MIFACE INVESTIGATION: #02MI060

SUBJECT: Millwright Dies from Fall Off Ladder

Summary

On June 12, 2002, a millwright installing new copper lines approximately 18 feet in the air was killed when he fell from his extension ladder. No one saw him fall. He had started work at approximately 7:00 a.m. and had been working about an hour when a nearby worker heard a noise. When the worker investigated, he found the victim on the floor of the plant next to his ladder. The victim's ladder was supported on the crossbeam of a movable hoist and not on the building I-beam that was nearer to the area where he would have been working. There was evidence that the ladder had been originally leaned against the I-beam and had slipped and fallen to the hoist crossbeam. The victim was lying perpendicular to the ladder on his right side with his back toward the ladder, facing away from the ladder. Emergency personnel indicated that he appeared to have fallen heavily on his right side, because he had multiple rib fractures on his right side as well as head injuries. It is possible that he was standing on his ladder with his back to it working on the copper piping. When the ladder slipped, he fell, he twisted to his right and fell onto his right side.

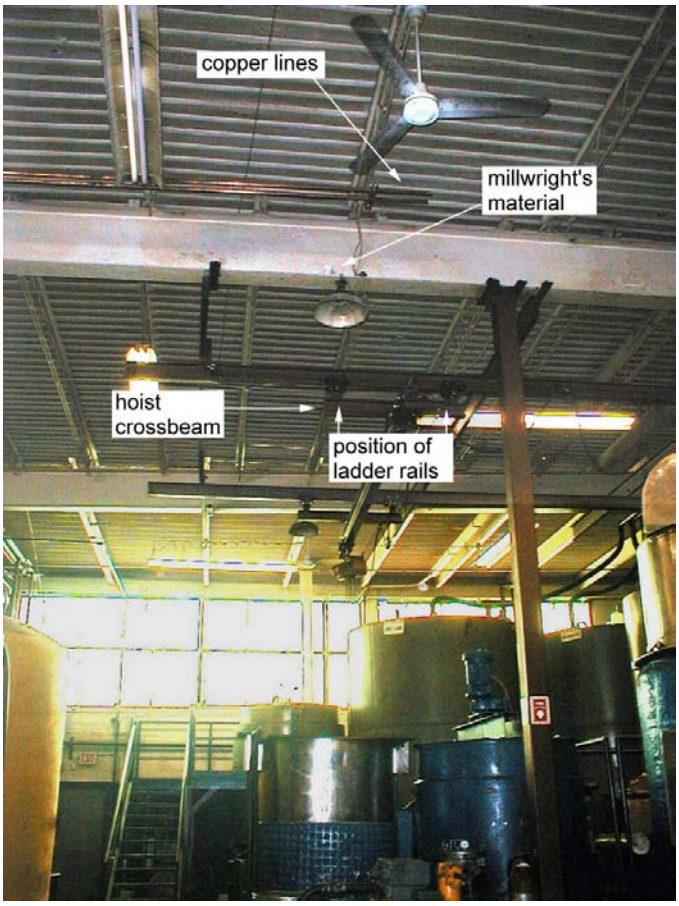

Figure 1

RECOMMENDATIONS

- Employers should develop a written accident prevention plan that identifies and describes hazards that could be encountered in the worksite and how to recognize and avoid them.
- Securely fasten ladders to prevent them from slipping.
- Ensure workers are trained in the safe use of ladders and follow safe procedures.

INTRODUCTION

On Wednesday, June 12, 2002, a 54-year old millwright was killed when he fell from a ladder he had been working from. He was installing new copper lines on a 22-foot plant ceiling. On June 13, 2002, MIFACE investigators were informed by the Michigan Occupational Safety and Health Act (MIOSHA) personnel who had received a report on their 24 hour-a-day hotline that a work-related fatal injury had occurred on June 12, 2002. On July 11, 2002, the MIFACE researcher interviewed the Vice-President of the plant who was also the Technical Director. He accompanied the researcher into the plant, showed her the incident site and described the events on the day of the fatality. During the course of writing the report, the autopsy results and the MIOSHA citations were obtained.

