

Tech Shop Safety Level 2 - FN000425

Tech Shop / Tool Safety Operations



(Fermilab machines not covered in course FN000258)

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Tech Shop / Tool Safety Operations

1. All personnel that use the machine tools covered in this booklet must review the material herein and have permission from their supervisor to operate the tools based on either prior work experience or on-the-job training at Fermilab.
2. The area directly surrounding the Machines must be posted "Eye Protection Required".
3. All personnel in the shop area must wear eye protection at all times.
4. Hearing protection (ear plugs) should be readily available to shop users.
5. Injuries should be reported to the Medical Department.
6. Oil spills should be cleaned up immediately.
7. A fire extinguisher must be readily available.
8. Basic Safety rules must be followed at all times. Among these are:
 - (a) Long hair must be tied back at all times.
 - (b) No sandals or opened toed shoes are permitted in the work area.
 - (c) If lifting heavy objects you are required to wear steel toe safety shoes.
 - (d) Loose fitting clothing must be tucked in or tied up.
 - (e) Neckties must be removed.
 - (f) Bracelets and other loose jewelry must be removed prior to using the shop.
 - (g) No horseplay around the machines is permitted. Machine tools can be dangerous.
9. The shop area must be kept clean. Sweep up cuttings and other debris when you are finished with the job.
10. Most shop accidents are a result of lack of knowledge, not carelessness. If you have any doubt, ask your supervisor.
11. Know the limitations of the machine (i.e., consult users' manual). Do not attempt to cut or bend stock that is too thick for the equipment.
12. Please report any problems with the machine (e.g., missing guards) to the ES&H Department or Machine Repair Shop.

General Rules of Safety

1. Always wear safety glasses, goggles, or safety shields designed for the type of work being done when you or anyone is operating a machine.
2. Get first aid immediately for ANY injury. Report all accidents and injuries to your supervisor immediately.
3. Be sure that all machines have effective and proper working guards.
4. Replace guards immediately after any repairs.
5. Do not attempt to oil, clean, adjust or repair any machine while it is running.
6. Do not leave a machine while it is running. Someone else may not notice it is still running, and be injured.
7. Do not try to stop the machine with your hands or body.
8. Always see that work and cutting tools on any machine are clamped securely before starting.
9. Keep the floor clear of metal chips and waste pieces. Put them in the container provided for scrap.
10. Get help when handling long or heavy pieces of material.
11. When working with another person, only one should operate the machine or switches.
12. Do not lean against the machines.
13. Concentrate on the work and the machine at all times, it only takes a moment for an accident to occur. Do not talk unnecessarily while operating a machine.
14. Do not talk to others while they are operating a machine.
15. Be sure you have sufficient light to see clearly when doing any job.
16. Never use compressed air for cleaning machinery.
17. Never use compressed air to clean your clothes or any part of your body.

Rules Concerning Clothes and Safety Equipment

1. Wear clothes suited for the job.
2. Wear short sleeves, or sleeves rolled above the elbow.
3. Do not wear rings, watches, bracelets or other jewelry that could get caught in moving machinery.
4. Wear gloves when indicated in attached guidance.
5. Wearing of shorts or cutoff pants is not allowed in the shop. Hot chips can cause cuts and burns.
6. Open toe shoes are not allowed in the shop. Shoes must cover the entire foot to be acceptable. Leather is preferred.
7. Long hair must be kept up at all times. It is easy for long hair to get caught in moving machinery.

Rules Concerning Housekeeping

1. Keep floors free of oil, grease or any other liquid. Clean up spilled liquids immediately; they are slipping hazards.
2. Aisles should be kept clear at all times to avoid tripping or other accidents.
3. Store materials in such a way that they cannot become tripping hazards. Return all excess material to its proper storage place.
4. Put tools away when not in use.
5. Place all scrap in scrap containers.

