SAE INTERNATIONAL®

FORMULA SAE STUDENT HANDBOOK

Formula SAE Michigan
Brooklyn, Michigan
May 13-16, 2015

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ONSITE CONTACT INFORMATION

G1 will be staffed with volunteers and the Official Announcer will be in the Main Tent at all times that the competition is in progress.

For all other communication, stewards and event crew should find the nearest event official or Paddock Patrol/Spectator Marshal volunteer with a mobile radio.

STUDENTS MAY CONTACT:

Kaley Zundel 412-719-2886

Elaine Pietrusinski 724-591-2324

Amanda Paciorkowski 724-772-7596

FIRST AID INFORMATION

There will **NOT** be a First Aid Station on site. All incidences will be covered by EMS or one of the two supporting fire trucks.

To expedite matters in case of accident or injury after-hours, simply call 911.

STORM SHELTER:

In the event of severe weather, we have been instructed by MIS management to gather inside the Pedestrian Tunnels.

Local Emergency Contact Information for MIS Area

MedPlus – After Hours Clinic

212 South Main Street

Brooklyn, MI 49230

(517) 592-6047

Mon.-Fri.: 5 p.m. – 10 p.m. Sat.-Sun. 10 a.m. – 6 p.m.

EVENT SITE REVIEW

ASK QUESTIONS: If you have a question – ask! If you have any questions about any part of the competition, the schedule, the procedures, the rules or anything else, just ask one of the officials. The first place to bring questions is to the staff in the registration area. Rules questions may be presented to the technical inspectors.

ANNOUNCEMENTS: Announcements requesting parts, tools or assistance can be made by the announcer in the Main Tent. In addition, the sound system will be FM Broadcasted. We will announce at the Honda Welcome Ceremony and remind teams at Drivers' meetings of what the frequency is.

ARRIVAL: In order to prevent traffic backlogs onto U.S. 12, please plan to arrive at MIS no earlier than 9:00 a.m. Wednesday, May 13..

BE ON TIME: The schedule is included in the Student Handbook and posted online. It is your responsibility to be on time.

BRING YOUR DOCUMENTATION: When you come to tech inspection bring all the documentation and correspondence connected to your (1) SEF submission, (2) Impact Attenuator Data Report and (3) any Rules Questions you submitted. The inspectors do not have this material and you may need it to answer questions about your vehicles design and construction. The inspectors want you to pass tech and pass it easily, but they need your help to make that happen.

DO NOT RUN: Running tells people there's an emergency. Do not run unless life or limb is in danger.

DRIVER MEETINGS: Attending ALL drivers' meetings is mandatory if you are planning to drive.

DYNAMIC/TECH AREA PASSES: Each team is issued 4 dynamic area passes. You must have a pass to gain access to the dynamic events areas. This pass is also used for tech inspection as we limit the number of team members with the car in tech to 4.

ENTERING AND EXITING THE SITE: Trucks cannot fit in through the General Entrance (Gate 21) tunnel off Brooklyn Highway. All team member cars are to use main entrance at Gate 21. The formula car transportation trucks must enter in and out through the US 12 (Gate 12) entrance. You will be driving across the track, so on Friday and Saturday the truck entrance will be closed when dynamic events are running. On those days before the events start, at lunch and after they end, you will be able to take trucks in and out by crossing at Gate 12 on the south end of the back straight. (That's on your right if you're in the paddocks and looking toward the back straight.)

EVENT CLOSING TIMES: Remember that Acceleration and Skid Pad close at exactly 12:00 p.m. and Autocross closes at 5:00 p.m. Your car must have crossed the starting line by that time or you can't run. We recommend you to get in line early.

EVENT SITE REVIEW CONT.

PHOTOGRAPHY: For 2015 Students will have a separate controlled area on the opposite end of where cars enter the Dynamic Gate. This controlled area will allow your photographers to have an unblocked view of the Dynamic Courses. Photographers are still required to check in and receive their vest and must have a spotter with them.

NOTE: Photographers can only be in the controlled area when their teams are running. On Endurance Day teams are permitted to be in the controlled area only during the time their car is on track.

PUSH BAR: You can only move your car if you use the push bar.

REMOVING CARS OVERNIGHT: Removing your car from MIS overnight is entirely your decision. If you want to take your car off site you must take it to tech inspection and have an inspector remove part one of the tech sticker. When you return you'll need to have the items you've worked on re-inspected. Re-inspection shouldn't take long.

RESTRICTED AREAS: At MIS, we are only authorized to use the infield, back straight, garages and certain surrounding facilities. We are not permitted on the other parts of the main oval or the buildings immediately adjacent to the main oval. Please respect these restrictions.

SECURITY: Keep your equipment locked up. This is a large site and security can't be everywhere. Don't leave your tools, computers and other equipment lying around where they could be stolen.

SOCIAL MEDIA: #FSAEMICHIGAN

https://www.facebook.com/FormulaSAE

https://twitter.com/formulasae

SPECTATORS: Spectators are welcome to attend FSAE. If you have friends or family who want to see the competition, tell them to enter through the main gate on Brooklyn Highway. Spectators must park in the general parking area, watch for signs, then go to Registration to sign the SAE waiver and receive their wristband. Please note to all spectators closed toed shoes are preferred. No pets allowed; except guide dogs.

TRANSLATORS: If you have a driver who isn't fluent in English, you must have a translator. Translators must be in the dynamic events area and available to the officials when that driver is on the course. Translators will be issued an additional dynamic area pass. If you need a dynamic area pass for your translator - ask at the registration area.

WEATHER: In May, the local weather can be unpredictable. We encourage you to be prepared for all weather types from sun to rain. Pack long and short sleeve apparel, sun block, coats and comfortable; closed-toe shoes.

PHOTOGRAPHER RULES

RULES FOR ALL PHOTOGRAPHERS IN THE CONTROLLED DYNAMIC AREA

*Opposite of the Main Dynamic Gate (see map)

DYNAMIC EVENTS AREA: For 2015 Students will have a separate controlled area on the opposite end of where cars enter the Dynamic Gate. This controlled area will allow your photographers to have an unblocked view of the Dynamic Courses.

NOTE: Photographers can only be in the controlled area when their teams are running. On Endurance Day teams are permitted to be in the controlled area only during the time their car is on track.

AUTHORIZATION: SAE staff is solely responsible for authorizing professional photographers/spotters, such as media, to enter the dynamic event area. Photographers/spotters must (1) be registered for the competition, (2) sign all required waivers, (3) read any required material, (4) agree that they understand and have no questions regarding the policies and procedures for photographers, and (5) agree to abide by these policies and procedures at the risk of being escorted from the dynamic area.

Videographers are classified as photographers

Photographers must have photographic equipment – cell phones are not cameras.

LIMIT: Each university is limited to one (1) photographer and one (1) spotter within the dynamic event area at the same time. Additional photographers must remain outside the dynamic event area.

ACCESS POLICY: Properly credentialed photographers/spotters representing universities may only access the dynamic events area while their teams are actually running in an event. University photographers/spotters will not be granted dynamic area access independent of their team.

PHOTOGRAPHER VESTS: Photographers and spotters will be issued vests at the controlled area access point.

SPOTTERS: Photographers in the dynamic events area must be accompanied by a spotter at all times. Photographers are responsible for providing their own spotters. Spotters may not have cameras or take pictures - they are there to spot only.

ACCESS PERIOD: Photographers/spotters are only to be in the controlled area when their team is running.

AREA CONTROL: At all times photographers/spotters are under the control of the Photographer Access Captain and the Director of Operations. Instructions and commands from Captain, Director or nearest Course Marshal must be followed immediately and without question.

PHOTOGRAPHER RULES CONT.

AREA CONTROL: At all times photographers/spotters are under the control of the Photographer Access Captain and the Director of Operations. Instructions and commands from Captain, Director or nearest Course Marshal must be followed immediately and without question.

CHECK-IN: Photographers/spotters must check-in and check-out with controlled area gate control.

CONSEQUENCES: Failure to follow these rules will result in ejection and revocation of the team's photographer credentials.

REMINDER: You are responsible for your own safety at all times!

TOYOTA PADDOCK RULES

ENGINE RUNNING IN THE PADDOCK: Engines may be run in the paddock provided the car has passed parts 1 and 2 of technical inspection and the following conditions are satisfied (Rule S2.7): (A) The car is on an adequate stand, and (B) The drive wheels are at least 10.2 cm (4 in) off the ground, or the driver wheels have been removed. Note – People may not be underneath the vehicles while engines are running.

DRIVER'S EQUIPMENT: Anytime the driver is in the cockpit with the engine running, the following approved safety equipment must be worn: helmet, driver's suit, racing gloves, goggles/face shields, racing shoes, and hair covering, if necessary (Rule T14.1 "Driver's Equipment").

VEHICLE MOVEMENT: Vehicles may not move under their own power anywhere but on the practice or competition tracks. Off track vehicles must be pushed at a normal walking pace by means of a "Push Bar" (D12.2), with all four (4) wheels on the ground, a team member sitting in the cockpit to steer and brake and with another team member walking beside the car (Rule D12.1.3).

JACKING: When supporting cars off the ground, use strong, sturdy stands which support the vehicle in a stable and secure way. Do not use milk crates, piles of wood, four of the strongest team members, etc.

FIRES: No open fires in the paddock including BBQ grills, oxy-acetylene torches, heaters, cigarettes, etc. Electric hot plates and MIG or TIG welding (with gas bottles safely secured) are allowed in your stall. Propane BBQ grills may be used only in the designated area, which is also the smoking area.

FUEL AND OIL: No open fuel containers. All fuel containers must be DOT approved. Waste oil, etc., is to be taken to the fuel station for disposal. Once at the race site, the FSAE race cars cannot be fueled except by the Formula SAE provided fuel at the fuel station. Note: waste fuel/oil may be disposed of at the fuel station.

FIRE EXTINGUISHERS: Fire extinguishers should be close by the vehicle and readily accessible and all team members must be knowledgeable in their use. A fire extinguisher must accompany the car wherever it is in the paddock or moved to any part of the site. A team member must hold a fire extinguisher ready whenever the car is running in your stall.

VEHICLE MODIFICATIONS: No unapproved modification to the vehicle after it has been through tech inspection. (Rule T1.2)

BEHAVIOR: Alcohol, illegal drugs, weapons or other illegal material are prohibited on the event site during the competition. Use of motorcycles, quads, bicycles, skateboards, rollerblades, scooters, or similar person-carrying devices in any part of the competition area (including the paddocks) are prohibited, as are self-propelled pit carts, tool boxes, tire carriers, etc.. (Rules D10.5, D11.6, D11.7)

DRIVING PRACTICE: Practice is only to take place in the designated areas during designated hours.

TOOL USE: Tools are expected to be used safely. Wear safety glasses when cutting, grinding, etc. Wear appropriate eye protection while welding.

TRASH: It is the team's responsibility to keep their Paddocks clean throughout the event. There are trash compactors in the paddock and near the suites. No trash (including broken parts, old furniture, worn out tires or other materials) may be left behind at the end of the event. (Rule D10.7)

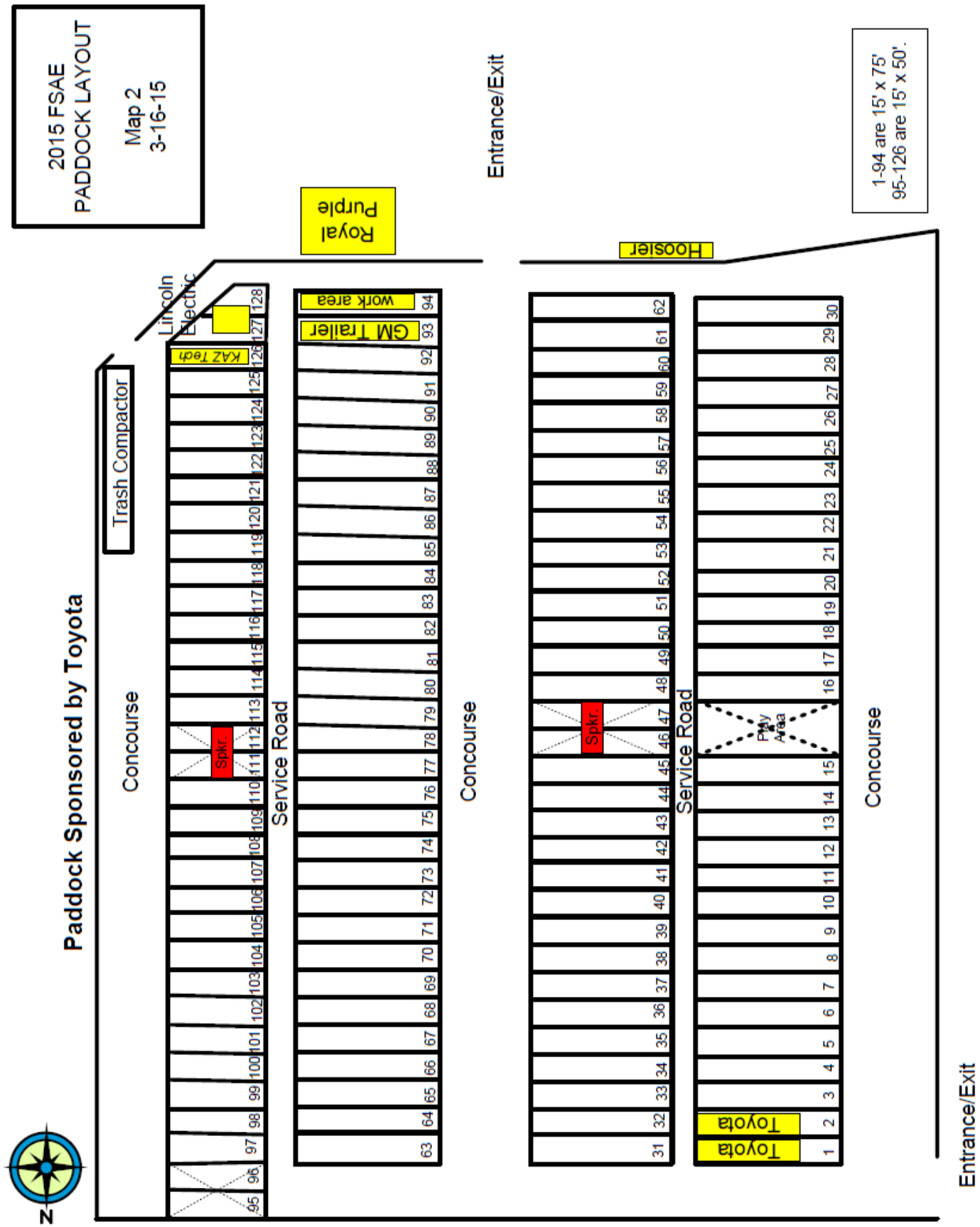
2015 FSAE RESTRICTED AREAS: Please reference the Restricted Areas document.

UNDER NO CIRCUMSTANCES ARE PASSENGER VEHICLES TO BE DRIVEN ON THE TRACK.

Exception – crossing the track upon arrival to and departure from MIS is permitted under supervision.

A special note for drivers: All drivers should perform a check of critical fasteners and components on their vehicles to assure complete control during the driving events. Fasteners do come loose, parts do fatigue, and occasionally someone forgets to torque a nut – you will be intimately involved if this happens. It is OK to use the kill switch in the event of engine or brake malfunction.

TOYATO PADDOCK LAYOUT



RESTRICTED AREAS & ACCESS

ALUMNI ACTIVITIES– Some teams invite alumni, parents and sponsors to the competition. These visitors are welcome but must comply with the rules that apply to all spectators and sign the liability waivers and be wrist banded. Any formally organized alumni activities, e.g. meetings, rallies, cook outs, must take place within the relevant team's paddock and under the same rules that apply to the team.

DYNAMIC AREA & DYNAMIC AREA ACCESS: At Formula SAE the "dynamic area" is one of the "restricted areas" and is defined as any part of the competition site where cars are running under power. The "dynamic area" includes the following parts of the site:

- Brake test area
- Courses
- Event queues and surrounding areas
- Dynamometer and surrounding area
- Noise test area
- Practice track

The dynamic area is considered highly restricted and may only be accessed by individuals with the proper credentials: (1) dynamic area pass and (3) a student wristband as follows:

- COMPETITOR: Access limited to times the dynamic area gate is open – Must have a dynamic area pass
- EVENT CREW WITH DYNAMIC AREA PASS: Access limited to times the dynamic area gate is open -- Must have a dynamic area pass AND be assigned to work the dynamic area.
- Note: Scorekeeping crew may access the dynamic event site at any time to install timing/scoring equipment.
- FACULTY: Access limited to times the dynamic area gate is open – Must have a dynamic area pass. Faculty must use one of their team's passes.
- JUDGES: Judges have very limited access to the dynamic area. Only 6 judges allowed at a time.
- MEDIA: Access limited to times the dynamic area gate is open. Notes (1) Photographers and video crews must have a spotter. (2) Media, photographers, video crews and spotters must have dynamic area passes. (Suzy Zukowski and the SAE staff are responsible for all media access.)
- OFFICIAL/ORGANIZER: All area access at all times
- VIP/SPONSORS: VIPS/Sponsors are not permitted in the dynamic area and will not be issued dynamic passes.

DYNAMIC AREA PASSES: Access to the dynamic event area is limited to 4 people per team, including drivers and faculty, and each team is issued four (4) dynamic area passes. To gain access to the dynamic event area team members, including drivers, must wear and display (1) FSAE issued I.D. badge, (2) a dynamic area pass, and (3) a plastic wrist band. Team dynamic area passes may be shared with faculty advisors.

Faculty advisors are not issued separate dynamic area passes, but may use one of the 4 passes issued to their team.

Official Translators are issued separate dynamic event passes.

Dynamic area passes are also issued to organizers, event crew working that area, staff and other people needing access to the area.

Dynamic area passes are not issued to spectators and may not be loaned to spectators.

RESTRICTED AREAS & ACCESS CONT.

PADDOCK – The "paddock" is the section of the event site where the teams set up their work site and park their transporters. Individual paddock spaces will be assigned by the organizers.

If you are in the paddock, keep in mind that teams may be pushing their vehicles through the aisle ways and power tools may be in use. Be aware of what is going on around you and use common sense.

PARTICIPANTS – To be classified as a "participant" an individual must (1) be at least 18 years of age, (2) have signed the FSAE liability waiver and (3) have been issued a wrist band.

Only "participants" have access to the restricted events areas.

RESTRICTED AREA– The "restricted area" is any part of the competition site where teams are likely to be running their vehicle engines.

The dynamic event areas, including the noise test site, the brake test site and the practice area are restricted,

Entry into any restricted area is limited to individuals with the proper wrist band.

Dynamic area entry - The dynamic events area is considered highly restricted and may only be accessed by people with all of the following: (1) FSAE issued I.D. badge, (2) dynamic area pass and (3) a plastic wrist band.

Restricted areas must be separated from the remaining parts of the competition site by a fence or tape /rope area designators.

SPECTATORS – Registration staff will make every effort to have all spectators sign the MIS liability waiver. There is no minimum age for spectators, but as a matter of operational policy any spectator under 18 years of age must be accompanied by an adult at all times.

Spectators over 18 years of age who sign the waiver will be issued wrist bands.

Spectators less than 18 years of age will not be issued wrist bands.

Spectators must remain in the parts of the site open to the public.

Spectators are not considered "participants" and may not enter the dynamic events area.

WRISTBANDS – Wristbands are required to enter any of the FSAE restricted areas.

To receive a wrist band a person must (1) be at least 18 years of age and (2) sign the liability waiver.

Individuals under 18 years of age may not be issued a wrist band and may not enter any restricted area. Minors will receive a hand-stamp indicating their parent/legal guardian has signed the minor waiver on their behalf.

WRISTBAND TYPES:

- PLASTIC: Student, faculty, official, volunteer, sponsor, media, and VIP
- PAPER: Spectators

HOSPITALITY

PARKING:

Enter MIS through Gate 21 off Brooklyn Hwy. Individuals will be directed to the FSAE Parking Area.

REGISTRATION PROCEDURES ONSITE:

1. A Team Captain and/or Faculty Advisor will proceed to the SAE International Registration Area bringing the printed out completed list of team information and signatures with you.
2. The Team Captain and/or Faculty Advisor are required to sign the list of signatures IN FRONT OF the Registration Staff to confirm and be accountable for the correctness of all signatures' information.
3. The Team Captain and/or Faculty Advisor will receive all wristbands for only those who have signed. Again these individuals are accountable for issuing wristbands to affiliated team members with signatures.
4. Any important registration information (dynamic passes/student handbooks/schedules) will be given to the Team Captain and/or Faculty Advisor.
5. Student Registration will only be open days 1 & 2 of the event.

CONCESSIONS:

Anyone who is interested may purchase food from the concessions area under the suites (south of G1, see site layout). The concession stand prices will range for breakfast: $3.00-$4.00. Lunch will be from: $3.00-$6.00 per item. Snacks are $1.00-5.00. Beverages are $3.00-$4.00. The hours are:

Wednesday, May 13-Saturday May 16 8:00 a.m. - ~6:00 p.m.*

*If business dictates, concessions may close earlier.

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DAILY SCHEDULE

SUBJECT TO CHANGE:

DAILY OPERATIONS		
ACTIVTY/LOCATION	**DAY**	**TIME**
MIS SITE OPEN	WED THUR FRI SAT	9:00 a.m. - 7:30 p.m. 7:30 a.m. – 7:30 p.m. 7:30 a.m. - 8:30 p.m. 7:00 a.m. - 10:30 p.m.
STUDENT REGISTRATION (GARAGE 1)	WED THUR FRI	9:00 a.m. - 5:00 p.m. 8:00 a.m. - 5:00 p.m. All students will be registered as spectators
INFORMATION & VOLUNTEER REGISTRATION (GARAGE 1)	WED THUR-SAT	9:00 a.m. – 6:00 p.m. 6:30 a.m. – 6:00 pm
TECH INSPECTION Sponsored by Cummins (GARAGE 2)	WED WED THUR FRI SAT	10:00 a.m. Tech "Take-A-Number" Opens Noon - 7 p.m. (no new cars after 6 p.m.) 9:00 a.m. - 5 p.m. By appointment 9:00 a.m. until 5:30 p.m. By appointment 9:00 a.m. until 1:00 p.m. (Re-tech only)
SCALES & PUSH BAR COMPETITIONS (GARAGE 1 DRIVE THRU)	WED THUR FRI	3:00 p.m. – 6:00 p.m. 8:00 a.m. – 4:00 p.m. 7:30 a.m. - Noon (for "cornering")
TILT/NOISE/BRAKE Sponsored by Continental	THUR FRI	9:00 a.m. – 5:00 p.m.(Staggered opening times by 30 min. per event) 8:00 a.m. - 5:30 p.m.
FUEL STATION	THUR FRI SAT	8:30 a.m. – 5:00 p.m. 8:00 a.m. – 5:00 p.m. 7:30 a.m. – 5:00 p.m.
PRACTICE AREA Sponsored by Continental	THUR FRI SAT	Noon - 5 p.m. 8:00 a.m. - 5:30 p.m. 8:00 a.m. – 3:00 p.m.

- **NOTE: Cars must complete all 4 parts of tech by 5:30 p.m. Friday to qualify for Endurance.**
- **30 minutes' notice is required for all appointments, which can be booked through the announcer in Main Tent.**

DETAILED SCHEDULE

SUBJECT TO CHANGE:

TIME	ACTIVITY	LOCATION
TUESDAY, MAY 12		
3:00 PM – 7:00 PM	Early Registration (Invitation Only)	Garage 1
WEDNESDAY, MAY 13		
9:00 AM – 5:00 PM	Team Registration Open	Garage 1
10:00 AM	Tech Inspection Sponsored by Cummins Opens	Garage 2
5:30 PM	Welcome Ceremony - Sponsored by Honda	Main Tent
6:00 PM – 6:20 PM	Captain and Advisors Meeting - Mandatory	Main Tent
6:30 PM– 8:30 PM	Industry Reception Sponsored by Maplesoft (Invitation Only)	Champions' Club
7:30 PM	Official Closing of the Site - Everyone must be off site	
THURSDAY, MAY 14		
8:00 AM	Drivers Meeting (Brake & Practice) - Mandatory	Main Tent
8:00 AM – 5:00 PM	Team Registration Open	Garage 1
8:30 AM – 5:30 PM	Design Event - Sponsored by Bosch - 1st Round Judging Open	Garage 3
9:00 AM– 5:00 PM	Cost Judging Open	Main Tent
9:00 AM– 5:00 PM	Presentation Sponsored by ZF Judging Open	MIS Suites
12:00 PM - 1:00 PM	Lunch Break	Main Tent
2:00PM – 3:30 PM*	First Autocross Course Walk (weather/time permitting)	Track
5:00 PM	Push Bar Finalist teams announced (up to 5 teams)	Main Tent
6:00 PM	Drivers Meeting (All Dynamic Events) - Mandatory	Main Tent
7:30 PM	Official Closing of the Site - Everyone must be off site	
9:00 PM*	Design Finalist announced online	www.sae.org and Facebook

*TIMES ARE APPROXIMATE

DETAILED SCHEDULE CONT.

SUBJECT TO CHANGE:

TIME	ACTIVITY	LOCATION
FRIDAY, MAY 15		
9:00 AM – 12:00 PM	Acceleration and Skid Pad Event Events Open	Track
9:00 AM– 4:00 PM	Design Feedback for Non-finalists (by appt. only)	Garage 3
9:30 AM	Presentation Seminar	Main Tent
12:00 PM	Lunch Break	Main Tent
1:00 PM – 1:20 PM*	Autocross Course Walk (course set-up/time/weather permitting)	Track
1:30 PM– 5:00 PM	Autocross Sponsored by Dodge Open	Track
5:30 PM– 8:30 PM*	Design Finals - Sponsored by Bosch	Garage 3
7:00 PM*	Award Ceremony 1 - Sponsored by General Motors	Main Tent
9:00 PM	Official Closing of the Site - EVERYONE MUST BE OFFSITE	
SATURDAY, MAY 16		
7:00 a.m. – 8:00 AM	Endurance Course Walk	Track
8:30 AM*	Top 3 Teams Design Finalists Announced	
9:00 AM– 2:00 PM*	Design Feedback for Finalists not Top 3, by appointment	Garage 3
9:00 AM	Ford Endurance/Fuel Efficiency Event Open – Group 1 Only	Track
12:00 PM*	Ford Endurance/Fuel Efficiency Gate Closes for Group 1	Track
12:30 PM - 1:00 PM*	Endurance Course Walk	Track
12:30 PM*	Lunch Break	Main Tent
1:35 PM*	Ford Endurance/Fuel Efficiency Event Open – Group 2 Only	Track
4:00 PM*	Ford Endurance/Fuel Efficiency Gate Closes for Group 2	Track
6:00 PM*	Public Design Review of Top 3 Finalists	Garage 3
7:00 PM*	Presentation Highlights	Main Tent
8:00 PM*	Final Awards Ceremony Sponsored by General Motors	Main Tent
10:30 PM*	Official Closing of the Site _ EVERYONE MUST BE OFFSITE	
SUNDAY, MAY 17		
9:00 a.m. - 2:00 p.m.	Site Open ONLY for Pick-Up of Transporters	

*TIMES ARE APPROXIMATE

SCHEDULE NOTES

SITE CLOSED ON MONDAY: Site closed to teams May 18, 2015. Teams not shipping cars must remove them by 2 p.m. May 17, 2015.

NO ACCESS DURING DYNAMIC EVENTS: Teams may enter site with rigs/trailers/panel trucks ONLY when there are no Dynamic Events running.

MEDICAL SERVICES: There is no First Aid Station on site. EMS will provide any/all medical attention.

