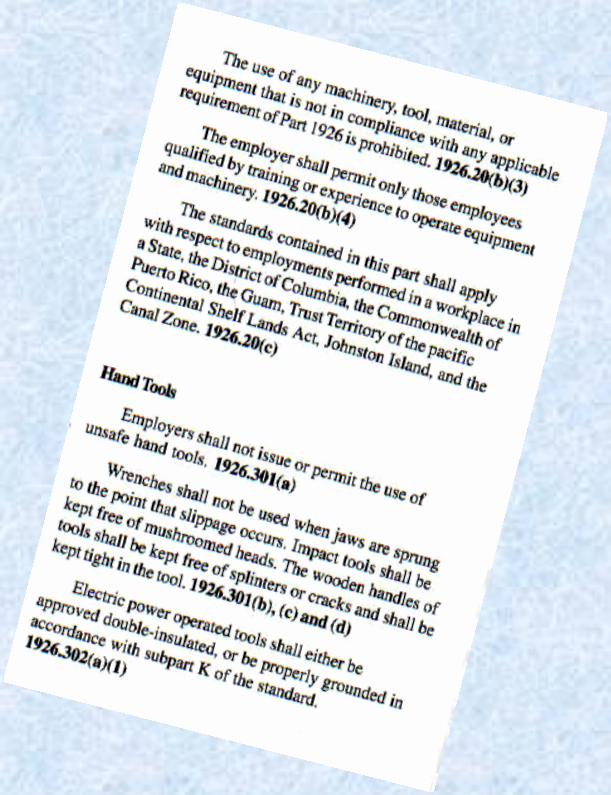
HAND & BATTERY POWER TOOLS

Safety Council
OF NORTHWEST OHIO
alliance
An OSHA Cooperative Program

1910.242
GENERAL INDUSTRY

1926.301
CONSTRUCTION



The use of any machinery, tool, material, or equipment that is not in compliance with any applicable requirement of Part 1926 is prohibited. **1926.20(b)(3)**

The employer shall permit only those employees qualified by training or experience to operate equipment and machinery. **1926.20(b)(4)**

The standards contained in this part shall apply with respect to employments performed in a workplace in a State, the District of Columbia, the Commonwealth of Puerto Rico, the Guam, Trust Territory of the pacific Continental Shelf Lands Act, Johnston Island, and the Canal Zone. **1926.20(c)**

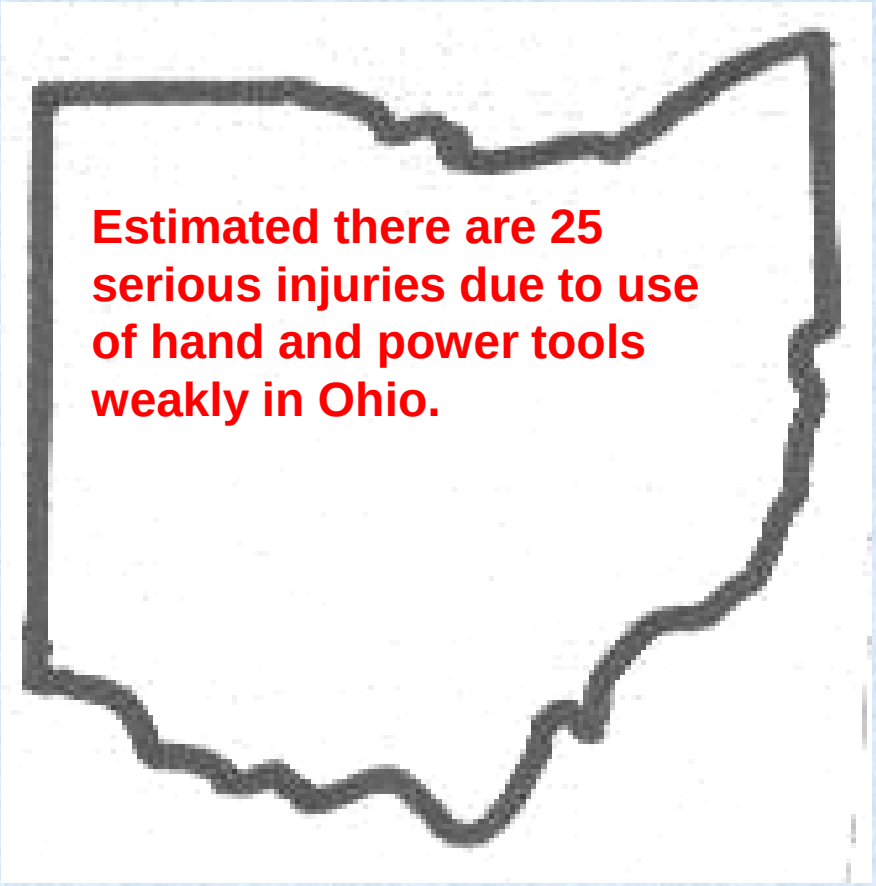
Hand Tools

Employers shall not issue or permit the use of unsafe hand tools. **1926.301(a)**

Wrenches shall not be used when jaws are sprung to the point that slippage occurs. Impact tools shall be kept free of mushroomed heads. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool. **1926.301(b), (c) and (d)**

