Wyoming FACE 93WY010
DATE: June 30, 1993

Laborer Struck by Building Materials in Wyoming

SUMMARY

A 40 year old male home builder died from injuries suffered while he and two co-workers were attempting to unload sheets of steel siding off a truck by means of a crane. The stack of outer sheet steel was being lifted by attaching a truck-mounted crane to two nylon straps that were placed around each end of the 20' stack. When the crane began lifting, it appeared that the load was uneven, so it was lowered back onto the truck bed and the straps were re-positioned. As it was then lifted off the truck bed, the longer of the two straps was run through a clevis on the end of the shorter strap, and then attached by the sewn loop of the strap to the hook of the crane hoist. The longer strap broke at the point where it held the edge of the metal stack, allowing the sheets to twist and fall, striking the victim in the chest. The loose end of the stack then fell on top of the victim, bounced, and came to rest on his left leg. Emergency responders were called and CPR was attempted at the scene prior to the ambulance arrival. The victim was taken by ambulance to a nearby hospital where he was pronounced dead on arrival.

Employers may be able to minimize the potential for occurrence of this type of incident through the following precautions:

- **Provide safety incentives that are at least as effective as time incentives for work completion**
- **Inspect rigging equipment more frequently to determine any imperfections in advance of use**
- **Establish and strictly enforce alcohol use policies for all workers handling dangerous materials**

INTRODUCTION

In the early evening of May 28, 1993 a home builder, working with two other members of a construction company at the site of a new commercial building construction, was helping to unload a shipment of outer sheet steel from a trailer. The driver of the trailer and the victim were at opposite ends of the stack as it was being lifted. One co-worker was operating the crane, and the other co-worker was attaching the stack to the crane by means of two nylon straps that were wrapped around the two ends of the stack.

The crane operator had visual oversight of the operation and was in a position to verbally communicate with all other workers. A second worker was positioned on the flatbed, applying the rigging to the materials that were being lifted from the truck and lowered to the ground. The victim and a third co-worker were on the ground beside the flatbed, manually guiding the load as it was lowered to insure proper placement on the ground. Several I-beams had been off-loaded prior to the incident, and the rigging materials had then been attached to a stack of sheetmetal which was approximately 3' x 15' and

weighing approximately ¾ ton. Wooden slabs had been banded to the sheets at approximately 3' intervals, lifting the stack high enough for two nylon slings to be attached. The slings (one 10' long and one 20' long) where then formed into a basket hitch with the longer sling looped through the eye of the shorter one and then attached to the crane hook at a position at the center of the load. The victim was guiding the materials near the shorter sling and his co-worker was guiding the materials near the longer end of the nylon sling.

After the first stack had been lowered to the ground, a decision was made to re-lift the stack. During the re-rigging and lifting, the load became unbalanced, causing the load to shift and the longer sling to slip off the board support onto the sharp edge of the sheet metal. As the strap broke, one side of the load fell to the ground, causing the higher end to swing. The sheet metal struck the victim in the chest, knocking him down, and came to rest on top of him.

INVESTIGATION

Through a reciprocal notification agreement with the Director of the Occupational Safety and Health Division of the Department of Employment, the WY-Wyoming FACE Project was notified of this incident on the morning of June 2, 1993. On notification, the Project Coordi-nator requested and received information from business, medical, and law enforcement sources and began an investigation into the contributors to this incident.

The victim had worked for the company since its inception less than two years before the incident occurred. He was considered by his employees to be both knowledgeable regarding the construction trade, and safety conscious. He was the sole employee of the two-owner company, and was directly supervised by the owners on site.

The incident occurred as the workers were preparing for the Memorial Day weekend. Materials had to be unloaded so that the truck driver could return to his home base in another state. A truck-mounted crane had been leased by the building contractor to use in unloading the materials, and was being operated by one of the two company owners. The co-owner of the construction company was on the flatbed truck rigging the materials so that they could be lifted from the truck and lowered to the ground.

