2025

evGrandPrix Rules

PURDUE GRAND PRIX FOUNDATION

evGRANDPRIX

PREFACE

The mission of the Purdue evGrandPrix Collegiate Program is to provide a fun and exciting opportunity for students to apply their engineering and technology education to design and build an electric go-kart to compete against other collegiate teams. The goal is for students to develop important professional skills that create incredible career opportunities.

This integrated program is learning by doing within a Motorsports environment. Using electrically powered go-karts as the focus, the program inspires students to commit their creative energies to learning about, developing, and showcasing the future of electric vehicle technologies.

To compete in the evGrandPrix, students organize a team at their school and partner with industry, government agencies, and community outreach programs that help to fund the program.

The evGrandPrix is an educational program that has a Motorsports theme. The primary objective is to ensure that an effective ruleset has been put in place to give the students the opportunity to immerse themselves in applying STEM principles while making sure risks are minimized. Safety is the top priority, and the goal is to maintain a safe environment that enables a fun and rewarding educational experience for all participants.

The rules apply to the Purdue Grand Prix Foundation's (PGPF) annual Purdue evGrandPrix (evGP). Each member has been provided with or has been given access to the rules, is deemed to have full awareness and understanding of the rules and has agreed to abide by and be personally responsible for compliance with the rules.

Note: Any monetary fees, fines, etc. mentioned in the rules may be paid via cash or check to the Purdue Grand Prix Foundation through the Business Office for Student Organizations.

Further information may be obtained by contacting the Purdue Grand Prix Foundation offices at:

Purdue Union B050F
West Lafayette, IN 47907
765.494.0788

Email- evrelations@purduegrandprix.org

REVISIONS

4.2.1.6 – Was amended to include: “(Any system receiving electric power of more than a household 9V battery or up to 4 AA batteries must receive its power from the kart’s main battery pack(s) and the energy used must be measurable by the PEM)”

Appendix G – Post-Race Tech Sheet now included

Appendix J - Was added to show welding examples

Contents

1. GENERAL

1.1. GOVERNANCE

1.1.1. General

1.1.1.1. The Rules govern the Purdue Grand Prix and supersede all previous Rules, bulletins, and supplementary Rules and regulations, unless otherwise indicated. Capitalized terms used in the Rules have the meanings set forth in Rule 1.1.5, Glossary.

1.1.1.2. Each Member is personally responsible for the Member's awareness, understanding, and compliance with the Rules.

1.1.1.2.1. A Member is defined as anyone serving on a team, a member of PGPF, the Safety Committee, Media, and officers contracted by PGPF.

1.1.1.3. PGPF may penalize any Member and/or exclude any Member or equipment from any Event if PGPF or representatives of the Safety Committee deems any act, any omission, any condition to be hazardous and/or not meeting the specifications, requirements, unsportsmanlike conduct, illustrations, and/or intent of, the Rules. Acts, omissions or conditions that may warrant penalty and/or exclusion include without limitation any action which PGPF deems to be a threat to or a violation of the integrity or safety of PGPF and/or the Event.

1.1.1.3.1. Unsportsmanlike conduct includes but is not limited to acts of aggression, profanity, or insults towards members of other teams or part of/invited by the foundation.

1.1.2. Purdue Grand Prix Authority

1.1.2.1. The Rules shall be applied, constructed, and interpreted by PGPF, and PGPF's application, construction, and interpretation shall be final and binding.

1.1.2.2. Any articles relating to kart specifications, participant qualifications, and safety are written and approved as an action of the Grand Prix Safety Committee. These rules are permanent and may be amended by the Grand Prix Safety Committee only. The Safety Committee reserves the right to revise these articles at any time, including, without limitation, prior to or during an Event. Notices, bulletins, supplementary Rules, regulations, and penalties are effective on the date and time issued, regardless of the date and time when a member receives actual notice.

1.1.2.3. Additional articles relating to procedures and additional information not related to 1.1.2 may be amended by simple majority vote of the Grand Prix Senior Board.

1.1.2.4. Any violations of Purdue University Regulations will be subject to disciplinary procedures with the student's university Office of the Dean of Students or comparable office.

1.1.3. **Officiating**

1.1.3.1. PGPF will select Officials, including, but not limited to, Chief Starter, Technical Inspectors, Race Officials, etc.

1.1.3.2. The Grand Prix Safety Committee is composed of:

1.1.3.2.1. President of the Purdue Grand Prix Foundation

1.1.3.2.2. Race Director(s) of the Purdue Grand Prix Foundation

1.1.3.2.3. Technical inspectors acceptable to the Purdue Grand Prix Foundation and Purdue University

1.1.3.2.4. Representative from Purdue's Student Activities and Organizations Department

1.1.3.2.5. Representative from the Environmental Health and Public Safety Department

1.1.3.3. PGPF shall have the authority to take any actions and make any determinations it deems necessary or appropriate during, or in connection with, an Event including without limitation determinations as to whether a Rule violation has occurred, whether a penalty should be imposed, the specifications of any penalty and the enforcement of any penalty.

1.1.3.4. In order to maintain transparency of all judgements and decisions made by PGPF, PGPF shall publicly publish a notice stating that PGPF has penalized a Member and/or rendered a judgement on a review and/or appeal. The notice may include without limitation a description of the penalty or judgement and names of the affected Member(s). Having accepted the privileges and obligations of membership, the Members referenced in any such notice waive any and all rights of action against PGPF and/or against any individual or entity publishing such notice. PGPF may without limitation publicize the results referenced in such notice in the positing and awards or otherwise.

1.1.3.5. PGPF will:

1.1.3.5.1. Secure necessary timing and scoring and technical equipment, excluding transponder. See Rule 4.3.1.3.

1.1.3.5.2. Record all timing and scoring information and technical information, including the standings of an Event

1.1.3.5.3. Control the designated timing and scoring and technical areas

1.1.3.5.4. Provide competition information to the Competitors and the press

1.1.3.5.5. Facilitate the awards distributions

1.1.3.6. PGPF shall be the final authority on the content of all official postings.

1.1.4. **Acceptance of the Rules**

1.1.4.1. Every Member who is involved in and/or participated in any way in any Event shall be deemed to have a full awareness and understanding of and to have accepted, the Rules.

1.1.4.2. Every Member agrees to follow the direction of PGPF and Safety Committee with respect to the enforcement and interpretation of these Rules or be subjected to penalties for failure to comply with such directions.

1.1.5. **Assumption of Risk, Liability Release, Medical Insurance, Acknowledgement and Indemnity**

1.1.5.1. ASSUMPTION OF RISK - EVERY MEMBER AGREES TO BE BOUND BY THE RULES AND ASSUMES ALL OF THE RISK OF SUCH MEMBER'S INVOLVEMENT AND/OR PARTICIPATION IN AN EVENT.

1.1.5.2. LIABILITY RELEASE – RECOGNIZING THAT KART RACING AND ALL OF THE ACTIVITY ASSOCIATED WITH IT ("ACTIVITY") CAN BE A HAZARDOUS UNDERTAKING, MEMBERS FOR THEMSELVES, THEIR HEIRS, EXECUTORS, REPRESENTATIVES, SUCCESSORS AND ASSIGNS, AGREE, BY THEIR MEMBERSHIP, THAT THEY RELEASE AND DISCHARGE PGPF, PURDUE UNIVERSITY, THE TRUSTEES OF PURDUE UNIVERSITY, AND ANY OF ITS OR THEIR DEPARTMENTS, TRUSTEES, AFFILIATED, EMPLOYEES, OFFICERS, AGENTS, AND INSURERS ("THE RELEASED PARTIES") FROM ANY AND ALL LIABILITY FOR DAMAGES TO PROPERTY, PERSONAL INJURY, AND/OR DEATH, IN ANY WAY RELATING TO ANY EVENT OR THE MEMBERS' INVOLVEMENT AND/OR PARTICIPATION IN THE ACTIVITY, REGARDLESS OF HOW THE INJURY OR EVENT MIGHT ARISE INCLUDING WITHOUT LIMITATION RACE OFFICATING, RULE INTERPRETATION AND VIOLATIONS, PHYSICAL CONDITION OF THE TRACK, AND/OR EMERGENCY TREATMENT OR RESCUE.

1.1.5.3. ACKNOWLEDGEMENT

1.1.5.3.1. MEMBERS RECOGNIZE THIS RELEASE APPLIES REGARDLESS OF WHETHER OR NOT INJURY OR EVENT MIGHT BE CAUSED IN WHOLE OR IN PART BY THE NEGLIGENCE OR OTHER FAULT OF THE RELEASED PARTIES. MEMBERS MAY BE ASKED TO ACKNOWLEDGE THIS ASSUMPTION OF RISK AND RELEASE BY OTHER AGREEMENTS THEY MIGHT SIGN AS A PREREQUISITE TO PARTICIPATE IN THE ACTIVITY.

1.1.5.4. INDEMNITY – EACH MEMBER ACKNOWLEDGES THAT MEMBER IS RESPONSIBLE FOR VIOLATION OF MEMBER'S AGREEMENTS BY MEMBER, MEMBERS'S REPRESENTATIVES INCLUDING LOVED ONES AFFECTED BY MEMBER'S INVOLVEMENT AND/OR PARTICIPATION, AND MEMBER'S PARTICIPANTS AND GUESTS. THIS RESPONSIBILITY APPLIES TO ALL VIOLATIONS OF MEMBER'S AGREEMENTS WITH PGPF. THIS INCLUDES THE MISUSE OF CREDENTIALS AND THE FAILURE TO ACCEPT THE ASSUMPTION OF RISK, THE WAIVER AND RELEASE OF LIABILITY, THE BINDING NATURE OF THE RULES, PGPF'S INTERPRETATION OF THE RULES, AND THE FINALITY OF THE APPEAL PROCEDURE. MEMBER UNERSTANDS THAT THIS RESPONSIBILITY INCLUDES THE DUTY TO INDEMNIFY AND HOLD THE RELEASED PARTIES HARMLESS FROM AND AGAINST ANY AND ALL LOSSES, LIABILITIES, DAMAGES, COSTS OR EXPENSES (INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEYS' FEES AND OTHER LITIGATION COSTS AND EXPENSES) INCURRED BY ANY OF THE RELEASED PARTIES AS A RESULT OF ANY CLAIMS OR SUITS THAT I (OR ANYONE CLAIMING BY, UNDER OR THROUGH ME) MAY BRING AGAINST ANY OF THE RELEASED PARTIES TO RECOVER ANY LOSSES, LIABILITIES, COSTS, DAMAGES, OR EXPENSES THAT ARISE DURING OR RESULTING FROM MY PARTICIPATION IN THE ACTIVITY, REGARDLESS OF WHETHER OR NOT CAUSED IN WHOLE OR PART BY THE NEGLIGENCE OR OTHER FAULT OF ANY OF THE RELEASED PARTIES.

1.2. **SAFETY**

1.2.1. **Safety Policy** – While PGPF seeks to maintain safe conditions for Competitors and others taking into account all aspects of the Event, Members recognize that conditions may not be safe and can be affected by human error. At any Event, each Member acknowledges and agrees that racing is a hazardous activity and each Member's involvement and/or participation is with expressed assumption of this risk.

1.2.1.1. While acknowledging the inherent risk of racing to Competitors and other Members involved and/or participating in an Event, Members are personally responsible for their own safety, for the safety of each Member of Member Group and for the safety of their racing equipment.

1.2.1.2. PGPF may take any action including canceling, postponing, temporarily stopping or delaying an Event, if PGPF determines that basic safety requires such action. PGPF may order off the Track any Member or Kart that PGPF determines constitutes a hazard. PGPF may prohibit any Member or Member's equipment from entering or continuing in an Event.

1.2.2. **Security**

1.2.2.1. Only authorized individuals are permitted on the Track and in other restricted locations designated by PGPF.

1.2.2.2. Pit passes in the form of a picture I.D. badge will be issued to the Members upon passing technical inspection. All Members must have pit passes and their Purdue I.D. or Indiana University I.D readily available to any Official.

1.2.2.3. Lost pit passes will require a $15 replacement fee.

1.2.2.4. Misuse of I.D. badges by Members may lead to removal from the track and disqualification of the team from events at the discretion of the Race Director(s).

1.2.2.5. Misuse of I.D. badges by non-Members will lead to an automatic disqualification for that team for the year. Any badge being misused will be immediately destroyed.

1.2.2.6. If any person in the pits is not an official member of a crew and that crew is aware of their presence, that kart and crew will be disqualified from further participation in Events for that year. The Race Director(s), Pit Coordinator, and Safety Committee shall have complete discretion.

1.2.2.7. PGPF and any contracted service staff at the Track have the right to have the proper authority engage in such searches of individuals as they deem necessary or appropriate for the safety and security of the Event. If they deem necessary, PGPF has the right but are not required to have the proper authority remove any individual and/or property from the Track.

1.2.2.8. The use of drones or any other unmanned aircraft systems ("UAS") is prohibited unless approved in advance in writing by PGPF and is in compliance with the University

policy as well as Federal and local policy and law. The use of drones must also be approved by PUPD and the airport.

1.2.3. **Driver Self Extrication Requirement**

1.2.3.1. Drivers are required to demonstrate the ability to exit the Kart within five seconds to PGPF's satisfaction by a method as determined by PGPF.

1.2.4 **Data Sharing Policy – All Members agree:**

1.2.3.2. PGPF owns any and all rights to exploit the Event including without limitation, all photographic, video, audio, films, still and/or motion picture images, sounds and data or other reproductions thereof.

