

PORTABLE POWER TOOLS

CORPORATE SAFETY TRAINING

29 CFR 1910

WELCOME

COURSE OBJECTIVES

- ☑ **Discuss Program Requirements.**
- ☑ **Discuss The Types of Tools.**
- ☑ **Discuss Selection Criteria.**
- ☑ **Discuss Inspection Requirements.**
- ☑ **Discuss Basic Skills in Hazard Recognition & Control.**
- ☑ **Discuss OSHA'S Requirements for Tool Safety.**
- ☑ **Discuss Tool Safety's Role in Today's Industry.**
- ☑ **Discuss Use, Storage and Maintenance Requirements.**

APPLICABLE REGULATIONS

29CFR - SAFETY AND HEALTH STANDARDS

1910 - INDUSTRIAL SAFETY

241 - DEFINITIONS

242 - HAND AND PORTABLE POWER TOOLS

243 - GUARDING OF PORTABLE POWER TOOLS

244 - OTHER PORTABLE TOOLS & EQUIPMENT

132 - PERSONAL PROTECTIVE EQUIPMENT

GENERAL PROGRAM REQUIREMENTS

ALL EMPLOYERS MUST:

- ☑ **Establish a Written Program**
- ☑ **Conduct Tool Safety Training**
- ☑ **Conduct Work Area Inspections**
- ☑ **Ensure all Modified Tools are Safe**
- ☑ **Provide the Proper Tool for the Job**
- ☑ **Maintain all Tools in Safe Condition**
- ☑ **Conduct Regular Program Evaluations**
- ☑ **Replace Worn or Broken Tool in a Timely Manner**

TRAINING REQUIREMENTS

THE EMPLOYER MUST PROVIDE TRAINING:

- ☑ Establish Proficiency in The Use of Tools.
- ☑ Explain Inspection Requirements of Tools.
- ☑ Conduct Training Prior to Job Assignment.
- ☑ Explain Why a Particular Tool has been Selected.
- ☑ Explain Proper Maintenance and Storage of Tools.
- ☑ Explain the Potential Problems Associated with Tools.
- ☑ Explain The Nature, Extent and Effects of Tool Hazards.
- ☑ Explain The Operation, Capabilities, and Limitations of Tools.

RETRAINING REQUIREMENTS

REQUIRED WHEN THERE IS A:

- ☑ **New Hazard or Tools.**
- ☑ **Program Related Injury.**
- ☑ **Change in Job Assignment.**
- ☑ **New Hazard Control Methods.**
- ☑ **Failure in the Safety Procedures.**
- ☑ **Reason to Doubt Employee Proficiency.**

TOOL TRAINING IS IMPORTANT

A GOOD PROGRAM WILL HELP:

- ☑ Reduce injury and illness rates.**
- ☑ Acceptance of high-turnover jobs.**
- ☑ Workers feel better about their work.**
- ☑ Reduce workers' compensation costs.**
- ☑ Elevate OSHA compliance to a higher level.**

TOOL TRAINING IS PREVENTION

“It is estimated that in the United States, 97% of the money spent for medical care is directed toward treatment of an illness, injury or disability. Only 3% is spent on prevention.”



Self-help Manual for your Back
H. Duane Saunders, MSPT
by Educational Opportunities

PROGRAM IMPLEMENTATION

IMPLEMENTATION OF A TOOL SAFETY PROGRAM REQUIRES:

- DEDICATION**
- PERSONAL INTEREST**
- MANAGEMENT COMMITMENT**

NOTE:

UNDERSTANDING AND SUPPORT FROM THE WORK FORCE IS ESSENTIAL, WITHOUT IT THE PROGRAM WILL FAIL!

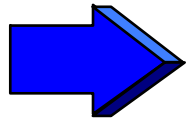
PROGRAM IMPLEMENTATION

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DEVELOPMENT SEQUENCE:

- ☑ **Establish responsibility.**
- ☑ **Establish a corporate policy and develop rules.**
- ☑ **Conduct a tool safety survey of the facility.**
- ☑ **Eliminate hazardous tools where possible.**
- ☑ **Conduct employee training.**
- ☑ **Provide protection where hazard elimination is not possible.**
- ☑ **Perform inspections and maintenance.**
- ☑ **Periodically audit the program.**
- ☑ **Modify policies and rules as appropriate.**

IMPLEMENTATION STRATEGY



RECOGNITION



EVALUATION



IMPLEMENTATION



CONTROL

IMPLEMENTATION STRATEGY

Continued

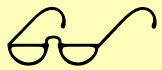
RECOGNITION

ASSESSMENT OF TOOL HAZARDS:

- ✓ Known jobs/areas having high tool usage.
- ✓ Jobs/areas having had recent operational changes.
- ✓ Jobs/areas with new equipment or processes.
- ✓ New jobs having little or no statistical injury data.

