15.4 Boats must be removed from the water if extensive repair work is required. Only minor repairs will be allowed on the water and must be done outside the course area. Boats left in the water must be reinspected before they compete in the next event.

15.5 At no time during the competition will a swimmer be allowed in the water to assist a boat. Wading is permitted only at the Launching Site – close-toed shoes are required (no sandals).

15.6 Protective eyewear must be worn at all times by anyone who is handling batteries. Close-toed shoes are required for all participants while working on a boat and while in the Restricted Area.

15.7 At the discretion of the officials, in order to give the media a good photo opportunity, the start of the Endurance heats may begin with a "Parade lap". There will be no passing until on the course.

15.8 Should there be a question regarding the meaning of Rules, the participating team will file their question in writing with the Registrar using a Rule Interpretation Form.

15.9 Teams are expected to be able to change configurations in one hour or less.

16. Paddock Area

This is the area that is under large tents, where each entry will have an area of approximately 400 square feet, which will include a 8’ folding table and an electrical hookup. This area may have to be adjusted, depending on the number of participants. The area is used to work on and store the craft. Participants are encouraged to have school banners or other identification. The area immediately outside the tent may be used for recharging.

17. On-the-water testing

Because of restrictions at the Site, no on-the-water testing will be allowed.
14. Prizes and Awards

The Sponsor and Director of the Event will recognize all teams’ participation. In addition, the following awards will be presented:

14.1 Overall and Runner-up Awards - For each competition, an award will be presented to the team that demonstrates the best performance. Runner-up awards may also be presented. An Overall Winner will be determined by a formula which includes: Technical Report, Video Presentation, Workmanship, Qualifying, Slalom, Endurance, and Sprint. Runner-up awards may also be presented.

14.2 Award Presentations - Other awards may be presented at various times during the Event.

14.3 Award Ceremony - An awards ceremony will be held on Saturday following the day’s competitions.

15. Procedures

To assure that all competitors are in compliance with the Rules during the competitions, an “on deck” area has been established. There are some safety concerns that will be checked, and are subject to penalty. This, along with the “staging” area, is intended to expedite the conduct of the competitions. All Rules and procedures are written with the safety of the participants and spectators in mind.

15.1 All competitors must be in the “staging” area at least one hour before the competitions. Charging of the battery pack may occur during this time.

15.2 As boats are moved from the “staging” area to the “on deck” area there will be a brief reinspection. No work can be done on the boats once the boats are in the on deck area.

15.3 The craft will be operated by a skipper at all times. No remote control operation is permitted.
12.4.3 Striking a Buoy - If a craft strikes a buoy, the craft must execute a 360° penalty turn on the inside of the course prior to the completion of the event.

12.4.4 Failure to Yield the Right-of-Way - Any team failing to allow right-of-way when being overtaken by another craft will be penalized a minimum of 0.5 laps per infraction.

12.5 Paddling - Using paddles or oars to power the craft during any competitive event (other than to avoid becoming a safety hazard) will result in automatic disqualification.

12.6 Failure to Attend Morning Meetings - Any team that fails to be properly represented at any Morning Meeting will be penalized and must receive a briefing before they can continue to compete.

12.7 Conduct - Officials may assess penalties ranging from ten (10) points to total disqualification for improper conduct. Such conduct may include, but is not limited to, improper language and obscene gestures.

12.8 Failure to Comply with the Rules - Officials may assess penalties ranging from one (1) point to total disqualification for a team’s failure to comply with any Rule.

13. Advertising, Promotion, and Publicity

All advertising, sales promotion, and publicity material produced by the teams or their sponsors concerning or referring to the Event shall refer to the Event as “SOLAR SPLASH 2020”. By entering the Event, all teams shall agree to the use, without compensation, of their names and photographs in any publicity material that may be issued by the Event’s Sponsor, the Director, and their associated companies.