OVERNIGHT REMOVAL: Removal is allowed, but tech will pull Part 1 of your tech sticker.

SHIPPING CARS: Teams shipping cars must have them removed from MIS by 10 a.m. May 18, 2015.

FM AUDIO: Announcements can be heard via FM radio (Frequency will be posted in G1 at event).

EVENT CLOSING TIMES: Acceleration, Skid-Pad & Autocross close exactly at the scheduled time. Your car must cross the starting line before the event closing time to be allowed to complete that run.

F1 IN SCHOOLS: F1 in Schools High School Engineering Competition - May 15 & 16 in the Champions' Club. FSAE participants are invited to observe from 11 a.m.-12:30 p.m. & 1-5 p.m. Friday; and 9-11 a.m. Saturday.

EARLY REGISTRATION: Teams who participate in early registration MUST drop off their trailers in the paddock. No unpacking may be done on Tuesday. Only "Green Light Teams" may participate.

SUPPORT SERVICES

GM MACHINE TRAILER:

WED-FRI 9 AM- 5 PM

CAPABILITIES:

- TIG welding- Aluminum & Steel
    - done in the trailer or close to the trailer door
- MIG welding (light gage only)
- Oxy-Acc torches
- Lathe & mill for small projects & subject to user knowledge
- Band saw
- Drill press
- Air compressor w/ hand air tools
- Cordless drills and other tools
- Small supply of nut & bolt and fastening hardware

LINCOLN ELECTRIC WELDING

WED. 12 PM – 5 PM

THUR-FRI 8 AM – 5 PM

SAT 8 AM – 12 PM

HOOSIER

WED – FRI 7 AM- 5 PM

SAT 7 AM - 3 PM

KAZ TECHNOLOGIES SHOCK DYNO

WED 9 AM- 3 PM

THUR-SAT 9 AM- 5 PM

- HOURS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE

ROYAL PURPLE:

WED-FRI 9 AM- 5 PM

MIS FIRE TRUCKS ON SITE:

WED-SAT: 7 AM - 8 PM*

AMBULANCE ON SITE:

WED-SAT 7 AM - 8 PM*

CONCESSIONS:

WED-SAT 8 AM- 6 PM*

SAE BOOKSTORE:

WED 2 PM – 6 PM*

THUR-FRI 8 AM – 5 PM

SAT 8 AM – 12 PM

* HOURS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE

STATIC SCHEDULES

CAR #	SCHOOL NAME	DESIGN BAY	DESIGN TIME	COST BAY	COST TIME	PRESENTATION BAY	PRESENTATION TIME
1	Oregon State Univ	E	1:30 PM	C	3:30 PM	B	9:30 AM
5	Univ of Akron	J	10:30 AM	J	3:00 PM	D	9:00 AM
7	Auburn Univ	E	9:30 AM	J	11:30 AM	B	1:00 PM
8	Univ of Michigan - Ann Arbor	G	3:30 PM	A	1:30 PM	G	10:30 AM
9	Univ of Florida	O	4:30 PM	D	9:00 AM	C	2:00 PM
11	Universidade Estadual de Campinas	E	4:30 PM	J	9:30 AM	B	1:30 PM
12	Michigan State Univ	N	9:30 AM	A	2:00 PM	B	4:30 PM
13	Univ of Wisconsin - Madison	K	12:30 PM	C	10:30 AM	B	4:00 PM
14	Univ of Kansas - Lawrence	H	1:30 PM	H	3:30 PM	E	9:30 AM
15	Kettering Univ	A	1:30 PM	A	10:00 AM	G	4:00 PM
16	Graz Technical Univ	C	10:30 AM	E	3:00 PM	F	4:30 PM
17	Univ of Toledo	J	12:30 PM	E	10:30 AM	A	4:00 PM
18	San Jose State University	O	8:30 AM	E	10:00 AM	F	3:00 PM
19	Ecole De Technologie Superieure	I	9:30 AM	C	2:30 PM	F	1:00 PM
20	Worcester Polytechnic Inst	D	4:30 PM	B	9:30 AM	A	1:30 PM
21	Univ of Illinois - Urbana Champaign	F	10:30 AM	G	3:00 PM	I	4:30 PM
22	US Naval Academy	L	12:30 PM	I	10:30 AM	C	4:00 PM
23	Ferris State University	J	8:30 AM	J	11:00 AM	A	3:00 PM
24	Brown Univ	K	3:30 PM	A	9:30 AM	B	11:30 AM
25	Georgia Institute of Technology	B	3:30 PM	E	1:30 PM	B	10:30 AM
26	Georgia Southern Univ	H	10:30 AM	H	3:00 PM	B	9:00 AM
27	Louisiana State Univ	A	10:30 AM	A	3:00 PM	D	4:30 PM
29	Lehigh Univ	J	2:30 PM	I	1:00 PM	D	10:00 AM
30	Univ of Missouri	C	2:30 PM	E	11:30 AM	F	10:00 AM
31	Bradley Univ	A	12:30 PM	F	10:00 AM	A	3:30 PM
32	Rose Hulman Inst of Tech	C	8:30 AM	F	11:00 AM	C	2:30 PM
33	West Virginia Univ	I	12:30 PM	B	10:30 AM	I	3:30 PM
34	Lafayette College	F	1:30 PM	F	3:30 PM	C	9:30 AM
35	Southern Illinois Univ - Edwardville	L	4:30 PM	D	10:00 AM	I	2:00 PM
36	Univ of North Florida	A	3:30 PM	G	1:30 PM	H	10:30 AM
37	Univ of Connecticut	G	8:30 AM	A	4:00 PM	G	2:30 PM
38	National Univ of Singapore	D	8:30 AM	I	11:00 AM	D	2:30 PM
39	Univ of Kentucky	F	8:30 AM	A	11:00 AM	F	2:30 PM
40	Univ of Central Florida	G	1:30 PM	E	3:30 PM	D	9:30 AM
41	Old Dominion Univ	N	10:30 AM	E	2:00 PM	H	9:00 AM
42	Florida International Univ	C	12:30 PM	H	10:00 AM	C	3:30 PM
43	Columbia Univ	H	2:30 PM	E	1:00 PM	B	11:00 AM
44	Western Michigan Univ	I	10:30 AM	I	3:00 PM	C	9:00 AM

STATIC SCHEDULES CONT.

CAR #	SCHOOL NAME	DESIGN BAY	DESIGN TIME	COST BAY	COST TIME	PRESENTATION BAY	PRESENTATION TIME
45	Tennessee Tech Univ	O	10:30 AM	C	2:00 PM	I	9:00 AM
46	McGill Univ	A	4:30 PM	F	9:30 AM	G	11:30 AM
47	Univ of South Florida	B	12:30 PM	G	10:00 AM	B	3:30 PM
48	Washington Univ - St Louis	J	9:30 AM	E	2:30 PM	G	1:00 PM
49	Univ of Toronto	I	1:30 PM	I	3:30 PM	F	9:30 AM
50	Missouri Univ of Science and Tech	G	12:30 PM	E	2:30 PM	G	1:00 PM
51	Univ of Cincinnati	G	9:30 AM	B	3:30 PM	D	1:00 PM
52	Colorado Mesa University	O	12:30 PM	J	10:30 AM	F	4:00 PM
53	Kookmin Univ	L	10:30 AM	G	2:00 PM	F	9:00 AM
54	Univ of Evansville	H	9:30 AM	D	2:30 PM	E	1:00 PM
55	Universidad Central de Venezuela	G	10:30 AM	C	3:00 PM	A	9:00 AM
56	Central Michigan Univ	L	9:30 AM	D	3:30 PM	I	1:00 PM
57	Texas Tech Univ	L	2:30 PM	G	1:00 PM	F	11:00 AM
58	Polytechnique Montréal	F	9:30 AM	A	2:30 PM	C	1:00 PM
59	Univ of Minnesota - Twin Cities	E	2:30 PM	D	11:30 AM	H	10:00 AM
60	Univ of Illinois - Chicago	K	8:30 AM	A	11:30 AM	C	3:00 PM
61	Rutgers Univ	B	10:30 AM	B	3:00 PM	E	4:30 PM
62	Ohio State Univ	A	8:30 AM	D	11:00 AM	A	2:30 PM
63	Duke Univ	D	1:30 PM	J	3:30 PM	A	9:30 AM
64	Univ of Alabama - Tuscaloosa	M	4:30 PM	H	9:00 AM	A	2:00 PM
65	Minnesota State University - Mankato	D	10:30 AM	D	3:00 PM	G	4:30 PM
66	North Carolina State Univ - Raleigh	K	10:30 AM	B	2:00 PM	E	9:00 AM
67	Queen's Univ - Ontario Canada	A	2:30 PM	B	9:00 AM	D	11:00 AM
68	Lakehead Univ	C	9:30 AM	H	11:30 AM	I	3:00 PM
69	Univ of Waterloo	O	1:30 PM	E	4:00 PM	C	10:00 AM
70	Kennesaw State University	N	2:30 PM	A	1:00 PM	H	11:00 AM
71	Univ of Pittsburgh - Pittsburgh	C	1:30 PM	I	10:00 AM	I	4:00 PM
72	Univ of Michigan - Dearborn	D	3:30 PM	D	1:30 PM	D	10:30 AM
73	Saginaw Valley State Univ	K	2:30 PM	J	1:00 PM	E	11:00 AM
74	North Dakota State Univ	I	3:30 PM	I	1:30 PM	I	10:30 AM
75	Univ of Puerto Rico-Mayaquez	G	4:30 PM	F	9:00 AM	D	1:30 PM
76	Universite Du Quebec a Trois-Rivieres	F	3:30 PM	F	1:30 PM	F	10:30 AM
77	Cegep du Vieux - Montreal	J	4:30 PM	E	9:00 AM	G	2:00 PM
78	Universite Du Quebec-Chicoutimi	B	2:30 PM	I	11:30 AM	E	10:00 AM
79	St Cloud State Univ	H	12:30 PM	G	10:30 AM	H	3:30 PM
80	Kansas State Univ	H	4:30 PM	I	9:00 AM	E	2:00 PM
81	Universidad Simon Bolivar	M	1:30 PM	C	4:00 PM	A	10:00 AM
82	Clemson Univ	N	8:30 AM	H	4:00 PM	F	1:30 PM

STATIC SCHEDULES CONT.

CAR #	SCHOOL NAME	DESIGN BAY	DESIGN TIME	COST BAY	COST TIME	PRESENTATION BAY	PRESENTATION TIME
83	Oakland University	K	9:30 AM	F	2:30 PM	H	1:00 PM
84	Grand Valley State Univ	I	8:30 AM	H	11:00 AM	I	2:30 PM
85	Villanova Univ	E	10:30 AM	F	3:00 PM	H	4:30 PM
86	Cooper Union	N	12:30 PM	A	10:30 AM	E	4:00 PM
87	Stevens Inst of Tech	M	9:30 AM	I	2:00 PM	A	4:30 PM
88	Dalhousie Univ	M	8:30 AM	G	11:30 AM	D	3:00 PM
90	Univ of North Carolina - Charlotte	G	2:30 PM	B	1:00 PM	A	11:00 AM
91	Univ of New Hampshire	B	8:30 AM	B	11:00 AM	B	2:30 PM
92	Clarkson University	C	3:30 PM	C	1:30 PM	C	10:30 AM
93	Univ of St Thomas	A	9:30 AM	F	11:30 AM	G	3:00 PM
94	Oklahoma State Univ	D	2:30 PM	B	11:30 AM	G	10:00 AM
95	Wayne State Univ	O	9:30 AM	J	2:00 PM	C	4:30 PM
96	Penn State Univ - University Park	M	2:30 PM	H	1:00 PM	G	11:00 AM
97	Univ of Guelph	K	1:30 PM	F	4:00 PM	H	9:30 AM
98	Embry-Riddle Aero Univ – Daytona Beach	O	2:30 PM	C	1:00 PM	I	11:00 AM
99	York College of Pa	F	12:30 PM	F	10:30 AM	F	3:30 PM
100	Northern Illinois Univ	E	8:30 AM	E	11:00 AM	E	2:30 PM
101	Wroclaw University of Technology	I	4:30 PM	C	9:00 AM	F	2:00 PM
102	Florida Inst of Tech	E	3:30 PM	H	1:30 PM	E	10:30 AM
103	Northwestern Univ	M	10:30 AM	D	2:00 PM	G	9:00 AM
104	Washington State Univ	M	3:30 PM	G	9:00 AM	D	11:30 AM
105	Univ of Hartford	C	4:30 PM	H	9:30 AM	I	11:30 AM
106	South Dakota State Univ	O	3:30 PM	H	2:00 PM	F	11:30 AM
107	Univ of Utah	F	4:30 PM	A	9:00 AM	C	1:30 PM
108	US Air Force Academy	B	1:30 PM	B	10:00 AM	H	4:00 PM
109	Univ of Oklahoma	L	8:30 AM	B	4:00 PM	E	1:30 PM
110	Virginia Tech	B	9:30 AM	C	11:30 AM	H	3:00 PM
111	Universidad Autonoma Estado Mexico	H	3:30 PM	B	1:30 PM	A	10:30 AM
112	Hope College	K	4:30 PM	G	11:00 AM	H	2:00 PM
113	Temple Univ	E	12:30 PM	J	10:00 AM	E	3:30 PM
114	Michigan Tech Univ	J	1:30 PM	A	3:30 PM	G	9:30 AM
115	Rochester Institute of Technology	M	12:30 PM	H	10:30 AM	D	4:00 PM
116	Universidad Metropolitana	B	4:30 PM	G	9:30 AM	H	11:30 AM
117	Western University	L	1:30 PM	G	4:00 PM	I	9:30 AM
119	Univ of Victoria	D	9:30 AM	G	3:30 PM	A	1:00 PM
120	Univ of Maryland - College Park	L	3:30 PM	D	9:30 AM	C	11:30 AM
121	Lawrence Technological Univ	N	1:30 PM	D	4:00 PM	B	10:00 AM
122	Indiana Univ Purdue Univ Indianapolis	I	2:30 PM	D	1:00 PM	C	11:00 AM

STATIC SCHEDULES CONT.

CAR #	SCHOOL NAME	DESIGN BAY	DESIGN TIME	COST BAY	COST TIME	PRESENTATION BAY	PRESENTATION TIME
123	Florida Atlantic Univ	J	3:30 PM	J	1:30 PM	A	11:30 AM
125	Purdue Univ - W Lafayette	N	3:30 PM	C	9:30 AM	E	11:30 AM
126	Cornell Univ	H	8:30 AM	C	11:00 AM	H	2:30 PM
127	Univ of Manitoba	D	12:30 PM	C	10:00 AM	D	3:30 PM
129	Univ of Texas - Arlington	F	2:30 PM	F	1:00 PM	I	10:00 AM
134	Mississippi State Univ	N	4:30 PM	J	9:00 AM	B	2:00 PM

COST EVENT SCHEDULE

Cost Event - 10 Bays, each appointment is 1/2 hour long

	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
8:30 AM	Training	Training	Training	Training	Training	Training	Training	Training	Training	Training
9:00 AM	107 - Univ of Utah	67 - Queen's Univ - Ontario Canada	101 - Wroclaw University of Technology	9 - Univ of Florida	77 - Cegep du Vieux - Montreal	75 - Univ of Puerto Rico-Mayaquez	104 - Washington State Univ	64 - Univ of Alabama - Tuscaloosa	80 - Kansas State Univ	134 - Mississippi State Univ
9:30 AM	24 - Brown Univ	20 - Worcester Polytechnic Inst	125 - Purdue Univ - W Lafayette	120 - Univ of Maryland - College Park	OPEN	46 - McGill Univ	116 - Universidad Metropolitana	105 - Univ of Hartford	OPEN	11 - Universidade Estadual de Campinas
10:00 AM	15 - Kettering Univ	108 - US Air Force Academy	127 - Univ of Manitoba	35 - Southern Illinois Univ - Edwardville	18 - San Jose State University	31 - Bradley Univ	47 - Univ of South Florida	42 - Florida International Univ	71 - Univ of Pittsburgh - Pittsburgh	113 - Temple Univ
10:30 AM	86 - Cooper Union	33 - West Virginia Univ	13 - Univ of Wisconsin - Madison	50 - Missouri University of Science and Tech	17 - Univ of Toledo	99 - York College of Pa	79 - St Cloud State Univ	115 - Rochester Institute of Technology	22 - US Naval Academy	52 - Colorado Mesa University
11:00 AM	39 - Univ of Kentucky	91 - Univ of New Hampshire	126 - Cornell Univ	62 - Ohio State Univ	100 - Northern Illinois Univ	32 - Rose Hulman Inst of Tech	112 - Hope College	84 - Grand Valley State Univ	38 - National Univ of Singapore	23 - Ferris State University
11:30 AM	60 - Univ of Illinois - Chicago	94 - Oklahoma State Univ	110 - Virginia Tech	59 - Univ of Minnesota - Twin Cities	30 - Univ of Missouri	93 - Univ of St Thomas	88 - Dalhousie Univ	68 - Lakehead Univ	78 - Universite Du Quebec-Chicoutimi	7 - Auburn Univ
12:00 PM 2:30 PM	LUNCH BREAK									
1:00 PM	70 - Kennesaw State University	90 - Univ of North Carolina - Charlotte	98 - Embry-Riddle Aero Univ - Daytona Beach	122 - Indiana Univ Purdue Univ Indianapolis	43 - Columbia Univ	129 - Univ of Texas - Arlington	57 - Texas Tech Univ	96 - Penn State Univ - University Park	29 - Lehigh Univ	73 - Saginaw Valley State Univ
1:30 PM	8 - Univ of Michigan - Ann Arbor	111 - Universidad Autonoma Estado Mexico	92 - Clarkson University	72 - Univ of Michigan - Dearborn	25 - Georgia Institute of Technology	76 - Universite Du Quebec a Trois-Rivieres	36 - Univ of North Florida	102 - Florida Inst of Tech	74 - North Dakota State Univ	123 - Florida Atlantic Univ
2:00 PM	12 - Michigan State Univ	66 - North Carolina State Univ - Raleigh	45 - Tennessee Tech Univ	103 - Northwestern Univ	41 - Old Dominion Univ	OPEN	53 - Kookmin Univ	106 - South Dakota State Univ	87 - Stevens Inst of Tech	95 - Wayne State Univ
2:30 PM	58 - Polytechnique Montréal	OPEN	19 - Ecole De Technologie Superieure	54 - Univ of Evansville	48 - Washington Univ - St Louis	83 - Oakland University	OPEN	OPEN	OPEN	OPEN
3:00 PM	27 - Louisiana State Univ	61 - Rutgers Univ	55 - Universidad Central de Venezuela	65 - Minnesota State University - Mankato	16 - Graz Technical Univ	85 - Villanova Univ	21 - Univ of Illinois - Urbana Champaign	26 - Georgia Southern Univ	44 - Western Michigan Univ	5 - Univ of Akron
3:30 PM	114 - Michigan Tech Univ	51 - Univ of Cincinnati	1 - Oregon State Univ	56 - Central Michigan Univ	40 - Univ of Central Florida	34 - Lafayette College	119 - Univ of Victoria	14 - Univ of Kansas - Lawrence	49 - Univ of Toronto	63 - Duke Univ
4:00 PM	37 - Univ of Connecticut	109 - Univ of Oklahoma	81 - Universidad Simon Bolivar	121 - Lawrence Technological Univ	69 - Univ of Waterloo	97 - Univ of Guelph	117 - Univ of Western Ontario	82 - Clemson Univ	OPEN	OPEN
4:30 PM										

PRESENTATION EVENT SCHEDULE

Presentation Event - 9 conf. rooms/suites, each appointment is 1/2 hour long

	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9
8:30 AM									
9:00 AM	55 - Universidad Central de Venezuela	26 - Georgia Southern Univ	44 - Western Michigan Univ	5 - Univ of Akron	66 - North Carolina State Univ - Raleigh	53 - Kookmin Univ	103 - Northwestern Univ	41 - Old Dominion Univ	45 - Tennessee Tech Univ
9:30 AM	63 - Duke Univ	1 - Oregon State Univ	34 - Lafayette College	40 - Univ of Central Florida	14 - Univ of Kansas - Lawrence	49 - Univ of Toronto	114 - Michigan Tech Univ	97 - Univ of Guelph	117 - Univ of Western Ontario
10:00 AM	81 - Universidad Simon Bolivar	121 - Lawrence Technological Univ	69 - Univ of Waterloo	29 - Lehigh Univ	78 - Universite Du Quebec-Chicoutimi	30 - Univ of Missouri	94 - Oklahoma State Univ	59 - Univ of Minnesota - Twin Cities	129 - Univ of Texas - Arlington
10:30 AM	111 - Universidad Autonoma Estado Mexico	25 - Georgia Institute of Technology	92 - Clarkson University	72 - Univ of Michigan - Dearborn	102 - Florida Inst of Tech	76 - Universite Du Quebec a Trois-Rivieres	8 - Univ of Michigan - Ann Arbor	36 - Univ of North Florida	74 - North Dakota State Univ
11:00 AM	90 - Univ of North Carolina - Charlotte	43 - Columbia Univ	122 - Indiana Univ Purdue Univ Indianapolis	67 - Queen's Univ - Ontario Canada	73 - Saginaw Valley State Univ	57 - Texas Tech Univ	96 - Penn State Univ - University Park	70 - Kennesaw State University	98 - Embry-Riddle Aero Univ - Daytona Beach
11:30 AM	123 - Florida Atlantic Univ	24 - Brown Univ	120 - Univ of Maryland - College Park	104 - Washington State Univ	125 - Purdue Univ - W Lafayette	106 - South Dakota State Univ	46 - McGill Univ	116 - Universidad Metropolitana	105 - Univ of Hartford
12:00 PM	LUNCH BREAK								
12:30 PM									
1:00 PM	119 - Univ of Victoria	7 - Auburn Univ	58 - Polytechnique Montréal	51 - Univ of Cincinnati	54 - Univ of Evansville	19 - Ecole De Technologie Superieure	48 - Washington Univ - St Louis	83 - Oakland University	56 - Central Michigan Univ
1:30 PM	20 - Worcester Polytechnic Inst	11 - Universidade Estadual de Campinas	107 - Univ of Utah	75 - Univ of Puerto Rico-Mayaquez	109 - Univ of Oklahoma	82 - Clemson Univ	OPEN	OPEN	OPEN
2:00 PM	64 - Univ of Alabama - Tuscaloosa	134 - Mississippi State Univ	9 - Univ of Florida	OPEN	80 - Kansas State Univ	101 - Wroclaw University of Technology	77 - Cegep du Vieux - Montreal	112 - Hope College	35 - Southern Illinois Univ - Edwardville
2:30 PM	62 - Ohio State Univ	91 - Univ of New Hampshire	32 - Rose Hulman Inst of Tech	38 - National Univ of Singapore	100 - Northern Illinois Univ	39 - Univ of Kentucky	37 - Univ of Connecticut	126 - Cornell Univ	84 - Grand Valley State Univ
3:00 PM	23 - Ferris State University	OPEN	60 - Univ of Illinois - Chicago	88 - Dalhousie Univ	OPEN	18 - San Jose State University	93 - Univ of St Thomas	110 - Virginia Tech	68 - Lakehead Univ
3:30 PM	31 - Bradley Univ	47 - Univ of South Florida	42 - Florida International Univ	127 - Univ of Manitoba	113 - Temple Univ	99 - York College of Pa	50 - Missouri University of Science and Tech	79 - St Cloud State Univ	33 - West Virginia Univ
4:00 PM	17 - Univ of Toledo	13 - Univ of Wisconsin - Madison	22 - US Naval Academy	115 - Rochester Institute of Technology	86 - Cooper Union	52 - Colorado Mesa University	15 - Kettering Univ	108 - US Air Force Academy	71 - Univ of Pittsburgh - Pittsburgh
4:30 PM	87 - Stevens Inst of Tech	12 - Michigan State Univ	95 - Wayne State Univ	27 - Louisiana State Univ	61 - Rutgers Univ	16 - Graz Technical Univ	65 - Minnesota State University - Mankato	85 - Villanova Univ	21 - Univ of Illinois - Urbana Champaign

Design Event - 15 bays - Each time slot is ONE hour long

	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	K 11	L 12	M 13	N 14	O 15
8:30 AM	62 - Ohio State Univ	91 - Univ of New Hampshire	32 - Rose Hulman Inst of Tech	38 - National Univ of Singapore	100 - Northern Illinois Univ	39 - Univ of Kentucky	37 - Univ of Connecticut	126 - Cornell Univ	84 - Grand Valley State Univ	23 - Ferris State University	60 - Univ of Illinois - Chicago	109 - Univ of Oklahoma	88 - Dalhousie Univ	82 - Clemson Univ	18 - San Jose State University
9:30 AM	93 - Univ of St Thomas	110 - Virginia Tech	68 - Lakehead Univ	119 - Univ of Victoria	7 - Auburn Univ	58 - Polytechniq ue Montréal	51 - Univ of Cincinnati	54 - Univ of Evansville	19 - Ecole De Technologi e Superieure	48 - Washington Univ - St Louis	83 - Oakland University	56 - Central Michigan Univ	87 - Stevens Inst of Tech	12 - Michigan State Univ	95 - Wayne State Univ
10:30 AM	27 - Louisiana State Univ	61 - Rutgers Univ	16 - Graz Technical Univ	65 - Minnesota State University - Mankato	85 - Villanova Univ	21 - Univ of Illinois - Urbana Champaign	55 - Universidad Central de Venezuela	26 - Georgia Southern Univ	44 - Western Michigan Univ	5 - Univ of Akron	66 - North Carolina State Univ - Raleigh	53 - Kookmin Univ	103 - Northwester n Univ	41 - Old Dominion Univ	45 - Tennessee Tech Univ
11:30 AM	LUNCH BREAK														
12:30 PM	31 - Bradley Univ	47 - Univ of South Florida	42 - Florida International Univ	127 - Univ of Manitoba	113 - Temple Univ	99 - York College of Pa	50 - Missouri University of Science and Tech	79 - St Cloud State Univ	33 - West Virginia Univ	17 - Univ of Toledo	13 - Univ of Wisconsin - Madison	22 - US Naval Academy	115 - Rochester Institute of Technology	86 - Cooper Union	52 - Colorado Mesa University
1:30 PM	15 - Kettering Univ	108 - US Air Force Academy	71 - Univ of Pittsburgh - Pittsburgh	63 - Duke Univ	1 - Oregon State Univ	34 - Lafayette College	40 - Univ of Central Florida	14 - Univ of Kansas - Lawrence	49 - Univ of Toronto	114 - Michigan Tech Univ	97 - Univ of Guelph	117 - Univ of Western Ontario	81 - Universidad Simon Bolivar	121 - Lawrence Technologi cal Univ	69 - Univ of Waterloo
2:30 PM	67 - Queen's Univ - Ontario Canada	78 - Universite Du Quebec-Chicoutimi	30 - Univ of Missouri	94 - Oklahoma State Univ	59 - Univ of Minnesota - Twin Cities	129 - Univ of Texas - Arlington	90 - Univ of North Carolina - Charlotte	43 - Columbia Univ	122 - Indiana Univ Purdue Univ Indianapolis	29 - Lehigh Univ	73 - Saginaw Valley State Univ	57 - Texas Tech Univ	96 - Penn State Univ - University Park	70 - Kennesaw State University	98 - Embry-Riddle Aero Univ - Daytona Beach
3:30 PM	36 - Univ of North Florida	25 - Georgia Institute of Technology	92 - Clarkson University	72 - Univ of Michigan - Dearborn	102 - Florida Inst of Tech	76 - Universite Du Quebec a Trois-Rivieres	8 - Univ of Michigan - Ann Arbor	111 - Universidad Autonoma Estado Mexico	74 - North Dakota State Univ	123 - Florida Atlantic Univ	24 - Brown Univ	120 - Univ of Maryland - College Park	104 - Washington State Univ	125 - Purdue Univ - W Lafayette	106 - South Dakota State Univ
4:30 PM	46 - McGill Univ	116 - Universidad Metropolita na	105 - Univ of Hartford	20 - Worcester Polytechnic Inst	11 - Universidad e Estadual de Campinas	107 - Univ of Utah	75 - Univ of Puerto Rico-Mayaquez	80 - Kansas State Univ	101 - Wroclaw University of Technology	77 - Cegep du Vieux - Montreal	112 - Hope College	35 - Southern Illinois Univ - Edwardville	64 - Univ of Alabama - Tuscaloosa	134 - Mississippi State Univ	9 - Univ of Florida