IMPLEMENTATION STRATEGY

Continued



RECOGNITION



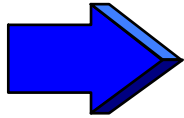
EVALUATION



IMPLEMENTATION



CONTROL



IMPLEMENTATION STRATEGY

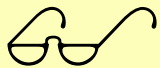
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EVALUATION

- ✓ Facility audit data.
- ✓ Employee surveys.
- ✓ Accident investigations.
- ✓ Logs of employee complaints.
- ✓ Statistical evidence of known/potential hazards.
- ✓ Injury and illness data of known/potential hazards.

IMPLEMENTATION STRATEGY

Continued



RECOGNITION



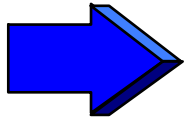
EVALUATION



IMPLEMENTATION



CONTROL

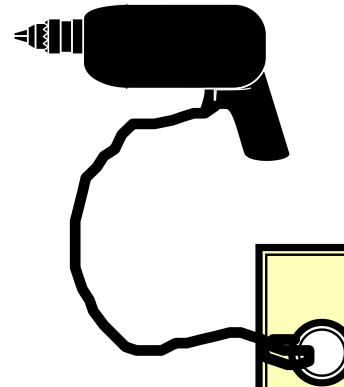


IMPLEMENTATION STRATEGY

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☑ IMPLEMENTATION

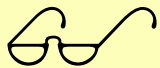
- ✓ Written program.
- ✓ Training program.
- ✓ Employee involvement.
- ✓ Supervisor involvement.
- ✓ Corrective action program.
- ✓ Job hazard analysis program.
- ✓ Safety in purchasing (new tools, equipment etc.)



NEW EQUIPMENT
SEE WARRANTY
INFORMATION
BEFORE USE.

IMPLEMENTATION STRATEGY

Continued



RECOGNITION



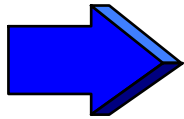
EVALUATION



IMPLEMENTATION



CONTROL



IMPLEMENTATION STRATEGY

Continued

CONTROL

- ✓ Periodic facility audits.
- ✓ Written program reviews.
- ✓ Employee feedback surveys.
- ✓ Job hazard analysis reviews.
- ✓ Recurrent training programs.
- ✓ Supervisor feedback surveys.
- ✓ Periodic statistical evaluations.
- ✓ Corrective action follow-up measures.

IMPLEMENTATION STRATEGY

Continued

- ☑ **CONTROL MEASURES CONSIDERATIONS:**
 - ✓ **Capital improvement plan to eliminated hazards.**
 - ✓ **Costs involved in purchasing new tools.**
 - ✓ **Length of time necessary for implementation.**
 - ✓ **Level of urgency in implementation.**
 - ✓ **Compatibility with existing controls.**
 - ✓ **Anticipated problems with employee use.**

IMPLEMENTATION STRATEGY

Continued

- ☑ **PRIORITIZATION CONSIDERATIONS:**
 - ✓ **Severity of injuries as a result of hazards.**
 - ✓ **Consequences of an injury at the worksite.**
 - ✓ **Likelihood that the operation will have an injury.**
 - ✓ **The length of exposure to the hazard.**
 - ✓ **Long-term effects of hazardous tool use.**

THE SUPERVISOR'S ROLE

☑ CONSIDER THE FOLLOWING:

1. ***GET INVOLVED IN THE TOOL HAZARD ASSESSMENTS.***
2. ***OBTAIN ASSISTANCE (IF NEEDED) FROM EXPERTS IN THE FIELD OF CONCERN.***
3. ***COMPLETE THE PAPERWORK (WORK ORDERS, POLICY CHANGES, ETC.) TO MAKE CORRECTIVE ACTIONS.***
4. ***ATTEND THE SAME TRAINING AS YOUR WORKERS.***
5. ***FOLLOW-UP ON THE ACTIONS YOU TOOK.***

TOOL DESIGN AND SELECTION

INITIAL CONSIDERATIONS:

- ✓ **Carefully Match the Tool to Job.**
- ✓ **The Specific Use of the Tool Is Critical.**
- ✓ **Contact Manufactures for Their Assistance.**
- ✓ **Make Informed Decisions Before You Buy.**
- ✓ **Don't be Fooled by Misleading Advertising.**

TOOL DESIGN AND SELECTION

FAVORABLE CHARACTERISTICS:

- ✓ **Handles that Distribute Pressure Across the Palm.**
- ✓ **Designed to Provide the Required Force.**
- ✓ **Varied Weights, Designs to Accommodate All Workers.**
- ✓ **Handle Orientations That Allow Straight Wrists.**
- ✓ **Triggers That do Not Reduce Grip Strength.**
- ✓ **Minimal Hand and Arm Vibration.**
- ✓ **Minimal Repetitive Motion Requirements.**
- ✓ **Minimal Need to Assume Awkward Positions.**