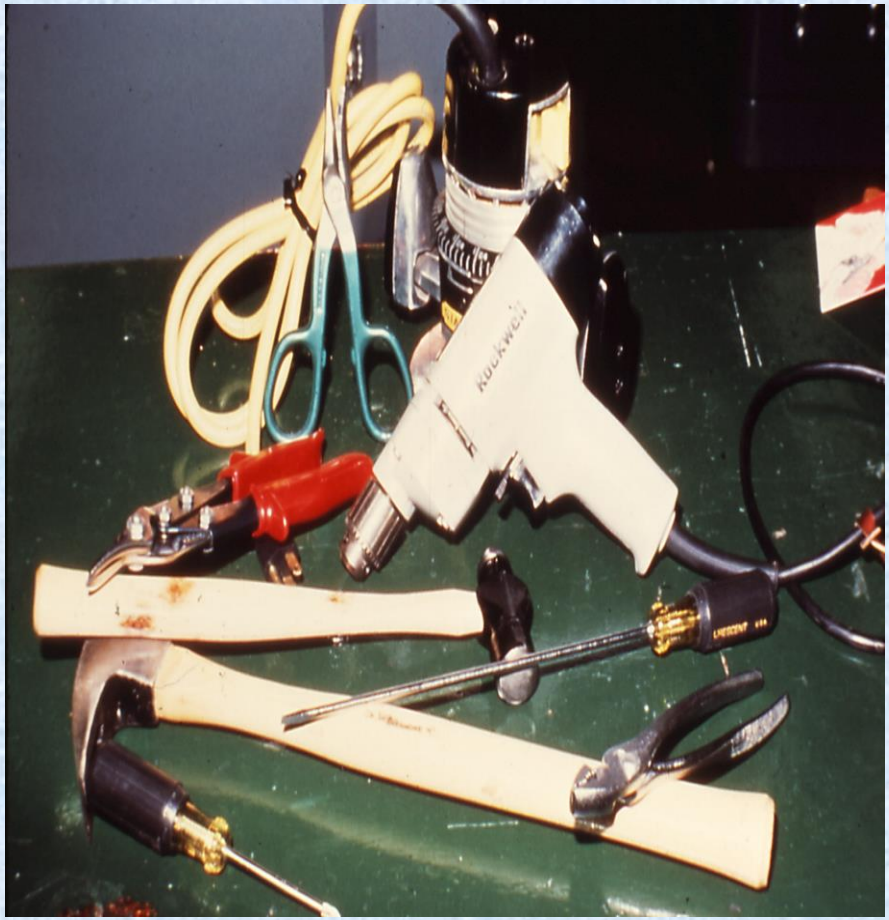
Electric power operated tools shall either be approved double-insulated, or be properly grounded in accordance with subpart K of the standard. **1926.302(a)(1)**

Nationally over 100,000 hand injuries annually



OSHA 1910.242
Hand & Portable Powered Tools

Each Employer shall be responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by the employees.



Some Reasons for hand and power tool Injuries.

- No training
- Wrong tool for the job.
- Tools in need of repair.
- Inattentiveness to details and safety procedures.
- Distractions in the workplace.
- Boredom with a job.

Types of Hand Tools Causing Injuries

General rules for safe and proper use of hand tools.

- ✓ **Always use the right size and type of tool for the job being performed.**
- ✓ **Never alter a tool from its original condition or modify a tool to increase it's leverage or force.**
- ✓ **Protect your eyes when using tools, particularly when using punches, chisels, hammers and cutting tools.**
- ✓ **Never use spark-producing tools around areas of dangerous ignition sources. Use brass, plastic, aluminum, lead or wood.**