The rigging materials consisted of two nylon slings that were wrapped around the sheet metal and then attached to the crane hook. The straps (slings) were of different lengths and widths. One was approximately 2½" wide by 20' long and the other was 4" wide by 10' long. Each strap was wrapped around the stack and looped through a metal eye. Then the longer strap was looped through the eye of the shorter strap and attached to the crane hook equidistant from the two ends to insure balance.

The stack of sheet metal siding pieces had been lifted from the truck bed and lowered to the ground, but it was determined that the stack should be lifted and reset. The workers then re-rigged the load and the crane lifted it from the ground with the workers using their hands to guide and prevent the load from swinging as it was being lifted and reset.

While being lifted the load was unbalanced, causing a load shift with the heavier side being away from the victim and attached by the longer of the two straps. As the load shifted, the strap slipped off the board support underneath the strap and the sharp end of the sheet metal came in contact with the nylon sling. The combination of weight and movement resulted in a slicing action that cut through the nylon

strap, allowing the heavier end to drop to the ground and the lighter end to swing in a bouncing movement. The lighter end swung toward the victim, striking him in the chest and causing him to stumble and fall backwards. The load thenbounced onto him, coming to rest primarily on his left leg.

The other three workers quickly lifted the materials off the victim and one of the workers ran to a nearby building to call for help while the other two attempted to administer CPR to the victim. First responders arrived at the scene within minutes and determined that the victim was not breathing and had no pulse. Ambulance personnel assumed respiration activities on arrival and transported the victim to a local hospital where he was pronounced dead on arrival. Despite attempts to revive the victim at the scene and in route to the hospital, it appears that he died instantly from being struck in the chest by the swinging materials.

The investigating law enforcement officer, who was the first responder noted the odor of alcohol on the victim's breath, and requested a post-mortem blood test. Test results showed a minimal concentration of 0.02% ethyl alcohol. None of the other workers were tested in the absence of probable cause, and co-workers said that there had been no drinking within their presence or knowledge.

CAUSE OF DEATH

The Medical Examiner listed the cause of death as Massive Chest Injuries.

RECOMMENDATIONS/DISCUSSION

This incident could have been prevented by taking greater care in attaching the slings to the load. Whenever a load has sharp edges (as this one did) that could cause damage to the sling, that edge should be padded. Unbalanced loads are subject to shifting, as this one did, and should not be raised while off-balance.

Two additional factors were involved in this incident which do not seem to have contributed significantly to the occurrence, but which should be consciously avoided in order to minimize probability of injury in any future incidents of this type. The following two paragraphs discuss those factors.

The incident occurred in the early evening prior to a long holiday weekend. Under those circumstances, there would logically be an eagerness to complete the task quickly so that the driver of the truck could return to his home base (which was out of state) for the three-day weekend.

The presence of alcohol in the blood stream of the victim, even at low levels, and the odor of alcohol on his breath, indicate that an alcoholic beverage had been consumed prior to the task having been conducted. While co-workers did not appear to have been drinking and under questioning that there had been no alcohol consumption by anyone in their presence or to their knowledge, it is apparent that some alcohol had been consumed by the victim some time prior to his involvement in this incident. The effects of alcohol consumption can be lingering and can result (many hours after consumption) in slowed reaction or reduced concentration.

FATAL ACCIDENT CIRCUMSTANCES AND EPIDEMIOLOGY (Wyoming FACE) PROJECT

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatal Accident Circumstances and Epidemiology (Wyoming FACE) investigations when a participating state reports an occupational fatality and requests technical assistance. 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.

States participating in this study include: Kentucky, Maryland, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

NIOSH Funded/State-based Wyoming FACE Projects providing surveillance and intervention capabilities to show a measurable reduction in workplace fatalities include: Alaska, California, Colorado, Georgia, Indiana, Iowa, Massachusetts, New Jersey, Minnesota, Missouri, Wisconsin and Wyoming.

Additional information regarding this report is available from:

Wyoming Occupational Fatality Analysis Program
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Cheyenne, WY 82002
(307) 777-5439

Please use information listed on the Contact Sheet on the NIOSH FACE web site to contact In-house FACE program personnel regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.