Hydraulic Press



Machine Hazards

Flying debris

Pinch points

Safety Precautions

Safety eyewear

Face shield

Leather gloves

Hydraulic Press



Machine Hazards

Flying debris

Pinch points

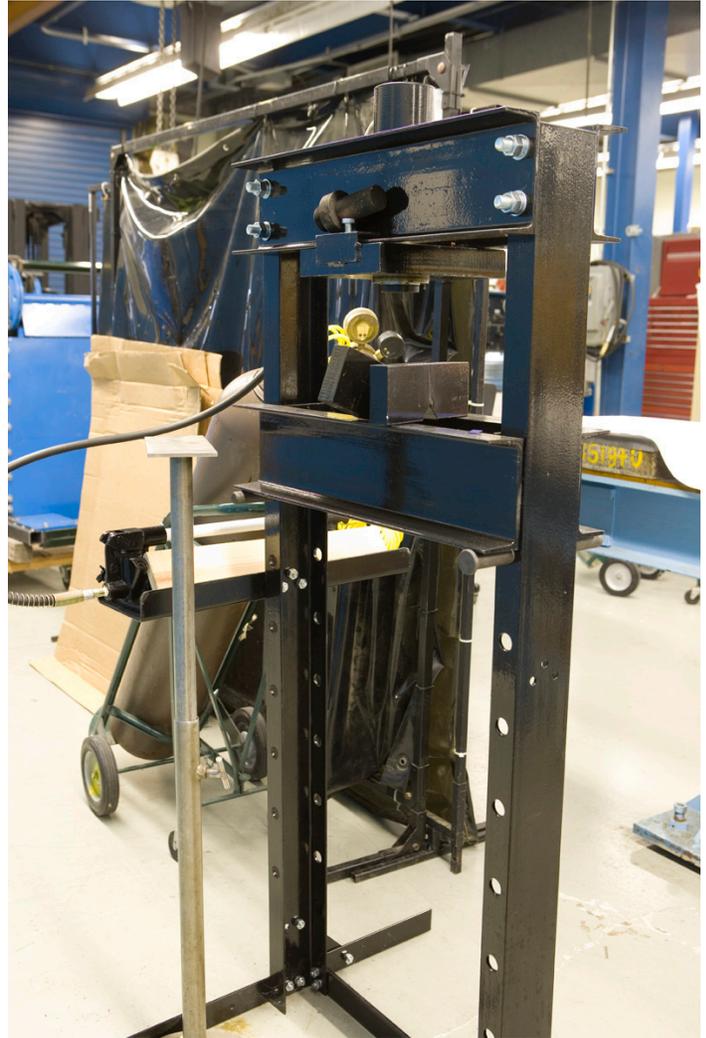
Safety Precautions

Safety eyewear

Face shield

Leather gloves

Hydraulic Press



Machine Hazards

Flying debris

Pinch points

Safety Precautions

Safety eyewear

Face shield

Gloves

Hydraulic Press



Machine Hazards

Flying debris

High noise

Potential punch/pinch hazard
if door is not completely closed

Safety Precautions

Safety eyewear

Hearing protection

Door must be completely closed
before operation to prevent
exposure to punch and to
prevent flying projectile from
coming out of enclosure

