American Welding Society®
DETROIT SECTION

e-Bulletin

JANUARY 2026

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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

Thurs., January 8, 2026
5:30 to 8pm
R&E Automated Systems
11650 Park Ct
Shelby Twp, MI 48315

Please join us for the **January Technical Meeting**, hosted by R&E AUTOMATED, featuring a presentation followed with on-site demonstrations by Ryan Shevlin and David Sesdoyro from SERRA LASER.

David will discuss the IPG Photonics LightWELD, a handheld laser welding and cleaning system designed to be faster, easier, and more precise than traditional methods like TIG welding. It combines welding with pre- and post-weld laser cleaning to deliver consistent, high-quality results across a wide range of metals. Ryan will talk about ease of use not being from a traditional welding background.

David and Ryan will have the IPG Photonics LightWELD trailer on location after the presentation for hands-on demonstrations. The LightWELD trailer has two LightWELDs and two wire feeders to accommodate steel and aluminum wire welding applications.

To RSVP, please visit
www.eventsquid.com/event/30454

Chairman's Message
Donnie Crist

Hello AWS Members and Friends,

I hope everyone enjoyed a wonderful Christmas season and had a safe, relaxing New Year. I trust the holidays provided time to unwind, reflect, and enjoy time with family and friends.

In early December, the AWS Detroit Section held its annual Holiday Party at One Eyed Jacks. It was a great afternoon spent with fellow members and friends as we reflected on the past year and celebrated the season together. A sincere thank you goes to Erin Lalinsky for organizing the event and ensuring everything came together so smoothly—your efforts are truly appreciated.

As we move into the new year, we are looking forward to an exciting Technical Meeting on January 8th, hosted by R&E Automated. Serra Laser will be presenting on handheld laser technology, and the IPG Photonics LightWeld trailer will be onsite following the presentation, allowing attendees to experience this technology firsthand. Additional details and registration information can be found in this edition of the newsletter. Please be sure to thank R&E Automated for hosting this event.

I would also like to remind our members that the AWS Detroit Section Scholarship application period is now open and will run through April 1st, 2026. Details are included in this newsletter. Please help spread the word to students enrolled in Welding Engineering, Welding Engineering Technology, post-secondary welding certification programs, or related fields with significant welding content. Supporting the next generation of welding professionals remains a top priority for our section.

Please keep your eye out for the AWS Ladies Night Gala. Registration is open! The event will be held March 7th, 2026 and is returning to the Henry Ford Museum. It promises to be great event in a historic setting.

Thank you all for your continued support of the AWS Detroit Section. I look forward to seeing many of you at our upcoming events and throughout the year ahead. Wishing everyone a healthy, successful, and prosperous New Year.

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.

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 (see list below) started a broad look at projection welding (PW). As stated in these earlier submissions, 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.

- **ATWE Dec-22 & Jan-23:** Looked at the repair or reprocessing of a solid or forged/coined weld nut
- **ATWE Mar-23 & Apr-23:** Detailed one measurable quality element of a weld nut – Set Down
- **ATWE Sep-23 & Oct-23:** Discussed the addition of pre-heat to a PW weld schedule
- **ATWE Nov-24:** Talked about the process variables needed to be considered for PW
- **ATWE Dec-24:** Began conversation of the forged/coined weld nut process
- **ATWE Jan-25 & Mar-25:** Detailed the unique nature of PW weld schedules
- **ATWE Oct-25:** Detailed the possible variation in the projection of forged/coined weld nuts
- **ATWE Nov-25:** Discussed why there was no standardization with forged/coined weld nuts
- **ATWE Jan-26:** Design a hypothetical weld nut

To date we have touched on a few of the challenges. These would include the varied material coatings, gauges, and substrate strengths one is asked to weld on. We also reviewed the weld schedules and equipment needed to attach these fasteners. We then reviewed the potential variability associated with these projections by reviewing a specific projection type. We even took a look at the history of the PW process to see how we got to where we are. Our next step on this journey is to design a weld nut.

WELD NUT DESIGN

As we attempt to better understand the role projections have on a forged/coined weld nut, it might serve our purposes to design our own projection weld nut, at least hypothetically. To do this we will briefly detail the various attributes associated with a projection weld nut, and how they may, or may not, affect our ability to successfully weld them.