DESIGN EVENT SCHEDULE

REGISTERED TEAM LIST

REGISTERED TEAM LIST NUMERICALLY

TEAM #	UNIVERSITY	TEAM NAME	COUNTRY
1	Oregon State Univ	Global Formula Racing	United States
5	Univ of Akron	Zips Racing	United States
7	Auburn Univ	War Eagle Motorsports	United States
8	Univ of Michigan - Ann Arbor	MRacing	United States
9	Univ of Florida	Gator Motorsports	United States
11	Universidade Estadual de Campinas	FSAE - UNICAMP	Brazil
12	Michigan State Univ	Michigan State Univ	United States
13	Univ of Wisconsin - Madison	Wisconsin Racing	United States
14	Univ of Kansas - Lawrence	Jayhawk Motorsports Combustion	United States
15	Kettering Univ	Kettering University Motorsports	United States
16	Graz Technical Univ	TU Graz Racing Team	Austria
17	Univ of Toledo	Rocket Motorsports	United States
18	San Jose State University	Spartan Racing	United States
19	Ecole De Technologie Superieure	Formule ETS	Canada
20	Worcester Polytechnic Inst	WPI	United States
21	Univ of Illinois - Urbana Champaign	Illini Motorsports	United States
22	US Naval Academy	NAVY Motorsports	United States
23	Ferris State University	Ferris Formula	United States
24	Brown Univ	FSAE	United States
25	Georgia Institute of Technology	GT Motorsports	United States
26	Georgia Southern Univ	Eagle Motorsoports	United States
27	Louisiana State Univ	lsu tiger racing fsae	United States
29	Lehigh Univ	Lehigh Racing	United States
30	Univ of Missouri	Mizzou Racing	United States
31	Bradley Univ	Bradley University	United States
32	Rose Hulman Inst of Tech	RoseGPE	United States
33	West Virginia Univ	Mountaineer Racing	United States
34	Lafayette College	Lafayette Motorsports	United States
35	Southern Illinois Univ - Edwardville	Formula SIUE	United States
36	Univ of North Florida	Osprey Racing	United States
37	Univ of Connecticut	Uconn	United States
38	National Univ of Singapore	NUS FSAE	Singapore
39	Univ of Kentucky	Formula Kentucky	United States
40	Univ of Central Florida	Knights Racing	United States
41	Old Dominion Univ	Old Dominion University	United States
42	Florida International Univ	Panther Motorsports	United States
43	Columbia Univ	Knickerbocker Motorsports	United States
44	Western Michigan Univ	Bronco Racing	United States

REGISTERED TEAM LIST

REGISTERED TEAM LIST NUMERICALLY

TEAM #	UNIVERSITY	TEAM NAME	COUNTRY
43	Columbia Univ	Knickerbocker Motorsports	United States
44	Western Michigan Univ	Bronco Racing	United States
45	Tennessee Tech Univ	TTU Motorsports	United States
46	McGill Univ	McGill Racing Team	Canada
47	Univ of South Florida	USF Racing	United States
48	Washington Univ - St Louis	Wash U Racing	United States
49	Univ of Toronto	University of Toronto Formula Racing	Canada
50	Missouri University of Science and Tech	Missouri S&T Formula SAE Racing	United States
51	Univ of Cincinnati	Bearcat Motorsports	United States
52	Colorado Mesa University	Mesa Motorsports	United States
53	Kookmin Univ	KOOKMIN RACING	South Korea
54	Univ of Evansville	Aces racing	United States
55	Universidad Central de Venezuela	Team Formula SAE UCV	Venezuela
56	Central Michigan Univ	Chippewa Racing	United States
57	Texas Tech Univ	Texas Tech Univ	United States
58	Polytechnique Montréal	Formule Polytechnique Montreal	Canada
59	Univ of Minnesota - Twin Cities	Gopher Motorsports	United States
60	Univ of Illinois - Chicago	UIC Motorsports	United States
61	Rutgers Univ	Rutgers Formula Racing	United States
62	Ohio State Univ	Formula Buckeyes	United States
63	Duke Univ	Duke Motorsports	United States
64	Univ of Alabama - Tuscaloosa	Crimson Racing	United States
65	Minnesota State University - Mankato	MNSU FSAE	United States
66	North Carolina State Univ - Raleigh	Wolfpack Motorsports	United States
67	Queen's Univ - Ontario Canada	Queen's Formula SAE	Canada
68	Lakehead Univ	Thunder Wolf Racing	Canada
69	Univ of Waterloo	Formula Motorsports	Canada
70	Kennesaw State University	SPSU Motorsports	United States
71	Univ of Pittsburgh - Pittsburgh	Panther Racing	United States
72	Univ of Michigan - Dearborn	UMD Racing	United States
73	Saginaw Valley State Univ	Cardinal Formula Racing	United States
74	North Dakota State Univ	Bison Motorsports	United States
76	Universite Du Quebec a Trois-Rivieres	uqtr racing	Canada
77	Cegep du Vieux - Montreal	FSAECVM	Canada
78	Universite Du Quebec-Chicoutimi	FSAE UQAC	Canada
79	St Cloud State Univ	Saint Cloud State Formula Team	United States
80	Kansas State Univ	Powercat Motorsports	United States
81	Universidad Simon Bolivar	FSAE USB	Venezuela

REGISTERED TEAM LIST

REGISTERED TEAM LIST NUMERICALLY

TEAM #	UNIVERSITY	TEAM NAME	COUNTRY
82	Clemson Univ	Clemson FSAE	United States
83	Oakland University	Grizzlies Racing	United States
84	Grand Valley State Univ	GVSU Formula SAE	United States
85	Villanova Univ	NovaRacing	United States
86	Cooper Union	Cooper Motorsports	United States
87	Stevens Inst of Tech	Stevens Inst. Formula SAE	United States
88	Dalhousie Univ	Dalhousie Formula SAE	Canada
90	Univ of North Carolina - Charlotte	49ers Racing	United States
91	Univ of New Hampshire	UNH Precision Racing	United States
92	Clarkson University	Golden Knights Racing	United States
93	Univ of St Thomas	Tommie Racing	United States
94	Oklahoma State Univ	OKstate Racing	United States
95	Wayne State Univ	Warrior Racing	United States
96	Penn State Univ - University Park	Penn State Racing	United States
97	Univ of Guelph	Gryphon Racing	Canada
98	Embry-Riddle Aero Univ - Daytona Beach	ERAU Motorsports	United States
99	York College of Pa	Spartian Formula	United States
100	Northern Illinois Univ	Huskie Racing Team	United States
101	Wroclaw University of Technology	PWR Racing Team	Poland
102	Florida Inst of Tech	Florida Tech Motorsports	United States
103	Northwestern Univ	Northwestern Formula Racing	United States
104	Washington State Univ	Wazzu Racing	United States
105	Univ of Hartford	Hartford Racing	United States
106	South Dakota State Univ	Wild Hare Racing	United States
107	Univ of Utah	Formula U Racing	United States
109	Univ of Oklahoma	Sooner Racing Team	United States
110	Virginia Tech	VT Motorsports	United States
111	Universidad Autonoma Estado Mexico	UAEMex Racing Team	Mexico
112	Hope College	Hope College Formula SAE	United States
113	Temple Univ	Temple Formula Racing	United States
114	Michigan Tech Univ	MTU Formula	United States
115	Rochester Institute of Technology	RIT Formula SAE	United States
116	Universidad Metropolitana	Unimet Motorsports	Venezuela
117	Western University	Western Formula Racing	Canada
119	Univ of Victoria	UVic Formula Motorsports	Canada
120	Univ of Maryland - College Park	Terps Racing	United States
121	Lawrence Technological Univ	Blue Devil Motorsports	United States
122	Indiana Univ Purdue Univ Indianapolis	IUPUI Motorsports Jaguars	United States

REGISTERED TEAM LIST

REGISTERED TEAM LIST NUMERICALLY

TEAM #	UNIVERSITY	TEAM NAME	COUNTRY
123	Florida Atlantic Univ	Owls Racing	United States
125	Purdue Univ - W Lafayette	Purdue Formula SAE	United States
126	Cornell Univ	Cornell FSAE Racing	United States
127	Univ of Manitoba	Polar Bear Racing	Canada
129	Univ of Texas - Arlington	UTA FSAE	United States
134	Mississippi State Univ	Mississippi State University Formula SAE	United States

2015 FSAE AWARDS

SPIRIT OF EXCELLENCE AWARD:

This award recognizes the Top 10 finishers with overall highest accumulative scores.

STATIC EVENTS

COST AWARD:

Top 3 finishers with overall highest accumulative scores in Cost.

BOSCH ENGINEERING DESIGN AWARD:

Top 3 finishers with overall highest accumulative scores in Design.

ZF PRESENTATION AWARD:

Top 3 finishers with overall highest accumulative scores in Presentation.

DYNAMIC EVENTS

ACCELERATION AWARD:

Top 3 finishers with fastest speeds/highest accumulative scores in Acceleration.

DODGE AUTOCROSS AWARD:

Top 3 finishers with fastest speeds/highest accumulative scores in Autocross.

FORD ENDURANCE AWARD:

Top 3 finishers with fastest speeds/highest accumulative scores in Endurance.

FORD FUEL EFFICIENCY AWARD:

Top 3 finishers who receive highest scores accumulated on best fuel efficiency.

SKID PAD AWARD:

Top 3 finishers with fastest speeds/highest accumulative scores in Skid Pad.

2015 FSAE AWARDS CONT.

SPECIALTY AWARDS (Some may require application process)

ALTAIR ENGINEERING'S WILLIAM R. ADAM ENGINEERING AWARD:

Development of new and innovative design concepts for FSAE racing competition

CONTINENTAL BRAKE AWARD:

Best in Class Brake design by a team.

CUMMINS APPLIED TECHNOLOGY AWARD:

Top team that applies technology the most innovatively.

THE FEV POWERTRAIN DEVELOPMENT AWARD:

Top 3 teams with overall excellence in Powertrain Development

BOSCH THREE VIEW DRAWING EXCELLENCE AWARD:

Top 10 teams who submit the best executed three view drawings, per Formula SAE Rule S6.4.

MACLEAN-FOGG FASTENING CHALLENGE AWARD:

Top team with the best solution to a fastening challenge at FSAE Michigan.

TOYOTA CONTINUOUS IMPROVEMENT AWARD:

This award will recognize the team which has made considerable strides in the competition in the last few years.

NOTE: Although not guaranteed, some awards will include a cash award dependent on sponsorship. These and other awards will be detailed in the event program available at the on-site competition registration booth.

AWARD CEREMONIES

AWARD CEREMONIES SPONSORED BY GENERAL MOTORS – Main Tent

There will be two award ceremonies in 2015

1ST AWARD CEREMONY: FRIDAY 7:00PM

The following Awards will be given:

- Altair Systems Engineering Awards
- Continental Brake Award
- Cost Awards
- Cummins Applied Technology Award
- MacLean-Fogg Fastening Challenge Award
- Toyota Continuous Improvement Award
- ZF Presentation Awards
- Bosch Three View Drawing Awards
- Acceleration Awards
- Skid Pad Awards

There will also be a few prize drawings for the teams, must be present to win.

2ND AWARD CEREMONY: SATURDAY 8:00PM

The following Awards will be given:

- FEV Powertrain Development Award
- Bosch Design Awards
- Dodge Autocross Awards
- Ford Endurance Awards
- Ford Fuel Efficiency Awards
- SAE Spirit of Excellence Awards

EZ-PASS PRIZE: There will be an "EZ-Pass" prize drawing for a free 2016 FSAE Registration (teams must be present to win). Overall results will be posted to SAE's website ~Tuesday, May 19, 2015.

TECHNICAL INSPECTION

TECHNICAL INSPECTION SPONSORED BY: CUMMINS

OFFICIALS: Chief Technical Inspectors: Mark Muddiman, Jeff Lovell, Matt Johnson

OVERALL PROCEDURE: Technical Inspection will be broken down into three (3) parts:

1. Checks of the all the drivers' safety gear, "rain" tires, fire extinguishers, and Take-A-Number for the Vehicle Checks part of Tech Inspection.
2. Vehicle Checks.
3. Starting Thursday: additional Driver Checks (helmet clearance, head restraint, seat belts and egress) for the remaining drivers. Only one driver per team will be checked Wednesday.

WHEN: The Vehicle Checks portion of Tech Inspection will be open:

Wednesday, 13th May	From 12:00 p.m. until 7:00 p.m. (No new cars after 6.00 pm)
Thursday, 14th May	From 9:00 a.m. until 5:00 p.m.
Friday, 15th May	By appointment. See the announcer in Main Tent.
Saturday, 16th May	By appointment. See the announcer in Main Tent.

Take-A-Number and the safety gear and rain tire checks will be open 10:00 a.m. – 12:00 PM on Wednesday. Teams should NOT line up earlier than 9:45 a.m. The opening will be announced over the PA.

The checks for additional drivers will open on Thursday morning. If a driver is not at the track by Thursday, contact the Chief of Tech to arrange for an appointment prior to their dynamic event.

WHERE:

For the Safety Gear checks, enter garage G2 at the southeast corner.

For the Vehicle Checks, enter Garage G2 at the southwest corner.

Beginning Thursday, the checks of the additional drivers will be at the east end of Garage G2.

PROCEDURE: SAFETY GEAR, RAIN TIRES, AND TAKE-A-NUMBER:

- Enter garage G2 at the southeast corner.
- With you, you must have:
  - The Inspection Sheet (Tech Form). Fill in the information in the top section.
  - All your drivers' safety gear (T14.1 – 14.13)
  - Rain tires (per T6.4.1.b).

Once your safety gear and rain tires are approved, you will be given a Take-A-Number tag.(If you miss the 12:00 closing time, see a Chief Inspector to get your Take-A-Number tag. Your safety gear will be checked along with your vehicle during your Vehicle Checks.)

TECHNICAL INSPECTION CONT.

PROCEDURE: VEHICLE CHECKS

- Enter garage G2 at the southeast corner.
- With you, you must have:
    - The car
    - The Inspection Sheet (Tech Form). Fill in the information in the top section
    - The push bar
    - Copies of your Structural Equivalency Form, and if any, your Rules question e-mails
    - A driver with his/her full set of safety gear.
    - The car on your "dry" tires. Per Rule T2.1, your dry tires are the ones on the car at Tech Inspection.
    - A printed copy of your Impact Attenuator Report.
    - The Impact Attenuator that you tested (Rule T3.22.4

One driver is needed for the Vehicle Checks.

Egress and clearance checks for that one driver will typically be conducted during Vehicle Checks, depending on overall progress in the Technical Inspection garage.

PROCEDURE: ADDITIONAL DRIVER CHECKS

- Enter the east end of garage 2.
- With you, you must have:
    - The car
    - The Inspection Sheet and Driver Sheet. Fill in the drivers' names.
    - The push bar and fire extinguisher.
    - Certain Driver's gear: helmet, arm restraints, gloves, long pants, long-sleeved shirt, and close-toed shoes must be worn for the egress, harness, and clearance checks. Driving suits, balaclavas, and race shoes are not required.

Note that one driver (who may be checked on Wednesday) is sufficient to receive an inspection sticker and continue through the last three Technical Inspection areas.

TECHNICAL INSPECTION CONT.

NOTES:

Only four (4) team members will be allowed into the actual Tech Inspection area. All other team members, the Faculty Advisor and other spectators will be required to watch from outside the inspection area. The Dynamic Passes will be used as the "pass" into the inspection area. Team members may rotate in and out of the inspection area as required as long as there are no more than four in the inspection area at any one time.

When you pass Tech, the first part of the Tech Form will be retained by the Tech Crew and you will be given the first of four (4) parts of the inspection sticker. You should then proceed to the Fuel Station and the Tilt Table. The second, third and fourth parts of the sticker will be given at the Tilt Table, the Brake Test and the Noise Test respectively. Only when you have all four parts of the Tech sticker will you be allowed to compete in the dynamic events or run on the practice track.

If you have items that need to be rectified, the Tech form will be returned to you (the team), you will not get your sticker, and you will have to present your car at Tech again.

No car will be allowed to run on the chassis dynamometer (if one is available) until it has passed all parts of Technical Inspection and has been issued all four parts of the inspection sticker.

If you (a team) expect to have a time conflict with a Static Event (Design, Cost or Presentation), please be aware that the Static Event has priority. If your vehicle is currently undergoing Technical Inspection, but you need to leave to attend a Static Event, simply inform your Inspector. You will be allowed to remove your vehicle from the Technical Inspection area, and can resume Technical Inspection later.

Wait times in Technical Inspection are shortest on Thursday afternoon.

TAKE-A-NUMBER INSTRUCTIONS

So that you do not have to stand or sit out in the rain or the hot sun while waiting to get into Technical Inspection, we will again be using the “Take-a-Number” system.

WHEN CAR IS READY FOR TECH INSPECTION:

Come to the area of Tech Inspection marked “Safety Gear Checks”.

BRING:

- Bring all items listed under the "DRIVER'S EQUIPMENT" section of Page 1 of the Tech Form
- Your “rain” tires.

DO NOT bring your car at this time.

PROCEDURE:

- Once your safety gear and “rain” tires are approved, you will be given the next available numbered tag.
- When finished with safety gear checks, you may return to your paddock with your tag.
- When your number is next, bring your car to the entrance of Technical Inspection.
    - NOTE: It is a team’s responsibility to keep track of how quickly cars are going into Tech Inspection. So have someone keep an occasional eye on how the numbers are progressing.
- As you enter Tech Inspection, you must hand in your numbered tag.
- If you miss your turn, you have a 30 minute grace period to present the car for Tech before you have to take another number. The 30 minutes starts from the time the team with the next number goes into Tech Inspection. If you miss this window, you have to return your “old” tag and take a new number.
- If you (a team) expect to have a time conflict with a Static Event (Design, Cost or Presentation), please be aware that the Static Event has priority. If your vehicle is currently undergoing Technical Inspection, but you need to leave to attend a Static Event, simply inform your Inspector. You will be allowed to remove your vehicle from the Technical Inspection area, and can resume Technical Inspection later.

Tech Inspection Team

COST

EVENT CAPTAIN: Susan Zukowski

CHIEF COST JUDGE: Rick Maynard

DATE: Thursday, May 14, 2015

LOCATION: MIS (Michigan International Speedway), Brooklyn, MI, Main Tent

OVERVIEW:

Each team will prepare a report of their car's cost to be evaluated by the cost judges. The concept of the cost event is to obtain an accurate estimate of cost of the car in a limited production. The report is in effect your cost proposal to the senior management of a company to get them to invest in your product line. The more information that you can supply to them, the more professional the look of your materials, the more likely the company may be willing to look at the product itself. This is the goal of the cost report itself. Additionally, the teams will also prepare an electronic Bill of Materials using a shared database with standard materials and processes and a detailed process description. This evaluates not only the cost of the car, but also the team's ability to prepare an accurate engineering cost estimate and know exactly how the vehicle would be built. The car with the lowest corrected cost and the best report will win the event. The event can be divided in to three separate sections - the cost report itself, visual inspection, and 'real case scenario' discussion.

THE COST REPORT:

The actual cost report is due into the judges approximately six to seven weeks prior to the event at the venue. Books must be mailed before the post mark deadline or the book will incur a penalty of 10 points per day after that date. The cost report is judged on the basis of the cost of the car and quality of the cost report. The cost of the car is determined by the cost of the parts and fabrication using established manufacturing practices and the application of "Lean Manufacturing" principles. The report will follow the guidelines set forth in the published rules. From this analysis, the judges (in 9 distinct areas of expertise) will determine if all parts and processes were included and if unreasonably low (determined by the experience of the judges) - the judges will add penalties if there are errors, items omitted, or have costs below reasonable estimates – at either standard point(s) deduction or at a rate equal to twice the cost error, whichever is greater. We have eight teams that review each and every book based on their expertise. The costs and penalties will then determine the cost score. The report score will be given based on the quality of the report and its overall presentation. The report score ranges from 0 to 40 points. The price score will be awarded based on the following formula:

$$\text{PRICE SCORE} = \frac{40 * (PMax) / (Pyour) - 1}{(PMax) / (PMin) - 1}$$

TOTAL COST SCORE =

Price Score (max 40) [Generated by formula above] + **Report Score (max 40) [Accuracy, Format, Part Content]** + **Visual Inspection and "Real Case" Discussion Score (max 20)**

(NOTE: Pyour is the adjusted cost of your team's car with penalties, Pmin is the adjusted cost of the lowest cost car in the competition, PMax is the adjusted cost of the highest cost car in the competition)

THE VISUAL INSPECTION AND "REAL CASE" EVALUATION:

On the day of the event, the cost event judges will man ten bays with appointments in each bay every half-hour in order to see every competing car. This is to make sure that the parts that are on the vehicle are reported in the cost report and that nothing has been added since the cost report's publication.

COST CONT.

The focus of the cost event centers on the cost of the vehicle and the process of building the vehicle and the components contained therein. At the time of check-in at our event, the designated team representative will randomly draw to determine which of the nine random "real case" scenarios the team will be discussing in detail. These cases will encompass real issues that the team may encounter and how they would handle them in reference to their own team vehicle, systems or parts. The cost judges will also question the students regarding the report, process, and "real case". This is a critical step in the cost event process. This discussion of the 'real case' and the visual inspection on the even day can only help the student's team. If this appointment is missed the team will sacrifice the twenty points for this portion of the event. If the team feels that for some reason their appointment time needs to be changed they will need to contact the event captain to make necessary arrangements.

The time allotted for the appointment on event day is ½ hour per team at the designated time for that school. That time can then be broken down as follows.

CHECK IN:	1 or 2 minutes
VISUAL INSPECTION:	4 to 5 minutes
REAL CASE SCENARIO DISCUSSION**:**	20 Minutes

Addenda to the report can be taken into consideration to cover any necessary changes made in the car. These addenda will only be accepted at the time of registration at the event and must be in the format proscribed by the rules (Appendix C-5).

In addition to the above, the cars with the lowest costs will be subject to a physical audit to make sure that they included all processes and materials on their vehicle in the cost report. The audits will be held on the same event day but by a separate team of auditors some time after their initial appointment with the cost area. The adjustments that this team of auditor makes will be included in the final scores as well.

The final scores are tabulated and presented at the end of the judging day to the statisticians and are posted the next morning for the students viewing. Once posted, the scores may be protested for only 30 minutes, after which the scores become final.

TIPS FOR A GOOD COST REPORT:

- Follow the rules - put the items and processes where the guidelines tell you to put them
- Include an eBOM (Electronic Bill of Material) on CD in MS Excel that follows the format of the 2015 FSAE Rules.
- Create the eBOM using the on-line FSAE Cost Event Database utilizing standard materials, processes and tools.
- No receipts necessary any more
- Include any photographs, pictures, drawings, blue prints, etc. in the appropriate sections of the book to help us understand the design processes used in manufacturing the parts
- If you must - err on the high side rather than cut yourself short
- Detail any processes or materials not already specified in the standard tables and submit AIR (add item request) to have them added to the standards table if needed.
- Be careful to postmark by deadline, no need to throw away good points by slack timing.
- Carefully consider Make/Buy decisions – these often result in dollars being spent more wisely.

REAL CASE SCENARIO

Rule C.3.3.3 states that the third part of the Cost Event will be a "real case" scenario where students will have to respond to a challenge related to cost or manufacturing of the student vehicle."

THE REAL CASE SCENARIO FOR THIS EVENT WILL BE ONE OF THE FOLLOWING:

The Cost Judges have reviewed the Cost Report that you have submitted and they have determined that the cost of the _____ on your car is substantially higher than expected.

Your task at the event is to present the Cost Judges with your proposals to reduce the cost of the _____ on your car by 15%.

The presentation must fulfill the following requirements:

- No longer than 5 minutes
- Flip chart pages (optional)
- No handouts or use of electronic devices.
- Must be based on the system on your car.

Your presentation will be evaluated on:

- The process or methodology(ies) used to develop the proposal(s)
- The alternatives presented
- The credibility of the proposals

The team's presentation skills will NOT be scored.

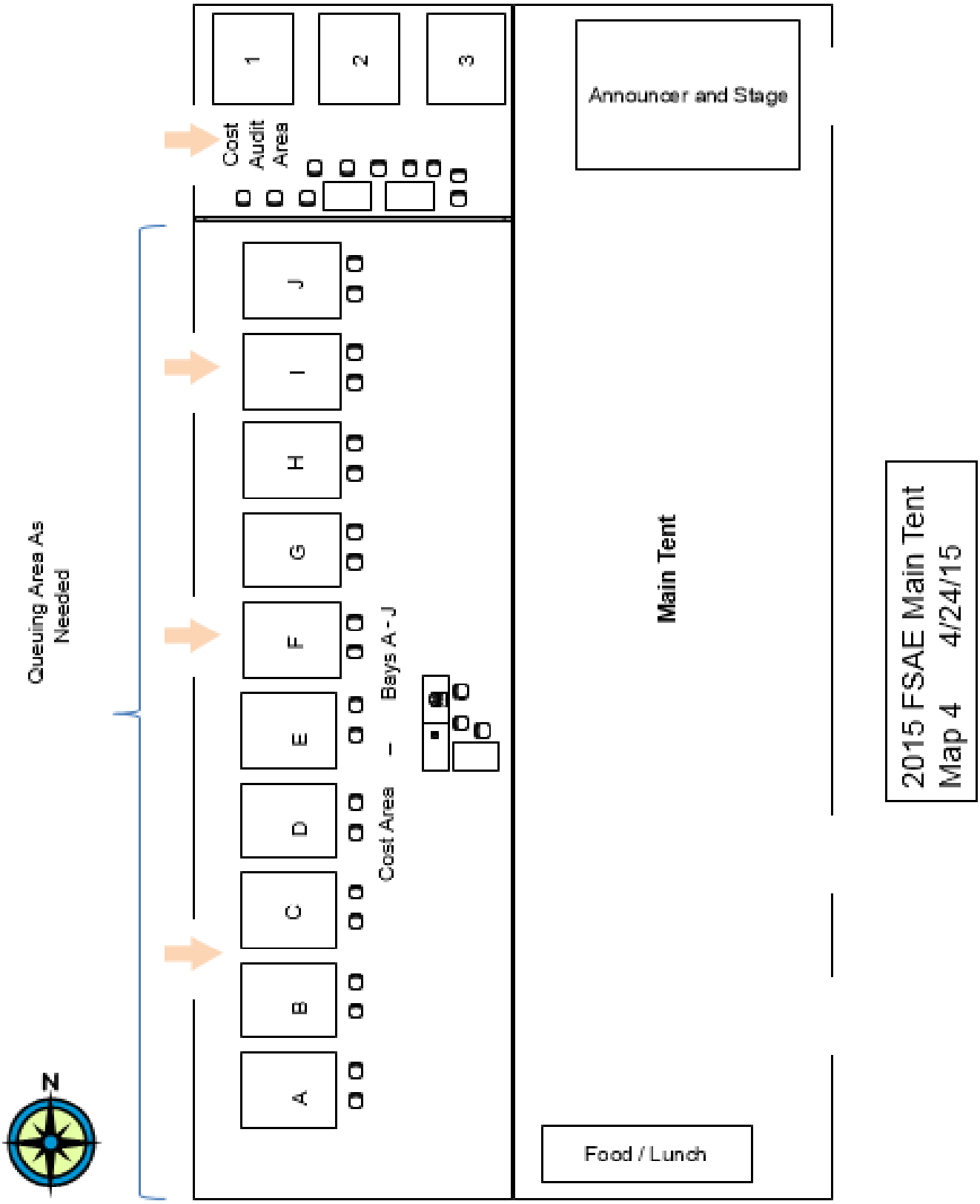
The blanks above will be randomly drawn choices of the following:

1. Exhaust Manifold
2. Wheel Hubs
3. Steering Wheel

Rules Committee,

FSAE.

