



MAVERICK BOILER ROBOTICS  
FIRST TEAM 4272  
SAFETY MANUAL



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## **I.0 Safety and the Team**

### **I.1 Overview**

FIRST has worked hard to instill a culture of safety throughout all of its programs; Team 4272 has joined in that effort. With that in mind, the team has created, and continues to improve the following safety manual in order to integrate a culture of safety into everything that the team does, a culture that this manual strives to ensure lasts for years to come.

### **I.2 Purpose**

This safety manual was created, revised, and will be continuously updated in order to run a successful safety program on the team. By keeping constant and thorough documentation of all safety proceedings, the safety program continues to exist and thrive from year to year. This manual was created in order to document the safety program's past, manage the current safety proceedings, and plan for the future of the team's safety needs.

### **I.3 Mentor Expectations**

Mentors on team 4272 are expected to follow all rules provided to them. These rules include the ones created by the school, the ones stated in the FIRST Safety Manual, and the ones within this manual. Mentors are expected to teach students the safe way to behave and use machinery and to set an example through their words and actions. Mentors on the team are expected to follow what members of the safety committee outline.

### **I.4 Student Expectations**

Student participants of team 4272 are expected to follow all rules provided to them. These rules include the ones created by the school, the ones outlined in the FIRST Safety Manual, and the ones outlines within this manual. Students are expected to use their common sense and be attentive whilst working in order to increase the overall safety of the team. Student participants must follow what members of the safety committee outline.



## 2.0 Safety Committee

### 2.1 Purpose

The Safety Committee was created in order to provide a structure for the safety program of team 4272. The Safety Committee is tasked with maintaining all aspects of the team safety program.

### 2.2 Safety Mentor

The Safety Mentor is in charge of assigning members to the various roles of the Safety Committee. The Safety Mentor makes sure that all committee members meet their roles and have the right tools to fulfill their responsibilities.

### 2.3 Safety Captain

The Safety Captain is head of safety committee. The Safety Captain also is in charge of updating and maintaining the safety manual each year, all the while making sure the safety program runs smoothly and efficiently. It is recommended, but not required, that the Safety Captain has been on the team for at least one year prior.

### 2.4 Junior Safety Captain

The Junior Safety Captain is a student who assists the Safety Captain in their day-to-day duties, as well as in overall maintenance of the safety program. It is recommended that the Jr. Safety Captain be someone who is being trained to become the Safety Captain. There can be more than one Junior Safety Captain.

### 2.5 Shop Safety Supervisor

The Shop Safety Supervisor is a student who is a member of the Engineering Sub Team. This student is one who has a high meeting attendance and serves to look out for safety hazards, violations, and injuries in the shop. It is recommended that the Shop Safety Supervisor position be assigned to the lead student of the Engineering Sub Team, the Pit Captain, or to an Engineering Sub Team student who is known for heavy involvement within the shop and build.



## 2.6 Committee Meetings

The Safety Committee needs to meet regularly to assess the safety program and to evaluate all injuries. It is at the discretion of the Safety Captain or Safety Mentor to determine when these meetings are held.





## 3.0 Safety Materials

### 3.1 First Aid Kit

The team's First Aid Kits are an integral component of the safety program. The First Aid Kit includes all components necessary to treat injuries ranging from simple cuts, scrapes, and splinters, to burns and lacerations. The team currently has one primary First Aid Kit, a secondary kit for back-up as well as to use in the stands at competition, one travel kit that contains the basics that is carried by the Shop Safety Supervisors, as well as extra First Aid kits to give to other teams who need them at competition. First Aid Kits are restocked as needed, and an inventory is taken at every Safety Committee meeting.

In the shop, all First Aid Kits are kept on the middle shelf of the business shelf in the team's storage room. During competition, First Aid Kits are available in the pits and in the stands to ensure access to safety supplies in case of emergencies. Pictures of these are located in Appendix A.

### 3.2 PPE: Eye Protection

Each member of team 4272 is assigned a pair of ANSI-approved safety glasses. These glasses are numbered and each number on the glasses corresponds with a number on a cubby slot assigned to each student. These cubbies are located in the shop and in the stands at competition. Members must keep their safety glasses in their cubby when they are not being used. Pictures of these are located in Appendix A. Safety glasses on team 4272 are donated each year through two local optometrists: Mather Vision Group and NeoVision Optical.

### 3.3 PPE: Hearing Protection

Ear muffs and ear plugs are available to team members in case a member is using loud machinery and would like to protect their ears. Certain machines come with a label warning members that hearing protection is required. Pictures of these are located in Appendix A.



### 3.4 PPE: Hand Protection

Tough gloves are available at the shop for members to use for work that requires them. If lifting something heavy, gloves are required, as well as when using certain machinery. Gloves are required when picking up the robot.

Disposable medical gloves are also available for team members who require them. Anytime a person is treating the injury of another member, they must wear medical gloves, regardless of the type of injury. When students are painting or staining wood, it is recommended they wear these gloves, as well. Pictures of these are located in Appendix A.

### 3.5 Battery Spill Kit

The team has a fully-stocked Battery Spill Kit available in the Safety Shelf of the Business Cabinet in the team storage room. At competition, this kit is available in the pits with the rest of the safety supplies. Extra kits are brought to competition for teams that may not have them. Pictures of this are located in Appendix A; battery spill kit instructions are located in Appendix B.

### 3.6 Fire Extinguisher

The team always has an up-to-date Fire Extinguisher. The Fire Extinguisher is located in the shop and is easily accessible to everyone in case of emergencies. In the pit, it is located on the stand located in the front right of the pit by the exit where it is easily accessible by all in the pit. Each team member is informed of its presence, location, and how to use it. Pictures of these are located in Appendix A.

