



## ENGINEERING DESIGN REVIEW

*For participation in the Formula Sun Grand Prix/American Solar Challenge*

<b>University Name</b>	
<b>Team Name</b>	
<b>Solar Car #</b>	
<b>Events &amp; Year</b>	<input type="checkbox"/> Formula Sun Grand Prix _____ (year) <input type="checkbox"/> American Solar Challenge _____ (year)

This documents the review of the **Mechanical Vehicle Design Report** by a practitioner or an academic in an engineering field appropriate for this application that sound engineering practice has been applied to the design of a roadworthy and fit-for-purpose solar vehicle to be built for participation in the American Solar Challenge/Formula Sun Grand Prix events:

- Formula Sun Grand Prix, a 3-day (8 hours per day) closed, road-course track event
- American Solar Challenge, a road-rally style, open road event of 1500-2000+ miles

Per the event regulations, each university/team is responsible for the roadworthiness of its solar car. All solar vehicles must be maintained in a safe, roadworthy condition and be operated safely and within the law at all times. All solar vehicles are operated and driven at the team's own risk.

Each university/team is responsible for the safety of its members, and any minimum criteria specified by the Organizers via the regulations and/or correspondence between the teams and the Organizers should not be construed as design specifications for the construction of a "safe" solar vehicle. In addition, passing this engineering review does not guarantee that the Mechanical Vehicle Design Report will be approved nor that the solar vehicle will pass scrutineering.

Current event regulations are available at [americansolarchallenge.org](http://americansolarchallenge.org).

Item Reviewed	Review	Comments
Have you read and reviewed the full Mechanical Vehicle Design Report?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<i>Mechanical VDR Form, Item #6</i> Has proper analysis been shown that the <b>occupant cell</b> (frame/chassis and roll cage) meets the frontal, side, and top impact load scenarios, protecting the occupants in the event of a collision? (Reg 10.3.A.8 & 10.3.A.9, Appendix F3)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

<p><i>Mechanical VDR Form, Item #7</i>  Has the <b>roll cage</b> been designed to</p> <ul style="list-style-type: none"> <li>• deflect body/array panels away from occupants in an accident,</li> <li>• provide adequate clearance per 10.3.A.13, and</li> <li>• provide suitable occupant space per 10.3.C?</li> </ul> <p>(Reg 10.3.A, 10.3.B, &amp; 10.3.C)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #8</i>  Does the placement and attachment of the <b>seat belts</b> in the design comply with the manufacturer's instructions and Reg 10.3.E?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #9</i>  Has a dual, balanced <b>braking system</b> been designed as well as a parking brake?  (Reg 10.5, 10.6)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Items #10-11</i>  Has the <b>steering system</b> been designed in accordance with Reg 10.7, including steering stops?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #12</i>  Has the <b>front suspension system</b> been properly designed, capable of a minimum of the following loads (per Appendix F.2):</p> <ul style="list-style-type: none"> <li>• 1G turn,</li> <li>• 2G bump,</li> <li>• 1G braking case load, and</li> <li>• the worst-case condition of the loads combined?</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #13</i>  Has the <b>rear suspension system</b> been properly designed, capable of a minimum of the following loads (per Appendix F.2):</p> <ul style="list-style-type: none"> <li>• 1G turn,</li> <li>• 2G bump,</li> <li>• 1G braking case load, and</li> <li>• the worst-case condition of the loads combined?</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #14</i>  Do the <b>tires and rims</b> in the design adhere to Reg 10.2?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #16</i>  Has the mounting of the <b>battery box</b> to the chassis been designed appropriately?  (Reg 8.4.B)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p><i>Mechanical VDR Form, Item #18</i>  Are all <b>fasteners</b> designed to be of a suitable type, strength, durability, and properly secured for their application?  (Reg 10.4)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No	

# ENGINEERING DESIGN REVIEW

*For participation in the Formula Sun Grand Prix/American Solar Challenge*

I have reviewed the design of the solar vehicle specified on page 1, the associated Mechanical Vehicle Design Report, and the applicable regulations as appropriate:

- The solar vehicle has been designed using sound engineering practice,
- The solar vehicle meets the design parameters where stated, and
- This solar vehicle features a roadworthy design fit for the purpose of competing in the Formula Sun Grand Prix/American Solar Challenge

<b>Signature</b>	
<b>Printed Name</b>	
<b>Date</b>	
<b>Title</b>	
<b>Phone Number</b>	
<b>Email Address</b>	

**\*\*\* THE ABOVE REVIEWER MUST BE AUTHORIZED BY EITHER  
(1) THE TEAM ADVISOR IDENTIFIED ON THE TEAM PARTICIPATION AGREEMENT OR  
(2) THE UNIVERSITY OFFICER THAT SIGNED THE TEAM PARTICIPATION AGREEMENT \*\*\***

I give authorization to the above person to complete this review on behalf of the university.

<b>Signature</b>	
<b>Printed Name</b>	
<b>Date</b>	
<b>Title</b>	
<b>Phone Number</b>	
<b>Email Address</b>	

Please submit a scanned copy of the completed document to [ascteams@americansolarchallenge.org](mailto:ascteams@americansolarchallenge.org) with the Mechanical Vehicle Design Report. Please bring the original document with them to present at onsite registration.