Construction Sector Council

Struck-by Work Group Report

NORA

Activities

- National Stand Down to Prevent Struck-by Incidents
  - Four Sessions
    - Work Zone
    - Lift Zone/Heavy Equipment
    - Dropped Objects
    - English and Spanish
  - April 11-15

STRUCK-BY WORK GROUP

CREATE A SPHERE OF SAFETY
PREVENT STRUCK-BY INCIDENTS

Activities

1. **Preventing Struck-by Incidents in Roadway Work Zones**
   - 436 live attendees; 220 on-demand views
2. **Prevención de Incidentes por Atropellos: Zonas de Trabajo, Equipos Pesados e Impacto de Objetos**
   - 41 live attendees; 34 on-demand views
3. **What's the Risk? Best Practices to Reduce the Likelihood of Struck-by Injuries from Heavy Equipment and Crane Activities**
   - 193 live attendees; 80 on-demand views
4. **Preventing Struck-by Incidents from Dropped Tools & Other Objects**
   - 183 live attendees; 202 on-demand views

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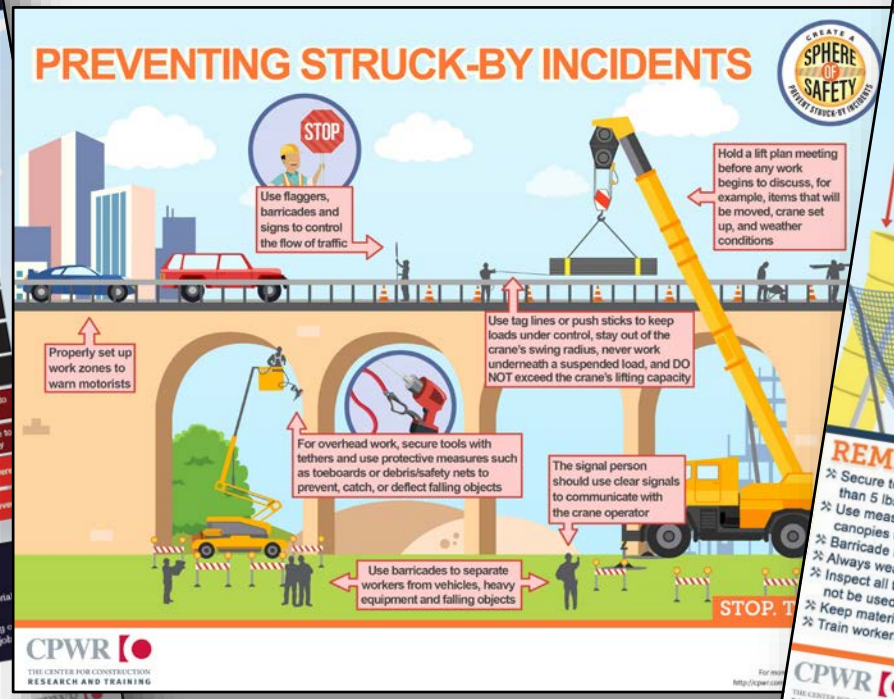
Infographics



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Toolbox Talks

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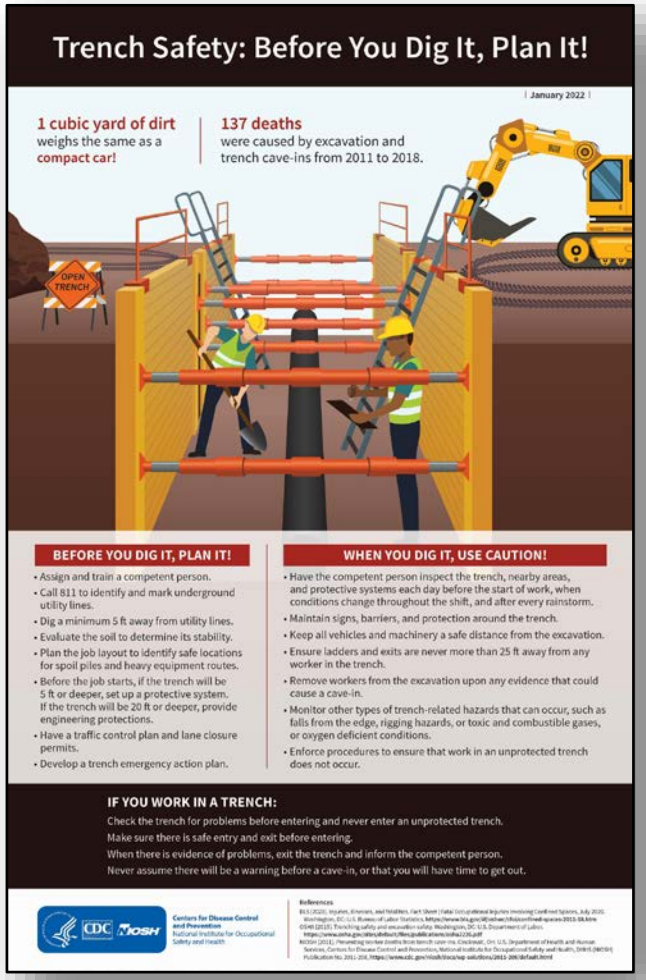
Fact Sheet



Trench Safety: Before You Dig It, Plan It!

