

Safety Manager Training

Instilling a culture of safety is a value that every individual in the *FIRST*® community must embrace as we pursue the mission and vision of *FIRST*. *FIRST*® Robotics Competition has adopted safety as a core value. Your role at the event is to help with event safety.

Team Experience

Help us create a positive climate at our *FIRST* events. It's important for all volunteers and staff to remember that the teams are the customers of *FIRST*. We would never raise our voice to a VIP or a guest speaker; by that same token we should treat the students and mentors on teams with the same amount of respect. This event is about them, and we always need to be kind, calm, and patient. As volunteers in our community, it's important we set the right example for everyone about the importance of the team experience. Even if there are ten positive experiences, one bad interaction will last in their memories. Let's make thousands of positive memories for all our participants and show them the value of *FIRST* and *Gracious Professionalism*® in action.

Safety Manager Responsibilities

- Monitor overall event safety, observe unsafe actions, and coach teams in appropriate safe behavior - **see below for tips on how to coach teams**
- Manage the daily Safety All Star - **see notes below!**
- Attend the daily morning meetings if asked (talk with your Volunteer Coordinator [VC] about times)
- Wear the red safety vests to identify yourself to teams (ask your VC for these)
- Oversee safety from beginning to the end of the event, including Load in and Load out
- Monitor safety glass stations to ensure they are properly stocked and running efficiently
- Manage Safety Attendants and help keep volunteers engaged. Work with your VC on site
- Conduct Safety Captain meetings at event – **see notes below!**
- Should **not** make up their own rules. If something seems unsafe and is not specifically called out in this document or supporting documentation, please talk to the Event Manager or Program Delivery Partner.

General Safety

- Teams should follow all rules from the Event Rules Section of the Game Manual.
- Follow safe work practices, including safe use of all tools and personal protective equipment (PPE) - safety glasses, shoes, gloves, hearing protection, etc. (more details below)
- Remind teams to be careful about using tools that generate heat to avoid injury or starting a fire.
- Running and horseplay is not permitted at any time.
- Children 12 and under must be accompanied by a person 18 or older at all times.
- If you see a team plugging a power strip into another power strip (also known as daisy chaining), talk with the team to find another solution.
- You can read the [Safety Manual](#) for more details on safety practices.

Tools

- Small, bench-top machinery, with appropriate guards, is permitted in team pits. 'Small' machinery is machinery that can be easily lifted by one person. (i.e. small band saws, drill presses, etc.)
- Floor standing power tools are prohibited.
- Tools that throw sparks or produce open flames are prohibited.
- Teams should use tools safely and appropriately.
 - Speak with a team mentor if you see a team member using a tool in an inappropriate or dangerous manner. Assist to identify a more appropriate tool the team can use.
- Remind teams that when using knives/blades, direct cutting strokes away from your hand and body and be aware of those around you. Wear cut resistant gloves and use safety razors with retractable safety blades.
- Soldering may be done using an electric iron/gun only.
- Do not leave hot tools where injury can occur.

Personal Protective Equipment (PPE)

- At *FIRST* events, eye protection must be worn:
 - Anywhere in the pits including walkways.
 - In the vicinity of the arena, including the playing field.
 - On the practice field.
 - Any area posted with signs requiring the use of eye protection (such as the machine shop).
- This season, events are responsible for providing safety glasses at the venue. We recommend teams store their safety glasses in their pits overnight to ensure participants re-use the safety glasses they borrow to mitigate the risk of running out of safety glasses at events. Safety glasses will not be required at the *FIRST* Robotics Competition Pit entrance for the first ten minutes only. Teams should use this time to retrieve their safety glasses from their assigned pits. Once this allotted time has passed, volunteers and staff should begin patrolling the *FIRST* Robotics Competition pits to ensure safety glasses and safety procedures are being followed
- Hand protection is designed to protect against heat, electrical, chemical, and mechanical hazards. Proper gloves and mechanical tool guards should be used as applicable.
- Closed-toed shoes must be worn in a team's individual pit and by the field.
- If you see someone working on a robot with loose clothing, jewelry or long untied hair, remind them to pull back hair, tie back loose clothing, and/or remove loose items.

Battery Safety

- If a battery is visibly damaged in any way, the team should not use it. At a *FIRST* event:
 - Immediately send the person in contact with acid to the First Aid Station/EMTs.
 - Report the incident to the Pit Administration Supervisor so that the individual can fill out a Medical Incident Report form. Provide the team number and available information.
 - Pit Administration will immediately contact Event Management for further instruction from event and venue authorities.

