We can’t wait to see you at FABTECH

We look forward to FABTECH, and a chance to reconnect with our valued customers. Once again, we can meet face to face, listen to your challenges and offer solutions that best fit your needs. We will have a wide variety of technologies on display featuring connected manufacturing as well as experts that can guide your decision-making process. Until then, stay safe and see you in September!

September 13-16, 2021 Booth A2904 www.trumpf.com

LEARN
Gain valuable, can’t miss insights from best-in-class conference programs that target technical, operational, and managerial segments.

CONNECT
Visionary keynotes and expert panels allow attendees to network, exchange best practices, and learn about the latest industry advancements.

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Discover advanced technologies that improve quality and productivity and compare innovative solutions from exhibitors side-by-side.

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GENERAL INFORMATION

MAKE IT HERE
Network and collaborate with the brightest minds in manufacturing and take a forward-thinking look into the latest trends and innovations—only at FABTECH 2021.
Register to attend TODAY at fabtechexpo.com

FABTECH 2021 FEATURES

- WORLD-CLASS EXHIBITS
- CONFERENCE PROGRAMS
- LIVE PRODUCT DEMONSTRATIONS
- EXPERT-LED DISCUSSIONS

TECHNOLOGY ON DISPLAY
Additive Mfg/3D Printing
Arc Welding
Assembly
Automation
Bending & Forming
Brazing & Soldering
Business Services
Coil Processing
Cutting
Fastening & Joining
Finishing/Paint & Powder Coating
Finishing/Plating
Gases & Gas Equipment
Hydroforming
Inspection & Testing
Job Shop/Contract Mfg
Lasers
Lubrication
Maintenance & Repair
Material Handling
Metal Suppliers
Plate & Structural Fabricating
Press Brakes
Punching
Resistance Welding
Robotics
Roll Forming
Safety & Environmental Saws
Software, Machine Controls
Stamping
Thermal Spraying
Tool & Die Tooling
Tube & Pipe Fabricating or Welding
Tube & Pipe Producing
Waterjet
Welding Consumables
Welding Machines

MCCORMICK PLACE 2301 S. Martin Luther King Drive Chicago, IL 60616

LAKESIDE CENTER (East Building)
METALFORM
Finishing
Tube/Pipe

SOUTH BUILDING
Forming & Fabricating
3D/Additive Mfg

NORTH BUILDING
Welding
Welding Automation
Robotics and Industrial Automation

SHOW HOURS
Monday, Sept. 13 ........10 AM* – 6 PM
Tuesday, Sept. 14 ...........9 AM – 5 PM
Wednesday, Sept. 15 ....9 AM – 5 PM
Thursday, Sept. 16 .........9 AM – 3 PM

*EAST BUILDING (LAKESIDE CENTER) OPENS AT 9 AM

RAPID + TCT, the most important additive manufacturing event in North America, will be held alongside FABTECH at McCormick Place. FABTECH attendees will have complimentary access to the RAPID + TCT exhibit hall to evaluate technology and network with the leaders in additive manufacturing.

HEALTH & SAFETY FIRST
FABTECH leads the way in bringing the industry together in 2021. Our top priority remains the health and safety of all those on-site at the event.
Learn more about what you can expect at the show at fabtechexpo.com/safetyfirst.
MONDAY, SEPTEMBER 13

KEYNOTE PRESENTATION | 8:30 AM – 9:30 AM

FABx TECH TALKS
This year’s FABx will feature a powerful lineup of visionary leaders who are transforming the future of manufacturing. These manufacturers are increasingly integrating technologies like automation, artificial intelligence/AI, and data analytics into all aspects of how they operate, from the production floor to the supply chain. Hear how these leaders stay competitive in this ever-changing tech world.

FABx SPEAKERS:

David Ankin
CEO, ToyMakerz, Inc.

Anna V. O’Brien
Smart Manufacturing Leader, Panasonic

Keith Otterstatter
Director of Operations, Polaris Industries Inc.

Scott Sawyer
Co-Founder & CTO, Paperless Parts, Inc.

Jon Sobel
Co-Founder, CEO, Sight Machine

LEADERSHIP EXCHANGE | 12:30 PM – 1:30 PM

EXPLORE THE FUTURE OF ADVANCED MANUFACTURING
Advanced manufacturing is transforming the landscape of how we operate daily. Listen to our panel of experts to hear how other organizations are using advanced manufacturing for technology adoption in both products and processes and how to use that technology to remain competitive.

MODERATOR:
Dave O’Neil, Vice President, SME Media

PANELISTS:
Anna V. O’Brien, Smart Manufacturing Leader, Panasonic
Keith Otterstatter, Director of Operations, Polaris Industries Inc.
Scott Sawyer, Co-Founder & CTO, Paperless Parts, Inc.
Jon Sobel, Co-Founder, CEO, Sight Machine

TUESDAY, SEPTEMBER 14

KEYNOTE PRESENTATION | 8:30 AM – 9:30 AM

ADAM STELTZNER, Leader & Chief Engineer, NASA Mars 2020 Mission, Rover Perseverance

Into the Unknown: How Leadership, Ingenuity, and Perseverance Put a Rover on Mars
Only Adam Steltzner and his talented team at Jet Propulsion Lab could follow their “Curiosity” rover success with the stunning Mars 2020 mission to land the rover “Perseverance” on the red planet. The magnificent landing on Mars on February 18, 2021 was akin to hurling a dart from New York City to land in a 5-foot circle in Washington DC. The successful mission stands as an extraordinary leadership accomplishment in the midst of a global pandemic. In his exhilarating keynote, full of fascinating anecdotes and breathtaking images, Steltzner shares his own innovation challenges, leadership struggles, and flawless execution. Most importantly, he shows how you can overcome daunting obstacles in times of uncertainty and change.

STATE OF THE INDUSTRY: Navigating into 2022
The manufacturing industry is in a constant state of transformation. Manufacturers are faced with pressing questions as they strive to meet needs in supply, labor, and new technologies. What does future steel-making capacity look like in North America? What can shops do to maintain material inventories and minimize risk? How can manufacturers streamline quoting activities, eliminate redundancies and manual intervention when it comes to front office activities and shop floor production? How can automation help increase or save jobs? Our panel of experts will focus on addressing these questions and more as we look ahead to 2022.

MODERATOR:

Dan Davis
Editor-in-Chief, The FABRICATOR®

Todd Ludlow
President, Ludlow Manufacturing

Adria Haines
Regional Head of Smart Factory Solutions, Bystronic

Bryan Tice
Senior Partner, Metal Edge Partners LLC
Wednesday, September 15

Keynote Presentation | 8:30 AM - 9:30 AM
David Ankin, CEO of ToyMakerz, Inc.

David Ankin is a hands-on entrepreneur, former stunt man, motorcycle racer, and custom motor vehicle fabricator that specializes in one-off custom builds & OEM enhancements for anything with wheels. As the owner of the shop Toymakerz, Ankin is living his dream creating everything from monster trucks to race cars on his TV show of the same name, ToyMakerz. The series follows his team as they bring unrivaled ingenuity and a unique skill set to motorized builds for a wide array of customers. On stage, Dave will share his secrets to success as a leader in the fabrication business and how his father has been his biggest inspiration.

