



American Welding Society®
DETROIT SECTION



September 2016

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

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Tech Meeting: Student Night/Scholarship Award Night
Thursday, September 8, 2016

“Heat Straightening and Weld Repairs”
Oakland Community College – Auburn Hills
ABC Building – Room G240

Enter at South Doors at South-West corner of the ABC Buildings

<https://goo.gl/maps/BejWi8ZmTQR2>

Heat Straightening and Weld Repairs

David L. McQuaid

The AASHTO/AWS D1.5 – 2015 Bridge Welding Code defines repair welding as any welding, including removal of weld or base metal in preparation for welding, necessary to correct unacceptable discontinuities in materials or workmanship.

My experiences with fabrication, construction, heat straightening and welding of steel structures has presented some unique and challenging weld repair experiences. These experiences have included making weld repairs of many structures under the adverse conditions that can exist in the field whether it be the repairing of electroslag welds in tension members, the repair of a 50,000 ton press girder which had a major fatigue crack or the repair of an erected 1,200 foot radio tower during the winter months or heat straightening a damaged bridge girder. *(continued on page __)*

AGENDA

- 5:30 - 6:00pm** Welcome Reception & Networking
- 6:00 - 7:00pm** Dinner
- 7:00 - 9:00pm** Awarding of Scholarships
- 9:00pm** Adjourn

Speaker:

AWS President,
David L. McQuaid, P.E.
(see bio)

RSVP: Mark Gugel (810) 602-9735 or email @ mark.gugel@gm.com

Cost: \$20.00 for dinner. Free for college staff, award recipients and their parents, spouse or fiancé, or a friend.

Event: AWS President, David L. McQuaid, P.E. will present the talk, “Heat Straightening and Weld Repairs. He will then present the award certificate to all the scholarship award recipients. The AWS Detroit section promotes the welding industry by investing in students who are attending in various universities, community colleges, and trade schools. This year AWS Detroit section was able to award scholarships over \$40,000.00 to help students succeed and promoting tomorrow’s welding industry. Student night is a celebration night honoring students, parents and teachers and we are very proud of them.

It will be a great event and we are expecting a sold out crowd. So please **RSVP** as soon as possible.

September 2016

This Issue of the Bulletin
can be viewed on the web at
awsdetroit.org



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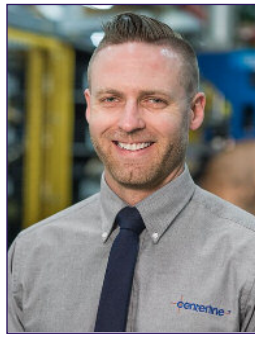
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Chairman's Message

Welcome back! I trust that everyone had a safe and enjoyable summer. September brings a new year filled with opportunities and the start of my term as your new AWS Detroit Section Chairman. I wish to thank all of the previous Section Chairs, the Executive Committee and all of the membership that participate and contribute to our section events and activities. Without everyone's support, we would not have a section that has consistently given so much back to the welding community and I would not have been afforded this exciting leadership opportunity.

I am pleased to start the year by welcoming five new members to the Executive Committee roster, all of whom are eager to help guide the section toward another successful year. Donnie Crist of RoMan Manufacturing, Mark Harris of Lear Corporation, Amanda Scherzer of FCA US LLC, Weijie Zhang of Valiant Machine & Tool and John Pippin of Milco Manufacturing have all volunteered to be a part of the team. I look forward to working with them to achieve our well defined mission of advancing the science, technology and application of welding and allied processes.

As usual, the season of technical events kicks off with our annual Student Night. This year's event will be held on **Thursday, September 8, 2016** at a new venue for us, Oakland Community College in Auburn Hills. For 2016/2017, we are providing \$60,000 in scholarships to a group of 37 deserving students. I hope everyone who is currently a member of the Detroit Section takes great pride in such a valued program. Along with AWS National President David McQuaid, we will bring these students together and honor them in person; it should be a great night and I encourage all of you to attend. Being generally unaware of all that the Detroit Section had to offer at the time I was a student, I did not take part in the scholarship program when pursuing my Engineering degree. Now, having been a member of the Executive Committee for the last eight years, I have seen the doors that the scholarship program can open; I certainly encourage everyone to help spread awareness of this program and to thank our many industry sponsors who help fund it.

