American Welding Society®
DETROIT SECTION

e-Bulletin

JANUARY 2025

Inside This Issue

Check out the latest videos published by the American Welding Society on its YouTube page.

AWS Technical Nights are open to everyone! We encourage that members bring students and non-members to learn more about our organization and industry.

Affiliated With
ESD
THE ENGINEERING SOCIETY

AWS-Detroit Technical Meeting

Thursday, Jan. 9, 2025

centerline®

"Digital Transformation & Industry 4.0 Solutions for Welding"

Presented by Andy Ritchie from Centerline

Wayne State University
College of Engineering Auditorium
5050 Anthony Wayne Dr, Detroit, MI 48202
5:30-8:00pm

Please join us for the January technical meeting at Wayne State University hosted by the Wayne State Student Chapter and featuring a presentation on the digital transformation and Industry 4.0 Solutions for welding presented by Andy Ritchie from Centerline.

Explore the evolution of manufacturing from past to future with Industry 4.0, focusing on the purpose and value of data collection and digital transformation. Learn about CenterLine's innovative solutions in leveraging big data and analytics to overcome challenges and drive efficiency. Understand how these advancements create value for our customers by addressing platform versus solution challenges and supporting Manufacturing Execution Systems (MES) with actionable insights.

To RSVP, please **CLICK HERE** .

(Click Map for directions)

WAYNE STATE UNIVERSITY

Chairman's Message
Russ Webster

Hello AWS – Detroit Members and Friends.

Welcome back from the holidays! I hope everyone had time to relax and enjoy the season with family and friends and everyone is recharged and ready to dive into 2025! First order of business, I would like to thank Erin and the team for a fantastic holiday party. It was a fun, casual event that was perfect for relaxing and spending some time with colleagues in the welding industry.

The first event of the new calendar year will be a technical night held on January 9th, at Wayne State University. The topic will be "Digital Transformation and Industry 4.0 Solutions for Welding" presented by Centerline.

The 2025 calendar year is packed with many educational events and networking opportunities. A monthly technical meeting will be held. Also, there are three fundraisers scheduled for this year. We will once again be hosting our annual golf outing and ladies' night fundraisers. A new fundraiser this year for the Detroit section will be a sporting clay event. These are all great events to help pursue the advancement of the science, the technical knowledge, and the application of welding and related processes. Stay tuned to the e-Bulletin for information on the upcoming tech nights and fundraising events.

Thank you in advance for all the support you continue to give to AWS Detroit.

Patrons 2024-25

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CenterLine (Windsor) Ltd.
Changer & Dresser Corp.
Don Decorte - DTS Technical Services
Elizabeth Lekarczyk
Forrest Lissner
Fronius USA, LLC
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Jack and Sons Welding and Fabricating
LeTourneau University Welding Engineering Alumni
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Obara Corp. USA
Ram Solutions, Inc.
RoMan Manufacturing
SDK Engineering
Stephen Gucciardo
The Ohio State University Welding Engineering Alumni
United Technical Inc.
Employees of United Technical, Inc.
United Technical Solutions
Vector NDT
Welform Electrodes, Inc.
WSI, Weld Systems Integrators, Inc.

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eBulletin Contributors

(Emails linked where available.)

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George Meeker

Our Mission ***is to advance the science, technology and application of welding and allied joining and cutting processes worldwide, including brazing, soldering and thermal spraying. AWS Detroit provides support for the industry in many ways, including:***

- ***Institutional Grants (endowment based);***
- ***Scholarships through Application (endowment based);***
- ***Scholarships through aptitude (HSWC);***
- ***Vocational Support (case by case but budgeted each year), Institution (e.g. supply gas and materials), Local Contest (e.g. travel expense), International Contest (e.g. travel expense);***
- ***Student Memberships (evaluated each year);***
- ***Student Chapter (evaluated each year);***
- ***Technical and Educational Opportunities.***

Ted Coon Receives AWS Honors

On November 21 Ted Coon (Ford Motor Co) received a coveted AWS District Meritorious Certificate Award for 20+ years of service and leadership with the AWS D8 Committee. This important committee produces welding standards applicable to the automotive industry. Ted's noteworthy contribution was leading the creation of three first-edition standards, (RSW of Steel, RSW of Aluminum, and LBW of Steel). Thank you Ted!