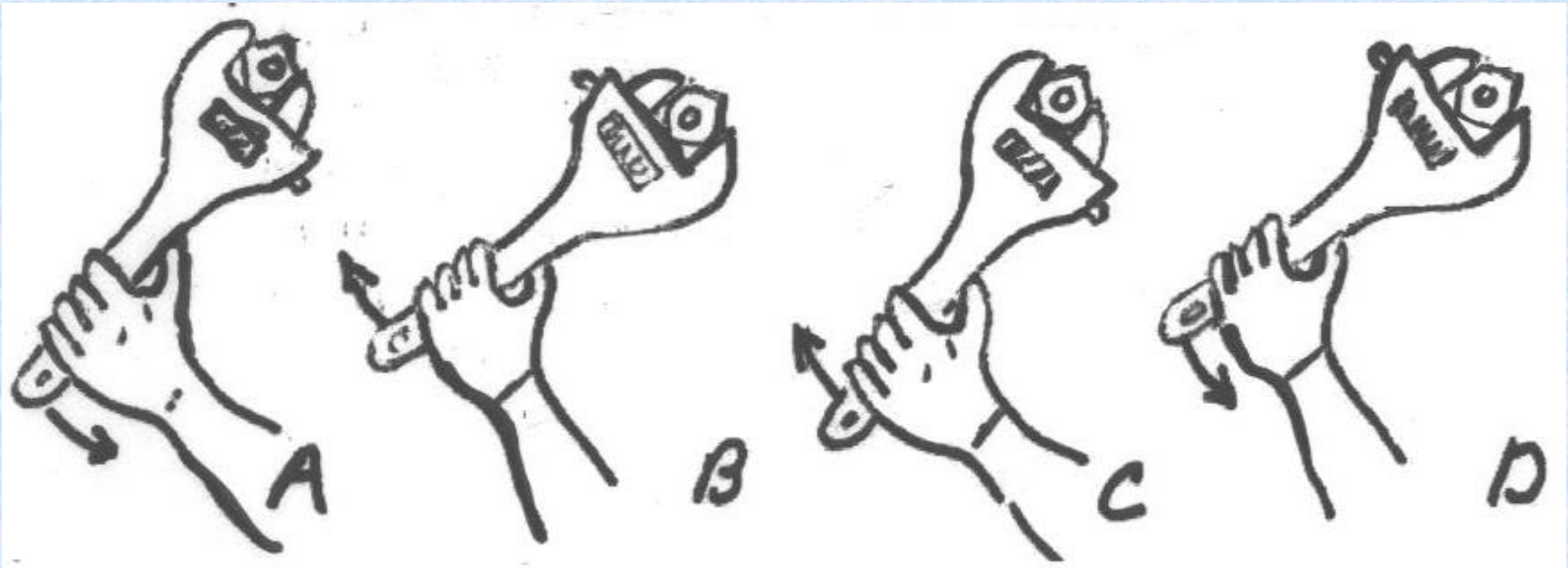
Types of Wrenches

Wrenches

- ✓ **Select a wrench whose opening exactly fits the nut, bolt, etc, (metric/ English) . Always seat the wrench or socket securely on the device-do not cock the tool when turning.**
- ✓ **Whenever possible always pull on a handle of a wrench rather than push and adjust your stance to prevent a fall.**
- ✓ **Adjustable wrenches should be tightly adjusted to the nut, bolt, etc., so that the force is on the side of the fixed head.**

The correct positioning for using an adjustable wrench is:

(A,B,C or D)



- ✓ Never strike a wrench with a heavy blunt tool unless it is specifically designed for a heavy contact.
- ✓ Ratchet and adjusting mechanisms should be cleaned and lubricated periodically with light grade oil.
- ✓ Never use hand sockets on electric or air powered driving tools.
- ✓ Do not use a wrench with jaws that have been sprung or bend.

Types of Hammers

Hammers

- ✓ **Never strike hammerheads together.**
- ✓ **Keep hammerheads tightly on the handle.**
- ✓ **Never use a hammer with a loose, damaged or taped handle.**

Read the caution labels!!

WARNING

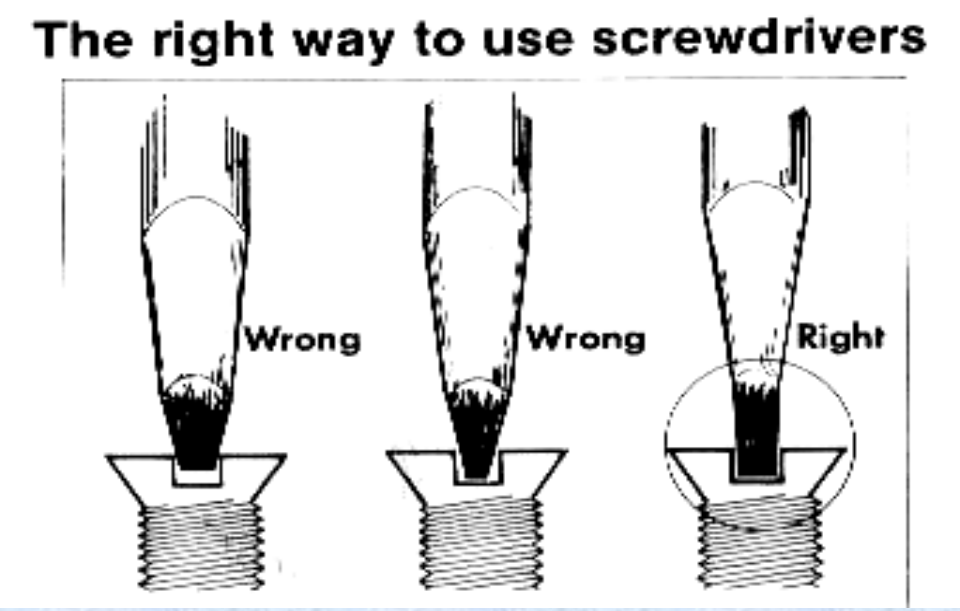
Some Pictures in this presentation could be

DISTURBING

Types of Srewdrivers

Screwdrivers

- ✓ **Use the right type screwdriver with the right tip for the screw. Make sure the tip fits the screw slot, not to lose and not to tight.**



- ✓ **Never hold the work in your hand, use a vise.**
- ✓ **Never use a screwdriver as a pry bar, chisel, wedge, etc.**
- ✓ **Never use a screwdriver with a bent or rounded tip**

Personal Protective Equipment

Types of Pliers

- ✓ **When using diagonal cutters or side cuts wear eye protection and cover the portion to be cut off with your hand.**