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12.2 Slalom Penalties

12.2.1 Striking a Buoy - If a craft strikes a buoy, a five (5) second penalty will be assessed.

12.3 Sprint Penalties

12.3.1 Disturbing Official Battery Markings - When batteries are inspected, they will be given official tags. These tags must not be disturbed. Competitors are allowed to use only the batteries inspected for their craft. Officials may assess penalties ranging from fifty (50) points to total disqualification.

12.3.2 Obstructive Boating - Any team that operates its craft in a manner that impedes the progress of another craft or risks the safety of another craft or of their own will receive a minimum penalty of one lap per infraction or may be disqualified at the discretion of the Officials.

12.3.3 Striking a Buoy – If a craft strikes a buoy and remains in its lane, a five (5) second penalty will be assessed.

12.3.4 Leaving the Course - If a craft leaves its lane, its run has ended and it must be shut down and may not re-enter the course or finish.

12.4 Endurance Penalties

12.4.1 Disturbing Official Battery Markings - When batteries are inspected, they will be given official tags. These tags must not be disturbed. Competitors are allowed to use only the batteries inspected for their craft. Officials may assess penalties ranging from fifty (50) points to total disqualification.

12.4.2 Obstructive Boating - Any team that operates their craft in a manner that impedes the progress of another craft or risks the safety of another craft or of their own will receive a minimum penalty of one lap per infraction or may be disqualified at the discretion of the Officials.
11.5 Technical Inspections - Mechanical and electrical inspections must be completed by Wednesday at noon.

11.6 Swim Test - Held on Tuesday afternoon, time to be announced.

11.7 Welcome Dinner - A welcome dinner and program will be held on Tuesday evening at 6 p.m.

11.8 Qualifying - Begins Wednesday at 8:30 a.m. Must be completed by Thursday at noon.

11.9 Slalom - To coincide with Qualifying.

11.10 Endurance - Scheduled for Friday from 10 a.m.-noon and 2-4 p.m.

11.11 Sprint - Round 1 of the Sprint heats is scheduled for Thursday afternoon, Round 2 is scheduled for Saturday morning, and Round 3 for Saturday afternoon.

11.12 Weather - The Sprint and Endurance competition days and times are at the discretion of the Director. Weather conditions may dictate competition days and times.

12. Penalties

Any team failing to comply with the Rules, as stated herein, may be penalized. Officials are required to record all instances of unsafe conduct, and penalties will be assessed as follows:

12.1 Qualifying Penalties

12.1.1 Leaving the Course - If a craft leaves the Qualifying course, as defined in Rule 9.4, the craft has not qualified.

12.1.2 Striking a Buoy - If a craft strikes a buoy, a ten (10) second penalty will be assessed.
1. Purpose of the SOLAR SPLASH

The SOLAR SPLASH has been established to promote interest in Science and Technology, Education, and Personal Interactive Skills. Established for collegians, it gives students an opportunity to apply theory to a practical project in a team environment. The SOLAR SPLASH itself serves as an opportunity for students to compete and showcase their accomplishments. In order to enhance the students’ experiences, the faculty advisor may advise only and may not be directly involved in design or construction. Although it is an intercollegiate competition, high school teams who demonstrate competence may be included.

2. Administration

2.1 Application of Rules - The Rules shall apply to the SOLAR SPLASH, hereinafter referred to as the “Event”. These Rules become effective immediately and supersede all previous editions.

2.2 Event Dates – The Event will be held June 9-13, 2020.

2.3 Right to Revise Rules - The Director, as defined in Rule 2.7 below, reserves the right to revise the Rules at any time by providing the participants notification of revisions in the form of Bulletins, revised editions of the Rules, or announcements at the Competition.

2.4 Acceptance of Rules - All persons or groups selected to participate in the Event are expected to know and accept the Rules. Participation in the Event shall constitute acceptance of them.