### 3.7 Eye Wash Station

The team has available in its pit at competition a portable eye wash station in case a member of our team or another is in need of one.

### 3.8 Hand Sanitizer

Available in the shop during the build season and in the pit during competitions, the team has a stocked hand sanitizer dispenser to ensure a germ-free environment.



## **4.0 Safety Documentation**

### **4.1 Purpose**

It is important to keep accurate records of all safety happenings on the team. The things included in this documentation are important to maintaining safety and decorum on the team.

### **4.2 MSDS (Material Safety Data Sheet)**

Team 4272 collects and stores MSDS for all chemicals, paint, and batteries located in the shop and pit. MSDS are kept in a separate section in the team safety manual. The Safety Committee is tasked with reviewing and updating all MSDS that are kept by the team.

### **4.3 Injury Log**

In order to maintain proper accounts of injuries, all injuries must be written down as an entry in the injury log. This simple log requires the basic details of the injury including the date of the injury, the injured person's name, what the injury was, and the basics of how it was treated. Each entry is cross-checked with Injury Reports to maintain accurate records. A blank injury log is available in Appendix C. Completed logs are available in a section of the safety manual.

### **4.4 Injury Report**

The Injury Report is a detailed form filled out at the time of injury. This form requires detailed descriptions of the incident and actions taken, as well as signatures from those present. A slip must be detached by the student and sent home to be signed by a parent so they acknowledge the injury. This form must be returned within two days of the injury occurring. If the form is not returned within these two days, the student is banned from the shop until the form is returned. A blank injury report is available in Appendix D. Completed reports are available in a section of the safety manual.



## 4.5 Electronic Records

The Safety Captain is tasked with keeping electronic records of all injuries, reports, and punishments within the team. It is up to the Safety Captain's discretion how these records are maintained, but all members of the Safety Committee must have access to these files.

## 4.6 Safety Problem/Solution

Throughout the year, any person on the team may identify a safety concern or suggest a new policy. These suggestions and observations are the key to keeping the safety manual current and up-to-date. If the Safety Committee believes this idea is good, they will create a Problem/Solution update and add it to the Safety Manual. See 15.0 for more information.

## 4.7 Safety App

In 2015, the Safety Committee, working with the programming students on the team, created a Safety App to assist in safety functions of the team. This app includes important documents such as the FIRST Safety Manual, the Team Safety Manual, PPE information, member health information (password protected), MSDS, and Emergency Procedures. The app also has interactive features including a way to report an injury (with a picture option) as well as a way to alert Safety Committee members in case of emergencies.

## 4.8 Safety Checklist

It is the responsibility of the team safety captain to create a safety checklist for use in the pits during competition. This list should include all the things that must be done to clean the pit and keep it safe throughout the day.



## **5.0 Student Health Information**

### **5.1 Purpose**

In order to create the most effective safety program for all team members, the Safety Committee collects relevant health information on students.

### **5.2 Collection of Information**

Prior to joining the team, all students must provide all relevant medical and person information about themselves which includes but is not limited to allergies, illnesses, and emergency contact information. This information is collected by the Safety Mentor.

### **5.3 Safety Cards**

Each student has a Safety Card created for them. This card includes all the relevant safety information collected, along with a picture. This information will be kept by the Safety Committee mentor during competition in case of Emergencies. A sample of the safety card is available in Appendix E.

### **5.4 Privacy**

Privacy is a vital component of collecting student health information. Only mentors on the team have access to this information, with further restrictions being put to members of the team's Executive Leadership.



## **6.0 Safety Training**

### **6.1 Purpose**

In order to make sure that all students on the team are properly familiar with the safety rules and regulations, they must go through Safety Training on the team.

### **6.2 Safety Seminar**

The Safety Seminar is a presentation conducted by the Safety Captain and the Safety Mentor to team members, this engaging presentation includes all the basic rules of the team and information included in the team safety manual and the FIRST safety manual. All students must complete this portion of the Safety Training before moving on to the next portion.

### **6.3 In-Shop Training**

Students must go through hands-on training sessions in the shop to learn the proper way to behave in the shop, as well as the proper way to use the machinery safely. Led by Engineering Sub Team mentors in groups of four students or fewer, students must pass this component of the Safety Training before moving on to the next portion.



## 6.4 Safety Test

After completing both the Safety Seminar and In-Shop Training, students must take and pass a Safety Test. This test is made up of short answer questions and covers information presented in all components of Safety Training. If a student fails the test, they may retake it once more. If they fail it again, they must retake Safety Training before being allowed another chance at the test. Students must pass the Safety Test before being allowed to enter the shop to work. A blank safety test is available in Appendix F. Copies of completed safety tests are available in sections of the safety manual.

## 6.5 Safety Contract

The final aspect of Safety Training is to have the students and their guardians read and sign a contract stating that they know and will follow all safety rules given to them. It also states that any infraction of the rules is their fault and they will accept the punishment given to them without complaint. A copy of the team Safety Contract is available in **Appendix I**.



## 7.0 Punishment System

### 7.1 Purpose

While the main purpose and direction of the team safety program is to create preventative policies and educate students about safety, sometimes rules are broken. While missteps happen, rule violations must be addressed. It is important to note that getting injured in the shop does not constitute a punishable offense, but not reporting an injury is.

### 7.2 Punishment Levels

#### Blue Level

Verbal warning, out of shop for 10 minutes.

#### Yellow Level

Written warning, out of shop for 1 hour, violation kept on record for 3 days following the incident.

#### Orange Level

Written warning, out of the shop for the rest of the day, violation on record for 1 week following the incident.