- **Number of Projections:** Geometrically speaking, it only takes three (3) points to define a plane. Any number of projections different from this, either more or less, can present a challenge with regard to presenting the weld nut 'squarely' to the part. For completeness, a full-ring projection falls squarely into the 'more than 3' category. I can very much appreciate the need for these specific fasteners, and know there are applications where nothing else will work. That being said, from my perspective, anyone thinking they need to have a full-ring projection so the weld will be 'stronger' needs to rethink this position – three (3) properly sized and well welded projections are typically more than strong enough for almost any application.
- **Projection Shape:** The projection on our weld nut must be some form of three-dimensional (3D) geometric shape. While there are many types of 3D shapes, we really only have a few choices to work with since one side of the projection (the part against the body of the weld nut) must be flat. In other words, we cannot have a full sphere for a projection, but we can have a partial sphere. Other possible shapes including cones, pyramids of a varying number of sides (3, 4, or more) and triangular prisms. For our purposes, we will start with the ½ sphere.

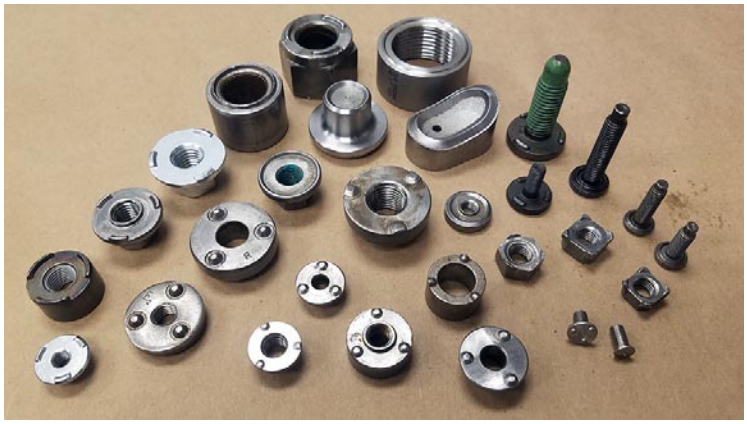
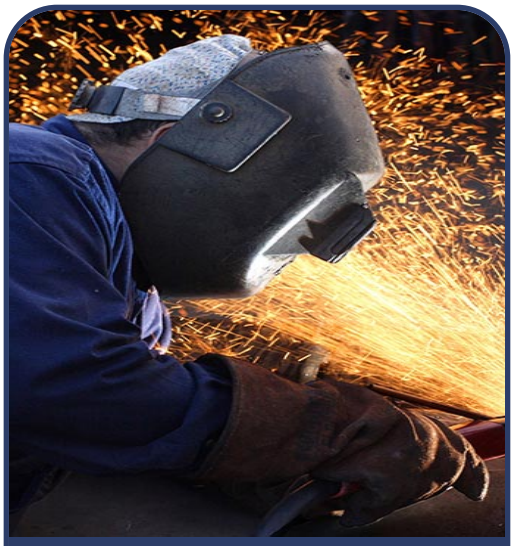


Figure-1 – Projection weld nuts - Examples

- **Projection Size/Length:** This characteristic is different, but related to projection volume. The idea of projection size really relates to the size of the base of the projection. A larger size weld nut (think M6 vs. M16) will require a physically larger projection, regardless of the shape.
- **Projection Volume:** The idea of projection volume really relates to the base material we are trying to weld to. For a given size, the weld nut being attached to a stronger and/or thicker base material would benefit from a projection with more volume. How is this done? One way is by changing the angle forming the projection itself. As an example, a ½ sphere can be changed to a 1/3 sphere with the same projection base size, but a lesser volume due to the shallower angle of the shape.
- **Projection Symmetry:** Every geometric 3D shape has some form of symmetry. While some may only have a single line of symmetry (i.e. can be folded in half), others can have multiple lines of symmetry (i.e. folded into different halves). For our purposes, there are only two (2) types of symmetry to consider with respect to our projection design:
  - ROTATIONAL: An object can be rotated about a fixed point without changing its shape. This is how we would characterize the symmetry of the ½ sphere projection.
  - REFLECTION: The line of symmetry divides the object into two mirror-image halves. An example would be a triangular prism (also called a banana) projection.
- **Other Design Features:** It is acknowledged there can be any number of unique features associated with a weld nut design that are not pertinent to welding it to a base material. However, from a generic point of view, there are a few design elements about a weld nut that are related to welding. Examples would include:
  - A pilot on the weld nut to help with keeping expulsion out of the threads – Many weld nuts do not have this feature, but some do.
  - A recessed area around each projection for material expansion while welding – Again, some weld nuts do, but not all.
  - The designed electrode interface with the weld nut. Put another way, do you need to weld through the whole fastener, or can the

"Projection Welding" *continued on page 9*



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Thank you for your support!