Leadership Exchange | 12:30 PM - 1:30 PM

Why Can’t They Just Work Together? Importance of Mobile Robot and Standard Robot Interoperability to Increase Adoption

As anyone who has ever designed, built, or deployed robots can tell you - no one robot can do it all. As demand grows for automation, companies are increasingly requiring robots for specialized tasks within logistics and manufacturing applications. It is therefore imperative that robots and mobile robots seamlessly work well together. Thankfully, there are several organizations within the robotics and automation communities working hard to create technology, standards, and best practices to address this.

Moderator:
Arnie Kravitz
Chief Technology Officer
ARM Institute

Panelists:
Samir Patel, Senior Director of Robotics Engineering-Kawasaki Robotics (USA), Inc.
Aaron Prather, Senior Advisor-Technology Research & Planning, FedEx
Jason Walker, CEO & Co-Founder, Waypoint Robotics
Ben Waters, CEO & Co-Founder, Wibotic

Thursday, September 16

Keynote Presentation | 8:30 AM - 9:30 AM
Adam Genei, Owner of Mobsteel and Detroit Steel Wheel Co.

The Greatest Machines Ever Made: Cultivating the Next Generation of American Workers

Adam will discuss his workforce development formula, which has created a positive, invested, and competitive team, embodying the “out work everyone” attitude. His talk aims to prepare our next generation of workforce for navigating their way through our trades and businesses. Focusing on character, work ethic, and long-term thinking, Adam will share the milestones and learning moments he has experienced while building his worldwide brands Mobsteel and Detroit Steel Wheel Co.

Leadership Exchange | 11:00 AM - 12:00 PM

Attracting & Preparing the Next Generation of Manufacturing Talent

The skills gap could lead to a shortage of as many as 2.4 million manufacturing workers in the next decade. How do we get involved and share awareness to encourage the next generation to pursue manufacturing careers? This panel of experts will share how to engage, inspire, and prepare the next generation of manufacturing workforce.

Moderator:
Sheila LaMothe
Executive Director, CCAI Finishing Education Foundation

Panelists:
Ed Dernulc, Director – Foundation, FMA
Nichol Lopriore, Executive Director, PMA Education Foundation
Rob Luce, Vice President, SME Education Foundation
Monica Pfarr, Executive Director, AWS Foundation
ABOUT THE CONFERENCE PROGRAM

The Fabricators & Manufacturers Association, Int’l (FMA), SME, Precision Metalforming Association (PMA), and Chemical Coaters Association International (CCAI) co-sponsor the conference sessions on 3D/additive manufacturing, automation/robotics, cutting, finishing, forming and fabricating, job shop, laser, lean, management, marketing and sales, smart manufacturing, stamping, and workforce development.

The American Welding Society (AWS) presents a comprehensive lineup of welding education. Led by the industry’s top professionals, programs focus on best practices and new commercial developments in welding.

EXPERIENCE LEVELS

The Schedule-at-a-Glance on the following pages provides a quick reference to all the conference programs offered at FABTECH 2021. Note that you can use the following key to find the programs that meet your needs.

- **Basic** — Recommended for the attendee who is new to the industry or needs a refresher on the topic.
- **Intermediate** — Designed for the attendee who already has a basic understanding of the subject matter.
- **Advanced** — For the attendee with several years of experience who is seeking more in-depth information.

CONTINUING EDUCATION CREDITS

Individuals who attend AWS education programs are awarded 1 PDH (Professional Development Hour) for each hour of program attendance. Individuals seeking FMA Recertification Credits will be awarded 2 credits for each conference session attended (forming and fabricating, cutting, or finishing tracks) plus an additional 2 credits for attending the show. Individuals who attend SME conference programs may be eligible to receive 1 credit per hour attended toward their SME-managed recertification requirements.

MEMBERSHIP INFORMATION

Discounted rates for members are available on conference programs. Interested in becoming a member of AWS, FMA, SME, PMA, or CCAI? Find details on each of the event partner associations and membership benefits by visiting their websites today!

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### MEMBERSHIP INFORMATION

- ** aws.org
- ** fmanet.org
- ** sme.org
- ** pma.org
- ** ccaiweb.com

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**Monday, September 13**

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<thead>
<tr>
<th>TECHNOLOGY</th>
<th>8:00 AM - 9:30 AM</th>
<th>10:30 AM - 12:00 PM</th>
<th>1:00 PM - 2:30 PM</th>
<th>3:30 PM - 5:00 PM</th>
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<tr>
<td>3D/ADDITIVE MANUFACTURING</td>
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<tr>
<td>F10: Fundamentals of AM (7 Processes; Hybrid, AM Enabled)</td>
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<td>F11: The Hidden Challenges: Is Additive Manufacturing for You?</td>
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<td>F12: Managing the AM Supply Chain</td>
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<td>F13: Ask the Panel of Additive Manufacturing Experts (BONUS SESSION)</td>
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<td>AUTOMATION/ROBOTICS</td>
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<td>F20: Automation Adoption: What You Need to Know &amp; Why</td>
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<td>F21: Five Steps to Creating Operational Excellence in Roboti</td>
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<td>F22: Getting Started with Robotics: A Journey to the World of Robotics &amp; Autonomous Systems Workshop (10:00 PM - 4:00 PM)</td>
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<td>CUTTING</td>
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<td>C12: I Want to Ecoat, Now What?</td>
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<td>FINISHING</td>
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<td>C100: Industrial Finishing Safety Workshop - Day 1 (9:00 AM - 4:00 PM)</td>
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<td>FORMING &amp; FABRICATING</td>
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<td>F40: Press Brake for Engineers</td>
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<td>F41: Tube Bending: Best Practices</td>
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<td>F42: Coil Processing: Blanking, Leveling, and Deburring</td>
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<td>F43: Roll Forming Basics</td>
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<td>JOBSITE</td>
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<td>W57: Business Owners Guide to Protect, Value and Plan for the Future Workshop (8:00 AM - 12:15 PM)</td>
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<td>F73: Estimating Software to Manage the Job Shop</td>
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<td>LASER</td>
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<td>F31: How Much Laser Power Is Right for Your Business?</td>
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<td>LEAN</td>
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<td>F50: Lean Principles: Blue-Collar Kaizen: Leading Lean &amp; Lean Teams</td>
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<td>F51: Lean Principle: Getting Started with Your Lean Journey</td>
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<td>F52: Creating and Sustaining Cultures of Innovation in Manufacturing</td>
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<td>F53: Strategies for Leading &amp; Managing a Change Initiative</td>
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<td>MANAGEMENT</td>
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<td>F60: Breaking Boundaries for Operational Excellence</td>
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<td>F61: Business Builders: Make Business Development a Competitive Advantage</td>
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<td>F62: From Funnel to Flywheel: How to Maximize Your Marketing for Sales</td>
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<td>F63: Learn How to Optimize Your Sales Team’s Funnel &amp; Obtain Visibility Into Your Sales Forecast</td>
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<td>MARKETING &amp; SALES</td>
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<tr>
<td>W58: Market and Build Your Fabrication Story Workshop (8:00 AM - 12:00 PM)</td>
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<td>F72: From Funnel to Flywheel: How to Maximize Your Marketing for Sales</td>
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<td>SMART MANUFACTURING</td>
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<td>F80: Meeting Changing Buyer Expectations Through Digital Transformation</td>
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<td>F81: IoT to Improve Manufacturing Process</td>
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<td>F82: Digital Tools &amp; Technology to Mitigate Project Risk</td>
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<td>F83: Leveraging A.I. in Industrial Manufacturing</td>
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<td>STAMPING</td>
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<td>S10: What’s Holding You Back? How to Optimize Your Press Line</td>
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<td>S11: Understanding Servo Metal Stamping Presses, Proper Usage, Troubleshooting and Maintenance</td>
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<td>S13: 5 Steps to Creating Operational Excellence in the Press Shop</td>
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<td>WORKFORCE DEVELOPMENT</td>
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<td>F10: Winning the Workplace Challenge: Getting Along and Getting Things Done</td>
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<td>F11: How to Develop or Enhance Virtual Presentation &amp; Internships</td>
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<td>F12: Three Key Areas that are Essential to Become a Better Leader</td>
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<td>F13: Read (Hidden) Emotions - Know What Others are Thinking and Feeling</td>
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**WELDING**