COST LOCATION



DESIGN

DESIGN SPONSORED BY: BOSCH

CHIEF DESIGN JUDGES: Anthony Lyscio, Steve Fox, and Bill Riley

EVENT CAPTAINS: Anthony Lyscio, Steve Fox, and Bill Riley

JUDGES: Over 90 Top Automotive & Motorsports Engineers from around the World

DATE: Thursday, May 14th, 2015

LOCATION: Garage G3, Michigan International Speedway, Brooklyn, MI

DESIGN JUDGING PROCEDURE:

Student competitors must submit a Design Report (DR), Design Spec Sheet (DSS), and Business Logic Case (BLC) prior to the competition. The first two documents will be used to group the teams as well as provide judges a 'sneak peak' at the designs. Teams that do not submit both a DR and DSS will be disqualified from the Design event and receive zero points. As per the official Formula SAE (FSAE) rules, the DR cannot contain more than 4 pages of text, must include three pages of vehicle drawings and may include one page of optional content material (for a total of eight pages). The DR will not be judged based on length or amount of material. Content of the DR should highlight design goals, processes, and details in engineering terms. The intended audience is that of experienced engineers and while concise, the content should be technical and cover all major vehicle systems highlighting notable features. The DSS is based on a fixed template located on the official FSAE website and contains detailed system and component level specifications. The BLC is also based on a fixed template and is intended to define the team's overall (including marketing and finance) goals for their design.

It is the student competitor's responsibility to prove to the judges that their vehicle is a first year car. Second year cars are not allowed at FSAE - Michigan. If the structure of the frame is not obviously a completely new design from previous years, then thorough photo documentation should be provided to prove that the car is new as defined by the rules. The judges may deduct up to 30 points if photographic documentation shows that the remaining parts of the vehicle have not been significantly altered or if sufficient new design work has not taken place.

Design judging will start promptly at 8:30am on Thursday (see schedule). Each time slot will be exactly one hour long with approximately 45 minutes for the judges to review the vehicle with the team members and the remaining time used by the judges to write notes and score the car. At the conclusion of First Round Design Judging, approximately 8-12 cars will be selected to advance to Design Finals.

Teams will need to arrive early in order to be weighed before Design judging. Cars must be weighed before Design Judging. It is recommended that you be weighed at least 30 minutes prior to your design judging time slot. Teams who are late or who miss their slots risk not being design judged. This means that if a team finishes getting weighed at 9:40 for a 9:30 time slot, they will have ten minutes less time to be judged. In addition to not being able to earn as many design points, point penalties may also be applied. Separate volunteers will be in charge of timing for the event. In fairness to other student competitors, vehicles will be rolled in and out on schedule. Design judging will end at approximately 5:30pm on Thursday.

Design judging will consist of 15 groups (queues) of judges. Each queue will have four to six design judges. This means 15 cars are being judged simultaneously. The judges in each queue will evaluate the following areas: Suspension; Frame / Body / Aero; Powertrain; Cockpit / Controls / Brakes / Safety; Systems Management / Integration; Manufacturability / Serviceability; Aesthetics / Style; & Creativity.

DESIGN CONT.

Teams should make a point of reviewing the Design Judging Score Sheet on the official FSAE website. The score sheet gives the competitors insight into how they will be judged, as well as giving them a detailed breakdown of each judging category. Each judge has a different area of niche expertise, and will seek out the student team member responsible for that particular area of the car. There will also be roving judges with expertise in the areas of Aerodynamics, Composites Construction, and Electronics Integration. Roving judges bring a higher level of expertise to these difficult areas, as well as help to provide judging consistency between queues. Roving judges are assigned based on DR content. If your car makes use of aero, composites, or electronics, please ensure they are noted in your DR!

Expanded definitions of each area have been provided on the Design Score Sheet, along with space for comments. A design judge from your queue will seek you out on Friday and/or Saturday, in order to return your score sheet, explain how you received the score you did, as well as provide feedback on your car's design. Since the form is used as a tool by the judges, the values written on the form will possibly not add up to the team's Official Score. The judges are strongly encouraged to make lots of notes and provide written feedback to the student competitors. Students are encouraged to approach Design Judges on the days following the Design Event to request additional feedback on their designs.

Teams may also call and request a specific design judge for feedback. There will be a phone number posted and announced which student competitors can call in order to schedule an appointment for a debrief session with your Design Judges. The post-event debrief sessions can be very informative and all teams are encouraged to participate.

Each student team should have one representative who is prepared to discuss each of the above areas with each judge individually. This means five or more students. If the judges have to split their time between a single student, lower scores could result according to how much information the judges feel they have received. Students should bring any and all information they feel is relevant (charts, graphs, parts, photos, video, etc.) to support their design efforts. The judges will give more credit (higher Design score) to documented engineering, than to word of mouth. Simply showing up with a great car is not good enough. A high emphasis is placed on the student team's ability to Design, Build, Refine & Validate, and Understand your car.

At the conclusion of First Round Design Judging, each queue will pick, approximately one car to send on to Design Finals. The Chief Design Judges, Design Event Captains, and roving judges help assure consistency in this selection. The Design Finalists will be announced later that night. Scores and teams selected for the final Design review will be posted the following day, Friday, around mid-day. The rank order of the top placing (Finalist) teams in Design shall be revealed during the Design Review.

Design Finals will take place Friday evening in Garage G3. (see schedule) Design Finalists will assemble and be ready to judge by the start time indicated on the schedule. Only four team members are allowed to be with the vehicle at any time to talk with the judges. Any remaining team members must be outside the immediate judging area. Teams with more than four team members that remain in the judging area will be penalized. Team members may switch places (tag in, tag out) to have the proper systems represented.

The overall Design Event Winner will be announced on Saturday, in Garage G3, and judges will briefly review the designs of the top three Design Finalists for the audience. All student competitors are invited and encouraged to come and watch. This public design review clearly identifies what the Design Judges like (and dislike) about a FSAE car. Most students (especially the less experienced teams) find the Design Review informative and very useful for improving next year's Formula SAE efforts.

SALES PRESENTATION

SALES PRESENTATION SPONSORED BY: ZF

EVENT CAPTAINS: Adam Zemke, David Roberts, & Shaun Marx

DATE: Thursday, May 14, 2015

LOCATION: MIS Suites

PRESENTATION SEMINAR: Friday, May 15. 2015 at 9:30 AM in Main Tent

PRESENTATION HIGHLIGHTS: Saturday, May 16, 2015 at ~7:00 PM in Main Tent

OVERVIEW:

After a year of planning, fabricating, and testing a new, prototype vehicle, each team aspires to sell their vehicle design to a make-believe corporation. The competitors in this event will be judged on their ability to create and deliver a business case that convinces the judges that the team's design best meets the demands of the amateur, weekend competition market, and that it can be profitably manufactured and marketed (see A1.2 in the 2015 Formula SAE rules for notes on Vehicle Design Objectives). The team that makes the best presentation will win the event and score 75 points.

THE PRESENTATION:

Competitors are to make a presentation to upper level executives of an imaginary corporation. The presentation should tie together all factors that would influence the marketability, manufacturing feasibility and profitability of their design. It should include an understanding of the marketplace and target customer, and show how their team's design meets the requirements for each.

THE EVENT:

Each competitor will be assigned a 30 minute window and location. This includes the time the judges need to score. Judges may allow a team to begin early, but the completion time (30 minutes) should be strictly enforced. The presentation itself is not to last any longer than ten minutes, at which point the judges will stop any presentations continuing. A question and answer period of up to five minutes will immediately follow, wherein only judges may ask questions and only presenters may answer. The audience (usually team members) may not ask questions or make comments. It is allowable for a presenter to only participate in the question and answer section, however he/she must be a member of the 'presentation group,' as defined by S5.3.2 of the 2015 Formula SAE rules.

A team of two to four judges will grade the competitors. The judges will use the form in Appendix S-6 of the Formula SAE rules for event scoring: "Presentation Judging". This form breaks the scoring down into five equally weighted categories: Content, Organization, Visual Aids, Delivery, and Questions. A perfect score on the judges' form will be 50 points. The judges' combined score may be adjusted because some judging teams may grade, on an average, higher or lower than other judging teams. The competitor's final score will be calculated using the equation defined in the PRESENTATION SCORE section.

In an attempt to encourage commonality amongst static events, the 2015 Formula SAE Rules contain Section S, Article 3; the Business Logic Case. Presentation Event Judges are asked to use the Business Logic Case to judge whether the given presentation is appropriate for the market and business strategy that the team has identified. See Article 3, Sections S3.1 through S3.3 for a detailed description of the Business Logic Case.

SALES PRESENTATION CONT.

PRESENTATION HIGHLIGHTS:

The three top-scoring teams will be required to publicly reprise their presentations. For 2015, the Presentation Highlights remain a non-scored event, and will be held at ~7:00 PM before the Saturday Awards Ceremony. The expansion of this event is an effort on behalf of the organizers to inspire creativity amongst competitors in subject matter that is typically not engineering curriculum-inclusive.

PRESENTATION SCORE = 75 * Pteam /Pmax

If a team misses their allocated period, the team will receive zero (0) Presentation points.

PRESENTATION TIPS:

- Spell-check all visual aids, presentation tools, etc.
- There is no dress code; however, bad first impressions are difficult to remedy.
- Remember that equipment has been known to fail; copies can be ruined in transit, etc. Consider alternatives in case something should go wrong. Each team is responsible for bringing their own equipment. Remember, extension cords can be important and laptop speakers may not project sound very well.
- Have a team member record your presentation and the judges' commentary for your team's future FSAE efforts. Teams are allowed to have as many spectators that will reasonably fit into the presentation room. People not associated with the presenting team are allowed to view presentations only if the presenting school gives their permission before the start of the presentation. This includes news reporters and photographers.
- The most technically knowledgeable person on the team may not be the best person to lead the presentation team. A team may want to choose someone who is a charismatic public speaker.

FUEL & TILT TABLE EVENT

EVENT CAPTAINS:

- FUEL - Herb Seubert, Mike Thodoroff & Rob Egenolf
- TILT – Alba Colon, Vince Bandurski & Mark Scott
- EFFICIENCY – Alba Colon & Mark Scott

DATES/TIMES:	Fuel Station:	THURS	8:30 a.m. until 5:00 p.m.
		FRI	8:00 a.m. until 5:00 p.m.
		SAT	7:30 a.m. until 5:00 p.m.
	Tilt Table:	THURS	9:00 a.m. until 5:00 p.m.
		FRI	9:00 a.m. to 5:30 p.m.
LOCATIONS:	Fuel Station:	Next to Tilt across from G3	
	Tilt Table:	In between Fuel and Noise.	

DESCRIPTION:

For the FSAE Michigan competition the fuel station will provide unleaded racing gasoline (93 octane and 100 octane) or E85 (ethanol). No other fuel or additives are permitted. All vehicles must indicate with a sticker, the type of fuel on or near the fill pipe (This sticker can be obtained at tech). Note: no vehicle will be provided with fuel until it has passed tech inspection. The first portion of a four-part sticker will be applied in a location near the front of the vehicle upon passing tech.

FUELING AREA SAFETY GUIDELINES:

1. Engines must be off; cars are to be pushed to and from fueling.
2. Only the vehicle push crew and the driver are allowed to enter the fueling station. ALL MUST HAVE DYNAMIC PASSES AT EACH VISIT
3. Only the driver, in complete driving gear, with a full and completely functional fire extinguisher in hand, is permitted in the area as fuel is dispensed.
4. A Permanent line mark must be used to indicate the “full” level. NO TAPE
5. Tank is to be filled to this level each time fuel is received.

FUEL & TILT TABLE CONT.

The first time a vehicle is fueled, it must proceed directly (with engine off) to the tilt table. The vehicle will be placed on the table with the tallest driver aboard fully suited, helmet buckled, gloves and all safety restraints secured. The vehicle should be oriented on the tilt table where the fuel fill side is placed against the guard of the tilt table and is most likely to create spillage. The table will then be titled to an angle of 45 degrees. There must be no fuel (or any fluid) leakage at this angle. If the vehicle passes this test, the angle is increased to 60 degrees. This angle represents a cornering force of 1.5 G's. If the upper wheels remain on the table, the vehicle passes. (Some vehicles may lift one wheel, the Event Captain(s) must be consulted if this occurs). The person in charge at the tilt table must sign off an inspection form, which travels with the car. A second sticker is applied (on the car) next to the first to indicate passing the tilt table test. The vehicle is now free to proceed to the Brake & Noise area. Should the vehicle fail at either of the two angles, the car must be repaired & re-tested.

Vehicles may be forced to return to tech inspection for re-certification at the discretion of the fuel station officials. This may be due to inability to provide a consistent fuel fill, or due to a safety concern with the functional operation of the fuel system.

TILT AREA SAFETY GUIDELINES:

1. Engines off; push car on & off table. Take care to avoid damage to vehicle when pushed on and off tilt table.
2. Affix the safety strap to prevent vehicle from excessive lift while on table. Allow a little slack.
3. Be sure table is clear before raising and especially when lowering. Inform people in area when raising or lowering (e.g. "Coming Down").
4. Use absorbent material to soak up leaks. (May be obtained at fuel station).
5. Keep a full and completely functional fire extinguisher handy.

BRAKE & NOISE TEST EVENT

BRAKE & NOISE SPONSORED BY: CONTINENTAL

EVENT CAPTAINS:

- NOISE: Gary Newton & Greg McConville
- BRAKE: Alba Colon & Mark Scott

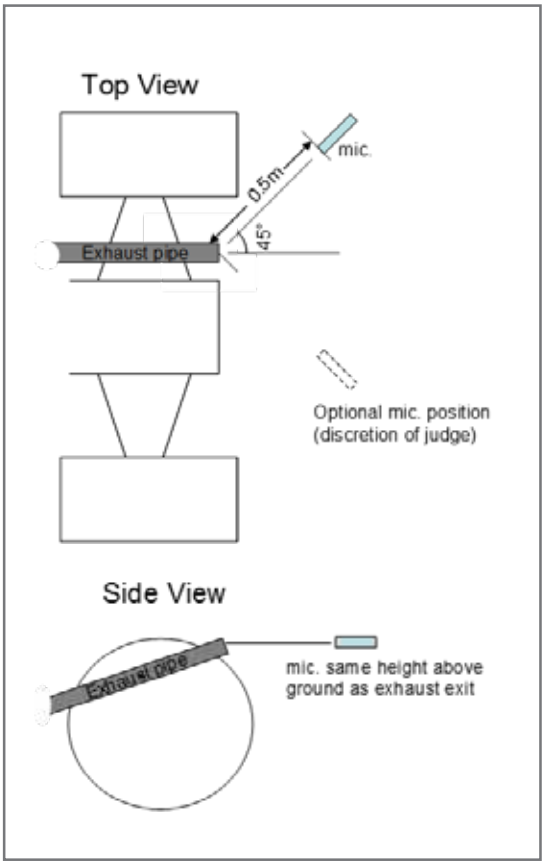
DATES/TIMES:	THUR NOISE:	9:30 a.m. to 5 p.m.
	THUR BRAKE:	10:00 a.m. to 5 p.m.
	FRI NOISE & BRAKE:	9 a.m. to 5:30 pm

LOCATION: The Brake Test is in the Dynamic Testing Area near the Fuel, Tilt, and Noise area. (See the site map in the Steward's Manual and Registration Package)

DESCRIPTION:

No vehicle is permitted to Noise or Brake testing until it has: a) passed Tech Inspection and, b) passed the Tilt Test. Proof of this is the two "tech" stickers, which must be applied to the car. Then teams can proceed to Noise where the noise level will be tested; if passed, a 3rd sticker will be applied to indicate compliance. Then teams can proceed to the Brake test for the 4th and final tech sticker. A vehicle is approved to compete in all dynamic events once all 4 stickers are applied.

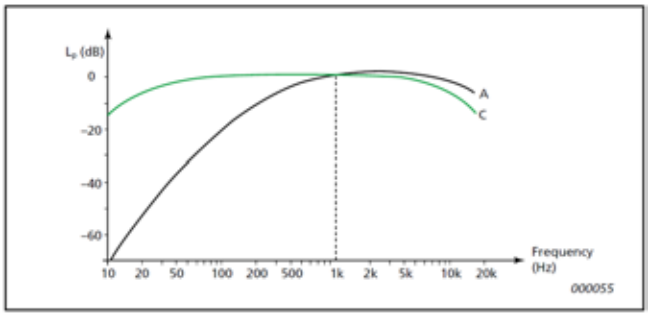
The static sound level test shall occur at a station outside of the Brake Test Area. The vehicle will be placed in the station at a designated point with the engine running and the transmission in neutral. An RPM sweep from idle to the designated test speed for that engine shall be used during the noise evaluation. The designated test speeds are at idle and at approximately ¾ of the maximum engine speed. The sound level meters will be positioned 0.5m from, and level with, each exhaust outlet. The microphone will be positioned at an angle of 45 degrees from the outlet in the horizontal plane (see drawings) and be un-obstructed. In the case of dual exhausts, both exhausts will be tested with the loudest one being the basis for judgment.



NEW for 2015: A change to the rules now requires vehicles to be limited to 110 dB on a C-weighted scale (previous years were measured on an A-weighted scale). The C-weighted scale was selected in order to more closely match the human response to very loud sounds at lower frequencies. Volunteers on site are exposed to loud engines all day, especially at idle during dynamic events, so the C-weighted scale was deemed more appropriate. Note that readings on the C-weighted scale can be substantially higher than the A-weighted scale.

BRAKE & NOISE TEST EVENT CONT.

Sound level shall not exceed 100dBC at idle or 110dBC (margin of error +/- .5dBC) at ¾ RPM. Meters are calibrated and will be checked and verified on-site on a regular basis! The reading of the meter by the official is final and not open for debate/protest.



PLEASE NOTE – If your vehicle does not have a working tachometer, it is the teams' responsibility to come to the noise area prepared with ALL necessary tools ready for a tachometer reading (laptops, gauges, etc…). The target test speed is set by SAE and is published in advance. Test speeds will be rounded to the nearest 500. It is calculated by taking 2X stoke in mm and dividing it into 914.4X1000. If you have a rev-limiter that interferes with you being able to reach the target test speed you must disengage it or set it higher. ALL TEAMS MUST HIT THE TARGET TEST SPEED – NO EXCEPTIONS!

BRAKE TEST EVENT DESCRIPTION:

When the vehicle passes noise it may go to the Brake Event and it is there the tech sticker will be awarded if the vehicle meets the brake requirements. Provided no changes have been made to the muffler or exhaust system, teams that pass noise but do not pass brake do not have to go through noise again if they work on the vehicle.

At the Brake Test Area, each driver WILL be instructed on the proper procedure. With the car at the start line of the station a green flag (or similar signal) should be used to signal the start of each run. The driver must accelerate (typically getting into 2nd gear) until reaching the braking area, which is a box defined by water barriers. Once inside this box, the driver must apply the brakes with enough force to demonstrate full lock-up of all four wheels, the engine must remain running during the complete test.

If the vehicle passes, the person in charge will sign-off the approval form and provide the team with the final "tech" sticker. The vehicle is now free to proceed to the practice track or on to the dynamic events. (The approval forms shall be retained by the brake crew and turned in at the tech tent periodically.)

If the vehicle is unable to pass the brake tests in three attempts, the car must be repaired and then brought back for retest. The vehicle will not be allowed to compete without passing all tests. Note: The vehicle will not be permitted on the practice track without an entire tech sticker; no exceptions. .

Noise level can be measured at any time during the dynamic events. Penalties may be assessed if the sound level exceeds the mandated maximum, and noise sticker can be removed by officials.

PLEASE NOTE: An official will conduct a functional test of the External Master Kill Switch with engine running up and under power as part of the Noise Test Event and/or Brake Test Event.

Also, Operation of Noise Event Area and Brake Testing Event Area in DAMP conditions is at the discretion of the Captain of the specific area. See FSAE rules for tire use at specific conditions, Rule #B6.4.1 Also see Part D "Dynamic Event Regulations" Article 2 Weather Conditions and Article 3 Running in Rain for further clarifications.

Vehicles may be forced to return to this station for re-certification should the officials deem it necessary. Re-certification may be required if work is performed on the vehicle's braking system or exhaust system, or if the vehicle is involved in an incident that results in vehicle damage.

**At all times, drivers must be wearing complete and proper safety equipment and proper safety rules must be maintained in both areas."

BRAKE & NOISE TEST EVENT CONT.

BRAKE & NOISE AREA SAFETY GUIDELINES:

1. Only one car at a time in Brake or Noise area. Do not allow a second car into the area until the last one has completed its exit.
2. Do not attempt certification of any vehicle without enough workers. Three (3) workers minimum, four (4) preferred at the Brake station. Three (3) workers recommended at Noise station.
3. Never place yourself in the line of travel of any car. Stay well away from the "hot" area.
4. Use hay bales for protection of workers and equipment.
5. Have fire extinguishers handy.
6. Use brooms and oil-dry as needed to keep braking area clean and dry.
7. Any vehicle damage or contact must be reported to the station manager(s).
8. No work is allowed on the car inside the Brake or Noise areas. Car repairs/work must be performed outside of testing area in designated areas. Cars can return to the test area at the discretion of the station manager.

PRACTICE TRACK

PRACTICE TRACK SPONSORED BY: CONTINENTAL

EVENT CAPTAINS:	Frank Putman & Gary Godula	
DATES/TIME:	Thursday	Noon until 5:00 p.m.
	Friday	9:00 a.m. until 5:30 p.m.
	Saturday	8:00 a.m. until 3:00 p.m.
LOCATION:	The Practice Area is adjacent to the Dynamic Area just to the left at gate 50 (See site map in the Steward's Manual and Registration Package)	

DESCRIPTION:

The practice track is a relatively large (160' x 160') open test area designated by the event organizers to provide teams with an opportunity to conduct brief dynamic tests of their vehicle during the available hours of the competition. No vehicle will be permitted to enter the Practice area unless it has a) passed Tech Inspection, b) passed the Tilt Table Test and c) passed the Brake Test d) & Noise Inspection Test. The vehicle will not be permitted on the practice track without all four tech stickers; no exceptions.

Each driver must understand and follow proper driving procedures at this facility. In addition, it must be understood that the Practice area volunteers and SCCA officials are in control of the facility and adherence to their direction is mandatory.

Only one car at a time will be allowed to enter the Practice Track. At all times, drivers must be wearing complete and proper safety equipment. Drivers and team members must adhere to all safety rules. Once signaled to begin testing (green flag), the driver is free to perform any test maneuvers he or she feels necessary to safely evaluate the vehicle (within the limits of the track surface conditions and within the limits of the practice area boundaries). At least one SCCA-designated Practice area Event Captain shall be present at all times to direct the activities of the assigned volunteers and to maintain the operation of the practice area in a safe and controlled manner in accordance with the Steward's Manual and SCCA safety practices. Teams will be given an approximate 5-minute time period to conduct a practice session. Teams will be allowed to practice on a first come, first served basis. Multiple sessions are allowed, with teams returning to the back of the line to establish subsequent run order. The officials will use green, red, and checkered flags to communicate session status with the on-track driver and team. Practice area officials reserve the right to adjust the allotted practice time for teams, based on a number of factors including the number of teams awaiting usage of the area.

If during the course of dynamic testing the vehicle sustains damage or significant mechanical breakdown, the vehicle will be required to exit the track and make the necessary repairs. The Tech inspection sticker may be removed from the vehicle by a Practice Area Official thus requiring an additional Tech Inspection prior to participating in additional dynamic tests or events.

PLEASE NOTE: Operation of the Practice area in DAMP conditions is at the discretion of the Practice Captain. See FSAE rules for tire use at specific conditions, Rule #B6.4.1. Also see Part D "Dynamic Event Regulations" Article 2 "Weather Conditions" and Article 3 "Running in Rain" for further clarifications.

PRACTICE TRACK CONT.

PRACTICE TRACKS SAFETY GUIDELINES:

1. Only one car at a time in the Practice Track area. The next car will not be permitted to enter the area until the last one has completely exited.
2. Three (3) volunteers (preferably four (4)) will be on hand to manage the operation of the Practice Track.
3. Never place yourself in the line of travel of any car. Stay well away from the "hot" areas, always at a safe distance behind the designated barriers.
4. Have fire extinguishers, brooms, and oil-dry handy.
5. Use brooms and oil-dry as needed to keep the Practice Track clean and dry.
6. Power sweep Practice Track at beginning of each day's operation and during lunch break if necessary.
7. Any vehicle damage or contact must be reported to the area (station) manager(s). Additionally, remove the 1st tech sticker and report car number to tech so car can be re-evaluated after repair.
8. Do not permit spectators to sit or lean on the bike rack/barriers surrounding the practice track.
9. Radio communications with Emergency Response Team, Safety Stewards, and Event Control will be maintained at all times.

ACCELERATION

EVENT CAPTAIN: Steve Balanecki & Reid Collins

DATE: Friday, May 15, 2015

TIME: 9:00 a.m. until 12:00 p.m.

LOCATION: FSAE Dynamic Area

EVENT CONCEPT:

The objective of the Acceleration Event is to evaluate the vehicle's demonstrated acceleration capability by measuring the elapsed time required for the vehicle to travel a distance of 75 m (246 ft) from a standing start. The event is designed to focus on engine performance and on the suspension's ability to maximize tire grip.

EVENT FORMAT:

Up to four Acceleration Runs are permitted for each car. Two drivers are allowed per car. Each driver is permitted two Acceleration Runs. Elapsed Time will be recorded for each Acceleration Run. Any penalties will be assessed to the Acceleration Run during which the penalty occurred. The fastest corrected elapsed time (including penalties) of the completed Acceleration Runs will be used to calculate the score for each car.

- ALL Acceleration Runs must be completed by 12:00PM – However, the Event Captain may adjust the schedule based on event conditions.
- NO tools and/or spare parts are permitted in the staging lanes.
- NO "traction enhancing" agents are permitted to be used on the tires or track surface.
- NO "burnouts" are permitted.

EVENT PROCEDURE:

Stage your car in the appropriate Staging Line for either Driver 1 or Driver 2. Cars in the Driver 1 Staging Line will be given priority. Drivers must be properly belted into the car with all required safety equipment properly installed, as directed by the Event Workers, before the car is first in line to start an Acceleration Run. An Event Worker will direct the driver to approach the Start Line. Cars will be staged approximately 0.3m (1 ft) behind the Start Line.

The driver is permitted to start an Acceleration Run only when the Event Worker waves the green flag. Timing will start when any part of the vehicle crosses the Start Line. The Acceleration Run is counted (one of the permitted Acceleration Runs) when any portion of the car crosses the Start Line.

Timing will end when the vehicle crosses the Finish Line located 75 m (246 ft) from the Start Line. The Finish Line is marked with a Checkered Flag.