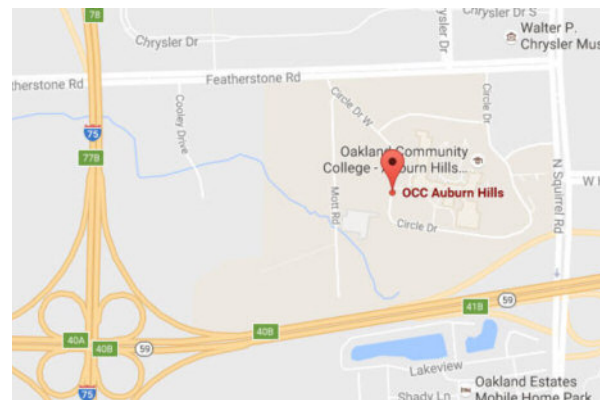
The section cannot exist without its members' support and participation. As a committee, we do our best to continually provide our membership with events and activities that fall in line with our mission. If you have any new ideas, are looking for opportunities to assist, or simply interested in finding out more about what we do, please take the time to visit our website at www.awsdetroit.org and contact any of the Executive Officers listed on the "contact" page. Your input is always welcome.

Thank you for your continued support.

Oakland Community College – Auburn Hills

ABC Building – Room G240

Enter at South Doors at South-West
corner of the ABC Buildings



Congratulations to the Detroit Section 2016 – 2017 Scholarship Winners

This year the AWS Detroit Section has awarded 37 welding scholarships totaling \$60,000. These scholarships are made available to Michigan residents and/or students enrolled in a welding or welding related programs at a college or university in the State of Michigan, and the following counties in the province of Ontario; Essex, Chatham-Kent, and Sarnia-Lambton. The candidates all submitted an application, including transcripts of their academic achievement, a brief letter about their background, their goals and ambitions, and any additional factors that would help the Section Scholarship Committee determine eligibility for an award.

The 37 recipients of the 2016 – 2017 Scholarships will be attending Ferris State University, Lansing Community College, LeTourneau University, Madonna University,

Monroe Community College, Oakland Community College, Schoolcraft Community College, Siena Heights University, Washtenaw Community College and Wayne County Community College District.

The scholarship recipients are all invited to attend our September Technical Meeting as a guest of the Detroit Section so that they may receive recognition of these awards.

The scholarship process for the 2017-2018 school year will begin in January 2017. This is a program of utmost importance to the Detroit Section and feedback and ideas from all concerned is greatly appreciated.

Donald F. Maatz, Jr.
Section Scholarship Chairman

2016 - 2017 American Welding Society-Detroit Section Scholarship Winners

The **Amos and Marilyn Winsand Scholarship**, funded by the AWS Foundation, was awarded to Jacob Hamilton, Ferris State University.

The **Robert L. Wilcox Scholarship** was awarded to Wesley Pringle, Schoolcraft Community College.

The **James W. Mitchell Scholarship** was awarded to Jared La Fortune, Schoolcraft Community College.

Troy Bearden – Ferris State University
Joel Beckham – LeTourneau University
Mark Byer – Oakland Community College
Sherrod Caver – Siena Heights
Jessica Considine – Schoolcraft Community College
Jonathan Crego – Oakland Community College
Camrin Edwards – Wayne County Community College
Timothy Farrell – Washtenaw Community College
Emily Fink – Oakland Community College
Ben Freers – Oakland Community College
Cody Gledhill – Monroe County Community College
Nicholas Horton – Ferris State University
James Jones – Wayne County Community College
Jovan Jones – Washtenaw Community College
Samuel Jones – Monroe Community College
Justin Kennedy – Schoolcraft Community College
Kevin Kupiec – Schoolcraft Community College

