Fall Prevention in Construction

(for young workers)

INSTRUCTOR GUIDE

Developed by:
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Southeastern OTI Education Center
Raleigh, NC

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Important Small Print

The contents of this Instructor Guide and related Fall Prevention in Construction material, including methods, recommendations and interpretations of existing workplace health and safety standards practices are solely for educational purposes. No claims are made concerning the effectiveness or any method or procedure in any specific circumstance. It should be noted that no educational curriculum or training program can guarantee the safety of those who complete it, or prevent unsafe behavior that could result in injury or death. Workplace safety programs must be supported and reinforced by management, employers and supervisors. Development and testing of this curriculum was made possible by funding from the Occupational Safety and Health Administration of the U.S. Department of Labor. The contents are for public and not-for-profit use.

Goal

The goal of this curriculum is to present information to young workers (16-24) on the recognition, avoidance, abatement, and prevention of occ. safety and health hazards (falls) in their workplaces. Also, to inform young workers of their rights and employers of their responsibilities under the OSH Act.

Understanding Young Learners

- Young workers are growing in numbers!
- The injury rate for young workers under age 25 is approximately two times higher than for workers 25 years and older, based on emergency room data.
- Generally speaking, younger learners have different learning preferences, styles and needs than previous generations. Some of their preferences include:
    - Little to no lecture
    - Use of personal devices (incorporate them into activities)
    - Small bits of information
    - Instructor as a guide
    - Collaborative activities – small group work
    - Variety of learning activities
    - Short videos
    - Connecting learning to real life

Sources

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Title: Fall Prevention in Construction

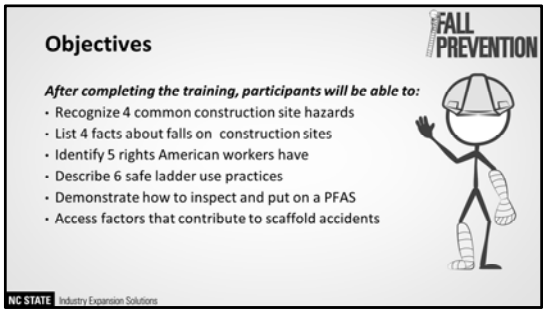
Description: This presentation was specifically designed to be used with young construction workers (ages 18-25). The training techniques were selected in an effort to enhance effectiveness with this age group by incorporating technology, micro-learning, collaboration and simplicity of design. As a trainer, you may want to add additional content.

Number of Participants: 4 - 24

Length: 2 – 2.5 Hours if presented in total. It can also be presented as separate, shorter modules.

Materials Needed:

- PowerPoint Slides
- Screen or monitor large enough for room and group size
- Internet Connection
- Audio capability (for videos)
- Cell phones, tablets or computers with access to the internet
- Ladders (optional)
- 2 – 6 Personal Fall Arrest Harnesses (optional)



Instructor Note: *Review the objectives of the course as presented on the slide.*

Script: Construction is a high hazard industry that involves a wide range of activities: residential construction, bridge erection, roadway paving, excavations, demolitions, and large scale painting jobs. Construction workers engage in many activities that may expose them to serious hazards, such as falling from rooftops, unguarded machinery, being struck by heavy construction equipment, electrocutions, silica dust, and asbestos.

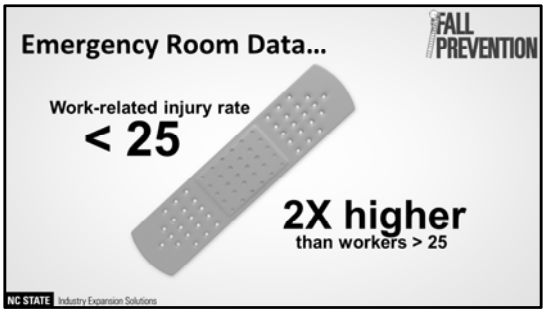
Our goal today is to spend a little time looking specifically at construction work and the risk for falls. As we get started, let's consider some facts…

