

TO: Director, National Institute for Occupational Safety and Health

FROM: California Fatality Assessment and Control Evaluation (FACE) Program

SUBJECT: Wood Fabricating Assembler Died After Being Crushed by a Wooden Flange

SUMMARY

California FACE Report #95CA005

A 42-year-old white, Hispanic, male wood fabricating assembler (the victim) died when a wooden flange he was attempting to roll to an assembly rack (jig) fell over and crushed him. The flange was 92" in diameter and weighed approximately 350 pounds. It was being rolled manually 25 feet to the assembly area where it was to become part of a reel or spool used to store wire. The victim's employer stated that rolling the flange was the typical method used to move the flanges from the entrance way to the jig. The employer also stated that the victim was familiar with the hazards involved in rolling the flange. The concrete surface on which the flange was being rolled was flat, but was wet from recent rains. Though there were no witnesses to the incident, a co-worker heard a loud noise when the flange fell to the ground. He ran to see what had happened and discovered the victim underneath the flange. The co-worker lifted the flange from the victim's head and summoned emergency services to the scene. Fire department paramedics arrived in approximately 5 minutes and transported the victim to a community hospital where he was later pronounced dead. The CA/FACE investigator concluded that in order to prevent similar future occurrences, employers should:

- evaluate their manual materials handling procedures and assure that safe methods are used.
- conduct job safety analyses on all tasks in order to identify potential hazards before initiating and continuing work at a job site. Once hazards have been identified, appropriate corrective actions should be taken.
- implement and maintain a written Injury & Illness Prevention Program (IIPP) which addresses the hazards associated with, and the specific safety training necessary for materials handling.

INTRODUCTION

On March 22, 1995, a 42-year-old manufacturing assembler (the victim) died after being crushed by a wooden flange he was attempting to roll to an assembly area. The CA/FACE investigator was informed of this incident by a California Occupational Safety & Health Administration (Cal/OSHA) district office. The CA/FACE investigator conducted a site investigation on April 4, 1995. The site investigation included interviewing the company manager, the victim's co-worker, and taking photographs of the incident site. A copy of the CAL/OSHA Report, the Sheriff-Coroner's Autopsy Report, and the Police Report were all obtained by the

CA/FACE investigator.

The employer in this incident was a manufacturer of wooden reels. Once assembled, they are used to store different types of wire. The company employed 40 workers at several different locations, with three workers employed at the incident site. The company had been in business for 70 years but had worked at this particular site for only 18 months. The victim had worked for the company for seven months spending his entire time at the incident location. There were no specific safety procedures for the task the victim was performing, a task he had performed on numerous occasions. The supervisor on site was the designated safety officer. There were no written safety policies, but the supervisor stated that monthly safety meetings were held.

INVESTIGATION

On the day of the incident, at 1:30 p.m., the victim was retrieving and transporting large wooden flanges from the storage yard to the assembly area. This task involved two activities. In the first step, employees used a forklift to transport flanges from the storage area to the door of the assembly area, a distance of approximately 100 yards. In the second step, employees manually rolled the flanges from the forklift to the assembly area, a distance of about 25 feet. The flanges were not moved the entire distance to the jig with the forklift because workers needed to keep the assembly area clear for other activities. There were two workers at the site, the victim and a temporary worker. The temporary worker was in a different part of the building while the victim was moving the flanges. There were several different size flanges in the storage area. The victim was transporting the largest flanges which weighed approximately 350 pounds each and were 92 inches in diameter (**Exhibit 1**).

The temporary worker stated that he heard a noise when the flange hit the ground and ran to see what had happened. He found the victim underneath the flange just inside the door to the assembly area. He removed the flange from the victim's head and summoned emergency services to the scene. Fire department paramedics arrived in approximately 5 minutes and transported the victim to a community hospital. He was pronounced dead by a physician at the hospital at 2:17 p.m. The victim's supervisor explained that the company safety rule stated that employees should leave enough room to run out of the way if the flange should fall while being transported to the assembly area. According to the victim's supervisor and co-workers, flanges would fall during this phase of the operation two to three times per week. Co-workers stated that when rolling large flanges into the assembly area two workers often worked together, although this was not an official operating procedure. On the day of the incident, the concrete surface on which the flanges were being rolled was level but was wet from recent rains. It is not known if the environmental conditions contributed to this fatal event.

CAUSE OF DEATH

The Sheriff-Coroner's Autopsy Report stated the cause of death as craniocerebral trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should evaluate their materials handling procedures and assure that safe methods are used.

Discussion: In this incident, a forklift was used to transport flanges from the storage area to the entrance of the assembly area. The flange was then manually transported from the entrance area to the jig. This change in method of transport for the last 25 feet of the operation placed workers at high risk for injury. This fatality may have been prevented by use of an alternative method of retrieval in the second phase of transport such as the continuous and sole use of a forklift, or use of a dolly or cart system. Frequent movement of the same types of material over the same routes suggests the use of mechanization, particularly where there is manual handling of heavy or unstable objects. Under Title 8 of the California Code of Regulations (CCRs) section 3328 (e), machinery and equipment components shall be designed, secured, or covered to minimize hazards caused by breakage, release of mechanical energy (e.g. broken springs), or loosening and falling.

Recommendation #2: Employers should conduct job safety analyses on all tasks in order to identify potential hazards before initiating and continuing work at a job site. Once hazards have been identified, appropriate corrective actions should be taken.

Discussion: In this situation, it was known that the large and heavy flanges fell repeatedly, but no one at the work site had identified this as a hazard requiring control measures. Employers should be aware of the hazardous conditions at jobsites and should take an active role to eliminate them. Regular safety inspections, conducted by the employer or supervisor familiar with the work processes, may have assisted both the employer and the employees in raising their awareness regarding the hazards to which they were exposed. Even though safety inspections do not guarantee the prevention of occupational injury, they are key to identifying unsafe conditions and activities that need to be rectified. Further, they demonstrate the employer's commitment to the enforcement of the safety program and to the prevention of occupational injury.

Recommendation #3: Employers should implement and maintain a written Injury & Illness Prevention Program (IIPP) which addresses the hazards associated with materials handling.

Discussion: The employer in this situation conducted intermittent safety meetings, but a comprehensive safety training program did not exist. The process of planning and implementing a site-specific safety program may have assisted the employer in identifying previously unidentified hazardous conditions. Under Title 8 of the CCRs section 3203 (a)(7)(B), employers must provide training and instruction to all new employees given new job assignments for which training has not previously been received. With the implementation of a safer materials handling process, it would be important to implement a thorough training program regarding the new procedures.

References

Barclays Official California Code of Regulations, Vol. 9., Title 8, Industrial Relations. South San Francisco, CA, 1990.

Department of Labor, Occupational Safety and Health Administration. (1975). Essentials of materials handling: Safe work practices series. No. OSHA 2236. Washington, DC: Author.

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December 6, 1995

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FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM

The California Department of Health Services, in cooperation with the Public Health Institute and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations of work-related fatalities. The goal of this program, known as the California Fatality Assessment and Control Evaluation (CA/FACE), is to prevent fatal work injuries in the future. CA/FACE aims to achieve this goal by studying the work environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact. NIOSH-funded, state-based FACE programs include: Alaska, California, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Oklahoma, Oregon, Washington, West Virginia, and Wisconsin.

Additional information regarding the CA/FACE program is available from:

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