1.2.3.3. PGPF may disclose the data to third parties for any purpose including, without limitation, safety and/or medical research.

1.3. **ADVERTISING**

1.3.1. PGPF may regulate or deny the advertising of any product on equipment, apparel or otherwise in connection with a Member or Event.

1.3.2. PGPF may disapprove advertising for any reason, including, without limitation, advertising which it determines offensive, inappropriate, illegal, undignified, in conflict with any PGPF sponsorship, in conflict with University regulations, potentially confusing or may detract from the interest in any Event and/or the integrity of PGPF and the University.

1.3.3. PGPF may require a Member to agree in writing with a policy statement regarding advertising of a particular product.

1.3.4. Advertising sponsors on the karts themselves shall be limited to signs located on front, rear, and side bumpers of the kart. The advertising in the front shall be at least 4 inches from each side of the front number panel.

1.3.5. A 4' by 8' professionally made sign may also be displayed in a place around the track, determined by the Race Director(s). A signed Supporter Agreement with PGPF along with a $100 fee will be required to display the advertising.

1.4. **ACTIVITIES** – PGPF may schedule mandatory meetings and/or activities for Members. PGPF may require a meeting with Member(s) at any time. Each Member must attend and actively participate in all official meetings and other activities designated by PGPF as mandatory for that Member at the times and locations designated by PGPF. These may include, but are not limited to the following:

1.4.1. Competition

1.4.1.1. **Competition Meetings** – PGPF may conduct one or more meetings of Drivers,

Crew Chiefs, and Track Workers to discuss general application, construction and interpretation of the Rules.

1.4.1.2. **Driver Meetings** – Attendance at such Driver meetings may be limited to only the Driver participating in the Event. Additional attendees and alternate drivers may also be invited to attend.

1.4.1.3. **Track Worker Meetings** – In addition to attending any mandatory meetings, track workers may be required to demonstrate knowledge of the rules and on track procedures through such means including, but not limited to, quizzes and hands on knowledge tests.

1.4.2. Media

1.4.2.1. **Pre-Race Activities**

1.4.2.1.1. **Qualifications** – Drivers must attend the Pole winner photograph obligations

1.4.2.1.2. **Pre-Race Ceremonies** – In preparation for the Race, Drivers shall follow the instructions of PGPF. Unless otherwise directed, the Drivers shall proceed to the Pre-Race stage and fully participate in Pre-Race ceremonies including without limitation any Driver introductions and/or Track laps.

1.4.2.2. **Post-Race Activities –** Upon completion of the Race, all Competitors shall follow the instructions of PGPF.

1.4.2.2.1. The winning Driver must attend and participate in post-Race interviews in victory lane. The winning Driver and Team agree to permit the display of the Kart in victory lane, as designated by PGPF, along with any sponsor(s) items as determined by PGPF. The winning Driver and Team agrees to participate in a photograph session with sponsor(s) and guests as determined by PGPF.

1.5. CHAMPIONSHIP SCORING

The evGrandPrix Collegiate Championship is a combination of race and non-race events to provide a comprehensive learning experience for students.

1.5.1. evGrandPrix Overall Championship Scoring

Final Race Placement = 50 points

Energy Efficiency during the race = 20 points

Design Report = 30 points

SERIES TOTAL = 100 Points

1.5.2. Final Race Placement (50 points)

Race Placement – Each kart will be ranked in the order they finish the race. Points will be allocated as follows:

Five points separating each of the top 5 finishers. (1st = 50 points, 2nd = 45 points, 3rd = 40 points, 4th = 35 points, 5th = 30 points)

Two points separating each of the remaining karts that complete at least 50% of the race laps. (6th = 28 points, 7th = 26 points, …)

1.5.3. Energy Efficiency (20 points) – At the conclusion of the race, race officials will retrieve PEM data from each kart. "Energy Efficiency Rating" will be calculated using the formula on the Energy Management Calculation sheet. The ratings will be ordered from the least amount of energy to most and assigned a place value. Your placement will be assigned to a point value.

1.5.4. Design Report (30 points)

1.5.4.1. Each team will submit a written report to explain the design decisions they made and how they improved the performance of their kart.

1.5.4.2. The team will be graded using the "Design Report" rubric. The rubric is out of 100 percent.

1.5.4.3. The report must not exceed 4,000 words or 30 pages. If a report exceeds these limits, it will be judged solely on the content within the limits and everything thereafter will be ignored and not considered in the judging. Charts, graphs, and images that clearly communicate the designs incorporated into the kart, the predicted improvement, the actual results, and explanation of differences between predicted and actual results are encouraged.

1.5.4.4. Each team will be assigned a time to review their Design Report with Design Judges and field judges' questions. Following the judges' review, all participating team scores will be ordered from highest to lowest and assigned a point value from 30 to 0.

1.5.4.5. Reports not submitted by the published deadline will not receive a score.

1.5.5. **Championship Calculations** – Each kart's total points gained from the Race Placement, Energy Efficiency, and Design Report will be totaled and teams will be ranked from highest to lowest. The team with the highest points will be declared the series champion. In the case of a tie, Race Placement will be the deciding factor.

1.5.6. The scheduled number of laps for the main event is 50 laps (13.5 miles) on the Purdue Grand Prix track.

1.5.7. The scheduled number of laps for the sprint races is 15 laps.

2. ENTRANTS/DRIVERS

2.1. ELIGIBILITY

2.1.1. Each team must be comprised solely of students currently enrolled full-time in a degree program at a college or university. Teams may include students from any good standing college or university, but one university must be the representative. All interactions between Purdue Grand Prix Foundation and the team will be through the representing university. Students that have graduated within the past 6 months remain eligible to participate.

2.1.1.1. Student must be in good standing with their respective college or university with proof shown to the Purdue Grand Prix Foundation.

2.1.2. A representing university or student organizations may compete with multiple karts, but each kart must have a designated team (race crew) during all official evGrandPrix events such as qualifying and the race.

2.1.3. Students in the cooperative education program are eligible to participate.

2.1.4. No member of the Grand Prix Foundation Senior Board, Junior Board, Safety Committee, Grand Prix Ambassadors, Grand Prix Queen Program, or scholarship applicant and/or recipient shall be permitted to be a member of any kart crew.

2.1.5. Duration of Eligibility

2.1.5.1. Students may participate in the Grand Prix Race a maximum of five consecutive years from the first date of participation.

2.1.5.2. Participation is defined as being a registered member of a crew as a driver, crew chief, or crew member at any time after the first practice has started.

2.1.6. A team will not be allowed to participate in an event if there are no eligible track workers available from the team.

2.2. CREW SIZE

2.2.1. The maximum number of members for a single team is seven.

2.2.2. Driver, crew chief, relief drivers, track workers, and any other general crew members are considered members of a team.

2.2.3. The minimum number of members for a single team is three. Including a driver, crew chief, and track worker.

2.2.4. No person may be a member of more than one crew.

2.3. CREW CHIEF

2.3.1. Each Entry must have a crew chief.

2.3.2. The crew chief is responsible for the kart complying with the Rules.

2.3.3. The crew chief shall serve as the official spokesperson of the crew's communication.

2.3.4. The crew chief must be in the kart's assigned Pit Box when the kart is on the Track and must accompany the kart during all technical inspection processes.

2.3.5. A crew chief cannot also be a relief driver.

2.3.6. No one other than the crew chief shall handle a situation with the Race Officials or the Race Director(s).

2.4. **TRACK WORKER**

2.4.1. Any team member expecting to function as a track worker must attend all required meetings for track workers. PGPF may also require additional training or meetings including, but not limited to, fire safety meetings, skills demonstrations, and knowledge quizzes.

2.4.2. Track workers are required to go straight out on the track as soon as the team has arrived inside the track.

2.4.3. Track workers are not allowed to leave the track until their entire team is packed and exiting the facilities.

2.4.4. Best practices for track workers can be found in supplemental publications from PGPF (See Appendix N).

2.4.5. Any crew member caught using an electronic device in the track may be immediately removed from the event and disqualified from future events. This may result in a Black Flag for their respective kart and disqualification for that day as well as the next running day. No warnings will be given for this offense and will result in a $50 fine at the discretion of PGPF.

2.4.6. Track workers are required to wear a brightly colored safety vest with their team number clearly printed on the back. Safety vests may be rented from PGPF for a $10 fee. This is a one-day rental; teams are required to have their own safety vest. Vests rented from the PGPF must be returned on the same day that they are rented.

2.5. **RELIEF DRIVERS**

2.5.1. A crew member may act as a relief driver if they meet all requirements of eligibility of a driver. Team size requirements must still be maintained.

2.5.2. Relief drivers must attend technical inspections and demonstrate fit and escape requirements same as primary driver.

2.5.3. The Crew Chief must inform the Pit Coordinator when a driver change is made during practices. Relief drivers will be marked with a highly visible "X" on the back of their helmet.

2.5.4. If a relief driver is changed to be the primary driver, the Race Director(s) must receive

written notification prior to the change occurring.

2.5.5. Drivers may not change once the race has started.

2.6. **CREW CHANGES**

2.6.1. Crew chief must send written notification to the Race Director(s) of any requested crew member changes after initial registration.

2.6.2. No changes may be made after the second technical inspection except in extreme cases as determined by the Race Director(s).

2.7. **ROOKIE DRIVERS**

2.7.1. Any driver or relief driver who has not participated in a previous Purdue Grand Prix main feature as a driver is considered a Rookie Driver.

2.7.2. Before participating in any on track activities Rookie Drivers will be required to attend a rookie orientation program as determined by the Race Director(s). These may include, but are not limited to, on track rookie practice and driver orientations.

2.7.3. Failure to attend required events will prohibit the driver from participating in any on track activities. If a driver cannot attend these events, then they must notify the Race Director(s) prior to the scheduled events. It is at the discretion of the Race Director(s) to deem the reasoning as acceptable and take appropriate action.

3. ENTRIES

3.1. **GENERAL**

3.1.1. The form to complete registration can be found at purduegrandprix.org.

3.1.2. Registration opens December 1, 2024.

3.1.3. An application will not be complete until all required forms detailed in Section 3.2 and all fees detailed in Section 3.3 have been submitted.

3.2. **REQUIRED FORMS**

3.2.1. In addition to filling out the online entry form each participant must sign the following forms and submit to the Purdue Grand Prix Foundation office, Purdue Union B050F.

3.2.1.1. Waiver, Release, Hold Harmless, and Medical Insurance Form

3.2.2. Forms may be found in the registration portal document library.

3.3. **FEES**

3.3.1. Registration fee for each kart is $400, a $50 discount will be applied if completed before the specified early registration time. No registrations will be accepted after the ending of the registration time.

3.3.1.1. Registration discount ends on February 1st, 2025.

3.3.2. Registrations may be paid in cash, check, BOSO transfer, or online through TooCOOL.

3.4. **DEADLINE**

3.4.1. Unless otherwise specified, the deadline for all entries and team member changes is February 22, 2025 at 11:59pm EST.

3.4.2. PGPF may refuse to accept late entries. Late entries, if accepted, may be penalized by PGPF.

3.5. **REFUNDS**

3.5.1. No refunds of any kind shall be given, except in the case of the cancellation of the race and the race is not rescheduled. In the event of cancellation with no reschedule, team's paid registration fee may be rolled over to the next year.

4. AT TRACK PROCEDURES

4.1. ON TRACK CONDITIONS

4.1.1. **Green Condition** – The Green Condition signifies racing conditions are clear to start.

4.1.1.1. Practice – A practice session has begun.

4.1.1.2. Qualifications – Qualification heat has begun.

4.1.1.3. Race - Unless otherwise instructed, a Race has begun.

4.1.2. **Yellow Condition** – The Yellow Condition signifies caution. This could indicate a partial blockage of the track or other unique circumstance that drivers should be on the lookout for.

4.1.2.1. Local – Signifies the start of the Yellow Condition at the point where the flag is displayed or track condition light is illuminated

4.1.2.2. Overtaking is not permitted between the first Yellow Condition and the subsequent Green Condition.

4.1.2.3. Drivers shall reduce speed immediately, proceed with caution, maintain position, and yield to safety vehicles and/or personnel.

4.1.2.4. A yellow flag displayed during qualifications indicates a full course yellow.

4.1.2.5. Local Yellow

4.1.2.5.1. At the display of a local yellow a driver must slow down, raise one hand, hold their position, and be prepared to stop.

4.1.2.5.2. Drivers must remain at a controllable speed until the first flag station that is not displaying a yellow flag. A controllable speed allows for rapid control of the kart.

4.1.2.5.3. A kart may pass another kart only if:

4.1.2.5.3.1. Both karts are in pit lane boundaries

4.1.2.5.3.2. The other kart is stopped on the track

4.1.2.5.3.3. PGPF or starter indicates to pass a kart

4.1.2.5.4. A kart must not use pit lane to improve its position relative to any kart remaining on the racing surface, but a kart may improve its position relative to other karts in pit lane.

4.1.2.6. PGPF may impose black flag penalties for violation of any rules outlined above in Section 4.1.2, Yellow Condition.

4.1.2.6.1. PGPF has the right to assess a time penalty to remain in the pits.

4.1.3. **Red Condition** – The red condition signifies the suspension of on-track activities.

4.1.3.1.1. A red flag given to the entire field means that the track is hazardous for racing. All karts must pull off into the infield as safely and quickly as possible and kill the engine.

