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FIRST Robotics: Team 3641 THE FLYING TOASTERS

Safety Contract

It's important that I remember to:

- Have supervision when using any and all tools.
- Ask for help when it's needed. (lifting heavy things, etc...)
- Wear safety glasses at all times; in the shop, in the pit, working with the robot, or whenever tools are around.
- Do not use broken or damaged tools.
- Get help immediately if injured (you or anyone else).
- Use the tools for their proper purpose.
- Wear close-toed shoes in the pit, in the shop, or working with the robot.
- Wear the proper safety equipment when completing tasks.
- Be aware of your surroundings.
- Make sure working conditions are ideal.
- Do not eat or drink when working with chemical or electrical items.
- NO HORSEPLAY!
- Keep a clean and safe workplace.
- Use good judgment.



I _____ have read through the entire team safety
(Input name)
manual and understand all the safety procedures presented
there in.

Parent/Guardian signature: _____

Student Signature: _____ Date

=

Shop Rules

Personal Safety:

1. ALWAYS wear safety goggles when operating power tools or if someone is operating them nearby.
2. Know the locations of the first aid kits, machine kill switches, and eye wash stations.
3. No horse playing.
4. If you don't know how to operate a machine ask a mentor for help.
5. Be aware of surroundings.
6. Do not interrupt people who are operating power tools or machines.
7. When cutting small pieces with the band saw use a push block in order to keep your hands away from the blade.
8. Tie up long hair and tuck in loose jewelry to prevent it from getting caught in machines.



9. Wear closed toe shoes.
10. Do not wear work gloves while operating drills.
11. Do not work in the shop alone.
12. Put away all materials after using them so that nobody gets injured by stepping on them.
13. If a machine starts to smoke turn it off.
14. Use your common sense.
15. Stay on task.
16. Don't play with cell phones or use headphones in the shop.



Band Saw:

Safety and Operation Rules:

1. Remove any ties, rings, watches, and other jewelry. Roll up sleeves above the elbows and remove all loose outer clothing, tie up long hair, and wear closed-toed shoes. Do not wear gloves when operating the band saw.
2. Wear appropriate eye wear, such as safety goggles when working.



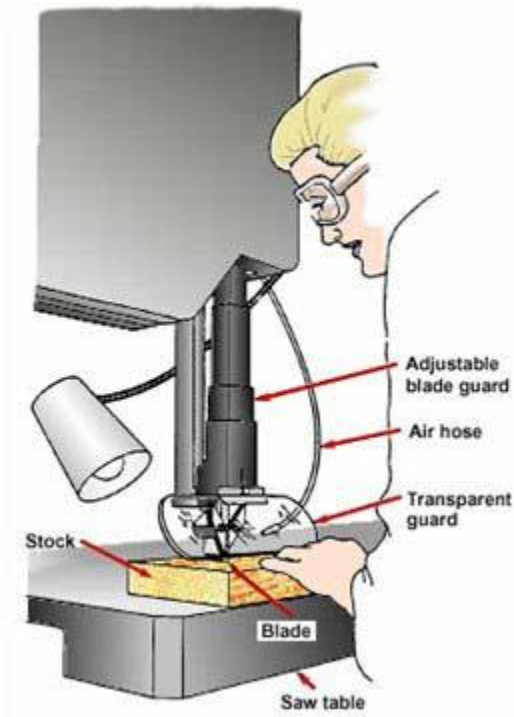


3. Keep the area around the machine clean and free of scrap material, chips, oil, grease, coolant, tools or accessories to avoid tripping.
4. Keep blade guards in place at all times. The blade guard should be $\frac{1}{4}$ inch above stock.
5. Keep hands away from blade and do not open doors while the band saw is in motion. Have a balanced stance and keep your body under control at all times.
6. Only use blades in good condition. Blades that are not sharp or have missing teeth can increase the chance of an accident.
7. All adjustments of the material must be made with the power off.
8. When using the saw focus on the task. Ignore all distractions and horseplay.
9. After using the band saw be sure to clean it off and work area. Don't clean with the machine on and don't use hands to clean; use either a brush or vacuum.



10. Do not allow the hand or fingers to come closer than 2 inches to the blade.
11. Select proper blade width for cutting material
12. The teeth should point downward in the direction of blade travel.
13. Check tension and tracking of the blade frequently, make adjustments if needed.
14. Be sure materials are free of nails, paint and other obstructions.
15. Plan your cuts carefully. Lay out work clearly and use relief cuts.
16. Do not cut until the machine is ready.
17. Always place material flat on the table.
18. Do not force material into the blade faster than it can be cut.
19. If sawing freehand, use one hand to guide the material into the blade and the other hand to push the material into the blade.
20. DO NOT PUT FINGERS NEAR THE BLADE.
21. Do not put extra stress on the blade by twisting the stock, cut curves gradually.
22. If the blade breaks, shut off the power and move. Never try to free a blade while the blade is moving.
23. An indication of a cracked blade is a rhythmic click as the cracked portion passes through the material.
24. Make sure the band saw has stopped before leaving the machine.





Belt Sander:

Safety:

1. Wear safety glasses at all times while using the belt sander.
2. Wear hearing protectors and a dust mask to while working.
3. Check cord for cuts, frays, or exposed wires. Exposed wires should be repaired before using to avoid electrical shock or damage to the sander.
4. Keep the electrical cords away from the working area to prevent it from being cut by the rotating sanding belt.