After a driver's first run, the driver will have the option to immediately take a second run, or leave the staging area to complete his/her second run later during the event. Each car must exit the staging area before changing drivers.

PENALTIES:

- A two second penalty will be assessed to the Acceleration Run per cone knocked down or out of position.
- A DNF (Did Not Finish) penalty will be assessed to the Acceleration Run for cars that go off course.
- A DNF penalty (forfeit of a permitted Acceleration run) may be assessed to the team for infractions committed in the staging area, start line or return lane.

SKID PAD

EVENT CAPTAINS: Steve Taylor & Seth Goslawski

DATE: Friday, May 15, 2015

TIME: 9:00 a.m. until 12:00 p.m.

LOCATION: FSAE Dynamic Area

EVENT CONCEPT:

The goal of the Skid Pad event is to measure the vehicle's maximum cornering capability by measuring the total time required for the vehicle to complete one left hand and one right hand circle. The event is designed to focus on the vehicles suspension design characteristics and tune-ability for maximum lateral grip, and minimize the effect of driver reflexes during transitional maneuvers.

EVENT FORMAT:

Two drivers allowed per car; two runs per driver. Each run consists of a driver completing 2 Right-hand laps immediately followed by 2 Left-hand laps of the course. Lap times will be recorded for the 2nd lap of each the Right-hand and the Left-hand circle (the 1st lap of each is not timed).

If 2 Skid Pad Courses are set up, each team must have two drivers in order to run both courses. Driver 1 will make up to two attempts on Skid Pad 1, and Driver 2 will make up to two attempts on Skid Pad 2. Both drivers MAY NOT run the same course. Times will be disqualified for the second driver in the event of both drivers completing the same course. If there are two Skid Pad courses and a team decides to only have one driver, the driver can only run on one Skid Pad course.

SCORING:

Lap times will be recorded for the 2nd lap of each circle for a given run on the Skid Pad. These times will be averaged together and added to any penalties and used to calculate lateral acceleration for each run. The fastest average time (including penalties) from either driver during any of the 4 runs will be used to calculate a score for that vehicle.

STAGING:

Cars line up in the staging area. The first 3 cars in line are permitted to run their engines provided the driver is wearing a helmet and securely fastened. A person holding a Green Flag will motion a car to approach the starting line, which is located approximately 20 m (65.62 feet) from the timing line used for scoring. When the starter waves the green flag, the driver will approach the Skid Pad and proceed onto the RIGHT-HAND circle. After completing 2 laps, the driver must continue onto the LEFT-HAND circle and complete 2 more laps. After completing the second Left-hand lap (the fourth lap in total) the driver will exit the Skid Pad. After a drivers first run, they have the option of immediately taking a second run, or leaving the staging area and running later in the day. In order to keep the event running in a timely manner, other teams can run Skid Pad in between a team's first and immediately second run. Each car must exit the staging area before changing drivers.

All cars must complete all Skid Pad runs by 12:00 p.m.

PENALTIES:

- 0.25-second penalty per cone knocked down or out of position.
- DNF penalty for cars that go off course.
- DNF for cars that run an incorrect number of laps.

No toolboxes and/or spare parts will be allowed in the queue area or staging lanes unless deemed necessary for starting the vehicle's engine.

AUTOCROSS

AUTOCROSS SPONSORED BY: DODGE

EVENT CAPTAINS: Matt Kalmus & Corry Johnson

DATE/TIME: Friday, May 15th 1:30 PM, contingent upon skid pad and acceleration completion time. Event closes at 5:00 PM.

LOCATION: Dynamic Area

TRACK LENGTH: Approx. 800 m (2600 ft)

THE EVENT:

The Autocross event is designed to test the car's handling qualities without the hindrance of competing cars. The event has two heats. Each heat has a different driver. A heat is composed of one driver making two runs of the course. The fastest of the runs completed, including penalties, will be used to calculate the team score. Cars that are unable to complete the course with a time within 145% of the fastest car will only be awarded 7.5 points.

PENALTIES:

- A 2-second penalty for each cone knocked down or out of position (indicated by a chalk square at the base of the cone).
- A 20-second penalty for going off course and not re-entering at a point prior to the missed gate. Missing one or more gates of a given slalom counts as a single off-course penalty.
- All cones in the dynamic area can be scored as penalties. This includes cones before the start line and after the finish line.

STAGING:

Following the announcement of the start of the event, all cars should begin staging in the first heat line on a first come first served basis. Upon completion of the first heat driver's two runs, a car may either go to the second heat line or back to the paddock for repair and/ or adjustments.

- When there are no cars in the first heat line, cars in the second heat line will be allowed to run. Cars that have not run a first heat have precedence over second heat cars. The event may be cancelled or cut short due to weather or time, so it is important to be on time for the first heat. It is encouraged for teams to join the second heat line immediately after completing the first heat.
- At 5:00 PM the Autocross Event is scheduled to close, and no additional runs may be made after the closing. Cars in line will not be allowed to run the course after 5:00. If there are delays in starting the event, rain delays, or extended track closures, the event captain has the discretion to extend the closing time if conditions permit. Please see the event captain or listen for announcements for any extensions.

A safety inspection (helmet, belts, kill switch) will be performed before entering the final staging area; each car will be staged 6.0 m (19.7 feet) behind the start timing lights and will accelerate from a standing start.

After a driver's first run, the driver has the option of taking the second run immediately, or leaving the staging area and running later in the heat. A shortcut-turn, immediately following the finish line, will allow the driver to proceed directly to the start for a second run. This is called the re-run line. If a driver chooses to not take a re-run, he/she should proceed through the exit.

AUTOCROSS CONT.

It is intended that the race be conducted without the hindrance of competing cars. If there is a stopped or slow vehicle ahead, the driver should proceed at a safe distance (3m) around the incident and/or follow the direction of the course workers, and then reenter the track to finish the run. Once past the finish line, the shortcut should be taken to go directly to the start line. At this time, the driver will be notified if another run will be allowed. If a slow or stopped vehicle ahead is judged by the track officials to not be a hindrance, a re-run will not be allowed.

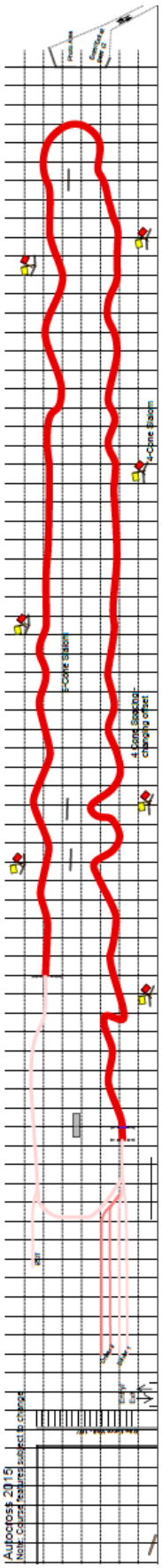
A driver's run may be stopped by a track official (indicated by a waving red flag or hand gesture), your car may be directed to complete the track or directed to follow a straight route back to the starting line (with caution). This is common when a red flag is shown in the first half of the course. Caution – course workers may also signal your car due to a malfunction (broken suspension, muffler, leaking oil, etc.). If this occurs, the car should be driven off course and brought to a controlled stop as soon as possible. Avoid stopping directly on the course. This prevents potential incidents with following cars and limits the amount of oil/water spilled on to the racing surface, preventing long delays.

If a car fails during a driver's first run, vehicle repairs can be made to the car, and the driver can return to complete the second run.

NOTES:

- Once the car passes the start timing line, the run has been officially attempted and cannot be re-started. If the car stalls before triggering the timing lights, it can be pushed back for a re-start. This is only allowed once. If the car demonstrates difficultly in launching it will need to be pulled away and repaired.
- Please be aware that several cars may be running the course at the same time. Once past the finish line, slow the vehicle and exit in a controlled manner. Do not park the car at the exit of the course; this can create an unsafe situation and will cause traffic to back up.
- If time allows, drivers will be allowed to walk the course – please check the schedule and listen for announcements regarding the timing of walks. Walking will be allowed time and weather permitting on both Thursday afternoon and Friday shortly before the course opens.

AUTOCROSS CONT.



ENDURANCE & FUEL EFFICIENCY

ENDURANCE & FUEL EFFICIENCY SPONSORED BY: FORD

EVENT CAPTAINS: Laura Klauser & Matt Kalmus

DATE: Saturday, May 16, 2015

TIME: 9:00 am

PURPOSE:

The goals of the endurance and fuel efficiency event are to test the durability of the vehicles and to determine the fuel efficiency of the vehicles. The dual nature of the event can lead to compromises, while the course layout and 22 km length of the event test the vehicle's durability. Note: No repairs or work may be performed on the vehicle during the event (with the exception of tire changes due to weather conditions and to accommodate the second driver).

DESCRIPTION:

The event is approximately 22 km, with two drivers completing 11 km segments each. No refueling is allowed during the event. Each team is given three minutes to complete the driver change.

The run order for the event will be based primarily on the Autocross event. The run order will be slowest to fastest autocross times. If a team did NOT score in the Autocross event, the vehicle will run at the beginning of the Endurance event, with the order based first on the finishing order of the Acceleration event, and then on the finishing order of the Skid Pad event. Teams without a score in any event used to determine the run order will run in the order established by the event captains. Teams must run within the 20 cars after them in the run order. For example, the team with run order position 10 must run before the team with run order position 30. The out of order penalty will be applied to teams that are not able to run in their designated run order position. The last 20 teams scheduled must run before the last car is called. All teams will be provided a minimum 15-minute window. If the last scheduled team of the heat is not able to run when called, they will receive the "out of order" penalty and will be given 15 minutes to enter the track before they are disqualified.

The event captains reserve the right to adjust the run order as necessary during the event to maintain safe operations and the flow of the event.

If the weather conditions of the prior dynamic events have been variable, a team's Skid Pad or Acceleration result may be used as a substitute or supplement to the team's finish order in the Autocross event.

ENDURANCE PROCEDURES:

In order to compete in the Endurance event, teams must have their four-part tech sticker by 5:30 PM on Friday. Teams who have not successfully passed all parts of tech by 5:30 PM Friday will not be eligible to participate in Endurance on Saturday. Teams who have a sticker pulled have the opportunity to re-visit technical inspection on Saturday to regain the sticker; however, cars are only eligible to run Endurance at their scheduled slot (within 20 cars, or 15 minutes) in the run order.

The team must have their fully fueled (see Fuel Efficiency Procedures below) vehicle in the staging/prep area at the appointed time. Only two crewmembers and the other driver are allowed in the staging area for the vehicles. When the car is called to the staging line (consisting of the next three cars to go on track), the team must push the "race ready" car with driver completely belted in to the staging line. Once the car is pushed to the staging line it cannot be touched by any team member except the driver in the car. The only tools allowed in the possession of the team members at the staging line are those needed for driver seating adjustment during driver change. No laptops, pressure gauges, baffles, tire wraps, etc. will be allowed at the staging line. Nothing can be brought to the starting line that is not intended to stay on the car.

ENDURANCE & FUEL EFFICIENCY CONT.

When there is a space for the vehicle on the course and the timing/scoring system is set, the first driver will be motioned to the starting line. The person staging the vehicles is not obligated to give teams any advance notice prior to entering the track. An official will perform a safety check of the vehicle and the driver restraint system. The starter will stage the vehicle's front tires at the beginning of the entrance to the track. When there is an opening on the track, the course marshal (starter) will wave the green flag, signaling the go-ahead for the driver to start. If the vehicle stalls, the driver must wait for another green flag before being allowed on the course.

Note: If the vehicle cannot be restarted, the team members must move the car away from the staging area. The team will then have until 20 cars have attempted to start or 15 the minutes following in the run order to attempt to start endurance again (an out of order penalty will be incurred). If a team running out of order has a vehicle that stalls and cannot be restarted at the entrance to the track, the car will be deemed disabled and will be disqualified from the event.

On the last lap of the first driver, a checkered flag will be displayed directing the vehicle to exit to the driver change area. It is the Driver's responsibility to correctly exit the track; any person directing the car off the course is an additional aid only. Only three team members (including drivers) are allowed in the driver change area at once. After the vehicle arrives in the driver change area, the team has three minutes to get the second driver belted in, and driving out of the driver change area. Only adjustments to fit the second driver (or weather related tire changes) may be performed on the vehicle. No other work is allowed.

When the second driver is ready, the vehicle should be slowly driven to the starting line queue. An official will perform a safety check of the vehicle and the driver restraint system. The course marshal will stage the vehicle's front tires at the beginning of the entrance to the track. When there is an opening on the track the course marshal will wave a green flag signaling the go-ahead for the driver to start. If the vehicle stalls, the driver must wait for another green flag before being allowed on the course. Note: If the vehicle cannot be restarted without external assistance, the car will be deemed disabled and will be disqualified from the event.

Upon completing the last lap with the second driver, the checkered flag will be displayed and the vehicle will exit the course and will be directed to the fueling station. It is the Driver's responsibility to exit the track, any person directing the car off the course is an additional aid only. The vehicle is to be pushed to the fueling station where the fuel efficiency will be calculated.

If either first or second driver is shown a red flag during their driving session, they must come to a controlled stop within viewing distance of the nearest flagging station and turn off their vehicle. (If they see the red flag just before the driver change exit, they may coast into the driver change area and turn off their vehicle.) All cars on track during a red flag event will be towed to the driver change area where they will wait, with driver belted in vehicle, until the track is clear. The lap in which the red flag was shown will not count in time or fuel economy calculations. When the track is clear, the drivers will be told to start their vehicle and will be released on track to finish their laps. Teams involved with a red flagged track will not be able to add any fuel to their vehicle.

WEATHER CONDITIONS:

- Teams must fit rain tires to their vehicle if the course is declared Wet.
- Teams have the option of dry or rain tires if the course is declared Damp.
- Teams may change tires at any time while their car is in the staging area inside the "hot" area.
- All tire changes after a car has received the green flag to start the event will take place in the driver change area.
- Teams may not perform any work on the vehicle other than the tire change in the driver change area.

ENDURANCE & FUEL EFFICIENCY CONT.

WEATHER CONDITIONS CONT.

- Teams are allowed 10 minutes to change their tires in the driver change area if a Dry track is declared Damp, or if a Dry or Damp track is declared Wet. If the tire change is happening at the same time as a scheduled driver change, the 10 minutes are in addition to the 3 minutes allowed for the driver change.
- Teams are allowed to change their rain tires to dry tires if the course is Dry or Damp. However, this change is not permitted during the driver change, and the time taken to change the tires is included in the team's total time for the event.

The following chart summarizes the possible track condition changes, the team's options, and the time allotted for changes:

TRACK CONDITION	TEAM'S CURRENT TIRE CHOICE	TRACK DECLARED	TIRE CHANGE?	TIME HELP	ALLOWED AT DRIVER CHANGE?
DRY	DRY	DAMP	OPTIONAL	10 MIN.	Y
DRY	DRY	WET	MANDATORY	10 MIN.	Y
DAMP	DRY	WET	MANDATORY	10 MIN.	Y
DAMP	RAIN	WET	---	---	---
DAMP	DRY	DRY	---	---	---
DAMP	RAIN	DRY	OPTIONAL	0	N
WET	RAIN	DAMP	OPTIONAL	0	N
WET	RAIN	DRY	OPTIONAL	0	N

EXAMPLE: The track is Dry -- the team is competing on dry tires. If the track is declared Damp, a tire change is optional to the team. 10 minutes is allowed to make the change during the driver change.

GENERAL NOTES:

- The vehicle will be expected to be ready for competition with the first driver at the team's run order position. If the endurance event is running late, the vehicle is still expected to be ready when its run order position is reached. If the vehicle is not ready when the official starter motions the vehicle to the starting line a two minute "out of order" penalty will be assessed and the team will lose their time slot to run the event. Teams are only allowed to run within the 20 cars after them in the run order in their heat. For example, the team with run order position 10 must run before the team with run order position 30. The last 20 teams scheduled must run before the last car is called. All teams will be provided a minimum 15 minute window. If the last scheduled team of the heat is not able to run when called, they will receive the "out of order" penalty and will be given 15 minutes to enter the track before they are disqualified. Teams cannot run earlier than their scheduled run order.
- The driver change will be scored as an extra-long lap. It will be assumed by scoring that the change was completed in the required time (less than 3 minutes) unless notified otherwise. An official will be in the driver change area timing each vehicle and monitoring that no work is done to the vehicle other than the driver change. The official will keep track of each team's time and will notify scoring if a team has exceeded the three minute limit (from time vehicle arrives in driver change area to time vehicle leaves area). There is no competitive advantage to changing drivers in less than three minutes.

ENDURANCE & FUEL EFFICIENCY CONT.

- Tire changes from dry to rain tires will be scored as an extra-long lap. It will be assumed by scoring that the change was completed in the required time (less than 10 minutes) unless notified otherwise. An official will be in the driver change area timing each vehicle and monitoring that no work is done to the vehicle other than the tire change. The official will keep track of each team's time and will notify scoring if a team has exceeded the ten minute limit (from time vehicle arrives in driver change area to time vehicle leaves area). There is no competitive advantage to changing tires in less than ten minutes.
- Tire changes from rain to dry tires will have the time required to change tires added to the team's total time. The time taken to get to, and out of, the driver change area will NOT be added. An official will be in the driver change area timing each vehicle and monitoring that no work is done to the vehicle other than the tire change. The official will keep track of each team's time and will notify scoring of the time required to change tires (from time vehicle arrives in driver change area to time vehicle leaves area).
- No toolboxes will be allowed in the staging lanes or driver change area. (It is assumed only hand tools would be required to adjust the vehicle for the second driver.) In the event of tire changes due to weather conditions, tire changing equipment will also be allowed in the driver change area. Toolboxes will be allowed in the dynamic area along the wall separating the practice area. Teams may work on the car in this area only. Any work done on the vehicle must be approved by a tech inspector before the team will be allowed on the endurance course.
- If the vehicle leaves the course because of a mechanical/electrical problem of any type, the event is considered over for that vehicle and scoring will be notified and record the team as DNF. The vehicle will NOT be allowed to return to the track.
- If the vehicle contacts a barrier on the course, the event is considered over for that vehicle and scoring will be notified. The vehicle will NOT be allowed to return to the track.
- The vehicle may be restarted if it stalls on the track, but external assistance is not allowed.
- The driver may pull in the driver change area to have belts re-tightened if necessary, though the additional time for this procedure will be counted.
- The driver may also pull the vehicle off course to remove any cones that may become trapped; though the additional time will count against the team.
- The lap times for the vehicle will be monitored. If the vehicle is not running within 145% of the fastest lap time run on the course (by the fastest car) the vehicle may be black-flagged and removed from the event. If this occurs with the first driver, the second driver will NOT be allowed to run, as the event will be considered over.

COURSE PREPARATION:

The endurance course will be set up on Thursday afternoon and then Friday evening. Course walking times for the team will be listed on the schedule, weather permitting.

NO MOTORIZED VEHICLES ARE ALLOWED ON THE COURSE EXCEPT DURING THE EVENT ITSELF. VIOLATORS OF THIS POLICY MAY BE DISQUALIFIED FROM THE EVENT.

ENDURANCE & FUEL EFFICIENCY CONT.

FUEL EFFICIENCY PROCEDURES:

Calculation of fuel consumption will be made by the fueling officials and will be based upon the weight of the fuel consumed.

The vehicle starts the endurance event after being fueled to the 'full' mark. After completing the event, the vehicle returns to fuel station and is refueled. The weight of the fuel consumed is determined by weighing a fuel container, filling the vehicle to the 'full' mark, and weighing the fuel container again. The weight of the fuel consumed is the difference of the two measurements. This is accomplished by weighing the fuel can before and after filling the tank. The driver will be asked to observe and initial this measurement.

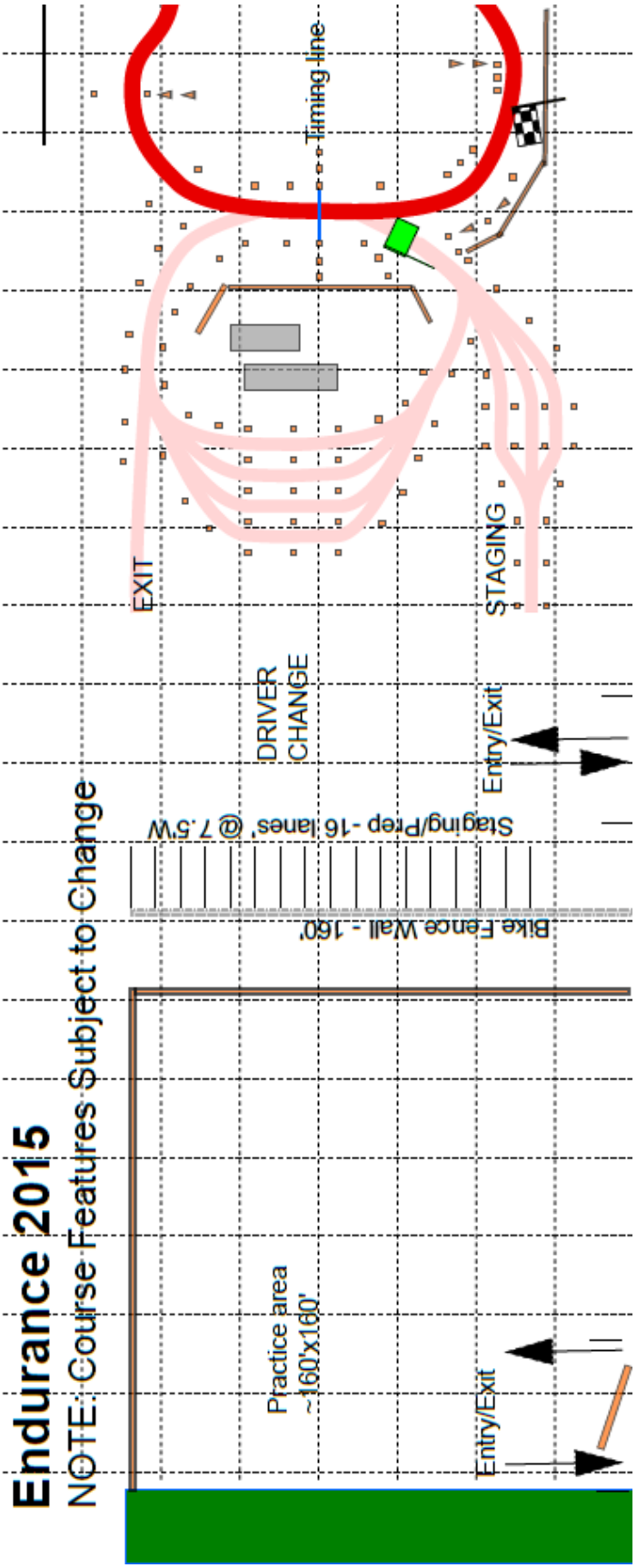
The 'full' mark is a clearly defined scribe line in the filler neck or sight tube as defined by Rule IC2.6.6. The vehicle will be filled to this mark before starting the heat and again upon completion of the endurance event heat.

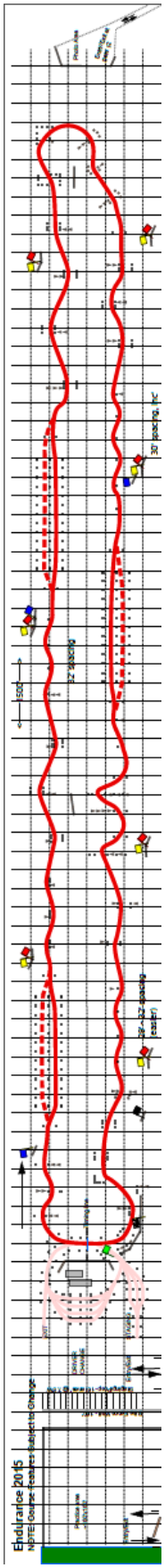
At the fueling station it is critical that visibility of the scribe line in the fuel filler neck is very clear.

Also, no shaking of the vehicle will be permitted during initial fill (prior to Endurance event) nor final fill (after the Endurance event).

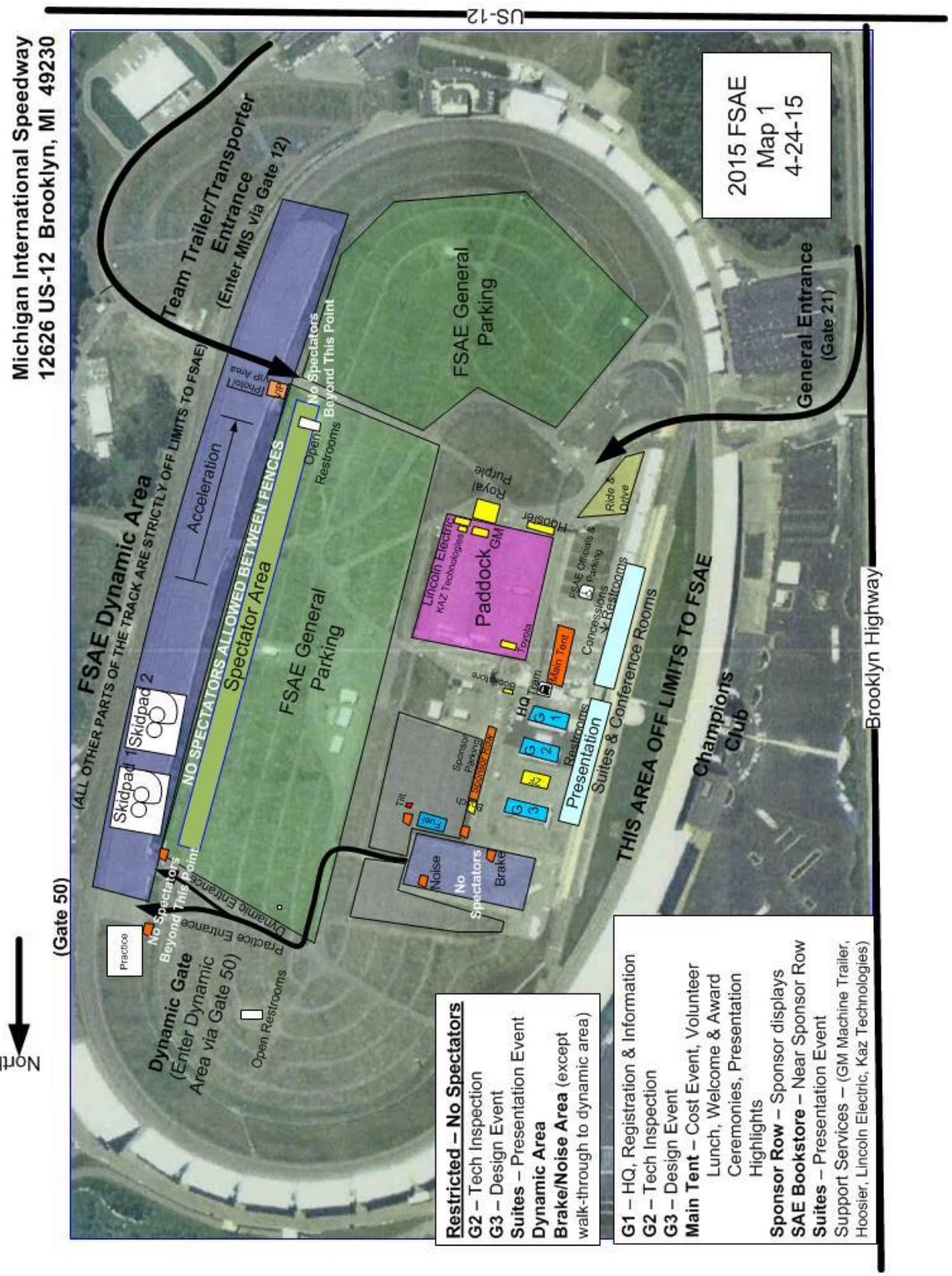
NOTE: All Vehicles must return for re-fuelling, even after as little as one lap to enable the calculation of the efficiency score.