2.5 Sponsors - Sponsors are listed at www.solarsplash.com.

2.6 Sanctioning - The Event is sanctioned by the American Power Boat Association (APBA) as a special event.

10. Graphics

10.1 Boat Number Sign - Each craft will have a “boat number” assigned by the Director. Each team will be provided with a base and an “L” bracket for their “boat number” sign. The base, or a satisfactory substitute, must be mounted in a manner that will allow for non-rotating display of the sign. All participants will be provided physically similar signs. These signs may not be modified. The sign will not be included in the dimensions of the craft.

10.2 Event Logo - The Event identification and logo (part of the boat number sign) must be displayed at all times the craft is on the water. Additional sponsor decals and/or logos may be required at the discretion of the Director.

10.3 School Name - School names on the craft are optional.

10.4 Inappropriate Graphics - The Director reserves the right to disapprove any graphics it deems inappropriate or offensive. The decisions of the Director are final. No graphics will be added to the craft after Technical Inspection without the Director’s approval.

11. Dates and Times

11.1 Competition Activities - Begin at 8 a.m. and end at 5 p.m. daily.

11.2 Paddock Closure - The paddock area will be closed daily from 9 p.m. to 7 a.m. On-site overnight security will be provided.

11.3 Registration - Begins on Tuesday at 8 a.m. All boats must be registered by Wednesday at 9 a.m.

11.4 Morning Meetings - A meeting will be held each morning Wednesday through Saturday at 8 a.m., unless otherwise posted. Attendance by a skipper and the team leader is mandatory. Failure to do so will result in a penalty and team representative(s) must be briefed and sign a waiver.
Qualifying - 100 points. Your Time will be the sum of your Endurance Qualifying time plus five times your Sprint Qualifying time. The fastest qualifier will receive 100 points. All other qualifiers will be scored by the formula:

\[
Your \ Points = \frac{Winner's \ Time}{Your \ Time} \times 100
\]

If multiple attempts must be made in order to qualify, your qualifying time on that course will be multiplied by the number of attempts. Failure to complete the Endurance Qualifying course prevents an entry from competing in the Endurance event. Your Time will then be twenty times your Sprint Qualifying time multiplied by the number of Sprint Qualifying attempts. Failure to complete the Sprint Qualifying course prevents an entry from competing in the Sprint event. Your Time will then be four times your Endurance Qualifying time multiplied by the number of Endurance Qualifying attempts.

Slalom - 100 points. The same scoring formula that is used for Qualifying will apply. If a competitor fails their first attempt, additional attempts may be allowed, time permitting. If multiple attempts are made, Your Time will be multiplied by the number of attempts. If a competitor does not complete the Slalom, they will receive no points for the event.

Sprint - 250 points. Your Time will be the sum of your two best Sprint times. If a competitor completes just one Sprint heat, Your Time will be four times the time of the completed heat. If a competitor completes no heats, they will receive zero points in the Sprint.

\[
Your \ Points = \frac{Winner's \ Time}{Your \ Time} \times 250
\]

Endurance - 400 points. The goal is to go as far as possible in two 2-hour heats. Total distance traveled will be recorded to the nearest 0.25 lap completed.

\[
Your \ Points = \frac{Your \ total \ distance \ (2 \ heats)}{Winner's \ total \ distance \ (2 \ heats)} \times 400
\]
3.2 **Staging** - The area between the paddock area and the "On Deck" area.

3.3 **On Deck** - The area between the staging area and the Launching Site. Boats in this area must be prepared for launch inspection.

3.4 **Launching Site** - The area which extends 10 meters back from the shoreline and extends outward from the shoreline 15 meters.

3.5 **Restricted Area** - The Staging, On Deck, and Launching Site areas will be enclosed by a fence, and movement in and out of this area will be through a monitored gate. Entry is permitted only after an APBA waiver is signed.

3.6 **System Voltage** - The voltage measured with a VOA meter between the system ground and any point in the electrical system.

3.7 **Source Voltage** - The nominal value, e.g. 24 VDC or 36 VDC, output voltage of the battery pack.

