



UPDATE

Construction Worker Safety

Spring is upon us, and every year at this time, we can expect certain things to happen. Flowers bloom, birds sing, and animals bear their young. Tragically, we have come to expect another event with the arrival of spring; in regions where seasonal change denotes increased construction activity, the season typically associated with rebirth all too frequently brings death. Construction is one of the nation's most hazardous occupations, with an annual work-related fatality rate that is over three times the rate for all industry sectors. For the approximately 7 million people currently employed as construction workers, simply going to work each day can be a risky venture.

Trench Cave-ins

One of the preventable hazards of construction work is the danger of trench cave-ins. Researchers at the National Institute for Occupational Safety and Health (NIOSH) estimate that approximately 70 workers die in trench cave-in disasters each year, as the walls of excavation tunnels collapse, covering them with soil and/or bringing down objects upon them. During the 9 year period from 1980 to 1988, NIOSH researchers identified 627 trench cave-in fatalities, with construction workers accounting for 77 percent of these deaths.

Causes

Several factors contribute to trench cave-ins, each of which should be addressed when considering proper precautions to be taken to protect workers. For example, soil stability is related to soil type and may be affected by changes in weather. In the spring, unshored trench walls, heavy from rain, can become unstable. Also, when damp soil is exposed to air during excavation, it can dry out and lose the ability to stand on its own, increasing the risk that it will slide into the trench. Other factors, such as proximity to highways, large machinery, backfilled areas or existing structures, can affect soil stability as well.

Prevention

To prevent trench cave-ins, sides of excavations can be shored using timber or other materials to ensure that the earth does not collapse on workers who must enter them. Sides can be sloped to reduce the "overburden" (weight and pressure exerted by large amounts of soil on the sides). Also shield or trench box systems are manufactured for protecting workers in excavations or can be



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designed by qualified engineers. Currently, companies doing excavation work in which employees are exposed to danger from moving ground are required by the Occupational Safety and Health Administration (OSHA) to either slope the sides of excavation walls, use an adequate shoring system (as determined by a qualified engineer), or by equivalent means, such as engineer-designed sheeting or bracing. In addition to the OSHA standards, recommended precautions can be found in a document entitled, "Development of Draft Construction Safety Standards for Excavations." The document, published jointly by the National Institute of Standards and Technology (formerly the National Bureau of Standards) and NIOSH, presents a simplified system for determining proper prevention measures.

Additional Hazards

Excavation cave-ins are not the only threats to the safety of construction workers. Workers also face hazards associated with working at heights, working with heavy machinery, manually handling materials, and working around sources of electricity, such as overhead powerlines.

Construction fatalities and injuries must not be accepted as an inevitable annual occurrence. Caution must be taken whenever workers are exposed to life-threatening hazards. Injuries and deaths can be prevented if employers and employees are aware of the hazards they face and make sure that proper precautions are taken.

For further information regarding the hazards and precautions associated with these or other construction hazards, call toll-free:

1-800-35-NIOSH

The NIOSH toll free information system provides convenient access to NIOSH and its information resources. Callers may request information about NIOSH activities and/or any aspect of occupational safety and health.

To order copies of "Development of Draft Construction Safety Standards for Excavations," write to:

**The National Technical Information Service
Springfield, VA 22161**

Specify publication number PB-86-121-415 when ordering. The cost per copy is \$26.00.