January 2022

1 cubic yard of dirt weighs the same as a **compact car!**

137 deaths were caused by excavation and trench cave-ins from 2011 to 2018.

OPEN TRENCH

BEFORE YOU DIG IT, PLAN IT!

- Assign and train a competent person.
- Call 811 to identify and mark underground utility lines.
- Dig a minimum 5 ft away from utility lines.
- Evaluate the soil to determine its stability.
- Plan the job layout to identify safe locations for spoil piles and heavy equipment routes.
- Before the job starts, if the trench will be 5 ft or deeper, set up a protective system. If the trench will be 20 ft or deeper, provide engineering protections.
- Have a traffic control plan and lane closure permits.
- Develop a trench emergency action plan.

WHEN YOU DIG IT, USE CAUTION!

- Have the competent person inspect the trench, nearby areas, and protective systems each day before the start of work, when conditions change throughout the shift, and after every rainstorm.
- Maintain signs, barriers, and protection around the trench.
- Keep all vehicles and machinery a safe distance from the excavation.
- Ensure ladders and exits are never more than 25 ft away from any worker in the trench.
- Remove workers from the excavation upon any evidence that could cause a cave-in.
- Monitor other types of trench-related hazards that can occur, such as falls from the edge, rigging hazards, or toxic and combustible gases, or oxygen deficient conditions.
- Enforce procedures to ensure that work in an unprotected trench does not occur.

IF YOU WORK IN A TRENCH:

Check the trench for problems before entering and never enter an unprotected trench.
Make sure there is safe entry and exit before entering.
When there is evidence of problems, exit the trench and inform the competent person.
Never assume there will be a warning before a cave-in, or that you will have time to get out.

CDC NIOSH Centers for Disease Control and Prevention National Institute for Occupational Safety and Health

References

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Behavioral Economics Pilot Study

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Behavioral Economics Pilot Study

- **Conducted survey on struck-by incidents in February/March:**
- 208 respondents:
  - The majority worked for a **general or specialty trade contractor** in the **commercial sector**
  - Most were **safety and health professionals** with **more than 10 years** of experience in the construction industry
- Key findings:
  - Primary causes of struck-by injuries were **working around heavy equipment or vehicles** and **falling/flying objects from heights or on the same level**
  - Measures used most often to protect workers were **training**, **restricting access to the work area**, and **using PPE**
  - Top barriers to implementing controls for struck-by hazards were **lack of training**, **scheduling pressure/emphasis on production**, and **lack of understanding of how to address the hazard across different jobs and working conditions**

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Behavioral Economics Pilot Study

- Key findings continued:
  - The majority said their company includes strategies to prevent struck-by incidents when planning a project
  - Respondents said that **training is needed on how to identify, prevent, and conduct a job hazard analysis for struck-by hazards**, and **information is needed on what is working on other job sites** to prevent struck-by hazards
  - **Toolbox talks**, **training programs**, and **posters** were identified as the most effective ways to raise awareness and ensure safe practices
- Next steps:
  - Develop planning program
  - Recruit contractors of various sizes for pilot testing
  - Gather feedback and update the program accordingly