#### Red Level

Written warning, out of the shop for rest of the week, violation on record for 1 week following the incident, must retake all components of safety training.





### Black Level

Written warning, out of shop indefinitely (until safety committee clears them), violation on record for the remainder of the semester, must retake all components of safety training, talk with teacher sponsor regarding safety violations.

Note: “On the record” indicates that, if a violation is broken within those days, the violator automatically jumps to the “Yellow Level” on the levels of punishment.

### 7.3 Record Keeping

The team Safety Captain is charged with keeping track of all punishments on the team and it is their discretion whether something is a punishable offense or not. Safety punishment records may negatively affect team members who wish to attend competitions or become leaders on the team



## **8.0 General Safety Rules**

### **8.1 Conduct in the Classroom**

While the possibility for getting injured is not as high in the classroom, precautions must be taken. Basic rules for safety in the classroom include but are not limited to:

- Be attentive to others and your surroundings
- No horseplay
- No sitting or standing on desks or tables
- No running
- Report all injuries
- Use common sense

### **8.2 Conduct in the Shop**

The shop can be a place of great productivity, but it can also be a place of many safety hazards. Basic rules for safety in the shop include but are not limited to:

- Safety glasses must be worn at all times
- Shop clothing policy must be followed (see 9.0)
- No horseplay in the shop
- No running
- No sitting or standing on desks or tables
- Be attentive of others and your surroundings
- Report all injuries
- Use common sense



## **9.0 Team Clothing Policy**

### **9.1 Purpose**

The following are the team's rules regarding what is permitted to be worn in the shop. This policy was created to eliminate safety hazards related to clothing

### **9.2 Footwear**

All footwear of anyone entering the shop must be closed-toed and securely fitted to the foot with laces that do not drag onto the floor or hang and swing as they walk.

### **9.3 Pants**

Pants must be longer than knee length, but short enough that they do not drag on the floor. No baggy pants.

### **9.4 Torso Covering**

Baggy or loose clothing is forbidden in the shop unless thoroughly tucked in. Long sleeves must be rolled up past the elbow.

### **9.5 Jewelry**

Jewelry is strictly forbidden in the shop. Studded earrings may be worn if approved by Safety Captain.

### **9.6 Hair**

If a member's hair is considered long enough but Safety Captain, their hair must be pulled back and secured with a hair tie. If the hair is too short for a hair tie, it may be held back with pins or a headband.

### **9.7 Summer Clothing Policy**

In the summer months, clothing policy remains mostly the same. Students are not allowed to wear sleeveless shirts and pants must reach their knees. Closed-toed shoes are required for all outreach/summer events.



## **10.0 Handling Injuries – Minor**

### **10.1 Oversight and Implementation**

While all students should be trained on how to handle injuries, it is required that members of the Safety Committee treat injuries if possible. All injuries must be recorded in both the Injury Log and an Injury Report.

### **10.2 Specifics**

#### **Splinters**

- Keep area clean; wash hands and affected area, use clean tools
- Use tweezers to remove
- Ask for help if needed

#### **Small Cuts**

- If actively bleeding, apply pressure with a clean cloth
- Remove all foreign objects from cut
- Clean wound with warm water, pat dry
- Apply antibiotic ointment, cover with sterile bandage

#### **Small Burns**

- Run cool water over area for several minutes, pat dry
- Clean the burned area very gently with water
- Cover with a clean bandage and burn cream

#### **Foreign object in eye**

- Do not touch, press, or rub eye
- Find safety captain to help flush eye

#### **Things dropped on feet/hands**

- Remove object
- Determine if bones are broken
- Apply ice



- RICE (Rest, Ice, Compression, Elevation)

Strange material/liquid on hand

- Consult MSDS



## **11.0 Handling Injuries – Major**

### **11.1 Oversight and Implementation**

While it is recommended to have members of the Safety Committee treat injuries, in case of serious injuries the nearest member must handle the injury to ensure minimization of the injury.

### **11.2 Specifics**

#### **Large Cuts**

- Don't touch the cut
- Contact anyone from the Safety Committee

#### **Loss of body parts**

- Call emergency services
- Locate missing body part
- Inform others in surrounding of emergency

#### **Electrocution**

- Separate from current source
- Call emergency services
- Perform CPR if necessary

#### **Large Burns**

- Don't touch
- Call emergency services
- Elevate the burn area
- Monitor the person's breathing and pulse until medical help arrives

#### **Being lit on Fire**

- Stop, drop, and roll
- Use fire extinguisher
- Call emergency services



### Things stuck in body

- Do not remove
- Call emergency services



## **12.0 Emergency Protocols**

### **12.1 Purpose**

Emergency Protocols were created and taught to students in order to ensure the team is ready in case of any emergency.

### **12.2 Fire**

All students are informed of the protocol to be taken in case of a fire in the shop. The fire escape plan is available in all rooms that the team works in as well as within the safety manual. A fire drill is held once every other week during build season to ensure students are aware of protocol. A copy of the fire emergency plan is available in Appendix G.

In an effort to prevent fires all machines need to be unplugged and the shop must be cleaned thoroughly before students and mentors leave the shop.

### **12.3 Tornado**

All students are informed of the protocol to be taken in case of a tornado. Students are to head out to a designated wall along a hallway close to the workshop and shield themselves in a manner taught to them. The team holds a tornado drill once every other week during build season to ensure students are aware of protocol. A copy of the tornado emergency plan is available in Appendix H.

### **12.4 Suspicious Persons**

All students are informed of the protocol to be taken in case of a suspicious person. Lock doors, turn off lights, hide to make it seem as though nobody is in the room, stay silent. These types of drills have been held 3 times a build season at random times.

