



TOOL BOX TALKS

Angle Of Repose

Before you get started:

There are five basic safety tips that apply to the whole industry. If you practice these five tips, you could make a difference.

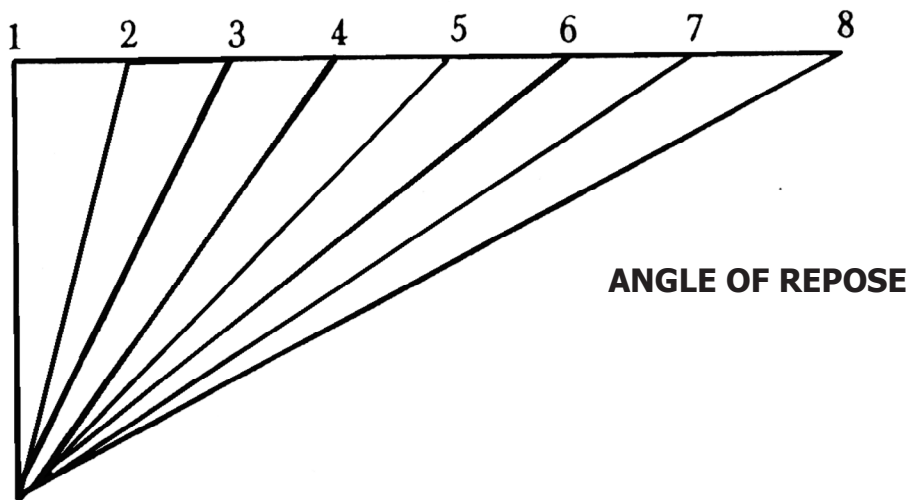
- KNOW YOUR JOB.
- BE ALERT.
- EXPECT THE UNEXPECTED.
- USE GOOD JUDGEMENT.
- ALWAYS THINK SAFETY.

These tool box talks have been designed to include all of the information your company should be able to include in a five minute session. MITA suggests that you document this activity with the sign-in sheet that has been provided and keep it on file for future reference.

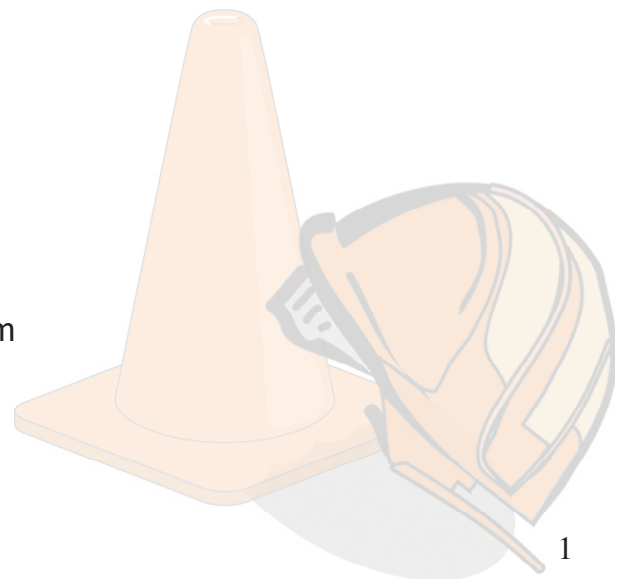
The three "S"s of excavation safety are shielding, shoring, and sloping. The angle of repose refers to the amount of sloping required for safe entry into a trench without using a trench shield or other method of protection.

The angle of repose is a major focus of a MIOSHA inspection because of the potential threat a trench poses to employees. When is the last time your crew determined if the excavation at hand met the proper angle of repose by means other than a visual check?

The angle of repose is determined by using a penetrometer to calculate the tons per square foot (TSF) of an excavation's walls. This TSF reading is then correlated to one of the following soil conditions:



1. Solid Rock Formation (90°)
2. Fractured Rock Formation (75°) 1/4:1
3. Stiff Clay (63°) 1/2:1; 2.5 TSF minimum
4. Firm Clay (56°) 2/3:1; 1.5 TSF minimum
5. Granular Soil - Dry (45°) 1:1; 1.0 TSF minimum
6. Granular Soil - Wet (34°) 1 1/2: 1, < 1.0 TSF
7. Saturated Granular Soil (26°) 2:1
8. Running Soil (18°) 3:1





TOOL BOX TALKS

Angle Of Repose

If the angle required for safe sloping cannot be met due to surface obstructions such as sidewalks and roads, an alternate method must be used. This can be accomplished with shielding and shoring used by itself or in combination with sloping.

The MITA Trench Safety Handbook offers step by step instructions for calculating the angle of repose. Incorporating the practice of calculating the angle of repose will ensure MIOSHA compliance and employee safety.

Your employer is an equal opportunity employer and as such welcomes applications from qualified female and minority applicants.