SELECTION & HAZARD RECOGNITION

☑ GENERAL SAFETY CONSIDERATIONS

- ✓ ***Don't be afraid to ask people to wait!***
- ✓ **Know that you could be seriously injured**
- ✓ **Know that no one ever expected to get injured**
- ✓ **Know that none of us is immune to injury**
- ✓ **Know the safe procedures before starting work**
- ✓ **Know the location of emergency switches**
- ✓ **Know the location of first aid kits**
- ✓ **Limit conversation while using tools**
- ✓ **Avoid reaching across working areas**
- ✓ **Avoid horseplay - don't tolerate it from others**
- ✓ **Do not force tools - ever**
- ✓ **Think about going home in the same shape**

SELECTION & HAZARD RECOGNITION

Continued

☑ ELECTRICAL HAZARDS (GENERAL)

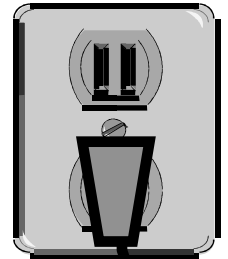
- ✓ **Inspect equipment thoroughly before each use**
- ✓ **Be cognizant of water hazards in the area of work**
- ✓ **Ground-loop-impedance testers can quickly help**
- ✓ **Ensure electrical cords are grounded**
- ✓ **Never defeat the grounding terminal**
- ✓ **Even slight shocks can cause loss of control**
- ✓ **Scrapes and cuts (or worse) result easily**
- ✓ **Check cords and switches for defects**
- ✓ **Never use a tool with frayed cords**
- ✓ **Use extension cords with G.F.C.I. capability**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

☑ EXTENSION CORDS

- ✓ **Must be the three conductor type**
- ✓ **Never defeat the grounding terminal**
- ✓ **Never allow sharp objects to contact cords**
- ✓ **Keep cords clean, chemicals can degrade cords**
- ✓ **Do not drag the cord over rough surfaces**
- ✓ **Be aware of water hazards**
- ✓ **Consider G.F.C.I. type cords**
- ✓ **If a cord snags, do not force or stretch**
- ✓ **Never “jerk” from the wall receptacle**



SELECTION & HAZARD RECOGNITION

Continued

☑ ELECTRIC DRILLS

- ✓ **Inspect thoroughly before each use**
- ✓ **Ensure electrical cords are grounded**
- ✓ **Never defeat the grounding terminal**
- ✓ **Bits can break - inspect before use**
- ✓ **Use the correct size bit for the job**
- ✓ **The shorter the bit - usually the safer**
- ✓ **Never grind down bit shanks to fit smaller chucks**
- ✓ **Use chuck adapters when necessary**
- ✓ **Properly anchor material to prevent slippage**
- ✓ **Constant pressure switches are safer than “lockables”**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

BITS

- ✓ **Select the correct size bit for the job**
- ✓ **Keep bits sharp for better cutting**
- ✓ **Sharp tools are safer than dull ones**
- ✓ **Dull edges can slip off rather than cut**
- ✓ **Store bits out of the way in a rack**
- ✓ **Handle bits carefully**
- ✓ **Scrapes and cuts result easily**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

☑ ELECTRIC GRINDING WHEELS

- ✓ Grinders are extremely dangerous**
- ✓ Inspect thoroughly before each use**
- ✓ Ensure electrical cords are grounded**
- ✓ Never defeat the grounding terminal**
- ✓ Wheels can break - inspect before use**
- ✓ Use the correct type/rating of wheel**
- ✓ Check wheels for cracks (ring test)**
- ✓ Check housing of the tool for maximum wheel speed**
- ✓ Visually inspect wheels for cracks**
- ✓ Ensure wheel is guarded 180 degrees**
- ✓ Check for ease of adjustability of the guard**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC GRINDING WHEELS (Continued)

- ✓ **Never grind on unpurged containers**
- ✓ **Be cognizant of sparks and heat**
- ✓ **Ensure clothing is free of flammables**
- ✓ **The entire face must be shielded**
- ✓ **Grinders are extremely high speed**
- ✓ **High speed causes high torque**
- ✓ **High torque can cause serious injury**
- ✓ **Check yourself for loose clothing or hair**
- ✓ **Long hair must be pulled back**
- ✓ **Check housing of the tool for maximum wheel speed**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC GRINDING WHEELS (Continued)