- W1: How to Create and Write a Quality Manual for the ATF Program
- W2: Overview of Welding Inspection

**Detailed Conference Program session descriptions, speakers, pricing, room locations and more can be found at fabtechexpo.com/conference.**

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Basic  Intermediate  Advanced
### TUESDAY, SEPTEMBER 14

#### SCHEDULE-AT-A-GLANCE

<table>
<thead>
<tr>
<th>TIME</th>
<th>TECHNOLOGY</th>
<th>SESSIONS</th>
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<tbody>
<tr>
<td>8:00 AM - 9:30 AM</td>
<td>3D/ADITIVE MANUFACTURING</td>
<td>NEW W5: Navigating Technology and Design Considerations in Additive Manufacturing Workshop (8:00 AM - 12:00 PM)</td>
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<td></td>
<td>AUTOMATION/ROBOTICS</td>
<td>NEW W54: An introduction to the World of A3Os: Identifying the Considerations for a Successful Application Workshop (1:00 PM - 5:00 PM)</td>
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<tr>
<td>10:00 AM - 12:00 PM</td>
<td>CUTTING</td>
<td>NEW F35: Advanced in Cutting Automation</td>
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<tr>
<td>10:00 AM - 12:00 PM</td>
<td>MANUFACTURING/DEVELOPMENT</td>
<td>NEW C14: Automation - Controlling the Process</td>
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<tr>
<td>10:00 AM - 12:00 PM</td>
<td>ROBOTICS</td>
<td>NEW C2: Do You Know How Much Money You Are Losing Due to Equipment Downtime?</td>
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<tr>
<td>1:00 PM - 2:30 PM</td>
<td>WORKFORCE DEVELOPMENT</td>
<td>NEW C20: Position Your Business for Future Growth &amp; Speed Up the Workforce with Automation Process</td>
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<td>3:30 PM - 5:00 PM</td>
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<td>NEW C34: Pre-treatment - Get The Latest and Greatest!</td>
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<tr>
<td>3:30 PM - 5:00 PM</td>
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<td>NEW C36: Solutions for Metal Cleaning Issues</td>
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<td>8:00 AM - 12:00 PM</td>
<td>FORMING &amp; FABRICATING</td>
<td>NEW F44: Roll Forming: In-Line Punching, Cut-off Dies, and Press Tonnage</td>
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<td>8:00 AM - 12:00 PM</td>
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<td>NEW F45: Machine Safeguarding</td>
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<td>8:00 AM - 12:00 PM</td>
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<td>NEW F46: Roll Forming: Justification and Welding Profils</td>
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<tr>
<td>8:00 AM - 12:00 PM</td>
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<td>NEW F47: Addressing Modern Day Metals in the Roll Forming Process</td>
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<tr>
<td>1:00 PM - 5:00 PM</td>
<td>JOB SHOP</td>
<td>NEW F76: Are Scheduling Problems Really Symptoms: “A Quick Fix for Job Shop?”</td>
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<td>1:00 PM - 5:00 PM</td>
<td>LASER</td>
<td>NEW F77: Transforming a Tier Manufacturing Company Back to an Industry Leader</td>
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<td>1:00 PM - 5:00 PM</td>
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<td>NEW F78: Industrial Laser and Cutting Applications &amp; Solutions</td>
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<tr>
<td>8:00 AM - 12:00 PM</td>
<td>LEAN</td>
<td>NEW W56: Lean Overview - Principles &amp; Practices Hands-On Learning Workshop (8:00 AM - 12:00 PM)</td>
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<td>1:00 PM - 5:00 PM</td>
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<td>NEW F56: Lean Principle: Value Stream Mapping: Understanding the Whole from Sales to Shop to Customer</td>
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<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW F57: Lean Principle: A3 Thinking: Developing People &amp; Solving Problems</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>MANAGEMENT</td>
<td>NEW F66: Connection Perfection: The Business Case for Building Community</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW F67: Strategies To Create a Workplace Culture That Works!</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>MARKETING &amp; SALES</td>
<td>NEW F84: Winning With Social Media &amp; Website Connections</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td>SMART MANUFACTURING</td>
<td>NEW F85: Ensuring A Successful Product Launch</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td></td>
<td>NEW F86: Building an Inside (Outbound) Sales Team</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW F87: Client Engagement: Compete on Awesome</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>SMART MANUFACTURING</td>
<td>NEW F83: The Manufacturers Data-Driven PlayBook</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW W50: Digital Transformation Models for Industry 4.0 Workshop (100 PM - 4:00 PM)</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>STAMPING</td>
<td>NEW S15: Processing Parts for Progressive Dies - Evaluating Strip Layouts</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW S16: Processing Parts for Progressive Dies - Engineering Principles and Design Guidelines</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>WORKFORCE DEVELOPMENT</td>
<td>NEW F15: The Art of Assertive Communication</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW F16: How to Attract and Keep the Right Talent</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>WELDING</td>
<td>NEW W3: AWS/Weld-Ed Conference - Project Based Welding Curriculum</td>
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<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW W4: Aluminium Welding</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td></td>
<td>NEW W5: Advanced NDT Methods and Your Future as a CWI</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW W6: Metalurgy (Intermediate)</td>
</tr>
</tbody>
</table>

### WEDNESDAY, SEPTEMBER 15

#### SCHEDULE-AT-A-GLANCE

<table>
<thead>
<tr>
<th>TIME</th>
<th>TECHNOLOGY</th>
<th>SESSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM - 9:30 AM</td>
<td>3D/ADITIVE MANUFACTURING</td>
<td>NEW W52: Pre and Post Processing of Additive Parts Workshop (8:00 AM - 12:00 PM)</td>
</tr>
<tr>
<td>10:00 AM - 12:00 PM</td>
<td>AUTOMATION/ROBOTICS</td>
<td>NEW F28: Understanding &amp; Automating Your Data to Stay Competitive</td>
</tr>
<tr>
<td>10:00 AM - 12:00 PM</td>
<td>ROBOTICS</td>
<td>NEW F29: Automation Press Brake &amp; Bending Systems</td>
</tr>
<tr>
<td>1:00 PM - 2:30 PM</td>
<td>WORKFORCE DEVELOPMENT</td>
<td>NEW F30: What You Need to Understand Before Thinking About Running Your Shop Lights-Out</td>
</tr>
<tr>
<td>3:30 PM - 5:00 PM</td>
<td></td>
<td>NEW F31: Automation for Metal &amp; Finishing Processes</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>CUTTING</td>
<td>NEW F32: Do You Know How Much Money You Are Losing Due to Equipment Downtime?</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td>LASER</td>
<td>NEW F33: Advancements in 3D Plasma and Water Jet Cutting</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW F39: Getting the Most Out of Your Waterjet</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>FORMING &amp; FABRICATING</td>
<td>NEW F85: Tube Fitting and Hydroforming</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW F86: Mastering Mixed Model Flow for a High-Performance Operation</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>JOB SHOP</td>
<td>NEW F87: How to Build a Better Supply Chain for your Business</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td>LEAN</td>
<td>NEW F88: How to Build a Better Supply Chain for your Business</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>MANAGEMENT</td>
<td>NEW F89: Revitalizing the Manufacturing Industry with XR Technology</td>
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<tr>
<td>1:00 PM - 5:00 PM</td>
<td>MARKETING &amp; SALES</td>
<td>NEW W53: Essential Sales Strategies for Manufacturers in 2021 and Beyond - Workshop (100 PM - 5:00 PM)</td>
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<tr>
<td>8:00 AM - 12:00 PM</td>
<td>SMART MANUFACTURING</td>
<td>NEW W54: How to Build a Better Supply Chain for your Business</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW W55: Revitalizing the Manufacturing Industry with XR Technology</td>
</tr>
<tr>
<td>8:00 AM - 12:00 PM</td>
<td>SMART MANUFACTURING</td>
<td>NEW W56: Metalurgy (Advance)</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td></td>
<td>NEW W7: Additive/ASME</td>
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</tbody>
</table>

