

PRESENTER'S GUIDE

"HAND AND POWER TOOL SAFETY IN CONSTRUCTION ENVIRONMENTS"

Part of the Construction Safety Kit Series

OUTLINE OF MAJOR PROGRAM POINTS

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The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Hand and power tools allow us to perform tasks both on the job and at home that we just couldn't do without them.**
 - But tools can be dangerous.
 - Surveys estimate that injuries that involve tools send almost half a million people to the emergency room every year.
 - Tools are involved in a significant number of fatalities as well.

- **When everything's working as it should, hand and power tools let us perform tasks quickly, accurately and efficiently.**
 - When things go wrong, it's a very different story.

- **Depending on what type of tool you are using, it could cause:**
 - Abrasions.
 - Muscle sprains.
 - Bruises.
 - Burns.
 - Lacerations.
 - Puncture wounds.
 - Eye injuries.
 - Broken bones.
 - Even amputations.

- **Using tools can also lead to long-term health problems, such as:**
 - Hearing damage
 - Back and neck injuries.
 - Repetitive stress disorders of the hands, wrists and arms.
 - Respiratory problems, including emphysema, chronic bronchitis and lung cancer.

- **Power tools can often expose you to multiple hazards at once.**
- **When you're using a circular saw you could be:**
 - Cut by the blade.
 - Struck in the eye by flying chips
 - Shocked by the electric current.
- **The noise from the saw can contribute to hearing loss.**
 - Breathing in the sawdust it creates can cause respiratory problems, as well.
- **Unpowered hand tools don't present the same number of hazards as power tools, but they can cause equally serious injuries.**
 - A screwdriver that slips can puncture the palm of your hand.
 - A misdirected swing with a hammer can crush your thumb or some fingers.
 - A box cutter that's dull can end up cutting you instead of the box!
- **Fortunately, there are safe work practices that you can follow that will reduce the hazards associated with hand and power tools.**
- **Safety begins before you even pick up a tool, by making sure that you are prepared to work safely.**
 - You need to be fully focused on what you're doing.
 - If you're distracted or upset, take some time to cool down and collect yourself before you begin.
- **Never use hand or power tools when you're under the influence of substances such as illegal drugs and alcohol.**
 - They dull your senses and impair your ability to work safely.
 - Prescription and over-the-counter medications can have the same effect.
 - To use tools safely, you need to stay sharp yourself!
- **You also need to make certain that hand and power tools are in good working order... and keep them that way.**

- **A tool that is worn out or damaged is an accident waiting to happen, so always inspect them before use. Look for:**
 - Cracked or bent pieces.
 - Loose or missing parts.
 - Rust or corrosion.
- **Make sure that the handles on hand tools aren't loose, cracked or splintered.**
 - A hammer head that "flies off the handle" becomes a lethal projectile!
- **Check for "mushroomed" heads on tools like chisels that you hit with a hammer.**
 - Any impact can cause bits of metal to fly off and hurt people.
- **When tools are dull, you have to use extra force to make them do their job.**
 - The harder you have to bear down, the greater the danger of the tool getting out of control, and hurting you or a coworker.
 - So replace worn blades immediately.
- **There are additional things to inspect with power tools:**
 - Check the housing for cracks.
 - Make sure switches are not loose or damaged.
 - Examine hoses and power cords carefully for damage or fraying.
- **Circular saws should be equipped with "self-adjusting" guards to protect you from the blade.**
 - Check that these guards work properly.
 - Make sure they are free of sawdust, wood shavings and dirt.
 - They should move freely and snap back over the blade immediately after you make a cut.

- **Tools that show any sort of damage should be taken out of service.**
 - To prevent anyone else from using them, tag the tool "damaged" or "Do Not Use".
- **Most hand tools are made for a specific purpose.**
 - Using them for anything else can create real problems.
- **Don't try and "cut corners" by using:**
 - A screwdriver as a chisel.
 - A wrench as a hammer.
 - A knife as a screwdriver.
- **If you do, you're likely to damage the tool, the material that you are working on and yourself!**
- **When they're not being used, tools should be stored securely in cabinets, tool boxes or their carrying cases**
- **Keep any owner's manuals with their tools or on file for easy reference.**
 - Always follow manufacturers' instructions for operating and maintaining the tools you use.
- **Another thing you need to do before using hand and power tools is to put on appropriate personal protective equipment (PPE).**
 - PPE is anything that you wear to shield yourself from physical hazards.
- **Types of PPE that should be worn while using hand and power tools include:**
 - Eye and ear protection
 - Respirators
 - Gloves.
- **Ordinary safety glasses are fine for jobs where there is minimal risk of flying debris.**
 - But goggles offer a better defense when the risk is greater.

- **Some tools, such as grinders and masonry saws, can throw off both fine debris and heavy chunks of material.**
 - You can protect yourself from these hazards by wearing a full-face safety shield over your goggles.

- **Sanding, cutting, grinding and other tasks that produce dust also require you to safeguard your lungs by wearing respiratory protection.**
 - Disposable dust masks can do a good job of filtering out nuisance dust.

- **On an extremely dusty worksite, or in situations where the dust may be toxic, you should wear an air-purifying respirator that uses cartridge-type filters.**
 - Be sure to use the right filter type for the job that you're doing.
 - Talk to your supervisor if you have questions about which one to choose.