General Robot Safety

- Make sure all team members are aware when work is being done on the robot, or when the robot is being turned on or off
- If teams are using pneumatics (air pressure powered mechanisms), remind them to open the vent valve to release stored air from the robot before moving it
- Relieve any compressed or stretched springs or tubing
- Lower all raised robot arms or devices that could drop unexpectedly
- Make sure teams follow the recommended practices for lifting, handling, and transportation of robots. Speak with a mentor if you notice any unsafe robot handling.
- Post-Match Lifting Procedures:
 - Teams must relieve all stored energy and open the main circuit breaker on the robot.
 - Teams must ensure that the robot is made safe prior to lifting it off the playing field, no dangling parts, etc.
 - Two to four people are preferred for lifting the robot
 - Teams must use the gate opening to exit the playing field. Climbing over the guardrail is prohibited.
- Carts must be safe. They must be easy to control and maneuver and pose no risk to bystanders. Carts identified as unsafe by Safety Managers must be made safe before they are allowed to be used.
- Participants must be behind shielding or in a marked off safety area when robots are actively operating to prevent accidental collision or contact with an active robot.

Coaching Teams:

- The Safety Manager will:
 - Provide positive verbal feedback for safe behavior and conditions.
 - Indicate unsafe behavior and coach to correct unsafe behavior

Positive verbal feedback is provided to recognize and encourage safe behaviors. A positive focus helps participants understand what they should be doing (rather than not doing), increases their receptivity to coaching, and is ultimately far more enjoyable and effective than a negative approach.

- If an issue arises and the team is not cooperating, work with the event manager and/or *FIRST* Staff to resolve any safety issues.

Safety All Star

- This recognition identifies Safety Captains that have gone above and beyond in making a noteworthy contribution to promoting a culture of safety. Each winner will be chosen at the discretion of the Safety Manager w/ input from teams through the Safety Champions cards (obtained from VC).
- Teams should be instructed to submit the cards before the pre-agreed upon deadline with the Event Manager so the Safety Manager can pick a winner.
 - The student should be presented with the Safety All Star pin (obtained from VC)
 - The student should be announced via the PA in the Pits (as applicable).
- 1 winner is selected on each day of the competition and should be selected by midday so the winner can be recognized via pit announcement before the event is over each day.

Safety Captain Meeting Talking Points

Use these talking points below when conducting it and be sure to have a copy of this on hand when you conduct it.

- Be Safe, Be Kind, Be Gracious. Instilling a culture of safety throughout the build season, including at *FIRST* events, is a fundamental goal of *FIRST*.
- The Safety Managers are here to help promote safety with you during these events and in the heat of competition. We'd love to hear about your team's approach to safety!
- Serve as a safety ambassador for *FIRST* at the event and be a proponent for the *FIRST* culture of safety. Escalation of safety matters should be made through your mentor or, as appropriate, with the event safety advisor(s).
- Pit station = Includes your individual pit and all adjacent aisles. The pit area begins when you enter the designated area, usually near the pit administration desk or safety glasses station.
 - Safety glasses are always required in the pit area and on the competition field. *FIRST* needs your help to enforce this rule. Please ask your team members and spectators to wear their safety glasses. Wear ANSI-approved, UL-Listed, CE EN166 rated, AS/NZS certified, or CSA rated safety glasses. Lightly tinted yellow, rose, blue, and amber tints are allowed for *FIRST* events, but reflective lenses are not (your eyes must be clearly visible to others). If you wear non-safety rated prescription glasses, you must wear approved safety goggles over them to achieve adequate protection. If you wear safety rated glasses, you may use ANSI-approved, UL-Listed, CE EN166 rated, AS/NZS certified, or CSA rated side shields.
 - Accommodations will be made for participants that require tinted safety glasses.
 - Wear shoes that completely cover the entire foot. Shoes must be closed-toed to protect against foot injuries, regardless of work location. Flipflops, sandals, mules, Crocs, lightweight slippers, etc. are not acceptable.
 - A 10-foot height limit for equipment and displays in the pits will be enforced.
 - Children 12 and under must be accompanied by a person 18 or older at all times.
- Practice safe robot transportation principles.
- No open flames in the arena venue, except by authorized personnel and in approved locations (such as the machine shop).
- Report all injuries and illness to the EMT stationed near the pit administration desk.
- Safety Awareness and Recognition:
 - Safety All Star cards are to be filled out by each team and turned in to pit administration. Safety Managers will use this information to help select the winners each day.