Detailed Conference Program session descriptions, speakers, pricing, room locations and more can be found at fabtechexpo.com/conference.
THURSDAY, SEPTEMBER 16  SCHEDULE-AT-A-GLANCE

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>8:00 AM - 9:30 AM</th>
<th>10:30 AM - 12:00 PM</th>
<th>1:00 PM - 2:30 PM</th>
<th>3:30 PM - 5:00 PM</th>
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</thead>
<tbody>
<tr>
<td>AUTOMATION/ROBOTICS</td>
<td>NEW! F203: Optimize Your Automation Joining Process</td>
<td></td>
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<tr>
<td>FINISHING</td>
<td>NEW! C200: Powder Coating 101 Workshop in Spanish - Básicos del Recubrimiento en Polvo 101 Taller en Español - Day 2 (8:00 AM - 12:00 PM)</td>
<td></td>
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<td></td>
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<tr>
<td>FORMING &amp; FABRICATING</td>
<td>NEW! F403: Form Tapping</td>
<td>NEW! F404: Combination Hybrids - An Arranged Marriage by Manufacturers</td>
<td></td>
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</tr>
<tr>
<td>SMART MANUFACTURING</td>
<td>NEW! F903: The Promise of Industry 4.0 &amp; Lean Management</td>
<td>NEW! F904: Big Data to Analyze Manufacturing and Industrial Companies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WELDING SESSIONS
- W9: Weld Cracking 8:00 AM - 11:00 AM
- W10: ASME Codes and Standards Update 8:00 AM - 11:00 AM

EXPERIENCE LEVELS
Use this key along with the Schedule-at-a-Glance to find the education level that meets your needs.
- Basic – Recommended for the attendee who is new to the industry or needs a refresher on the topic.
- Intermediate – Designed for the attendee who already has a basic understanding of the subject matter.
- Advanced – For the attendee with several years of experience who is seeking more in-depth information.

Detailed Conference Program session descriptions, speakers, pricing, room locations and more can be found at fabtechexpo.com/conference.

2021 SPECIAL PRICING INFORMATION
The FABTECH event partners want to give back to manufacturing and support training and education needs for 2021 and beyond. We want to help companies prioritize training right now by offering the LOWEST RATES ever on our conference programs. With these special rates, there has never been a better time to take advantage of all the learning opportunities at FABTECH.

EXHIBITS ONLY
Registration is FREE through September 9.
Beginning September 10, the cost to attend the exhibits is $50. AWS, FMA, SME, PMA, and CCAI members may always attend the exhibits for FREE with proof of membership.

CONFERENCE TRACKS
- 3D/Additive Manufacturing
- Automation/Robotics
- Cutting
- Laser
- Finishing
- Forming & Fabricating
- Job Shop
- Lean
- Management
- Marketing & Sales
- Smart Manufacturing
- Stamping
- Workforce Development

<table>
<thead>
<tr>
<th>FABTECH Items and Pricing</th>
<th>Early Bird Rates thru July 31</th>
<th>Regular Rates after July 31</th>
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<tr>
<td></td>
<td>Member</td>
<td>Non-member</td>
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<tr>
<td>1 Session</td>
<td>$75</td>
<td>$95</td>
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<tr>
<td>2 Sessions</td>
<td>$125</td>
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<td>3 Sessions</td>
<td>$180</td>
<td>$210</td>
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<tr>
<td>4 Sessions</td>
<td>$230</td>
<td>$270</td>
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<tr>
<td>Full Conference: (5 or more sessions) BEST VALUE!</td>
<td>$275</td>
<td>$325</td>
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<tr>
<td>Half-Day Workshops</td>
<td>$145</td>
<td>$165</td>
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<tr>
<td>Full-Day Workshops</td>
<td>$275</td>
<td>$325</td>
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<tr>
<td>Two-Day Finishing Workshops</td>
<td>$495</td>
<td>$495</td>
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WELDING TRACK
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<thead>
<tr>
<th></th>
<th>Member</th>
<th>Non-member</th>
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<tbody>
<tr>
<td>AWS/Weld-Ed Conference</td>
<td>$25</td>
<td>$50</td>
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<tr>
<td>Half-Day Welding Sessions</td>
<td>$345</td>
<td>$430</td>
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* Non-member price for AWS Welding Sessions only includes a one-year AWS Individual Membership.

CONFERENCE CANCELLATION POLICY: Cancellations and refund requests (for paid conference registrations) must be made in writing to Attn: Betsy Bonnell: FABTECH Conference Cancellation or sent to bbonnell@sme.org no later than September 1, 2021, to receive a full refund minus a $50 administrative fee. Cancellations received after this date are non-refundable. Substitutions allowed.
3D/ADDITIVE MANUFACTURING

MONDAY, SEPTEMBER 13
8:00 AM – 9:30 AM
- F10: Fundamentals of AM (7 Processes, Hybrid, AM Enabled)
  Carl Dekker - Met-L-Flo Inc.

10:30 AM – 12:00 PM
NEW! - F11: The Hidden Challenges: Is Additive Manufacturing Right for Your Shop?
Matthew Donovan - Jabil
Considerations for Adding Additive Manufacturing to Your Current Manufacturing Process
Paul Bates - ASTM

WEDNESDAY, SEPTEMBER 15
8:00 AM – 12:00 PM
NEW! - WS2: Pre and Post Processing of Additive Parts Workshop
Carl Dekker - Met-L-Flo Inc.
Matthew Donovan - Jabil

1:00 PM – 2:30 PM
NEW! - F12: Managing the AM Supply Chain
Shai Terem - Markforged

3:30 PM – 5:00 PM
NEW! - F13: Ask the Panel of Additive Manufacturing Experts (BONUS SESSION)
Carl Dekker - Met-L-Flo Inc.
Matthew Donovan - Jabil
Paul Bates - ASTM
Slade Gardner - Big Metal Additive
Ryan Manning - Big Metal Additive

3:30 PM – 5:00 PM
NEW! - F10: Continuous Improvement for Additive Manufacturing Initiatives
Improving Continuous Improvement Initiatives with Additive Manufacturing
Michael Mignatti - MakerBot
Empowering Quality Control & Inspection at Every Level with 3D Scanning
Andre Vakulenko - Artec 3D

TUESDAY, SEPTEMBER 14
8:00 AM – 12:00 PM
NEW! - WS1: Navigating Technology and Design Considerations in Additive Manufacturing Workshop
How AM (3D Printing) Can Accelerate and Advance Your Design
Carl Dekker - Met-L-Flo Inc.
Full Scale Functional Prototypes Made by Hybrid Metal AM
Slade Gardner and Ryan Manning - Big Metal Additive

3:30 PM – 5:00 PM
NEW! - F102: Materials & Joining for Plastic & Metal AM Technology
Joining and Repair of Additively Manufactured Components
Jacob Rindler - Ohio State University
Fused Granular Fabrication (FGF) vs. Fused Filament Fabrication (FFF)
Alex Riestenberg - Cincinnati Inc.
Directed Energy Deposition (DED): The Triadlter
Melanie Lang - FormAlloy Technologies Inc.