Presenting the Award were (from left) Wes Doneth District 11 Director, Phillip Temple Past Director, Ted Coon, spouse Sherrie Coon, Michael Karagoulis Detroit Section Awards Chair.

AWS District 11 Meritorious Certificate Award, Nov 21, 2024

Ted Coon has demonstrated wise counsel, loyalty, and devotion to the affairs of AWS over many years, and his list of accomplishments is long and distinguished. We couldn't possibly list everything this impressive man has accomplished but let's just look at what he did with the AWS D8 Committee, a standards committee which pertains to all aspects of Automotive Welding. Keep in mind that AWS standards are industry-wide and global in nature. So here goes:

1) Ted Coon is a proud graduate of the welding engineering program at OSU. And he is presently the Joining Engineering Group Supervisor at Ford Motor Company.
2) He served on the AWS D8 committee for 20 years and has been its overall chairman for at least three of those years.
3) To say Ted is involved in automotive welding standards is an understatement. Let me explain - Updating existing AWS standards is a lot of work. And Ted led efforts to update ***four*** standards (Two for resistance welding and two for arc welding).
4) Now, creating a brand new AWS standard is even more difficult than updating an existing one. But new standards are necessary to keep industry up to date when it comes to new materials and new welding technologies. Ted's contributions are unique among his peers because he shepherded ***three*** new standards through the entire process:
   a. Resistance Spot Welding of Steel 1st Edition 2007
   b. Resistance Spot Welding of Aluminum 1st Edition 2017
   c. Laser Beam Welding of Steel 1st Edition 2021

AWS is indeed fortunate to have someone of Ted's dedication, qualification and integrity leading in the all important area of Automotive Welding Standards.

Kudos to you Ted Coon for your loyalty, devotion to the affairs of the society, effective service in the advancement of welding, and for extremely generous contributions of time and effort on behalf of the society. We salute you, Ted!

MICHAEL KARAGOULIS – AWS DETROIT AWARDS CHAIR

Ask the Welding Engineer

By Donald F. Maatz, Jr.

Q: ***"What options exist for evaluating the quality of a weld nut, other than push-off, and how viable are they?"***

A: "Our previous columns (ATWE Oct-24 thru Dec-24) started a look at projection welding (PW). As stated in these earlier columns, while the initial question related to the important topic of PW quality, it will take us some time to get there as, from my perspective, we need to establish a few important things about the PW process. Now that we have touched on a few of the challenges (think varied coatings, material gauges, substrate strengths, and weld nut designs to name a few) it is time see how the industry is addressing the actual welding of the fasteners. And to do that, we need to talk about the unique nature of a PW weld schedule, and the equipment needed to make it happen.

The resistance welding of forged or coined projection weld fasteners (fastener in this context indicates all manner of solid, formed projection weld parts, including weld studs, weld nuts, etc.) is similar to the resistance spot welding of sheetmetal in that it is a process utilizing the heat generated by the passage of current through predetermined points to join metallic parts.

In the case of spot welding those predetermined points are determined by the electrode's contact area with the sheetmetal (ref. ATWE Jan-19, Mar-19 & May-19). While projection welding utilizes large contact area electrodes to transfer the force and current of welding to the fastener being welded, the predetermined points are the actual projections created during the forming process. These projections allow for the local heating required to bring the material at the faying surface to a molten, or near-molten, condition. While still constrained by the electrodes that are providing the necessary forging pressure the flow of current is stopped, thus permitting the parts to cool and thereby forming either a weld nugget, or more commonly, a solid-state bond between the weld nut and the base material.

The resistance spot welding of sheetmetal is a very mature process with a great deal of research and associated history. The end result of much of this research was the creation of established, well-documented welding schedules for various sheetmetal and electrode configurations; schedules that have been proven over time. These spot-welding schedules are beneficial in obtaining a consistent quality weld but also have other uses. Primary among them is use as an aid in designing new resistance spot welding tooling.

