Excavation for Construction - Confined Space

The OSHA definition of a confined or enclosed space for construction activities is: (1) limited means of getting out, and (2) is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere [(1926.21(b)(6)].

Normally excavations are not considered confined spaces, they are enclosed areas but are usually subject to natural ventilation. You do not find reference to confined spaces in the excavation rule.

**Hazardous Atmospheres**

However, you do find reference to hazardous atmospheres. Under this provision, a competent person must test excavations where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen), or a hazardous atmosphere:

- Exists, or
- Could reasonably be expected to exist.

The atmospheres in the excavation must be tested before employees enter excavations greater than four feet deep.

Adequate precaution must be taken to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of its lower flammable limit.

Excavations that could raise a red flag as “could reasonably be expected to exist” are excavations in landfill areas, areas where hazardous substances are stored nearby, hazardous waste cleanup sites, trenches next to roads on which traffic is flowing (exhaust may allow carbon monoxide build-up), and underground storage tank digs.

**Engineering Controls**

If hazardous conditions exist, controls such as proper respiratory protection or ventilation must be provided. Ventilation is probably the best and most effective method of abating a hazardous atmosphere. In numerous places throughout the OSHA regulations it says you must engineer or administrate out hazardous atmospheres before resorting to respiratory protection.

When controls such as ventilation are used to reduce atmospheric contaminants to acceptable levels, the atmosphere must be tested as necessary to ensure it remains safe.

**Rescue Operations**

Where adverse atmospheric conditions may exist or develop in an excavation, the employer must provide and ensure that emergency rescue equipment (e.g., breathing apparatus, a safety harness and line, basket stretcher, etc.) is readily available. This equipment must be attended when used.

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Employee Training

No specific training is mentioned in the Excavation Standard for employees. There is, however, a number of places where “implied” training is required for competent persons and engineers.

Of course, in accordance with the “general” training reference for all construction workers, 1926.21(b)(2), employees must be trained to recognize and avoid unsafe conditions and the regulations applicable to his work environment to control or eliminate the hazards. This is especially true for trenching and shoring activities.

Training Tips

Dwell on what makes an excavation a confined space—hazardous atmospheres. Most excavations do not have a limited means of egress. Evaluate your excavation sites. Are they subject to adverse atmospheric conditions existing or developing?

Where To Go For More Information

Regulatory text: 29 CFR 1926.650-.652

Regulatory text 29 CFR 1926.21(b)(2)—Safety training and education, employer responsibility