Image Source: Oregon Dept of Transportation
https://commons.wikimedia.org/wiki/File:Beam_work_(7415281734).jpg

Script: The 4 most common hazards on a construction site are falls, followed by struck by object, electrocution, and caught-in/between. These "Fatal Four" were responsible for more than half (63.7%) the construction worker deaths in 2016. (BLS report)

Falls — 384 out of 991 total deaths in construction in CY 2016 (38.7%)
Struck by Object - 93 (9.4%)
Electrocutions - 82 (8.3%)
Caught-in/between* - 72 (7.3%)
(*This category includes construction workers killed when caught-in or compressed by equipment or objects, and struck, caught, or crushed in collapsing structure, equipment, or material)

Eliminating the Fatal Four would save more than 600 workers' lives in America every year.



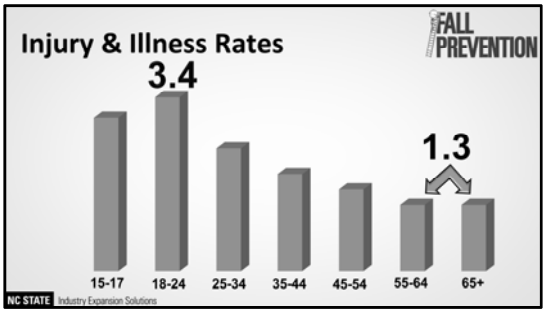
Script: When it comes to workplace injuries and illnesses, younger workers are at greater risk than older workers. Information provided on OSHA's website, indicates that in 2014, the injury rate for workers under age 25 was approximately two times higher than for workers 25 years and older, based on emergency room data.

Pose the question: Why do you think that's the case? Allow time for ideas and discussion. Possible answers could include:

- Younger workers might be doing the more physically demanding or even more dangerous tasks
- Older workers might be in the more supervisory positions.
- Older workers have more experience, have learned from their mistakes.

Instructor note: *Make sure the conversation ends with an emphasis on the fact that regardless of the reasons, younger workers experience more injuries and those injuries can impact them for the rest of their lives.*

Image Source: Presentermedia.com
https://www.presentermedia.com/index.php?target=closeup&id=2121&categoryid=133&maincat=clipart



Script: This is another way to look at the same detail – Workers aged 15-24 are approximately twice as likely to be injured on the job.

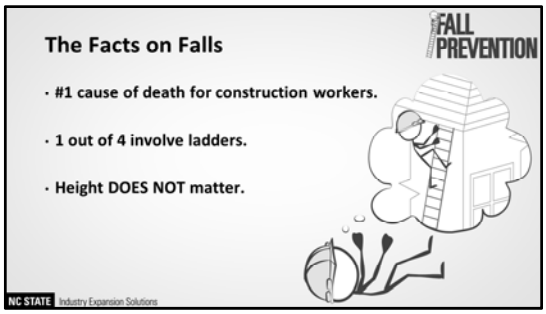
Instructor Note: *There are animations on this slide. Click to reveal numbers and arrows.*

Additional Information:

Rates of Work-Related Injuries and Illnesses Treated in Emergency Departments by Age Group, United States, 2014

This graph shows rates for work-related nonfatal injuries and illnesses treated in emergency departments by age group in the United States for 2014. The highest rate is seen for workers 18 to 24 years of age, with a rate of 3.4 injuries and illnesses per 100 fulltime equivalents. The next highest rate is seen for workers 15 to 17 years of age, with a rate of 3.0 injuries and illnesses per 100 fulltime equivalents. Rates decline for older age groups from a rate of 2.4 injuries and illnesses per 100 fulltime equivalents for workers 25 to 34 years of age to a rate of 1.3 for workers 65 years and older.(Source: National Electronic Injury Surveillance System (NEISS)- NIOSH Work Supplement.)

Script: If we look at the types of workers dying as a result of job-related accidents, we quickly discover that construction work is indeed dangerous work! One out of every 5 job-related deaths is a construction worker..