AUTOMATION / ROBOTICS

MONDAY, SEPTEMBER 13
8:00 AM – 9:30 AM
NEW! - F20: Automation Adoption: What You Need to Know & Why
Before You Spend Money on Your First Robot, Here is What You Need to Know
Michael Schlagenhauser and Gwendolyn Luscavage - Acuity
Automation Adoption: Why Manufacturers Won’t Survive Without Robotics
Josh Leath - Yaskawa Motoman

10:30 AM – 12:00 PM
NEW! - F21: Five Steps to Creating Operational Excellence in Robotic Joining
Will Healy III - Balluff Worldwide

1:00 PM – 4:00 PM
Jason Walker - Waypoint Robotics, Inc.
Bob Rochelle - Gudel Inc.

TUESDAY, SEPTEMBER 14
8:00 AM – 9:30 AM
NEW! - F24: Position Your Business for Future Growth & Speed Up the Workforce with Automation Process
How to Include the Workforce and Speed Up Mobile Robot Deployment
Jason Walker - Waypoint Robotics, Inc.
Adapt Your Manufacturing Process: DO MORE WITH LESS
Mark Sumner - Acieta

10:30 AM – 12:00 PM
NEW! - F29: Automating Press Brake & Bending Systems
What to Consider Before Purchasing Your First Automated Bending System
Todd Kirchoff - Cincinnati Inc.
Is Press Brake Automation Right for You?
Marcel Fiedler - Bystronic Inc.

1:00 PM – 2:30 PM
- F20t: What You Need to Understand Before Thinking About Running Your Shop Lights-Out
Michael Schlagenhauser - Acuity

Visit fabtechexpo.com/conference for complete session descriptions.
NEW! ■ F202: Automation for Metal & Finishing Processes
Cad to Path Robot Programming. Is it Myth or Reality?
Barton Taylor - FANUC America
How Medium and Small Manufacturers Can Automate (Robot) Metal Fabrication and Finishing Processes
Mike Shappe - Norton/Saint-Gobain Abrasives
Eddie Eichbacher - PushCorp, Inc.

NEW! ■ F203: Optimize Your Automation Joining Process
Optimizing Your Welding Automation
Nick Cowell - Aciera
Increasing Uptime on Assembly, Weld and Other Automated Cells with High-Performance Weld and Locator Pins
Peter Harper - IBC Coatings Technologies
Welding Robots with an Ear for Defects
Dan Harvey and Ahmad Ashoori - Novarc Technologies

8:00 AM – 9:30 AM
THURSDAY, SEPTEMBER 16

3:30 PM – 5:00 PM
■ F33: Comparative Cutting
Plasma Cutting Technology
Jorge Santana - Hypertherm, Inc.
Current Advancements in Laser Cutting Technology
Brian Smith - Precitec
Versatility of Waterjet
Arion Vandergon and Tim Holcomb - OMAX Corp.

TUESDAY, SEPTEMBER 14
10:30 AM – 12:00 PM
NEW! ■ F35: Advancements in Cutting Automation
Oxy-Fuel Cutting - Automation Makes the Difference
Kurt Nachbargauer and Martin Roubicek - IHT Automation
E'Cut - The Solution for All Cutting Technologies
Boris Spangenberg and Oliver Sebastian - Eckelmann AG

WEDNESDAY, SEPTEMBER 15
8:00 AM – 9:30 AM
NEW! ■ F38: Advancements in 3D Plasma and Waterjet Cutting
Advancements in 3D-Robotic Plasma Cutting
3D Waterjet Cutting: The Next Dimension
Brian Sherick - Flow International

10:30 AM – 12:00 PM
■ F39: Getting the Most Out of Your Waterjet
Tim Holcomb - OMAX Corp.

FINISHING

8:00 AM – 9:30 AM
NEW! ■ C14: Automation - Controlling the Process
Examples of Finishing SCADA Systems for Advanced Automated Finishing Systems
John Claman - IntelliFinishing
Metrics on the Screen Go Round and Round, Round and Round...All Day Long!
Jeff Hale - Gema USA Inc.

NEW! ■ C24: I Want to Powder Coat, Now What?
Chris Merritt - Gema USA Inc.
Tom Whalen - TCI Powder Coatings
Todd Turnock - Geoge Koch Sons, LLC
Kenny Kildahl - Henkel Corp.

NEW! ■ C34: Pretreatment - Get the Latest and Greatest!
Scale and Oxide Removal for Improved Coating Performance
Brandon Lloyd - Atotech Group
False Beliefs About Zirconium Pretreatments
Rashid Zakeri - Circle Prosco, Inc.
Buffering of Nano Ceramic Technology
Evan Lach - Henkel Corp.

10:30 AM – 12:00 PM
NEW! ■ C15: Busting the Myths: What Really Matters in Metal Cleaning
Steve Byron - Coral Chemical Company - A Quaker Houghton Company
Kelly McBabe - PEM Inc.
Aarón Ratka - Diamond H2O

TUESDAY, SEPTEMBER 14
8:00 AM – 12:00 PM
NEW! ■ C100: Industrial Finishing Safety Workshop - Day 2
Marty Korecky - AkzoNobel Coatings, Inc.
Doug Smilor - John Deere - Moline Technology and Innovation Center (MTIC)
Geoff Raifsnider - Global Finishing Solutions LLC
Rich Saddler - Industrial Finishing Solutions LLC

■ C25: Optimizing Your Powder Coating Operations
Ken Kaluzny - Quaker Houghton
John Cole - Parker Ionics
John Sudges - Midwest Finishing Systems, Inc.

■ C35: See It, Touch It, Fix It - Identifying and Solving Finishing Defects
David Schimpff and Maxwell George - DuBois Chemicals
Tabitha McLeish - The Sherwin-Williams Company

Visit fabtechexpo.com/conference for complete session descriptions.
FINISHING

1:00 PM – 2:30 PM

NEW! ■ C16: Improving System Performance
Hooks, Hangers, Fixtures — The Way to Continuously Improve Your Finishing System
Daniel Nesper - DuBois Chemicals
In-House Chemical Paint Removal — The Ideal Choice for Hook and Rack Cleaning
Stephen Taylor - Atotech Group

NEW! ■ C26: Operating Liquid Systems Efficiently
Fluid Flow and Pressure: Why and How to Manage Both
Blake Erickson - Graco Inc.
How to Increase the Efficiency of Your Liquid Finishing Application Process
Martin Powell - Carlisle Fluid Technologies
Eliminating The Seven Deadly Sins of Liquid Finishing
Michael Elberson - Autoquip Automation

NEW! ■ C36: Solutions for Metal Cleaning Issues
Wastewater in a Circular Economy: Impacts and Opportunities in the Metal Finishing Industry
Bob Hultz - MacDermid Envio Solutions
Remanufacturing Cleaning — Innovations that Improve Cleaning and Reduce Costs!
Joe McChesney - KYZEN

THURSDAY, SEPTEMBER 16
8:00 AM – 12:00 PM

NEW! ■ C200: Powder Coating 101 Workshop in Spanish - Basicos del Recubrimiento en Polvo 101 Taller en Español - Day 2
Jennifer Viveros - Henkel Corporation
Samantha Tischler - BASF/Chemetall
Jesus E. Sánchez Perales - AkzoNobel
Carlos Contreras - PPG
Carlos Contreras - Gema Mexico Powder Finishing
Sal Garcia - Nordson Corporation
Pedro Castillo - Thermo-Tron-X, Inc./TTX Mexico
Enrique Escobedo - Helmut Fischer S. de R.L. de C.V.