100%

of the Patron's Fund Donations
are directed to scholarships for students
who are pursuing careers in Welding
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To become a Patron, contact Mike Poss,
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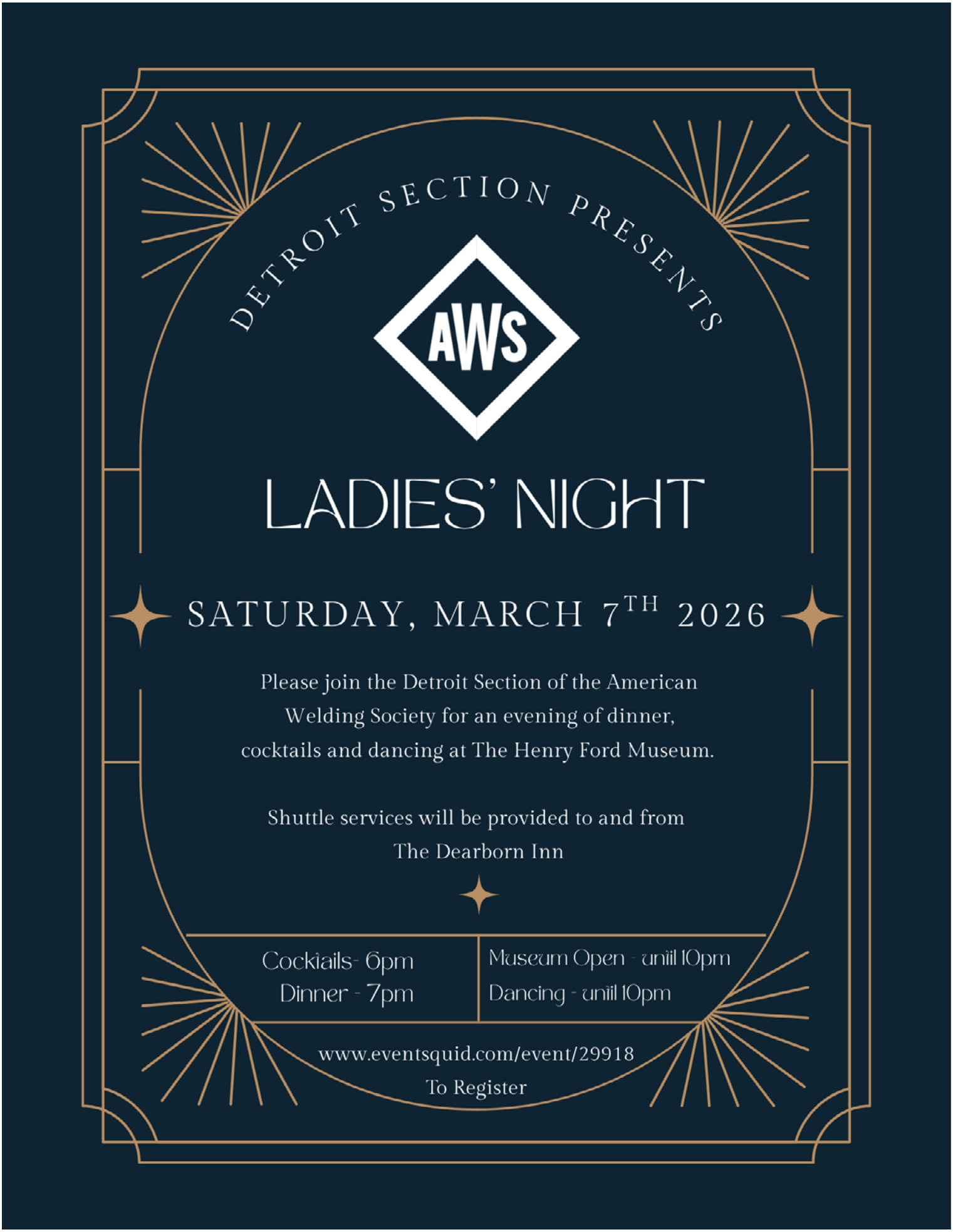
DETROIT SECTION PRESENTS
AWS
LADIES' NIGHT
SATURDAY, MARCH 7TH 2026
Please join the Detroit Section of the American Welding Society for an evening of dinner, cocktails and dancing at The Henry Ford Museum.
Shuttle services will be provided to and from The Dearborn Inn
Cocktails- 6pm
Dinner - 7pm
Museum Open - until 10pm
Dancing - until 10pm
www.eventsquid.com/event/29918
To Register

"Projection Welding" *continued from page 4*

electrode contact the weld nut and pass force & current to the projections through a thinner flange that is a part of the fastener.