Script: And if we keep examing the data, we find that falls are the #1 cause of death for construction workers. Furthermore, ladders are partiicularly dangerous and height isn't really a factor at all.

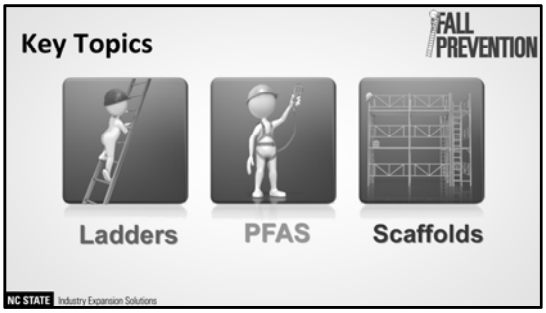
Segue: We're gonna take a look at a short video to summarize the fact that construction work is dangerous and falls are a particular concern…..

Instructor Note: *This video (1 min, 11 sec) summarizes the key points from slides 4-8. To play, click the play button (triangle) at the bottom left corner of the screen. The video is also located at: https://www.youtube.com/watch?v=SZ_S197ERDc*

Script: As we continue to explore fall hazards on construction sites, it is important that you understand that employers are required to provide a safe workplace for all American workers. In fact OSHA was created to ensure that you can feel comfortable and confident that your employer will protect you from job-related hazards. The OSH law also gives workers important rights to participate in activities to ensure their protection from job hazards.

Instructor Note: *Briefly review the list of worker rights on the screen and refer participants to the handout entitled **"Employee Responsibilities & Rights,"** for additional information.*

Image source: OSHA.gov



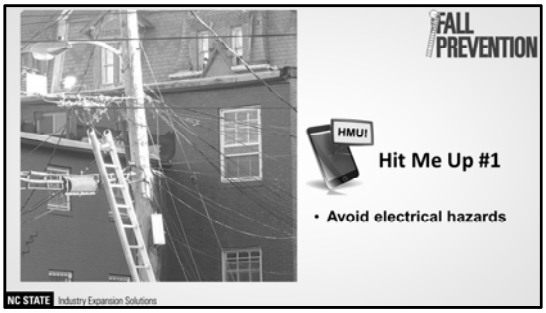
Script: Our focus for this module will be to explore the hazard of falls in construction work. We will spend tome on each of these 3 key topics:

- Ladders,
- Personal Fall Arrest Systems (PFAS), and
- Scaffolds

Module Title Slide: Ladder Safety

Script: Take out your phones (or tablets, computers) and search the internet for the phrase on the screen – "OSHA Quick Card Portable Ladder Safety PDF." You should be able to locate the OSHA Quick Card that looks like the one displayed on the screen. Once you find it, review the information. I'm going to give you 2-3 minutes to review and then we'll see if you can identify some ladder safety issues captured in some job site photos.

Instructor Note: *Including "PDF" in the search will ensure that the version of the Quick Card is one that will display nicely on their phone screens. Check in with participants to be certain everyone has found the right resource. You may want to have some hard copies of the Quick Card (provided with course materials) as a back-up for anyone who doesn't have a device or in the event the internet connection isn't working*



Script: Ok! Hit me Up! What did you see on the Quick Card that would apply to this ladder?

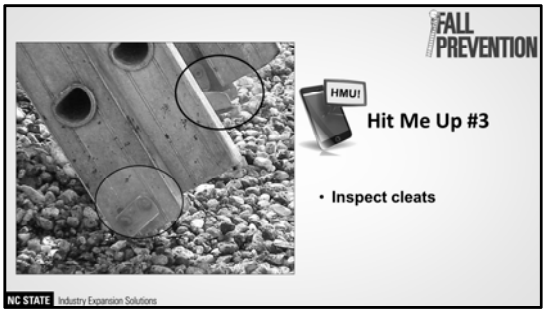
Instructor Note: *Allow time for response before clicking to reveal answer.*

