



## CONCRETE-REBAR TRADE CONCRETE CUTTING

### PROJECT OVERVIEW

A new office tower was under construction over an existing parking garage.

A near catastrophe was avoided during a concrete cutting process.

**The new office tower added a pedestrian bridge connecting it to the existing office tower.**

- Much planning and coordination went into setting the new bridge over an active drive lane serving the existing tower. The project focus and energy were on the pedestrian bridge rigging and setting activity scheduled for a Saturday.

### CONCRETE SLAB CUTTING INCIDENT

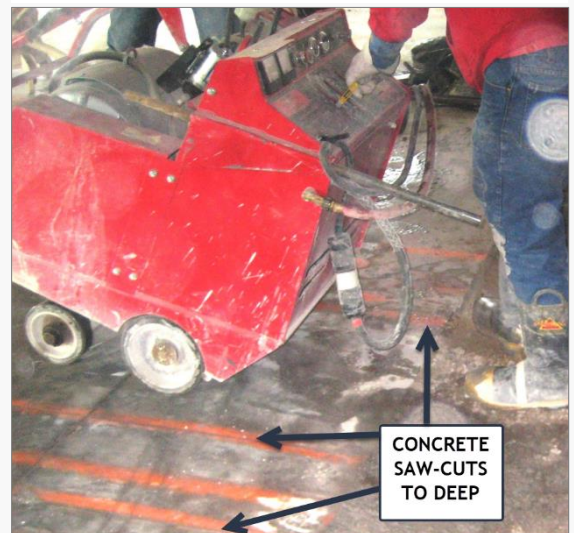
**Concrete slab cutting activity was also planned and scheduled for the same Saturday.**

- This other activity was to perform concrete slab saw-cutting of a 10 x 10 square foot area for a future elevator hoist way in the existing parking garage.
- Task planning with the General Contractor (GC) and demolition contractor occurred several days prior, establishing key requirements that must be adhered to.
- An X-ray of the slab successfully located the Post Tension (PT) cables.
- Because the cutting was very close to the PT cables, the cutting blade must be set no deeper than 1-1/2 inches to cut only the concrete cover and chip the concrete slab to expose the PT cables.

**The Demolition Contractor did not correctly set the blade depth, cut the entire section, and severed many PT cables.**

- There was no shoring in place to support the cut concrete slab. The cutter did not look at the underside of the cut area.
- The cut was about halfway completed when this dangerous error was discovered, and the GC was called.
- The GC contacted the Structural Engineer to evaluate the situation. **The Engineer stated that shoring the underside of the cut area must be employed immediately.**
- The GC mobilized resources and had the shoring in place in hours. It took several months to correct the mistake and replace the PT cables so the concrete slab could be re-certified.

CONCRETE SAW-CUTS TO DEEP



### HOW TO AVOID THIS INCIDENT

Ensure all high-risk activity, no matter how big or small, are properly planned and supervised by the GC and subcontractors.

- Verify the subcontractors are doing their jobs by ensuring they communicate critical specifications and pre-task information with their crews before beginning work.
- The GC must provide site approval before any tasks start.
- If possible, do not schedule multiple high-risk activities on the same day.

**Trust but continually verify.**

### DISCUSSION QUESTIONS

1. Post Tension slab drilling, cutting, and coring can be incredibly dangerous. It is definitely something you want to treat very seriously. How do you protect yourself and others?
2. What roles will subcontractors carry out?
3. Are there any other major activities scheduled for the same day?

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# CONCRETE AND REBAR TRADE EXCAVATION CAVE-IN SAFETY TOOLBOX TALK

## OVERVIEW

One of the most dangerous construction jobs is working in or near trenching, which kills 40 workers a year on average.

- All construction trades can be exposed to a trenching cave-in even if you do not install products in the ground. Accessing a building site can expose anyone to many excavation sites.
- Excavation cave-in occurs when the trench walls are unstable and collapse, leaving the workers inside the trench trapped and unable to react.  
It does not take a very deep trench for the weight of the soil to crush someone and cause a fatality in just a matter of minutes.  
Therefore, it is crucial to understand the risks of working in or near an excavation zone and how to prevent a cave-in.
- **Protect yourself and your coworkers!**

## LEARN AND APPLY THE FOLLOWING

### The Hazards of a Cave-In

When working in or near excavation zones, always be aware of trench hazards such as atmospheric conditions, utility lines, trips, and falls, and be aware and take precautions against the most dangerous trench hazard, a cave-in.

- The results of workers being caught in trenches during a cave-in are shocking. Cave-ins can cause broken and crushed limbs, entrapment, suffocation, head injury, internal damage, and death in just a few minutes.

Before and during work, every excavation worker should do the following:

- Look for and know the Rock & Soil Type Stability A, B, and Cs shown below.
- Know the depth of the excavation, always observe weather conditions (frost, rain), and look for standing water inside the trench.
- Look for heavy equipment operating near excavations, barricades, and fallen or falling material and loads.

### Preventing a Cave-In

There must be a competent person on site who will inspect Excavation Zones daily.

- Excavation Zones should be re-inspected after rain and other severe weather conditions.
- Shoring equipment, such as hydraulic, vertical, or horizontal rails and trench boxes, should be used for trenches deeper than 5 feet or less than 5 feet when necessary.
- Ensure you have the correct shoring system by checking the "Tabulated Data" provided with each type of shoring.  
When in doubt, contact your supervisor or a Trench Shoring provider company.

### Concrete-Rebar Workers Should Understand the Rock & Soil Type Stability A, B, Cs

- Soil A:** Most Stable–clay, hardpan, solid rock
- Soil B:** Second Most Stable–silt, loam, unstable dry rock
- Soil C:** Least Stable–gravel, sand, previously dug soils

According to OSHA, there were 157 cave-in fatalities in the United States from 2011 to 2018 alone. All of these were preventable with protective systems, proper training, and a safety and health management system.

## DISCUSSION QUESTIONS

1. What should you inspect, verify, or correct at the "start of the day"?
2. What are the methods to prevent cave-ins?
3. What conditions increase the likelihood of cave-ins?
4. What are some key takeaways for Excavation Cave-In Safety?

Figure 1 Trench Cave-In



Figure 2 Shoring a Step-Trench



**Meeting Date:**

**Supervisor:**

**Employee Name:**