5. Place the sander on its side when not in use to avoid being accidentally turned on and running off the table.
6. Always clamp the material being sanded before sanding.
7. Always unplug the belt sander when the sanding is done or before leaving the sanding area.
8. To change the sanding belt, hold the belt sander in a vertical position, and push down on the front belt roller until it catches.
9. Slide the old sanding belt off, make sure to check the arrows on the old belt. Put the new belt on with the arrow pointing in the same direction the old. Release the catch on the front roller to apply tension to the new belt.
10. Empty the dust bag often.
11. Before using the belt sander, turn it on and adjust the belt so that the belt runs on the front and rear rollers.
12. Move the sander back and forth smoothly along the direction of the wood grain.
13. Keep the sander moving at all times. Avoid sanding uneven spots in the wood.
14. Start the sanding operation with a course grit sand belt, then use a medium grit belt, and finish with a fine grit belt.
15. When finished sanding, lift the belt sander off the material and turn off the machine.
16. When sanding, do not let the sander extend over the ends of the material. This will prevent uneven amounts of material from being removed.



Drill Press:

Safety and Operation Rules:

1. Take off any loose clothing such as jewelry or hoodie strings and put long hair up.
2. Be sure to wear safety goggles when working.
3. Keep all of the guards in place.
4. Keep the work space clean.
5. Make sure cutting oil and cooling lubricant are not spilled.
6. Before making adjustments, turn the power off.
7. Only drill with sharp drill bits and with shanks that match the type of chuck being used.



8. Secure the bit by tightening each hole of the drill chuck.
9. Before turning on the press, remove the drill chuck.
10. Be sure the drill press is clear of any unnecessary material before drilling.
11. Secure all work with a clamp or drill press vise before beginning.
12. Never hold the material by hand when working
13. While using the drill press, never try to stop a revolving piece of material by hand.
14. Never touch the drill bit or any other revolving part of the drill press while it is on and in motion.
15. Adjust drill speed and feed to the type and size of the hole that is being drilled. Check for recommended drill speeds and feed.
16. Tighten drill bit securely in chuck.
17. Make sure drill speed matches the material being drilled and the hole size. (Note that different types of drill presses require the machine to be running to adjust the operating speed.)
18. Apply pressure to pilot feed lever, feed the drill bit into the metal fast enough to keep the drill bit cutting at all times.
19. As the bit begins to cut through the metal, reduce the feed pressure so that the bit will not seize the metal. Seizing can break the bit.
20. After the hole is drilled, release the feed lever slowly and let the chuck to return to the beginning position.
21. Be careful, the underside of the hole could have sharp burrs that will need to be filed or ground smooth.



Soldering Iron:

Safety and Operation Rules:

1. Never touch the element or tip of the soldering iron. They are very hot (about 400°C) and will burn you.
2. Hold wires to be heated with tweezers or clamps.
3. Keep the cleaning sponge wet during use.
4. Always return the soldering iron to its stand when not in use. Never put it down on your workbench.
5. Wear eye protection. Solder can “spit”.
6. Work in a well-ventilated area. The smoke formed is mostly from the flux which can be irritating, a sensitizer and aggravates asthma.
7. Avoid breathing the smoke that is formed by keeping your head to the side of, not above, your work.
8. Read and understand the MSDS for all materials before beginning work.
9. Lead on your skin can be ingested and lead fumes can be given off during soldering. Other metal fumes can also be hazardous.



Miter Saw:

Safety and Operation Rules:

1. Keep protective guards in place at all times.
2. Remove any wood or metal scraps and other foreign items from the machine before operating the saw.
3. Make sure the piece about to be cut is firmly secured against the table and fence before the cutting process begins.
4. Allow the miter saw blade to reach its full operating speed before starting to cut an object.
5. Keep all body parts away from the moving saw blade while in operation.
6. Do not leave the area around the machine until the blade has come to a stop.



7. Remove chips, scraps and cutoffs only after the blade is at a complete stop and the saw is turned off.

8. Use clamps or a vice to hold the work-piece in place and make sure to secure short material[s] without putting any body parts in danger.



9. ALWAYS wear safety goggles while the saw is in use.

10. If you are cutting hard materials such as metal attach the coolant line or have another person spray the blade with coolant to prevent overheating.

11. If someone is operating the Miter saw and you need to talk to them, wait until they are done using it to speak to them.

12. If you don't know how to operate the Miter saw ask a mentor for assistance.



First Aid

First aid is an important thing to keep everyone safe. There should always be at least one first aid kit in every shop and every team should carry one of their own to a competition to insure safety. Things that should be included in each first aid kit (according to the American Red Cross) are:

- 2 absorbent compress dressings (5 x 9 inches)
- 25 adhesive bandages (assorted sizes)
- 1 adhesive cloth tape (10 yards x 1 inch)
- 5 antibiotic ointment packets (approximately 1 gram)
- 5 antiseptic wipe packets
- 2 packets of aspirin (81 mg each)
- 1 blanket (space blanket)
- 1 breathing barrier (with one-way valve)
- 1 instant cold compress
- 2 pair of non-latex gloves (size: large)
- 2 hydrocortisone ointment packets (approximately 1 gram each)
- Scissors
- 1 roller bandage (3 inches wide)
- 1 roller bandage (4 inches wide)
- 5 sterile gauze pads (3 x 3 inches)
- 5 sterile gauze pads (4 x 4 inches)
- Oral thermometer (non-mercury/non-glass)
- 2 triangular bandages
- Tweezers
- First aid instruction booklet

Always be sure every member of your team knows where the first aid kit is located whether they are in the workshop or at competitions.



Accident Report

Your Name:	
Date of injury:	
Time of injury:	
Name(s) of Witness (if any):	
Where did it happen?:	
What were you doing at the time?:	
Describe step by step what led up to the injury. (continue on the back if necessary):	
What could have been done to prevent this injury?	
What parts of your body were injured?	
Did you see a doctor about this injury? <input type="radio"/> Yes <input type="radio"/> No	
Date:	Time:

Signature: _____ Date: _____ ca