Image source: https://www.flickr.com/photos/spike55151/2965564622/in/photolist-5w4i3w-8gBi7a-iGHbU2-au5PnY-9bvkyg-297QTEd-4c3u11-fLwHix-8b9sFb-bPfaHP-cUeK5G-5tVrr5-dTqHox-dnFZn1-ercAAx-qFhmN6-DcGXCQ-drKHcq-qZARw1-dombx5-pJFgsn-jqYcYf-gAySxG-pJFiqk-gAyMks-Y32FrE-au5G8J-8ZNkgt-5wEd1i-7k9GV1-WqMRaH-52ekBS-o9JGN3-rsW6RD-4UEBQP-8iYo3w-SVkApR-fLXL35-qjWPXD-dm8KJK-Vcq54s-e3UpG4-bL3rDH-4UJQJu-ecp39T-rcTiKc-8j18QD-fLPmfA-edUyxP-amZA6c

Script: Hit me Up! What did you see on the Quick Card that would apply to this ladder?

Instructor Note: *Allow time for response before clicking to reveal answer.*

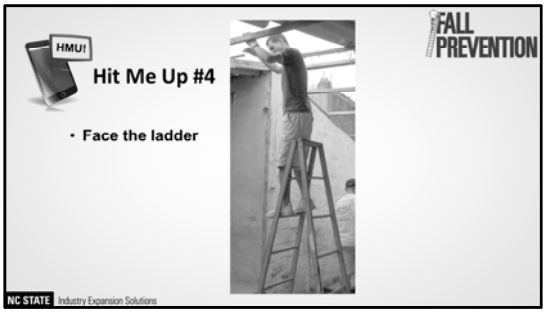
Image Source: TEEX Harwood



Script: Hit me Up! What did you see on the Quick Card that would apply to this ladder?

Instructor Note: *Allow time for response before clicking to reveal answer. The cleat highlighted in yellow is missing. The cleat highlighted in green is OK.*

Image Source: TEEX Harwood



Script: Hit me Up! What did you see on the Quick Card that would apply to this ladder?

Instructor Note: *Allow time for response before clicking to reveal answer.*

Image Source: https://upload.wikimedia.org/wikipedia/commons/0/0a/US_Navy_060814-N-4040H-002_Boatswain_Mate_2nd_Class_Randall_McNeil%2C_left_and_Hull_Technician_Fireman_Alex_Anderson%2C_right%2C_balance_on_ladders_as_they_begin_the_demolition_of_the_old_roof_over_the_kitchen_for_the_Jorge_Washingt.jpg

This Image was released by the United States Navy with the ID 060814-N-4040H-002

Script: Hit me Up! What did you see on the Quick Card that would apply to this ladder?

Instructor Note: *Allow time for response before clicking to reveal answer.*

Image Source: TEEX Harwood

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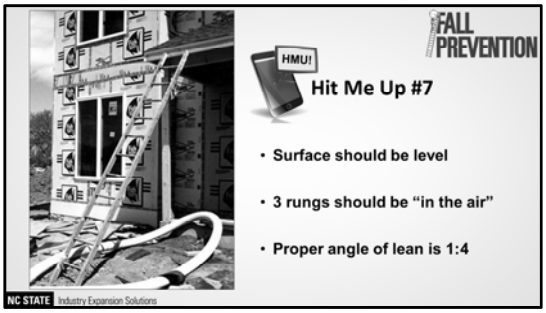
Instructor Note: *Allow time for response before clicking to reveal answer.*

Image Source: TEEX Harwood



Script: Hit me Up! What did you see on the Quick Card that would apply to this ladder?