Other Tools

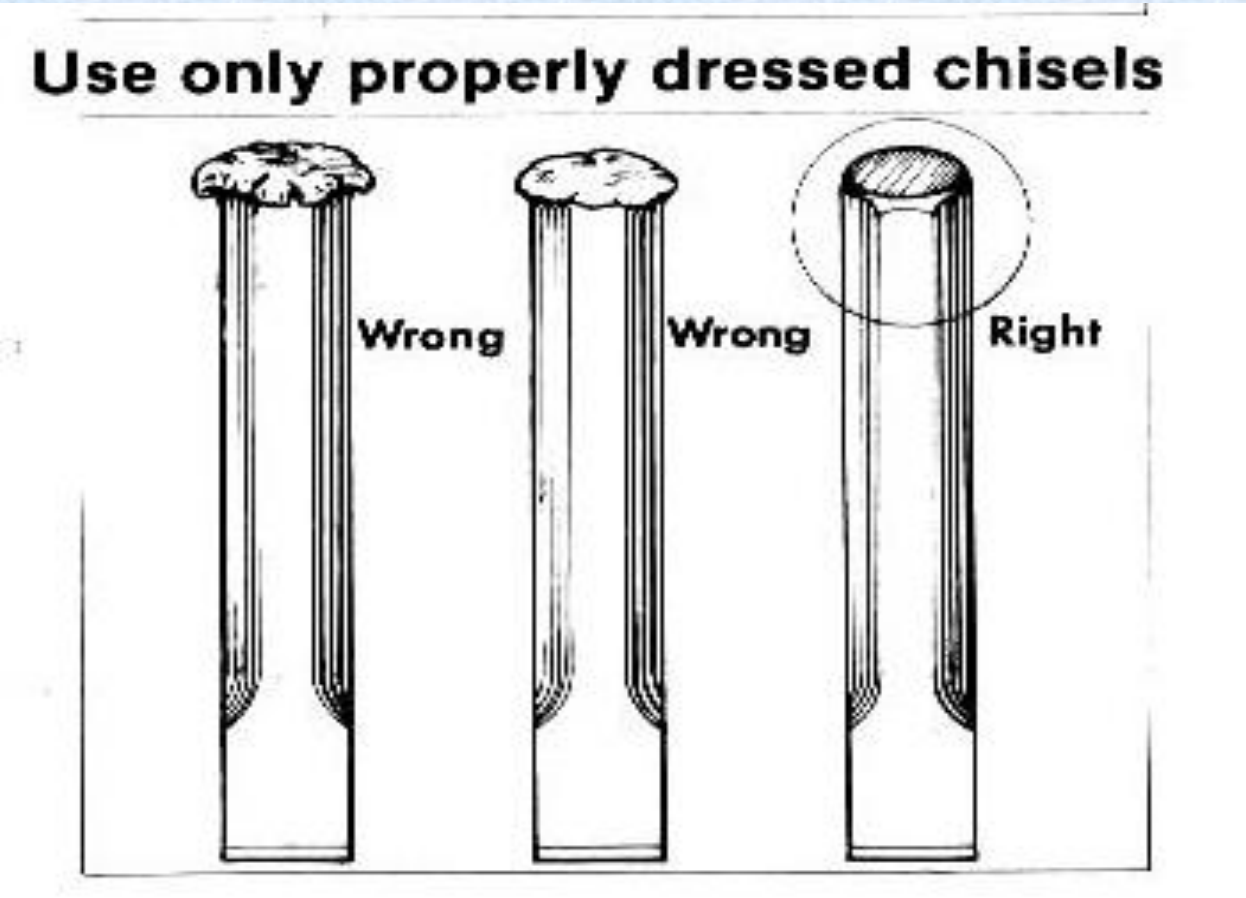
- ✓ **Do not use metal measuring tapes around electricity.**

- ✓ **When inserting a hack saw blade, place the teeth of the saw pointing forward.**

- ✓ **Knives , box cutters, etc. should be used with the cutting edge away from the body**

Maintenance and Housing

- ✓ **Discard a tool that is broke or damaged**
- ✓ **Cutting tools such as: knives, chisels, etc., should be kept sharp to decrease applied pressure.**
- ✓ **Put all tools away carefully when not in use.**
- ✓ **Don’t dump cutting tools in a drawer with other tools without covering the sharp edges.**
- ✓ **Inspect tools before use and periodically have a tool box inspection.**


Use only properly dressed chisels
Wrong
Wrong
Right

Power tools safety general requirements.

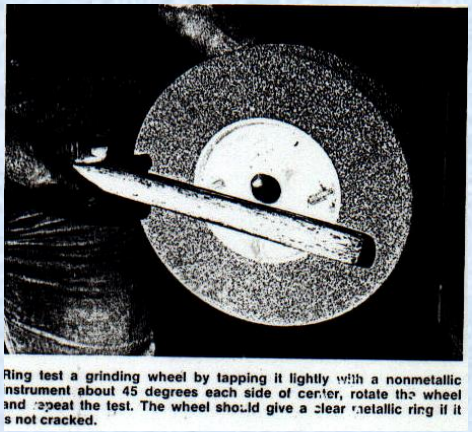
- ✓ Employees must understand the operation and function of the tool.
- ✓ Eye protection is required.
- ✓ Tools shall be kept clean and lubricated.
- ✓ Cords shall be checked for breaks and fraying.
- ✓ GFCI's should be used on all electric tools. The tools should have a three conductor plug or double insulated.

GRINDERS

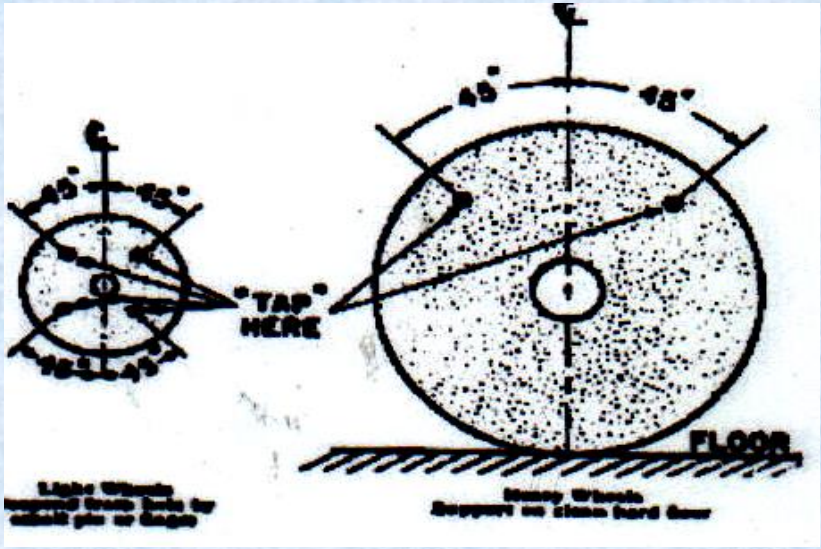
✓**Wear a full face shield when using any grinder.**

✓**Ring test a grinding wheel before installing.**

✓**Always stand to the side of the grinder when starting the grinder.**



Ring test a grinding wheel by tapping it lightly with a nonmetallic instrument about 45 degrees each side of center, rotate the wheel and repeat the test. The wheel should give a clear metallic ring if it is not cracked.