NEW! ■ C39: Technology Update - Curing Heat Sensitive Substrates
Curing Heat Sensitive Substrates — The Tricks of the Trade
Marty Sawyer - Trimac Industrial Systems
Powder Coating of Natural and MDF Substrates
J.R. Rogers - Wagner Industrial Solutions

1:00 PM – 2:30 PM

NEW! ■ C101: Can I Justify a Batch Powder Coating System?
Frank Mohar - Nordson Corporation
Kelly McCabe - PEM Inc.

NEW! ■ C201: Mastering Surface Preparation
Make Shotblasting Work for You!
Carl Panzenhagen - Blast Cleaning Technologies
The Critical Role of Abrasives in Blast Cleaning
Kumar Balan - Ervin Industries
Cost Effective Blasting Plan
Osamu Yoshida - Roberts Sinto Corp.

WEDNESDAY, SEPTEMBER 15
9:00 AM – 4:00 PM

NEW! ■ C20: Powder Coating 101 Workshop in Spanish - Basicos del Recubrimiento en Polvo 101 Taller en Español - Day 1
Jennifer Viveros - Henkel Corporation
Samantha Tischler - BASF/Chemetall
Jesus A. Sánchez Perales - AkzoNobel
Powder Coatings
Gerardo Contreras - PPG
Carlos Montero - Gema Mexico Powder Finishing
Sal Garcia - Nordson Corporation
Pedro Castillo - Thermo-Tron-X, Inc./TTX Mexico
Enrique Escobedo - Helmut Fischer S. de R.L. de C.V.

NEW! ■ C18: Robotic Finishing for General Industry
Derek DeGeest - DeGeest Corporation & LestaUSA

NEW! ■ C28: Finishing Systems - Design and Project Management
Finishing System Design for Success
Bill Oney - Thermo-Tron-X
Key Steps to Delivering a Great Project... Every Time
Doug Smilor and Adam Smith - John Deere - Moline Technology and Innovation Center (MTIC)
New Washer and Oven Technology for the Finishing Industry
Steven Onsager - LaX Engineered Solutions

NEW! ■ C38: Advancements in Powder Coating Materials
Extreme Edge Coverage and Corrosion Protection
Kathryn Shaffer - PPG
Latest Developments in Metallic Effect Powder Coatings
Michael Withers - Axalta Coating Systems
Using Bio-Based and Recycled Materials in the Powder Itself
Jeremy Erickson - Sherwin-Williams

10:30 AM – 12:00 PM

NEW! ■ C19: Finishing’s Future Through Automation
Little Bytes Make Great Meals
Jeff Watson - Manufacturing Infrastructure Solutions, LLC
Autonomous Robots for High-Mix Finishing
François Simard - OmniRobotic

■ C29: Automating Your Powder Coating Line
Powder Coating - Control and Consistency
Teddy Piepkow - Nordson Corporation
Making the Jump! Shifting Gears from Manual Powder Coating to Automated
Hector Flores - Wagner Industrial Solutions

1:00 PM – 2:30 PM

NEW! ■ C10: Can I Justify a Batch Powder Coating System?
Frank Mohar - Nordson Corporation
Kelly McCabe - PEM Inc.

NEW! ■ C201: Mastering Surface Preparation
Make Shotblasting Work for You!
Carl Panzenhagen - Blast Cleaning Technologies
The Critical Role of Abrasives in Blast Cleaning
Kumar Balan - Ervin Industries
Cost Effective Blasting Plan
Osamu Yoshida - Roberts Sinto Corp.

NEW! ■ C30: Preventive Maintenance and Troubleshooting Your Powder Coating Operations
Michael Wittenhagen - TCI Powder Coatings
John Cole - Parker Ionics

1:00 PM – 2:30 PM

NEW! ■ C20: Powder Coating 101 Workshop in Spanish - Basicos del Recubrimiento en Polvo 101 Taller en Español - Day 2
Jennifer Viveros - Henkel Corporation
Samantha Tischler - BASF/Chemetall
Jesus A. Sánchez Perales - AkzoNobel
Powder Coatings
Gerardo Contreras - PPG
Carlos Montero - Gema Mexico Powder Finishing
Sal Garcia - Nordson Corporation
Pedro Castillo - Thermo-Tron-X, Inc./TTX Mexico
Enrique Escobedo - Helmut Fischer S. de R.L. de C.V.

NEW! ■ C39: Technology Update - Curing Heat Sensitive Substrates
Curing Heat Sensitive Substrates — The Tricks of the Trade
Marty Sawyer - Trimac Industrial Systems
Powder Coating of Natural and MDF Substrates
J.R. Rogers - Wagner Industrial Solutions

1:00 PM – 2:30 PM

NEW! ■ C10: Can I Justify a Batch Powder Coating System?
Frank Mohar - Nordson Corporation
Kelly McCabe - PEM Inc.

NEW! ■ C201: Mastering Surface Preparation
Make Shotblasting Work for You!
Carl Panzenhagen - Blast Cleaning Technologies
The Critical Role of Abrasives in Blast Cleaning
Kumar Balan - Ervin Industries
Cost Effective Blasting Plan
Osamu Yoshida - Roberts Sinto Corp.

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John Cole - Parker Ionics

THURSDAY, SEPTEMBER 16
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Powder Coatings
Gerardo Contreras - PPG
Carlos Montero - Gema Mexico Powder Finishing
Sal Garcia - Nordson Corporation
Pedro Castillo - Thermo-Tron-X, Inc./TTX Mexico
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Cost Effective Blasting Plan
Osamu Yoshida - Roberts Sinto Corp.

NEW! ■ C30: Preventive Maintenance and Troubleshooting Your Powder Coating Operations
Michael Wittenhagen - TCI Powder Coatings
John Cole - Parker Ionics

TUESDAY, SEPTEMBER 14
8:00 AM – 9:30 AM

■ F44: Roll Forming Basics
Roll Forming Basics
Brian Rodgers - Formtek, Inc.
Modern Lubricants for Roll Form Processes
David Kinnard - Tower Metalworking Fluids

3:30 PM – 5:00 PM

■ F43: Roll Forming Basics
Roll Forming Basics
Brian Rodgers - Formtek, Inc.
Modern Lubricants for Roll Form Processes
David Kinnard - Tower Metalworking Fluids

Visit fabtechexpo.com/conference for complete session descriptions.
**WEDNESDAY, SEPTEMBER 15**

**8:00 AM – 9:30 AM**
- ■ F48: Tube Bending and Hydroforming
  - Modern Tube Bending Machinery
    - Greg Miller - Tubular Solutions Inc.
  - Latest Tube Bending Machine Concepts - Creating Future Opportunities for Today’s Manufacturing Technologies
    - Christoph Roehm - WAFIOS AG
  - New Development Within High Pressure Hydroform Technology
    - Brad Clark - Quintus Technologies

**10:30 AM – 12:00 PM**
- ■ F49: Roll Forming: Advanced Techniques and Design
  - Rollforming Solutions - Functional, Lightweight, and Freedom in Design
    - Bill Johnson - Welser Inc.
  - Using Hydraulics in High-Performance Punching and Cutting of Rollformed Products
    - Mark McGuire - TEKFAB, Inc.