The MIOSHA investigation resulted in three citations being issued to the company: one citation for failing to provide a training program for employees using extension ladders; one for the ladder being unsecured; and one for failing to develop and present an accident prevention program.

INVESTIGATION

On Wednesday, June 12, 2002, a 54-year old millwright was installing new copper lines near a 22-foot plant ceiling for a company that manufactured lubricants and release agents for the die cast industry. The company had been in business for 44 years and employed nine people. The victim had been a millwright for over 30 years. He was working as a temporary employee at the time of the incident. He had done temporary jobs for the company in the past and had recently worked for another company in the neighborhood doing the same type of work.

The victim started work at approximately 7:00 a.m. and had been working less than one hour when another employee working nearby heard a noise and went to investigate. He found the victim unconscious on the floor next to his ladder. The extension ladder was standing upright, leaning against a hoist crossbeam behind the area where the victim was working, not on the building I-beam closer to where he had placed his material. The container of material the victim had been using to connect the pipes was on the building I-beam (Figures 1 and 2).

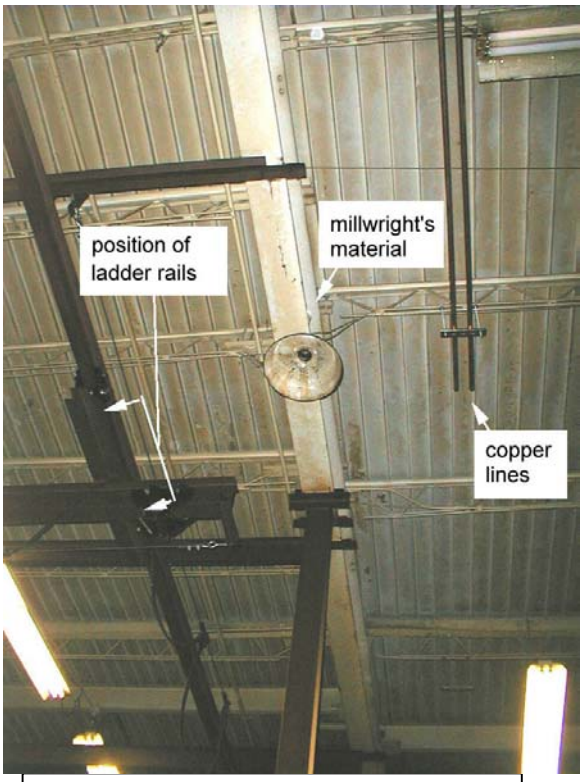

Figure 2

The ceiling height was 22 feet. The copper lines being installed were located at approximately 18 feet. No one saw how the victim had set up his equipment or saw him working on the lines. The worker who investigated the noise found the victim on his right side perpendicular to the ladder with his back toward the ladder. He was lying with his head toward the rear of the plant

and his feet toward the area where he was working. It appears unlikely that he moved after his fall, because the worker who investigated the noise was quite close to the area where he fell.

Reconstruction of the probable scenario indicated that the ladder had been leaned against the I-beam and had slipped and fallen to the hoist crossbeam causing him to lose his balance and fall to the floor (Diagrams 1 & 2). Marks were apparent on the ladder that matched where it would have fallen to the hoist crossbeam in such a scenario.

On the day of her visit, the MIFACE investigator was not able to examine the floor where the event occurred because containers were stored in the area. The extension ladder belonged to the victim and appeared to be in good condition (Figure 3). It was a fiberglass extension ladder with aluminum rungs. According to the Technical Director, the area around the ladder was clear at the time he was working there.

However, on the nearby floor, there was evidence that the products of the manufacturing process, lubricants and die release compounds, had been absorbed into the flooring surface. The MIOSHA officer who investigated the fatality shortly after it occurred indicated in his report that "a dark film of this product is on the ladder's safety feet, on the aluminum rungs of the ladder, and soles of shoes/boots worn in this area".

Based on the position of the ladder and the position in which the victim was found, it is possible he was standing on the ladder with his back to it working on the piping in front of him. As the ladder slipped, he fell, twisted to the right and fell onto his right side. The emergency medical personnel indicated that it appeared that he had fallen heavily onto his right side, because he had multiple rib fractures on the right side as well as head injuries on the right.