4.1.3.1.2. No work may be performed on any kart whether on the track or in the pit lane while under the Red Condition.

4.1.3.1.3. As soon as instructed by the Race Director or Pit Coordinator, two crew members are allowed to attend to the kart and driver. They must bring only their kart stand, fire extinguisher, and starter motor.

4.1.3.1.4. If the race is to be restarted, the Race Director and Scoring and Timing Officials will position karts at the start/finish line in order of the last complete lap.

4.1.3.1.5. Unless otherwise declared by PGPF, a Race stopped by the declaration of a Red Condition due to inclement weather will be considered incomplete unless more than 50% of the scheduled number of laps has been completed by the race leader.

4.1.3.1.6. If a Red Condition is declared due to inclement weather and more than 25% and less than 50% of the schedule number of laps has been completed by the race leader the race will be restarted at a later time or on the scheduled rain date by lining up the karts in single file in the order of the last completed lap. If a Red Condition is declared due to inclement weather and less than 25% of the scheduled number of laps has been completed by the race leader the race will be restarted according to the race starting order.

4.1.4. The decision as to whether to declare a Green, Yellow, or Red Condition may not be reviewed and/or appealed.

4.1.5. Black – The driver shall proceed to his/her Pit Box on the next lap and follow the instructions of a race official.

4.1.6. Rolled Black – The rolled black flag will be given to any competitor whose driving conduct is bordering on penalization. This is only a warning and does not require the kart to leave the track.

4.1.7. Blue – The blue flag with or without the diagonal yellow stripe will be given to any kart which does not yield to an overtaking kart. The flagged kart must, within one lap, hold their line and signal the faster kart to pass. The flagged kart must indicate which side to pass on.

4.1.8. White

4.1.8.1. Qualifications – Indicates 1 minute remaining in heat

4.1.8.2. Race – The leader has commenced his/her last lap and will continue to be displayed to all successive karts as they cross the start/finish line.

4.1.9. Checkered – The practice session, qualifying session, or race is completed. The winner should proceed on his/her parade lap while all other drivers must enter pit lane. The top five karts may stay in the infield for post-race ceremonies.

4.2. **TIMING AND SCORING**

4.2.1. Systems

4.2.1.1. The electronic system is the primary record.

4.2.1.2. PGPF may also consult with other Officials, review camera footage, and consider such other data as necessary or appropriate to decide the order of the karts.

4.2.1.3. All karts must be equipped with a scoring transponder provided by the team. Required equipment includes: MyLaps transponder (either X2 or TR2) with an active subscription and mounting bracket.

4.2.1.4. Maintenance of the transponder is the responsibility of the furnishing team.

4.2.1.5. Transponders may be rented from the Grand Prix Foundation for a $50 fee. This is a one-day rental; teams are required to have their own transponder. Transponders rented from PGPF must be returned on the same day that they are rented.

4.2.1.6. All EV karts must be equipped with a Power Energy Monitor (PEM). Teams will prewire and prepare a mount on their vehicle as specified and must make wiring schematics available to the race officials before the measurement system can be installed. Electrical routing must be such that the PEM is measuring all power from the battery to the electrically powered systems. (Any system receiving electric power of more than a household 9V battery or up to 4 AA batteries must receive its power from the kart's main battery pack(s) and the energy used must be measurable by the PEM)

4.2.1.6.1. The PEM will record each kart's real-time power (as measured by actual pack voltage multiplied by actual pack current) during the race. Results will be reviewed after completion of the race and any kart that is deemed to have used more than 14kW

of power from their battery pack, at any time, will be disqualified from the race. The PEM implements a very brief moving average to “smooth out” the data and, therefore, it ensures “blips” do not result in disqualification.

4.2.1.7. Teams are encouraged to tune their karts to this 14kW power limit during practice. It is the responsibility of the teams to understand and manage the power that their kart is using at any time.

4.2.1.8. The power limit will be monitored and enforced during race qualifications. It is up to the Director of Race Operations as to the penalty that is applied for breaking the power limit during qualifications.

4.2.1.9. The PEM will also measure the total energy used by each kart for the purpose of calculating efficiency. This number will be used to determine each kart’s placement in the Energy Efficiency category.

4.2.2. Start/Finish Line – The scoring of karts shall begin at the moment when:

4.2.2.1. Race – the timing transponder of the lead kart reaches the starting line after the prescribed number of parade and pace laps have been completed and the green flag has been displayed by the starter.

4.2.2.2. Practice/Qualifications – the declaration of the Green or Yellow Condition has been given by PGPF

4.2.3. Lap Credit

4.2.3.1. A kart is credited with a lap when its transponder crosses the Start/Finish Line after completing one entire lap of the Track.

4.2.3.2. A kart is the first kart out of the Race and is awarded the final position based on the following order:

4.2.3.2.1. The kart is listed in the official Qualifications posting, but it is not in position in the Starting Lineup on the Grid and does not start a Race.

4.2.3.2.2. The kart is in position in the Starting Lineup on the Grid, but it does not start the Race.

4.2.3.2.3. The kart drops out during the parade or pace laps, or;

4.2.3.2.4. The kart drops out of a Race before completion of the first lap.

4.2.3.2.4.1. In the event that more than one kart is affected in one or more of the above categories, such karts will be ranked based on their positions in the original Starting Lineup.

4.2.3.3. Once the competition review (time period to allow for protests, see Rule 7.3) and post-race technical inspection is completed, PGPF will post official results.

4.2.3.4. Karts not completing the scheduled number of laps will be ranked in order by total laps completed and sequence of completion, whether the kart is still running or not.

4.2.4. Ties

4.2.4.1. In the event that PGPF is unable to conclusively determine any difference in the physical sequence for two or more karts at the end of a Race, PGPF shall determine the finishing positions based upon the karts' positions at the start/finish line on the prior lap.

4.2.4.2. In the event two or more karts post the identical number of laps led in a Race, the kart finishing the Race in the higher/highest position will earn the award for most laps led

4.2.4.3. Shortcuts – A kart may not improve its position with all 4 wheels off the racing surface unless there is a dangerous condition present.

4.3. **RACE START**

4.3.1. Once a kart enters the pits on race day it may not leave the track entrance gates unless otherwise directed by the PGPF. Moving a kart outside the track without direction to do so disqualifies the kart.

4.3.2. All karts will be lined up in pairs in the pits in their order of qualifications. When all karts are in order the crews will push them out to the track to the start/finish line.

4.3.3. The pole position kart will start from the inside of the front row. Each kart must be in position in the Starting Lineup during the parade and pace laps until declaration of the Green Condition.

4.3.4. If a kart is not in position prior to the beginning of the pace lap, the kart must start from pit lane.

4.3.5. If a kart fails to start in 15 seconds it must immediately return to the pits. The crew may attempt to restart the kart and the driver may rejoin the field at the rear of the starting lineup.

4.3.6. If a kart directly in front of you falls out of line, wait until the starter signals you to move up into their position. All karts starting on the inside remain on the inside and all karts starting on the outside remain on the outside.

4.4. **MECHANICAL CONDITIONS**

4.4.1. The Race Officials and Technical Inspectors shall determine whether a kart involved in a crash or has had a malfunction will be permitted to continue in the event or must first return to the pit lane for necessary repairs.

4.4.2. Parts damaged during the race may only be replaced by an exact matching part or assembly.

4.4.3. After any repairs have been completed, the kart is subject to visual or other inspection by PGPF prior to and/or during any further competition.

4.5. **PIT PROCEDURES**

4.5.1. Each kart will be assigned a permanent pit box designated by order of registration on a first-come first-serve basis.

4.5.2. A kart must only use its specified pit box unless otherwise approved.

4.5.3. All karts must stay in the driving lane except when entering or exiting their own pit. The exiting driver must yield to a moving kart. Upon entering the pits karts must reduce and maintain their speed to 10mph or under. Any kart that fails to do so may be black flagged.

4.5.4. All equipment and karts must be readily available for inspection at all times. All equipment/parts must be taken into the pits through the main gates. Failure to do so will result in disqualification for the remainder of the day's activities and the next running day, at the discretion of the Race Director(s).

4.5.5. Chairs are not allowed in the pits.

4.5.6. All karts, equipment, and crew members must fit in the team's designated pit box. Pit lane must be clear at all times. Crew chiefs are the only member of the team who is allowed to leave their designated pit box. All other members are required to stay in the pit box at all times unless retrieving a disabled kart.

4.5.7. Only beverages in spill-proof plastic bottles are allowed in the pits. No disposable cups or glass.

4.5.8. No food or snacks in the pits or on the track. All food must be eaten outside the track facility.

4.5.9. No power tools requiring the use of an outlet will be permitted in the pit area. Battery operated tools are permitted. Battery operated tire inflators are permitted to be used inside the track. All batteries must be charged outside the gate, battery chargers will not be allowed in the pits.

5. QUALIFICATIONS

5.1. MEETINGS

5.1.1. PGPF may hold a specific meeting prior to the start of any Qualifications. PGPF may designate the meetings as mandatory for some Members.

5.2. GENERAL

5.2.1. PGPF may penalize any member delaying or attempting to delay Qualifications.

5.2.2. Once lineup for the first Qualification heat begins on Qualification Day, the kart may not leave the track entrance gate. Doing so disqualifies the kart.

5.2.3. The top five karts shall be held in impound until the end of the day. A maximum of two crew members and a minimum of one crew member must be with the kart at all times in impound.

5.2.3.1. Karts not in the top five must stay in the pits for the remainder of the Event with fire extinguisher, ~~starter,~~ and minimum one member of the team. Teams placing 6th & 7th place will also remain in the pits with a PGPF representative.

5.3. QUALIFICATION ORDER

5.3.1. The race starting grid will be determined via sprint races. The number of karts in each sprint race will be determined by the Race Director based on the number of entrants. Each kart will be assigned to a sprint race and gridded based on Design Report scores. The kart with highest Design Report score will be placed in position 1 of heat race #1. Second highest score will be position 1 of heat race #2. Third highest score will be position 1 of heat race #3. Fourth highest score will be position 2 of heat race #1 and so on. Sprint races will be conducted in similar fashion to the main race with all karts lining up in race order, performing at least one parade lap, and then conducting a 15-lap race. Placement for the main race will be determined as follows:

Position 1: The winner of heat race #1

Position 2: The winner of heat race #2

Position 3: The winner of heat race #3

Position 4: 2nd place of heat race #1

Position 5: 2nd place of heat race #2

Position 6: 2nd place of heat race #3

And so on until all karts (maximum 33) are gridded for the main race.

If any or all heat races must be cancelled, race gridding will be done by Design Report points.

If there is a tie in Design Report points, a random draw will break the tie.

If a kart is not able to participate in a sprint race qualifier, it may be permitted to start at the rear of the field at the discretion of the Race Director.

5.4. **WARM-UP PRACTICES**

5.4.1. There shall be one half hour practice on Qualification Day for karts to warm up.

5.4.2. Odd numbered karts will be allowed to warm-up during the first 15-minute period and even numbered karts will be allowed to warm-up during the second 15-minute period.

5.4.3. When warm-up is complete, all karts will proceed to the pits to await further instructions.

5.5. **DRIVERS**

5.5.1. One individual registered team driver or a back-up driver can qualify only the kart registered to the team, provided the driver has met all necessary requirements.

5.5.2. If, for some unforeseen reason, the qualifying driver is unable to drive the kart on Race Day, the Race Director(s) must be notified in writing and shall decide if the reason is acceptable. If acceptable, the kart will start with the new driver and be placed at the back of the starting field.

5.6. **DELAYS/POSTPONEMENT**

5.6.1. In the event that not all teams can qualify on qualifications day the entire field will requalify on the rain date.

5.7. Each kart will undergo a post-qualifying inspection as determined by the Technical Inspector. This will include, but not limited to, weighing the driver, checking max power, verifying battery capacity, inspecting push-back bumpers. Karts found to be non-conforming to any rule may be penalized or disqualified, at the Race Director's discretion.

6. PENALTIES

6.1. GENERAL

6.1.1. PGPF may penalize any Member for any violation of the Rules. If an Official observes or is made aware of an act or omission by a Member that constitutes a violation of the Rules, the Official shall promptly report the violation to PGPF. PGPF shall consider the report and shall conduct whatever additional inquiry it deems appropriate under the circumstances. After concluding the inquiry, PGPF shall determine whether disciplinary action is appropriate and if so, what disciplinary action should be taken. The Member shall be informed of the determination and if disciplinary action is imposed, PGPF shall issue a penalty notice to the Member specifying the violation, a brief statement of the circumstances of the violation, and the penalty imposed. If the act or omission of a Member is determined by PGPF to constitute a threat to the integrity or safety of the Event, PGPF may take immediate action against the Member.

6.2. SCOPE OF PENALTIES

6.2.1. If a penalty is assessed during the course of the Main Feature or a Sprint Race, the crew chief of the penalized kart will be notified immediately by the Pit Coordinator. It is the decision of the Race Director(s) if a kart should be brought in, or if the crew chief notification is sufficient.

6.2.2. Violations of Race Procedures generally result in penalties imposed during on-Track activity.

6.2.2.1. Black Flag – PGPF may impose black flag penalties.

6.2.2.1.1. Each team has a limit of three black flags for driver misconduct per practice, or Grand Prix event. Once that limit is reached, they will not be permitted to finish participating in the event and will not be permitted to attend the following practice. These black flags must be for rule infractions that endanger themselves or others at the event. Lap times for that day will be discarded.

6.2.2.1.2. These black flag infractions will be recorded by a member of the foundation and be updated during each Grand prix event.