**THURSDAY, SEPTEMBER 16**

**8:00 AM – 9:30 AM**
- ■ F403: Form Tapping
  - Understanding How Form Tapping Works Plus Troubleshooting Advice
    - Costikyan Jarvis - Jarvis Cutting Tools
  - Cost Benefit Analysis on Using Specials vs. Standard Tools
    - Costikyan Jarvis and Alissa Blouin - Jarvis Cutting Tools

**10:30 AM – 12:00 PM**
- ■ F404: Combination Hybrids — An Arranged Marriage by Manufacturers
  - Jeff Tyl - Murata Machinery, USA

**1:00 PM – 2:30 PM**
  - Alysha Yinger - RoboVent

**3:30 PM – 5:00 PM**
- ■ F73: Estimating Software to Manage the Job Shop
  - Future of Fabrication: Using Estimating Software to Bring a Shop from a Model T to a Tesla
    - Eric Borman - Progressive Metal Manufacturing Company
  - The Art & Science of Accurate Job Costing for High-Mix, Low-Volume Manufacturers
    - David Lechleitner - Ultra Consultants

Job Shop continued on next page
**MONDAY, SEPTEMBER 13**

**10:30 AM – 12:00 PM**
**NEW! ▶ F31: How Much Laser Power Is Right for Your Business?**
High Power Fiber Lasers: What’s the Limit?
Tyson Lowder - nLIGHT Inc.
Overcoming the Optical Challenges for Optimal Performance in High Power Laser Cutting
Brian Smith - Precitec

**TUESDAY, SEPTEMBER 14**

**8:00 AM – 9:30 AM**
**NEW! ▶ F34: Laser Ecosystems for Fiber Laser Cutting & Surface Cleaning**
Laser Ecosystem - Dynamics Through Full Digital Control
Michael Sharpe - FANUC America Corporation
Large-Area Surface Cleaning and Ablation with Fiber Lasers
Rouzbeh Sarrafi - IPG Photonics

**1:00 PM – 2:30 PM**
**NEW! ▶ F36: Advantages of Laser Welding Applications**
Advanced Laser Spot and Plug Welding Utilizing Pattern Recognition and 6D Seam Detection
Jason Woolley - Abicor Binzel
Ensuring Laser Micro Welding Success in Manufacturing
Mark Boyle - AMADA WELD TECH, INC.
Advantages of Remote Laser Welding Utilizing Seam Tracking and Gap Bridging
Jay Flowers - Abicor Binzel

**3:30 PM – 5:00 PM**
**NEW! ▶ F37: Industrial Laser and Cutting Applications & Solutions**
High Power Diode Lasers and Industrial Applications
Oleg Raykis - Laserline Inc.
Selecting the Correct Purity for Your N2 Assit Gas Maximizes On-Site Nitrogen Generation System Efficiency and Reduces ROI Time Period
Mark Lauterwasser - nano - air & gas solutions
How to Mitigate the Risks of Dust Collector Fires from Spark Generating Metal Processes
Paul Johnson - Blender Products
Karen Wear - Donaldson Company, Inc.

**WEDNESDAY, SEPTEMBER 15**

**1:00 PM – 2:30 PM**
**NEW! ▶ F57: Lean Principle: A3 Thinking: Developing People & Solving Problems**
Mike Osterling - Osterling Consulting, Inc.

**LEAN**

**MONDAY, SEPTEMBER 13**

**8:00 AM – 9:30 AM**
**NEW! ▶ F50: Lean Principle: Blue-Collar Kaizen: Leading Lean & Lean Teams**
Mack Story and Ria Story - Top Story Leadership/Blue-Collar Leadership

**10:30 AM – 12:00 PM**
**F51: Lean Principle: Getting Started with Your Lean Journey**
Jeff Sipes - Back2Basics, LLC

**3:30 PM – 5:00 PM**
**NEW! ▶ F53: Lean Tools: Production Floor Communication to Strengthen Employee Engagement & Standard Work**
Kevin Duggan - Institute for Operational Excellence

**TUESDAY, SEPTEMBER 14**

**8:00 AM – 12:00 PM**
**NEW! ▶ WS5: Laser Fabrication: Welding, Cutting & Additive Workshop**
Moderators: Neil Ball - Directed Light
Geoff Shannon - Coherent Inc.
Industrial Lasers Overview: Fiber, Disk and Diode
JP Lavoie - Coherent
Introduction to Industrial Laser Welding
Thomas Kugler - Laser Mechanisms, Inc.
Laser Hot Wire Processing
Kyle Smith - Lincoln Electric
Laser Cutting, An Overview From Fundamentals to New Development Trends
Rouzbeh Sarrafi - IPG Photonics
Understanding Fiber Lasers Functions and Capabilities
Dustin Diehl - Amada America, US

**1:00 PM – 2:30 PM**
**F56: Lean Principle: Value Stream Mapping: Understanding the Whole: From Sales to Shop to Customer**
Mike Osterling - Osterling Consulting, Inc.
## MANAGEMENT

### MONDAY, SEPTEMBER 13

**8:00 AM – 9:30 AM**

- **F60**: Breaking Boundaries for Operational Excellence  
  Vince Bovino - Bovino Consulting Group

**10:30 AM – 12:00 PM**

- **F61**: Business Builders: Make Business Development a Competitive Advantage  
  Mark Frasco - COACT Associates, Ltd.

**1:00 PM – 2:30 PM**

- **NEW! F62**: Creating and Sustaining Cultures of Innovation in Manufacturing  
  Gary Covert - Gary Covert Consulting

**3:30 PM – 5:00 PM**

- **F63**: Strategies for Leading & Managing a Change Initiative  
  Leading a Change Initiative  
  Why Managing Change is Crucial To Have A Successful Shop  
  Michael Schlaghauser - Acuity

### TUESDAY, SEPTEMBER 14

**8:00 AM – 9:30 AM**

- **NEW! F64**: Gen Z Is Coming - What You Need to Know for Your Business  
  Lisa Ryan - Grategy

**8:00 AM – 9:30 AM**

- **NEW! F65**: That Was Fun! Where Are We in 2021?  
  Chris Kuehl - Armada Corporate Intelligence

**1:00 PM – 2:30 PM**

- **NEW! F66**: Connection Perfection: The Business Case for Building Community  
  Lori Sussle Bonanni - eissus, LLC  
  Miranda Wilcox - Thrive Potential, LLC  
  Sandy Sloane - Solutions by Sloane

### WEDNESDAY, SEPTEMBER 15

**8:00 AM – 9:30 AM**

- **NEW! F67**: Strategies To Create a Workplace Culture That Works!  
  Lisa Ryan - Grategy

**10:30 AM – 12:00 PM**

- **NEW! F69**: Thriving Under Pressure: Revenue Growth In a New Business Paradigm  
  Thriving Under Pressure  
  Rahul Sarkar - Clarity Manufacturing Consulting

**1:00 PM – 2:30 PM**

- **NEW! F61**: Markets & Energy Incentives for Manufacturing  
  Where Are the New Markets for Metal Forming, Fabricating, Welding and Finishing? The Answer is Blowing in the Offshore Wind  
  Energy Incentives for Manufacturing  
  Joe Sawatske - Eide Bailly  
  Kristin Gustafson - Eide Bailly

### MARKETING & SALES

### MONDAY, SEPTEMBER 13

**8:00 AM – 12:00 PM**

- **NEW! F58**: Market and Build Your Fabrication Story Workshop  
  Market Outlook: What Next?  
  Michele Nichols - Launch Team Inc.