Figure 3

CAUSE OF DEATH

The cause of death as stated on the death certificate was multiple injuries, multiple blunt injuries to the head and trunk consistent with a fall. The results of all toxicological tests were negative.

RECOMMENDATIONS/DISCUSSION

- Employers should develop a written accident prevention plan that identifies and describes hazards that could be encountered in the worksite and how to recognize and avoid them.

Although the workplace was an industrial site, the installation of the copper piping was construction work. The victim had done work at the site previously, but was not a full-time employee. The lubricants and die release products the company manufactures had been absorbed into the floor over the years. Instruction regarding this fact would have reminded the victim of the nature of the flooring and his footing. The soles of his shoes may have become slippery by having picked up the lubricants or die release products on the floor. The rungs of the ladder would also then have become slippery and could have caused him to lose his footing.

- Securely fasten ladders to prevent them from slipping.

Ladders should be lashed or otherwise securely attached to ensure they will not slip. Slip resistant feet are not an acceptable substitute for holding a ladder in place that is used upon slippery surfaces.

- Ensure workers are trained in the safe use of ladders and follow safe procedures.

Reinforcement of safe ladder practices by means of an accident prevention plan and training would have addressed the following items.

1. Ensure ladders are secured where there is the possibility of a slippery surface. The top of the ladder was not secured. Although the ladder had slip-resistant feet, they are not an adequate substitute for holding a ladder in place on slippery surfaces.
2. Always face the ladder when ascending or descending. Although no one saw the victim fall, the position of the body suggests that he may have had his back to the ladder.
3. Remove any slippery material from the soles of shoes or rungs of the ladder before using the ladder. The product manufactured by the company was inherently slippery. It had been absorbed by the flooring over the years and may have caused the soles of the victim's shoes, the rungs of the ladder or his hands to become slippery.

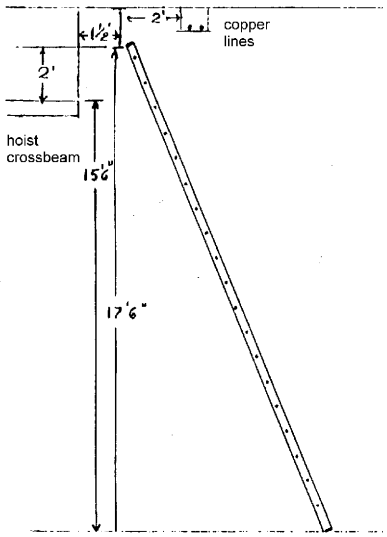

Diagram 1

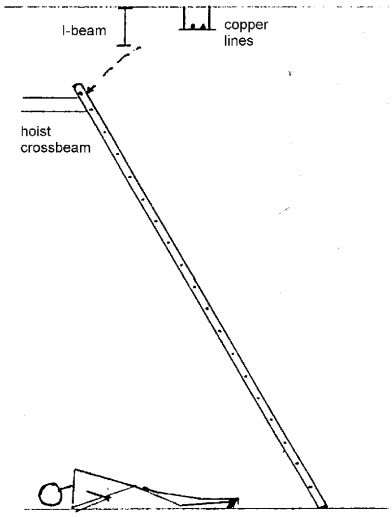

Diagram 2

REFERENCES

1. Accident Prevention Manual for Business & Industry, Engineering and Technology, 11th Edition, National Safety Council, Chicago, 1997.

2. MDCIS Director's Office, Construction Safety Standards, Part 11. Fixed and Portable Ladders.

MIOSHA Standards cited in this report can be found at the Consumer and Industry Services, Bureau of Safety and Regulation Standards Division website at www.michigan.gov/cis. Follow the links *Workplace Safety & Health* then *Standards & Legislation* to locate and download MIOSHA Standards.

The Standards can also be obtained for a fee by writing to the following address: Department of Consumer and Industry Services, MIOSHA Standards Division, P.O. Box 30643, Lansing, MI 48909-8143. MIOSHA phone number is (517) 322-1845.

MIFACE

Investigation Report # 02 MI 060

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Please rate the following on a scale of:

Excellent	Good	Fair	Poor
1	2	3	4

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1 2 3 4

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