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**TO:** Director, National Institute for Occupational Safety and Health

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

**SUBJECT:** Stunt Woman Dies after Performing a 44 Foot Jump from a Building in California

***SUMMARY*****CALIFORNIA FACE REPORT: #94CA018****February 21, 1997**

A 28-year-old female stunt woman (the victim) died after jumping 44 feet in a backward fall from a building during the filming of a movie. The victim was considered to be an experienced stunt woman although she had not performed a backward fall rehearsal jump at this site. This maneuver required that the victim fall backwards off the side of the building, turn over in mid-air, and finally land on an air bag. She pushed off from the side of the building, landed on a corner of the air bag, bounced off it, and struck her head on the asphalt surrounding the air bag. The air bag that was used was designed for heights no greater than 40 feet. It also required three to five feet of space surrounding it to allow for adequate venting and deflation. Because of space limitations, one side of the air bag was positioned against the building from which the victim jumped, leaving three and one-half feet of space on the opposite side of the bag. In addition, the building and asphalt adjacent to the air bag were not padded. The employer assigned four persons to act as ground spotters with a fifth located on the roof with the victim. The CA/FACE investigator concluded that in order to prevent similar future occurrences, employers should:

- use air bags that are adequate for the height of the jump being performed, and ensure that they are properly positioned and set-up.
- conduct supervised practice sessions, under controlled situations, to ensure that the stunt person is capable of performing the designated activity.
- ensure that employees, including stunt persons, are qualified for the tasks they are performing.
- ensure that structures surrounding air bags such as buildings, curbs, and asphalt, are padded in the event a person misses the target or bounces off the bag.

## INTRODUCTION

On November 14, 1994, a 28-year-old stunt woman (the victim) died following a jump from a building on November 3, 1994, where a movie production company was filming. The CA/FACE investigator was informed of this incident on December 2, 1994 by a safety engineer from the California Division of Occupational Safety & Health (Cal/OSHA). The CA/FACE investigator jointly interviewed family members with Cal/OSHA staff, but a site location investigation was not conducted. Copies of the Cal/OSHA report, the Cal/OSHA Bureau of Investigations report, the coroner's autopsy report, and the Fire Department training bulletin for air rescue cushions were obtained by the CA/FACE investigator. Information was also obtained from the air bag manufacturer, and news reports.

The employer in this incident is a movie production company who employs about 3,000 persons. The employer declined to be interviewed or complete the data collection instrument pertaining to falls, so limited information regarding the employer is available.

## INVESTIGATION

The victim was attempting a 44 foot jump from the side of a building. An air bag was placed between the building from which the victim was jumping and another building located across a fifteen and a half foot alleyway. The air bag was 12 feet wide, 15 feet long, and 6 feet high when inflated, with a 22 inch square target in the middle of the cushion. The target identified where the victim was supposed to land.

The victim acted as a stunt double on a regular basis for one of the actresses in this film. She was contacted approximately three weeks prior to the scheduled stunt and was asked to review the script. She was requested to perform two stunt jumps, a 10 foot jump into a car, and a 44 foot jump onto the air bag. At that point, the stunt coordinator instructed the victim to begin practicing for the event. The victim practiced her craft regularly with other stunt persons at a training site where she worked on trampolines, air bags, and telephone poles.

Two days prior to the event, the victim visited the location and discussed the particulars of the stunt with the stunt coordinator. At that point, the stunt coordinator stated that the victim was instructed to initiate the jump from a "sit down" position so that she did not miss the target. He stated that he also instructed her not to push off from the side of the building. On November 2, 1994, the victim successfully performed the 10 foot stunt jump into the car at approximately 5:00 p.m.

On the day of the incident, the victim and the stunt coordinator met at approximately 3:00 p.m. in preparation for the 6:00 p.m. stunt. The alleyway was cleared of debris. Plywood was laid down and the air bag was positioned on top of the plywood. The air bag was placed with its length parallel to the building in an east-west direction. The air bag was inflated to check its position. The victim checked the air bag from the roof and from the ground. After the air bag was checked, it was deflated and a spotter/stunt person guarded the bag until the scene was to be

filmed. The victim then proceeded to make-up and wardrobe. No sandbag or dummy drop test was performed, nor was any practice jump attempted from any height. In addition, the structures surrounding the air bag (e.g., the building and asphalt) were not padded.

At approximately 6:18 p.m. on the day of the incident, the victim jumped from a foot hold known as an angle iron, which was approximately three inches wide and two feet long, to the air bag located on the ground below. Just prior to the jump, the victim asked the stunt coordinator if she could do a face forward jump. After the stunt coordinator consulted with the director, she was told that this was not possible and that a full backfall was to be performed.

A safety spotter was assigned to the roof from which she jumped. The victim was wearing a harness to protect her from falling prior to the jump. There were four spotters on the ground surrounding the air bag. A stunt person/spotter was located at the northeast corner. A second spotter was located at the southeast corner. The third spotter was a cameraman. The stunt coordinator operated the fan which inflates the air bag. No information regarding the position of the stunt coordinator and cameraman could be obtained.

