

Yardman fatally injured after struck-by beam

FACE 01-AK-005

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SUMMARY

A 34-year-old yardman was killed when he was struck-by a beam. At the time of the incident, the yardman (the victim) was working alone. He was standing on the ground next to a tiered rack used to hold build and construction materials. He had begun to cut several bands holding a bundle of laminated beams located on a rack approximately two feet above his head. As he cut the last band, three beams fell, of which one struck the top of his head. Two co-workers working nearby heard the beams strike the ground. They found the victim on the ground, but due to his massive head injuries, they did not start CPR. They went to the office and called 911. The victim was declared dead at the scene.

Based on the findings of the investigation, to prevent similar occurrences, employers should:

- **Ensure workers are capable of recognizing and avoiding hazardous situations and develop and implement a warehouse/yard training program that includes, but is not limited to, loading/unloading procedures;**
- **Ensure that warehousemen and yardmen follow prescribed work practices for loading and unloading shipments and enforce a comprehensive safety program;**
- **Ensure that all incoming freight is stored and supported properly**

INTRODUCTION

At 12:35 PM on March 28, 2001, a 34-year-old male yardman (the victim) was struck-by a beam that fell from a rack. On the same day, Alaska Department of Labor and Workforce Development (AKDOWD) notified the Alaska Division of Public Health, Section of

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Epidemiology. An investigation involving an Injury Prevention Specialist for the Alaska Department of Health and Social Services, Section of Epidemiology ensued on March 29, 2001. The incident was reviewed with company representatives and AKDOLWD officials. AKDOLWD, Alaska State Troopers, and Medical Examiner reports were requested.

The company in this incident was a contractor-based distributor of building materials since 1978. The company had 65 to 70 employees, of which 21 were employed at the incident site. At the time of the incident, the victim was employed as a yardman. He was not certified by the company as a forklift operator but had received forklift training by a previous employer. Three months prior to the incident, the victim was assigned additional duties as a truck driver. He had a current commercial driver license.

The company had a written safety program. Safety training included a review of all safety rules and procedures, use of company equipment and motor vehicles, hazard communication, emergency preparedness, and personal protective equipment. Training in yard safety was conducted on the job by a senior yardman (or yard foreman). This training addressed precautions to be used when loading and unloading materials, work practices in and around the yard, and loader/forklift training. Employees met each morning to discuss work orders, yard practices, and safety issues. Safety meetings were conducted on an "as needed" basis.

INVESTIGATION

The incident occurred in a storage yard surrounding the company building. The yard contained numerous pallets, stacks, and racks of building materials. This area was also used to load and unload materials from trucks and flatbed trailers. The surface of the yard lot was paved and appeared level and even. Weather was overcast and was not considered a factor in this incident.

When materials arrived at the storage yard, they were either stored on pallets, stacked on top of dunnage, or placed on racks. Due to their length, the 40-foot laminate beams were placed on racks. Loading onto the racks occurred either before or after metal bands were cut. Beams were

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placed on the rack without the bands cut to quickly and efficient move the materials as one unit. Bands were cut when a portion of the bound materials was needed to fill a contractor's order. Normally, this was not done until after looking around the rack and the bundle to make sure it is stable in the rack. Company yarding procedure for cutting banded materials while on a rack required at least one forklift to be used as a safeguard to prevent injury from rolling and falling materials. The forklift tines or forks were to be raised and placed under the banded materials. If the beams shifted, the forklift mast or tines would support the material.

The bundle of beams involved in this incident consisted of four 12"x5 ¼"x40' laminate beams and two 12"x3 ¼"x40' laminate beams. A 12"x5 ¼' beam weighed approximately 580 pounds; a 12"x3 ¼" beam weighed approximately 355 pounds. Each beam was covered with a plastic wrapper. Four- ¾" metal straps bound the bundle. The bundle had been stored on the rack earlier that day. However, the outer edge of the bundle overhung the rack arm by several inches, from 2 ½" to 6 ¾". The vertical supports for the rack were not in line, causing the variance in amount of overhang.

On the day of the incident, the victim went into the yard to fill a contractor's order. He parked a single forklift near the rack for use to lift the beams. Two co-workers were working nearby with a second forklift; their backs were to the victim. The victim proceeded to cut the bands securing the beams together. As he cut the last band, three beams slid from the rack, one striking his head.

His co-workers heard the noise of the beams falling to the ground and turned to look toward the victim's location. They walked to the rack and found him on the ground. The victim was unresponsive with extensive head injuries. They did not start CPR. One co-worker ran into the building to call 911. Emergency medical services arrived, and the victim was declared dead at the scene.

CAUSE OF DEATH

The medical examiner's report listed the cause of death as massive blunt trauma to the head. Post-mortem toxicology results were positive and may have been a contributing factor in this incident.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employer should ensure workers are capable of recognizing and avoiding hazardous situations and should develop and implement a warehouse/yard training program that includes, but is not limited to, loading/unloading procedures.

Discussion: While precautions are taken to secure freight during transport, warehousemen and yardmen should always inspect cargo pallets and other materials stored in tiers and stacks or on racks for slippage and collapse prior to cutting straps and unloading the materials. The cover such as a tarp should **always** be completely removed; the cover should never be used to control "whipping", which can occur when bands that are under tension are cut. Warehouse and yard employees involved in freight unloading and loading should receive specialized training in freight and warehousing safety. Training should include, but not be limited to, —

- 1) Assessing stability of materials prior to unloading
- 2) Proper use of equipment to safeguard against personal injury
- 3) Common forklift problems and solutions
- 4) Lift truck capacity and center of gravity
- 5) Safety procedures for picking up, dropping, moving, and stacking loads

Training should be documented in the employee record and include training dates, completion verification, and course content (checklist).

Recommendation #2: Employer should ensure that warehousemen and yardmen follow all prescribed work practices for loading and unloading shipments and enforce a comprehensive safety program.

Discussion: In this incident the victim did not follow prescribed work practices that required a forklift to be positioned perpendicular to the rack with its tines raised and under the material

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before the bands were cut. Warehouse and yard workers should be supervised until they have safety competency for to their assigned tasks. Workers who are unable to attain and retain their ability to accomplish tasks in a safe manner should be reassigned to another work area.

Employers should consider conducting random work site safety inspections and supervisor observations to evaluate compliance with and understanding of established safety standards and practices. While employees have the right to question the safety of any task, they are responsible for following the practices outlined by their employers safety program. In addition to specific safe practices, steps should be outlined and discussed with employees for noncompliance with an established safety program.

Recommendation #3: Employers should ensure that all incoming freight is stored and supported properly.

Discussion: In this incident the stored materials were stable on the rack as a banded unit. However, 2 to 6 inches of the banded unit overhung the rack. Warehouse and yard workers should be instructed not to allow banded units to overhang supports. If this cannot be done, then the bands should be cut while the unit is on the ground and then placed on the racks, having complete support under the materials.

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Fatality Assessment and Control Evaluation (FACE) Project

The Alaska Division of Public Health, Section of Epidemiology performs Fatality Assessment and Control Evaluation (FACE) investigations through a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR). The goal of these evaluations is to prevent fatal work injuries in the future by studying the working 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.

Additional information regarding this report is available from:

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