6.2.2.2. Laps – PGPF may impose lap penalties. Lap penalties shall be imposed in complete laps only. The imposition of a lap penalty shall result in the removal of official credit for the specified number of penalty laps from the total laps credited to the Competitor

and the scoring records and all points and awards shall reflect the removal of penalty laps.

6.2.2.3. PGPF may impose time penalties. The imposition of a time penalty may result in the removal or addition of the specified amount of time to the Competitor and the timing and scoring records and awards shall reflect the removal or addition of time.

6.2.2.4. On-Track Repositioning – PGPF may impose a repositioning penalty during on-Track activities. The reposition penalty will result in an order change of the kart's on-Track position.

6.2.2.5. Disqualification – PGPF may disqualify the Member. Disqualification shall entail the loss of any right to compete in the remainder of the current Event from the time at which the disqualifying condition first occurred.

6.2.3. Violations of non-Race procedures generally result in penalties imposed during off-Track activity.

6.2.3.1. Additional Appearances and/or Meetings – PGPF may require a Member to attend and actively participate in appearances and/or meetings in addition to those required of the Member pursuant to the Rules and any other agreements. PGPF may specify the due date for completion. Failure to attend and/or participate by the due date may result in reinstatement of the monetary fine if a monetary fine was imposed, or additional penalties as determined by PGPF.

6.2.3.2. Monetary Fines – PGPF may impose monetary fines and specify a payment deadline. Failure to pay any imposed fine may result in the disqualification of a team from the Event.

6.2.3.2.1. Monetary fines must be paid via cash or check to the Purdue Grand Prix Foundation through the Business Office for Student Organizations.

7. PROTESTS

7.1. GENERAL

7.1.1. Protests shall be submitted in writing to the Race Director(s) using official forms provided by PGPF. See Appendix C

7.1.2. A $50 protest fee shall accompany the forms and will be returned if the protest is found to be accurate.

7.1.3. All karts involved in a protest will be impounded until final action of the Safety Committee.

7.1.4. A decision will be made by the reviewing body and a written statement will be delivered to all relevant parties on the final ruling.

7.2. TYPES OF PROTEST

7.2.1. Scoring Protest: a protest on the unofficial results of qualifications, sprint races, or the main event.

7.2.1.1. The reviewing body shall be composed of the Scoring Director(s) and Race Director(s).

7.2.2. Technical/Safety: a protest between karts on a specific rule in sections 9 or 10 of these rules.

7.2.2.1. The reviewing body shall be the Safety Committee.

7.2.3. Competition: a protest between karts on any of these rules not included in sections 9 or 10.

7.2.3.1. The reviewing body shall be the Race Director(s).

7.3. DEADLINES

7.3.1. Sprint race protests must be submitted within five minutes of the completion of that race.

7.3.2. Main event protests must be submitted within one hour after the completion of the race.

8. APPEALS

8.1. APPEALS TEAM MAKEUP

8.1.1. Appeals Team is made up of 4 voting and 4 non-voting members.

8.1.1.1. Voting members are one Purdue Director of Student Involvement, Student Activities and Organizations Representative and two appointed Racing Experts.

8.1.1.2. Non-voting members are Team Coordinator, two Race Directors and one Safety Team Member. In the event that there is a tie, the Team Coordinator will become a voting member.

8.2. DETAILS

8.2.1. Any competitor may appeal any penalty or decision assessed during technical inspection, qualifications, pre-race or post-race.

8.2.2. All appeals will be heard, reviewed, and decided by a third-party appeals team. The original decision shall remain in effect until the decision of the appeals team is rendered.

8.2.3. The appeals form must be submitted in writing to the Race Director(s) accompanied by a $200 appeal fee within the time limit **(as defined in 8.3)** after rendering of the protest decision. This paperwork is to include a copy of the original appeal and reasons for appeal. See Appendix D.

8.2.4. Upon receipt of the appeal, the appeals team will meet to review the infraction versus the rule(s) in question. The voting members will make their decision based on the written rules. They may ask the race directors, Race Official or race team questions during their review if they so desire. Upon making their decision, they will discuss with the race directors and Race Officials to assure the resulting decision backs up the written rules.

8.2.5. Once the appeal decision is finalized, a short-written appeal decision will be submitted to the race directors. The race directors will then relay the appeals team decision to the race team

8.2.6. The third-party appeals team may confirm, reduce or waive the original appeal decision. The appeal fee will be returned to the race team if the protest decision is reduced or waived.

8.2.7. The decision of the third-party appeals team is final.

8.3. APPEAL TIMING

8.3.1. Time to appeal protest decision

8.3.1.1. Technical Inspection- 8 hours

8.3.1.2. Qualifications- 8 hours

8.3.1.3. Pre-race – 30 minutes after the final sprint race

8.3.1.4. Post-race – 1 hour

8.3.2. Time for appeals team to render decision

8.3.2.1. Technical Inspection - 8 hours

8.3.2.2. Qualifications – 8 hours

8.3.2.3. Pre-race – 30 minutes

8.3.2.4. Post-race – 6 hours

9. TECHNICAL REQUIREMENTS

9.1. PRE-RACE INSPECTION

9.1.1. All karts and supporting equipment must pass technical inspection before participation in practice, qualifications, or the race.

9.1.2. All teams are required to perform their own technical inspection on their kart and ensure compliance to the technical inspection sheet prior to presenting their kart to the Technical Inspector at the event. The Technical Inspector's role is to verify compliance.

9.1.3. Following technical inspection approval, teams may make adjustments to improve their kart's performance (e.g. track width, caster/camber, Ackermann, seat position, sprocket size, etc.), but the kart must always comply with the rules. Passing technical inspection does not guarantee compliance with these rules.

9.1.4. A kart may be protested and/or disqualified because of noncompliance with any rule in this package per discretion of PGPF.

9.1.5. Kart and driver set-up must not deviate significantly after passing technical inspection to the point that the kart becomes noncompliant.

9.1.6. Karts must always comply with the rules.

9.1.7. The Safety Committee has the right to inspect any kart at any time for any reason.

9.1.8. Each kart will be allowed a total of two scheduled inspection times. The kart must be all intact as if it were ready to race. Failure to pass the second technical inspection may result in disqualification from the Event.

9.1.9. If any previously approved piece of a kart breaks after the second inspection, teams must show evidence of the break before having the new piece re-inspected.

9.1.10. Only members of the crew can be present during the technical inspection process. Non- members of kart teams may stay in the designated drop off point but may not enter the inspection area. If anyone other than crew members are present during the inspection process, the team's kart will be disqualified, as determined by the Grand Prix Race Director(s).

9.1.11. Upon approval of the Technical Inspector, an inspection sticker, band, or other indicator will be placed on the kart to show that it has been approved to enter the track for the event.

9.1.12. The Technical Director, has the right to question poor workmanship and the resulting safety hazard it presents and require the team to repair the deficiency.

9.2. **POST-RACE TEAR DOWN INSPECTION**

9.2.1. The karts finishing in the first five positions at the end of the race shall submit to a mandatory post-race inspection performed by a third-party inspector. This will include, but not limited to, weighing the driver, checking max power and energy used, and inspecting push-back bumpers. Drivers and karts placing in these positions must go directly to the designated impoundment location without stopping in their pit box.

9.2.2. Karts placing 6-10 must remain at the track (with a PGPF representative) and available to come to tech should anyone fail the tech inspection. Should any of those placed 6-10 leave the track after the completion of the race, they will forfeit their right to enter the top five.

9.2.3. Any other impounded karts may be required to submit to this post-race inspection during the impoundment period.

9.2.4. All crews shall be responsible for any modifications found during tear down.

9.2.5. Teams are required to provide all required tools for their own post-race inspection.

9.2.6. Refusal of the crew chief to disassemble any part of the kart shall result in immediate disqualification.

9.2.7. During post-race inspection, only one member of the official crew and the driver of the kart being inspected may be present with the inspector. Any other unofficial member or outside personnel present in the inspection area at the time of inspection will lead to that teams' disqualification, as determined by the Grand Prix Race Director(s).

9.2.6. The third-party inspector's decision is final. See Appendix L for the Post-Race Tear Down Inspection Checklist.

9.2.7. Karts failing the Post-Race Technical Inspection will be disqualified and their finishing position will be forfeited.

MATERIAL SPECIFICATION

9.2.8. The following material specifications may be changed if prior written approval is secured from the technical inspectors

9.2.9. **SPEC 1**

9.2.9.1. 1" by .083" wall thickness seam welded or seamless round steel tubing

OR

9.2.9.2. Unbent 1” by .083” wall thickness radius corner square seamed welded or seamless steel tubing

OR

9.2.9.3. 1” by 2” by .083” wall thickness rectangular steel tubing

OR

9.2.9.4. 1" by .125” wall thickness seam welded or seamless round 6061-T6 Aluminum tubing

OR

9.2.9.5. 1.125" by .083” wall thickness welded or seamless round 6061-T6 Aluminum tubing.

9.2.10. **SPEC. 2**

9.2.10.1. 18 gauge or heavier sheet steel or aluminum.

9.2.11. **SPEC. 3**

9.2.11.1. SAE class eight (8) bolt is a six-line cap screw

OR

9.2.11.2. Metric Class 10.9 or 12.9 cap screw (NOT 8.8)

9.2.12. **SPEC. 4**

9.2.12.1. Lightweight aluminum (16-24 gauge) is the only material allowed for use as fairings, cowlings, and shields.

9.2.13. **SPEC. 5**

9.2.13.1. Any mounting other than a welded tab is subject to the discretion of the safety and race officials.

9.2.14. **SPEC. 6. Allowable Plastic Items**

9.2.14.1. To reduce fire hazard the only non-metal-items allowed on the kart are listed below. Acrylic-based plastics are not allowed.

9.2.18.1.1. The seat

9.2.14.1.2. Mirrors

9.2.14.1.3. Cable ties

9.2.14.1.4. Chain guards

9.2.14.1.5. Cameras and camera Mounting Brackets

9.2.14.1.6. Transponder and Mounting Bracket

9.2.14.1.7. Data Logger

9.2.14.1.8. Throttle Cable Guides

9.2.18.1.16. Commercially manufactured floor pans

9.2.18.1.17. Commercially manufactured front, rear, and side bumpers

9.2.18.1.18. Column/steering Fairings

9.2.14.2. Exceptions to this rule can be made if documented proof of fire retardancy from the manufacturer is provided and approved by a variance form (Appendix B) through the Safety Committee. This documented proof must be present at all times.

9.2.15. **SPEC. 7 Composite Materials**

9.2.15.1. The use of composite materials, including, but not limited to, carbon fiber, fiberglass, Kevlar, will not be allowed on karts unless otherwise indicated in the rules and specification or as deemed appropriate by the Race Officials. Decorative stickers made to look like carbon fiber weaving or similar should be easily identified as being a sticker and that the material underneath meets all requirements.

9.3. **KART SPECIFICATIONS**

9.3.1. All subsequent rules in this section will be interpreted by the technical inspectors who, along with the Race Director(s), will determine the acceptability of each kart.

9.3.2. Inspection Stickers - The inspection sticker, indicating a kart has been accepted, shall be positioned at a conspicuous place on the kart chosen by the Race Director(s) at technical inspections.

9.3.3. MAIN FRAME

9.3.3.1. Teams must race with a commercially available “sprint kart” chassis. It is permissible to modify the chassis, but reducing the structural integrity of the OEM chassis must be maintained and all parts of the race vehicle must always clear the ground. If any part of the race vehicle is seen to be dragging or deemed a potential a hazard during technical inspection, practice, qualifications, or race, penalties may be incurred.

9.3.3.2. No enduro or lay down karts will be allowed to enter the race.

9.3.3.3. Nerf bars are a required part of the kart frame.

Bumpers and Side Bars

9.3.4.1.1. Front Impact Bumper – All karts must be equipped with a commercially available front crushable, which is attached to the front bumper to minimize shock in the event of a front impact. The front crushable must be a CIK nose.

9.3.4.1.2. Impact Bumper Push Back Brackets – All front nose/bumpers must use push back bumper brackets. A time or position penalty will be accessed

should the front nose/bumper become dislodged during an event. Driver must be able to latch and unlatch the mount by hand with no tools.

9.3.4.1.3. Rear Bumper – All karts must have rear protection that extends from the outside of the rear tire/wheel assembly. This must be a CIK-style plastic rear bumper.

9.3.4.1.4. Sidebars, commonly referred to as “nerf” bars, must be of a “C” type as viewed from above and surround the mainframe in such a manner that any side impact will be transferred to the mainframe directly. Bottom bars must be two (2) inches, or less, above the ground, and top bars must be four (4) inches or more above the bottom bar. Distances shall be measured from the centerlines of the bars.

9.3.4.1.5. Sidebars may be used to mount batteries on the vehicle. Proper protection should be in place to protect battery packs and other components that are mounted on the side.

9.3.4.1.6. Sidebars must extend to the middle of the rear tires at a minimum. They are not to extend beyond the outer edge of the rear tires.

9.3.4.1.7. Driver Fairing – A CIK-style driver fairing must be attached to all karts. The driver fairing must have a 2” clearance to any part of the steering wheel. Driver’s fairings may not exceed the level plane of the top of the steering wheel measured with the wheels in a straight line.

9.3.5 Wheelbase - The Wheelbase of the kart shall be between 39.75” and 43” measured from the axle centers.

9.3.6 Kart Width - The total width of the kart shall be at minimum of thirty inches (30”) and a maximum of fifty-five and one eight inches (55 1/8th”) outside to outside of tire or kart.