### **12.5 Evacuation**

All students are informed of the protocol to be taken in case the building needs to be evacuated. In case the building needs to be evacuated, all members must





follow the escape routes posted in all rooms and exit the building in a calm and orderly fashion.



## **13.0 Competition Safety**

### **13.1 Purpose**

While safety at competition is similar to that in the shops, distinct differences exist. It is important to note these distinctions and go through a safety update with all team members prior to competition. All injuries that occur at competition must be reported as well.

### **13.2 Safety in the Stands**

In the stands, students need to be careful and attentive of their surroundings. While having spirit and cheering are important, it is also important to keep calm in the stands.

### **13.3 Safety in the Pits**

While in the pit, all team members must be attentive and safe. A member of the Safety Committee must be in the pit at all times. All FIRST rules must be observed. If a team member is behaving inappropriately and unsafely in the pit, they will be removed for the day.

### **13.4 Safety Materials**

Safety Materials must be kept in the pit in a known and easily accessible location. A secondary safety kit must also be available in the stands.

### **13.5 Check-in/check-out policy**

In order to leave the competition venue, students must check-out with a mentor. Check out is done on a library card style notecard that is kept in their cubby. No students may go alone. If a student does not return at the time that they have specified and does not call to let mentors know, the student will have their rights to go off grounds revoked.

### **13.6 Hotel Policy**

In the case that the team stays at a hotel, new rules are implemented. Gracious Professionalism is the first rule. If a student is being disruptive, they will be



punished by mentors. No boys in girl's rooms and no girls in boy's rooms. All students must be in their rooms at a designated time and may not leave unless it is an emergency. If a hotel has a swimming pool and students wish to use it, a mentor or parent must be at the pool with the students.



## **14.0 Safety Outreach**

### **14.1 Purpose**

The team does everything it can to create an environment of safety and to conduct safety outreach so others can have this as well.

### **14.2 Safety Ambassador**

All members of the safety committee are recognized as an UL Safety Smart Ambassador and have gone through all of the Ambassador training. Through this, they learn how to teach students and others about safety so they can be an effective head of the safety program.

### **14.3 Safety Start-up Toolkit**

Developed as a way to help teams start or improve on their existing safety programs, the Safety Start-up Toolkit includes a booklet which walks teams through creating a basic team safety program, a beginning first aid kit, and a battery spill kit that they can then add to and change through the years as their teams specific needs develop.

### **14.4 Materials at Competition**

At competition, the Safety Committee always brings extras of every material in order to be able to give to other teams in case they need it. From extra first aid kits, to extra battery spill kits, the team wants to ensure all teams have the supplies they need to succeed.

### **14.5 IU Health and Safety Fair**

The team's safety committee participated in a summer event to teach the community about safety. The IU Health and Safety Fair is a one day event held at the IU Arnett Hospital. This consists of a variety of local organizations who come together to put on presentations to explain not only why it is important to be safe but also different ways to be safe in our day to day lives.

### **14.6 Get Active Days**



The safety committee holds monthly Get Active Days. Get Active Days are a program started to encourage our team members to lead healthy and active lives. These days are organized in advanced by the safety committee where they decide on an activity and make the proper arrangements for things such as gear and venues needed.

### 14.7 Team Coloring Book

Our team coloring book is used to educate kids about safety. We take this book to our outreach events as a way for kids to get involved in safety. We also bring copies to competition for anyone who wants it.

### 14.8 Safety at Outreach Events

At all of our outreach events we have at least one member of our safety committee present. We do this because having a committee member present ensures the greater level of safety. Prior to presenting our robot at demonstrations and events, a member of the Safety Committee talks to the crowd about how to stay safe when interacting with our robot and team.

### 14.9 Indiana FIRST Forums

The Indiana FIRST forums are an annual event held by Indiana FIRST in partnership with Purdue FIRST Programs. For the 2015 forums, our team was able to convince the organizers of the event to let our team host a discussion surrounding safety in FIRST. Over the course of the hour-long presentation, we talked with more than 50 FIRST participants from teams from all over Indiana about how to stay safe in FIRST.

### 14.10 Safety App

Our team currently has a safety app that we use to assist our Safety Committee and all of our safety efforts. With our programming team, we are currently working on developing an empty “skeleton” app for teams to insert their own safety information so they too can have their own safety app. We hope to launch this by the end of the 2016 school year.



## I 5.0 Safety Problem/Solution

### I 5.1 Purpose

The Safety Problem/Solution format was created in order to provide a means to identify problems and create solutions for safety hazards. Any person may point out problems or recommend solutions to the Safety Captain, who has final decision on what is then included in this manual.

### I 5.2 2016

**Problem:** Our team moved into a new shop in the school with new equipment, a new layout, and new safety concerns. This new shop presented new safety risks for all team members.

**Solution:** Before the team moved into the new shop a member of the safety committee went through the shop with a mentor identifying risks and hazards. All safety concerns that could be fixed were dealt with and for those that couldn't be fixed, safely traversing those was a component that was added to safety training.

**Problem:** New storage space for the team had a second story that had no railing on the stairs or on the edge of it, presenting a safety concern to any team member.

**Solution:** The safety committee had a railing built for the staircase as well as the edge of the second story to prevent any future accidents.

**Problem:** During summer demonstrations and events, students on our team were getting sunburnt. Though our safety kit contains sunscreen to prevent that, some students were still getting burnt, a situation which proved uncomfortable during future events.

**Solution:** The summer safety kit now contains aloe vera for those suffering from sunburns.

**Problem:** During summer outreach events, students were wearing inappropriate and unsafe clothing but no rule existed to prohibiting these clothing.



