

Case 189. 41-year-old iron worker was critically injured when a steel beam struck his head after he and the 300 pound cantilevered beam he had been sitting on fell approximately 14 feet. He died several weeks later in the hospital.

A 41-year-old iron worker was critically injured when a steel beam struck his head after he and the 300 pound cantilevered beam he had been sitting on fell approximately 14 feet. He died two weeks later from the injuries sustained at the time of the incident. The decedent was setting structural steel on a new addition to a building. The decedent was sitting on a cantilevered beam welding another beam that was held in place by a crane. When the load line was lowered to release tension, the cantilevered beam began to give way. The decedent fell approximately 14 feet to the ground and the cantilevered beam that the decedent was sitting on broke free from the weld and fell on top of him. The decedent sustained severe head injuries.

The first I-beam was lifted and then lowered in line with a 12-foot masonry wall. Four feet of the beam extended past the edge of the wall (cantilevered section) to support a canopy roof. The masonry contractor had previously installed beam plates so the beams could be secured to the masonry wall. The beam plate furthest from the cantilevered section had two threaded rods for securing the beam in place. The beam plate nearest to the cantilevered section was to be welded to the beam. The decedent guided the threaded rods through the predrilled holes in the I-beam and set the beam upon the masonry wall. The decedent then attached the nuts to the threaded rods. It is not known how tight he secured these nuts to the threaded rods. The decedent noted that to get the choker/sling off the beam the beam had to be lifted to pull the choker free. A rough terrain forklift truck lifted the beam a few inches to allow the choker/sling to be removed. After the choker/sling was removed the beam was lowered back down onto the masonry wall. The beam was not in proper alignment with the beam plate/masonry wall, so the decedent repositioned the beam by pounding it with a 26 ounce hammer.

After the beam was in the proper position, the decedent welded the beam to the beam plate closest to the cantilevered section. A second beam was brought to the area by the crane operator and was placed perpendicular to the first beam on the cantilevered section. Another building wall supported one end of the second beam and the cantilevered section of the first beam supported the other end. The decedent crawled out onto the cantilevered section of the first beam and positioned the second beam using the hammer. Wearing a welding shield (no hard hat), he welded the first and second beam together. When he finished welding, he signaled the crane operator to lower the load line releasing the weight of the second beam onto the first beam. When the weight of the second beam was placed on the cantilevered beam, the beam and the block grouted to the bearing plates lifted from the wall. The decedent, still sitting on the cantilevered section of the beam, fell from the beam and 14 feet to the ground. The welded connection of the two beams broke loose and the cantilevered beam with its attached blocks/bearings plate fell to the ground and struck the decedent. The second beam stayed connected to the load line. He died several weeks later in the hospital as a result of the injuries sustained.

After the incident, the company evaluated their erection process. Several changes were made: 1) They are now installing temporary bracing under the cantilevered sections, 2) they are now installing the beams in reverse order by installing the cantilevered section last, not first, and 3) to minimize the likelihood of breaking the bond between mortar joints, they will avoid hammering and shifting the steel after it as been set.

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

SERIOUS:

PERSONAL PROTECTIVE EQUIPMENT, PART 6, RULE 622(1).

A helmet, as prescribed in R408.40621, shall be used to protect the employee where a hazard or risk of injury exists from falling or flying objects or particles or from other harmful contacts or exposures.

An employee engaged in steel erection activities, connecting work was exposed to head hazards by not wearing head protection. The employee was struck on the head by a falling iron beam.

SERIOUS:

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

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

An employee engaged in steel erection activities was exposed to serious hazards when the structural stability of the cantilevered ironwork he was working on, gave way. The employee was exposed to a 14 foot fall and then was struck by a 300 pound iron beam.