Excavation Safety

جامعة الملك عبدالله للعلوم والتقنية
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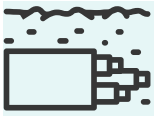
Health, Safety and Environment

An excavation can be defined as any man-made cut, cavity, trench or depression in the Earth's surface formed by earth removal. A trench is defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater than its width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).

Key Hazards

• While working on excavations the most critical hazard relates to the soil caving in or excavation collapsing. One cubic yard of soil can weigh as much as a car.



• The underground area where the excavation is being done can have utility lines of varying types and degrees running through them. Striking these lines while excavating have adverse safety consequences.

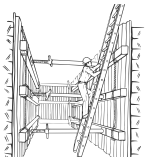
• People, plant & machinery working/moving near excavations are exposed to fall hazards.

• Material stored close to the excavation present a falling object risk for personnel working within the excavation.

• Excavations pose a risk of containing hazardous atmospheres consisting of toxic or flammable gases. Apart from the possibility of hazardous atmospheres being present within the excavation there is also a risk of depleted levels of oxygen.

• Plant & machinery moving near the excavation increases the risk of the excavation collapsing.

Cave – in Protection



Shoring/Shielding: Support the sides of the excavation or place a shield between the excavation side and the work area.

Sloping: Angle the edges of the excavation. The angle of the edges is dependent on the soil type. Complete a test of the soil of the area.

Benching: The edge of the excavation is arranged in a stepped manner.

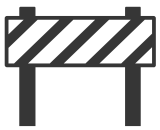
Underground Utility Lines

Survey: Survey the area for any utility markers, collaborate with area Proponents to understand if any lines pass through the area.

Scan: Use suitable equipment and scan the area which is planned to be excavated for any underground utility lines.

Trail Pit: Manually excavate a trial pit to determine the presence of any utility lines.

Working within Excavations



Fall Protection: Ensure that the edges of the excavation are suitably and adequately barricaded, and warning signages/lights are installed. Limit the movement of heavy machinery near the excavation.

Material Storage: Ensure that no material is stored near the edge of the excavation. Excavated soil to be kept at a minimum of 2 ft from the edge of the excavation.

Working Atmosphere: Undertake gas testing to ensure that the working atmosphere within the excavation is not hazardous.