**Solution:** A new section was added to the team clothing policy outlining summer clothing policy

### 15.3 2015

**Problem:** Old machine caught fire to the shop after we left and caused permanent damage to other machines and materials in the shop. This then created a few week hiatus in which the team was unable to do any work in the shop.

**Solution:** A policy was created to prevent electrical fires in our absence. All machines must be unplugged and cleaned off before the team vacates the building.

**Problem:** Students were showing signs of dehydration and sunburn at summer events.

**Solution:** Safety committee made sure that there was water readily available to all students on the team to prevent dehydration and that all team members wore sunscreen to prevent sunburn.

**Problem:** Students claiming ignorance of rules and standards on team when confronted after breaking a rule.

**Solution:** Safety committee created and sent home safety contracts stating the rules and expectations of students and required it to be signed by both the student and the guardian then returned within a week.

### 15.4 2014

**Problem:** Certain machines we had in our pit were causing safety issues such as sparks.

**Solution:** Removed grinder from being able to be used and created a list of restrictions for materials that could be used on each machine.

**Problem:** Noticed that there was no document to teach teams how to start or improve their safety program.

**Solution:** Created booklet and videos to teach teams how to create an effective safety program and how to handle safety emergencies. Titled “Safety Start-up Toolkit”.



**Problem:** Noticed several students deliberately breaking safety rules and being safety hazards to other students. No way to reprimand them in place.

**Solution:** Punishment system created to allow for mediation and recognition of wrong doing in situations such as those mentioned before.

## 15.5 2013

**Problem:** Too much work for one person to construct an entire safety program.

**Solution:** Safety Committee created to allow for work to be divided amongst students and for more representatives of the team safety program to be available.

**Problem:** No formal safety training.

**Solution:** three-step formal safety training for all team members was created.

**Problem:** Missing crucial supplies such as a fire extinguisher and MSDS.

**Solution:** Safety Captain sat down and researched everything that the team was missing for an effective safety program. The more crucial supplies were purchased or collected.

**Problem:** Students don't know how to properly treat injuries or how to act in emergency situations.

**Solution:** How to handle injuries and how to act in emergency situations was added to the team Safety Manual and is now an integral part of safety training.

## 15.6 2012

**Problem:** No safety manual.

**Solution:** Student and mentor pair stepped up to research safety and construct a manual to guide the team.

**Problem:** No first aid kit.

**Solution:** A first aid kit was purchased solely for use on the robotics team.





## Appendix A: Safety Pictures

1. First aid kits: The team has several first aid kits. One main first aid kit (right), one mini kit that is available in the shop or in the pits for emergencies (middle), and a secondary kit that is available in the stands and in case the primary kit isn't available (left)

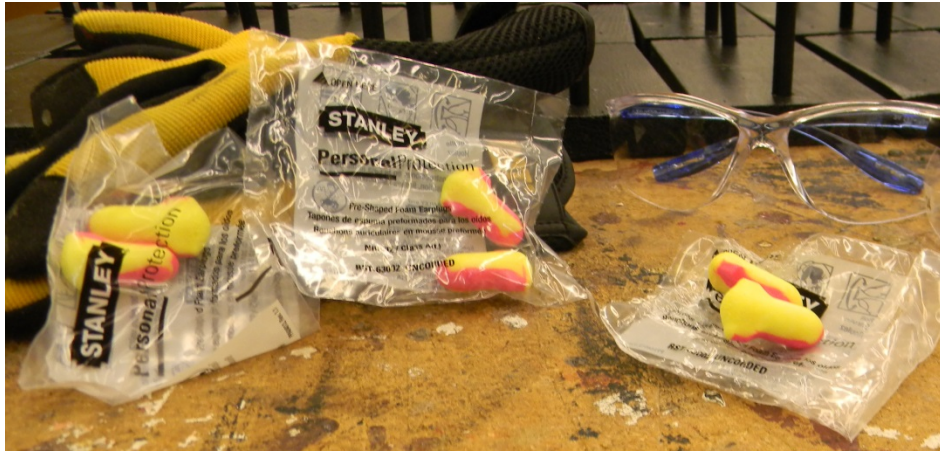


2. Glasses cubbies: Cubbies are portable and available in the classroom and in the stands at competition. Each student is assigned one cubby.





3. Hearing and Hand Protection: ear plugs and heavy duty gloves are available in the safety cabinet. Disposable medical gloves are also available when needed.



4. Battery spill kit: Located in the safety cabinet in the shop, the battery spill kit contains all materials necessary to handle a battery spill emergency.





