ON-SITE INSIGHT

Trench Box Edition | Issue 3

Why you need trench boxes for your trench excavations

Trench cave-ins: spot the signs

How trench boxes save lives and can help you save money



Bringing structures to life

WORTH THE RISK?

WHY YOU NEED TRENCH BOXES FOR YOUR TRENCH EXCAVATIONS

It's a staggering fact that the fatality rate for excavation work is 112% higher than the rate for general construction.¹

Excavations are one of the most hazardous types of work undertaken in the construction industry. Injuries tend to be of a very serious nature, often resulting in fatalities. The primary concern is often around cave-ins, which are more likely to be fatal to those involved than any other construction-related accidents.

Trench excavations pose a range of safety and environmental hazards to workers. Understandably, cave-ins are a particular concern, with a cubic yard of soil as heavy as a bull elephant. Should a trench wall collapse and someone be buried beneath the ground, then suffocating, crushing or at worst, fatalities are a major risk. In the Middle East, flash floods are another concern. Sudden torrential rain can be very dangerous, potentially making entering and exiting trenches extremely difficult.

WHAT ARE THE MAIN TRENCH HAZARDS?

- Trench collapse
 - Surface encumbrances, such as construction equipment, pipes, or sources of vibrations
- / Loose rock or soil
- Contact with underground services
- Material loads falling onto those working in the trench
- People and vehicles falling into the trench
- Compromising nearby structures
- Accessing and exiting the trench
- Ground water
- Accidents to members of the public if located in a busy public area
- Proximity to buildings and basements

Without proper support, trenches can be very dangerous environments.

There are many reasons why a trench wall might collapse. For example, if a trench is situated next to a busy road, any excessive loads or vibrations from passing traffic could potentially cause surcharges, compromising the walls of the trench.

Alternatively, the work might be located close to other surrounding hazards. For instance, there could be underground services – such as fibre optics, gas, water or electricity – installed very near to where the excavation work is taking place. Should a trench collapse, then this can cause real damage to these services and quickly lead to serious problems.

¹EHS Today, 'Danger in the Trenches: Excavation Shortcuts Cost Lives', https://www.ehstoday.com/construction/article/21917583/ danger-in-the-trenches-excavation-shortcuts-cost-lives

SPOT THE SIGNS

When excavating a trench, there are three key signs that could indicate a trench is at risk of caving in.



Bulging at the bottom or walls of a trench

When the soil sags and forms a bulge at the bottom of the trench, it is getting too heavy to hold itself up.



2 Tension cracks parallel to the trench walls Tension cracks that develop at the top of the excavation

allow the top to lean towards the centre of the dig. Eventually the wall will break down.

Falling materials from trench walls

Chips of soil that break off from the walls of a trench, the sliding of portions of layered soils, and the falling of fractured sections of rock are all signs that a trench wall could be about to collapse.

Worryingly, there are still many instances of excavation projects where no trench support systems are being used at all. This presents enormous health and safety risks to those working on site, with accidents often resulting in deaths.

Ultimately, without the right equipment in place to support the ground, there is a real risk to life for those working on excavation projects. This risk however, can be easily overcome by making sure earth-retaining systems such as trench boxes – are used.

WHAT IS A TRENCH BOX?

A trench box is a trench lining system, used for temporary earth-retaining structures. As the name suggests, a trench box can be used in applications requiring two-sided support, and is ideal for those seeking a simple, robust and easy-to-use system. These can be installed by the excavator with minimum assistance.

Trench boxes can meet varying depths and lengths, generally for depths of up to 5.6 metres and widths of up to 4 metres. Our range of products provide all the qualities that you would come to expect from a market-leading supplier of trench box

solutions. Fit for purpose, CE marked and high-quality, there's a reason RMD Kwikform has established itself as a leader in this field.

Once we have reviewed any geotechnical report we can then recommend the correct Trench Box solution tailored to your project. If required, we can produce the necessary back up of drawings and calculations, along with training videos, onsite training by our site engineers, and presentations showing installation and dismantle procedures.

The latest solutions can be easily adjusted to meet width and depth demands, with box panels and telescopic struts built with simple 'pin and clip' arrangements. Competitor systems often feature either a turnbuckle or circular design, which feature various parts that can be complicated to fit and can easily be misplaced. In contrast, the 'pin and clip' functionality of our systems are simple and straight-forward to use.

WHAT ARE THE BENEFITS OF **TRENCH BOXES?**

HOW DO TRENCH BOXES COMPARE WITH OTHER SYSTEMS?

ASSURED SAFETY

- 1. Provides life-saving protection to workers
- 2. Strong and well-engineered solutions
- 3. Clearly marked handling and pushing points
- 4. Tried and trusted safety systems for trench excavations



GREATER FLEXIBILITY

- 1. Robust enough to meet all trench demands
- 2. Ideal for depths of up to 5.6 metres and widths of 4 metres
- 3. Range of strut options available to meet trench width requirements
- 4. Offered with 25mm incremental adjustments



INCREASED COST SAVINGS

- 1. Fast to assemble, install and dismantle
- 2. Fine adjustments mean less excavation and less backfill, saving time
- 3. Quicker than stepping or wide excavation
- 4. Option to use in sequence for speed

EASE AND SIMPLICITY

- 1. 'Pin and clip' arrangements are easy to use
- 2. Adjusting struts is a straight-forward process
- 3. Box extensions available to meet every depth requirement up to 5.6m



When choosing a temporary earth-retaining system, there are several other options available to contractors. It quickly becomes apparent that trench boxes, however, offer the safest, speediest and most environmentally friendly solution available on the market.

	Trench Box	V Cut	Timber	Sheet Pile
Pre-Engineered	Yes	N/A	No	No
Installation Time	Low	Medium	High	High
Labour Requirements	Very Low	Low	High	High
Number of Times Used	500-600	N/A	6-8	20
Safety	High	Low	Medium	High
Resource Wastage	None	High	High	Medium

SAFETY FIRST

In a trench environment, health and safety absolutely cannot be compromised. Otherwise, there's a very high chance that workers will be injured and, potentially, killed. But with trench boxes offering a safe, flexible, cost-effective and easy means of supporting trench walls, excavation work can be undertaken with peace of mind. And when compared with other available options, they

Here, we consider how trench boxes fare against other common trench systems, assessing how each one compares against a range of key performance criteria.

continue to offer the best temporary earth-retaining solution available on the market.

For those seeking a high-performance, efficient and – most importantly – safe system, then trench boxes offer the ideal solution.

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