ENDURANCE & FUEL EFFICIENCY CONT.

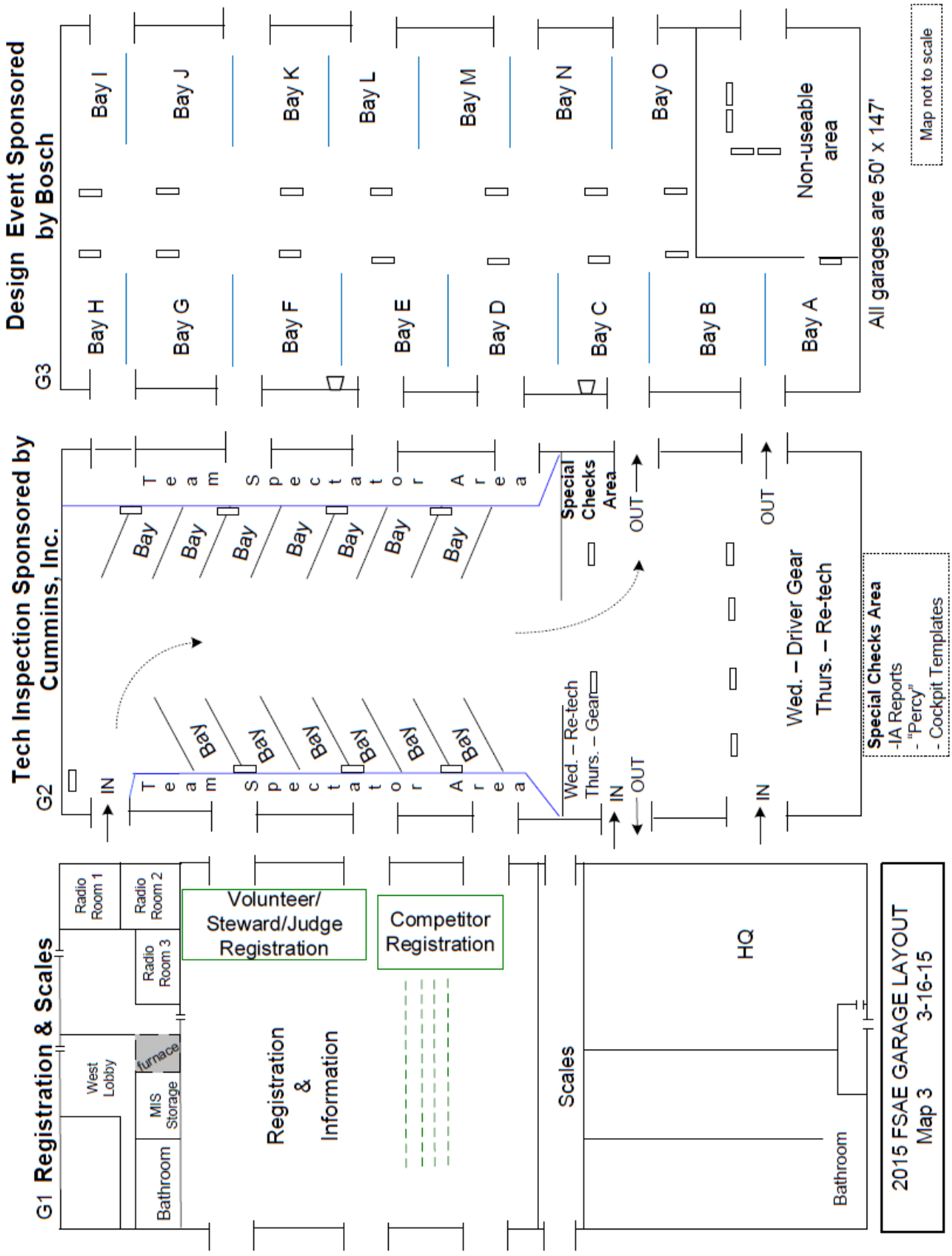




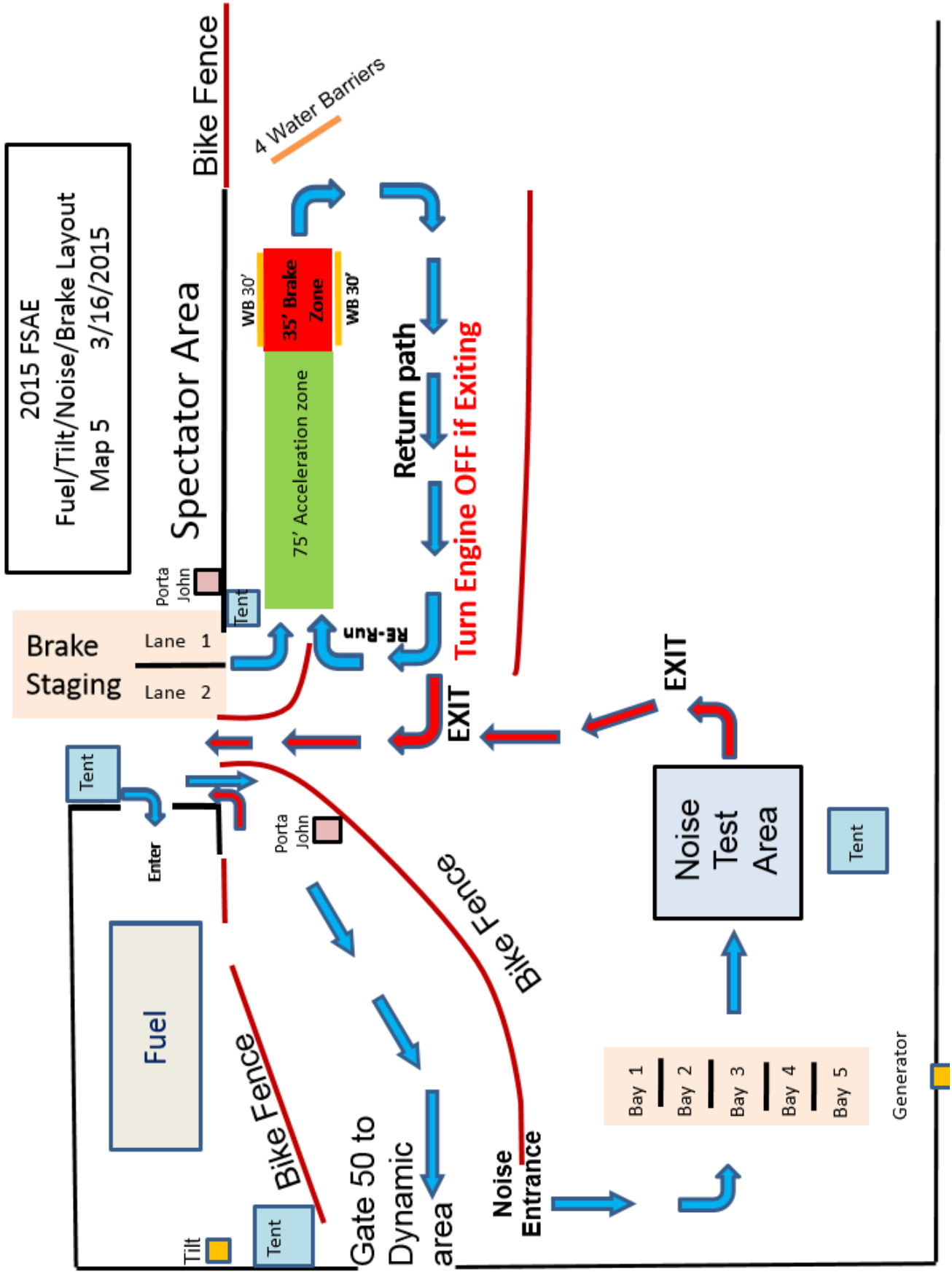
MIS SITE MAP


Michigan International Speedway
12626 US-12 Brooklyn, MI 49230
US-12
North
(Gate 50)
FSAE Dynamic Area
(ALL OTHER PARTS OF THE TRACK ARE STRICTLY OFF LIMITS TO FSAE)
Team Trailer/Transporter Entrance
(Enter MIS via Gate 12)
2015 FSAE
Map 1
4-24-15
Skidpad 1
Skidpad 2
NO SPECTATORS ALLOWED BETWEEN FENCES
Spectator Area
Acceleration
Practice Entrance
Practice Exit
No Spectators Beyond This Point
Open Restrooms
FSAE General Parking
Dynamic Gate
(Enter Dynamic Area via Gate 50)
Dynamic Entrance
Open Restrooms
Practice
Noise
No Spectators
Brake
Sponsor Parking
Sponsor Row
Scoreboard
HQ
Team
Main Tent
Lincoln Electric
KAZ Technologies
Paddock
GM
Toyota
Hoosier
Royal Purple
Ride & Drive
FSAE Officials & Parking
Concessions
Restrooms
Presentation
Suites & Conference Rooms
THIS AREA OFF LIMITS TO FSAE
Champions Club
General Entrance
(Gate 21)
Brooklyn Highway
Restricted – No Spectators
G2 – Tech Inspection
G3 – Design Event
Suites – Presentation Event
Dynamic Area
Brake/Noise Area (except walk-through to dynamic area)
G1 – HQ, Registration & Information
G2 – Tech Inspection
G3 – Design Event
Main Tent – Cost Event, Volunteer Lunch, Welcome & Award Ceremonies, Presentation Highlights
Sponsor Row – Sponsor displays
SAE Bookstore – Near Sponsor Row
Suites – Presentation Event
Support Services – (GM Machine Trailer, Hoosier, Lincoln Electric, Kaz Technologies)

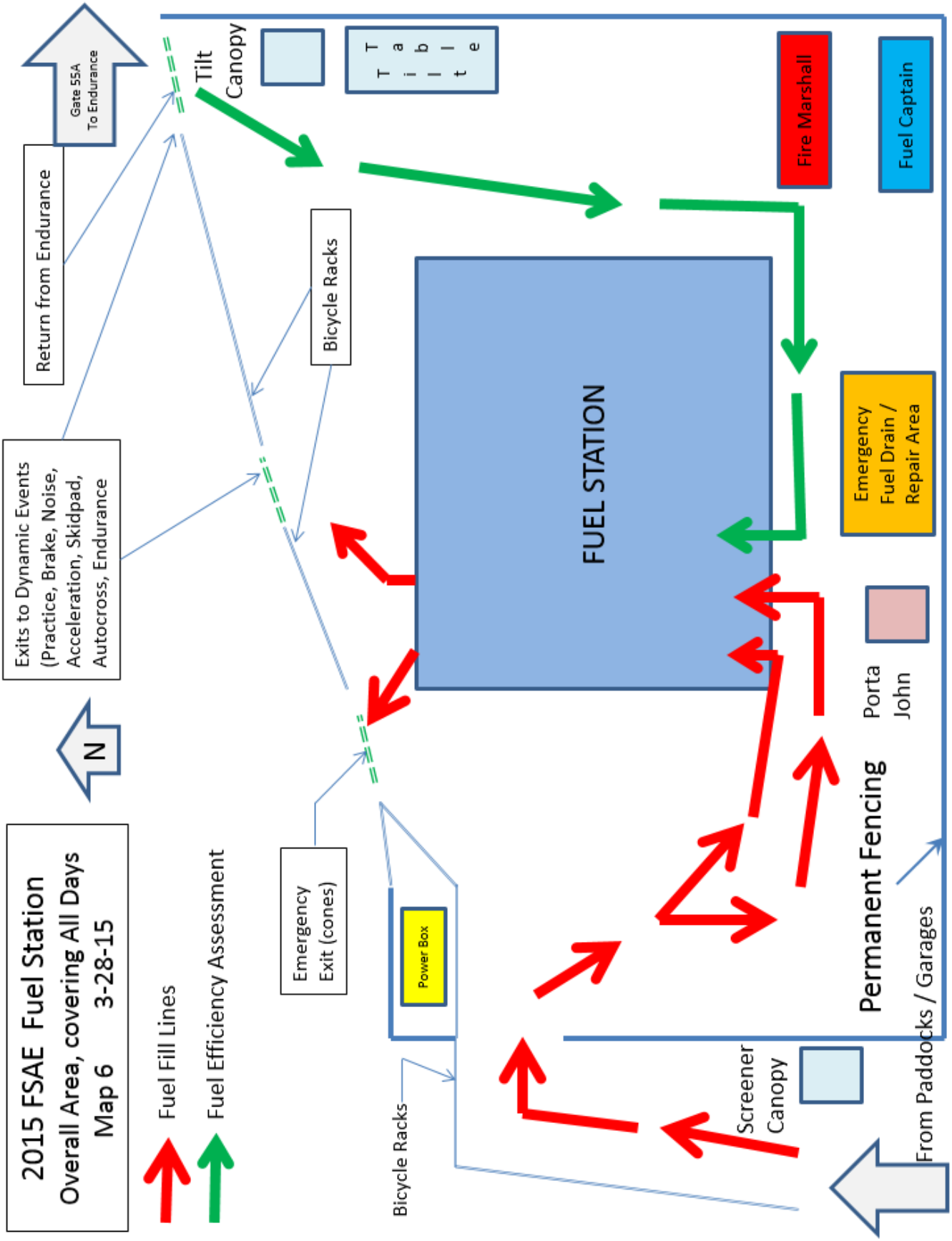
GARAGE LAYOUT

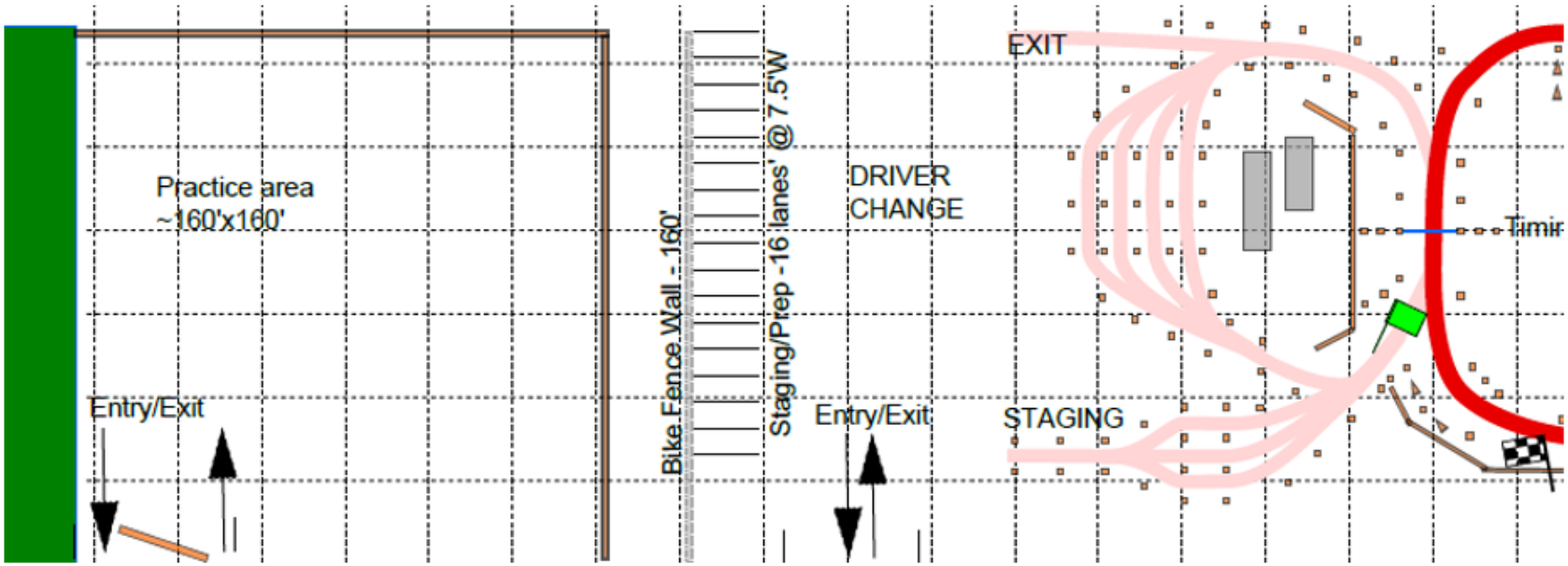


FUEL/TILT/NOISE/BRAKE LAYOUT



FUEL STATION LAYOUT





Gate 50 “North”

“Dynamic Gate”

2015 FSAE
PRACTICE LAYOUT &
ENDURANCE START
Map 7
4/14/15

Map not to scale

PLACES TO EAT

ADRIAN:

Alpha Koney Island, 422 N. Main St., 49221	(517) 266-2526
Applebee's Grill, 1396 S. Main Street, 49221	(517) 263-3344
Big Boy Restaurant, 126 N. Broad Street, 49221	(517) 265-2000
Brass Lantern, 4366 Evergreen Dr., 49221	(517) 263-0411
Ed Chapulin Restaurant, 118 S. Winter Street, 49221	(517) 265-6670
Ed's Main Street Station, 149 N. Main Street, 49221	(517) 263-2365
Joe Cool's L.A. Cafe, 4460 Maumee Street, 49221	(517) 263-8788
McDonald's 1377 S. Main Street, 49221	(517) 265-2370
McDonald's 1235 N. Main Street, 49221	(517) 263-512
Red Lobster, 1420 S. Main Street, 49221	(517) 263-3811
Triple D Coffeehouse, 136 E. Maumee St., 49221	(517) 265-9997

ANN ARBOR:

Bennigan's Restaurant, 575 Briarwood Circle, 48108	(734) 996-0996
Chop House, 322 S Main Street, 48104	(734) 669-8826
Gandy Dancer, 401 Depot, 48108	(734) 769-0592
Graham's Restaurant, 610 Hilton Blvd, 48108	(734) 761-7800
Olive Garden, 445 E. Eisenhower Pkwy, 48108	(734) 663-6875
Weber's Inn & Restaurant 3050 Jackson Road, 48108	(734) 665-3636

BLISSFIELD:

Mystery Dinner Train, Us 223 Depot Street, 48228	(888) 467-2451
Hathaway House, 424 W. Adrian St (US 223), 48228	(517) 486-2141
Lena's Italian Restaurant, 517 E. US 223, 49228	(517) 486-4385
Main Street Stable & Tavern, 424 W. Adrian St (US223), 48228	(517) 486-2144
McDonald's 511 E. Adrian Street, 48228	(517) 486-4177
Subway Sandwiches & Salads, 620 W. Adrian, 48228	(517) 486-2060

PLACES TO EAT CONT.

BROOKLYN:		
	Big Boy Restaurants, 329 S. Main Street, 49230	(517) 592-3212
	Hometown Pizza, 193 S. Main St., 49230	(517) 592-3266
	Marco 's Pizza & Subs, 145 Wamplers Lake Road, 49230	(517) 592-4444
	McDonald's 306 S. Main Street, 49230	(517) 592-6134
	Old Town, 109 S. Main Street, 49230	(517) 592-8007
	Poppa's Place, 208 S. Main Street, 49230	(517) 592-4625
	Subway Sandwiches & Salads, 311 S. Main Street, 49230	(517) 592-5994
	Village Creamery, 140 N. Main, 49230	(517) 592-8284
CEMENT CITY:		
	Artesian Wells Sports Bar 18711 U.S. 12 49233	(517) 547-8777
CHELSEA:		
	The Common Grill, 112 S. Main Street, 48118	(313) 475-0470
CLARK LAKE:		
	The Beach Bar, 3505 Ocean Beach, 49234	(517) 529-4211
	Eagles Nest, 1200 Eagle Point, 49234	(517) 529-9121
	In Good Company, 9039 Meridian Rd, Clark Lake MI 49234	(517) 529-9150
	Nite Crawlers, 6258 Jefferson Rd, Clark Lake MI 49234	(517) 592-2008
CLINTON:		
	McDonald's 480 W. Michigan Ave, 49236	(517) 456-8700
	Subway, 104 E. Michigan Ave, 49236	(517) 456-7576
HUDSON:		
	McDonald's 503 S. Meridian, 49247	(517) 488-8440
	Ole Kountry Kettle, 389 S. Meridian Rd. (US-127), 49247	(517) 448-8240
IRISH HILLS:		
	Golden Nugget, 7305 Us Hwy. 12, Onsted, 49265	(517) 467-2190
	Harold's Place, 10625 U.S. 12, Brooklyn, 49230	(517) 467-2064
	Jerry's Pub, 650 Eagan Hwy, Brooklyn, 49230	(517) 467-4700

PLACES TO EAT CONT.

JACKSON:

Applebee's Grill, 1706 W. Michigan Ave, 49202	(517) 783-5700
Daryl's Downtown 151 W. Michigan Ave., 49201	(517) 782-1895
Bella Notte Ristorante, 137 W. Michigan Ave., 49201	(517) 782-5727
Big Boy Restaurants, 1213 N. West Ave, 49202	(517) 787-5566
Bullinger's 501 Longfellow @ Wildwood, 49202	(517) 783-3768
Cracker Barrel, 2494 Airport Road, 49202	(517) 783-5300
Steak Eatery, 4243 Oaklane, 49203	(517) 783-1766
Finley's 1602 W. Michigan Ave, 49202	(517) 787-7440
Giglio's Italian Restaurant, 2241 Brooklyn Road, 49203	(517) 787-5025
Ground Round, Jackson Crossing Mall, 49202	(517) 782-3330
Hudson's Grill, 2900 Springport Road, 49201	(517) 784-4773
Hunt Club, 1514 Daniel Street, 49202	(517) 782-0375
Knight's Steak House, 2125 Horton Rd, 49201	(517) 783-2777
Lone Star Steakhouse, 3510 O' Neil Drive, 49202	(517) 768-0884
Old Country Buffet, 1230 Jackson Crossings Blvd, 49202	(517) 789-1083
Olive Garden, 3500 O' Neil Drive, 49202	(517) 787-2388
Outback Steak House, 1501 Boardman Road, 49202	(517) 784-7700
Red Lobster, 2400 Clinton Rd, 49202	(517) 787-7820
Steak & Shake, 2655 Airport Road, 49202	(517) 841-9390
Todoroff's Original Coney Island, 1200 W. Parnall Rd. 49201	(517) 841-1000
Whirligig Restaurant, 2000 Holiday Inn Drive, 49202	(517) 783-0693
Yenking Chinese Restaurant, 2100 Holiday Inn Drive, 49202	(517) 787-8701

LANSING:

Damon's Grill, 1601 W Lake Lansing Rd, 48823	(517) 337-4680
Harper's Restaurant & Brew Pub, 131 Albert St., 48823	(517) 333-4040
Finley's American Grill, 6300 S. Cedar St., 48911	(517) 882-7530
Finley's American Grill, 5615 W. Saginaw, 48917	(517) 323-4309
P.F. Chang's China Bistro, 2425 Lake Lansing Rd., 48912	(517) 267-3383
The English Inn, 677 S. Michigan Ave, 48827	(800) 858-0598

PLACES TO EAT CONT.

SALINE:		
	Ruby Tuesday, 1375 E. Michigan Ave, 48176	(734) 429-3873
	Subway, 703 W. Michigan, 48176	(734) 429-3267
TECUMSEH:		
	The British Pantry & Tea Garden, 112 E. Chicago Blvd, 49286	(517) 423-7873
	Daily Grind, 139 E. Chicago Blvd., 49286	(517) 424-7463
	Doby's Smokehouse, 111 W. Chicago Blvd., (M-50), 49286	(517) 423-7777
	Evans Street Station, 110 S. Evans St, 49286	(517) 424-5555
	McDonald's 1206 W. Chicago Blvd., 49286	(517) 423-2826
	Subway, 900 W. Chicago Blvd.,49286	(517) 423-3290
TIPTON:		
	Kountry Kettle Lakeside Inn, 6400 Michigan Avenue, 49287	(517) 431-2900

MOTORCYCLE SHOPS

Town & Country Sports Center, Inc
18655 U.S. 12, Cement City, MI 49233
(517) 547-3333

Tecumseh Harley-Davidson Shop
8080 Matthews Hwy, Tecumseh, MI 49286
(517) 423-3333

Moto 1 Cycle & ATV LLC
9934 U.S. 223, Adrian, MI 49221
(517) 467-9311

Mad Mike's Minis
10190 Bridge Rd, Onsted, MI 49265
(517) 467-2442

Honda
14590 US-223, Addison, MI 49220
(517) 467-7345

Lucky's Cycle
110 US Highway 12, Brooklyn, MI 49230
(517) 467-4982

Iota Products
8400 M 50, Onsted MI, 49265
(517) 467-1127

Eagle One Sports Shop
762 Manitou Rd, Manitou Beach, MI 49253
(517) 547-7563

JB Customs
427 Laurence Ave, Jackson, MI 49202
(517) 395-4391

Back Alley Cycles
112 N Evans St, Tecumseh, MI 49286
(517) 423-9193

T&C Motorsports
3400 Page Ave, Michigan Center, MI 49254
(517) 764-3600

FIRE EXTINGUISHER SUPPLIERS

Spears Fire and Safety Services Inc.,
287 Jackson Plaza
Ann Arbor, MI
Tel: (734) 663-4133

Spears Fire and Safety Services Inc.
1116 Wildwood Avenue
Jackson, MI
Tel: (517) 782-8229

RACING SUPPLIES

Averill Racing
632 Ajax Dr.
Madison Heights, MI 48071
(248) 585-9139

HOURS: M-F 10-6; Sat. 10-4
LOCATION: 1 block North of 12 Mile off John R
DISTANCE FROM MIS: ~80.5 miles (~1 hour & 27 minute drive time)

DIRECTIONS: 12623 US-12 Brooklyn, MI 49230 to 632 Ajax Dr Madison Heights, MI 48071
1. Head east on US-12 toward Brooklyn Hwy - 34.0 mi
2. Merge onto I-94 E/US-12 E via the ramp to Detroit. Continue to follow I-94 E - 34.6 mi
3. Take exit 216A to merge onto I-75 N - 10.5 mi
4. Take exit 63 for 12 Mile Rd - 0.3 mi
5. Turn right at W 12 Mile Rd - 0.4 mi
6. Turn left at John R Rd - 0.5 mi
7. Turn left at Ajax Dr. Destination will be on the right - 0.2 mi

RJS Racing Equipment, Inc.
23506 N. John R. Road
Hazel Park, MI 48030
(248) 548-5727
HOURS: M-F 8-4
DISTANCE FROM MIS: ~76.5 miles (~1 hour & 22 minute drive time)

DIRECTIONS: 12623 US-12 Brooklyn, MI 49230 to 23506 John R Rd Hazel Park, MI 48030
1. Head east on US-12 toward Brooklyn Hwy - 34.0 mi
2. Merge onto I-94 E/US-12 E via the ramp to Detroit. Continue to follow I-94 E - 34.6 mi
3. Take exit 216A to merge onto I-75 N - 7.1 mi
4. Take exit 60 toward John R St/9 Mile Rd - 0.2 mi
5. Merge onto N Chrysler Dr - 0.2 mi
6. Turn right at John R Rd. Destination will be on the right - 0.4 mi

Please call first. If you call them, these suppliers may be able to ship the products you need to MIS.

2015 FSAE PROTEST FORM

School Name: _____ Car Number: _____

Faculty Advisor: _____

Team Leader: _____

Description of Rules Infraction:

Reason for Protest:

Please be aware that the protest window is open for 30 minutes only.