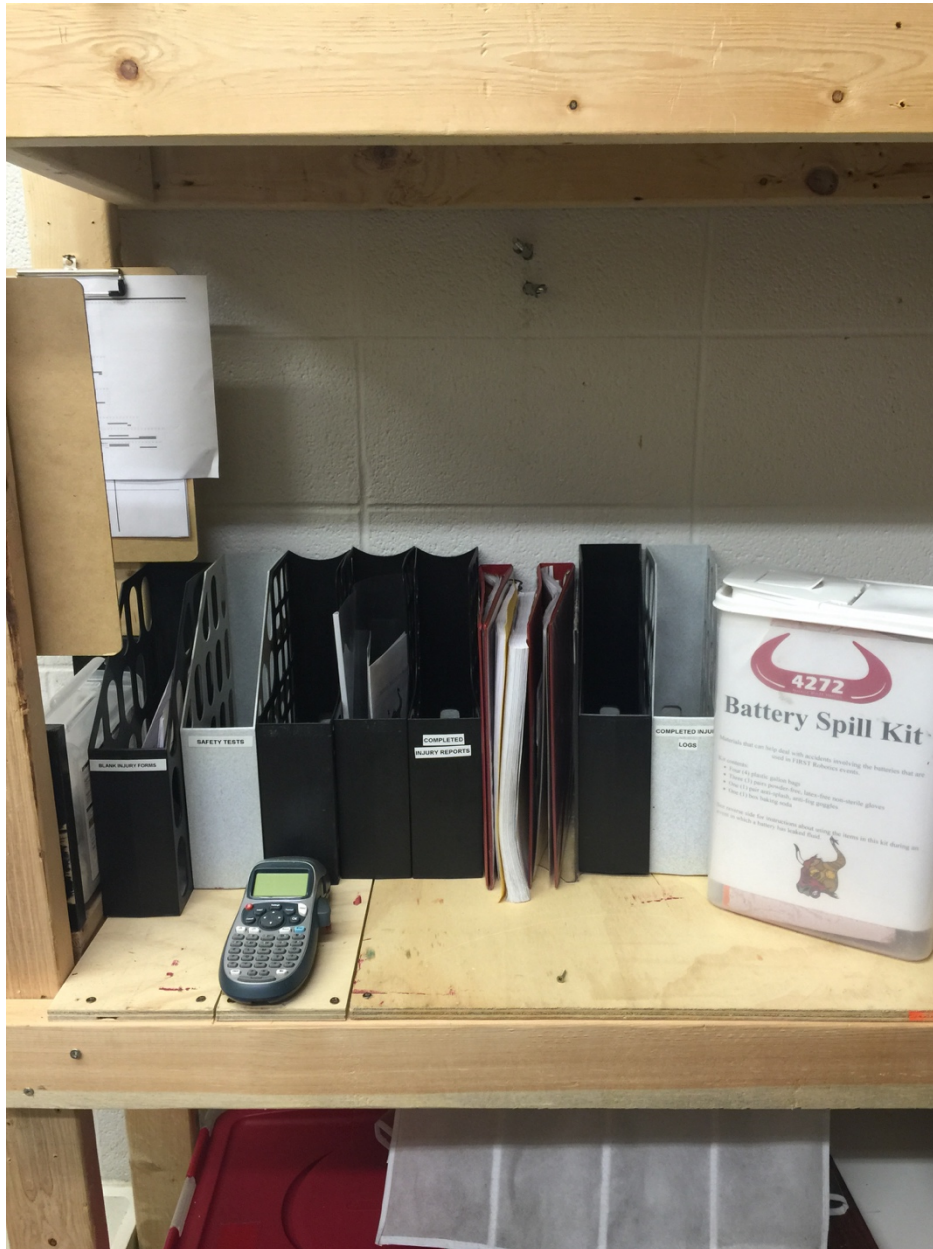


5. Fire extinguisher: One permanently located in the shop (left) and one portable fire extinguisher in the pit during events and competition (right).





6. Safety shelf: Most safety supplies are located in the safety shelf of the business cabinet.





## **Appendix B: Battery Spill Kit Instructions**



## Battery Spill Kit

Materials that can help deal with accidents involving the batteries that are used in FIRST Robotics events.

### Kit Contents:

- ❖ Four (4) plastic gallon bags
- ❖ Three (3) pairs of powder-free, latex-free, non-sterile gloves
- ❖ One (1) pair anti-splash, anti-fog goggles
- ❖ One (1) box baking soda

See reverse side for instructions about using the items in this kit during an event in which a battery has leaked fluid.





## Spill Kit Usage Instructions

The fluid escaping a Lead-Acid battery is extremely corrosive. Every precaution must be taken to prevent contact with one's skin and clothing. Upon reaching the scene of a battery spill of any sort, make sure everyone in the area knows about the caustic nature of the material. The person designated to deal with these materials should use the protective items in this kit before doing anything else. If there is another person present, it will help if s/he reads the following instruction list aloud during the clean-up procedure.

**An active clean-up person will:**

1. Empty out the contents of the battery spill kit.
2. Put on safety goggles and the gloves available in the battery spill kit.
3. Open the box of baking soda by pushing the "tab" end of the box and tearing the lid to the side.
4. Apply liberal amounts of the baking soda to the spill.
5. If the acid continues to come out of the battery in any amount, dump a copious amount of baking soda in the immediate vicinity to continue to neutralize the acid.

**\*\*\*The fluid will begin foaming as soon as it comes into contact with the baking soda. The gas being produced is carbon dioxide. It is harmless in the quantities that will be produced. The resulting fluid is still slightly acidic, but not dangerous.\*\*\***

6. If bubbling stops because all of the baking soda has reacted with the acid, keep adding more baking soda until bubbling stops while baking soda remains.
7. While waiting for bubbling to stop, carefully examine the surrounding area to see if there are any outlying splatter spots that have been reached by the acid. Threat any other places you find.
8. Place the leaking or damaged battery inside a gallon plastic bag.
9. Scrape up the solid materials on the spill site and add them to the bag or to a different bag.
10. Seal the bags and place them in the plastic container.
11. Contact someone in charge of the site to advise them that there is hazardous material that require disposal. If you are at a tournament, the Pit administration area is a good place to find the answers about what to do next.
12. Proceed to a wash room while wearing the protecting items. Refrain from touching things and people.
13. Rinse the gloves with liberal amounts of fresh water before removing them. Remove gloves and place them in the gallon bag with the rest of the acidic stuff. Treat gloves as hazardous material, because they are.
14. Remove and rinse the goggles.



