



SAE Milwaukee Newsletter

November 2012

www.milwaukeeesae.com

UPCOMING EVENTS

- Collegiate Student Night
 - November 28
- Engine Concept Presentations
 - February TBD
- Johnson Controls
 - March 14

Collegiate Student Night

**Wednesday November 28,
2012**

MichiganTech



THE UNIVERSITY
of
WISCONSIN
MADISON



*For more details, check out the
upcoming events section or our
website at:*

www.milwaukeeesae.com

Schedule of Events:

Vehicle Display and Registration

Location: TBD (The location will be identified shortly)

Time: 5:00pm - 6:30pm

Student design competition vehicles will be on display and student representatives will be present to interact with guests. This is an opportunity for each chapter to showcase the efforts of their chapter throughout the past year.

Dinner and Presentations

Todd Wehr Auditorium (See "W" in map below)

Time: 6:30pm - 9:00pm

A catered meal will be served to begin, followed by an introductory address from two speakers. These will be a precursor to the evening's central focus, which are the student presentations from each chapter in the region.

Guest Speakers:

Dr. Fredrick Berry, MSOE Vice President of Academics

Dr. Berry will provide a brief introduction to the evening's presentation. He will also discuss the current state of affairs at Milwaukee School of Engineering, including two construction projects which are underway: the new Athletic Field and Parking Complex and the new School of Nursing.

Dr. Christopher Damm, MSOE SAE Advisor, Mechanical Engineering Professor

Dr. Damm will comment briefly on the state of MSOE's SAE chapter and provide an introduction to the student presentations.

--- EVENT AGENDA ---

Registration: 5:00 pm

Dinner: 6:30 pm

Presentation: 7:00 – 8:30 pm

Meal: Pasta Buffet with Sides and Beverage

--- DINNER ---

DINNER PRICES

SAE Members/Spouses \$15.00

Retirees \$15.00

Guests/Non-members \$20.00

Students \$10.00

REGISTRATION

Registration:

Only pre-payments made with a charge card can be completed online via <http://www.milwaukeeesae.com>

Registration Deadline: Friday November 23, 2012 at 5:00 pm

Maximum Attendance for this event is 180

Registration can be completed online via <http://milwaukee.sae.org> Or by phone at 414-587-8855 (Josh Rayeske)

Meeting Location: Milwaukee School of Engineering

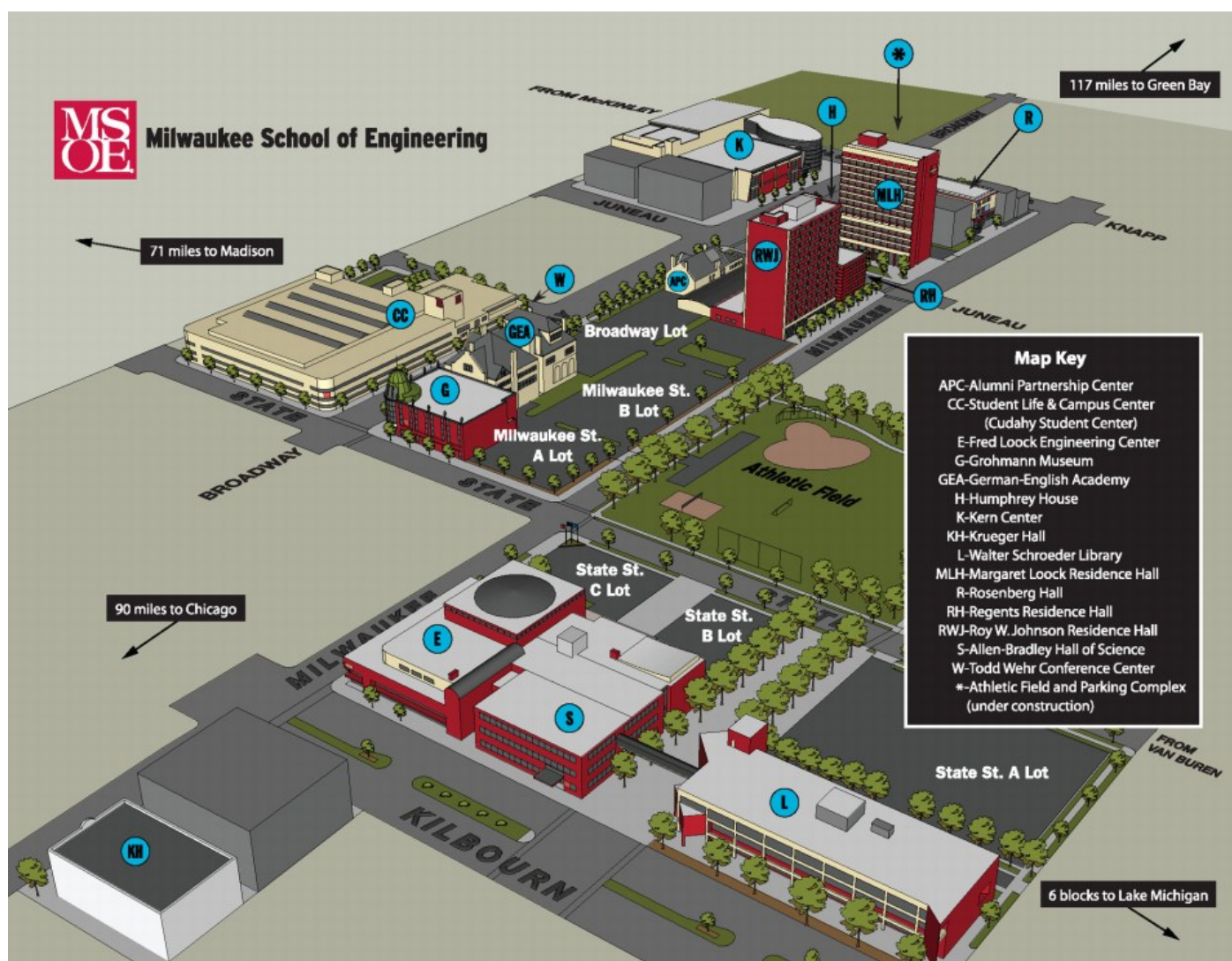
Directions: Parking will be provided; permits will be issued upon registration.