DESIGN JUDGE BIOGRAPHIES

Steven (Steve) Fox: Chief Design Judge & Design Event Captain Alma Mater: Iowa State Law Enforcement Academy, U.S. Army Military Police Academy. Employment History: PowerTrain Technology, President / Director of Engineering, '01+. Quarter Master Industries, Project Engineer, 20 years, responsible for new product development, manufacturing, testing (& breaking). Expertise: Skilled Mechanic, Journeyman Machinist, Power transmission design over a broad spectrum of applications, Engine Development, Materials Selection & (Lean) Manufacturing Engineering. Over 40 years total motorsports / engineering career. Past Chief Design Judge for Formula Student Germany & Formula Student Austria. Design Captain for FSAE-Virginia '08 & '09. SAE Industrial Lecturer. Currently resides in: IL First car: '70 Camaro Z-28, (no power steering, power brakes, or AC). Favorite Race Cars: Porsche 917-30 & McLaren M8. Sadly, today's liability concerns will never let that much power to weight ratio loose on a racetrack again… Design Judge since: 1999 when recruited by Carroll Smith

Anthony (Tony) Lyscio: Chief Design Judge & Design Event Captain Alma Mater: University of Minnesota: B.M.E.- Mechanical Engineering; Purdue University: M.S.E.- Design Engineering; Indiana University: M.B.A. Employment History: SpaceX- '15+, GM- Adv. Technologies, Camaro Lead Suspension Design Engineer, Vehicle Dynamics Adv. Development- Vehicle Dynamics Dev., Vehicle Handling Lab- Analysis/Test Engineer, Concept / Advanced Vehicle Integration-Design Engineer. Consultant Race Engineer. Expertise: Suspension /Steering / Chassis Design and Development, Data Acquisition, Race Engineering. Currently resides in: CA First love: '69 Camaro 327/4-speed. Favorite race car: Ford GT40. Proof that revenge can be a very productive emotion. Design Judge since: 2001.

William (Bill) Riley: Chief Design Judge & Design Event Captain Alma Mater: Cornell University: BS and MEng Mechanical Engineering. Employment History: Cornell Formula SAE (3 Years), Chassis Team Leader (1 Year). FSAE Rules Committee (9 Years), Ford Motorsports (including assignment with Jaguar Formula 1) and Advanced Engine Engineering (7 Years). General Motors: Combustion and Cylinder Head Design (4 Years). Space Exploration Technologies: Senior Director of Structures Engineer (2010 – current). Expertise: Chassis Structures, design & analysis. Composites, Composites FEA, Engine Component Design, Combustion. Currently resides in: CA First car: '84 Mercury Topaz 2-Door GS that went to 230,000 miles. Favorite racecar: I like them all! Design Judge since: 2008

Chris Allbee: Alma Mater: University of Oklahoma: Mechanical Engineering. Employment History: '07-'11: Honda R&D Americas, '11-present: Tesla Motors. Expertise: Automotive Structures, Durability & Fatigue, FE Methods/Analysis, Data correlation. Currently Resides in: CA First Car: '02 Chevy Cavalier Favorite Race Car: McLaren F1 GTR. First racecar to grab my imagination. Design Judge since: 2014

Ryan Arens: Alma Mater: Northern Illinois University: BS and MS in Mechanical Engineering. Employment History: Honda R&D Americas Expertise: Suspension Design, Tire Development, Overall Vehicle dynamics, Component Design, 5 yrs Formula SAE experience Currently Resides in: OH First car(s): '91 Honda CRX Favorite Race Car: Lotus 99T, Red Bull RB7 Design Judge since: 2012

William Attard: Alma Mater: University of Melbourne - Australia. BE, BSc, PhD in Mechanical Engineering. Employment History: Chrysler, MAHLE Powertrain; Perkins Engineering; Bishop Rotary Valve Expertise: Powertrain R&D (combustion, fuels, turbocharging, engine design). Currently resides in: MI First Car: '80 Holden Commodore. Favorite Race Car: VL Commodore Group A Touring Car Design Judge since: 2008: FS-UK, 2009-FSAE-MI

Robert Bailey, P.E.: Alma Mater: US Air Force Academy: BS in Mechanical Engineering; University of Dayton: MS in Mechanical Engineering. Employment History: Engineering Systems, Inc. '13 – present: Engineering Consultant. US Air Force '03 – '13: Mechanical Engineer, Assistant Professor at the US Air Force Academy, Operations Director of the Applied Mechanics Lab. Expertise: Manufacturing technologies, machine design, failure analysis, powertrain development, vehicle dynamics, program management. Currently Resides in: CO First Car: 1983.5 Dodge Shelby Charger. Favorite Race Car: Toss-up between the Mazda 787B or the Lotus 38. Design Judge since: 2013

DESIGN JUDGE BIO CONTINUED

Ryan Baldi: Alma Mater: Rochester Institute of Technology: Mechanical Engineering. Employment History: 2012-present: Richard Childress Racing – Lead Vehicle Performance Engineer, NSCS Race Engineer; 2010-2012: Tesla Motors, Brake System Design Engineer Expertise: Vehicle dynamic simulation, race engineering, circuit & rig testing, brake system design and testing Currently Resides in: NC First car: 1998 Saturn SW2 Wagon Favorite Race Car: Porsche 956 Design Judge since: 2014

Jacob Bergenske: Alma Mater: University of Wisconsin-Madison: Mechanical Engineering. Employment History: Robert Bosch LLC - Motorsport Engineer '07-Present; Grand-Am, ALMS, FIA Formula 3: Track Support / System Development Engineer. Expertise: Engine Management Systems, Gearbox Controls, Powertrain Development, Data / Telemetry Systems. Currently Resides in: MI First car: 1987 BMW 325is Favorite Race Car: BMW DTM E30 M3 Design Judge since: 2014

Jude Berthault: Alma Mater: Ecole de Technologie Superieure (ETS), Major: FSAE. Minor: Mechanical Engineering. Employment History: since '13: Chip Ganassi Racing, Nascar Design Engineer, '11-'13: Essex Parts Services / AP Racing, Technical Support Engineer, '10 Joe Gibbs Racing: Design Engineer. Expertise: I know how to make people understand the meaning of life. Currently Resides in: NC First Car: '89 Toyota Corrola Favorite Race Car: 2004 TU Delft Formula Student (275 lb) & 2006 Penn State FSAE Titanium Masterpiece. Design Judge since: 2011

Michael Black: Alma Mater: Rutgers Mechanical Engineering '90, Licensed Professional Engineer. Employment History: Ford Motor Company, 15+ Years Automotive Body and Body Structure Product Design. Military Contractor, Machine Design. Initiated Rutgers FSAE Team '89. FSAE Volunteer since 1995. Expertise: Automotive Structures, Metallic Materials, Threaded Fasteners, Chassis Design. Currently Resides in: MI First car: '72 Merc Colony Park Wagon w/ 429 engine & simulated wood grain side panels. Favorite Race Car: McLaren MP4 F1 driven by Ayrton Senna or any car driven by Senna. Design judge since: 2000

Hugh Blaxill: Alma Mater: University of Bath, UK: Mechanical Engineering & MPhil in Automotive Engineering. Employment History: MAHLE Powertrain LLC, General Manager. Previously MAHLE Powertrain Ltd, Chief Engineer, R&D. Expertise: Combustion Engines, High Performance Engine Engineering, Fuel Economy Technologies, Production programs for Niche applications. Currently Resides in: MI. First car: BMW 635CSi, Golf GTi Favorite Car: Audi R8 V10, Nissan Skyline GT-R Favorite Race Car: Lotus 49, BMW E9 Batmobile Design Judge since: 2014.

Steve Bollinger, P.E.: Alma Mater: University of Missouri – Rolla '77: BS in Mechanical Engineering. Employment History: '77-'96 Carter Carburetor, Automotive fuel systems components and control actuators; '97-'99 CTS, Powertrain control system actuators; '00-'02 EFI Engineering, Forensic Mechanical Engineering; '04-'08 Siemens VDO/Continental, Powertrain position sensors; '08-present Elkhart Brass, Remote control industrial firewater systems. Expertise: Engine controls, fuel systems, powertrain components, metal fabrication designs, autocross car development, preparation, and competition (6 national championships). Currently Resides in: IN First Car: '64 Bel Air 4 door sedan, 6 cylinder automatic. Favorite Race Car: '66 Austin Healey Sprite. Design Judge since: 2012

John Bucknell: Alma Mater: Cleveland State University '95 - BS Mechanical Engineering, University of Michigan '99- MS Systems Engineering. Employment History: '12+ Chrysler, '11-'12 SpaceX, '07-'11 GM Advanced Powertrain. '95-'07 Chrysler. Expertise: Powertrain systems engineer (architecture, optimization, dyno/vehicle calibration), Chassis engineer (aerodynamic/suspension/brake design & vehicle-level integration) and Rocket Science. Currently resides in: MI First Car: '78 Plymouth Horizon, 55 bhp and 3spd ATX. First Street Car I've Built: A mid-engine 2003 Dodge SRT-4. Full interior and amenities, street legal with 400+ bhp on pump gas, ~2600 lbs, w/ 45/55% weight distribution and to be completed "next month" (for nine years now). Favorite Race Car (I've Built): Hardman Racing FBGS Bonneville streamliner. Holds the '09 record of 291.673 mph two-way average, which is a 2010cc four-cylinder turbo pushing 850bhp, with a big wing in the back and spinning the tires past 280mph. FSAE competitor '90-'94. Design Judge since: 2000

DESIGN JUDGE BIO CONTINUED

John Burford: Alma Mater: University of Texas - Arlington. Employment History: Altair Engineering '98 – '04, Contractor '04 – present: General Dynamics, Caterpillar, Honda, Boeing and other companies with experience in multiple fields: Military, Automotive, Heavy Duty Trucks, and Aerospace. Expertise: CAE analyst focusing on Multi-Body Dynamics and Structural Optimization currently working on Boeing Commercial Aircraft. Currently resides in: IN First Car: '84 Pontiac Firebird. Favorite Race Car: Group C/IMSA GTP Mazda 787 Design Judge Since: 2011

Gerry Clark: Alma Mater: THE Ohio State University: BS in Mechanical Engineering. Employment History: '89 – present: General Motors; '97-Present: GM Powertrain Synthesis and Analysis; '89-'96: GM Crashworthiness Test and Non-linear FEA Analysis. Expertise: Engine performance simulation and valvetrain mechanical dynamic simulation. Engine architecture for performance and fuel economy. Camshaft profile design. Currently Resides in: MI First car: '72 SAAB Model 96 Favorite Race Car: Summer Bros, Goldenrod. Design Judge since: 2010

Bill Davidson: Alma Mater: Brunel University, London, England: BSc Mechanical Engineering Employment History: Ford Motor Co / Visteon (UK & US) 20 yrs, MAHLE Powertrain 8 yrs, Chrysler (FCA) current Expertise: Powertrain mechanical design, calibration and control systems. Currently Resides in: MI First Car: '69 Ford Capri Favorite Race Car: '72-'74 Ford Capri RS2600 / RS3100 Design Judge Since: 1995

Terry DeKoninck: Alma Mater: Western Michigan University: Mechanical & Automotive Engineering. Employment History: '08+ Aerospeed Solutions, LLC, Owner & Principal Engineer, '09+ Military vehicle engineering contractor & test driver/evaluator, '00-'08 Dodge Motorsports Senior Engineer, 15+ years motorsports, military, & vehicle systems engineering. Expertise: Motorsports aerodynamics & engineering (NHRA, SCTA, NASCAR), vehicle systems engineering. Currently Resides in: MI First car(s): '78 Pontiac Grand Prix Favorite Race Car: 'Blowfish' '69 'Cuda multiple Land Speed Racing record holder & arguably the fastest 'doorslammer' on the planet. Design Judge since: 2014

Craig Derian. Alma Mater: The Ohio State University, BS/MS Mechanical Engineering. Employment History: Stackpole Engineering '04 - '11; Tesla Motors '12 + Expertise: Vehicle Performance Modeling, Testing and Driving for Motorsport and OEM. Currently Resides in: CA First Car: '76 Chevy Vega w/ Camaro V6, Eldorado brakes, & custom suspension links. Favorite Race Car: the next one Design Judge Since: 2008.

Drake DeVore: Alma Mater: Northern Illinois University: BS Mechanical Engineering. Employment History: International Truck and Engine (NVH Engineer) – '04-'05, MoTeC Systems East '05 - present. Expertise: Electronic fuel injection, data acquisition, engine calibration. Currently resides in: NC First Car: Pro Street '65 Plymouth Barracuda my father and I built. Favorite Race Car: My first FSAE car. Design Judge Since: 2011

Steven Dietz: Alma Mater: University of Michigan-Dearborn: BS, MS in Mechanical Engineering. Employment History: FSAE (4yrs), DENSO Component Failure Analysis (2yrs), General Motors since '08: Transmission Calibration 6/8 RWD (6yrs), Powertrain Integration Small Block current. Expertise: Powertrain Integration, packaging, calibration, FSAE chassis design Currently Resides in: MI First car: '94 F-150 Ext cab w/ 5.0L EFI. Favorite Race Car: C6.R Design Judge since: 2015

Katie Doonan: Alma Mater: Northern Illinois University: BS and MS in Mechanical Engineering. Employment History: '14 – present: Hendrickson Truck: Engineer, Bus Business Unit; '13+, Affinia Global Chassis: Product Engineer. Expertise: Suspension Design and Development. Currently Resides in: IL First car: '03 Saturn L200, in Powder Blue. Favorite Race Car: Audi R8 LMS Design Judge Assistant since: 2015

Murilo Duarte: Alma Mater: EESC-USP 2003 Employment History: '12+ Ford Motor Company; '11-'12 Honda Research Americas; '04-'10 Ford Motor Company Brasil Expertise: Vehicle Dynamics, suspension design, structural design. Currently resides in: MI First car: '92 Fiat Uno Mille (simple, lightweight, reliable, surprising huh?). Favorite race car: Brabham BT52 (how to exploit big rules changes). Design Judge since: 2011

DESIGN JUDGE BIO CONTINUED

Ash Dudding: Alma Mater: Virginia Tech: BS Mechanical Engineering, '89. Employment History: Volvo Truck Corporation '89-'96. Hendrickson, '96-Current. Currently Director of Engineering for Hendrickson Truck Suspension Systems. Expertise: Truck chassis, ride, handling and structural development. Truck suspension component and system development. Currently Resides in: IL First Car: '72 Fastback Mustang. Favorite Race Car: Ford GT 40 (original), Porsche 917, Porsche 962. Design Judge since: 2010

Zack Eakin: Alma Mater: Cornell University: MEng Mechanical Engineering, Messiah College: BS Mechanical Engineering; Employment History: Chip Ganassi Racing '06 –'11 doing development for IndyCar, NASCAR, and Grand-Am programs. DeltaWing '09 – '12. Nissan / NISMO '12+, Chief Engineer of Nissan LMP1 program. Expertise: Whole car layout & design; Mechanical, Electrical, & Aerodynamic. First Car: '86 Lincoln Town Car. Favorite Race Car: The next one? Design Judge since: 2010

David Finch: Alma Mater: UCLA, University of Michigan: BS and MS Mechanical Engineering. Employment History: President of Raetech Corp. since '84. Expertise: Automotive Research and Product Development (Motorsports) specifically Chassis, Engine and Instrumentation products. David is also an accomplished Motorsports Race Engineer and Driver. Major Motorsports Awards: SCCA-President's Cup, Porsche - Al Holbert Memorial, USRRDC-Mark Donohue Award. Currently Resides in: MI First Car: '57 Plymouth Belvedere with rusted out front fenders, & blanket which covered holes in rear seat and also used to smother carburetor fires. Favorite race car: The Raetech/Porsche 944 with six SCCA GT2 National Championships! Design Judge since: The age of Aquarius

Nick Fishbein: Alma Mater: Cornell University, BS in Mechanical Engineering. Employment History: '08 – present, Chip Ganassi Racing NASCAR Program Vehicle Dynamics Engineer; '07, Rahal Letterman Racing ALMS Program Data Engineer; '06, Milliken Research Associates. Expertise: Vehicle dynamics testing and modeling including development of full vehicle simulation models, 7-post rig testing and performance metric correlation. Currently Resides in: NC First Car: '59 Austin Healey Bugeye Sprite. Favorite Race Car: Cornell FASE ARG06 Design Judge since: 2014

John Fratello: Alma Mater: Virginia Tech: BS and MS in Mechanical Engineering. Employment History: '13 – present, Tesla Motors: Chassis Controls Development, '11 – '13, Bosch: Traction/Stability Control Calibration. Expertise: Chassis controls design and practical robust application, applied vehicle dynamics, test planning and execution. Currently Resides in: CA First car: '94 Ford Taurus. Favorite Race Car: Lancia Stratos. Judge since: 2013

Tri Gaffney Alma Mater: BS - University of Missouri- Rolla; MS- Rensselaer Polytechnic Institute Employment History: General Motors; Kaz Technologies Expertise: Driveline Controls, Chassis Controls, Systems Synthesis/Engineering, Data Analysis/Acquisition, Damper Testing, Race Engineering Currently Resides in: MI First car: '88 Fiero GT Favorite Race Car: Peugeot 205 Turbo16 w/ Lotus Active Driveline/Suspension Design Judge since: 2008

Peter Gibbons: Alma Mater: Worcester Polytechnic Institute, Mechanical Engineering Employment History: '11+: Multimatic: Technical Director Vehicle Dynamics. '04-'10: Andretti Autosport, Technical Director. '91-'04: Newman Haas Racing, Race Engineer / Technical Director. '88-'91: Penske Racing, Race Engineer. '86-'88 Kraco Racing. '84: MARCH Engineering. '81-'86 Patrick Racing. Expertise: Vehicle Dynamics, Design, Simulation, Simulators Currently Resides in: Toronto First Car: '72 Ford Pinto Favourite Race Cars: Lotus 78-79 (A Paradigm Shift in Motor Racing!) Design Judge since: 2013

Billy Godbold: Alma Mater: Florida State University: MS in Physics. Employment History: COMP Performance Group (COMP Cams): 20+ Years, Camshaft Design / Valvetrain Engineering Manager. Expertise: Engine Systems Theory, Design and Development, Metallurgy, Motorsports. Currently Resides in: TN First car: '86 Jeep CJ7 (V8 engine swap) Favorite Race Car: Panoz Esperante GTR-1, but I have never seen a racecar I did not like. Design Judge since: 2014

DESIGN JUDGE BIO CONTINUED

Juan M. Gonzalez: Alma Mater: UW-Madison: BS in Mechanical Engineering. Employment History: '08 +: Polaris Industries, CAE Engineer. Expertise: Chassis and suspension FEA analysis. Virtual load generation and data acquisition for motorcycles and trikes. Currently Resides in: MN First car: '81 Fiat 128. Favorite Race Car: Fangio's 1954 Mercedes-Benz Silver Arrow Design Judge since: 2015

Doug Gore: Alma Mater: New Jersey Institute of Technology: BS in Electrical Engineering Northeastern University: MS in Physics. Employment History: '69-'89 RCA Laboratories. Designed and built "widgets" to solve problem for various government agencies. '78-'09 Sr. Technical Editor for Stock Car Racing magazine, Open Wheel Magazine, and Speedway Illustrated. '89-current: Founder and owner of Gore Engineering, a race car engineering services firm. Expertise: Over thirty five years experience racing oval tracks as a crew member, team engineer, car builder and a car owner. While I am not a driver, my experience includes racing NASCAR Stock cars, dirt track Sprint Cars, pavement Supermodifieds, and in the Indy 500. Formula SAE Design Judge since '99. Currently resides in: MA First Car: '65 Shelby GT 350 Favorite Race Cars: On dirt: Sprint Cars. On pavement: Big Block Supermodifieds. Design Judge since: 1995

David Gould: Alma Mater: Newbury Grammar School. Employment History: Gould Engineering since '94. Expertise: Chassis and suspension design, composite & traditional manufacture. Currently Resides in: UK First Car: Austin Mini. Favorite Race Car: Williams FW07 and Red Bull from 2009 on. Design Judge since: 1996

Charlie Harris: Alma Mater: Texas A&M: BS in Mechanical Engineering Technology. Employment History: 2013-present PMI LLC: Freelance engineering and design; '97 – 2013: Ilmor Engineering, Inc: Trackside, Design Engineer Expertise: Powertrain Design and Development. Practical experience is biased towards physical testing versus extensive simulation work. Currently Resides in: MI First car: '75 Pontiac Grand LeMans. (This car gave me a strong dislike for heavy vehicles.) Favorite Race Car: Lotus 49 - mid-engine rear-drive layout, light weight, stressed engine. This car sealed the deal on the main design philosophy for the next full decade. Design Judge since: 2003

Andy Hartsig: Alma Mater: Michigan State University: BS and MS in Mechanical Engineering. Employment History: '08+ Honda R&D Americas, Inc.: Engine Research. Expertise: Engine/Powertrain calibration, Fuel Economy testing Currently Resides in: OH First car(s): '93 Chevy K1500, '83 Jeep CJ-7 Favorite Race Car: Audi R10 TDI, 1st Diesel-powered to win 24 Hours of Le Mans Design Judge since: 2015

Edward Heil: Alma Mater: Kettering University: MS Automotive Systems, BS Mechanical Engineering. Employment History: '01 – '14: Robert Bosch LLC - Technical Expert Brake and Chassis Controls. '14+: General Motors - Chassis Controls Technical Specialist. Expertise: ABS, TCS and ESC chassis controls. Brake foundation and actuation system sizing and integration. HEV/BEV regenerative braking and electro-mechanical brake-by-wire systems. Currently Resides in: MI First car: '67 Mustang rust-bucket Favorite race car: P. Jones / B. Stroppe "Big Oly" off road racing Bronco. Design Judge since: 2015.

Prashant Jayaraman: Alma Mater: University of Illinois at Urbana-Champaign, Mechanical Engineering. Employment History: Robert Bosch LLC since 2011, automotive and power tools development. Currently with Bosch Motorsport, responsible for projects with GM Racing, specifically the Corvette C7.R GTE/GTLM. Expertise: Engine calibration and analysis, vehicle communication systems (CAN-bus, etc), mechanical design. Currently resides in: MI First car: 1995 $350 Chevrolet Beretta with a bad head gasket. Favorite race car: Corvette C7.R & Sauber Mercedes C9 Group C car. Design Judge since: 2015

Steven Jessup: Alma Mater: University of North Carolina - Charlotte: BS in Mechanical Engineering, Motorsports Concentration. Employment History: Wood Brothers/JTG Racing: Team Engineer – NCWTS & NXS; Wood Bothers Racing: Race Engineer – NASCAR Sprint Cup Series; JRi Shocks/MSI Defense Solutions: Design Engineer Expertise: Chassis & Suspension Setup, Simulation, Data Acquisition, CMM, Damper Design, CAD Currently Resides in: NC First car: '97 Ford Thunderbird LX V8 Favorite Race Car: Wood Brothers' '71 Mercury Cyclone. Having worked for the infamous Wood Brothers and seeing this car first hand, I was able to gain a true appreciation for the sport of auto racing as it was in the past, and how much technology has advanced the sport in such a short amount of time. This car was state of the art for its time. Design Judge since: 2011

DESIGN JUDGE BIO CONTINUED

Mark Juncosa: Alma Mater: Cornell University. Employment History: Works Performance Shocks '03-'04, SpaceX '05-present. Expertise: Chassis and suspension. Currently resides in: CA First Car: '88 Volvo 240DL Favorite Race Car: Bentley Speed 8. Design Judge since: 2011

Edward M. Kasprzak Ph.D.: Alma Mater: University at Buffalo, SUNY: BS, MS and PhD in Mechanical Engineering. Employment History: President: EMK Vehicle Dynamics, LLC; Associate: Milliken Research Associates, Inc. (1996-present); Adjunct Assistant Professor: Dept. of Mechanical & Aerospace Engineering, University at Buffalo. (2007-present); Co-founder and co-director, Formula SAE Tire Test Consortium (volunteer position, 2004-present). Expertise: Tire testing and modeling, vehicle dynamics, stability & control, vehicle simulation, driving simulators, suspensions. Currently Resides in: NY First Car: '86 Oldsmobile Delta 88 Royale Favorite Race Car: Oswego and ISMA supermodifieds. Design Judge Since: 2011

Ryan Kraft: Alma Mater: University of Michigan: BS Mechanical Engineering, Mathematics. Employment History: Lead Dynamics Engineer at SpaceX; previously Tesla Motors and Kaz Technologies Expertise: Dynamics (vehicle and structural), brake system design and development, damper development and simulation. Currently Resides in: CA First Car: '04 Nissan Sentra (RIP). Favorite Race Car: Brabham BT46B. Design Judge since: 2010

Joseph M. Krzeminski: Alma Mater: Bradley University: BS in Mechanical Engineering. Employment History: '09 – present: United Conveyor Corporation: Product Development Engineer II. Expertise: Past FSAE competitor, chassis design and ergo team, driver. Autocross with personally owned FSAE car, BMW CCA, Chumpcar World Series racing Saabs. Currently Resides in: IL First car: '95 Mustang GT Favorite Race Car: '66 Ford GT40 Mk II Design Judge since: 2010

Alan Kulifay: Alma Mater: Lawrence Technological University: Mechanical Engineering. Employment History: 2005-Present: Joe Gibbs Racing: Design Engineer, 2002-2005 Rieter Automotive: Material Test Lab Manager, NVH Test Engineer. Expertise: Chassis and Suspension Component Design and Development, CG and Compliance Prediction and Testing. Currently Resides In: NC. First Car: 1986 Dodge Ram ½ Ton. Favorite Race Car: Chaparral 2E Design Judge Since: 2012

Adam Kwiatkowski: Alma Mater:..Cornell Mechanical Engineering '97 Employment History: General Motors Company, 15+ Years Automotive Engine Design and Development, currently Director Engine Development and Validation, GMPT. FSAE participant '95-'97, FSAE Volunteer since 1998. Expertise: Powertrain Currently Resides in: MI First car: Pro-Touring '68 Chevrolet Camaro – still owned 502BB T-56 Favorite Race Car: Like them all! Design Judge since: 2000

Kevin Kwiatkowski: Alma Mater: University of Michigan: BS in Mechanical Engineering. Employment History: '09 +: Pratt & Miller Engineering: Design Department Manager; '99-09 Raetech Corporation: Project Engineer; '06 – present: Kiggly Racing LLC: President Expertise: Chassis, Suspension, and Powertrain Design and Development, Military Ground Vehicle Occupant Protection Systems. Currently Resides in: MI First car: '94 Ford Escort (hatred for underpowered cars ever since) Favorite Race Car: 1926 Miller 91 fwd – Innovation counts. Design Judge since: 2015

Justin Langdon: Alma Mater: Tennessee Tech University: B.S. in Mechanical Engineering, Virginia Tech: M.S. in Mechanical Engineering Employment History: Vehicle Dynamics/Simulation/Race Engineering '07-'08 Hall of Fame Racing, '09-'10 Roush-Fenway Racing/Richard Petty Motorsports, '11- present Joe Gibbs Racing Expertise: Simulation development/validation/application – system level vehicle dynamics, ride and handling Currently Resides in: NC First car: '80 Chevy Malibu Classic (4-doors with the, short-lived odd-fire V6 – gross) Favorite Race Car: Ford GT40 (mainly because of the story) Design Judge since: 2014

Ben LeVesque: Alma Mater: Michigan State: BS in Electrical Engineering. Employment History: '08+: Pratt & Miller Engineering, Senior Systems Engineer. FSAE '03-'07. Expertise: Hybrid and electric powertrains, and vehicle platform controls and architecture. Currently Resides in: MI First car: '86 Buick Riviera Favorite Race Car: Cadillac CTS-V.R Design Judge since: 2010

DESIGN JUDGE BIO CONTINUED

Kim Lind: Alma Mater: University of Michigan Ann Arbor: BS Mechanical Engineering. Employment History: General Motors - 25 years; Previously: Michigan Automotive Research Corp - 7 years. Expertise: Dyno testing and development; by-wire systems; active suspension systems; AWD systems; vehicle concept development demonstrating turbocharging, supercharging, AWD and DCT technologies; and pre-production vehicle architectures. Raced 9 years in SCCA & was a driving instructor for SCCA driving schools. Currently Resides in: MI First car: '68 Pontiac Bonneville (small aircraft carrier). Favorite race car: My SCCA F-Production MG Midget. Design Judge since: 2010

Gene Lukianov: Alma Mater: Worcester Polytechnic Institute, Lawrence Technological University: BS Mechanical Engineering, MS Automotive Engineering. Employment History: Currently retired and consulting. Chrysler: 20 years vehicle dynamics tuning, development and analysis. Gabriel Shocks: 7 yrs. shock absorber design, manufacturing and tuning; also automotive brake design and weapons. Expertise: Specialist in all aspects of vehicle dynamics: calculations, design, development, tuning and subsystem/component performance. Currently Resides in: MI First car: '61 Volvo 544. Favorite race car: Ford GT40 (THE Original one). Design Judge since: 1999

Steve Lyman: Alma Mater: Purdue: BS in Mechanical Engineering Technology. Employment History: '08 + All American Dynamics, President; '86-08 American Motors / Chrysler / Daimler Chrysler / Cerberus Chrysler, Vehicle Dynamics Engineer, Manager, Sr.Manager; '73-'86 Team McLaren, General Motors, Ford Motor Company, Michelin R&D, jobs ranging from Gofer, Engine Design Engineer to Sr. Ride and Handling Engineer Expertise: Vehicle Dynamics, Chassis / Suspension Design & Development, ESC, Vehicle Integration, Human Factors, Evaluator Training. On road and off road subjective, objective vehicle evaluation skills ranging from Renault F1, Dodge Viper, Jeep . Currently Resides in: NC First car: Meyers Manx dune buggy, Corvair power. Favorite Race Car: '77 Riley Coyote IV- turbo Ford V8. This car taught me that winning designs can stay competitive for a long time with continuous development. Design Judge since: 1993, when recruited by Carroll Smith.