Instructor Note: *Allow time for response before clicking to reveal answer.*

Image source: OSHA

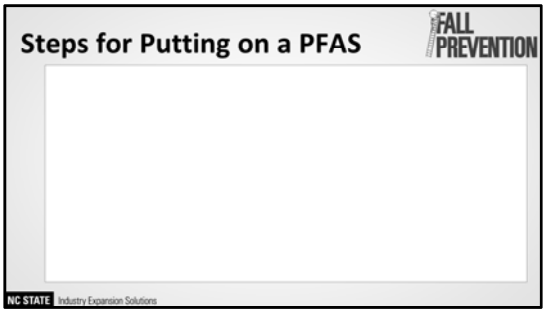
Script: On your phones you can use the app store to find the NIOSH Ladder Safety App. It provides a lot of ladder safety tips as well as a tool that you can use to measure the angle of a ladder to make sure it's set up correctly.

Instructor Note: *This video (1 min, 50 sec) summarizes some key points related to ladder safety. It is located at: https://www.youtube.com/watch?v=-MSaVKc7HAc*

Module Title Slide: Personal Fall Arrest

Script: A personal fall arrest system (PFAs) is one option of protection for workers on construction sites who are exposed to vertical drops of 6 feet or more. If you are going to rely on a PFAS to protect you from injury or even death, it is critical that you understand how to use one correctly. Using your phone, tablet or laptop, find this video on YouTube – search for "Fall Protection Tips: How to Put on Your Harness." It should look like the image on the phone displayed on the screen. Take a look at this quick demonstration.

Instructor Note: *If you have access to PFASs distribute them to small groups and have them practice putting on a harness as described in the video.*
This video (1 min, 26 sec) summarizes and demonstrate the steps for correctly putting on a PFAS. It is located at: https://www.youtube.com/watch?v=u0mz9cd7Ym4&t=2s
Image Source: Presenter Media



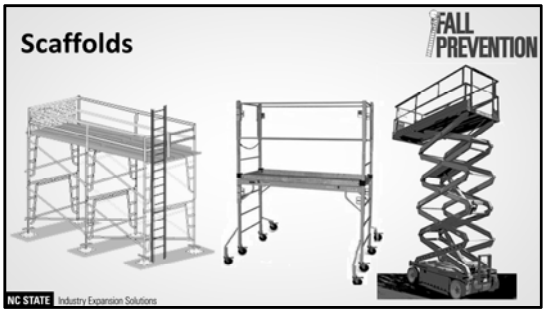
Script: Based on the video, what are the steps for putting on a PFAS?

Instructor Note: *This slide is designed so that you can type participant responses into the text box. Click inside the box and you can type their responses (in the same way you might write their responses on an easel pad). When you are finished, simply click outside of the text box to advance to the next slide. If you are not able to use the active slide text box, you can capture responses on a flipchart or whiteboard.*

Here are the steps presented in the video.

- *Pick up the harness by the D-ring*
- *Shake it out*
- *Inspect it (webbing, stiches, hardware, tags)*
- *Put it on over your shoulders*
- *Center the D-ring between shoulder blades*
- *Fasten the chest strap*
- *Pull leg straps around each thigh*
- *Adjust shoulder straps to be snug*
- *Adjust chest strap – snug and comfortable*

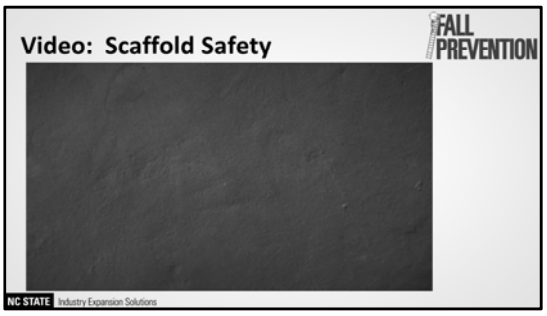
Module Title Slide: Scaffold Safety



Script: A scaffold is an elevated, temporary work platform.. They are regularly used on all types of construction job sites and every year dozens of workers die and hundreds more are injured as a result of falls from scaffolds. Scaffolds come in a variety of shapes and sizes. Some of the most common include:

- Supported Scaffolds
- Mobile Scaffolds
- Scissor lifts and aerial lifts can also be considered a type of scaffold.

