Team 4327 Shop Safety Manual

Overview: This safety manual is intended to be an easy to use safety guide for Lakeview High School FIRST Robotics team 4327. Safety is everyone's responsibility! Safety is key to our team's success. **Safety First!**

This is a living document and as such will be continually updated. It is also freely available for any team to use in whole or in part.

Student Safety Captain: The Student Safety Captain's responsibilities include but are not limited to: The safety captain is responsible for cleaning up spilled batteries, making sure everyone has safety glasses and making sure that everyone is safe.
Team members responsibilities include but are not limited to: Wearing safety glasses at all time and when the safety captain is not around that they are making sure everyone else is safe. Everyone needs to make sure that the people around them is being safe. Everyone is being held accountable.

At Lakeview High School

A mentor must be present in any of the school rooms that work is being done. This includes, but not limited to, robot build, design, business, programming etc.

1. Personal Protective Equipment (PPE)

A. Safety glasses or side shields are required whenever you are in the workshop, no exceptions!

B. Hand protection is designed to protect against sharp objects, heat, electrical, chemical and mechanical hazards so wear gloves, when needed, to help protect your hands.

2. Auditing work areas

A. An audit of the shop room is to be done at each meeting.

B. All safety violations are to be recorded in the Shop Safety Audit Sheet. The violations are to be corrected immediately, or as soon as possible.

C. Follow up on violation to ensure countermeasure is in place and being followed.

3. Working on the Robot

A. Disengage the main power switch when the robot is not functioning

B. Ensure there is no residual power, electrical, pneumatic, and or spring/chain tension.
C. Use a hand tool for clearing jams.
D. Ensure there is enough work space for the task at hand.
E. Scan your work area for electrical cords, tools, carts, material etc that may be left in your work area or walking path
F. No open toe shoes or loose clothing.
G. Long hair must be pulled back.

4. Lifting the robot

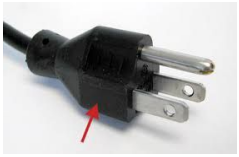
A. 3-4 team members are needed to lift a robot. Remember the robot may weigh 150+ lbs!
B. Use both hands when lifting, making sure you have a firm grip.
C. Lift with your legs not your back.
D. Get firm footing.
E. Bend your knees.
F. Keep robot close to your body.
G. Keep back straight.

5. Hand Tools

A. Use tools only for their intended use. A screwdriver for turning screws, a hammer to drive nails, etc.

6. Power Tools

A. Inspect electrical cords to insure they are not frayed and are in good working order.
B. Ensure proper grounding (3 prong plug - ground prong).



7. Electronics

A. Use lead-free solder only and solder with electrically heated soldering iron/gun only. Solder in well-ventilated areas. DO NOT leave soldering iron unattended!

8. Battery

A. DO NOT pick a battery up by the wires. Pick it up by its case.
B. When batteries are not in use they must be in the battery cart.
C. Make sure all batteries are fully charged. Per MSDS never overcharge a battery.
D. Never leave batteries charging overnight.
E. Unplug the battery cart at the end of the workday.
F. Inspect batteries to ensure cases are not cracked.
G. If a battery is found to be defective notify the safety captain for proper disposal.

9. Cleaning Up

A. Return all material and tools to their proper locations.
B. Wash hands when you are finished working with equipment.

10. First Aid

A. First aid kit is available in the storage room.
B. Fire extinguisher is available in the storage room.
C. Remember the P.A.S.S. method of using an extinguisher.

Pull the pin
Aim at the base of the fire
Squeeze the handle

Sweep from side to side

D. Spill kit is available in the storage room.

11. Driving the Robot

A. Whenever you are going to drive the robot announce it clearly for all to hear within the immediate area.

B. Use bumpers at all times to prevent damage to humans and/or surroundings.

12. Hazardous Material Control

A. Always know the chemicals you are working with and the dangers associated with them.

B. Material Safety Data Sheet (MSDS) - contains information on the hazards of each chemical.

C. MSDS are in the back of the Safety Manual.

Hang these next 3 pages at the front of the pit for each competition.

Team 4327 Competition Safety Manual

At Competitions (post this in the pit where it is visible for all team members)

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1. Personal Protective Equipment (PPE)

A. Safety glasses or side shields are required whenever you are in the pit, no exceptions!

B. Hand protection is designed to protect against heat, electrical, chemical and mechanical hazards so wear gloves, when needed, to help protect your hands.

2. Pit Organization – A place for everything and everything in its place!

A. All cords, rope, and wiring are to be routed in such a manner as they will not create a trip hazard.
B. All team items must be contained within the boundaries of the 10' x 10' x 10' pit. Note: Pits are not guaranteed to be 10' x 10' x10'. May be as small as 8' x 8' x 8'.

3. FIRST Safety Checklist

A. Perform your first audit as soon as the pit is set up and all items are put away.

B. Perform second audit mid-day.

C. Perform final audit immediately prior to leaving for the night.

4. Battery

A. DO NOT pick a battery up by the wires. Pick it up by its case.

B. When batteries are not in use they must be in the battery cart.

C. Make sure all batteries are fully charged. Per MSDS never overcharge a battery.

D. Never leave batteries charging overnight.

E. Unplug the battery cart at the end of the night.

F. Inspect batteries to ensure cases are not cracked.

G. If a battery is found to be defective notify the safety captain for proper disposal.

5. Working on the Robot

A. Disengage the main power switch when the robot is not functioning

B. Tagout on positive battery cable when robot is not functioning.

C. Ensure there is no residual power, electrical, pneumatic, and or spring/chain tension.

D. Ensure there is enough work space for the task at hand.

E. Scan your work area for electrical cords, tools, carts, material etc that may be left in your work area or walking path.

F. No open toe shoes or loose clothing.

G. Long hair must be pulled back.

6. Lifting the robot

A. 3-4 team members are needed to lift a robot. Remember the robot may weigh 150+ lbs!

B. Use both hands when lifting, making sure you have a firm grip.

C. Lift with your legs not your back.

D. Get firm footing.

E. Bend your knees.

F. Keep robot close to your body.

G. Keep back straight.

7. Transporting the Robot

A. Robot must be secure on the cart.

B. Announce “ROBOT coming thru” whenever you transport robot.

8. Cleaning Up

A. Return all material and tools to their proper locations.

B. Wash hands when you are finished working with equipment.

9. First Aid

A. First aid kit is available in the pit.

B. Remember the P.A.S.S. method of using an extinguisher.

Pull the pin

Aim at the base of the fire

Squeeze the handle

Sweep from side to side

C. Spill kit is available in the pit.

10. Hazardous Material Control

A. Always know the chemicals you are working with and the dangers associated with them.

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