The proper design of resistance welding tooling relies on knowing the welding schedules that will be used to produce the welds on that particular tool. This critical knowledge permits the tooling designer to provide correctly sized welding components. A partial list of these welding components includes: transformers, weld controls, cylinders, and primary and secondary current conductors. In short, just about everything associated with the process.

If these components are sized too small, equipment may fail in a premature manner and/or, in a worst-case scenario, a proper weld may never be achieved. Conversely, if the components are sized too large, the tool may become larger and more expensive than required for the intended job. If the transformer is oversized, current adjustment may become difficult due to the standard AC weld control's limited ability to accurately manage current levels at the low end of its operating range. This issue is mostly mitigated by the utilization of MFDC as it has a MUCH wider available current latitude.*/**

The resistance welding community, which thrives on the standardization provided by the spot-welding schedules at its disposal, is currently lacking a robust set of weld schedule guidelines for the resistance welding of forged or coined projection weld fasteners. As noted above, our earlier ATWE columns have addressed some of the reasons why this issue exists.

All that being said, the projection welding of forged or coined fasteners can be a very robust and capable process, if the basic rules are known and followed. As we further discuss the weld schedules needed to make a successful PW, we will look at some of the methodologies employed by the welding community as they attempt to make lemonade from potential lemons. I very much welcome any additional thoughts and ideas on this important topic."

*Very early in my professional career I found myself the plant welding engineer at Ford's Ohio Assembly Plant building the E-series Econoline van. The early 90's bodyshop tooling reflected the thinking of the day (can us say ignitron tubes?) and utilized 20 different AC welding transformers to accomplish the task (feel free to ask me how I still know this exact number). My guess is today we could easily get away with just two (2) styles of MFDC power supplies. We have come a long way...

**I have utilized some MFDC equipped welders capable of any current between 3000 and 60,000 amps, with no need to change anything but the value programed into the control. And they can do this all day, every day. I am not aware of any AC system that can touch that level of flexibility. Again, we have come a long way...

If you have more questions about this topic, contact:

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Donald F. Maatz, Jr. is with R&E Automated Systems. He is past-chairman of the AWS-Detroit Section, serves on the D8 and D8.9 Automotive Welding Committees, is chair of the D8D, and an advisor to the C1 Resistance Welding Committee, is an AWS endorsed CWI and an instructor for the RWMA School. He is a graduate of Ohio State with a BS in Welding Engineering.

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Application Postmark Deadline: April 1, 2025

WELDING SCHOLARSHIPS

for POST SECONDARY TRAINING, ASSOCIATE OR BACHELOR DEGREE in WELDING ENGINEERING, WELDING ENGINEERING TECHNOLOGY or RELATED FIELDS with WELDING CONTENT

- For students pursuing Post-secondary training or an Associate/Bachelor Degree in Welding Engineering, Welding Engineering Technology or Related Fields with welding content. These scholarships provide money to be used for the student's tuition, books, or lab fees for one year. To be eligible for these scholarships, you **MUST BE ENROLLED** in a certification-based program or two (2) or four (4) year engineering degree program in Welding, Welding Technology, or a related field. The program supports students who either live in, or are attending schools in the state of Michigan and the following counties in the province of Ontario; Essex, Chatham-Kent, and Sarnia-Lambton.
- An on-line application form (with supplemental instructions) is now available on the AWS Detroit Section website, under the 'Scholarships' tab. CLICK HERE
- Applications open December 1st, 2024. The deadline for completing the application process for the 2025-26 academic year is April 1, 2025.*
- **For 2024/25 the Detroit Section was able to award 37 scholarships totaling $64,000 to students from 7 different schools.**

