Case 311. 38-year-old steel erection worker died when he fell 26 feet to a concrete floor during the removal and replacement of approximately 6000 square feet of a low-sloped roof.

A 38-year-old male steel erection worker died when he fell 26 feet to a concrete floor during the removal and replacement of approximately 6000 square feet of a low-sloped roof. The incident occurred in the northeast corner of the roofing project which abutted a taller penthouse structure. The existing roof consisted of a rubber membrane, 1" insulation and a wooden 2" x 6" tongue-and-groove plank deck. Because the facility was in full operation directly below the roof needing to be replaced, the firm stated they did not get a good look at the underside of the roof and its supporting structure or go up on the roof before the start of construction. Three days prior to the incident, roof demolition began. The decedent was not present on this date. MIOSHA indicated some of the firm's employees wore fall protection and some did not. Demolition began in the southwest corner and progressed north, then east. To demolish the roof, a two-man crew was plunge-cutting the roof planks with a circular saw along the beam supports and then prying them out with pry bars. New sheet metal was flown in by crane, shook out and screwed and welded in place. On the day of the incident, the decedent was a member of an eight-person crew. One crew member ran the crane from the ground on the north end of the jobsite. A second crew member rigged the loads. Coworkers 3 and 4 continued scoring the wood deck planks with a saw and removed the old deck using pry bars. The decedent and another coworker were shaking out, screwing down, and welding the new steel decking. Another crew member worked from the building interior, and used a JLG aerial lift, grinder, and reciprocating saw to cut off any remaining old wood from the structural steel. When the equipment inside the structure no longer allowed the crew member working inside the building to maneuver the aerial lift, he resumed demolition from the roof. The owner was painting welds on the west end of the new deck while standing on a lower low-sloped roof adjacent to the new construction. The owner had been present at the beginning of the day and left to attend meetings. Old wood deck planks had been plunge cut with a circular saw along the south side of the penthouse. The planks had not been removed. The decedent walked from where he was working to the area just plunge cut. Unbeknownst to the decedent, the old plank decking was not supported and was essentially free-floating at the penthouse's steel column. When the decedent stepped on the planking, it gave way creating an opening of approximately 19" wide by 5'6" long. He fell approximately 26 feet to the concrete floor below. Crew members rushed to his side and called 911. The decedent was declared dead at the scene. No engineering survey of the structure was performed before the start of demolition. No daily inspections were performed to detect hazards and unsafe conditions during the progress of the demolition work.

MIOSHA Construction Safety and Health Division issued the following Serious and Willful Serious citations at the conclusion of its investigation.

SERIOUS: GENERAL RULES, PART 1, Rule 114(2)(d)

Instructions were not provided to each employee in the recognition and avoidance of hazards and the regulations applicable to his or her work environment to control or eliminate any hazards or exposure to illness or injury.

Instruction/training of employees did not address hazards associated with demolition work:

A: Type of fall protection to be used by employees demolishing existing wood decking exposed to a 26 ft. 1 in. fall to concrete and industrial machinery at building interior.

B: No inspection of wooden deck working surface of entire project.

Employees removing an approximately 6,000 sq. ft. section of wooden roof decking and replacing with new corrugated steel decking on the facility roof.

SERIOUS: DEMOLITION, PART 20

- RULE 2031(1)(a):

It was not ensured that all of the following were done before the start of a demolition operation:

(a) An engineering survey of the structure and equipment is conducted by a competent person knowledgeable in demolition to determine all of the following:

(i) The condition of the foundation, roof, walls, and floors.

(ii) Whether any adjacent structure will be affected by the demolition.

(iii) The utility service entering the building.

(iv) Any other conditions and equipment affecting the safety of an employee.

Employees exposed to approximately 26 ft. 1 in. fall to concrete and industrial machinery at building's interior.

Employees removing an approximately 6,000 sq. ft. section of wooden roof decking and replacing with new corrugated steel decking on the facility roof.

- RULE 2031(9):

Daily inspections were not made to detect hazards and unsafe conditions during demolition.

Unsupported wood decking at southwest steel column of upper penthouse structure undetected due to lack of inspection. Employees exposed to approximately 26 ft. 1 in. fall to concrete and industrial machinery at building's interior.

Employees removing an approximately 6,000 sq. ft. section of wooden roof decking and replacing with new corrugated steel decking on the facility roof.

WILLFUL SERIOUS: DEMOLITION, PART 20, RULE 2032:

The provisions of Part 45, Fall Protection, being R408.44501 et seq. of the Michigan Administrative Code, were not complied with for all portions of the structure where there is employee exposure to the conditions covered by that part.

No fall protection used by employees demolishing existing wood decking exposed to up to approximately 26 ft. 1 in. fall to concrete and industrial machinery at building's interior, along northern edge, and along eastern edge of roof.

Employees removing an approximately 6,000 sq. ft. section of wooden roof decking and replacing with new corrugated steel decking on the facility roof.