Kim Lyon: Alma Mater: University of Minnesota / Minneapolis: BS Mechanical Engineering, BA Chinese. Employment History: '84 – '08 Chrysler Powertrain Engineering, Advanced Engine Systems Senior Specialist, VVT engine development – I4, V6, V8, V10;LeMans LMP 900 engine and chassis systems development; hybrid electric LeMans race car (Patriot Project); Formula One engine, chassis systems, and calibration development-Lamborghini Engineering. Expertise: Calibration, data acquisition, software design & coding, engine and chassis dyno testing, turbocharger and auto-manual transmissions development, modeling and simulation. Currently Resides in: MI First car: '66 Chevy Impala SS (327c.i., 4-speed). Favorite race car: Lola T70 coupe, Porsche 962, Nissan GTP, '93 F1 McLaren MP4/8. Design Judge since: 2003

Luca Mantovano: Alma Mater: University of Wisconsin – Madison: BS in Mechanical Engineering. Employment History: '11 – present: Ford Motor Company: Hardware Controls Integration Engineer. Expertise: Powertrain Design and Development, engine dynamometer testing, data acquisition / post processing, combustion development, engine calibration/ controls, wiring harnesses. Currently Resides in: MI First car: 1990 Nissan 240sx Favorite Race Car: Formula One Ferrari F2004 (winning 15 out of 18 races) Design Judge since: 2011

Cody Mayer: Alma Mater: Vanderbilt University: Mechanical Engineering. Employment History: Comp Performance Group (Competition Cams): Mechanical Engineering Group Manager. Expertise: Engine/drivetrain component design: rocker arms, lifters, gear driven timing sets, throttle bodies, shifters, etc. Currently resides in: TN First Car: '66 Ford Mustang, 289 Favorite Race Car: Shelby Daytona Coupe. Design Judge since: 2014.

Dick Myers: Alma Mater: University of Vermont: Mechanical Engineering Employment History: Chrysler Corp (33 yrs.), Ford (4yrs). Expertise: Design/development engineer, program manager, engineering supervisor and manager, race car engineer. Currently resides in: MI First Vehicle: '56 Chevy 3/4 ton pickup (461,000 miles, honest) from my dad. Favorite race car: Winged 410 sprint car. Design Judge since: 1999

DESIGN JUDGE BIO CONTINUED

Rich Nesbitt: Alma Mater: Michigan Tech University: BS and MS in Mechanical Engineering. Employment History: '01 – '05 GM: Chassis Controls Integration. '05 - present: Bosch: Team Leader of Hybrid Chassis Controls Systems, Calibration and Technical Program Management. Expertise: Vehicle Dynamics Controls, Brakes. Currently Resides in: MI First car: '86 Pontiac Sunbird, 2-Door 4 Cylinder Manual. Favorite Race Car: Audi Sport Quattro Group B Rally Car. It changed the way the world thinks about AWD. Design Judge since: 2013.

Jacob Oberlin: Alma Mater: U. of Michigan: Computer Engineering. Employment History: '11 – present: Tesla Motors: Firmware Engineer. '10: MRacing Chief Powertrain Engineer. Expertise: Automotive firmware and electronics, powertrain and HVAC thermal systems, Data acquisition, 12V battery system charging and wiring harness design, lithium ion battery modeling. Currently resides in: CA First car: '96 Ford Thunderbird LX Favorite Race Car: Williams FW15C – From a time when engineers did the racing Design Judge since: 2014

Russ O'Blenes: Alma Mater: Worcester Polytechnic Institute. BS Mechanical Engineering? FSAE participant: '89 '90 & '91. Employment History: GM: '91 Production, Powertrain group. '93: GM's Racing Department. Currently Manager of GM Racing Powertrain. Expertise: Engine simulation & analysis. Many GM race programs including Baja, Pike's Peak, Short Course, NASCAR, Road Racing, NHRA Pro Stock, and FWD Sport Compact. Currently resides in: MI First car: Manx Dune Buggy Favorite race car: Penske/Donohue '69 Trans Am Camaro Design Judge since: 2005

Erich Ohlde: Alma Mater: University of Kansas – Lawrence: Mechanical Engineering FSAE '04-'09. Employment History: Fiber Dynamics '09-'10, Tool and die designer for USF1 projects; Pratt & Miller Engineering '11-'14, Systems/Data Acquisition Engineer; GM R&D projects & Corvette Racing. Robert Bosch '14 +, Motorsport Engineer. Expertise: Data Acquisition/Control Systems, Wiring harness design and manufacture Powertrain design and calibration. Currently Resides In: MI First truck: '96 Mazda B-Series Pickup. Favorite Racecar: Chaparral 2J Design Judge Since: 2014

Bret Olsen: Alma Mater: University of Windsor: Mechanical Engineering with Automotive Option. Employment History: '08 – Present: Chassis Controls Application Engineer, Robert Bosch LLC. '06 – '08: Body Structures Engineer, TAC Automotive. Expertise: 8 years experience in Automotive industry. Automotive Body Structures, Brakes, Chassis Controls, Data Logging, Embedded Control Software. Currently Resides in: Ontario, Canada. First Car: '88 GMC Sierra 1500. Favorite Race Car: 1975 Ferrari 312 T Design Judge since: 2014

Brett Oltmans: Alma Mater: Rochester Institute of Technology: Mechanical Engineering with Automotive Focus. Employment History: Polaris Industries '96 – current. Ford, 5 yrs. Expertise: Dyno calibration, Alternative fuels engine design and calibration, Alternative fuels engine design and calibration, Induction system design, boosted and N.A. Currently resides in: MN First car: A rusty '71 Datsun 240Z. Favorite race car: My ITS Datsun 240Z, car #06. Design Judge since: 2008

Mike O'Neil: Alma Mater: University of Akron, BS and MS Mechanical Engineering. Employment history: Technical Director at Essex Parts Services, Inc. since 2010, Head of Engineering at Tilton Engineering, Inc. for 14 years. Expertise: Racing brake and clutch systems, dynamometer testing of brake systems, '09 AMA flat track amateur national champion. Currently resides in: NC. First car: '73 Chevy Nova. Favorite race car: Ford GT40. Design Judge since: 1998. (Served as Chief Design Judge for FSAE West from formation through 2012)

Sean O'Shea: Alma Mater: Rutgers University, BS Mechanical Engineering, BA Economics. Employment History:.'01-'10: BASF Catalysts; Emissions Test Engineer. '01-09 – Co-founder Maximum PSI performance fabrication. '10-'12: Rypos Inc.; Sr. Test Engineer. '12+: Bosch Motorsports; Sr. Engineer, Diesel Components and Calibrations. Expertise: Engine testing specializing in diesel calibrations and emissions. Data logging, trackside support and electronics integration of race cars. Component fabrication and testing. Currently Resides in: MI First Car: 1976 MGB OLE, (Oil Leaking Edition) (Is there any other kind? Ed.) Favorite Race Car: Porsche 917L Design Judge since: 2013

DESIGN JUDGE BIO CONTINUED

Sriram Pakkam: Alma Mater: North Carolina State University, MS in Aerospace Engineering. Employment History: '11-'14 General Motors Racing. '14-present: Chrysler SRT. Expertise: Race car aerodynamics, Aerodynamic design leveraging wind tunnel testing and CFD. Currently Resides in: MI First Car: '04 Mazda RX-8. Favorite Race Car: Porsche 917K and 917/30. Design Judge since: 2014

Chris Patton Ph.D.: Alma Mater: Oregon State University: BS, MS and PhD in Mechanical Engineering. Employment History: Nissan LMP1, '14+; Caterham F1, '13-'14 Expertise: Tire Modeling, Vehicle Modeling, Lap Simulation. Currently Resides in: IN First Car: '73 BMW 2002 Design Judge since: 2015

Joseph Penniman: Alma Mater: San Jose State University: Mechanical Engineering. Employment History: '12+ Tesla Motors since. FSAE volunteer since '11. Expertise: Sensing systems and data acquisition, mechanical system characterization and validation. System integration and CAN bus. Suspension and chassis design Currently Resides in: CA First car: '76 Datsun 280z Favorite Race Car:..Bob Sharp CP 280ZX Design Judge since: 2015

Jeff Peterson: Alma Mater: The University Of New Hampshire: BS in Mechanical Engineering '06. Employment History: '08+ Sr. Engineer at JRI Shocks / MSI Defense Solutions, specializing in mobile hydraulics including Damper design; '07 to '08 R&D/Data Accusation Engineer at Petty Enterprises, worked on test team for Sprint Cup cars 43 & 45. Expertise: Damper design and application, Kinematics Currently Resides in: NC First Car: Replica Porsche 356A. Favorite Race Car: There is no way for me to choose one but love vintage European race cars. Design Judge since: 2013

Benjamin Pohl: Alma Mater: University of Florida, Mechanical Engineering. Employment History: Ford Motor Company '00-'03 in Chassis Engineering, Brembo North America '03-Present as a Program Manager. Expertise: Chassis Design, Vehicle Dynamics, emphasis on Brake Systems. FSAE Competitor 4 years. Currently Resides in: MI First Car: '95 Acura Integra GS-R. Favorite Racecar: Ferrari 333SP Design Judge since: 2014

Andy Randolph Ph.D.: Alma Mater: University of Texas at Austin, Northwestern University, BS Chemical Engineering, MS, Ph.D. Chemical Engineering. Employment History: 13 years General Motors, 12 years in NASCAR, current Engine Technical Director for Earnhardt Childress Racing (ECR). Currently resides in: NC Expertise: Combustion diagnostics, power development. First car: Martin. Favorite race car: Chaparral (light, agile, powerful). Design Judge since: 2005

David Redszus Ph.D.: Alma Mater: Northwestern University: BS Industrial Engineering and Economics, MS Systems Management and Operations Research, PhD Product Development Processes. Employment History: Precision AutoResearch (founder, 25 yrs), Over 35 years total (research, engineering services, and specialty products for the motorsports industry). Expertise: Technical consultant, engineer, coach, and racer, advanced driving techniques, vehicle design, and engine development. Data analysis techniques and ability to translate complex issues into racer-understandable language. Currently resides in: IL First car: '70 Porsche 911S Targa. Favorite race car: What other than the Porsche 917-30? Or any other car which causes rules-changes ex-post should be a favorite! Design Judge since: 2004

Richard Reichenbach: Alma Mater: Michigan State University: BS Computational Mathematics. Employment History: '11 – present: Pratt and Miller: Analyst / Tire Modeling Engineer: '09 – '11 Roush Fenway Racing – Design Engineer: Expertise: Mechanical Simulation, Chassis Design, Tire Modeling: Currently Resides in: MI First car: Fiat X1/9 Favorite Race Car: Cadillac ATS Design Judge since: 2012

Russell Richards: Alma Mater: Virginia Tech University: BS & MS in Mechanical Engineering. Employment History: General Motors, 2007-2012: test engineer, 2012-present: suspension design engineer. Expertise:..Vehicle dynamics and suspension systems. Currently Resides in: MI First car: '88 Pontiac Firebird Trans Am Favorite Race Car:..Swift 007i – my favorite racing series growing up was CART, and being American made I thought when I grew up I could be working there designing a Champ Car….. Design Judge since: 2014

DESIGN JUDGE BIO CONTINUED

David Rimel: Alma Mater: Colorado State University: BS Industrial Management; Colorado School of Mines: MS Environmental Science and Engineering Employment History: Vehicular emissions research and testing; Auto paint spray booth consulting, permitting; Auto body shop owner, operator; 40+ years of vehicle repair and restoration; SAE Certified Mechanic. Expertise: Automotive body and frame; Vehicular emissions. Currently Resides in: CO First Car: '56 Chevy BelAir w/ 347 ('57Pontiac) tri-power Favorite Race Car: Well executed FSAE car Design Judge since: 2012

Tony Roma: Alma Mater: LTU (BSME) / Purdue (MSE) Employment History: General Motors since '93: Transmission Calibration (4L60e) / Engine Development (Small Block) / Powertrain Integration (Corvette) / Powertrain Program Manager (Cadillac World Challenge Program) / Engineering Group Manager for Vehicle Integration (Cadillac V Series) / Sr Engineering Group Manager for High Performance Vehicle Operations / Camaro Performance Variant Manager (responsible for the ZL1) Expertise: Powertrain Integration and Chassis Engineering Currently resides in: MI First Car: '83 VW Rabbit GTI Favorite Race Car: Chaparral 2E Design Judge Since: 1998

Rick Ross: Alma Mater: North Carolina State University: BS and MS in Aerospace Engineering. Employment History: Airbus A320 Captain for JetBlue Airways since '03. Over 30 years experience in commercial aviation as a pilot, instructor, engineer, and accident investigator. Over 15 years experience in club formula car racing as a driver, engineer, data analyst, and mechanic. Expertise: Aerodynamics, Data Acquisition, and Driver Coaching/Evaluation. Practical motorsports experience primarily related to on-track testing and evaluation in the club racing environment. Currently Resides in: NC First car: '73 Datsun 240Z. Favorite Race Car: Swift DB-4 Formula Atlantic. Design Judge since: 2015

Claude Rouelle: Alma Mater: Institute Gramme, Belgium: Industrial Engineering MSc. Master Thesis on the design and manufacture of a wind tunnel and race car. Employment History: Including, but not limited to: Racing a Formula Ford designed & built while completing his Master Thesis. Race Engineer for Volvo, Toyota and Alfa Romeo (European Touring Car Championship / European Rally Championship). Race Engineer for French Formula 3 Team Oreca. Development Engineer for AGS Formula One team. Technical Representative for Reynard in Japan. Technical Advisor for Apomatox Formula 3000 team, various Indy Lite Series Teams, CART Teams, Endurance Teams, and Le Mans series cars. Founder of Optimum G (racecar engineering consulting) '97-current. Expertise: High performance and racecar designer, research and development engineer with over 35 years of experience in design, simulation, data analysis and data base management. Hundreds of 3 to 12 day Vehicle Dynamics Training Seminars (presented to automotive manufacturers (OEMs), motorsports engineers and university students). Over 11,000 professionals taught since '97… and counting. Consulting services for passenger cars and race teams on all continents, and almost all countries in the world. Design and support kinematics, tire modeling. Vehicle dynamics and lap time simulation software. Currently resides in: CO First car: 15 yo Renault-4 Station Wagon with a heavy CNG reservoir on the roof. (It helped to understand the influence of CG height on weight transfer!) Favorite racecar: The next one we are designing. Design Judge since: Cars have had wheels

Nick Rumberger: Alma Mater: The Ohio State University: BS in Mechanical Engineering, Oakland University: MS in Mechanical Engineering. Employment History: 2013 – present: FCA US LLC: CIE (Chrysler Institute of Engineering), FCA FSAE Relations Corporate Lead FSAE Experience: 3 years, designing, and building composite front and rear two-piece tub Currently Resides in: MI First car: '91 Mazda 626 Favorite Race Car: Dodge Viper ACR-X Design Judge since: 2015

Dev Saberwal: Alma Mater: University of Manitoba: BS in Physics. University of Manitoba and Wayne State University: MS in Mechanical Engineering. Employment History: '94+: Ford Motor Company ('98-'00 / '02-'04 V6 Mustang Powertrain Development, '00-'02: Cosworth Formula 1 Engineering, '05-present: Motorsports Engine Controls Supervisor, Ford Racing). Expertise: Engine Controls and Calibration Currently Resides in: MI First Car: '84 Dodge Colt. Favorite Race Car: Anything currently driven by Fernando Alonso (yes, even the current McLaren-Honda). Design Judge since: 2013

DESIGN JUDGE BIO CONTINUED

Jeff Scheurer: Alma Mater: University of Alabama: BS in Mechanical Engineering. Employment History: '09+: Honda R&D Americas, Inc. Expertise: Automotive seat design. Currently Resides in: OH First Car: '90 Nissan 300ZX Favorite Race Car: Highcroft Racing HPD ARX-01-e LMP1 Design Judge since: 2011

Eric Schieb: Alma Mater: Georgia Institute of Technology, BS in Mechanical Engineering, '92. Employment History: Electron Speed '06 to present, GM, CMI, Kelsey-Hayes, TRW Automotive, Elan Power Products, specializing in: System-level, data-driven development of chassis and powertrain controls. Expertise: Data-based, System-level development. Currently Resides in: GA First car: Mini 1000 Favorite Race Car: The one that is making me think. (FSAE car, various Road Racing Karts, Elan DP02) Design Judge since: 2003

Preston Schipper: Alma Mater: University of Colorado at Boulder: BS in Computer and Electrical Engineering Employment History: Pi Innovo – 4 years semi active suspension controls and brake based chassis controls, Bosch – 3 years gasoline powertrain calibration and motorsport software/systems engineering. Expertise: Powertrain controls, chassis controls, embedded software, Simulink rapid code prototyping, motorsport electronics. Currently Resides in: MI First car: 1990 Ford Thunderbird. Favorite Race Car: 2000 Audi R8, first GDI racecar. Design Judge since: 2014

Jason Schwanke: Alma Mater: University of Wisconsin – Madison; BS in Mechanical Engineering. Employment History: 2009-present: Robert Bosch LLC; Sr. System Engineer responsible for advanced combustion controls and micro/mild-hybrid system development. Expertise: Powertrain controls and combustion development. Embedded software system development. Powertrain cooling design. Currently Resides in: MI. First Car: '82 DeLorean DMC-12 with a twin turbo Chevy 350 V-8 Favorite Race Car: McLaren MP4-4. Design Judge Since: 2009.

Brian D. Smith: Alma Mater: Tennessee Technological University '07: BS in Mechanical Engineering. Employment History: '13+: Brian Smith Design: Freelance Mech. Engr; Product Designer; '07 – '12: Par3 Technology: Product Designer, stress analysis, CAD design; Expertise: Tire Testing (designed and built a tire testing machine in college), Brake System, Chassis. Currently Resides in: TN First Car: '59 Bugeye Sprite Favorite Race Car: PCD Saxon Hillclimb car Design Judge since: 2015

Ken Sperry: Alma Mater: Highland Park High School. Employment History: U.S. Army. General Motors: Chevrolet engineering Tech. Kinsler Fuel Injection, then back to GM: Chevrolet Engineering, Technician Air Flow Development. Engineer, Air Flow Dev. Manager, Inline Engine Dev.; Gas Engines; Hi-Performance Vehicle Operations-Powertrain. Retired G.M.: '07. Consultant, Experimental Engine Development: '08-current. Expertise: Air Flow Development of Engine components. Power and supporting engine system development. Currently resides in: MI First car: '57 Chevy 1500 Businessman's Coupe, 220hp/283, 3 speed, 4.11 axle. Favorite Race Car: M8B McLaren (Can Am), Chaparral 2E (Can Am). Design Judge since: 1990

Ron Sperry: Alma Mater: General Motors Institute: BS Mechanical Engineering Major studies in Powertrain. Employment History: Retired from General Motors after 44 years with experience in production and performance engine design. Production design, after market applications and enhancements of productions components, engineering support in performance engine components, Production Release Engineer, V8 group and GM Racing Group supporting the Corvette and NASCAR racing series. Currently working for GM Racing group as a contract employee. Expertise: Engine design, component design and development. Currently resides in: MI First car: '62 Chevy Impala SS - 409/409. Favorite racecar: C5R Corvette. Design Judge since: 1995

Garrett Stockburger: Alma Mater: University of Minnesota – Twin Cities: BS and MS in Mechanical Engineering. Employment History: '04-'07: Honda R&D Americas, '07-'09: Honda Performance Development, '09: Honda R&D Americas, '09-'11 Honda R&D (in Japan), '12+: Honda R&D Americas. Expertise: Powertrain Design and Development. Practical experience is biased towards engine performance specification setting and testing. Currently Resides in: OH. First Car: Rusted out '80 Chevy Suburban. Favorite Race Car: Team i-Moto Mazda Speed 3s. The cars I worked on in the Continental Tire Challenge series. Design Judge Since: 2007

DESIGN JUDGE BIO CONTINUED

Mike Tam: Alma Mater: Virginia Tech '06 Employment History: '08+ Roush Fenway Racing; '07-'08 Brewco Motorsports Expertise: Vehicle Dynamics; Computer Simulation; Track Testing & Data Acquisition Currently resides in: NC First car: '87 Mazda Rx-7 Turbo II Favorite race car: Ford Focus RS WRC Design Judge since: 2015

Alan Thomason: Alma Mater: Texas A&M: BS in Mechanical Engineering. Employment History: '96 – '13: Ilmor Engineering, Inc.: Trackside, Development Engineer, Technical Director; '14-Present: Plymouth Machine Integration Owner/Partner. Expertise: Powertrain Development, Controller Software Specification and Calibration. Currently Resides in: MI First car: '75 Dodge Valiant 318 Favorite Race Car: Ford GT-40. Design Judge since: 2015

Raechell Thuot: Alma Mater: University of Wisconsin-Madison: BS Mechanical Engineering. Marquette University: MBA – International Business. Employment History: '14 +: GMR Marketing - Director of Strategy. '04 – '14: SC Johnson – Brand Management & Innovation. '01-'03: Twin Disc - EH&S Manager, Mfg & Testing Engineer. '98-'01 CNH, Design Engineer. Expertise: Consumer Centric Design, Product Development, Fluid Dynamics, Powertrain, Electrical Systems. Currently Resides in: WI. First car: '88 Renault Encore. Favorite Race Car: Mercedes-Benz Silver Arrow W154 Design Judge since: 2013

Salvador Toledo: Alma Mater: University of Puerto Rico-Mayaguez, BS Mechanical Engineering; University of Michigan: MS Mechanical Engineering. Employment History: Ford Motor Company since 2000, Chassis PD Supervisor and Recruiter. 1 year: DaimlerChrysler. 3 years: Drag Racing Pit Man. 3 years: Mechanic assistant. Expertise: Chassis Engineering. Currently resides in: Michigan. First Car: '00 Ford Explorer. Favorite Race Car: '09 F1 Brawn GP Car Design Judge since: 2004

Pierce D. Umberger, Ph.D.: Alma Mater: Virginia Tech: BS Mechanical Engineering, MS and PhD Engineering Mechanics Employment History: '08-'13: Virginia Tech Materials Response Group and US Army Research Lab; '14+: Engineering Systems, Inc., Applied Mechanics / Polymers / Composites Consultant Expertise: Composite Materials, Finite Element Analysis, Applied Mechanics. Currently Resides in: GA First car: Ford Escort Favorite Race Car: '89/90 McLaren MP4/5 and 4/5B Design Judge since: 2015

Andy Vrenko: Alma Mater: University of Akron: BS Mechanical Engineering Employment History: '01 – present: Ford Motor Company. Vehicle Dynamics and Race Development Engineer Expertise: Vehicle dynamics and production based race car development Currently Resides in: MI Favorite Race Car: Boss 302S or Cobra Jet Design Judge Since: 2014

Hannah Westbrook: Alma Mater: University of Pittsburgh: Electrical Engineering, Mechanical Engineering minor. Employment History: MoTec Systems East, '13+: Applications Engineer, Electronics Lead, FSAE. Expertise: Motorsports Industry, Data Acquisition systems, Electronics Integration, Powertrain Currently Resides in: NC First Car: '03 Honda Civic Favorite Race Car: Budweiser Rocket Car. First car to go supersonic… way back in 1979! Design Judge since: 2014

James Whisler: Alma Mater: Iowa State University: Mechanical Engineering. Employment History: MoTec Systems East: Applications Engineer; Engine Systems Lead, FSAE. Expertise: Motorsports industry, powertrains, electronics integration, data acquisition systems. Currently Resides In: NC First car: '76 Datsun 280Z Favorite Race Car: Mazda 787B Design Judge since: 2013

Craig Wood: Alma Mater: University of New Brunswick, BS in Mechanical Engineering, University of Windsor, MS in Mechanical Engineering. Employment History: '05+: Roush Industries; FSAE Volunteer since 2005. Expertise: Powertrain design and development, combustion analysis, engine controls and calibration, kinematics and dynamics modelling. Currently Resides in: ON, Canada First Car: '69 Camaro RS/SS. Favorite Race Car: Ford GT40 Mk II. Design Judge Since: 2015

DESIGN JUDGE BIO CONTINUED

Dwight Woodbridge: Alma Mater: Rensellear Polytechnic Institute, University of Illinois: MS Engineering Science (Engineering Management), BS General Engineering (Automotive Engineering/Design). Employment History: General Motors – '85 to present, 17 years with GM Racing. Expertise: Program Management, vehicle test and development, aerodynamics. Currently resides in: MI First car: Triumph TR-4. Favorite racecar: Dakar Hummer H3. '10 GS Camaro. '96 Aurora GTS. Design Judge since: 2000

David Zdancewicz: Alma Mater: Pennsylvania State University: BS in Mechanical Engineering. Employment History: ' 12 – present: Space Exploration Technologies, Structures Engineer Expertise: Composites Design, Structural Analysis, Powertrain Design and Development. Currently Resides in: CA First car: '91 Camaro Z28. Favorite Race Car: Ford GT40 Mk I Design Judge since: 2014

Kevin Zielezinski: Alma Mater: Northern Illinois University: BS in Mechanical Engineering. Employment History: '13+: Auto Truck Group: Engineer, Body and Rail Gear; '10 – present: Lorz Motorsports: Team Engineer and Driver; '10 – '13: Northern Illinois University FSAE Co-Team Captain, Suspension Team Captain, and Driver. Expertise: Suspension design, simulation tuning. Currently Resides in: IL First car: '98 Ford Contour SVT Favorite Race Car: Oreca Viper GTS-R. Judge since: 2015

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