Erin Lalinsky – Ferris State University
Alex Larkins – Monroe County Community College
Romille Larkins – Washtenaw Community College
Ty Lattimore – Ferris State University
Garrett Lindgren – Ferris State University
Travis Lindquist – Monroe County Community College
Regenal Mason – Madonna University
Tyler Mills – Schoolcraft Community College
Molly Modes – Schoolcraft Community College
Lindsay Nye – Washtenaw Community College
Triston O'Day – Schoolcraft Community College
Michelle Riley – Schoolcraft Community College
Ian Schwenke – Washtenaw Community College
Christopher Smith – Ferris State University
Shelby Stoll – Oakland Community College
Codylee Turrell – Ferris State University
James Whaley – Lansing Community College



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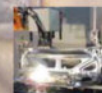
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LIGHTWEIGHT MATERIAL JOINING WORKSHOP

AET Integration, Inc., Troy, Michigan
October 18, 2016



In Cooperation With



September Hotline

AWS Awards

At the May 12 Technical Meeting at Casadei Steel, Tom Sparschu presented AWS Awards to the following deserving members.

- Industry Sponsor Recognition Award: **KUKA Systems North America LLC**, represented by Michael LaRose, Executive Vice President
- Section Appreciation Award: **Jeffrey Hill, ARO Technologies**
- Section Educator Award: **Juan Whiting, Golightly VoTech**

State of Michigan to provide \$22.5 million to Ferris State

July 5, 2016. Governor Rick Snyder signed his approval for the state to provide \$22.5 million toward FSU's future Center for Welding Excellence and Center for Advanced Manufacturing at the school's Swan Technical Arts Building in Big Rapids. FSU will contribute the remaining \$7.5 million.

The project includes the renovation of the 47,086-square-foot building and the addition of 34,462 square feet for a new space to serve the Welding Engineering Technology program, **which will double in size**, and Advanced Manufacturing Technology program.

<http://www.ferris.edu/HTMLS/news/archive/2016/june/swanannex.htm>

<http://www.grbj.com/articles/85639-college-plans-30m-construction-project>

AWS Detroit has a NEW WEBSITE!!!

Check out the fresh and newly designed website for the AWS Detroit Section. We have the same address, www.awsdetroit.org, but we're sporting a whole new look! Comments, suggestions or questions about the new site can be directed to our webmaster, Rod.Bereznicki@kukanao.com, subject line: AWS Detroit Website .

***Make a note that our Facebook page will soon be hosting the photos from all of our events. Look for a notice in our next e-bulletin*

AWS National has a new MEMBER network

We are excited to announce that the AWS Member Network is now live and open to all members! The AWS Member Network provides you with access to networking and educational opportunities, as well as an easy-to-use discussion forum where you can connect, engage and share information and best practices with other AWS members.

The AWS Member Network will be your go-to place to connect with other members, ask advice and share expertise about all things industry related. You can even share large files without cluttering your inbox!

The main discussion group, the AWS Member Forum, is available to all members. Each member already has a customizable profile, so take five minutes and follow the instructions below to start making connections!

GETTING STARTED ON AWS MEMBER NETWORK:

1. **Log in** at membernetwork.aws.org. Your username and password is the same as what you use for the AWS website. If you're not sure what your login information is, click on the 'I forgot my username or password' link and follow the prompts.

**Important: When you log in for the first time, please be sure to read over the E-Group Rules and click on the 'I Accept' box at the bottom of the E-Group Rules & Etiquette page. You will need to accept these rules before continuing to the AWS Member Network.*

2. **Complete Your Profile.** Your colleagues will want to know a little bit about you. You can complete your profile by importing information from LinkedIn or simply enter your information on the profile page.

**Important: Basic contact and employment information is automatically populated onto your AWS Member Network profile from the "My Account" section of the AWS website. Updating your information there will also trigger the update of that info on your AWS Member Network.*

3. **Build Your Contact List.** A great benefit of AWS Member Network is the searchable member directory. Connect with friends, colleagues and fellow members that you met at past AWS events.