- **The noise created by hand and power tools can cause permanent hearing loss.**
 - So protect yourself with ear muffs, ear plugs or canal caps before starting work.

- **A good pair of work gloves can help protect your hands from cuts, abrasions and blisters while using hand tools.**
 - Specially made gloves with extra padding provide cushioning from the vibration of jack hammers and other powered "impact" tools.

- **But you shouldn't wear gloves while operating most power tools.**
 - They can get snagged on a blade or bit, and pull your hand into the cutting edge.

- **Long hair, loose clothing, watches and jewelry can also get caught in a power tool's moving parts. Before you begin working with a power tool.**
 - Put on close-fitting clothing.
 - Pull your hair back
 - Remove jewelry (even rings).

- **Electrically-powered devices are so common these days that it's easy to forget that electricity is dangerous.**
 - But at least one worker dies from electrocution every week in the United States.
 - To avoid this hazard, it helps to remember that water conducts electricity.
- **Wet conditions can create serious shock hazards with electrically-powered tools, so...**
 - Don't use them if you're standing in water.
 - Don't use them in the rain.
 - Keep all power and extension cords out of puddles.
- **These precautions also apply to electrical tools that are "double insulated".**
 - Water that gets inside them will create just as serious a shock hazard as with any other electrically-powered device.
- **Watch out for electrical tools that are not properly "grounded".**
 - "Grounding" helps ensure that electricity flows safely through the tool's wiring.
 - A faulty ground increases the risk that the electricity will jump to the person holding the tool, causing shocks, burns, even death.
- **To avoid this hazard, never bypass a tool's ground by using an adaptor to plug a three-prong plug into a two-prong outlet.**
- **Never remove the "ground" prong from the plug on a tool's power cord, either.**
 - You'll only increase the risk of getting yourself "zapped" while using it.
- **Straining or stretching power cords is something else you should avoid, because it can expose dangerous live wires.**
 - To prevent this type of damage, pull on the power cord's plug rather than the cord itself when removing it from a receptacle.

- **Speaking of power cords, keep track of where a tool's cord is while you're using it.**
 - Cutting into a live power cord is guaranteed to be a shocking experience.
 - Always keep the cord behind you, and cut away from it.

- **Whenever possible, you should plug electric tools into an outlet that has a Ground Fault Circuit Interrupter (GFCI).**
 - GFCIs reduce shock hazards by cutting off the power when they sense that there's something wrong with the flow of electricity.

- **One serious hazard that is associated with using power tools is "kickback".**
 - A "kickback" occurs when a tool's blade or bit binds up in the material that is being worked on, and the power of the motor drives the tool forcefully towards you.
 - This uncontrolled movement is extremely hazardous, and can result in serious injuries... even the loss of body parts.

- **To prevent kickbacks:**
 - Securely clamp down the material that you're working on, or have someone hold it down so it can't shift unexpectedly.
 - Allow tools to get up to full speed before starting to cut or drill.
 - Keep both hands on the tool for better control.
 - Change directions gradually, so the blade or bit doesn't "jam" in the material.

- **Make sure to choose blades and bits that are designed to cut the materials you are working with.**

- **A tool that seems to be "fighting" you as you use it may be getting dull.**
 - You should replace dull blades and bits right away, but always remember to unplug the tool first.

- **The materials that you're working with can create problems too.**
 - Be careful of wood that is wet, cross-grained or knotty.
 - It can cause binding and possibly a "kickback".
 - Choose better stock whenever possible.
- **Different job sites can contain different hazards, so you need to identify and eliminate them before you begin your work.**
 - Some areas might be dimly lit, which can make positioning and guiding a tool difficult.
- **To provide the light you need to work safely, you should:**
 - Turn on all existing lights.
 - Open shades and doors to let natural light in.
 - Bring in portable lighting, if necessary.
- **In work areas that contain flammable or combustible materials, it's important to remember that sparks from the motors of electrically-powered tools can ignite them.**
 - Tasks that involve grinding, cutting and drilling can create sparks as well.
 - Remove flammable materials from your work area, or protect them with screens or flame-resistant blankets before you begin your job.
- **Any metallic hand tool can create sparks under the right conditions, but you can avoid this hazard by using non-metallic, "spark-proof" tools.**
- **You also need to protect other people in the work area from sparks or any other flying debris that's created by the tools that you're using.**
 - Cordon off the work area with caution tape or pylons to keep people at a safe distance.
- **Remember to keep your work area clean and orderly.**
 - Don't let tools or debris clutter the floor, where they can create slip or trip hazards.

- **Never leave tools on top of a ladder or on scaffolding where they can be knocked off, either.**
 - They could end up being a real "headache" for someone.

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- **By using hand and power tools that are damaged, or operating them incorrectly, you can cause significant injuries and long-term health problems.**
- **Inspect all your tools before using them, and take them out of service if they are damaged.**
 - Replace dull bits and blades immediately.
- **Always wear the appropriate personal protective equipment for the work that you're doing.**
- **Remember the special hazards associated with electric powered tools and be careful to avoid them.**
- **Take care to protect yourself and others from any hazards that exist in your work area.**
- **Now that you understand the hazards that can exist when using hand and power tools... and know the protective equipment and safe work practices you can use to avoid them... you can help ensure that you and your coworkers go home safely at the end of every day!**