less than 2 attachments for each metal decking panel.
- Final deck attachments and installation of shear connectors shall not be performed in the CDZ.

Other Steel Erection Activities: Each employee who is engaged in other steel erection work activities such as but not limited to decking, bolting, and welding shall be protected from fall hazards at more than 15 feet by the use of *guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems*. Once a steel member is connected to the structure by the connector and the load has been released, any subsequent work attaching the member would not be considered to be connecting. For decking work, once there is no longer a leading edge or at heights greater than 30 feet or 2 stories whichever is less, the CDZ provisions no longer apply. Part 26 and other information on fall protection can be viewed on the MIOSHA website; www.michigan.gov/miosha.

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