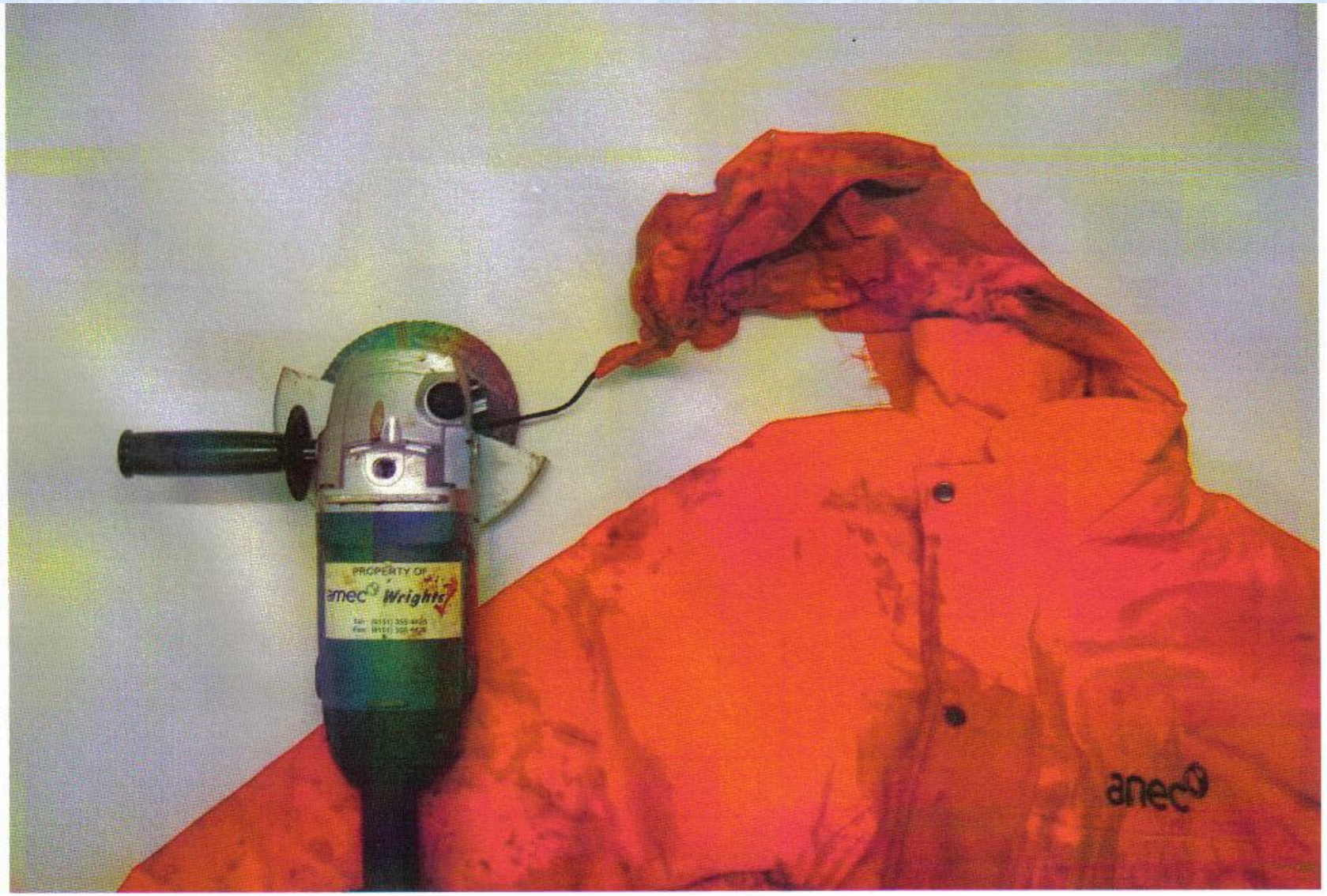


- ✓ **Guards must not be removed.**
- ✓ **Work rests shall be adjusted to within 1/8 inch of the wheel.**
- ✓ **Do not grind on the side of the wheel.**
- ✓ **Stand grinders shall be mounted to the floor.**
- ✓ **Angle grinders cause an estimate 5000 to over 5,400 injuries, with over 800 deaths annually.**

What's wrong here?

