WALKING AND WORKING SURFACES IN CONSTRUCTION ENVIRONMENTS

COURSE OUTLINE

- **Construction work usually involves creating or improving structures... and sometimes tearing them down!**
  - And unlike in other work environments, this means that you're often in areas that are liable to be pretty rough.
  - This can be because they haven't been improved yet, or are unfinished.

- **There may be no floors in place.**
  - The ground you walk across may be uneven, rocky or muddy.

- **Often you're outside, where rain, snow and ice can make the footing dangerous.**
  - Especially when you have to climb onto or off of equipment, scaffolding or other structures.

- **In conditions like these, you should give your feet a solid grip with a pair of tough work boots with nonslip soles.**
  - The traction they provide can help you avoid slipping or falling.

- **Your work also naturally creates different types of debris.**
  - Just about anything that comes between the soles of your boots and the ground can cause a slip.

- **Types of debris include...**
  - Cardboard or discarded packing material.
  - Dry substances such as sawdust, metal shavings and dirt.
  - Liquids like water and oil.
  - Grease.

- **Trips are caused by objects that get in front of your foot unexpectedly, like...**
  - Scrap lumber.
  - Masonry.
  - Empty pallets.
  - Power cords.

- **But these hazards can be avoided with good housekeeping.**
  - So keep walking and working surfaces as clean and dry as possible and free of obstructions.

- **You need to watch out for wood and other debris with nails or staples sticking out too.**
  - They can punch right through your boots unless they have steel sole inserts to deflect punctures.
  - Steel toes can help protect your feet as well.

- **Some hazards like ditches or open pits you can't just clean up or put away.**
  - And falling into one of these could ruin your day.

- **In unfinished structures, holes in floors and walls can be dangerous too.**
  - To be safe, these hazards need to be covered, or surrounded by a railing.
  - This is called "guarding", and can be very effective).

- **With all that's going on at floor level, getting safely from point A to point B in a busy workplace can often be a challenge.**
  - In addition to the folks who are "just passing through", you can have people working, equipment running, and materials being moved.
  - All of which can create a lot of hazards.

- **It's important for pathways to be clearly defined so everyone knows where it's safe to walk.**
  - Make sure to keep these areas free of clutter and obstructions as well.

- **Large "holes" like openings for stairways or ladders are big enough for you to fall through.**
  - And they have an odd way of appearing at just the wrong time.

- **Guarding large openings with a "standard" railing will help to keep people safe.**
  - This consists of a top rail 42 inches high, with a midrail half that height, and vertical uprights to support them.
  - Installing these types of barriers around the perimeter of an opening will help to keep people safe.

- **Tools and materials can also fall through holes or other openings and injure the people below.**
  - Falling objects that land in machinery or on energized equipment can also become secondary hazards.

- **"Toeboards" should be added to railings wherever falling objects could be a problem.**
  - These barriers along the floor must be at least 3 and a half inches tall, and guard the edges of openings so that tools and materials can't go "overboard".

- **Openings in walls can pose just as great a hazard as those in floors.**
  - In fact, OSHA requires that wall openings which are big enough for someone to fall through and drop more than four feet must have barriers installed across them.

- **"Catwalks" and other open-sided platforms are another potential fall hazard.**
  - If you lose your balance near the edge of one of these, there's nothing to keep you from falling off unless railings have been put up.

- **Regulations require standard railings to be installed whenever platforms and catwalks are four feet or more off the ground.**
  - To protect people or equipment beneath these platforms, toeboards must also be installed.
  - Regardless of their height, all platforms must be fully guarded when they are above or next to dangerous equipment.

- **Slipping, tripping and falling down or off of stairs is always a serious problem.**
  - It can be especially dangerous on a construction site, where you may be carrying tools or materials, or where there might be equipment operating nearby.

- **90% of "stairway falls" result from the unsafe behavior of the people that use them.**
  - If you run on stairs, skip steps or carry things that are so big you can't see where you're putting your feet, you're likely to fall sooner or later.

- **There are some requirements stairs must meet that minimize the risk of a slip, trip or fall.**
  - For example, because most accidents are likely to occur on stairs with uneven steps or other irregularities, riser height and tread depth must be uniform.

- **And all stairways with four or more steps must also be guarded with…**
  - Hand rails fastened to a wall.
  - Stairway rails supported by uprights.

- **To be effective, these railings must be 30 to 34 inches above the surface of the stair tread.**
  - The hand rails must have at least 3 inches of clearance around them, so you can get a good grip.

- **Stairs with broken or missing treads need to be fixed immediately.**
  - If you notice stairs that have been damaged, tell your supervisor so that repairs can be made before someone has an accident.

- **"Fixed ladders" are another type of ladder that have special safety requirements.**
  - They are permanently attached to equipment, buildings or to other structures.

- **In the past, fixed ladders had to be guarded by “cages” or “wells” to help keep workers safe.**
  - But in 2017, OSHA decided that those alone weren’t adequate protection.

- **Now, any new fixed ladders that are more than 24 feet long must be installed with a personal fall arrest system or ladder safety system incorporated in their design.**
  - These typically consist of a body harness linked to a ladder-mounted braking mechanism or a self-retracting lifeline.

- **But keep in mind that if you are using an older fixed ladder, it may only have cages or wells as fall protection.**
  - In these cases, you need to use extra caution as you climb.