## **Appendix C: Blank Injury Log**





# INJURY LOG

DATE	NAME	INJURY	ACTION TAKEN



## **Appendix D: Blank Injury Report**



FIRST Team 4272 Injury Report

Name \_\_\_\_\_ Gr. \_\_\_\_\_

Date \_\_\_\_\_

Injury \_\_\_\_\_

Detailed Description of how the injury occurred

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Detailed Description of how the injury was treated

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Student Signature \_\_\_\_\_

Safety Captain Signature \_\_\_\_\_

Adult/Mentor Signature \_\_\_\_\_

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I, \_\_\_\_\_ understand that my student obtained the following injury,  
\_\_\_\_\_, at a Robotics meeting and that the injury was treated and cataloged. I  
understand that this injury may or may not require further examination by the family physician. I  
understand that neither FIRST Robotics nor McCutcheon High School are responsible for the injury and  
cannot be held accountable for it or any other injury that may occur at a Robotics meeting.

Parent Signature \_\_\_\_\_

Date \_\_\_\_\_

Student Signature \_\_\_\_\_

Date \_\_\_\_\_



## Appendix E: Safety Cards



**Juan Salazar**

Freshman, Male, Hispanic

Engineering Sub Team

No Asthma

No Allergies

Home: 754-474-0586 Cell: 765-404-8684



## **Appendix F: Safety Test**



First Team 4272

Name\_\_\_\_\_

Safety Test

Sub-Team\_\_\_\_\_

2013

Date\_\_\_\_\_

### Dress Code

1. What are the qualifications for footwear in the shop?  
**Tennis Shoes or Work Boots**
2. What are the requirements for hair in the shop?  
**Tied Back Securely**
3. When should you wear Safety Glasses in the shop?  
**Always**
4. Explain the clothing requirements.  
**Nothing loose, no long sleeves ect.**

### Basic Rules of Conduct

1. What is the Number One Rule?  
**No horseplay!**

### Fire

1. What do you do if you are on fire?  
**Stop, Drop, Roll**
2. What is the acronym for how to use a fire extinguisher and what does it mean?  
**PASS- Pull, Aim, Squeeze, Sweep**
3. What do you do in case of major fires?  
**Exit quickly and quietly**
4. Minor fires?  
**Grab the fire exthinguisher**

### Tornados

1. Where do you go in case of Tornados?  
**Safe room, across the hallway.**



## First Aid

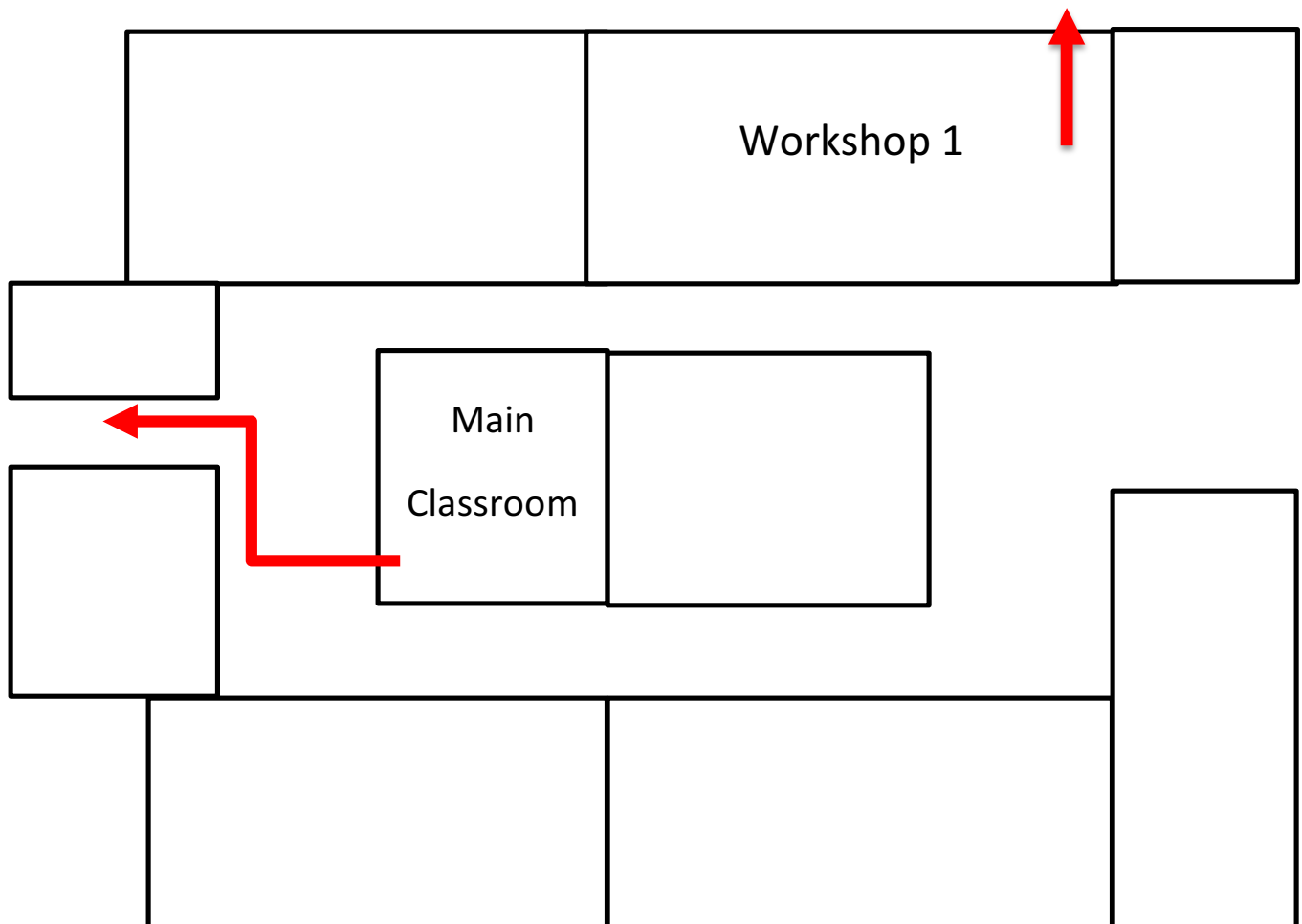
1. What is the most important thing to remember in any emergency situations?  
**Stay calm**
2. What is the first step in treating any minor wounds?  
**Wash it**
3. What does RICE mean?  
**Rest, Ice, Compression, Elevation**
4. What DON'T you do if there is something in your eye?  
**Touch it**
5. What do you always want to do in case of a major injury?  
**Call 911, Order someone to call 911**
6. What do you do after every injury occurs and is treated?  
**Report it**