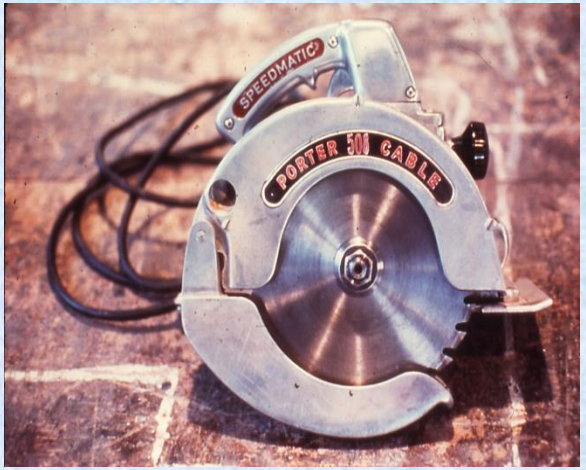
ANGLE GRINDERS

- Always wear a face shield or safety goggles and gloves
- Use the side assist handle and wheel guard whenever possible
- Position yourself, the grinder, and the workpiece so the dust and/or sparks are directed away from you.
- Keep others out of the area when you are grinding.
- Always hold the grinder so the wheel will spin away from sharp edges of the workpiece.
- Keep sparks away from flammable materials.
- Clamp the workpiece securely whenever possible.
- Always unplug the grinder before changing wheels.


PROPERTY OF
amec
Wrights
amec

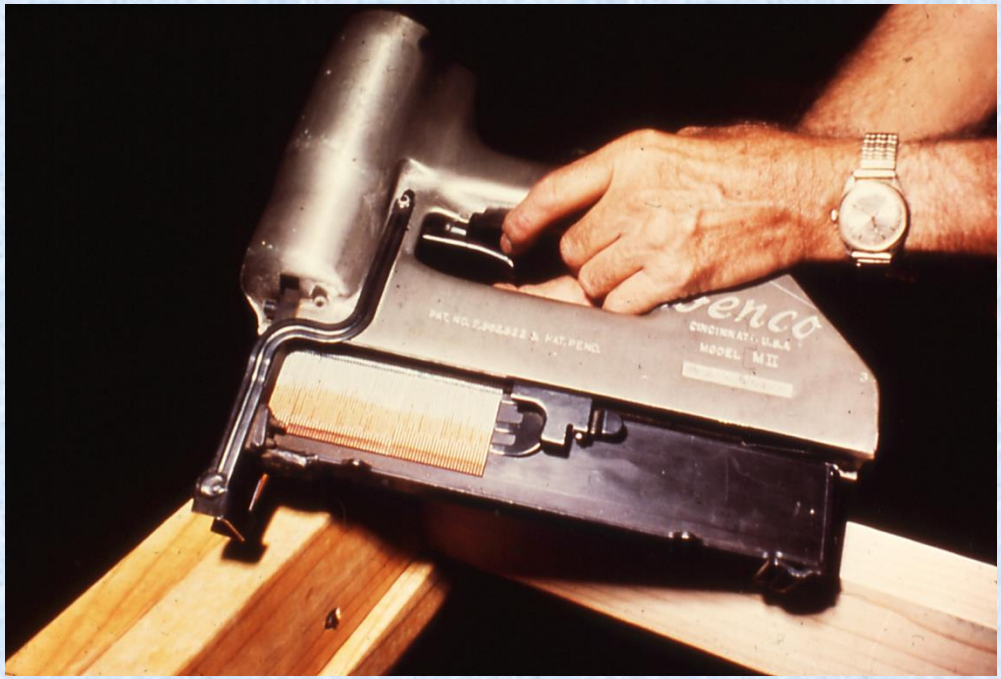
Circular Saws

- ✓ **Blade guards should operate freely.**
- ✓ **Wear a full-face shield.**
- ✓ **The blade should never be stopped or started inside the kerf.**

