

# SAE MILWAUKEE

An SAE International Section

## Upcoming Events

**Clean Snow Challenge 2023**  
Eagle River, WI  
February 7<sup>th</sup> – 9<sup>th</sup> 2023

**Battery Abuse Testing**  
Presentation  
Waukesha WI  
February 22<sup>nd</sup> 2023

**Spring Meeting TBD**

**Save the Date**  
Baja SAE Oshkosh  
Oshkosh WI  
May 4<sup>th</sup> – 7<sup>th</sup> 2023

## Past Events

January Social  
Great Time at  
The Museum for  
the 16 who attended,

Hayes Performance  
Products stepped up as the  
Sponsor,

**Thanks Peter.**

## January 2023 Newsletter

February Event:

**Battery Abuse Testing**  
**Hosted**  
**by**

**GENERAC®**

**February 22<sup>nd</sup>, 2023**

**5:00pm**

Location

GENERAC Power Systems, Inc.  
S45W29290 WI-59  
Waukesha, WI 53189  
Kern Auditorium

# About the Event

## Event Agenda

Registration .....	5:00-5:30pm
Networking .....	5:00-6:00pm
Dinner .....	6:00-6:45pm
Presentations.....	7:00-8:00pm

## Registration Fees

SAE Members .....	\$30.00
Retirees.....	\$25.00
Guests/Non-members .....	\$40.00
Students.....	\$10.00

## Registration

**Registration Deadline:** February 17<sup>th</sup>

**Maximum Attendance:** 100 attendees

### **Ways to Register:**

- Online with a charge card via
- [SAE Milwaukee website](https://sae-milwaukee-section.square.site/) or <https://sae-milwaukee-section.square.site/>
- By phone: Garrett Herning –856-313-0581
- By email: Garrett Herning –[sae@c2cintegration.com](mailto:sae@c2cintegration.com)

## About GENERAC:



### **THE #1 NAME IN HOME BACKUP GENERATORS**

*Generac Power Systems, Inc. (NYSE: GNRC) is a leading energy technology company that provides advanced power grid software solutions, backup and prime power systems for home and industrial applications, solar + battery storage solutions, virtual power plant platforms and engine- and battery-powered tools and equipment. Founded in 1959, Generac introduced the first affordable backup generator and later created the category of automatic home standby generator - a market in which nearly eight of ten generators sold is a Generac. The company is committed to sustainable, cleaner energy products poised to revolutionize the 21st century electrical grid.*



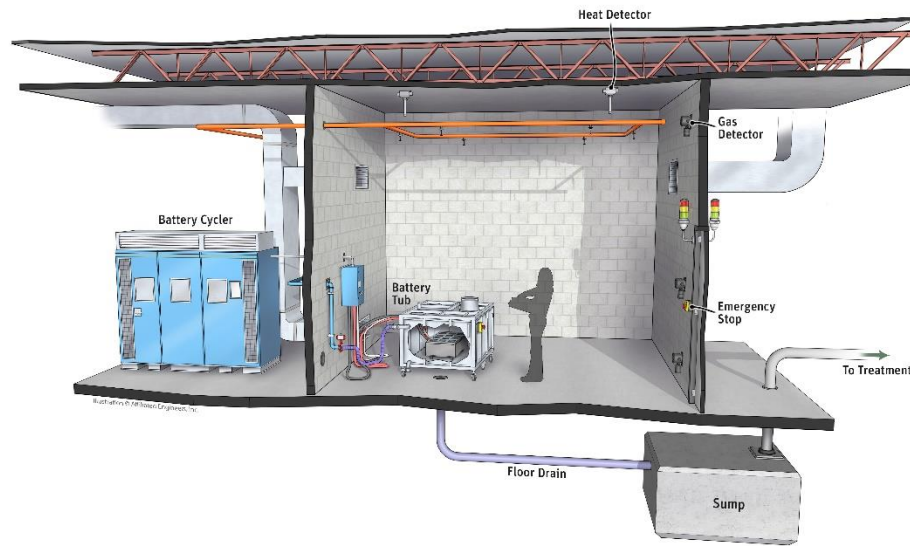
<https://www.generac.com/>

## Presentation:

- Lithium Ion Batteries (LIB) are quickly becoming the new source of energy for on-road and off-road vehicles. As LIB energy densities increase, so too do the level of hazards, such as in the form of heat and gas. Regulating agencies are becoming aware of these hazards and are reacting by creating protocols to test the safety integrity of LIB packs.

Companies who've tested liquid and gaseous vehicles within their facilities have a deep understanding of the risks associated with those types of energy sources within their building. Now, however, many are questioning the similarities and differences between testing with traditional fuels and testing with LIB packs. We will compare the differences between designing a traditional fuel source test cell and the design of a test cell that contains a LIB. We will discuss abuse bunkers and what cautions to be aware of when designing a LIB abuse bunker. We will share heat and gas release data used to determine the air exchange rate in a LIB test cell and abuse bunker, and touch upon the emissions mitigation techniques, such as a scrubber or RTO system, used to manage the gas and particles expelled during a LIB thermal runaway event. We will discuss the defense-in-depth strategy used to protect a LIB testing facility and its personnel, including blast panel area, gas/heat detection, air exchange rates, electrical classification and the abundance of water, to name a few. Finally, how we consider prevention, detection, and reaction techniques to ensure a safe and effective testing environment.

This presentation is unique in that we will share heat and gas related information that is difficult to acquire given the emerging nature of LIB abuse testing. We will reference many white papers and national lab studies used in our calculations, information that was used to extrapolate pack level data from single cell data.



## Guest Speakers:

Jeremy Lang, Project Manager and Jacob Weber, Mechanical Engineer (PE) from Affiliated Engineers, Inc.

Jeremy has spent the past 20 years in the engine and vehicle testing market. Starting in controls and automation, Jeremy traveled globally installing, programming and commissioning test cells, and more recently, leading the design of those facilities. Now, following the market trend to full electrification, Jeremy is applying the facility design practices learned in engine and vehicle test cells containing hazardous fuels to the lithium ion battery testing market, with some caveats.

## Parking Map:





# SAE INTERNATIONAL CLEAN SNOW CHALLENGE



Location: 1311 N. Railroad Street, Eagle River, WI 54521

- Outdoors
- Be sure to be prepared properly for all required technical inspections cited in the 2023 rules and resources. Conforming to these not only allows participation in events, but preserves the safety of the competition

Duration: 3 days

On Site: FEB 7 AT 8 AM – FEB 9 AT 5 PM

<https://www.facebook.com/MilwaukeeSAE>

<https://www.facebook.com/events/1173295983574611?ref=newsfeed>

This year the 2023 SAE CSC will operate the competition using a hybrid virtual and on-site series of events. This hybrid model will split the technical presentations into a separate virtual series prior to the primary onsite technical the onsite portion that we are happy to announce will be hosted again at the World Championship Derby Complex in Eagle River, WI.

Below are key dates for student teams participating

1/23/2023: Engineering Design Paper Deadline

2/2/2023: Virtual Engineering Technical Presentations

2/2/2023: Virtual Value Benefit Analysis and Sales Presentations

2/7/2023 - 2/9/2023: On-site Competition (schedule of events in discussion)

With 17 teams registered this year is looking to be another great year at the new location in Eagle River.

Event by [SAE Clean Snowmobile Challenge](#)

[World Championship Snowmobile Derby](#)