- **If your jobsite does have a fixed ladder with a fall arrest system, you'll need to know how to inspect and maintain it.**
  - You also need to know how to put it on correctly and use it safely.
  - If you have questions, talk to your supervisor.

- **There are sometimes fixed ladders or stairways in place to get you where you want to go on a construction site.**
  - But more often than not, they won't really be where you need them.
  - That's why there are lots of portable ladders on jobsites.
  - You can carry them to the job and climb right up to get it done.

- **You must inspect portable ladders and set them up correctly every time you use them.**
  - Look it over thoroughly for defects, such as sharp edges or splinters.
  - Make sure that there are no broken, loose or missing steps, rungs, cleats or other components.
  - Check that the feet are in good shape, so the ladder won't slip.
  - Clean off any grease, oil or other materials that may have accumulated on the rungs or rails.

- **If a ladder fails your inspection, it should be taken out of service and marked or tagged with "Dangerous, Do Not Use".**

- **You need to pay attention to setting up a ladder safely too.**
  - First, make sure that both ends are firmly positioned.
  - The feet should be level.
  - If the ground is uneven, use boards or a ladder jack to even out the ladder's base.

- **Power lines or energized equipment can be very dangerous when you're using a ladder.**
  - If you're working near these hazards, make sure to use a ladder made of fiberglass or wood to reduce the risk of an electric shock.
  - Never use a metal ladder around electricity.

- **"Traffic" around your ladder can also be an issue.**
  - A ladder that's set up in a busy area is in danger of being run into and knocked over by passing people or equipment.
  - To prevent this, put up warning cones, caution tape or other barriers to keep people clear.

- **Never set up a ladder in front of a door that opens outward, unless that door is locked, blocked or guarded.**

- **The most stable angle for a straight ladder is 75.5 degrees.**
  - But such precise measurements are almost never practical on site.
  - However, you can get into the right "ballpark" by using the "four-to-one ratio".
  - For every four feet of vertical height, place the bottom of the ladder one foot "out" from whatever it's leaning against.

- **If you're setting up your ladder to climb up to a roof, make sure that the top of the ladder extends at least 3 feet past the roof's edge.**
  - This gives you something to hold onto so you don't lose your balance as you get on and off.

- **Never use a ladder in a way that wasn't intended.**
  - This includes using it horizontally, as a makeshift scaffold or as a work platform.

- **A scaffold is a temporary raised platform that is designed to support you and the tools and materials you need when you're doing a job off the ground.**
  - You should always be very careful when you're working on them.

- **Scaffolds usually fall into two main categories... "supporting" scaffolds and "suspended" scaffolds.**
  - Supporting scaffolds have the work platform supported from underneath.
  - Suspended scaffolds are hung from above.

- **Working up high is risky business.**
  - That's why regardless of the type of scaffold you're on, you must use "fall protection".

- **"Guarding" is one type of fall protection that is used on scaffold work platforms.**
  - Scaffolds more than 10 feet off the ground are required to have their open sides protected by railings with midrails and toeboards.
  - If people work or pass underneath the scaffold, wire mesh must be installed between the toeboard and guardrail as well, to provide added protection from falling objects.

- **Another form of fall protection that is used on scaffolds is "personal" equipment that you wear.**
  - This usually consists of a full-body harness connected to a lanyard.
  - In some situations the lanyard can be anchored to a structural member of the scaffold.

- **In other situations the harness can be connected to a lifeline or deceleration device.**
  - This must be secured directly to an anchor point on the structure that is being worked on, or to a vertical lifeline that is connected to the anchor point.

- **To safely support the weight of a falling worker, OSHA requires that anchor points be something like a girder or I-beam.**
  - In all cases, they must be able to support a minimum deadweight of 5000 pounds.

- **If you <u>do</u> wear personal fall protection on a scaffold, make sure that you know how to…**
  - Inspect it.
  - Put it on.
  - Work with it safely.

- **In certain weather conditions, it is sometimes safer to stay off a scaffold altogether.**
  - Rain increases your chances of slipping or falling.
  - A strong wind can knock you off balance, especially when you're carrying materials.
  - If there's snow or ice on a platform, stay off until it has been cleared away and the planking is sprinkled with sand for better footing.

- **Never remain on the platform of a scaffold that is going to be moved, altered, loaded or unloaded.**
  - Remember to replace any opened guardrails after these processes are complete.

- **Never climb the frame or braces to get to the platform of a supported scaffold.**
  - Use the attached stairs or a ladder instead.

*** * * SUMMARY * * ***

- **The very nature of construction work requires you to pay extra attention to the surfaces that you walk and work on.**
- **Many slips, trips and falls can be prevented simply by "good housekeeping".**
- **Hazards such as holes in the floor, open-sided platforms and walkways can be guarded effectively with standard railings and toeboards.**
- **Inspect ladders every time you use them. Be sure you know how to set them up properly and use them safely.**
- **Know how to use personal fall protection equipment if you need it when you're working up high.**
- **Never work on a scaffold during stormy or windy weather... or remain on it if it's being moved or altered in any way.**
- **Whatever you're doing, pay attention to the "floor" beneath your feet. It's important! Because avoiding slips, trips and falls begins when you stop taking walking and working surfaces for granted!**