Image Source: OSHA.gov



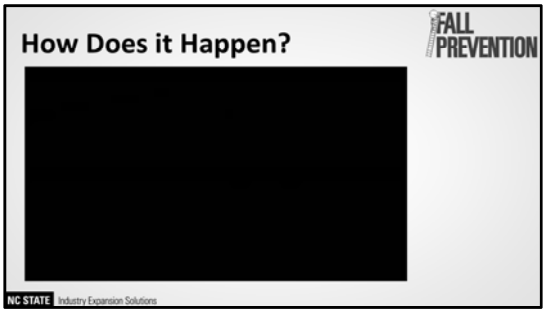
Script: We are going talk about some of the things that can go wrong with scaffolding and result in accidents, injures and even death. As we begin, let's take look at another quick video that provides some basic scaffold safety information.

Instructor Note: *This video (approx. 2 min) summarizes some key points related to scaffold safety. It is located at: https://www.youtube.com/watch?v=adCS7uhbXEw*

Script: Let's take a look at some "real life" scaffold accidents that resulted in worker fatalities. Take out your phones and follow the instructions on the screen. This is will take you to a list of workplace accidents involving scaffolds. As you scroll through the list, do you see anything that surprises you?

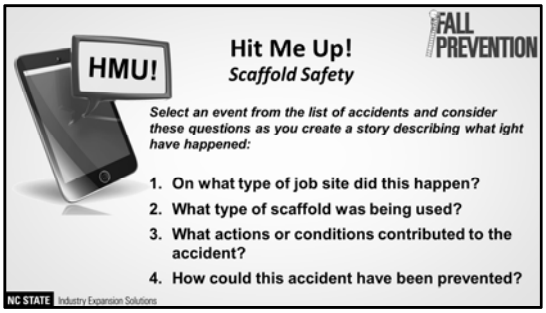
Instructor Note: *The Information Icon at the bottom of the screen is linked to the search results that participants should be seeing on their devices. You may want to pull it up as the class discusses what they are seeing. Be mindful that this list is dynamic and will change as OSHA updates the investigated cases, therefore the cases listed may be different from class to class.*

URL for OSHA's Scaffold Accident Search:
https://www.osha.gov/pls/imis/AccidentSearch.search?acc_keyword=%22Scaffold%22&keyword_list=on



Script: This quick video reviews a scaffold accident that resulted in a worker's death. It walks through some of the details that were discovered in the accident investigation. After the video, I want you to work with a partner (or 2), select one of the accidents on the list we were just looking at, and discuss how it could have happened – more on that later, for now let's look at an example of how scaffold accidents happen.

Instructor Note: *This video (approx. 3 min) reviews the details that were factors in a particular scaffolding accident. It is located at: https://www.osha.gov/dts/vtools/construction/scaffolding_fnl_eng_web.html and is available in English and Spanish*



Script: Take out your phones (or tablets, computers) and go back to the Accident Search we were just looking at. In groups of 2-4, select one of the accidents from the list and work together to create a story that might explain what happened. If you click on "Summary Nr" more information is often provided. The questions on the screen will help guide your discussion. I'm going to give you about 10 min to develop your story and then each group will have an opportunity to share.

Instructor Note: *This activity is meant to encourage participants to imagine the types of factors that could have contributed to the accident. Some groups may need encouragement or idea prompts. Ensure them that you are not looking for a "right" answer…..you just want to get them to think about the types of things that could go wrong . Also -- there is an optional worksheet with the discussion questions included in the course materials. You may elect to use the worksheet to help groups organize their stories about what might have happened.*

Script: In summary – Construction work is dangerous work and falling is a big concern. Every worker should be trained on how to recognize fall hazards and protect themselves through the correct use of equipment, including ladders, fall arrest systems and scaffolds.