**Please reach out directly if you have a paper application to send in (dmaatz@reautomated.com)*

SCHOLARSHIP PROGRAM – RULES and APPLICATION INSTRUCTIONS

2025-2026 School Year

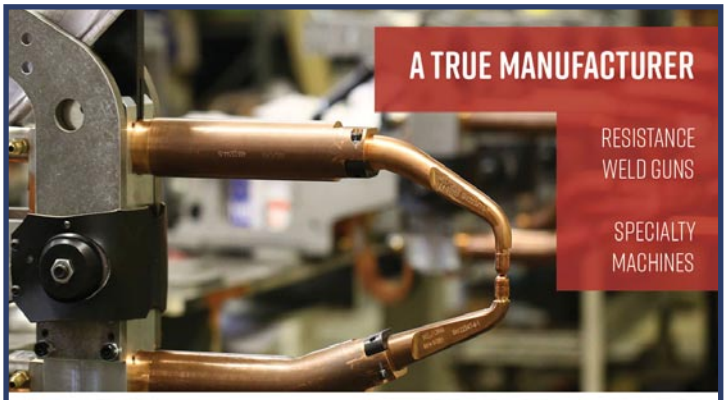
Completion of this application automatically considers the student for the "Amos and Marilyn Winsand Scholarship," the "Robert P and Mardell D Wilcox Vocational and Engineering Scholarships" and the "Blazok Foundation Scholarship." These are AWS Foundation endowed scholarships.

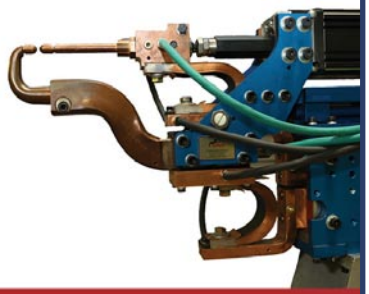
RULES:

1. Applicant must be enrolled in a Welding Engineering Program, a Welding Engineering Technology Program, a Post-Secondary Technical Program (Welding Certification targeted program), or a related field of study with a strong welding content.
2. Students are eligible to apply for Detroit Section scholarships if they are permanent residents of the state of Michigan or the following Ontario counties: Essex, Chatham-Kent, and Sarnia-Lambton. Students who are temporary residents attending school in the state of Michigan or the following Ontario counties: Essex, Chatham-Kent, and Sarnia Lambton are eligible for non-named scholarships. Preference will be given to students who are permanent residents of the Detroit Section territory, including Ontario counties: Essex, Chatham-Kent, and Sarnia-Lambton.
3. The Detroit Section Scholarship Committee administrates the AWS Detroit Section Scholarship program, with the assistance of the AWS Foundation. The Committee also selects the recipients of the Foundation scholarships.
4. AWS Detroit Section Scholarships are paid in varying amounts based on individual awards. If an applicant is awarded a scholarship, the payments are made directly to their qualifying educational institution through the AWS Foundation.

APPLICATION INSTRUCTIONS:

- The information requested on the application form is self-explanatory. Please fill out the form completely.
- The AWS Foundation inter-active application is available either at **www.awssection.com/detroit** under the Scholarships tab or by going directly to the AWS Foundation scholarship page **CLICK HERE**.
- For additional information about the scholarship program **CLICK HERE**.
- AWS membership is encouraged of all welding aspirants.
- In addition to the application form, you must enclose or attach the following:
  a) **Transcript(s)**: Official scholastic records or grade transcripts from the high school, college or university you attended during the recent school year.
  b) **Personal Statement and Work Experience**: Ambitions, goals, background, and other factors that will help the selection committee understand your commitment to pursuing a welding career.





November Tech Meeting

AWS Detrot Section Presents:

SPORTING CLAYS FUNDRAISER

Friday June 13th @ 10 am

Huron Pointe Sportsmen Association, Lenox MI

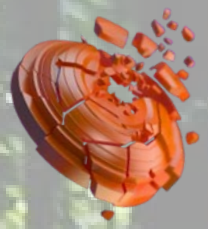
$250 per person Includes:

50 rounds of sporting clays,
25 rounds of 5 stand,
12 ga ammunition, heavy BBQ lunch,
2 drink tickets (cash bar after),
commemorative patch and sticker.
Shooting done in teams of four.

Beginners are welcome!

- *20" minimum barrel length*
- *Prizes for top shooters/teams*

Mulligans and additional shooting available for purchase.



RSVP: awsclays@gmail.com

Opportunities for Corporate Sponsorship available!

All proceeds go to AWS Detroit Scholarship Fund