



Hospital Employee Clearing Snow Killed When His Skid-Steer Loader Broke Through a Ventilation Grate Located in a Sidewalk - Massachusetts

Background: Many property owners and municipalities now use skid-steer loaders to clear snow from and sweep sidewalks as an efficient way to complete these tasks. One concern is that older grate systems may have been built to load capacity requirements that may not support heavier loads, such as skid-steer loaders, on sidewalks. In addition, older grates may have corroded structural supports that are not visible without performing structural inspections.



Incident: An auto mechanic for a local hospital was fatally injured when the skid-steer loader he was operating to clear snow during a blizzard broke through a ventilation shaft grate located in a sidewalk. The victim and the skid-steer loader fell approximately 20 feet to the bottom of the ventilation shaft. The force of the skid-steer load hitting the bottom of the shaft caused the victim's head to strike the back of the operator's seat. The victim was in the ventilation shaft for approximately two hours before co-workers discovered him. The grate and connecting shaft were originally constructed as part of a ventilation system for a transformer. At the time of the incident, the grate and connecting shaft were no longer being used for their original function, but had been incorporated into the heating, ventilation, and air conditioning system for the hospital. It was determined after the incident that some of the bolts that held the grate's supporting structure were corroded.

Recommendations

To prevent similar incidents, employers, property owners, and municipalities with sidewalk and roadway grates on their property should:

- know the intended load capacities for the grates
- maintain current engineering drawings for the grates that reflect "as built" conditions
- check cities or towns for local regulations and building codes that pertain to grate systems and heavy equipment use on sidewalks
- have registered professional engineers conduct routine structural inspections of the grates
- develop preventive maintenance schedules for the grates
- consider redesigning grate systems that currently lack redundant supporting mechanisms
- explore the possibility of eliminating or reducing the size of older grates when the original function of the system that the grate was part of has been eliminated, changed, or updated
- develop, implement and enforce communication protocols, such as routine personnel checks every 30 minutes via radio or in person, to enhance safety of employees who are assigned to tasks that involve working alone in extreme weather conditions

References:

Code of Federal Regulations, 29 CFR 1910.22 General requirements, Government Printing Office
Code of Federal Regulations, 29 CFR 1910.23 Guarding floor and wall openings and holes, Government Printing Office
United States Department of Labor, Occupational Safety and Health Administration, Safety and Health Information Bulletins, Hazard of Potential Sidewalk Grate System Failure, SHIB 12-30-2004. <http://www.osha.gov/dts/shib/shib123004.html>



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The Massachusetts Department of Public Health, in cooperation with the National Institute for Occupational Safety and Health, conducts investigations of fatal work related injuries and occasionally serious non fatal injuries. The project, known as FACE (Fatality Assessment and Control Evaluation), seeks to identify the factors that contribute to these occupational injuries. The FACE Project will help in the development and use of improved safety measures for preventing occupational injuries in the future.

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