



2022 First Robotics Competition

# **Safety Manual**

Team 203

**SOUPERBOTS**

**Team 203 Camden County Technical Schools**

# **Table of Contents**

## **Our Safety Culture**

- Definition
- Team 203
- General Safety Rules
- First Aid
- Fire Safety
- Personal Protection Equipment...
- Batteries and Grease
- Tools in the Shop
- Lifting the Robot and Lifting Procedures
- Pit and Competition Safety

# Our Safety Culture

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## Definition

- The collection of the beliefs, perceptions and values that employees share in relation to risks within an organization, such as a workplace or community.

## Team 203

Safety is often enforced on Team 203. These are the actions we took to assure this!

- **Weekly Presentations**
  - Safety captains make a new presentation every week on how to maintain safety in the shop
- **Safety log**
  - Form that students fill out when injured. Logs all of the injuries onto a spreadsheet that we review at the end of every week
- **OSHA training**
  - All mentors and captains are being professional trained in OSHA
- **Thinking Ahead**
  - Team 203 creates an evacuation plan for every event we attend for competitions

## General Safety Rules

### Safety Tips

- Follow safe usage of all tools and equipment and keep the safety of yourself, the tools and other in mind at all times
- Always fully open a ladder
- Be careful around any tools that can generate sparks or heat (soldering and grinders) and use the standard PPE at all times
- Make sure the area is clear of people, scrap and leftover tools before turning on a machine
- Put all tools back after usage and if you see a tool out of place, put it back where it belongs
- Communicate with other people around you to make sure you are working at the safest level possible

# First Aid

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## Cuts

- Clean cut/infected area with soap & water, or a alcohol pad
- Apply healing ointment (neosporin)
- Cover with bandaid

## Burns

- Flush the burned area with cool running water for several minutes. Do not use ice
- Apply a light gauze bandage.
- Do not apply ointments, butter, or oily remedies to the burn.
- Take ibuprofen or acetaminophen for pain relief only if necessary.
- Do not break any blisters that may have formed.

## Bleeding

- Cover the wound with a gauze or a cloth and apply direct pressure to stop the blood flow.
- Don't remove the cloth.
- Add more layers if needed. The cloth will help clots form to stop the flow.

## Sprains

- Don't try to straighten it.
- Stabilize the limb using a splint and padding to keep it immobile.
- Put a cold pack on the injury, avoiding placing ice directly on the skin.
- Elevate the extremity.
- Give anti-inflammatory drugs like ibuprofen or naproxen.

# Fire Safety

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## Prevention

- DO NOT block doors/exits
- DO NOT overload an outlet
- DO NOT leave working machines unattended

## Extinguisher Use

- Pull the pin
- Aim at base of fire
- Squeeze the lever
- Sweep side to side

## Personal Protection Equipment (PPE)

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Personal Protection Equipment (PPE) is a key part in our safety culture. PPE is required in the shop. It protects you from injuring yourself, and prevents accidents from happening.

### Types of PPE

- **Face Protection**
  - Safety Goggles
    - Protects eyes from flying scraps of metal, plastic, etc.
  - Prescription Glasses \*if needed
    - Clear vision is a must when dealing with tools in the shop
- **Hand Protection**
  - Gloves
    - Prevents burns, cuts, rashes, or etc.
- **Foot Protection**
  - Steel Toe Boots
    - Prevent foot injuries if something heavy is dropped
- **Other**
  - Tuck in loose objects (ex. Hoodie strings)
    - Prevents them from getting caught in a machine
  - Take off jewelry
    - Decreases the possibility of losing or breaking it
    - Can also get caught on machines
  - Tie hair back

# Batteries and Grease

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## Sigmastek Batteries

- **Potential Health Effects:**
  - Eyes- Corrosive to the eyes and may cause severe damage including *blindness*.
  - Skin- Causes burns.
  - Inhalation- Harmful by inhalation. Contact with moist mucous membranes of the respiratory system can *cause caustic condition resulting in burns*.
  - Ingestion- Harmful if swallowed. Can *burn mouth, throat, and stomach*.
- **Main Symptoms:** Severe exposures can lead to shock, circulatory collapse, and death. Metallic taste in the mouth(lead poisoning), loss of appetite indigestion, nausea, vomiting, constipation, sleep disturbances and overall weakness.
- **Response:**
  - Eye Contact- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep your eyes wide open while rinsing. Do NOT rub the affected area.
  - Skin Contact- Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes
  - Inhalation- Move to fresh air. Call a physician or Poison Control Center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
  - Ingestion- Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Drink plenty of water. Remove from exposure, lie down.
- **Battery Spill Kit Procedure:**
  - Clear area
  - Notify mentors or safety captains
  - Put on gloves and safety goggles before handling the battery
  - Neutralize acid by pouring baking soda on all wetted surfaces; continue until it stops fizzing
  - Place the battery in a leak-proof container
  - Neutralize remaining acid with more baking soda
  - Clean up leftover residue with absorbent material or brush
  - Carefully remove gloves and put them in the battery disposal bag
  - Wash hands afterwards for extra safety