9.3.5. Tires

9.3.5.1. All tires used at Purdue Grand Prix events must be Hoosier tires.

9.3.5.2. Tire softener will not be allowed anywhere on the premises.

9.3.9. Wheels

9.3.9.1. Axle nuts shall be castellated and secured with cotter pins or as manufacturer

intended.

9.3.9.2. Safety wire or bolts through the axle are not acceptable.

9.3.9.3. All wheels shall be of racing quality and void of any defects.

9.3.10. Seat Back and Floor Pan

9.3.10.1. The floor pan must meet or exceed material specification #2.

9.3.10.2. Seat shall be a molded, one-piece sprint bucket design and be the correct size for the driver so they cannot move or slide from side to side in a manner that could be unsafe. Commercially manufactured fiberglass or carbon fiber seats are required. (See Appendix G)

9.3.10.3. Lay down type seats are illegal (See Appendix G)

9.3.10.4. Seat cannot be cut in any way to add or remove material and shall be in safe condition, e.g., the bottom is not weak or broken. Final decision will be determined by the Race Directors and/or Race Officials.

9.3.10.5. Bottom of seat shall be between the frame rails and either mounted flush with or above the frame rails. Seat shall be mounted to the kart in a minimum of four spots with front of seat being higher than the bottom. Adjustable seats that can be moved while on track are illegal.

9.3.10.6. The integrity of the tubing material may not be compromised, flat stock will not be permitted for the seat mount.

9.3.11. Throttle

9.3.11.1. Karts shall be equipped with a foot-operated throttle potentiometer with two return springs, which will return the potentiometer to produce zero speed signals when the pedal is released. One spring must be on linkage at the point of contact to the frame. A throttle return spring must also be located on the potentiometer throttle box to assure the potentiometer returns to zero signal when the pedal is released or in case a throttle cable is broken to prevent undesired actions.

9.3.11.2. The Safety Committee must approve any exceptions through a variance form.

9.3.12. Brakes

9.3.12.1. All karts shall have foot pedal operated brakes operating in such a manner as to brake both rear wheels equally.

9.3.12.2. Brake linkages must have at least two (2)" clearance off the ground.

9.3.12.3. A cotter pin must be placed through the pivot pin, which connects the brake linkage lever to the master cylinder.

9.3.12.4. Disc brake discs must be at least 1/8" thick.

9.3.12.5. Brakes must be able to lock both rear wheels at maximum speed.

9.3.12.6. No hand brakes are allowed.

9.3.13. Gearboxes

9.3.13.1. Selective gearboxes or other transmission devices are permitted as long as no oil leaks from the device.

9.3.13.2. There is no maximum gear ratio.

9.3.14. Chain Guard

9.3.14.1. Karts shall be equipped with a chain, belt, or gear guard to eliminate possibility of personal injury, covering all pinch points.

9.3.14.2. The gear guard must be at least equal in diameter to the gear used. The guard is to be securely mounted and must cover the top of all sprockets and extend below each sprocket’s vertical mid-point so that it will deflect a broken chain downward.

9.3.14.3. The lowest part of drive sprockets and chain/belts must be at least 1/2” above the lowest structural member such that the structural member prevents the sprocket/sheave from contacting with the racing surface in all situations. A blank sprocket that is larger in diameter than the drive sprocket is one way to

accomplish this objective.

9.3.15. Chain Oilers

9.3.15.1. No chain oilers are allowed.

9.3.16. Steering

9.3.16.1. The steering shall be direct acting and of suitable design for maximum safety and prevention of over center lock.

9.3.16.2. The steering shaft shall be solid steel of minimum diameter of 5/8" or tubular steel of minimum diameter 19 mm.

9.3.16.3. The steering wheel hub shall be secured to the shaft by a cotter pin, castellated nut.

9.3.16.4. All steering assembly bolts shall be class 8 or better and a minimum of 1/4" in diameter.

9.3.16.5. All steering assembly nuts shall be castellated, and cotter pinned or safety wired.

9.3.16.6. All rod ends shall be protected from collision.

9.3.17. Steering Wheel

9.3.17.1. The steering wheel shall be of a circular or enclosed wing design. No post or handlebar steering wheels are allowed. The steering wheel shall be attached to the hub by at least three cotter pin bolts with cotter pinned nuts or by bolts with safety wired heads if a thread hub is used.

9.3.17.2. Any sharp protrusions shall be covered, but all nuts and bolts must be available for inspection.

9.3.18. Front Spindle and Rear Axle

9.3.18.1. The front spindle and rear axle shall not extend beyond the wheel widths.

9.3.18.2. The rear axle shall be a 50mm commercially available tubular axle. The axle must be made of steel only. No filler such as carbon fiber is permitted.

9.3.19. Welds

9.3.19.1. Only welds of high quality, as determined by the Race Officials, shall be acceptable.

9.3.19.1.1. Failure to comply may result in disqualification

9.3.19.2. All new construction or repairs must be TIG welds.

9.3.19.3. Butt welds must be reinforced by an inner sleeve at least twice the tubing diameter in length.

9.3.19.4. One 1/8" hole per weld must be drilled into the sleeve area to indicate the

presence of the sleeve.

9.3.19.5. Any non-factory frame welds must be clean and unpainted for any inspection.

9.3.19.6. No plastic body filler or lead will be allowed in seams.

9.3.19.7. Any broken or poor-quality welds observed on a race vehicle by the inspectors shall disqualify the race vehicle from further participation until the welds can be made to pass inspection.

9.3.20. Castellated Nuts and Cotter Pins

9.3.20.1. Kingpins, pedal attachment points, steering wheel bolts, seat belt fastenings, fuel tank mountings, safety frame, and all parts of the brake, throttle, and steering linkages shall be cotter pinned.

9.3.20.2. All cotter pins shall fit snugly in the holes and pass through the nuts or through the serrated sections of castellated nuts.

9.3.20.3. All other bolts must be at least Grade 5 and cotter pinned or secured with safety wire passing through the bolt, with the following exceptions: Engine bolts other than third bearing bolts; Rear axle hubs, sprockets, and brake rotor assemblies; Any generally inaccessible bolts (i.e. Rear wheel lugs) subject to the discretion of the safety committee.

9.3.20.4. No nylon-fiber locknuts are allowed except in use with the motor mounts, controller mounts, seat mounts, chain guard, and floor pan. Nylon nuts must be snug and unable to be loosened by hand during an inspection. The front axle nuts must be nylon as supplied, and E-clips or snap rings installed.

9.3.20.5. Distorted nuts may be used; however, they still must be pinned or wired.

9.3.20.6. Circlips are an acceptable substitution for cotter pins and safety wire provided the bolt is designed for circlips.

9.3.20.7. All bolted joints must have a minimum of 2 full threads protruding beyond the nut.

9.3.21. Emergency Stop and Driver Kill Switch

9.3.21.1. An emergency stop circuit must be employed on the vehicle. The circuit will consist of a driver kill switch located near the steering wheel (easily accessible by the driver) and a mushroom-style emergency stop switch located in a location that is easily recognizable, labeled, and accessible to emergency personnel.

9.3.21.2. The required mounting position for the emergency stop is on the left side of the kart on the top plane of the battery pack and between 10 to 15 inches in front of the rear axle.

9.3.21.3. The driver kill switch and the emergency stop switch will be wired in series with the

solenoid coil of the main contactor. Interrupting the current to the solenoid coil will turn off the main contactor and isolate the battery pack.

9.3.21.4. The power circuit will contain a contactor (also known as a solenoid relay) for the purpose of isolating the battery pack when not in use and during an emergency. The contactor should be as close as possible to the battery to minimize the wire distance of high voltage from the battery and prevent contact with high voltage when the contactor is disengaged. This contactor must have a current rating that exceeds the maximum peak current draw of the vehicle.

9.3.21.5. The “high current” or “power circuit” begins at the battery pack (positive terminal) and proceeds through your main power cable, through a high-current fuse, through a main contactor, to the motor controller (which has its own cables to the motor) before reaching the negative terminal of the battery pack. Therefore, the low-current E-stop circuit that is in-line with the contactor’s activation solenoid has the ability to interrupt the high-current circuit.

9.3.21.6. Emergency Stop and Driver Kill Switch must be demonstrated at Tech Inspections and Qualifications

9.3.22. Kart Identification

9.3.22.1. Numbers will be assigned on a first come, first served basis except for #1, which will be reserved for the previous year's winner. If the previous year’s winner waives the reserved #1, it will be available to any team on a first come, first serve basis.

9.3.23. Number Panel Requirements

9.3.23.1.1. All number panels must be on the kart at all times and the pit box during qualifying and the race.

9.3.23.1.2. Each kart must display the number assigned to them at registration. The number must be at least 5” tall and be displayed on the driver fairing, both side pods, and the rear bumper of the kart. The number must contrast the body panel color, so it is easily read from a distance of 20 feet. No other decals may be placed within 1” of the numbers. Only painted or Mylar stick-on numbers are allowed. Motor cross numbers are acceptable, but no taped numbers will be allowed.

9.3.23.1.3. The name of the school for which the team is competing must be displayed on the front and both sides of the kart and must be legible from 20 feet away.

9.3.23.1.4. The evGrandPrix logo must be displayed on the front bumper of the kart. A decal will be provided to all participants at check-in for the evGrandPrix race.

9.3.23.1.5. Other decals such as sponsors, are allowed and encouraged so long as they don’t interfere with the visibility of the numbers, school name, and

evGrandPrix logo. Technical Inspection stickers will be placed on the driver fairing just below the top of the fairing. It is recommended to keep a clear space 2 inches down from the top plane of the driver fairing and 4 inches wide for the placement of technical inspection stickers.

9.3.23.1.6. All sponsors and sponsor's logos must adhere to the Purdue SAO guidelines for sponsors.

9.3.24. Wings

9.3.30.1.1. Wings will be allowed, but the Safety Committee must approve both the plans and the final product. Wings shall not exceed the width of the safety frame.

9.3.25. Electronic Devices - The only electronic devices allowed inside the track facility are:

9.3.25.1. Approved radio equipment for communication with the driver.

9.3.25.2. Approved video cameras

9.3.25.3. Laptops that are required to check electronics or make software modifications to the kart.

9.3.25.4. Electronic devices not allowed include but are not limited to: mobile phones, music players, Apple Watches, Fitbits, AirPods, and headphones.

9.3.25.5. Track workers are not permitted to use any electronic device while on the track.

9.3.26. Cameras

9.3.26.1. Cameras found on the track will result in a $50 fine.

9.3.26.2. Cameras are allowed on karts provided they meet the following:

9.3.26.2.1. Cameras may be mounted on the kart provided it does not interfere with driver's vision or ability to drive the kart. All cameras must be marked with a team name and kart number. Cameras cannot be larger than 2" x 2" x 2", must be mounted with and approved mounting bracket from the cameras manufacturer and must pass tech inspection.

9.3.26.2.2. Helmet mounted cameras are NOT permitted

9.3.26.2.3. Cameras must be approved by the Safety Committee during technical inspections.

9.3.26.2.4. Cameras must be tethered to the kart with safety wire

in addition to the camera mount.

9.3.26.2.5. Any cameras mounted after technical inspections must be approved by the safety committee.

9.3.26.2.6. Cameras must be mounted before entering the track facility.

9.4. **WEIGHTS**

9.4.1. The minimum driver weight is 140 pounds. Any driver weighing less than 140 must add weight ballast to the kart equal to the amount in which the driver is under 140 pounds, rounded to the nearest pound.

9.4.2. Addition of Weight

9.4.2.1. All non-structural weights added to meet minimum kart/driver weight requirements must be bolted securely to the main frame or floor pan of the kart, with a 1” fender washer, and painted white.

9.4.2.2. Bolts of minimum 5/16" diameter must be used to secure weights and these bolts must be cotter-keyed or wired. Weights over 7 pounds must use at least two 5/16” bolts. All bolts must be cotter-keyed, safety wired or double nutted.

9.4.2.3. Mounting of weights to nerf bars, front bumper, or rear bumper are prohibited.

9.4.2.4. No plastic containers holding water or metal pellets are allowed.

9.4.2.5. Filling the frame structure with metal pellets is prohibited

9.4.2.6. The approval of the attachment location and manner in which the weights are attached is at the discretion of the Race Officials.

9.4.3. Weigh In Procedure

9.4.3.1. On qualification day the driver will be weighed before their qualification run.

9.4.3.2. On race day, all karts will be inspected as usual as you enter the race. You will not be forced to be weighed in as you enter the pits but the scales will be available to check your weight if you need to.

9.4.3.3. At the conclusion of the race, the top 5 karts and drivers will be weighed prior to being transported to the Post Race Technical Inspection. Any top five finisher that does not meet the minimum weight will be disqualified.

9.5 Variance Forms

9.5.3. The Race and Safety Committees must review any variations from the above rules.

9.5.4. Forms must be submitted no later than 30 days prior to the first technical inspection. The

Safety Committee will review the forms and give a response no later than 14 days prior to the technical inspection.

9.5 Powertrain

9.5.5. The kart's drivetrain must receive all its power from 1 (or more) electric motor(s) and the motor(s) must receive its (their) energy from a battery pack. No internal combustion engines are allowed.

9.5.6. Motor – Any type of electric motor is allowed. Motors must be rated by the manufacturer to handle the expected power load over the duration of the race.

