



## California Robot Games 2006 Hand Book

### Competition Safety Rules

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WRRF asks everyone involved in Cal Games to place the highest priority on safety, looking out not only for one's own safety but also the safety of others. Do not hesitate to speak up or act in the interest of safety. WRRF particularly wants to highlight safety measures in the areas of transportation, equipment and work safety.

#### Transportation

Participants and volunteers should consider three categories of transportation-related risks: drivers, vehicles, and passengers:

- \* Drivers of vehicles should be properly licensed, insured, and be adequately trained to drive the kind of vehicle used. They should drive prudently and not be under the influence of alcohol or drugs.
- \* Vehicles should be in good condition, and have required safety equipment, insurance, and inspections, and not be overloaded.
- \* Passengers should act safely, refrain from distracting the driver, and take proper safety precautions (i.e., use seat belts in vehicles so equipped).

#### Equipment and work safety

- \* Make sure you have training before using equipment, and follow appropriate safety procedures for that equipment. Teams must designate Safety Captains to help reinforce equipment and work safety practices.
- \* Wear safety glasses when in the taped off pit area, competing, using equipment, working on the robot, or in the vicinity of these activities.
- \* Lift properly to avoid injury. Protect your hands. All robots must pass inspection before being allowed to compete.
- \* There is a limited amount of electrical power in the pits - one 120v 20 amp circuit per ~6 teams. High load equipment must be run on its own circuit. Do not leave any item plugged in overnight including battery chargers.

Any safety concerns, injuries, or other incidents should be reported to WRRF event volunteers and/or WRRF staff immediately.

Pursuant to these ideals, we have enumerated some specific rules and recommendations below. Safe and reasonable behavior are not limited to what these rules cover. When considering doing something, consider whether or not it is both safe and reasonable before doing it.



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#### Important Pit Area Safety Rules

- S01. Safety glasses must be worn by team members, volunteers and guests: 1) at all times within pit station, 2) while working on the robot (regardless of location), 3) while observing robot building or repair work in such a close proximity that may pose a hazard (regardless of location), and 4) while competing or performing duties as a volunteer on the competition field. Regular glasses are not safety glasses. Safety goggles must be worn over regular glasses. Goggles are not required over regular glasses that: provide broad coverage of the eye area, have polycarbonate lenses, and are equipped with side shields. It is the expectation that all participants and volunteers will bring safety glasses to the event and will demonstrate their commitment to safety by reliably wearing them.
- S02. Visitors are not required to wear safety glasses while walking the aisle in the pit area, but it is the expectation that teams will bring extra pairs of safety glasses for visitors to temporarily wear if they are invited into the pit station, or if they are observing robot repairs and operations in close enough proximity to a robot to pose a hazard. All participants and volunteers are expected to demonstrate their commitment to safety by reliably policing this rule with regard to safety glasses.
- S03. Closed toe shoes consistent with the tasks of carrying the robot, or active sports field play, should be worn in the pits and by participants in the competition. In particular, high heels should not be worn by match participants or when working in the pits, although high heels are not proscribed in the aisle through the pit area. Exercise care when traversing the ramps that protect power wiring where it crosses aisles in the pit area.
- S04. The per-team electrical power in the pits is limited. Teams should limit the use of pit electrical power to operating laptops and charging batteries.
- S05. No cutting, drilling and grinding will be allowed in the pits. There will be a designated area with a 20 amp dedicated line outside the gym for teams to use when performing these tasks.
- S06. To limit potential messes and safety hazards, only bottled water is allowed in the pit area. Please keep the water bottle capped when not in use. No food or other drinks are allowed in the pit area.
- S07. Please keep your equipment within your team's pit area and do not allow it to spill out into the aisle or into undesignated space.
- S08. Please limit the number of team members in your pit area for safety and good traffic flow.
- S09. Teams are to connect electrical equipment only through GFCI protected circuits provided at the event. Do not use unprotected wall outlets.
- S10. Presence of "compromised ground" electrical cords, outlet boxes, or equipment is not allowed in the pit area. All 110 volt electrical equipment used during the event should be UL rated and in good condition. If your electrical equipment is deemed suspect by event staff, you are to move it to your vehicle in the parking lot without argument.
- S11. Charge batteries in an open, well-ventilated area. Only automatic battery charging equipment with a current rating of up to 6 amps may be present/used in the pit area. Multiple channel battery chargers designed such that the current to each battery is independently limited to 6 amps is allowed. Higher current battery chargers may overheat a battery, leading to a dangerous mishap. Electrical power to the team pit area will be shut off in the evening. Do not expect batteries put on charge Friday evening to charge overnight.



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#### Important Pit Area Safety Rules Continue...

- S12. All robots should be on tether at ALL TIMES when turned on, except when being operated in a competition match. This is to prevent the robot from activating its radio and interfering with a competition match.
- S13. No two-way radios are to be used in the pit area, or near the competition field, in order to prevent interference with robot radios.

#### GENERAL NOTES

- G01. Carpet and floor safety is TOP priority. Anything on the robot that have the slightest chance of digging through the carpet and damaging the gym floor will not be allowed.
- G02. Every team must pass inspection before competing in the Seeding Matches.
- G03. Please be careful of the gym floor – no food, tools, materials, or robots should come into contact with the gym floor.
- G04. Please don't block the traffic around the competition field.
- G05. Teams are responsible for supervising their items in the pit area or in the stands.
- G06. Please pay attention to queuing announcements and get your robot up to the playing field on time.
- G07. Teams should bring a 25 foot grounded electrical extension cord, and a grounded multiple outlet box, for their use in the pits.
- G08. We restrict food and drinks in the pits, and in the gym where the competition field is located, in order to avoid messes that lead to safety hazards and clean-up costs. The consumption of food or beverages, other than bottled water, in the buildings where the pits or competition field are located is not permitted. This rule is strictly enforced regardless of whether you buy food at the event concession, or bring your own. Keep your water bottle capped when not consuming water to avoid spilling water on the floor. Sealed food containers may be carried in backpacks, making it convenient for you to bring your own food to be consumed outside, but do not eat out of your backpack, or another container, while in the pit building or in the gym where the competition field is located.

#### SAFETY RECOMMENDATIONS

- R01. Do not wear loose or baggy clothing near the robots. Your clothes may get caught in robot mechanisms.
- R02. Do wear gloves while carrying the robot to protect hands and fingers.
- R03. A robot cart is recommended to prevent muscle strains and other injuries when moving your robot between the pit area and the competition field. All carts should fit through a standard 30 inch door opening. The wheels used on carts must not damage site flooring.
- R04. It is recommended, although not required, that battery chargers be equipped with Anderson connectors, as opposed to alligator clips, to prevent the possibility of shorted battery connections.