From the West:

Take I-94 east to downtown Milwaukee
Take I-794; exit Jackson/Van Buren (exit # 1E).
Proceed north on Van Buren Street seven blocks to State Street; turn left.
Follow State Street to the MSOE Campus.
Turn right onto Milwaukee St.
Turn left into MSOE Milwaukee Street B-Lot.

From The North:

Take I-43 south to downtown Milwaukee.
Take Highway 145 east/McKinley Avenue exit (exit # 73A).
Turn left (east) on McKinley; proceed for about six blocks.
Turn right on Broadway, continue for 2 blocks
Turn left into the MSOE Milwaukee B-Lot.



Upcoming Meetings and Events.....

- **November Section Meeting - Collegiate Student Night** **November 28**
 - SAE Collegiate Design Projects will be on display and presentations given from local universities that our section serves.
- **No Section Events are planned for December and January - Happy Holidays!!**
- **February Section Meeting - Engine Concept Presentations** **Date TBD**
- **March Section Meeting - Johnson Controls** **March 14**
 - Keynote address: David Howell—United States Department of Energy

Reliability Engineering Special Interest Group

Highly Accelerated Life Testing (HALT)

Presentation by Leonard Bityou
Laboratory Manager, Trace Laboratories Inc



Wednesday, December 5th - 5:30 pm.

Hosted at:



Advanced registration is required. Beverages and snacks will be served – no charge. To register for this meeting call Dave Boyles at 262-636-5804 or Jim Hollern at 414-465-6387. Space is limited to **75** attendees. **The deadline for registration is December 3, 2012 at 5:00pm.**

Agenda:

Meet and greet	5:30 - 6:00 pm.
Virtual Tour	6:00 - 6:30 p.m.
HALT Presentation	6:30 - 7:15 p.m.

HALT - Highly Accelerated Life Test

Over the last few decades, a shift in industrial trends has fashioned an ever-increasing global competition. Consumers' today demand quality products, while manufacturers endeavor to conquer every challenge. Cheaper products, though conveniently available, do not have a durable life. Consumers today are far more conscious of quality and reliability as opposed to their awareness in the past. Such a progressive trend has placed significant emphasis on quality products which are reliable and tend to withstand both; the test of time and consumer expectations.

HALT is a widely recognized test employed by engineers. It is used to expose design defects and constraints in a product by accelerating stress levels. HALT, primarily uses a combination of thermal and vibratory step stresses to expose any latent weaknesses in a product. These primary environmental stresses may further be supplemented with additional stresses such as voltage and frequency. HALT stresses a product well beyond its design specifications up to the destructive levels of the product or the fundamental limit of technology and is a tool used to optimize product quality reliability ⁽¹⁾.

This seminar aims to provide an insight into the world of HALT testing and address the following