3.8 **Dead-man's Switch** - Any device that cuts off power to the motor if the skipper leaves the craft.

3.9 **Attempt** - Once the Starter says "GO" the event is considered to be started.

4. **Registration**

4.1 **Registration** - The Director will require all persons participating or officiating at the Event to register during the specified registration times (11.3). Registrants will be divided into the following categories:

A. Participants (Skippers and Crew)
B. Officials
C. Volunteers
D. Sponsors and VIPs

9.9 **Support Craft** - No support craft will be allowed.

9.10 **Reporting of Results** - The results of each day’s events will be available no later than the following day’s Morning Meeting. The results of the final day’s events will be announced and posted at the final awards ceremony.

9.11 **Overall Scoring** - The overall World Champion will be determined by a 1000-point scoring system as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
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<tr>
<td>Technical Report</td>
<td>90</td>
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<td>Video Presentation</td>
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<tr>
<td>Workmanship</td>
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<td>Qualifying</td>
<td>100</td>
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<tr>
<td>Slalom</td>
<td>100</td>
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<tr>
<td>Sprint</td>
<td>250</td>
</tr>
<tr>
<td>Endurance</td>
<td>400</td>
</tr>
</tbody>
</table>

**Technical Report - 90 points.** The report judged as the best will receive 90 points. Others will receive fewer points as judged by a panel of technical reviewers. A PDF copy must be received at Headquarters by 5 p.m. EDT on May 4, 2020. The boat number must be displayed on the cover in a minimum 36 pt. type. The names of all students and faculty advisors involved with the project must appear on the cover. Reports will be made available for participants of future SOLAR SPLASH Events. Additional requirements for the technical report are detailed on www.solarsplash.com.

**Video Presentation - 40 points.** The presentation judged as the best will receive 40 points. Others will receive fewer points as judged by a panel of reviewers. A link to the video that your team creates must be received at Headquarters by 5 p.m. EDT on June 1, 2020. Requirements for the video presentation are detailed on www.solarsplash.com.

**Workmanship - 20 points.** Points awarded will be based on quality of workmanship as determined by a panel of judges.
4.2 **Badging** - All Registrants will be badged by category when they register to make them easily identifiable at the Event. Badges will be issued after all necessary waivers have been signed, signifying eligibility to participate in the Event. Badges must be worn at all times during the Event, except by the swimmers (8.2).

4.3 **Point of Contact** - One person, preferably the Faculty Advisor, must be designated as the primary point of contact for the team during the Event.

4.4 **Faculty and Guests** - The number of faculty at the Event is not limited. Alumni, family, and friends are all welcome, but may not be team members for insurance purposes.

4.5 **Ballast** - The official skipper weight for the competitive events shall be seventy (70) kg. Each skipper will be weighed when he or she registers. Skippers will be weighed in their bathing suits. If a skipper's weight is less than 70 kg., ballast will be added to make up the difference. If the weight of the skipper is over 70 kg., no credit will be given. Skipper and ballast will be identified with unique tags. The ballast corresponding to the skipper must be carried in the boat when it is on the water.

4.6 **Release of Liability and Image Release** - Everyone involved with the Event – Participants, Faculty Advisors, Officials and official visitors – are required to sign this release upon arriving on-site. The Release is available at Registration.

4.7 **Waiver for Skippers** - All participants that will be on the water in a boat must be APBA members. APBA membership application will be completed at the Event. The cost is $25.

4.8 **Waiver for Minors** - Anyone under the age of 18 is required to have this waiver signed and notarized by a parent or guardian in advance of the Event.
5. Entries

5.1 Team Eligibility - Any 2-year or 4-year college, university, vocational school, or high school is eligible to compete.

5.2 Team Member Eligibility - Anyone who has attended the participating educational institution as a full time student in one of the past two semesters or two of the past four quarters, or part-time for the past year, is eligible to serve as a team member.