9.5.7. Motor Controller - Any type of power controller is allowed.

9.5.8. The forward power command to the motor must return to zero when the driver releases the accelerator pedal.

9.5.9. There are no restrictions on energy management throttle control. Computers on the vehicle are permitted.

9.6 Power and Energy Limit

9.6.5. The peak power available to the motor drive system must never exceed 14kW.

9.6.6. Power shall be defined as the instantaneous voltage multiplied by the instantaneous current delivered by the battery averaged over 500 milliseconds. The system may use any combination of instantaneous battery voltage and instantaneous current, so long as this value does not exceed 14kW. The voltage used for this calculation is not the battery pack nominal voltage but the actual voltage, so teams must be aware of the real time voltage present in their packs when setting control limits.

9.7 Battery Pack

9.7.5. Battery Voltage –Battery packs, storage capacitors, and all other electrical components meant for energy storage are limited to a peak voltage of 100 volts. If the pack exceeds 50 volts, it must be sub-divided into modules that do not exceed 50 volts each and the pack must contain a service disconnect that electrically separates the pack into separate modules not exceeding 50 volts each.

9.7.6. Battery Capacity – A kart's total stored energy must never exceed 4,320 watt-hours. Teams may use this energy in any number of packs.

9.7.7. Example: A kart with a battery system that is 48-volt (nominal) with 90 Amp-hours (Ah) capacity produces 4,320 watt-hours of energy. The system may consist of two 45Ah packs, three 30Ah packs, or six 15 Ah packs. Other voltages and amp-hour combinations are permitted, so long as the total energy capacity of the kart (using

manufacturer specified nominal cell voltages) does not exceed 4,320 watt-hours.

9.7.8. Energy storage capacitors may be used for regenerative braking systems, but the energy stored in capacitors is included in the max allowable energy calculation. Teams must provide a method to fully discharge capacitors before the race.

9.7.9. Battery and storage capacitors must be wired, so all electrical power is directed through the Power Energy Monitor device. The team is responsible for providing manufacturers specifications to document amp-hour and cell voltage and show total watt-hour calculations if asked by a technical inspector or race official.

9.7.10. Battery Pack Construction

9.7.10.1. Batteries must be enclosed in a solid, shatterproof enclosure, that will prevent the batteries from being punctured and meets the approval of the technical inspectors. The top of a battery pack must be covered by a non-conductive material. Polycarbonate is the recommended material for this purpose. The enclosure may contain holes for running cables, and/or for heat dissipation. The purpose of the enclosure is not to create an airtight package, but to protect the batteries from damage in collisions, and to prevent objects and personnel from contacting the battery terminals. Acrylic is strictly prohibited for use in the battery enclosure.

9.7.10.2. Battery enclosures must be securely attached to the vehicle in such a manner to protect the battery cells during all racing situations, including impacts, and protect all personnel at all times. The battery pack and internal structures must be rigidly constrained (shall not move) in all six degrees of freedom relative to the kart chassis. Race officials will inspect all battery attachment systems to determine that the batteries will remain securely attached to the kart during the race and any foreseeable accident scenario.

9.7.10.3. Current carrying members (i.e. copper, nickel wire or plate) shall not be used as structural components to constrain the pack or internal structures in any degree of freedom.

9.7.10.4. Battery packs must be safely removable from the kart with proper electrical terminal connections (rated for the expected current draw) and covers. Elasticized fasteners will not be allowed to secure the battery packs to the vehicle.

9.7.10.5. A single Anderson SB175 connector is the required connection from the battery to the powertrain of the kart. This allows the Power Energy Monitor to be installed for qualifying and race.

9.7.10.6. Battery cells inside the enclosure must be isolated by an insulating material and mounted to maintain electrical isolation.

9.7.10.7. Custom-built battery packs must submit a pre-technical inspection report per the requirements and deadlines posted on the evGrandPrix website. It is also strongly recommended to undergo a technical design review with evGrandPrix officials before the event.

9.7.11. Teams must provide battery cell datasheets at technical inspection.

9.8 Battery Management System

9.8.5. Any kart that utilizes battery cells containing lithium, a Battery Management System (BMS) must be installed.

9.8.6. The BMS must reliably, accurately, and constantly measure the total pack current, total pack voltage, and voltages of all cells. When single cells are directly connected in parallel, only one voltage measurement is needed.

9.8.7. The BMS must reliably, accurately, and constantly measure the temperatures of the battery cells whenever the kart's power is on.

9.8.8. The temperature sensor used must be in direct contact with the cell's negative terminal or the negative terminal busbar less than 10 mm away from the cell terminal.

9.8.9. The temperature of a minimum of 15% of the series connections of cells must be monitored by the BMS. The monitored cells must be equally distributed inside the battery pack.

9.8.10. Multiple cells may be monitored with one temperature sensor if all conditions in 6.8.3.2 are met for all cells.

9.8.11. Temperature sensors must have appropriate electrical isolation between the sensor and cell, or in the sensing circuit.

9.8.12. The BMS must isolate the battery pack (deactivate the kart) if it detects any of the following: a cell voltage outside the allowed minimum or maximum voltage levels stated in the cell data sheet, a cell temperature above 60 degrees Celsius or the maximum cell temperature stated in the cell data sheet, whichever is lower, any other unsafe condition.

9.8.13. All teams will be prepared to describe their BMS's wiring, programming, and general functionality during tech inspection. The Technical Inspector may also ask the team to demonstrate proper functioning of the BMS or request live cell data to be presented. The Technical Inspector will have the final say as on whether a kart's BMS

meets the required safety functionalities.

9.9 Wiring

9.9.5. All wires must be sized to handle the voltage and current load that can be applied through the circuit.

9.9.6. Wiring must be well insulated and securely attached to the vehicle.

9.9.7. All wiring must be kept free from moving parts and protected from chafing. Wires that pass through a hole with sharp edges or sheet metal must be protected by an insulating grommet or another suitable device.

9.9.8. Terminals must be secured and protected so they will not come loose or short out during competition. No electrical terminals may be exposed.

9.9.9. No part of the electrical system may use the vehicle frame as a conductor, and the frame must remain ungrounded.

9.9.10. Every kart must have a green LED installed no more than 3 inches from the top of the driver fairing on the right side of the kart. The purpose of the LED is to signal power on. The LED must come on any time the kart is energized (Battery pack connected to the motor, driver kill switch on, and Emergency stop disengaged). The LED must be the Oznium flush mount LED with the following specifications: Diameter = 11mm; Color = Green; Housing Color = Black; Style = Aluminum (1W); Lens = With lens.

9.9.11. A wiring diagram of the kart's entire electrical system must be provided at technical inspection.

9.10 Fusing

9.10.5. A fuse or circuit breaker is required for the electrical circuit between the battery and any electrical load. Fuses must be sized to carry no more than 85% of the maximum allowable current for the wiring to which they are connected. This means the peak current of the fuse must be less than the peak current of the wire being used at all times.

9.10.6. All fuses or circuit breakers will be mounted in electrically rated enclosures as close as practically possible to the source of power.

9.10.7. The main traction drive fuse will be inspected for appropriate type, voltage, and current rating. If the fuse must be replaced, the kart will need to be re-inspected before allowing the vehicle to operate in the event.

9.10.8. All circuits must be fused (including LV circuits)

9.11 Data Acquisition – Instruments and systems on or off the vehicle are legal for data acquisition purposes. Personal computers or laptops are not allowed to be mounted to a kart at any time. Students must utilize data acquisition instruments rather than full-size laptops

9.12 Remote Control – Remote control of a vehicle is prohibited. No control signal can be transmitted back to the race vehicle for “on the fly” adjustments.

9.13 Karts may be equipped with the ability to drive in reverse, but driving in reverse is strictly prohibited on the track, including pit lane.

10. SAFETY EQUIPMENT

10.1. All safety equipment to be used shall be brought to inspection and shall also be available for re-inspection at any time. All equipment should be reasonably clean and present at all times.

10.2. **HELMETS**

10.2.1. Helmets must be full faced, contain an integrated visor/face shield supplied with the helmet and not older than 5 years from manufacturing date. Helmets must meet one of the following Snell standards K2015, K2020, SA2015, SA2020

10.2.2. All elements of the helmet must comply with manufacturer regulations.

10.2.3. Long hair must be securely fastened beneath the helmet or jacket. A head sock or other method must be used to restrain hair.

10.2.4. Helmets must meet factory conditions with no detected defects or damages.

10.2.5. A sticker will be applied to the helmet at technical inspections, in a position designated by the Race Officials, to ensure the same helmet is used during practices, qualification, and the race.

10.3. **DRIVER PROTECTIVE CLOTHING**

All drivers shall be required to wear the following:

10.3.1. Gloves of suitable abrasion-resistant material that fully cover the wrist

10.3.2. Neck brace in good condition (i.e. no foam removed, secure Velcro, etc.), which meet the requirements of S.F.I. 3.6.

10.3.3. Full length socks that provide full ankle coverage

10.3.4. Closed-toe, non-slip-on shoes secured by laces, buckles, or straps required. Canvas shoes will not be permitted.

10.3.5. The driver shall wear an approved rib protector under his or her suit.

10.3.6. Racing Suit constructed of heavyweight, abrasion-resistant nylon that meets one of the following:

10.3.6.1. A fire-retardant racing suit that meets or exceeds the SFI3-2A/5 or FiA CIK 8856-2000 standard (examples of certification labels can be found in the Addendum Section VI).

OR

10.3.6.2. A non-fire-retardant racing suit and at least one layer of Nomex underwear. If the driver chooses to use the Nomex underwear it must be FIA approved or contain a tag

showing it contains Nomex fiber.

10.3.7. Driver protective equipment and helmet must cover all exposed skin.

10.4. **CREW MEMBER CLOTHING**

At all times within the track area all crew members must wear:

10.4.1. Shirts (that cover entire shoulder area and chest)

10.4.2. Sturdy, closed-toe shoes

10.4.3. Full length pants (no sweat pants, no jeans with holes, no polyester or plastic clothing, no shorts, no yoga pants) and full-length socks that provide full ankle coverage.

10.4.4. Track-workers will be required to wear safety glasses while working on the track.

10.4.5. All crew members must wear ANSI Spec Z87.1-2015 approved safety glasses while inside track. No jewelry (necklaces, earrings, bracelets, watches, etc.) is allowed.

10.4.6. It is essential that every effort is made to present the most professional racing appearance possible. To this end, certain minimum requirements shall be imposed on all competitors. Final discretion of clothing allowed is determined by the Safety Committee and Race Director.

10.5. **FIRE EXTINGUISHERS**

10.5.1. Each kart shall provide its own fire extinguisher, which must be brought to technical inspection, practice, qualifications, and the race.

10.5.2. All fire extinguishers must be:

10.5.2.1. Class 10BC or 1A 10 BC

10.5.2.2. A minimum of 2 & 1/2 pounds capacity

10.5.2.3. Inspected within the calendar year of the race, tagged, and sealed

10.5.2.4. Equipped with a manufacturer installed pressure/charge gauge.

10.5.3. No dry chemical extinguishers will be allowed.

10.5.4. All fire extinguishers within the pit area must display the inspection sticker provided at the technical inspection.

10.5.5. Fire extinguishers missing the breakaway pin seal must be re-inspected and resealed. Cable ties are NOT acceptable replacements for the breakaway seals.

10.5.6. Fire extinguishers may be rented from the Grand Prix Foundation for a $50 fee. This is a one-day rental; teams are required to have their own fire extinguisher.

10.6. **DRIVER RESTRAINT SYSTEMS**

10.6.1. Seat belts or any type of driver restraint system that holds a driver into the seat is prohibited. Drivers must not be held in the seat in any fashion that would pin them underneath the kart should it become inverted or become airborne.

10.7. **AIR TANKS**

10.7.1. Any and all air tanks must be commercially manufactured and clearly labeled as a refillable vessel.

10.7.2. The tank shall be made of steel which is at least .048 inches in thickness.

10.7.3. The tank shall have a functioning pressure gauge in good condition, a pressure relief valve set at 20-30 psi over the maximum working pressure, and a maximum working pressure of 200 psi.

10.7.4. Refurbished Freon tanks are not acceptable.

10.7.5. Compressors are not allowed within the track.

10.7.6. Air tanks are optional.

10.7.7. Battery operated tire inflators are permitted to be used inside the pits.

10.8. **MIRRORS**

10.8.1. Only acceptable mirrors will be of plastic or polished metal. No glass will be permitted.

10.9. **Battery Charging**

10.9.1. Battery charging and equipment is the responsibility of the race teams. A working BMS must be in place during all battery charging and battery charging must be supervised by a team member at all times. Chargers with open components and circuits or damage will not be allowed. A specific battery charging area will be provided where charging equipment can be set up and operated. Proper care must be used to ensure safety for all when charging is occurring. If event staff have safety concerns, the Race Director or Safety Director may ask the team to modify their charging process or location.

11. DRIVING PRACTICES

11.1. No cutting of corners will be tolerated, unless done to avoid collision.

11.2. Any foul driving, unnecessary bumping, crowding, chopping, blocking, or unsportsmanlike conduct on the track or pits is grounds for penalization or disqualification. During practice and qualifications drivers who have committed a reckless driving offense as stated above and determined by the Grand Prix Race Officials will first be warned of their action. Second offenses for the same day will result in a black flag for the remainder of the practice or qualifications. The same procedures for a reckless driving offense committed by a driver on the day of the race will be conducted by the Grand Prix Race Officials. See Rule 6.2.2.1.1

11.3. When two (2) karts enter a turn together, the kart which is behind must yield to the leading kart and not impair their position and choose a line which may crowd his/her competitor off the track.