- The thickness of the actual weld nut. This relates to the secondary resistance if we have to weld through the weld nut, and in this regard, every micro-ohm (μΩ) matters.
- The coating on the weld nut – Think copper flashing, zinc in some form, an applied oxide layer, etc. When it comes to welding, not all coatings are created equal as some are much more benign than others. This is no different than the possible coatings on a base material.

- **Weld Nut Material:** This is a topic really deserving of its own column. I bring it up as it relates to the bulk resistivity of the material the fastener is made from. Many fasteners are cold-headed out of 1008/1010 Play-Doh®, I mean mild steel. Other fasteners (often weld-thru studs) are made from material that is almost twice as strong, or more, than their mild steel brethren. What is the difference with regard to welding? If the base material one needs to weld to is a 2000 MPa AlSi PHS (some call it Boron) you will see the difference. The strength ratio between the fastener and the nut made with the 1008 may be in the range of 6:1, while a stronger weld-thru stud may be in the range of 3:1 – This is a big difference and the inherent difference in bulk resistivity directly affects the ability to weld these fasteners.

The aforementioned items are really just a partial list of considerations when it comes to designing a projection weld nut. But it is enough for us to begin a conversation with regard to specific projections, which will be the topic of our next column."

If you have more questions, contact Don at:

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Donald F. Maatz, Jr. is with Milco Manufacturing, and serves in the capacity of Senior Welding Engineer. 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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(Emails linked where available.)

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INSIDE THIS ISSUE

American Welding Society®
DETROIT SECTION

SCHOLARSHIP PROGRAM

2026 – 2027 SCHOOL YEAR

RULES and APPLICATION INSTRUCTIONS

Application Postmark Deadline
April 1, 2026

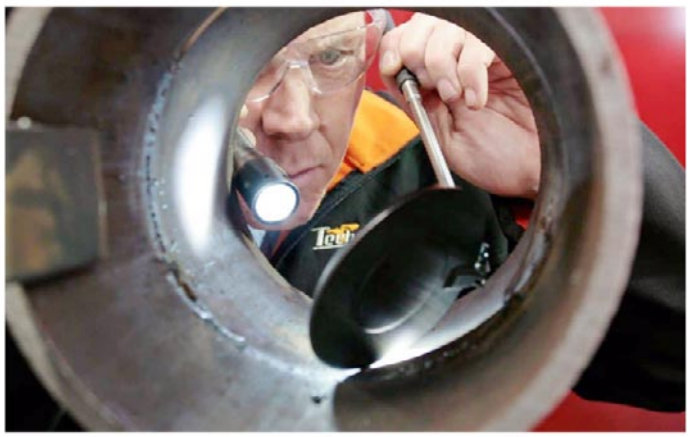
Completion of this application automatically considers the student for the "Amos and Marilyn Winsand Scholarship," the "Robert P and Mardell D Wilcox Vocational and Engineering Scholarships" and the "Blazok Foundation Scholarship." These are AWS Foundation endowed scholarships.

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: https://scholarship.aws.org/
- For more additional information about the scholarship program, please see https://www.aws.org/foundation/page/scholarships
- AWS membership is encouraged of all welding aspirants.
- In addition to the application form, you must enclose or attach the following:
  - **Transcript(s)** – Official scholastic records or grade transcripts from the high school, college or university you attended during the recent school year.
  - **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.

Opportunity for a *FREE SEAT* in the AWS CWI Detroit Seminar



Ever wanted to become a Certified Welding Inspector but found the cost of the week-long seminar prohibitive? Now you have the opportunity to submit an application to be considered for the free seminar seat offered by the AWS-Detroit Section.

If you are interested, please apply with this Google Form (**https://forms.gle/pnhxudPgVmzw2RZ77**) by **February 16, 2026**, for the CWI SEMINAR being held from **May 3 to May 8, 2026** (Part B Exam on May 9, 2026) at

Detroit Metro Airport Marriott
30559 Flynn Dr., Romulus, MI 48174

If you have any questions, please email **erin.e.lalinsky@gmail.com**