

Trench Digging

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Digging trenches is one of the oldest types of work with both construction and excavating. Prior to World War 2, trenches were dug by hand. As workers dug the trenches deeper, the sides needed to be shored or supported, to keep the walls of the trench from caving in.

Following the World War, several innovations were made in backhoes, and trench digging seemed to fade away as a profession. By 1950, hydraulically actuated backhoes were developed, which make it possible to rapidly dig very deep trenches. Resulting from the innovations with backhoes, and because there were no workers inside digging the trenches, the walls no longer needed to be shored.

All types of trenches have what's known as a stand up time. This time is the amount of time that elapses from the time the ditch is dug until the time the trench walls start to collapse. The stand up time is dependant on many factors, which include the type of soil, water content, trench depth, weather conditions, and whether or not the soil has been disturbed.

The stand up time can be as short as zero seconds or as long as several months, as they are very difficult to predict. Before the trench can be dug, someone must take soil samples as way of estimating the stand up time. Keep in mind that the soil conditions can be dramatically different only a few feet from where the sample of the soil was taken.

After the trench has been dug, workers will go down into the trench, and perform whatever work is needed, such as laying pipe or installing telephone lines, welding pipe, or installing valves. If the trench walls aren't supported, there is the possibility of the walls collapsing and trapping the workers in the trench. Throughout history, there have been 100 - 300 people killed in the U.S. each year due to trenches collapsing.

The public has become very aware that industrial progress will often have negative side effects as well. The place of engineers protecting the public from these types of side effects is a very controversial issue. The use of trench boxes on the site, will help to ease this debate.

The trench box, also called a trench shield, may be placed in the trench to prevent failures from injuring workers. The trench box consists of two large plates, normally made from steel, which are parallel to the walls of the trench, and horizontal cross members which will hold the two plates apart.

The lower edge of the trench box rests at the

bottom of the trench, with the top edge of the box extending above the top of the trench. The workers will stay between the plates of the trench box, so that if the trench does collapse, the dirt will be stopped by the outside of the trench box. As the work progresses, the trench box is pulled along in the trench with a backhoe or other machine.

When a project calls for a large excavation such as digging the foundation for a tall building, the supporting structure for the excavated walls will be specified in the plans. The big problem with not using trench boxes occurs in cities, when water or sewer lines are being installed or repaired. The engineer doesn't specify for the trench box in the plans, but instead leaves it up to the contractor.

Anytime you are going to be digging trenches or working in them, you should always use common sense and take your time. Trenches can be very deadly, especially if trench boxes aren't used. To be on the safe side, you should always use a trench box if you need to be in the trench. If you don't need to be in the trench - do the smart thing and let the machines do all of the work.