Trenching

Hazard: Trench collapses cause dozens of fatalities and hundreds of injuries each year. Trenching deaths rose in 2003.

Solutions:
• Never enter an unprotected trench.
• Always use a protective system for trenches 5 feet deep or greater.
• Employ a registered professional engineer to design a protective system for trenches 20 feet deep or greater.

Protective Systems:

- Sloping to protect workers by cutting back the trench wall at an angle inclined away from the excavation not steeper than a height/depth ratio of 11/ 2 :1, according to the sloping requirements for the type of soil.
- Shoring to protect workers by installing supports to prevent soil movement for trenches that do not exceed 20 feet in depth.
- Shielding to protect workers by using trench boxes or other types of supports to prevent soil cave-ins.
- Always provide a way to exit a trench—such as a ladder, stairway or ramp--no more than 25 feet of lateral travel for employees in the trench.
- Keep spoils at least two feet back from the edge of a trench.
- Make sure that trenches are inspected by a competent person prior to entry and after any hazard-increasing event such as a rainstorm, vibrations or excessive surcharge loads.

SLOPING. Maximum allowable slopes for excavations less than 20 ft. (6.09 m) based on soil type and angle to the horizontal are as follows:

Stable Rock Vertical 90º (granite or sandstone)
Type A 3/ 4 :1 53º (clay)
Type B 1:1 45º (gravel, silt)
Type C 11/ 2:1 34º (sand)
Type A (short-term) 1/ 2:1 63º (For a maximum excavation depth of 12 ft.)