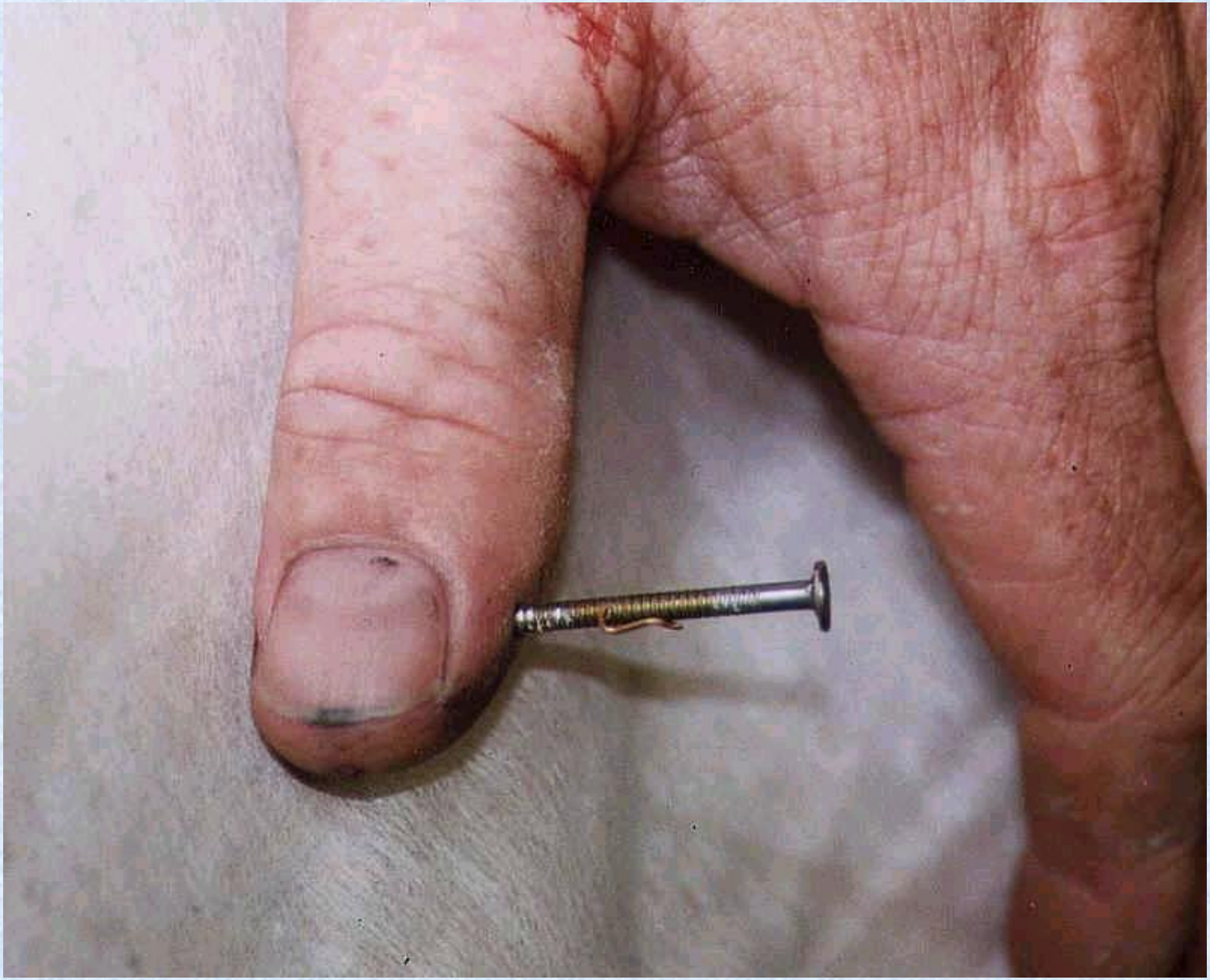


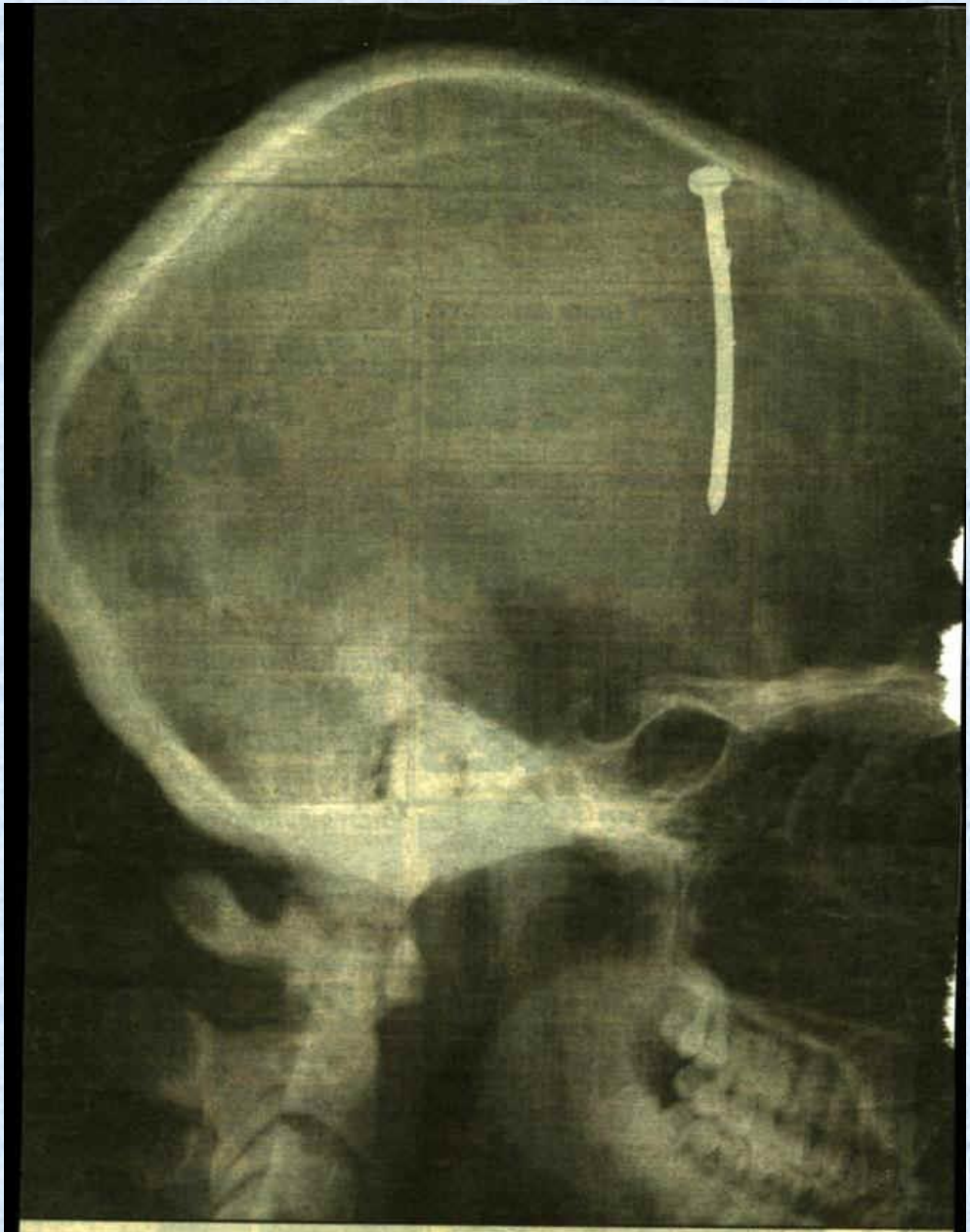
Nail/Staple Guns (High Velocity)