4. **Review Your Email Settings.** All members are auto-subscribed to the AWS Member Forum and you will start to receive emails containing new discussion posts as members start participating. To update your email preferences, visit the "Settings" page under the "My Profile" tab in the menu bar. You can choose from the following options:

- **Real Time:** You will receive an email each time a new message is posted
- **Daily Digest:** You will receive one email each day containing all of the previous day's messages
- **No Email:** This means that you won't receive any emails in your inbox. You will need to log in to the AWS Member Network to view and reply to discussion posts

Please make sure that your email address is accurate or you will not be able to receive any discussion posts.

Tip: To make sure that you always receive emails from the AWS Member Network, please be sure to add "DoNotReply@ConnectedCommunity.org" to your email safe list. Instructions for adding emails to your safe list can be found in the User Guide.

5. **Post a Message.** Have a question? Your colleagues can help! Hover over the "Participate" tab on the menu bar and click on "Post a Message."

6. **Share.** Just like the "take a penny, leave a penny" model, if you find something useful on the AWS Member Network, we hope you will share something of your own! To share a document, hover over the "Participate" tab and click on "Share a File."

7. **Need Assistance?** Check out our User Guide to help you navigate this new community or browse the FAQ page. If you need additional guidance, email membersupport@aws.org or call 1-800-443-9353 Ext. 467.

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Passing of the Gavel...

The final executive committee meeting was held on June 18, 2016 at the beautiful Inn at St. Johns, in Plymouth, Michigan.

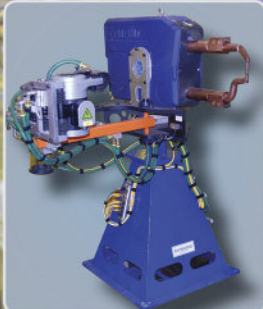
This evening celebrated the passing of the gavel from our 2015/2016 Chair, Wesley Doneth, to our 2016/2017 Chair, Tyler Alexander. Several of our "past chairs" were in attendance, as well as many of our executive committee and their spouses/significant others as we celebrated another successful season within the AWS Detroit Section.



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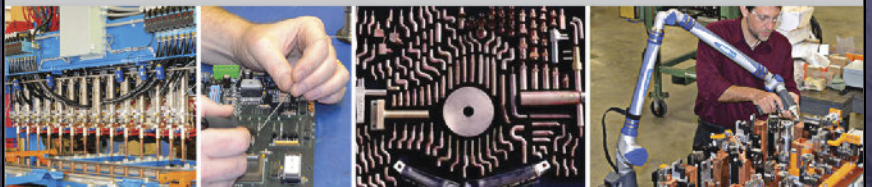


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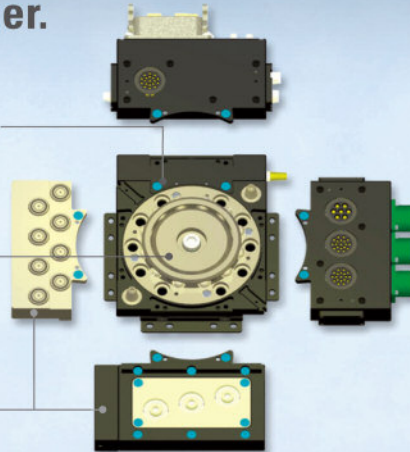
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CWI Seminar/Exam Notice

Written and Submitted by Ryan Kot

Are you a welder? A welding supervisor? A welding engineer? Do you want to make more money, have more opportunity, and set yourself apart from your coworkers? One of the best ways to advance your welding career is by earning a professional certification from the American Welding Society (AWS). AWS offers nine (9) different certification categories, from inspectors, supervisors, and educators to radiographic interpreters, welding engineers, and fabricators. These professional certifications can lead to opportunities for higher pay, leadership roles, and higher-level career challenges. One of the most common and well-known is the Certified Welding Inspector (CWI) certification. The CWI is widely recognized, both nationally and internationally, and successful companies have come to rely on this AWS certification when ensuring the highest level of quality workmanship. Here in Southeast Michigan/Metro Detroit, we at the AWS - Detroit Section host a minimum of two (2) CWI seminars and exams each year. While the spring date has passed, there is still time to register for the fall seminar/exam! The exam is scheduled for Saturday, October 29, 2016, with the CWI seminar scheduled for the week prior, starting on Sunday, October 23, 2016 and ending the day prior to the exam, on Friday, October 28, 2016. All seminar and exam registrations must be submitted and received by the AWS by Monday, September 19, 2016. Although the 2017 seminar/exam schedule has not yet been posted, please check back regularly for updates. We look forward to seeing you there!

