Lake County Contractors Association
Safety News
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Tubular Welded Frame Scaffolds

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Through discussions with masonry firms, trainers and some conversations with OSHA, we now have a clearer picture of the requirements of the new Scaffold Standard (Subpart L 1926.450 through .454). I will restrict my analysis to Tubular Welded Frame Scaffold (TWFS) which must comprise over 95% of scaffold usage.

The new standard is much more detailed -- running 40 pages, compared to the older standard of 17 pages. The old standard had one page of general information with one-half page of TWFS while the new standard denotes 16 pages to general information and three pages to TWFS; these figures are for the U.S. Government Printing Office edition. However, much of this increase is in extending or clarifying the old rules, such as the competent person rule, ladder access, or icy and stormy conditions.

Scaffold Construction - The first obvious change is in 451(b)(1), which says that all working levels of a scaffold must be fully planked. Nowhere in the old standard is this stated, though it is generally the industry standard.

A second planking rule is that a maximum spacing between planks is 1 inch. In a recent case, a masonry contractor was cited for this violation. The citation was later withdrawn when it was pointed out that the openings were not measured, but eyeballed from the ground, 20 feet below the platform. What is to be done when a fully planked platform leaves an open space? The standard allows a 9-1/2 inch gap. Should the gap be at the working face or the open back? What is the safest configuration?

Supported Scaffolds - While the rule for tying the scaffold to a building remains at 26 feet vertical spacing and 30 feet horizontal spacing, OSHA requires that the bottom tie should observe the 4 to 1 rule. For a 5-foot wide header, the first tie would come at 20 feet.

The old standard said, "scaffold legs shall be set on...bases placed on...foundations adequate to support the...load." The new standard says, "Shall bear on base plates, mudsills, or other adequately firm foundation." This apparently allows placing the scaffold legs directly on a solid, flat concrete floor, which is a standard industry practice.

451(c)(2)(v) is a new section allowing fork lifts to support work platforms if the platform is attached to the forks and the fork lift is not moved horizontally while the platform is occupied. Above 10 feet, the requirements for fall protection would apply.

Access - Section 451(e) is major expansion of the old standard, even allowing climbing the scaffold headers or frames during erection or dismantling, if the frames meet the requirements of 451(e)(9)(iii).

Scaffold Use - The use of the foot scaffold, still used by some firms, appears to be banned by Section 451(f)(14) which states, "Makeshift devices ... shall not be used on top of scaffold platforms to increase the working height of employees." However, ladders can be used on large areas of scaffold if they meet the requirements of 451(f)(15). A much hazier prohibition was in the old standard.

Another section of 451(f)(6) covers the clearances between scaffolds and power lines, a rarely encountered problem in construction.

Fall Protection - The most obvious change in the new standard is the acceptance of cross-bracing as part of the fall protection guardrail system. With the addition of a horizontal rail to the exterior cross-braces, the standard is satisfied. This has led to wide use of intermediate sections of TWFS as the working level. With the removal of one section of cross-braces on the working face, masons can work directly on the face or an outrigger could be fed from the open bay. Likewise, the working level can be supplied by forklift through an open bay on the exterior side; however, the braces and the single guardrail must be placed back in position after loading. The old practice that every header vertical be cross-braced on at least one side at all times should be observed, thus adjacent bays should not have cross-braces removed at the same time on either the exterior or the working face.

The particular requirements for using the cross-braces with an additional horizontal rail are covered in 451(g)(4)(xv). The "Rule of Thumb" is: If the crossing point of the braces is at waist level or below, the horizontal rail should be above the cross point, and if above, the horizontal rail should be added below.

One observation in the use of this system is that end rails are often ignored. Chains seem to be the optimum solution; with a clamp attachment they work very well with the ladder access.

A comment on Section 451(g)(2) was received lately from an OSHA-CSHO covering the fall protection requirements for workers erecting or dismantling scaffolds. The ruling is that fall protecting harnesses and lanyards are required if attachment to a structure other than the scaffold itself is available, but without that, harnesses and lanyards are not required.

Falling Object Protection - This section contains the statement, "In addition to wearing hard hats, each employee on a scaffold shall..." Does this mandate hard hat use on scaffolds?

Training Requirements - Section 454(a) requires "each employee who performs work on a scaffold" to be trained to recognize hazards. The LCCA Safety Committee has scheduled a Scaffold Users Course on April 21 which meets this requirement.

Section 454(b) is new to the standard, requiring that every worker who erects, disassembles, or works on a scaffold must be trained in the hazards of scaffold work. Records of the training must be kept. This training is available from the Chicagoland Construction Safety Council, the Carpenters Apprentice Program and others.

Work Rules May Be Inadequate - The employer had a general work rule that if workers found unsafe conditions while installing and delivering cabinets, they should leave and call the employer. A delivery worker was fatally injured in a fall while carrying a cabinet up a flight of stairs that did not have guardrails. OSHA issued several citations against the employer including one for failure to instruct employees in recognizing and avoiding hazards.

The Occupational Safety and Health Review Commission affirmed the penalty determining that the work rule was too general to adequately protect employees. The Commission found that because the employer never instructed employees on how to recognize hazards, each employee could develop their own ideas as to what was unsafe.

OSHA Region V Fatality Report -- The following fatalities occurred in the Chicago/Milwaukee area during October, November and December of last year:

October 2, 1997 - An operator of a snorkel concrete pump was moving the machine on an Interstate to another position when it was hit by a car killing the operator. Aurora Office

October 8, 1997 - A ceiling fell on a worker on a renovation project. Aurora Office

October 14, 1997 - A painter collapsed with an apparent heart attack. Aurora Office

October 30, 1997 - A masonry block wall collapsed on four workers killing one of them. Aurora Office

December 16, 1997 - Three men are in a lift basket when one reaches out and touches a 7620-volt line. The man touching the line is killed. Milwaukee Office

Assured Equipment Grounding Conductor Program - **Green** is next quarter's color for contractors following the assured equipment grounding conductor program. As of April 1, 1998, contractors should be using **green** tape when marking cords.

The assured grounding conductor program simply requires you to test new or repaired power tools and extension cords before first use, after any suspected damage, and all electrical tools and cords at the three-month intervals, marking the cords with colored tape to indicate the month tested. In addition, all cords and power tools must be visually inspected before each use, and a written description of the program and test records must be kept on file at each jobsite.

Safety News is published by the Lake County Contractors Association's Safety Committee, 1312 Washington St., Waukegan, IL – Mike Barnhart, chairman, Gary L. Dowty, executive vice president. Many articles are submitted for publication and while every effort is made to assure the accuracy of the information, LCCA cannot be held liable for any information presented.