

Working inside of trenches and excavations is very dangerous. According to recent fatal injury statistics (BLS.gov) workers die on the job every year when they are caught in an excavation or trench cave-in.

This topic is designed to help workers recognize some of the specific safety requirements that are needed for cave-in protection.

- The first rule is to **Never enter an unprotected trench or excavation!**
- All excavations and trenches must be inspected by a Competent Person before workers enter them.
- Excavations more than 5 feet deep must have cave-in protection.

OSHA Standard 1926.652(a)(1) *Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section except when: (i) Excavations are made entirely in stable rock; (ii) Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.*



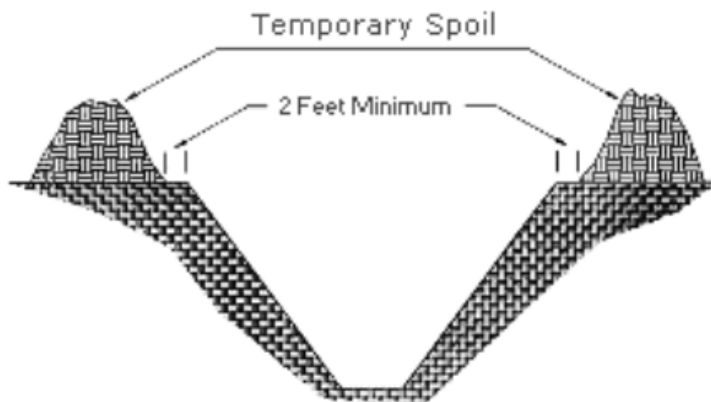
Man in unprotected excavation installing septic tank. Serious cave-in hazards exist in this situation. (*1)

EXCAVATION SAFETY || Cave-in Protection

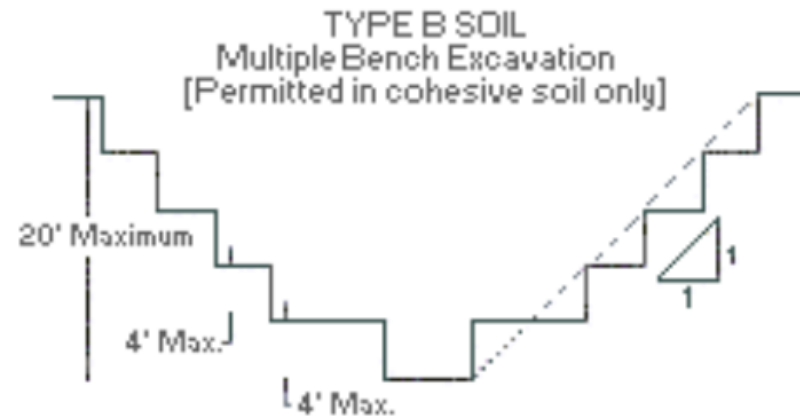
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Before workers enter an excavation or trench it must be inspected by a Competent Person and there must be protection from cave-in. Cave-in protection could be provided using any of the systems mentioned below:

- "Sloping (Sloping system)" excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins.
- "Benching (Benching system)" excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.
- "Shoring (Shoring system)" a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.
- "Trench box or trench shield (Shield system)" means a structure that is able to withstand a cave-in and protect workers inside the shield or box.



Examples of sloping. (*2)



Examples of benching. (*3)

- Trench shoring is an option for certain types of soil conditions and excavations and must be installed by trained personnel following the manufacturer's specifications.



*Example of standing above a system of hydraulic shores. (*4)*

*Example of workers inside of a timber shoring system. (*5)*



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- Trench boxes or trench shields are an option for almost all soil conditions and excavations and must be installed by trained personnel following the manufacturer's specifications.



*Example of trench boxes set inside of this excavation. Note that a ladder is not set up for safe entry at the time the photo was taken. (*6)*

Remember these tips to improve excavation safety:

- **Never enter an unprotected trench or excavation!**
- All excavations and trenches must be inspected by a Competent Person before workers enter them.
- Excavations more than 5 feet deep must have cave-in protection.
- Trench shoring is an option for certain types of soil conditions and excavations and must be installed by trained personnel following the manufacturer's specifications.
- Trench boxes or trench shields are an option for almost all soil conditions and excavations and must be installed by trained personnel following the manufacturer's specifications.
- A safe way to enter the excavation or trench is required when it is 4' or deeper.



*Hydraulic shoring system installed in this long trench. Note the ladders set up less than 25' apart and extending 3' above the excavation side as required by OSHA regulations. (*7)*

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