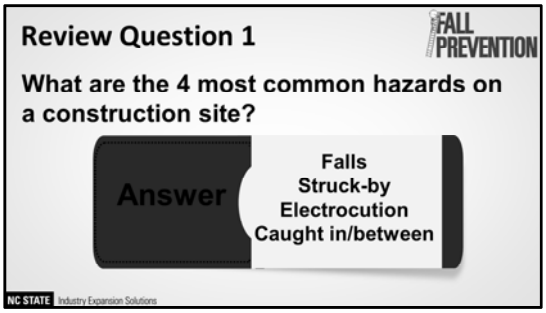
Segue: Let's review some key points with some questions.

Instructor Note: *You may want to use the following review questions as either a more formal quiz or a more engaging (and competitive) game.*

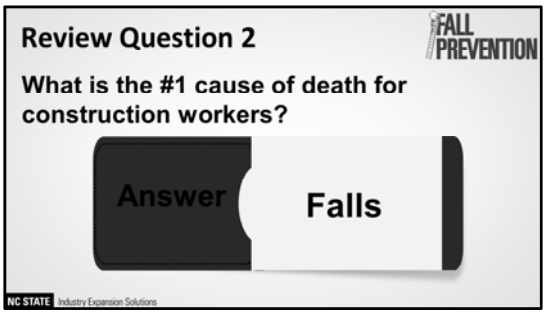
Image Source: Oregon Dept of Transporatation
https://commons.wikimedia.org/wiki/File:Beam_work_(7415281734).jpg

Module Title Slide: Review

Image Source: Presenter Media



Instructor Note: *Read the question, allow time for response and click the word "Answer" to reveal the correct answer.*



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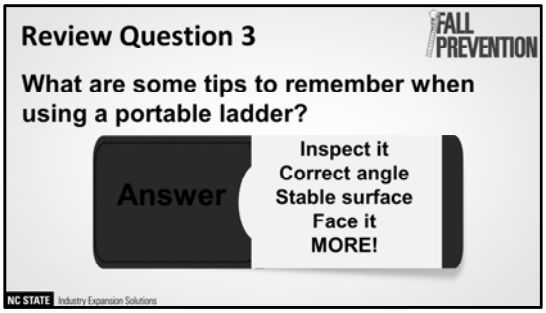

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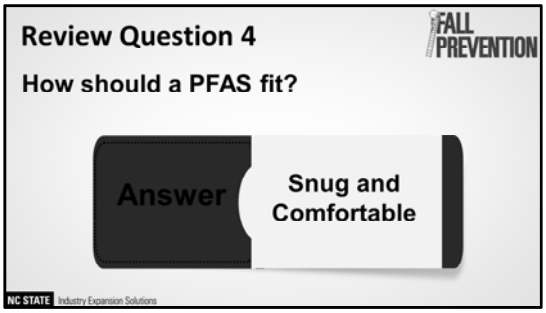

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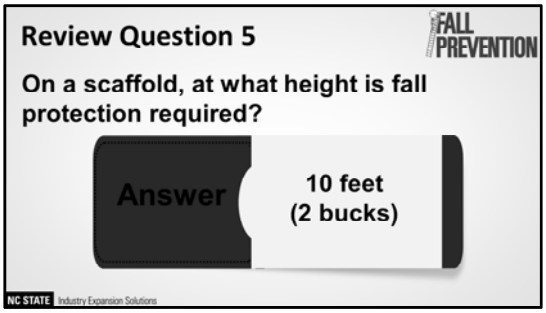

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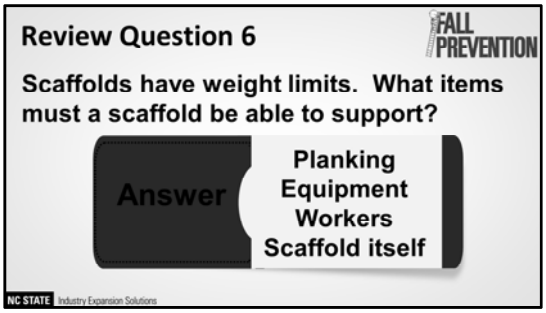

Instructor Note: *Read the question, allow time for response and click the word "Answer" to reveal the correct answer.*