Heat Straightening and Weld Repairs

(continued from page 1)

It is the intention of this presentation to show that making a weld repair no matter how complicated or difficult can usually be done with a 100% degree of success. We will dispel the myth that exists which says when you make multiply repairs in the same location the steel will lose its strength and the piece will have to be scrapped or that the weld repair is never as strong as the original base metal. Examples will be presented of repairs that will touch on the problems associated with improper filler metal storage and handling procedures, inadequate preheat and interpass temperature controls, and using the wrong welding techniques when making repairs.

I would like to emphasize that welds can be repaired with confidence in the fabrication shop under favorable conditions and in the field under less favorable conditions. The examples presented will concentrate on field welding problems and their solutions; however, it should be noted that welding to the requirements of the AWS D1 Codes will result in acceptable weld repairs no matter what the situation.

David L. McQuaid, P.E.

- Is a graduate Civil Engineer and Licensed Professional Engineer in multiple states.
- Has been working in the steel welding and construction industry for over 45 years.
- Started the Company DL McQuaid & Associates and is President since 2000.
- Worked as an American Bridge Engineer for over 31 years.
- Is a member of the AWS D1 Main Committee and has been so for over thirty years.
- Chairman of the AWS D1.5 Bridge Welding Code and has been a member of the Committee for over 20 years.
- President of the AWS Board of Directors.
- Has primarily been involved with welding and resolving welding problems since 1970.



Editor's Note:

Hello, and welcome to another exciting season with the AWS Detroit Section!

Autumn is almost upon us, where did our summer go?

Lots of news to report as we return from a nice, warm, Metro Detroit summer.

The section, although technically "on break" for the summer, still holds several events and has several of our sub-committees working on next year's events.

The Sheet Metal Welding Conference is coming up quickly, so if you haven't already, get yourself registered to attend.

I anticipate that you will find this month's e-bulletin informative as well as entertaining.

As always, if you have comments, questions or suggestions for upcoming bulletins, please contact us so we can make our bulletin the one you look forward to seeing in your "in box."

Hope to see some of you out at our technical meetings...but until next month,

KEEP ON WELDING!

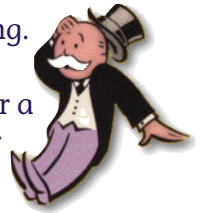
- Robin

Hello! Hello... HELLO?

Submitted by Robin M. Michon (e-bulletin editor)

IS
THERE
ANYBODY
OUT
THERE?

As we start this new season, we found ourselves without a member to interview. Alas, there was no one to keep us mesmerized with their adventures in welding. Oh, despair and sadness! 😞 It's "scramble" time to put something together. Our membership chair, Daniel Galihier (aka - Dan) asked if I would put together a request to encourage some of our Detroit Section Members to participate in our column. *So, here goes nothing...*



Just think, this
could be your
one chance at
"Stardom."

Your headshot might open the doors to a new modeling career touting weld products for the "WELDING JOURNAL" or featured in a movie like "Flash Dance" – yes, I'm grasping at OLD straws here. LOL!

Your "Introduction to the Press." I mean, who wouldn't want the opportunity to be featured in their own article?



In all seriousness, though, your interview could open up possibilities with future employers or employees. Your story might just be the one to encourage that struggling new weld student, or to put some "fire and excitement" back into the workday for the seasoned welder. You know, the guy who could close his eyes and weld the most perfect bead, while on auto-pilot, from his 50 years of experience.