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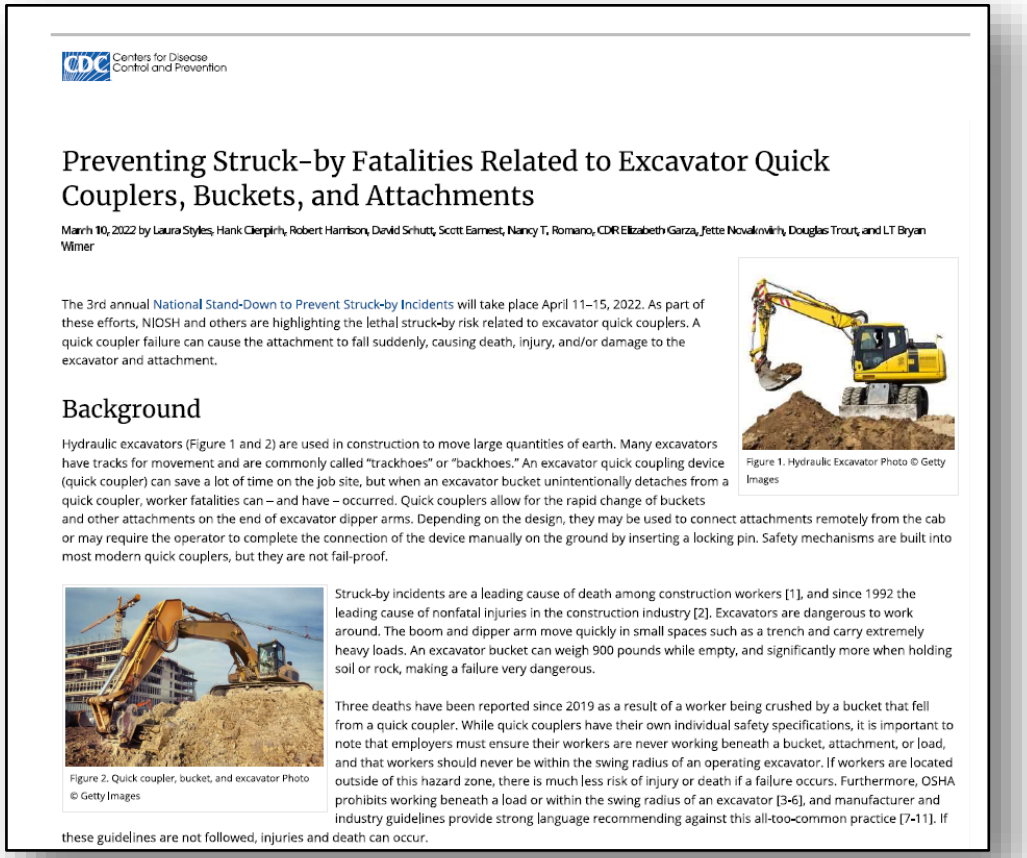
NIOSH Science Blog/California FACE Study

- Preventing Struck-by Fatalities Related to Excavator Quick Couplers, Buckets, and Attachments



Centers for Disease Control and Prevention

Preventing Struck-by Fatalities Related to Excavator Quick Couplers, Buckets, and Attachments

March 10, 2022 by Laura Styles, Hank Cierpich, Robert Harrison, David Schutt, Scott Earnest, Nancy T. Romano, CDR Elizabeth Garza, Jette Nowaknwirh, Douglas Trout, and LT Bryan Wimer

The 3rd annual National Stand-Down to Prevent Struck-by Incidents will take place April 11–15, 2022. As part of these efforts, NIOSH and others are highlighting the lethal struck-by risk related to excavator quick couplers. A quick coupler failure can cause the attachment to fall suddenly, causing death, injury, and/or damage to the excavator and attachment.

Figure 1. Hydraulic Excavator Photo © Getty Images

Background

Hydraulic excavators (Figure 1 and 2) are used in construction to move large quantities of earth. Many excavators have tracks for movement and are commonly called "trackhoes" or "backhoes." An excavator quick coupling device (quick coupler) can save a lot of time on the job site, but when an excavator bucket unintentionally detaches from a quick coupler, worker fatalities can – and have – occurred. Quick couplers allow for the rapid change of buckets and other attachments on the end of excavator dipper arms. Depending on the design, they may be used to connect attachments remotely from the cab or may require the operator to complete the connection of the device manually on the ground by inserting a locking pin. Safety mechanisms are built into most modern quick couplers, but they are not fail-proof.

Figure 2. Quick coupler, bucket, and excavator Photo © Getty Images

Struck-by incidents are a leading cause of death among construction workers [1], and since 1992 the leading cause of nonfatal injuries in the construction industry [2]. Excavators are dangerous to work around. The boom and dipper arm move quickly in small spaces such as a trench and carry extremely heavy loads. An excavator bucket can weigh 900 pounds while empty, and significantly more when holding soil or rock, making a failure very dangerous.

Three deaths have been reported since 2019 as a result of a worker being crushed by a bucket that fell from a quick coupler. While quick couplers have their own individual safety specifications, it is important to note that employers must ensure their workers are never working beneath a bucket, attachment, or load, and that workers should never be within the swing radius of an operating excavator. If workers are located outside of this hazard zone, there is much less risk of injury or death if a failure occurs. Furthermore, OSHA prohibits working beneath a load or within the swing radius of an excavator [3-6], and manufacturer and industry guidelines provide strong language recommending against this all-too-common practice [7-11]. If these guidelines are not followed, injuries and death can occur.

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What should we focus on next?

Thank you!

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