- ✓ Avoid excess pressure on the wheel
- ✓ Never grind on the side of the wheel

**GRINDERS ARE SERIOUS BUSINESS
USE WITH CAUTION!**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC SANDERS

- ✓ **Be cognizant of dust and grit**
- ✓ **Ensure area is ventilated**
- ✓ **Remember, dust can be flammable**
- ✓ **Keep clothing as free of dust as possible**
- ✓ **Empty dust collectors often**
- ✓ **The entire face must be shielded**
- ✓ **Sanders can be extremely high speed**
- ✓ **Check yourself for loose clothing or hair**
- ✓ **Long hair must be pulled back**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC SAWS

- ✓ **Never operate with out guards**
- ✓ **Never jam or crowd into the work**
- ✓ **Never start or stop saw while inside kurf**
- ✓ **Keep body parts out of cutting path**
- ✓ **Ensure cord will reach entire length of cut**
- ✓ **Never tape trigger closed**
- ✓ **The entire face must be shielded**
- ✓ **Saws can be extremely high speed**
- ✓ **Check yourself for loose clothing or hair**
- ✓ **Watch for “kick-back” of the blade**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC SAW BLADES (Continued)

- ✓ **Seriously inspect the blade before use**
- ✓ **Inspect for for blued or glazed teeth**
- ✓ **Inspect for uneven teeth (dropped blade)**
- ✓ **Inspect for burn marks (dull blade)**
- ✓ **Inspect for cracks in the blade**
- ✓ **Ensure the blade is not warped**
- ✓ **Ensure the blade is not out of round**
- ✓ **Ensure the blade is properly sharpened**
- ✓ **Match the blade to the type of material being cut**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC ROUTERS

- ✓ Never jam or crowd into the work
- ✓ Use the correct size bit for the job
- ✓ Keep body parts out of cutting path
- ✓ Ensure cord will reach entire length of cut
- ✓ Never tape trigger closed
- ✓ Routers can be extremely high speed
- ✓ Check yourself for loose clothing or hair
- ✓ Long hair must be pulled back
- ✓ Always wear personal protective equipment



SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC SOLDERING IRONS

- ✓ **Ensure tool rests are in place before use**
- ✓ **Use insulated, noncombustible tool rests**
- ✓ **Position tool rests for organized, safe work**
- ✓ **Select the correct soldering iron for the job**
- ✓ **Ensure adequate ventilation exists**
- ✓ **Consider hazard effects on by-standers**
- ✓ **Always wear personal protective equipment**

SELECTION & HAZARD RECOGNITION

Continued

ELECTRIC GLUE GUNS

- ✓ **Ensure tool rests are in place before use**
- ✓ **Use insulated, noncombustible tool rests**
- ✓ **Position tool rests for organized, safe work**
- ✓ **Select the correct gun for the job**
- ✓ **Ensure adequate ventilation exists**
- ✓ **Consider hazard effects on by-standers**
- ✓ **Always wear personal protective equipment**

POWER TOOL STORAGE

Continued

TOOL CONTROL

- ✓ Mark tools to discourage pilferage
- ✓ Number tools to identify a specific tools
- ✓ Consider color coding matched against machines
- ✓ Issue (control) from a central location (tool crib)
- ✓ Ensure attendants know serviceability requirements
- ✓ Store heavier tools low, lighter tools higher
- ✓ Store sharp edges or tripping hazards inward
- ✓ Inspect tool belts regularly
- ✓ Set up records to cover:
 - Repair - Replacement - Budgeting
 - Inventory - Inspection - Replacement Parts

POWER TOOL MAINTENANCE

Continued

TOOL MAINTENANCE

- ✓ **Know the manufacturers recommendations**
- ✓ **Frequently inspect tools**
- ✓ **Document periodic inspections of tools**
- ✓ **Sharpen and dress tools as required**
- ✓ **Remove defective tools from service immediately**
- ✓ **Check adjustments and lubrication requirements**
- ✓ **Establish:**
 - **Wear limits**
 - **Frequency of use limits**
 - **Inspection guidelines**

MODIFIED POWER TOOLS

Continued

TOOL MODIFICATION

- ✓ **Document the modification**
- ✓ **Control the general practice in the facility**
- ✓ **Determine if a safer tool can be purchased**
- ✓ **Identify the specific use of the modified tool**
- ✓ **Identify prohibited uses of the modified tool**
- ✓ **Identify employees authorized to use the tool**
- ✓ **Issue the tool only after training on its use**
- ✓ **Have a “Competent Person” authorize the modification**
- ✓ **Inspect the tool before and after it is used**

INSPECTION AND CARE OF TOOLS

Continued

INSPECTION CONSIDERATIONS:

- ☑ **Develop a detailed inspection policy.**
- ☑ **Document each inspection.**
- ☑ **Inspect all tools before issue or use.**
- ☑ **Tag as unusable, damaged equipment.**
- ☑ **Inspect equipment before each use (without exception).**
- ☑ **Separate damaged tools from serviceable tools.**
- ☑ **Consider the effects on tools stored for long periods.**
- ☑ **Remove damaged tools from service immediately.**