



Company _____ Job Name _____ Date _____

Weekly Tool Box Talk: **Trenching and Excavation**

A trench is referred to as a narrow excavation in which the depth is greater than the width, although the width is not greater than 15 feet. An excavation is any man made cavity or depression in the earth's surface. This can include excavations for anything from cellars to highways. Current OSHA regulations require that all excavations over 5 feet deep be sloped, shored, sheeted, braced or otherwise supported. When soil conditions are unstable, excavations shallower than 5 feet also must be sloped, supported or shored. You may have heard the term: Angle of Repose. This is a method of ensuring safety in an excavation or trench by sloping the sides of the cut, to the angel of repose which is the angle closest to the perpendicular at which the soil will remain at rest. The angle of repose varies with different kinds of soil and must be determined on each individual project. Generally, a qualified engineer must determine the proper angle of repose for the specific type of soil condition.

A second method of support is shoring-sheeting, tightly placed timber shores, bracing, trench jacks, piles or other materials installed in a manner strong enough to resist the pressures surrounding the excavation. Contractors may also use a trench box, which is a prefabricated movable trench shield composed of steel plates welded to a heavy steel frame. A trench box may be used as long as the protection it provides is equal to or greater than the protection that would be provided by the appropriate shoring system.

Whatever support system is used, workers should always apply shoring starting from the top of the trench or excavation and working down. In installing the shoring, care must be taken to place the cross beams or trench jacks in true horizontal position and to space them vertically at appropriate intervals. These braces also must be secured to prevent sliding, falling or kickouts. Installing the shoring should closely follow the excavation work. It's dangerous to allow trenches to remain unshored even if no work is being done in them. Dirt walls will slough off, causing dangerous overhangs. The longer a trench is left unsupported, the greater the chance of a cave in. In some cases, the contractor will have to guard against an unstable excavation bottom, such as below the water line. Sheetting may have to be driven below the bottom of such an excavation to add to the soil stability.

In case of an emergency, workers must be able to leave the trench quickly. When employees are required to be in trenches 4 feet deep or more, adequate means of exit, such as a ladder or steps, shall be provided and located so as to require no more than 25 feet lateral travel. Ladders must be in good condition, extend from the floor of the trench to 3 feet above the top of the excavation and be secured at the top.

As soon as the work is completed, the trench should be backfilled as the shoring is dismantled. After the trench has been cleared, workers should remove the shoring from the bottom up, taking care to release jacks or braces slowly. In unstable soil, ropes should be used to pull out the jacks or braces from above.

Safety Recommendations: _____

Job Specific Topics: _____

M.S.D.S. Reviewed: _____

Attended By: _____