11.4. All drivers must constantly be aware of the traffic in his/her area and be prepared to yield to a faster competitor. A kart being passed is obliged to yield at the earliest chance. Any competitor, which does not yield, will be given the blue passing flag and must move over immediately.

11.5. Any kart, which is driving extremely slowly, such as tuning the engine during practice, must place highly visible tape to the rear of the kart to warn others approaching that the kart is moving slowly. A slow kart must also stay out of the fast groove of the track.

11.6. All karts must enter and exit the pits at a reasonably slow and safe speed.

12. HAND SIGNALS

12.1. HAND SIGNALS

12.1.1. Drivers must signal by raising one hand so that karts behind them can see if they are driving out of the ordinary pattern, such as exiting to the pits, yellow flag, accidents, etc.

12.1.2. Drivers must signal by raising both hands high in the air if their kart has shut down or spun out; indicating their intention not to make any move until the field passes. Drivers in shut down or spun-out karts must always get out and help push or carry the kart. Drivers should remain in their kart if it shuts down on the track until track workers get the kart safely off the track. Inoperable karts should cross the track only where directed by track workers. If a kart has spun out but is still running, the driver should signal the track workers with only one hand to indicate their wishes to be pushed back onto the track.

12.1.3. All hand signals should be made in such a manner so as not to confuse officials or other drivers on the track.

APPENDIX A

Medical Insurance Disclaimer, Waiver, Release, and Hold Harmless Agreement

In consideration of permission granted by Purdue University allowing me to participate voluntarily in the practice sessions, qualifications, go-kart race and related activities of the 2025 Purdue evGrand Prix, conducted by the Purdue Grand Prix Foundation to be held on the Purdue campus in March and April of 2025 (the "Activity"), I (together with my parent or guardian, if I am under the age of eighteen (18) or under a legal disability) represent, covenant and agree, on behalf of myself and my heirs, assigns, and any other person claiming by, under or through me, as follows:

1. I acknowledge that participating in the Activity involves certain risks (some of which I may not fully appreciate) and that property damage, significant injuries, disability, death, or other harm could occur to me or others. I accept and voluntarily incur and assume all risks of any injuries, damages, or harm that arise during or result from my participation in the Activity, including any associated travel, regardless of whether or not caused in whole or in part by the negligence or other fault of Purdue University, The Trustees of Purdue University, the Purdue Grand Prix Foundation, the Purdue Alumni Foundation, the Race Director(s), the Safety Chairman, and/or any of its or their departments, affiliates, employees, officers, agents, and insurers, together with any and all sponsors of, and all other entrants or participants in, the Grand Prix event (together, the “Released Parties”).

2. I am aware that COVID-19 is an infectious virus that spreads easily through person-to-person contact, and could cause serious illness to individuals who have certain medical risk factors. Federal and state public health authorities and Released Parties have issued basic health and safety guidance aimed at mitigating the spread of the virus. I understand that my participation in Activity or accessing facilities owned or managed by Released Parties could increase the risk of contracting COVID-19. Released parties in no way warrant that the protective measures prescribed for the Activity or to access the facilities will completely prevent exposure to the COVID-19 virus. I agree to follow all public health and safety guidelines for the Activity and freely and voluntarily assume the risk of COVID-19 exposure.

3. I waive all claims against any of the Released Parties for any injuries, illness, damages, liabilities or losses, whether known or unknown, foreseen or unforeseen, which arise during or result from my participation in the Activity, regardless of whether or not caused in whole or part by the negligence or other fault of any of the Released Parties. I release and forever discharge the Released Parties from all such claims. I understand this means I give up my right to bring any such claims against the Released Parties.

4. I agree to indemnify and hold the Released Parties harmless from and against any and all losses, liabilities, damages, costs or expenses (including but not limited to reasonable attorneys' fees and other litigation costs and expenses) incurred by any of the Released Parties as a result of any claims or suits that I (or anyone claiming by, under or through me) may bring against any of the Released Parties to recover any losses, liabilities, costs, damages, or expenses that arise during or result from my participation in the Activity, regardless of whether or not caused in whole or part by the negligence or other fault of any of the Released Parties.

5. I acknowledge that I have received, understand and will abide by the 2025 Official Purdue evGrandPrix Rules Packet.

6. I hereby grant permission to Purdue University and any organization associated with the Purdue evGrand Prix to use, for any legitimate purpose, including future advertising of the Activity on the Purdue website or in other promotional materials, my name and likeness to the extent it may appear in any photographs or records of the Activity.

7. In consideration of being allowed to participate voluntarily in the practice sessions, qualifications, and go-kart race of the Purdue Grand Prix Foundation, I acknowledge the fact that I am not provided with medical coverage by either Purdue University or the Purdue Grand Prix Foundation.

8. I have carefully read and reviewed this Waiver, Release and Hold Harmless Agreement, which is governed by Indiana law. I understand it fully and I execute it voluntarily. I further acknowledge that any dispute or claim related to the subject matter hereof would be subject to the sole and exclusive jurisdiction of courts of competent authority located in Tippecanoe county, Indiana, with such courts to be the sole and exclusive venue for any such action.

Executed this _____ day of _____, 20_____

_____ _____

Participant Signature Participant Printed Name

_____ _____

Parent/Guardian Signature Parent/Guardian Name

APPENDIX B – Variance Form

Requestor Information

Requestor Name:

Requesting Team:

Requesting Team #:

What are you requesting a variance on?

Rule:

Details

Describe in detail your variance request (attach any supporting documentation):

Approval

Race Director Signature Date & Time

Decision Rendered:

APPENDIX C – Protest Form

Protestor Information

Protestor Name:

Protestor Team:

Protestor Team #:

What Are You Protesting?

☐ Scoring ☐ Technical/Safety ☐ Competition

Details

Describe in detail your protest:

Acknowledgement of Receipt

Protestor Signature Date & Time

Race Director Signature Date & Time

APPENDIX D – Appeal Form

Protestor Information

Protestor Name:

Protestor Team:

Protestor Team #:

Paid?_____

What Are You Protesting?

Scoring Technical/Safety Competition

Details

Describe in detail your appeal:

Acknowledgement of Receipt

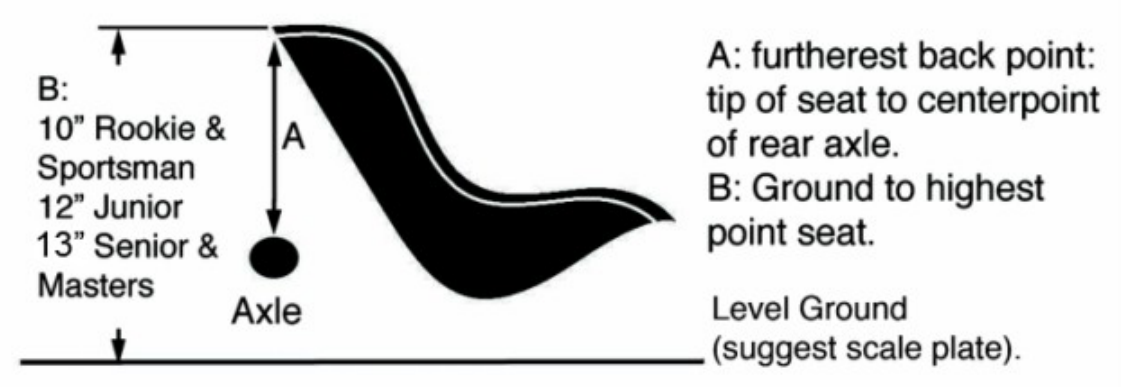
Protestor Signature Date & Time

Race Director Signature Date & Time

Appendix E - Seat

"A" – Any part of the seat cannot be behind the axle.

"B" – These are minimum measurements.



Appendix F – Helmet and Racing Suit Certifications

What are the differences between the SA, M and K standards?

SA Standard was designed for auto racing while M Standard was for motorcycling and other motorsports. There are three major differences between them:

1. SA standard requires flammability test while the M standard does not;
2. SA standard allows narrower visual field than M standard (Some SA helmets may not be street legal)
3. SA standard has roll bar impact test while M standard does not.

The K standards are very similar to the SA standards; however the K standards omit the requirements for flame retardancy.

Where is the Snell label located?

There are two forms of the Snell serialized label. The most common is the adhesive label, but there is also a cloth type for the M, SA and RS standards. The adhesive label, or decal is usually affixed somewhere on the inside of the helmet. If it is not readily visible, check underneath the flaps of the comfort padding. The cloth type labels a generally sewn onto the chin strap and folded over. If a thorough search fails to turn up a decal then your helmet is not part of the Snell certification program and does not have the confidence of the Foundation.

Racing Suit Certification Labels

Appendix G – Post Race Technical Inspection List

Purdue evGrandPrix Collegiate

Post-race Technical Inspection 2025

Version date: 2024-Oct-25

School Name		**Kart #**	
Team Name		**Race Finish**	
Crew Chief			

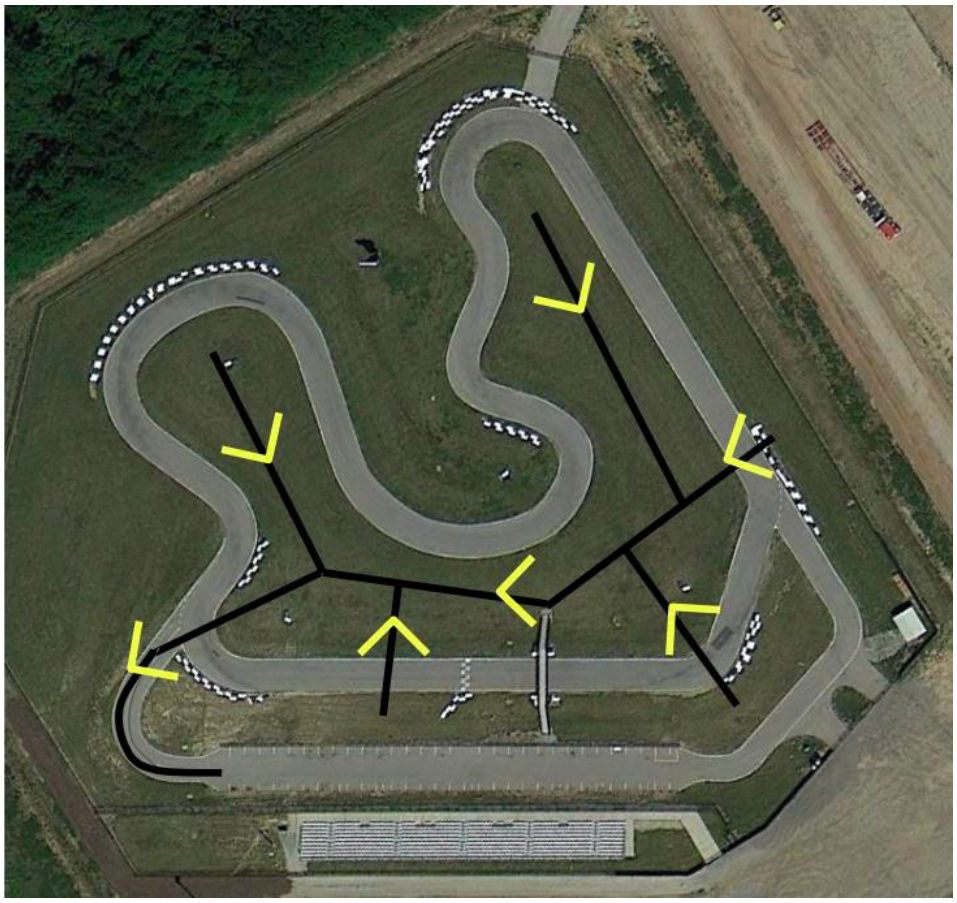
	Rule	Description	Status (P/F)	Tech. Inspector Comments
1 - Mechanical		**CHASSIS & BUMPERS**		
	6.15	Open mechanical drivelines including chain, belt, or gears are guarded.		
	6.15	Sprockets and sheaves mounted on the rear axle drive components include a blank sprocket guard. The lowest part of drive sprockets and chain/belts must be at least 1/2" above the lowest structural member.		
3 - Electrical		**BATTERIES**		
	6.7.4	Battery is securely attached to vehicle to protect it from direct impact and to withstand forces of impact.		
	6.7.4	Battery enclosure is in tact and providing sufficient protection from impact to the cells.		
		BATTERY MANAGEMENT SYSTEM (BMS)		
	6.8.2	The BMS must reliably, accurately, and constantly measure the total pack current, total pack voltage, and voltages of all cells.		
	6.8.3	The BMS must reliably, accurately, and constantly measure the temperatures of the battery cells whenever the kart's power is on.		
	6.8.4	The BMS must isolate the battery pack (deactivate the kart) if it detects any of the following: a cell voltage outside the allowed minimum or maximum voltage levels stated in the cell data sheet, a cell temperature above 60 degrees Celsius or the maximum cell temperature stated in the cell data sheet, whichever is lower, any other unsafe condition.		
		POWER ENERGY MANAGEMENT		
		The max power never exceeded 14 kW during the race.		
		The energy used during the race did not exceed 4,320 watt-hours.		