5.3 Skipper Eligibility – The skipper must be a team member and at least 14 years old.

5.4 Entry Forms and Fees - Entry forms received on or before January 14, 2020, qualify for a reduced entry fee of $750. Entry forms received after January 14, 2020, will pay the full $1000 entry fee. Registration fees, payable to “SOLAR SPLASH”, and entry forms and payment must be submitted for each craft no later than April 15, 2020. Each participating institution will be limited to two entries. Each entry must be in the name of the School and signed by a Dean or Principal.

Entries by a club or individuals not formally affiliated with the school will not be accepted. Entry forms and fees must be sent to:

SOLAR SPLASH Headquarters
c/o Jeffrey Morehouse, PhD, PE
309 Newridge Rd., Lexington, SC 29072
Voice: (803) 920-9231, E-mail: hq@solarsplash.com

6. Venue

The site for SOLAR SPLASH 2020 is Champions Park Lake at the Clark County Fairgrounds in Springfield, Ohio. Site pictures can be seen on www.solarsplash.com.

9. Competition Events

9.1 On-the-water Events - The on-the-water events fall into “qualification” and “competition” categories as described below (courses may be as shown or mirror-image). Boats are required to get to the start line and return to the Launching Site by motoring or paddling unless towing is required for safety.

9.2 Start and Finish - All on-the-water events will commence from a standing start. Each event’s finish is indicated by the bow crossing the appropriate mark.

9.3 Qualifying - The primary purpose of Qualifying is to determine the eligibility of teams to participate in Competition events. Qualifying tests the safety, seaworthiness, handling, maneuverability, and “qualifying time” of each craft.

9.3.1 Endurance Qualification - The track of the boat through the Endurance Qualification course must generally conform to the diagram and stay within 15 meters of the prescribed path.

9.3.2 Sprint Qualification - A 70-meter straight line Sprint course will be set up and timed to demonstrate the ability of the skipper to control the boat from a standing start in a straight line under full power.

9.3.3 Qualifying Time will be calculated from the times on the Endurance and Sprint Qualification courses and will be used in determining points towards the overall winner.

9.4 Competition Events - Once teams have successfully completed the Qualification events, they are eligible to compete in the Competition events. Results from the Slalom, Sprints, and
7. Regulations

7.1 Classes - The 2020 entries will compete only in the Open Class.

7.1.1 Slalom - All craft will be considered “electric” for the Slalom, i.e. the solar energy conversion device(s) may be removed.

7.1.2 Endurance - All craft will be powered by direct and stored solar energy. A minimum of 100 Watts of solar power under one sun conditions must be carried on the craft. Only one set of batteries may be used for one Endurance Heat. Batteries cannot be changed during the heat.

7.1.3 Sprint - All craft will be considered “electric” for the Sprint, i.e. the solar energy conversion device(s) may be removed.

7.2 Technical Specifications

7.2.1 Length - The overall length of the craft may not exceed 6 meters (19 ft, 8 in). This does not include the boat number sign.

7.2.2 Width - The maximum allowable width, including the solar array, is 2.4 meters (7 ft, 10.5 in).

7.2.3 Height - The maximum allowable height above the waterline is 1.5 meters (4 ft, 11 in). This height can never be exceeded during the events. This does not include the boat number sign.

7.2.4 Depth - No restriction. An excessive depth may make the craft awkward to handle near shore and may increase the likelihood of encountering underwater obstacles.

7.2.5 Cross Sectional Area - In profile, the fixed area (such as the hull) is unrestricted. The solar array may be fixed or may be in the form of one or more movable panels.

8.4 Solar Array Output - All participants must have their solar collection devices checked to verify that the output does not exceed 480 Watts under normal one sun conditions. Commercially-built solar panels will be verified for compliance by using the manufacturer’s specifications. Student-built solar panels will be verified for compliance by using the individual cell specifications, which must be provided at Inspection. A power allowance of 10% will be given to student-built panels, i.e. the total power of the individual cells can add up to 528 Watts.