Hand Brake



Machine Hazards

Pinch points at operation

Sharp objects

Safety Precautions

Safety eyewear

Leather gloves

Keep hands clear of work area

Hand Brake



Machine Hazards

- Pinch points
- Sharp objects
- Flying debris

Safety Precautions

- Safety eyewear
- Leather gloves
- Keep hands clear of work area

Hand Press Brake



Machine Hazards

Pinch points at operation

Sharp objects

Safety Precautions

Safety eyewear

Leather gloves

Keep hands clear of work area

Small Hand Press



Machine Hazards

Pinch point
Flying debris

Safety Precautions

Safety eyewear
Face shield
Gloves

Hand Press



Machine Hazards

Pinch points

Flying debris

Safety Precautions

Safety eyewear

Face shield

Gloves

Hand Shear



Machine Hazards

Pinch points at operation

Flying debris

Sharp objects

Safety Precautions

Safety eyewear

Face shield

Leather gloves

Point of operation guard
must be in place while
operating this machine

Hand Shear



Machine Hazards

Pinch points of operation

Flying debris

Sharp objects

Safety Precautions

Safety Eyewear

Face shield

Leather gloves

Point of operation guard
must be in place while
operating this machine

Foot Shear



Machine Hazards

Pinch point at operation

Flying debris

Sharp objects

Safety Precautions

Safety eyewear

Face shield

Leather gloves

Point of operation plastic guard must be in place while operating this machine

Gasket Cutter



Machine hazards associated with operation

Sharp cutting blade

Pinch point hazard near lever

Safety Precautions

Safety eyewear

Leather gloves

Insulation Cutter



Machine Hazards associated with operation

Moving blade

Flying debris / particulate

Safety Precautions

Safety goggles

Keep fingers away from blade

Metal Roller



Machine Hazards

Pinch points

Sharp edges on metal stock

Safety Precautions

Leather gloves

Metal Roller



Machine Hazards

Pinch points

Sharp edges on metal stock

Safety Precautions

Safety eyewear

Leather gloves

Rotex Punch



Machine Hazards

- Flying debris
- Sharp objects
- Pinch points

Safety Precautions

- Safety eyewear
- Leather gloves

Buffing Wheels



Safety Precautions

Safety goggles

Gloves

Tongue guard must be in place before operating, adjusted no greater than one fourth inch above wheel.

Guard around moving wheels must be in place before operating

Vacuum must be operating to remove dust and debris

Wheels must be dressed to protect cloth wheel from wearing

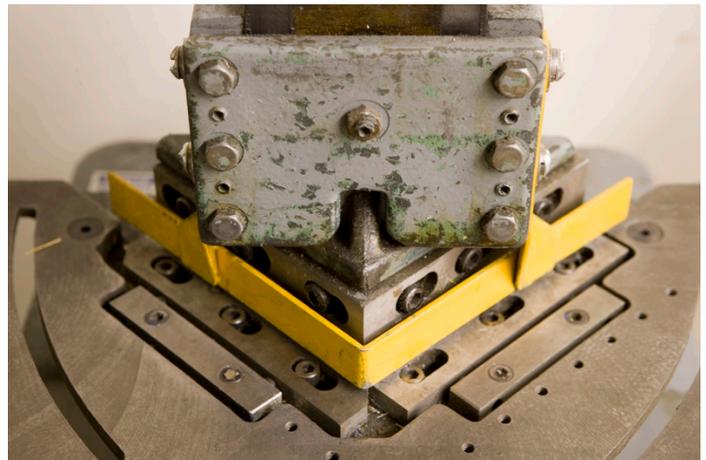
Stand slightly to side in case debris kicks back toward operator

Machine Hazards

Flying debris

Dust hazard

Corner Notcher



Machine Hazards

Sharp objects

Flying debris

Pinch point

Safety Precautions

Safety eyewear

Face shield

Protective guard at point of operation must be in place at all times

Leather gloves

Pistorius Saw



Machine Hazards

Blade shattering

Water spray

Flying particles

Safety Precautions

Safety goggles

Face shield

Leather gloves

Apron

Tool rest must be in place

Blade guard must be in place

Provide water to cool blade

Horizontal Band Saw



Machine Hazards

Flying debris

Exposure to cutting blade

Safety Precautions

Safety eyewear

Face shield

Do not wear gloves,
jewelry or ties

Roll sleeves up above elbow

Point of operation guards
should be in place while
operating this machine

Keep hands away from
blade while running

Sand Blaster



Safety Precautions

Safety goggles

Clean plexi-glass for viewing operation

Ensure seals are not leaking

Vacuum should be operating while using this machine

Hearing protection

Inspect gloves before use, proper seal

Machine Hazards

Dust hazard

High noise

Gloves leaking or cracked

Hand hazard

**For operational, repair or machine guarding questions
please call 630-840-3711**

Additional Questions or Concerns:

Accelerator Division Personnel call 630-840-4446

Computing Division Personnel call 630-840-8493

Particle Physics Division Personnel call 630-840-8261