## Safety Materials

1. Where is the first aid kit kept?  
**PR cabinet**
2. Where is the battery spill kit kept?  
**PR cabinet**
3. Where is the Fire Extinguisher kept?  
**Between Cabinets 1&2**
4. Where are safety glasses kept?  
**In the cubby (shoe bag)**



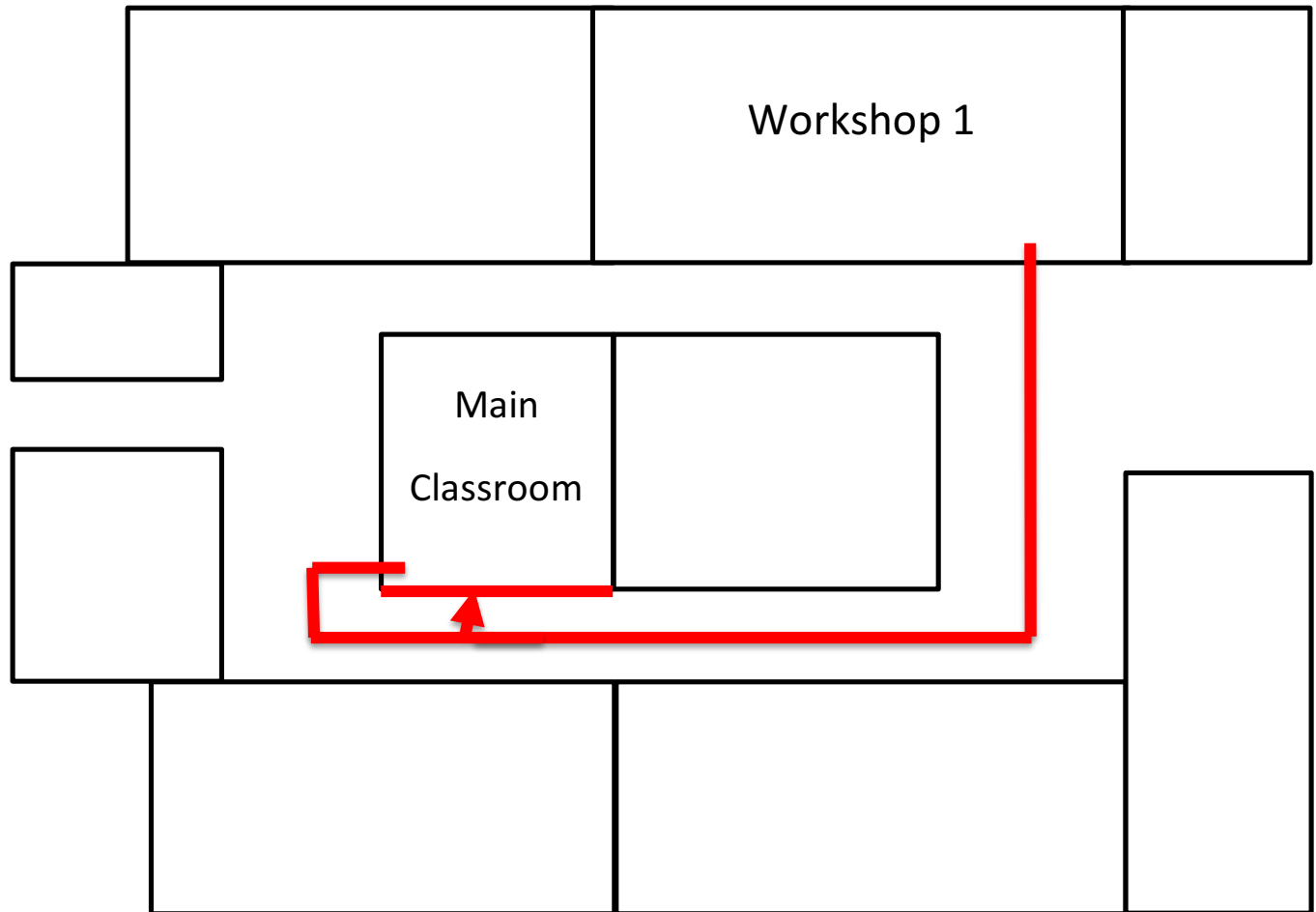
## Appendix G: Fire Escape Plan







## Appendix H: Tornado Escape Plan





## **Appendix I: Safety Contracts**



McCutcheon High School Robotics  
FIRST Robotics Team 4272  
Maverick Boiler Robotics  
**Safety Contract**

Student Full Name: \_\_\_\_\_

Grade: \_\_\_\_\_

**Team Contract:**

The following contract is designed to ensure that every student and legal guardian fully understands the safety expectations for being a part of the McCutcheon High School robotics team.

I have read and will abide by all rules in the Team Safety Manual

I understand the consequences of prohibited behavior

I understand the responsibility of team safety leaders (Safety Captain, Jr. Safety Captain, Shop Safety Supervisor, and Safety Mentor) and will respect their authority

Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Parent/Legal Guardian Name (printed): \_\_\_\_\_

Parent/Legal Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_