- ✓ **Regular maintenance.**
- ✓ **Never point it any one.**
- ✓ **Never lift by the trigger.**



✓ **No tool shall be loaded until just prior to intended use, nor shall an unattended tool be left loaded.**





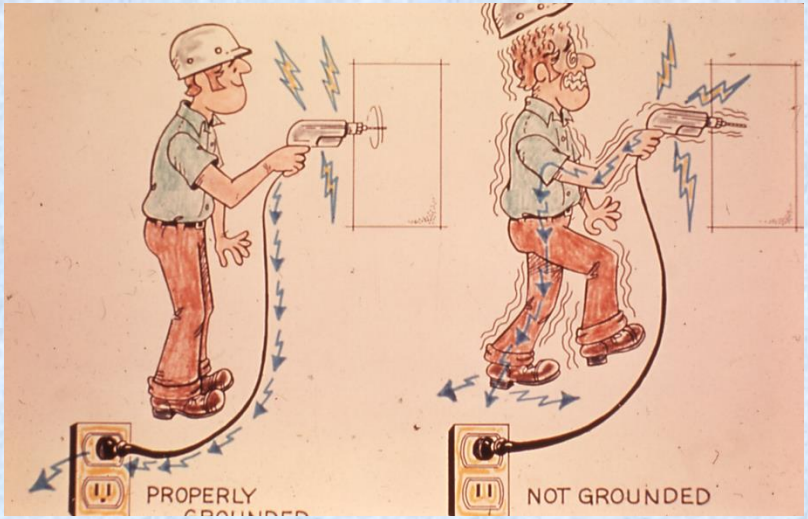
— AP

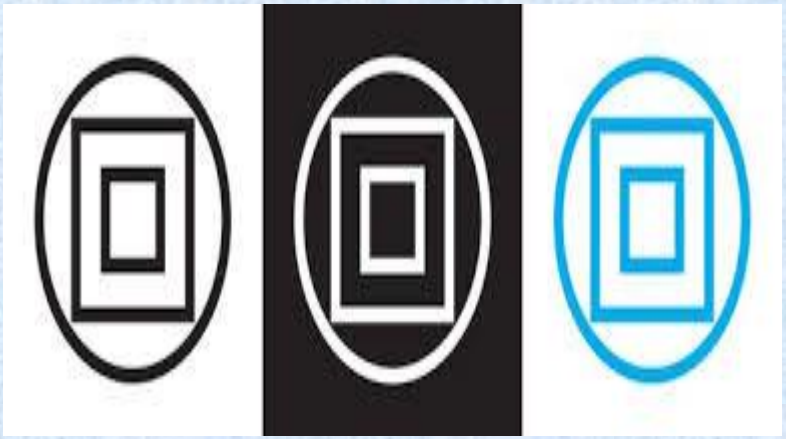
CALL HIM SPIKE ... An x-ray of construction worker Travis Bogumill's skull shows an eight-centimetre-long nail lodged in his brain. A co-worker at a construction site in Stanley, Wisconsin, accidentally bumped Bogumill's head with a nail gun and sent the metal all the way into his skull. Bogumill, 21, who walked out of an Eau Claire hospital yesterday after surgeons removed the nail, told doctors he's not quite the math whiz he used to be.

Cutting/Drilling Tools

- ✓ **Work on a stable surface.**
- ✓ **Clamp work for stability.**
- ✓ **Know where the power cord is at all times if electric.**
- ✓ **Keep loose clothing, long hair and jewelry away from the chuck.**
- ✓ **Never place hands in path of the cutting blade/bit of a drill.**
- ✓ **Don’t force catching or binding blades or bits.**

✓**Use only grounded drills, double insulated drills, GFCI's or battery operated drills.**





Battery Tools Charging Safety

- **Use Proper Equipment:** Always use the charger provided with the tool or an authorized replacement to prevent overheating.
- **Avoid Overcharging:** **Do not** leave batteries on the charger after they are fully charged (100%).
- **Charge Surface:** Charge on a hard, flat, non-flammable surface.
- **Monitor:** Avoid charging unattended for long periods, such as overnight.

Battery Tools Handling and Usage

- **Remove Battery:** Remove the battery pack when changing accessories, adjusting tools, or storing the tool.
- **Avoid Damage:** **Do not** drop, puncture, or crush batteries.
- **Prevent Short Circuits:** **Do not** store batteries near metal objects like metal shavings, bolts, washers, screws and nails.

Battery Tools Warning Signs

Stop using or charging a battery immediately if you notice:

- Unusual heat
- Swelling or bulging
- Odor or smoke
- Cracked or broken casing

Battery Tools Storage and Disposal

- **Temperature:** Store in a cool, dry, well-ventilated area, avoiding direct sunlight or freezing temperatures.
- **Long-term Storage:** Store with a partial charge, rather than empty or completely full.
- **Disposal:** Never throw batteries in the trash, Dispose of them at a certified e-waste or hazardous material recycling center.

Battery in Thermal Runaway

Lithium tool battery fire

What can you use in case of a fire.

First thing is to call 911 or you local fire department.

- Best Method (Water): Flooding the battery with large amounts of water to cool the cells and stop the thermal runaway.
- Class D Fire Extinguisher.
- A Lithium Rated Fire Blanket.

Fire Extinguisher/Fire Blanket

Questions?

Have a Safe Day !