The only two components that may be removed from or added to the boat for different configurations are the solar panels and the batteries. However, the boat configuration may be modified by replacing or exchanging other individual components (motors, propellers, drive train components, rudders, etc). All components (other than solar panels and batteries) that will be used in any of the configurations must be safely secured within the boat for all configurations and all competitions.

In the Endurance configuration, solar panels must be in place. This configuration will be used for Endurance Qualifying and in the Endurance Event. No changes to the configuration are permitted between Endurance Qualifying and the Endurance Event.

The Sprint configuration will be used for Sprint Qualifying (the 70m Sprint course) and in the Sprint Event. Solar panels are optional. No changes to the configuration are permitted between Sprint Qualifying and the Sprint Event.

For the Slalom, either configuration may be modified. Solar panels are optional. Replacement or exchange of other parts (motors, propellers, drive train components, rudders, etc) is allowed, but is limited to onboard components as previously described.

All components used in any configuration must be inspected along with the craft. All craft will have their configuration verified in the staging area before competing. The Technical Manager may perform inspections at any time at his discretion.
7.3 **Materials** - Teams are encouraged to be creative in the selection of materials. The only restrictions are 1) flexible materials are not allowed to create a sail, 2) any materials that would pollute the water are not allowed.

7.4 **Power** - Sunlight is the only power source that shall be used for propulsion. Wind and human power are not allowed. The sunlight may be direct (received onboard during the Event using energy conversion devices) or may be stored in batteries or in other approved energy storage devices. Batteries can be charged only from the inspected energy conversion devices during the Event. Batteries may be brought to the Event fully charged.

7.4.1 **Batteries** – Craft are allowed to carry 45.5 kg (100 lb) of lead-acid batteries in all events. A maximum of two sets of batteries will be inspected and permitted for use in the competition.

7.4.2 **Storage of Solar Radiation** - All crafts in the Event will be allowed to store solar energy in their batteries at any time during daylight hours from the time of registration to the completion of the last competition.

7.4.3 **Supplemental Batteries** - The bilge pump and skipper’s radio must be powered by supplemental batteries. Measurement and telemetry devices may also be powered by supplemental batteries. Any other devices requiring electric power must use the energy storage as defined in Rule 7.4. The supplemental batteries are not limited to lead-acid technology, and the bilge pump battery must be securely fastened to the hull. Supplemental batteries may be charged from sources other than the inspected energy conversion devices.

7.4.4 **“System Voltage”** - May not exceed 52 VDC or AC RMS.

7.4.5 **“Source Voltage”** - May not exceed 36 VDC nominal value (usually 3 batteries). A maximum open circuit voltage of 52 VDC for the photovoltaic charging devices is allowed.

7.14.8 **Covers and Shields** - The craft’s revolving parts must be suitably covered to prevent accidental contact. All steering linkage must be shielded from contact with the skipper. If a flywheel is used, an NHRA approved scatter shield must cover it.

7.15 **Propeller Safety** - The propeller may not be attached to the shaft except when the boat is in the Restricted Area or on the water. The motor electrical system must be deactivated using the Dead-man’s Switch and the Motor Switch prior to installing or removing the propeller. The motor may not be run with the propeller attached when the boat is on land.

7.16 **Boat Impound** - Once a boat is brought to the competition site, it must remain on site throughout the competition.

8. **Inspections**

All craft will be inspected to verify compliance with the Rules. A craft must pass a mechanical and an electrical inspection prior to proceeding to an on-the-water inspection. Once all three inspections are passed, the craft may proceed to Qualifying. Each team will have a copy of its Technical Report available at Inspection time. Any changes made after Inspection require reinspection.

8.1 **Safety** - Each team is responsible for the seaworthiness of their craft. Passing Technical Inspections does not relieve the team of any liability. All craft must be maintained in a safe, seaworthy condition at all times.