You never know what kind of doors you open when you share your story with someone else!

Now it's your turn... PLEASE (and, I really want to stop begging, and, No, I do not want to grovel!)

PLEASE, take some time to get in touch with Dan Galihier to obtain an interview form. It's not a hard thing to do. You don't even have to answer all the interview questions! Although, a few would be nice – we can't write an article based on one answer, unless it was a really good one!

Dan can be reached by email at galiher.daniel@towerinternational.com

Coming Events

To view more events, please visit the awsdetroit.org website, EVENTS page.

September 2016

SAE Detroit Section 2017 Lincoln Continental Vehicle Event

September 8, 2016; Ford Conference and Event Center, Dearborn, MI

September Technical Meeting - Student Night

September 9, 2016; Oakland Community College - Auburn Hills Campus, Auburn Hills, MI. Mark Gugel to RSVP / more info (810) 602-9735

19th Annual Aluminum Conference

September 20-21, 2016; AWS Headquarters, Miami, FL

October 2016

Manufacturing Day

October 7, 2016; 90 locations throughout Michigan

10th International Conference on Trends in Welding Research

October 11-14, 2016; Tokyo, Japan

International Congress on Application of Lasers & Electro-Optics 2016

October 16-20, 2016; Sheraton, San Diego, CA

Sheet Metal Welding Conference VXII Workshop - Design for Welding of Lightweight Vehicle Structures

October 18, 2016; AET Integration, 1775 Crooks Rd, Troy, MI 48084

Sheet Metal Welding Conference VXII

October 19-20, 2016; Laurel Manor Conference Center - Livonia, MI

Materials Science and Technology 2016

October 23-26, 2016; Salt Lake City, UT

Automotive Testing Expo 2016

October 25-26, 2016; Suburban Collection Showplace, Novi, MI

2016 AWS Detroit Golf Outing

It was a hot one at this year's AWS Detroit Golf Outing at the TPC of Michigan in Dearborn this past July 25th. Thanks to the 128 golfers and 17 sponsors, just over \$6000 was collected for the Detroit's section scholarship and education initiatives. This helps meet our goal to award approximately \$60,000 in education scholarships for the 2016/2017 school year. Many **Thanks** to our Sponsors that help make this happen

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The AWS Golf Committee hopes everyone enjoyed the day as much as we did.

If you have any comments or suggestions regarding the outing or other AWS business, please contact

Andre Young
 586-665-3692

andreyoung@kukarobotics.com.



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Ask the Welding Engineer

By Donald F. Maatz, Jr.

This article is a continuation of the May 2016 'Ask the Welding Engineer.'

Q: ***"We were looking at changing our steel source for several of the parts we produce. However, one of the new materials is not approved by the automotive OEM. What approval process are they talking about as the proposed replacement appears to be the same as our existing one?"***

A: As discussed in the previous article, the characterization process affords the automotive OEM an opportunity to verify if the material is truly capable of being processed in their manufacturing environment, thus protecting you, their customer, and helping to ensure that they have made, and you are purchasing, a quality product.

Characterization Methodology (RSW)

The predominate method utilized by all of the automotive OEM manufacturers for material welding characterization is resistance spot welding (RSW). And when one considers how the majority of body structure assemblies are joined, this makes sense. Also, it should come as no surprise that each OEM typically wants the weldability characterization performed in a manner that is consistent with their processes and standards. As a result, the weldability characterization process is often performed on specific types of equipment so as to replicate the unique manufacturing environment the material is to be used in. A partial list of these unique RSW manufacturing elements could include:

- **Electrode Caps:** The list of requirements in this area alone can be quite extensive and run the gambit from taper types (male, female), taper standards (RWMA, ISO), body diameters, contact face geometry (RWMA A-nose, ISO-5821 Type-B, etc.), and last, but not least, the actual material (RWMA Class-1, RWMA Class-2, and others in all their variations).
- **Weld Control:** The requirements in this area can specify the make of the control (manufacturer), the type of current (AC vs. MFDC), and/or the methodology of using the control (Automatic Voltage Compensation or Constant Current). Our experience with material characterization has shown that there can be some slight variation in weldability when utilizing different AC controls, but not as much with the MFDC units. As an aside, all of you fans of projection welding, or if your application has very unique stack-ups, hold off with your comments on this remark until we can discuss in a later column.
- **Transformer:** Once the weld control has been determined, the selection of the transformer is really driven by the welding machine. However, care must be exercised in the selection as the lack of weldability variation seen in MFDC weld controls can reappear by the selection of the improperly sized MFDC power supply. This is especially true when performing aluminum characterizations. For context, this comment relates to circuit impedance and will be the topic of another future column. Also, both the weld control and the transformer must have sufficient thermal capacity to perform whatever electrode life testing may be required.
- **Electrode Cooling:** Both the water temperature and flow rate

may be specified for a particular characterization. While both are critical elements to be monitored and controlled, our experience has shown that the actual physical condition and arrangement of the cooling system (water tube placement & size, physical integrity, etc.) are more important elements to have a handle on. With regards to flow, there is point where the actual amount can be too low, but once you are past the point of having enough, little is gained by adding more. The temperature of the water follows this same idea. While it is always advisable to stay within the equipment manufactures guidelines, we have found that being in the upper end of the band has less of an effect on the welding characterization process, but not so with being low in the band.

- **Method of Force Application:** The majority of characterization procedures do not mandate what type of force application should employed, nor the type of welding equipment used to deliver that force and of course, secondary current. So it is possible to have either a pneumatic, hydraulic, air-oil, servo system, which may or may not utilize an in-line mechanical follow-up system mounted to a press-welder, fixture stand, or pedestal welding gun. All that being said, care should be taken that the system being used is robust and does not introduce variability into process by means of inconsistent force application.

An important point to keep in mind is that no one characterization evaluation can cover all possibilities. In fact, despite the performance of a thorough weldability characterization, it may be difficult to predict the necessary weld setup parameters for production operations. The reason for this is that each test is a singular condition among many possibilities and cannot account for the potential litany of material combinations, gap or fit-up concerns, general condition of the tooling, or other production variables. However, if the weldability characterization is conducted in a consistent manner, the process will allow for the determination of significant material traits that, when compared to other similar materials, can reveal where deviation from the norm has occurred and thus permit the OEM to screen for potential issues. An excellent source for more detailed information about RSW material weldability characterization testing of sheet metal is the AWS D8.9 (ref-1). We will look at other welding processes in a future column.

If you have more questions about this topic, Don can be reached at:

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References:
1) AWS D8.9:2012

William C. Ford Student Chapter (May 2016 trip)



(From left to right) Kevin Sienko, Umar Black, Wesley Pringle, Jake Longuski, Ryan Sherman, Chase Larsen, Tyler Braun, Richard Randall, Daniel Humphrey, Joe Fox, James Bedzyk (holding banner), Eric Cassidy, Rick Laurence, Richard Heinicke (host), Dakota Clisch, Crystal Tillman, Danny Thacker (chairman), Marshal Dotson.

Once again I have pictures to share from our AWS student chapter activities. We were invited into Mr. Heinicke's garage for his blacksmith set-up. Mr. Heinicke is a very skilled and talented gentleman with more than 40 years of blacksmith experience. This is our second visit to his home, as last year he welcomed us into his residence and shop. Mr. Heinicke gave a demonstration to our group and then he turned the tongs and hammer over to one of our students (Rick Laurence). Rick quickly learned that it was not as easy as Mr. Heinicke made it look.

Thank You, Rick Randall



Mr. Heinicke teaching Joe Fox (far left) Rick Laurence (middle) and Steve Spencer (right) among others watching



Richard Heinicke and Danny Thacker (Chairman) holding plaque



Mr. Heinicke and Joe Fox (left) Rick Laurence (right)



Rick Laurence giving it a try while others are watching



Mr. Heinicke working as Joe Fox (left), Rick Laurence (middle) and Steve Spencer (right) watch with others



Mr. Heinicke working