Impalement Protection

Employee exposure to impalement is always a concern when there is a potential to fall into or onto reinforcing steel or other projections. The requirements for impalement protection are described in Cal/OSHA Construction Safety Orders Section 1712.

All personnel working at grade must be protected against the hazard of impalement by guarding all exposed ends that extend up to 6 feet above grade or other work surfaces, with protective covers or troughs on the exposed ends of reinforcing steel or other similar projections that are less than 6 feet above grade or other work surfaces.

NOTE: Lost deck grading dowels require protective covers.

Protect personnel working above reinforcing steel or other projections by using guardrails, approved fall protection systems, or protective covers.

The Contractor must place protective covers to prevent impalement. Protective covers may be square or circular. Square covers must have a minimum area of 4-inches by 4-inches. Circular covers must have a minimum diameter of 4.5 inches. Protective covers can be job-built or commercially manufactured. Manufactured protective covers must be approved by a Nationally Recognized Testing Laboratory, as outlined in the Cal/OSHA Construction Safety Orders Section 1505, and be legibly marked with the manufacturer’s name or logo. Manufactured protective covers made on or after October 1, 2000 must meet the testing criteria of Cal/OSHA Construction Safety Orders Section 344.90.

Cal/OSHA Construction Safety Orders Section 1712, Reinforcing Steel and Other Similar Projections, requires job-built protective covers to be designed by an engineer currently registered in the State of California. Exception: Job-built troughs, as depicted in Appendix Plate C-25,¹ may be used as a substitute for engineered or manufactured protective covers when employees are working at heights not greater than 6 feet above grade or other working surfaces.

NOTE: “Hooking” (180 degree bending) is not an acceptable alternative to providing protective covers.

The Structure Construction (SC) Code of Safe Practices² identifies several situations where impalement is a hazard and is available at the SC webpage under the Safety tab.

Both manufactured and engineered job-built protective covers meeting the approval requirements of *Cal/OSHA Construction Safety Orders* Section 1505, are acceptable for fall exposure heights up to 7.5 feet. Cal/OSHA designed protective covers, as detailed in *Cal/OSHA Construction Safety Orders Appendix C, Plate C-25*, can be used without an engineer’s approval or *Cal/OSHA Construction Safety Orders* testing requirements, but are only sufficient for exposure heights up to 6 feet.

All sections of the *Cal/OSHA Construction Safety Orders* (Section 344.90, 1505, 1712, and Appendix C, Plate C-25) are available on the Cal/OSHA webpage³.

The *Cal/OSHA, Construction Safety Orders* pertaining to impalement protection are also summarized in the *CAL/OSHA Pocket Guide for the Construction Industry⁴*.

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³ [http://www.dir.ca.gov/Samples/search/query.htm](http://www.dir.ca.gov/Samples/search/query.htm)