8.2 **Swimming Ability** - Technical Inspections will include a brief test (50m or less and treading water for 1 minute) of the swimming ability of all team members who may skipper the craft. Participants will not be allowed to use any flotation equipment or any propulsion device such as “flippers” to assist them.

8.3 **Configuration** – All entries (referred to as boats or craft) must conform to the following definitions. The boat will have a skipper who will be the sole occupant.
7.4.6 Energy Storage Devices - In addition to the storage of solar energy in batteries (7.4.1), energy may be stored using other devices such as capacitors or flywheels. Storage of energy may begin at the "on deck" time (3.3).

7.5 Visibility - The skipper must have unobstructed vision forward and at least 100° to either side.

7.6 Stability - The stability of the craft will be tested by placing 10 kg at the sheer line (outer edge at the beam) with the skipper stationary in the normal operating position. Craft must not heel more than 15°. Skipper must remain centered with hands/feet in normal position.

7.7 Dead-man’s Switch - It must be functional at all times when the skipper is in the boat and must be demonstrated in an egress test during Technical Inspection.

7.8 Circulation - Fresh air must be provided for the skipper if the cockpit is enclosed.

7.9 Ballast - The ballast must be placed in a manner such that the ballast will fall out of the craft if it capsizes (turns over 180º) or adequate flotation must be provided for the ballast.

7.10 Electrical

7.10.1 Shock Hazards - All exposed conductors operating at greater than thirty-six (36) volts must be properly insulated.

7.10.2 Battery Type - Only secondary (electrically rechargeable) batteries are permitted. Fuel cells, primary batteries, or mechanically rechargeable batteries will not be approved. Each team is responsible for supplying their own batteries. The batteries must be commercially available, lead-acid, unmodified with their weight consistent with the Rules. Batteries must be absolutely stock (as manufactured) in every sense. The battery modules may not be modified in any manner, including the addition of electrolyte additives, case modification; or plate addition, removal, or modification. Manufacturer’s specifications, plus MSDS sheets,
must be supplied with the Technical Report. Failure to do so for the batteries you plan to use will result in a **10-point penalty** applied to the Technical Report score.

If you do not supply literature in the Report, you will be penalized, your batteries will be weighed on site, and no tolerance beyond the prescribed weight will be allowed. If you decide to use batteries different from those in your Technical Report, you may do so with no penalty by bringing the new batteries and Manufacturer’s specifications, plus MSDS sheets, to Inspection on site.

**7.12 Skipper Cockpit Egress** - The skipper’s cockpit must provide for the skipper’s unassisted exit within 5 seconds in case of emergency. The five (5) second exit, as well as the function of the dead-man’s switch, will be checked during Technical Inspections.

7.12.1 Harnesses - No harnesses or restraints to hold the skipper in place will be allowed.

7.12.2 Safety - The cockpit area will be inspected for hazards and compliance with the Rules during the Technical Inspections and in the Staging and/or On Deck areas.

**7.13 Fasteners**

7.13.1 Steering System - All fasteners associated with the craft’s steering system must be equipped with locking nuts, double nuts, or nuts secured with safety wire or cotter pins. Loctite® may be used in areas of difficult accessibility.

7.13.2 Batteries - Batteries must be secured to the hull. This must be done with a strap not less than 1¼" in width, or other hold-down device, that will not allow the battery to come loose if the boat capsizes. Velcro is not acceptable.

7.13.3 Solar Panels - Each panel, with or without a frame, must be attached with a mechanical fastening to the hull. The design should take into account the possibility of gusty winds during the events. In addition, a lanyard must be attached from each solar panel to a secure member of the hull or a frame that attaches to the hull. The lanyard must be strong enough that it will not break if the panel should go into the water while the boat is moving.

**7.14 Safety Equipment**

7.14.1 Life Preservers - A life preserver, USCG approved Type I, II, or III, must be worn by all craft occupants and safety craft occupants at all times.