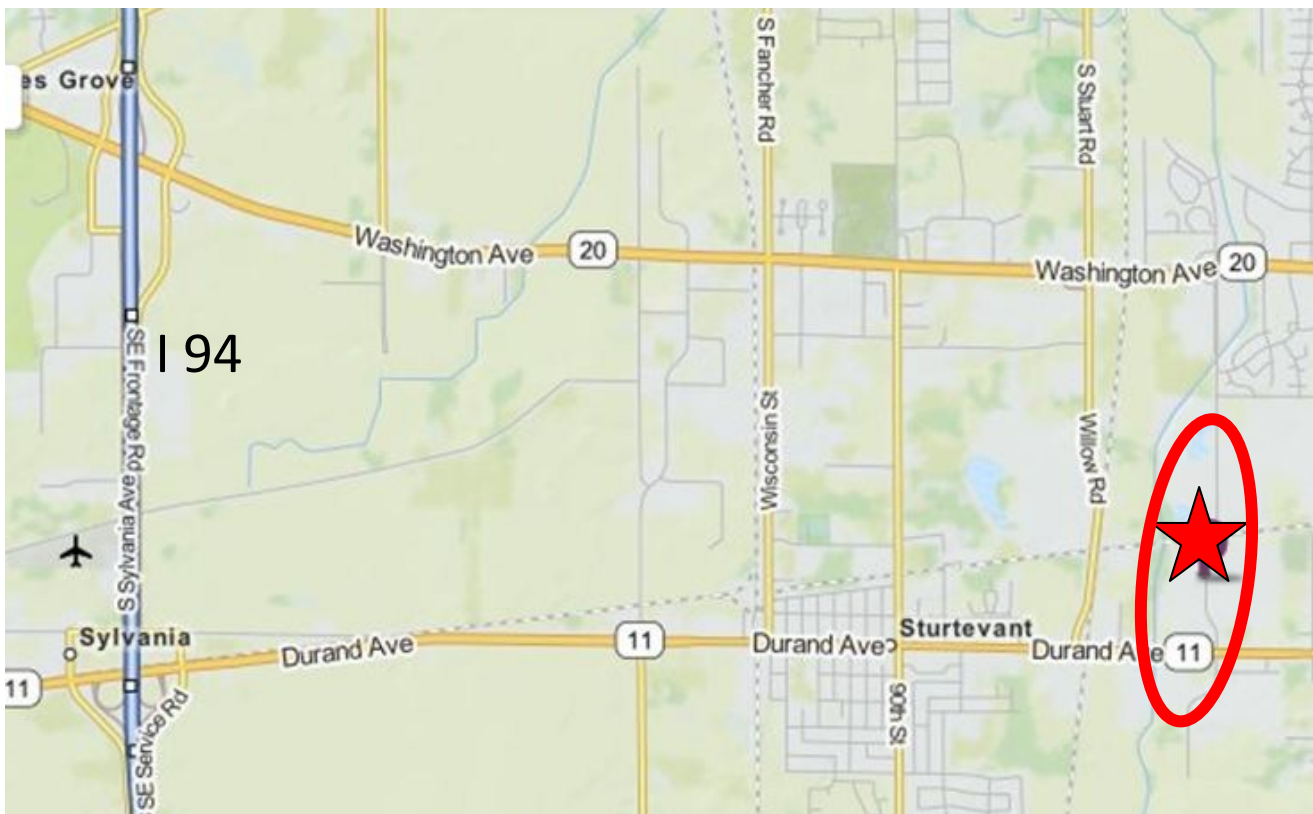
- Background
 - HALT Theory
 - What is HALT?
- Components of HALT
 - Operating and Destructive Limits
 - HALT Stress Profile & Parameters
 - Cold Stress Test
 - Hot Stress Test
 - Rapid Thermal Cycling
 - Vibration Stress Test
 - Combined Step Stress Test
- Advantages and Disadvantages of HALT
- Typical failures observed during HALT
 - Thermal failures
 - Failures due to vibration
- HALT and Reliability
 - S-N Curve
 - Bathtub Curve
- Conclusion and Q&A

Case New Holland Training Center 2601 Oakes Road, Sturtevant, WI



Directions:

From I-94, exit Hwy 11 (exit 335) in Racine. Head east on Hwy 11 and turn left on Oakes Road. The Training Center will be on your right. Please use the right lane to enter the facility. You must stop and sign in by the guard and verify your pre-registration.



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Check out www.sae.org or the Milwaukee section page at www.milwaukeeesae.com

Get involved with activities such as:

- **Baja SAE**

Baja SAE consists of three regional competitions that simulate real-world engineering design projects and their related challenges. Engineering students are tasked to design and build an off-road vehicle that will survive the severe punishment of rough terrain and sometimes even water.

- **SAE Clean Snowmobile**

The SAE International Clean Snowmobile Challenge (CSC) is an engineering design competition for college and university student members that challenge engineering students to reengineer an existing snowmobile to reduce emissions and noise. Their modified snowmobiles will compete in a variety of events including emissions, noise, fuel economy/endurance, acceleration, handling, static display, cold start and design.

- **SAE Supermileage®**

The Supermileage® competition provides engineering and technology students with a challenging design project that involves the development and construction of a single-person, fuel-efficient vehicle. Vehicles are powered by a small four-cycle engine. The vehicles will run a specified course with the vehicle obtaining the highest combined kilometers per liter (miles per gallon) rating plus design segment points winning the event. Students have the opportunity to set a world fuel economy record and increase public awareness of fuel economy. Engines are donated by Briggs & Stratton.

- **A World in Motion® (AWIM)**

SAE International's A World In Motion® (AWIM) program is a teacher-administered, industry volunteer-assisted program that brings science, technology, engineering and math (STEM) education to life in the classroom for students in Kindergarten through Grade 12. Benchmarked to the national standards, the AWIM program incorporates the laws of physics, motion, flight and electronics into age-appropriate hands on activities that reinforce classroom STEM curriculum.

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