

Case 190. 28-year-old ironworker was killed when the frame of a falsework support tower for a skeleton structure for a ramp to a toll plaza under construction collapsed and struck him.

A 28-year-old male ironworker was killed when the frame of a falsework support tower for a skeleton structure for a ramp to a toll plaza under construction collapsed and struck him. The temporary support towers (falsework towers) were utilized to provide temporary structural support for the ramp's seven steel girders. Each falsework tower had four legs designed to support 31,000 pounds each. The engineering specifications for the towers required that each tower have both an upper and lower adjustment capability to permit the tower frame to be raised and lowered to the appropriate elevation to support the girders, a top and bottom horizontal aligner between two legs, a diagonal brace spanning each of the four tower legs, and 1/2-inch wire cable braces with three wire rope clips. Not all towers used on the site were constructed to meet the engineering specifications. The tower involved in the incident had the top and bottom horizontal aligners and all four diagonals in place. On the day of the incident, the decedent and two coworkers were assigned to remove seven towers (supporting seven girders designated A-G) that had been erected. To lower and remove the towers, the site engineer required that the tower height be lowered by adjusting the top legs downward. The site erection plan required that the towers supporting the girders be lowered and removed in the following order: tower supporting girder A, then B, then D, then C, then F, then E, and then G. The decedent and his coworkers did not follow the plan nor did they follow the requirement for lowering the frame height from the top. Without incident, they lowered all of the towers at once using the adjustment capacity at the base of the towers. Using a rough terrain forklift with job-made 9-foot forks, the tower supporting girder A was removed by placing the forks under the top of the frame. Tower B was removed by placing the forks under the top horizontal aligner. The third tower in the sequence, Tower C, could not be removed with the top horizontal aligners in their current position because of space limitations span for the rough terrain forklift truck under the girder. The decedent and his coworker told the forklift operator, who had been requested to move another construction item and had to leave the incident site, that they were going to lower the top horizontal aligners while he was gone. To lower these horizontal aligners, two diagonal braces had to be moved. It is unknown if the decedent or his coworker removed the south brace. When the decedent's coworker removed the top bolt from the north brace, the tower twisted and collapsed to the west. His coworker was either thrown from or pulled away from the falling tower by a coworker who had just arrived. The decedent fell with the tower and the top of the tower frame struck him. A nearby crane operator was alerted and assisted in raising the frame from the decedent.

MIOSHA Construction Safety and Health Division issued the following alleged Serious and Other-than-Serious citations:

SERIOUS:

GENERAL RULE, PART 1, RULE 114(2).

An accident prevention program shall, as a minimum, provide for all of the following:

- a. Designation of a qualified employee or person with responsibility to administer the program.
- b. Instruction to each employee regarding the operation procedures, hazards, and safeguards of tools and equipment when necessary to perform the job.
- c. Inspections of the construction site, tools, materials, and equipment to assure unsafe conditions that could create a hazard are eliminated.
- d. Instruction to each employee in the recognition and avoidance of hazards.
- e. Instruction to each employee who is required to handle or use known poisons, toxic material, caustics, and other harmful substances regarding all of the following: The potential hazards, safe handling, use, personal hygiene, protective measures, applicable first aid procedures to be used in the event of injury.
- f. Instruction to each employee if known harmful plants, reptiles, animals, or insects are present regarding all of the following: The potential hazards, how to avoid injury, applicable first aid procedures to be used in the event of injury.
- g. Instruction to each employee who is required to enter a confined space regarding all of the following: the hazards involved, the necessary precautions to be taken, the use of required personal protective equipment, emergency equipment, the procedures to be followed if an emergency occurs.
- h. Instruction in the steps or procedures to be followed in case of an injury or accident or other emergency.

Employees, with no prior experience with EFCO Super Studs used as false work, are engaged in the work associated with the erection, modification, installation, removal of EFCO false-work towers, connected to construction of Bridge A, are not adequately trained.

SERIOUS:

STEEL ERECTION, PART 26, RULE 2614(1).

Structural stability shall be maintained at all times during the erection process.

During the construction/installation/removal of at least nine EFCO false-work towers structural stability is not maintained. Wind/stabilization cable bracing not installed as required by engineer drawings, diagonal bracing is not installed as required by engineered drawings.

OTHER-THAN-SERIOUS:

RECORDING AND REPORTING OF OCCUPATIONAL INJURIES AND ILLNESSES, PART 11, RULE 1143(2)(a)(i).

The Summary of work-related injuries and illnesses (form 300A), for the year 2007, is not certified as required by this rule with: The title and signature of the signing company executive and the date the signature is affixed to the document.

OTHER-THAN-SERIOUS:

RECORDING AND REPORTING OF OCCUPATIONAL INJURIES AND ILLNESSES, PART 11, RULE 1143(2)(a)(ii).

On the OSHA Form 300A – Summary of Work-Related injuries and illnesses there are no zeroes entered, as required in the following fields:

- Injuries
- Skin disorders
- Respiratory conditions
- Poisonings
- All other illnesses