## Lithium Grease

- **Precautionary Phrases:** Do not eat, drink or smoke when handling this product. Wash thoroughly after use. Avoid contact with eyes, skin and clothing
- **Prevention:** Wash thoroughly after handling, Wear protective gloves if prolonged skin is expected, wear safety glasses

- **Response:**
  - Eyes- Flush eyes with water, holding the eyelids apart. Remove contact lenses if being worn. Get medical attention if irritation persists.
  - Skin- wash with soap and water
  - Ingestion- If large amounts are ingested, seek medical attention. Do not induce vomiting.
  - Inhalation- Not likely under normal conditions of use. If used at high temperatures where smoke is formed, use with adequate ventilation or wear an appropriate NIOSH approved respirator. Seek fresh air.
- **Storage:** When not in use keep the container closed, keep away from children.
- **Disposal:** Dispose of contents in accordance with local, regional and national regulations.

### Battery Safety and Storage

- Any battery that is visibly damaged should be replaced and held with caution
- Keep materials handy that can be used if a battery becomes damaged like baking soda, leak proof gloves and a leak proof container for storage
- Do not overcharge a battery or charge it in a potentially dangerous area
- Periodically inspect your battery for any noticeable cracks, leaks or damage.

## Tools in the Shop

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### Hand Tools

- Wrenches
- Pliers
- Cutters
- Files
- Hammered tools
- Screwdrivers
- Clamps
- Saws

### Power Tools

- Table saw
- Bandsaw
- Belt/disc sander
- Chop saw

- Circular saw
- Drills
- Jigsaw
- Lathe
- Shop vacuum
- **Precautions/Safety**
  - Never carry a tool by the cord or hose.
  - Never yank the cord or the hose to disconnect it from the receptacle.
  - Keep cords and hoses away from heat and sharp edges.
  - Disconnect tools when you are done, and when changing things such as blades and bits.
  - All observers should be kept at a safe distance away from the work area.
  - Secure work with clamps or a vise, so that both hands are available to operate the tool.
  - To avoid accidents, you should not hold a finger on the switch button while carrying a plugged-in tool.
  - Do not overload a tool
  - Make sure tools are in good condition
  - Put tools back in the correct spot

## Lifting the Robot and Lifting Procedures

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### Robot Carts

- Use a cart at all times to transport the robot to ensure no damage
- All carts should be small enough to fit through a normal sized door (about 30 inches) but big enough to hold the robot safely
- Put your team name on the cart to prevent any confusion amongst teams
- Carts must be safe with all wheels working in a proper manor

### Pre-Lift Procedures

- If anyone is working on the robot, make sure the robot is secured and powered off
- Communicate with other team members and mentors to avoid confusion amongst the group
- Discuss how you are going to lift the robot and where your lifting
- Avoid debris and objects that are in the way of the lift path

### Transporting the Robot

- Make sure the robot is in a safe position and will not fall



- If in a crowded area, use patience (do not run with robot or tip robot) to ensure the robot will not fall over or harm others
- Each member that is lifting should establish a safe and balanced position before lifting the robot
- DO NOT climb over the safety railing, use the gate opening to ensure safe working conditions

## Pit and Competition Safety

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### Competition Safety

- Travel safely between areas and make sure you are communicating with your team members during the matches
- Never work on the robot when it is powered on
- Only work on the robot when it is on stable ground and in a safe position

### Pit Safety

- Clean floor of any tools or equipment to ensure no one slips and falls
- Put back all tools and equipment being used to ensure none will get lost
- Observe the ten-foot height limit and any obstructions over head
- Use ladders for climbing, don't climb on any unstable objects
- Tidy all storage bins and boxes to keep area safe for working
- Be aware of any and all people around you and communicate with them thoroughly

**BE SAFE DURING ALL TIMES**

**AND MOST IMPORTANTLY, HAVE FUN**

**GO TEAM 203!!**