Note: This is not a comprehensive list of what may be checked. Technical Inspectors and Safety Officials reserve the right to check for compliance of any and all rules

Appendix H – Track Worker Best Practices

HOW TO BE A GOOD TRACK WORKER

1. **Do not get run over!!**
    - Drivers have roll cages, helmets, and other protection; YOU DO NOT!
2. **Stay alert and pay attention at all times!!**
    - Do not turn your back to the oncoming traffic.
    - Always look both ways before crossing the track.
    - Do not stand in the danger zones on the outsides of turns.
    - No cell phones, cameras, or other electronics allowed.
3. **Push stalled karts off the track**
    - Push stalled karts at least 10 feet into the grass.
    - Push karts into the infield if possible.
4. **Push running karts onto the track**
    - Check for oncoming traffic before pushing the kart onto the track.
    - The quicker you can get a running kart moving again, the less likely it is to stall and need to be pushed back to the pits.
5. **Do not let drivers get out onto the track**
    - If the kart is locked up, drag it over (with the driver inside) onto the grass first. It is far too dangerous for drivers to climb out of the kart onto the track.
6. **Put straw bales back into place after accidents**
    - After moving the kart off the track, you can usually fix the bales while the driver is getting out.
    - Move broken bales to the back of the row.
7. **Clear debris off the track**
    - Small black asphalt rocks are usually NOT a problem.
    - Small amounts of straw, grass, or dirt are usually NOT a problem.
    - The large white rocks ARE a problem and should be swept or kicked off the track.
    - If parts come off a kart be careful picking them up because they could be very hot.
    - Show any significant parts to the nearest Race Official to address possible safety concerns.
8. **Move with a purpose**
    - The quicker you get the track back to racing conditions the safer it will be for the drivers.
9. **Spread out as needed**
    - Track workers should be evenly distributed at each corner.
    - Move to other corners as track workers leave.
10. **Help each other out**
    - If there is a large crash in a nearby corner, don't just stand and watch, go and help clean up.
11. **If a kart will roll, ROLL IT, do not carry it.**
    - Drivers may complain, but we don't care. Just roll it, it's safer for everyone.
    - A broken kart is better than a broken track worker.
12. **Cross the track at Preferred Crossing Points**
    - See map.
13. **Eye protection and safety vest with team number is required at all times.**
14. **Gloves are recommended.**



Appendix I – Welding Process Check

Before welding any chassis joints, each person must complete two distinct welding samples using the same materials and processes as on the chassis. Submit all samples at Technical Inspection. Vehicles without complete or acceptable samples will be prohibited from racing.

Samples must match the tube material, diameter, and thickness used on the chassis. Refer to the **Appendix J** for guidance on acceptance criteria.

Samples must remain unpainted and uncoated, with no post-weld grinding or modification except for a specified cut on sample 2. The weld material should remain “as welded,” but the tube must be cute as detailed below.

Each sample must be permanently marked (engraved, etched, stamped, etc) with:

- School Name or Initials
- Welder Name or Initials
- Date of Sample Construction

Sample 1 – Destructive Testing:
The sample must consist of a 90-degree joint with an unrestricted leg length (see Figure 1) and will be tested destructively. To pass, the joint must fail in the base material rather than at the weld. Testing methods can vary and may include either tensile or bending tests, but the peak stress must occur at the weld. For bending tests, ensure that the maximum bending moment is applied at the weld. **Samples must be tested before arriving at the competition, and both pieces must be presented for inspection if they are separate during testing.**

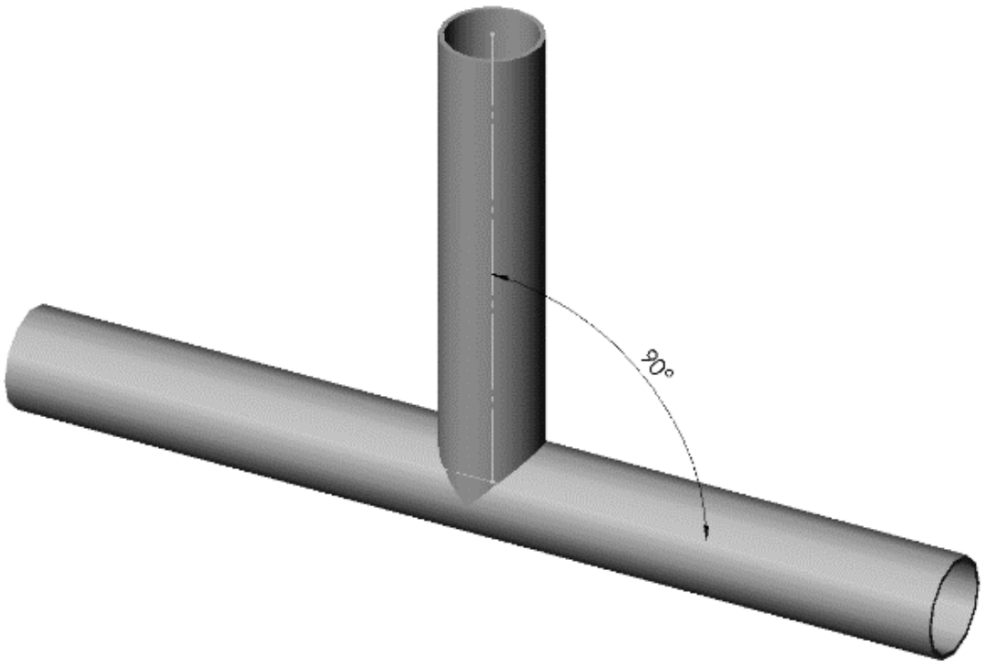


Figure 1: Welding Sample 1

Sample 2 – Destructive Inspection:
The sample must consist of two tubes joined at a 30-degree angle, with each leg extending at least 150 mm (5.9 in.) from the join center (**see Figure 2**). The sample should be sectioned along the length of the tube to show adequate and uniform weld penetration (**see Figure 2**). **Samples must be cut before arriving at the competition, and both pieces must be presented for inspection.**

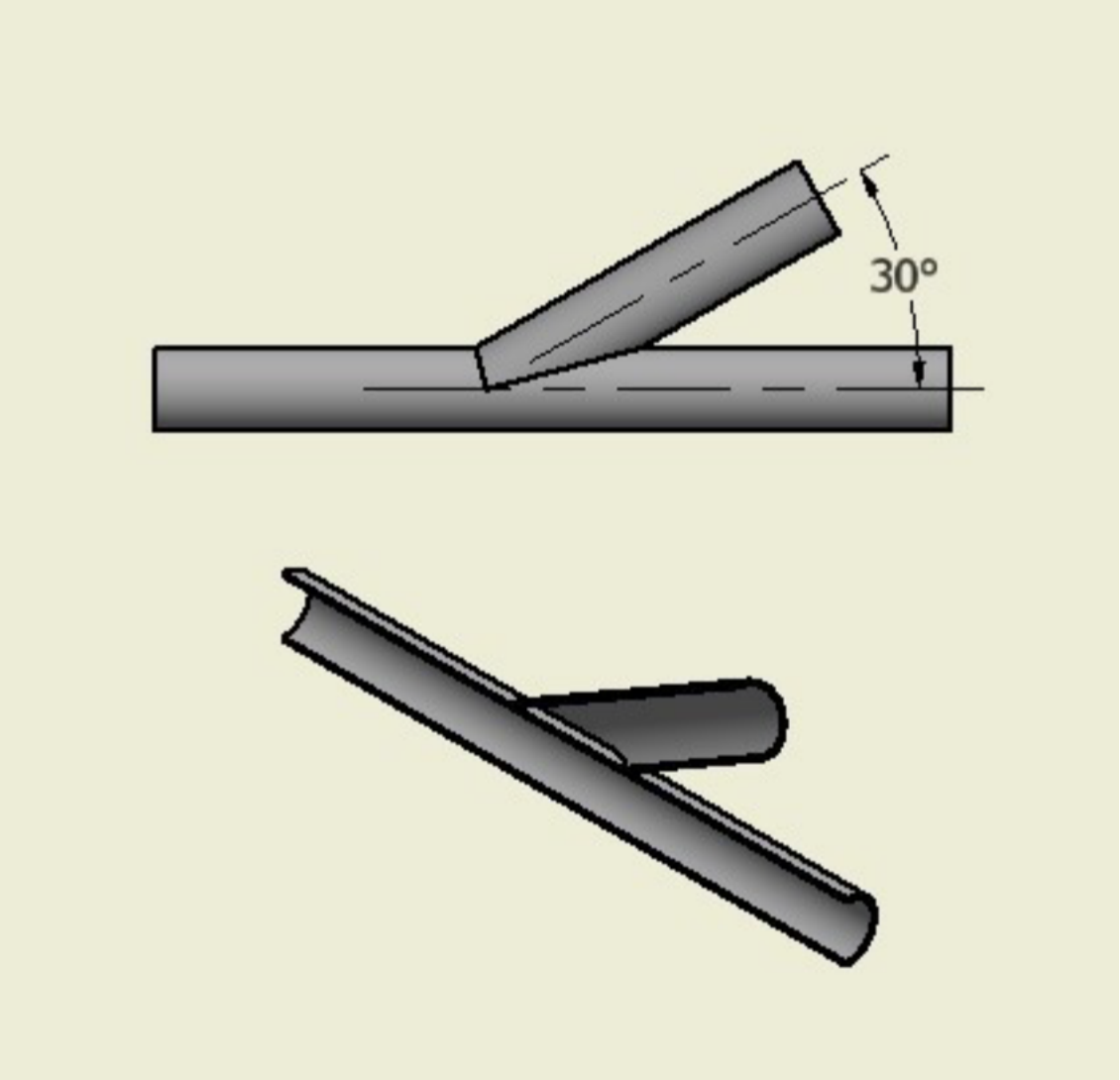


Figure 2: Welding Sample 2

Examples of Passing Weld Sample (Test #1)

- Failure was not at the weld
- Weld bead radius is approximately the same as tube wall thickness
- Moderate, Uniform Heat Discoloration
- Bending or tensile testing is allowed

All samples displayed are acceptable: the peak stress was located at the weld

Examples of Failing Weld Sample (Test #1)

Underheat

- Failure occurs at the weld bead
- Inadequate fusion between the filler rod/wire and the tubes
- Weld bead radius is smaller than the tube wall thickness

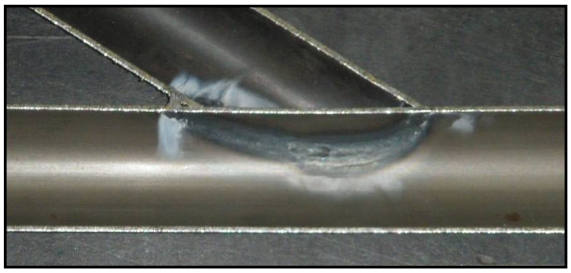
- Minimal to no heat discoloration
- Weld bead does not flow into the base metal
- Lack of fusion between the weld and base metal

Overheat

- Failure occurred at the weld
- Weld / tube thickness was very small at point of failure
- Weld bead radius is significantly wider than the tube wall thickness

- Excessive heat discoloration
- Weld shows signs of burn-through in some areas

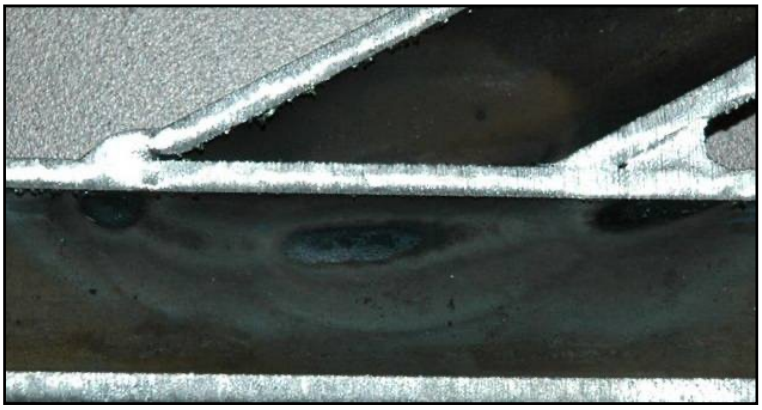
Examples of Passing Weld Sample (Test #2)

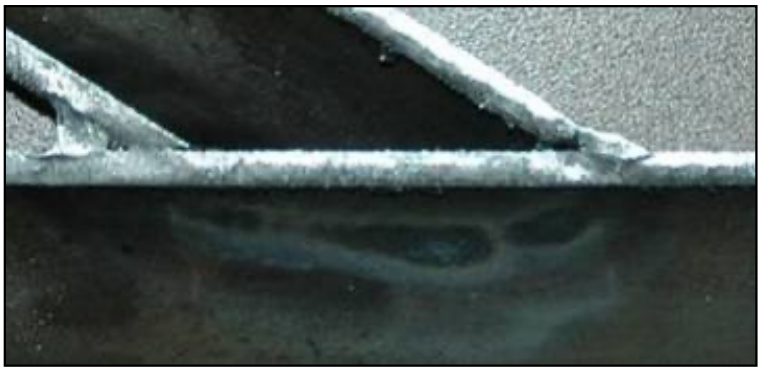


- **Moderate heat discoloration (outside)**
- **Weld bead radius approximately matches the tube wall thickness (edges)**
- **Well-defined and uniform-width fusion line, with no burn-through (inside)**

All samples displayed here pass visual inspection

Examples of Failing Weld Sample (Test #2)





- **Inconsistent and unclearly defined fusion line (inside)**
- **Weld bead radius does not match tube wall thickness (edges)**
- **Weld bead does not adequately contact and fuse the both tubes (edges)**

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