The stunt coordinator stated that he reminded the victim to sit down and not to push off. The victim performed a jump known as a backward fall. This jump involved falling backwards from the side of the building, turning over in midair, and landing on the air bag. Several witnesses observed that the victim pushed off from the building, bending her knees and jumping up and out. This action apparently caused her to miss the intended target and land on a corner of the air bag. Her head and shoulders then bounced off the bag onto the asphalt. Some witnesses stated that the bag jumped when the victim landed. Others stated that it made a slapping sound.

The air bag was immediately deflated by the stunt coordinator. An on-site nurse evaluated the victim and found her to be unresponsive. Medical personnel cleared and maintained the victim's airway, monitored vital signs, and immobilized the victim. No on-site ambulance was present. Paramedics were summoned at 6:23 p.m. and arrived at 6:29 p.m. They found the victim with her shoulders at the edge of the air bag and her head on the asphalt. She was transported to the hospital where she expired on November 14, 1994.

## **CAUSE OF DEATH**

The Coroner's Autopsy Report stated the cause of death to be contusions of the brain due to blunt force injuries to the head.

## **RECOMMENDATIONS/DISCUSSION**

**Recommendation #1: Employers should use air bags that are adequate for the height of the jump being performed, and ensure that they are properly positioned and set-up.**

Discussion: According to the manufacturer's guidelines, the air bag used in this incident was designed for falls of 40 feet or less, although according to some witnesses, this air bag had

been used for jumps as high as 70 feet. The stunt jump in this situation was performed from a height of 44 feet. The manufacturer's guidelines recommend that three to five feet be provided around the air bag on all sides to allow for adequate venting. Space restrictions only allowed for adequate venting on three of the four sides of the air bag. Consequently, when the victim landed on the air bag, it did not adequately deflate. The victim bounced off the bag hitting her head and shoulders on the asphalt.

The air bag used in this situation was of an improper size. In addition, the site was inadequate because the dimensions of the alleyway restricted both the position of the air bag and the required venting space. When evaluating filming locations, employers should thoroughly evaluate safety equipment and the physical characteristics of the site which may affect use of such equipment. In this situation, had the air bag specifications and the physical characteristics of the site been fully evaluated, the employer would have concluded that the air bag was insufficient for the height of the jump and that the configuration of the alleyway would decrease air bag deflation.

**Recommendation #2: Employers should conduct supervised practice sessions, under controlled situations, to ensure that the stunt person is capable of performing the designated activity.**

Discussion: In this situation, the victim performed a 44 foot backfall jump without the benefit of any practice jump at this location. She was somewhat familiar with the maneuver, having performed this jump in practice sessions at a training facility. However, she had never practiced this maneuver at the filming site under the same conditions. Practice jumps at varying heights would have assisted the victim in familiarizing herself with both the jump and the production site environment. Had supervised practice jumps been conducted, the employer may have been able to identify problems associated with this stunt such as inadequate venting, jumping technique, or inexperience. Had problems been identified, adjustments could have been made in the air bag placement, and additional practice jumps could have been arranged. At a minimum, a sandbag or dummy drop test should have been performed. Had these steps been taken, this fatality may not have occurred.

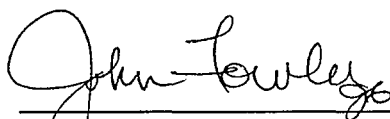
**Recommendation #3: Employers should ensure that employees, including stunt persons, are properly prepared for the tasks they are performing.**

Discussion: In this situation, the victim was generally experienced in stunt work. However, according to several witnesses, just prior to the stunt, the victim requested to do an alternative type of jump. Her concern regarding the jump should have alerted the employer to the fact that the victim was uncomfortable with this stunt, despite the confident demeanor that the stunt coordinator stated she displayed. Her request may have pointed to a need for more

preparation time, additional training, and/or some adjustment in the equipment. Practice jumps may have increased the victim's skill and confidence with this maneuver. In addition, had the employer recognized the victim's concern, the victim could have performed a similar jump that may have provided the same visual effect as the backward fall. If the victim performed a jump with which she was more familiar, she may have landed correctly, in spite of the improper positioning and specifications of the air bag.

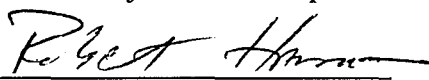
**Recommendation #4: Employers should assure that structures surrounding air bags such as buildings, curbs, and asphalt, are padded in the event a person misses the target.**

Discussion: It is common practice in the entertainment industry to pad potentially harmful structures that are adjacent to areas where a stunt is being performed. In this situation, the structures surrounding the air bag were not padded. When the victim bounced off the air bag, she hit her head and shoulders on the asphalt. Although it is unknown if padding alone would have prevented this fatality from occurring, it may have lessened the severity of her injuries.

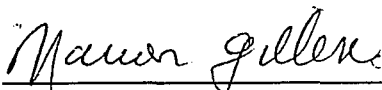


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California FACE Report #094018



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### **FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM**

The California Department of Health Services, in cooperation with the California Public Health Foundation, and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations on 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, Colorado, Georgia, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, Wisconsin, and Wyoming.

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

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