

# **WORKER DEATHS BY FALLS**

## **A Summary of Surveillance Findings and Investigative Case Reports**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
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Telephone number: 1-800-35-NIOSH (1-800-356-4674)  
E-mail: [pubstaft@cdc.gov](mailto:pubstaft@cdc.gov)

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## FOREWORD

Many American workers, regardless of industry or occupation, are exposed to fall hazards daily during performance of their job tasks. This monograph describes the magnitude of the problem of occupational falls in the U.S., identifies potential risk factors for fatal injury, and provides recommendations for developing effective safety programs to reduce the risk of fatal falls.

This monograph summarizes surveillance data and investigative reports of fatal work-related falls from elevations. The surveillance data were derived from the National Traumatic Occupational Fatalities (NTOF) surveillance system maintained by the National Institute for Occupational Safety and Health (NIOSH). The NTOF data are based on death certificates for workers aged 16 years or older who died from traumatic injuries in the workplace. The fatality investigations were conducted as part of the NIOSH Fatality Assessment and Control Evaluation (FACE) program, a research program for the identification and investigation of fatal occupational injuries. The goal of the FACE program is to collect information on factors that may have contributed to occupational fatalities, using an epidemiologic approach, and to develop and disseminate recommendations for prevention of similar incidents in the future.

Based on the NTOF surveillance data, falls from elevations were the fourth leading cause of occupational fatalities from 1980 through 1994. The 8,102 deaths due to falls from elevations accounted for 10% of all fatalities and an average of 540 deaths per year. Between 1982 and 1997, NIOSH investigated 90 falls incidents which resulted in 91 fatalities.

Part I of this monograph provides an overview of fall hazards in the workplace, a summary of the epidemiology of fatal occupational falls, and recommended elements for an effective safety program for the prevention of falls in the workplace. Part II contains case summaries and prevention recommendations from all 90 FACE fall investigation reports prepared by NIOSH for further information and reference.

This monograph reviews what is known about occupational fatalities due to falls from elevations, identifies common risk factors and exposures, and recommends general approaches to preventing these fatal events. Our hope is that this document will serve as a valuable resource for safety and public health professionals, safety and health trainers, and researchers, prompting further injury prevention efforts to reduce fatal falls in the workplace.

Linda Rosenstock, M.D., M.P.H.  
Director, National Institute for  
Occupational Safety and Health

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David Fosbroke, DSR

### ***Technical Review***

Marion Gillen, University of California at San Francisco, San Francisco, California  
Wayne J. Lundstrom, Center for Rural Emergency Medicine, Morgantown, West Virginia  
James C. Helmkamp, Center for Rural Emergency Medicine, Morgantown, West Virginia  
Thomas A. Broderick, Construction Safety Council, Hillside, Illinois  
Barbara Bielaski, OSHA, Washington, D.C.

### ***NIOSH Technical Review***

Charles S. Hayden II, DART  
Cynthia F. Robinson, DSHEFS  
Paula L. Grubb, DART  
Jerome P. Flesch, EID  
Philip Jajosky, DRDS  
Nancy Bollinger, HELD  
Charles Vaught, PRL  
Timothy Pizatella, DSR  
Ted Pettit, DSR  
David Fosbroke, DSR

### ***Word Processing and Document Preparation***

Teresa L. Dalton, DSR  
Charles Wolfe, DSR

### ***Graphic and Document Layout***

Joyce R. Spiker, DSR

### ***Editorial Review***

Paul R. Keane, DSR  
Herbert I. Linn, DSR

### ***Cover Design***

Herbert I. Linn, DSR



## **PUBLIC HEALTH SUMMARY**

### **What are the hazards?**

Based on data from the NIOSH National Traumatic Occupational Fatalities (NTOF) surveillance system, falls from elevations were the fourth leading cause of workplace death from 1980 through 1994. The 8,102 deaths due to falls from elevations accounted for 10% of all occupational fatalities during this period and an average of 540 deaths per year.

### **How can a worker be exposed or put at risk?**

Falls from elevation hazards are present at most every jobsite, and many workers are exposed to these hazards daily. Any walking/working surface could be a potential fall hazard. An unprotected side or edge which is 6 feet (1.8m) or more above a lower level should be protected from falling by the use of a guardrail system, safety net system, or personal fall arrest system. These hazardous exposures exist in many forms, and can be as seemingly innocuous as a changing a light bulb from a step ladder to something as high-risk as connecting bolts on high steel at 200 feet in the air.

### **What recommendations has the federal government made to protect workers' health?**

The Occupational Safety and Health Administration (OSHA) sets forth requirements and criteria for fall protection in construction workplaces in Subpart M, Fall Protection, 29 CFR 1926.500 to 1926.503.

Subpart M provides the basic standards for all fall protection systems and for mandatory employee training in fall hazards. It also sets forth the circumstances in which an employer may provide a fall protection plan in place of conventional systems and provides an example of such a plan in one of the five non-mandatory appendices to the section.

Fall protection is also covered in other parts of the construction standards. Requirements for specific operations are covered in Subpart L-Scaffolding; Subpart N-Cranes, Derricks, Hoists, Elevators, and Conveyors; Subpart R-Steel Erection; Subpart S-Underground Construction, Caissons, Cofferdams and Compressed Air; Subpart V-Power Transmission and Distribution; and Subpart X-Stairways and Ladders.

Subpart D of the General Industry Standards, Walking and Working Surfaces, Sections 1910.21 to 1910.32, deals with the basic elements of workplace—floor and wall openings, stairs, ladders, scaffolding, and with one of the most basic safety practices, good housekeeping.

### **Where can more information be found?**

The references included in this document provide a useful inventory of published reports and literature. Additional information from NIOSH can be obtained by calling the following number:

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| 1-800-35-NIOSH<br>(800-356-4674) |
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