**3:30 PM – 5:00 PM**

- **NEW! F82**: From Funnel to Flywheel: How to Maximize Your Marketing for Sales  
  Daniel Gartlan - Stevens & Tate Marketing

**10:30 AM – 12:00 PM**

- **NEW! F85**: Ensuring A Successful Product Launch  
  Getting More from Your People in a Hybrid or Remote Workforce  
  Michele Nichols - Launch Team Inc.

**1:00 PM – 2:30 PM**

- **NEW! F86**: Building an Inside (Outbound) Sales Team  
  Ty Swain - Growth Dynamics

**3:30 PM – 5:00 PM**

- **NEW! F87**: Client Engagement; Compete on Awesome  
  Taking the Temperature of Client Engagement  
  Holly O’Donnell - Slone Solutions, LLC

**10:30 AM – 12:00 PM**

- **NEW! F89**: How Industrial and Manufacturing Companies Create Predictable Revenue Growth  
  Todd Hockenberry - Camberley Consulting

### TUESDAY, SEPTEMBER 14

**8:00 AM – 9:30 AM**

- **NEW! F80**: Flywheel: How to Maximize Your Marketing for Sales  
  Problem Solving - There Is No Magic Pill  
  Brainstorming Tools for Concept Development and Selection  
  Jeff Opperman - JR Automation

**3:30 PM – 5:00 PM**

- **NEW! F84**: Winning With Social Media & Website Connections  
  Jenny Lockhart - 9 Clouds  
  Winning Websites Have The Something Extra, A Human Connection  
  Nicole Wagner - Stevens & Tate Marketing

**10:30 AM – 12:00 PM**

- **NEW! F88**: Creating an Inbound Marketing Action Plan for Manufacturers Who Are Prioritizing Online Lead Generation  
  Holly McCully - protocol 80, Inc.

**3:30 PM – 5:00 PM**

- **NEW! F83**: Learn How to Optimize Your Sales Team’s Funnel & Obtain Visibility Into Your Sales Forecast  
  Laura Munsch - Marketing Angle

**10:30 AM – 12:00 PM**

- **NEW! F74**: Where Are the New Markets for Metal Forming, Fabricating, Welding and Finishing? The Answer is Blowing in the Offshore Wind  
  Energy Incentives for Manufacturing  
  Joe Sawatske - Eide Bailly  
  Kristin Gustafson - Eide Bailly

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  Vince Bovino - Bovino Consulting Group

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SMART MANUFACTURING

TUESDAY, SEPTEMBER 14
8:00 AM – 9:30 AM
NEW! ■ F903: The Promise of Industry 4.0 & Lean Management
The Promise of Industry 4.0 – Hype or Reality? Fred Tillman - ECI Software Solutions
Duane Clement - Data Inventions
Lean Manufacturing is as Relevant in Industry 4.0 as Ever!
Michael Schlagenhauffer - Acuity
10:30 AM – 12:00 PM
NEW! ■ F904: Big Data to Analyze Manufacturing and Industrial Companies
How Venture Capitalists Are Using Big Data to Analyze Manufacturing and Industrial Companies
Thomas Thurston - WR Hambrecht + Co
Driving Change with Your Data; Use Cases, Best Practices, and the Goal of Implementing an Industry 4.0 Strategy
Jim Wenson - Sinto America, Inc.

WEDNESDAY, SEPTEMBER 15
8:00 AM – 5:00 PM
NEW! ■ WS11: Smart Manufacturing Bootcamp
Jonathan Kim - Amada America, Inc.
Jim Wenson - Sinto America, Inc.
Miguel Hernandez - Amada America, US
Mo Abuali - IoTco, LLC
David Lechleitner - Ultra Consultants
Eric Fogg - Machine Metrics
Will Healy III - Balluff Worldwide
Mehdi Bentanfous - KINEXON
Javier Ortiz - New Forge
Harold Gibbs - TeamViewer
Johan Mlouka - Flyability SA
Ben Harrington - suitX
3:30 PM – 5:00 PM
NEW! ■ S13: 5 Steps to Creating Operational Excellence in the Press Shop
Will Healy III and Jason Hughes - Balluff Worldwide

THURSDAY, SEPTEMBER 16
8:00 AM – 5:00 PM
NEW! ■ S101: Reducing Cost and Risk to Timing Associated with Tool Buy-Off
Kidambi Kannan - AutoForm Engineering USA, Inc.

MARKETING & SALES

1:00 PM – 5:00 PM
NEW! ■ WS9: Essential Sales Strategies for Manufacturers in 2021 and Beyond! — Workshop
The State of Sales & Marketing in Manufacturing
Michele Nichols - Launch Team Inc.
Defining Top Performance in the “New Role” of Sales
Ty Swain - Growth Dynamics
The Dying Rep Model - Applying Measurable Processes to the Manufacturing Sales Function
Anthony Colarusso - SALT Marketing
Creating Short and Long-Term Plans for Sales Video for B2B Technical Buyers
Robert Weiss - MultiVision Digital
6 Keys to Online Lead Generation: How To Drive Demand
Nicole Wagner - Stevens & Tate Marketing

SMART MANUFACTURING

MONDAY, SEPTEMBER 13
8:00 AM – 9:30 AM
NEW! ■ F90: Meeting Changing Buyer Expectations Through Digital Transformation
Jason Ray - Paperless Parts, Inc.
10:30 AM – 12:00 PM
NEW! ■ F91: IIoT to Improve Manufacturing Process
Casey Greer - Amada America
1:00 PM – 2:30 PM
NEW! ■ F92: Digital Tools & Technology to Mitigate Project Risk
Justin Goldston - Penn State University
3:30 PM – 5:00 PM
■ F93: Leveraging AI in Industrial Manufacturing
Driving Zero-Downtime, Zero-Defect Manufacturing with Industrial AI
Mo Abuali - IoTco, LLC

MONDAY, SEPTEMBER 13
8:00 AM – 9:30 AM
NEW! ■ F90: Meeting Changing Buyer Expectations Through Digital Transformation
Jason Ray - Paperless Parts, Inc.

1:00 PM – 4:00 PM
NEW! ■ WS10: Digital Transformation Models for Industry 4.0 Workshop
David Lechleitner - Ultra Consultants
Jason Ray - Paperless Parts, Inc.

1:00 PM – 2:30 PM
NEW! ■ F91: IIoT to Improve Manufacturing Process
Casey Greer - Amada America

10:30 AM – 12:00 PM
NEW! ■ F91: IIoT to Improve Manufacturing Process
Casey Greer - Amada America

3:30 PM – 5:00 PM
■ F93: Leveraging AI in Industrial Manufacturing
Driving Zero-Downtime, Zero-Defect Manufacturing with Industrial AI
Mo Abuali - IoTco, LLC

Visit fabtechexpo.com/conference for complete session descriptions.
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<tbody>
<tr>
<td>10:30 AM – 12:00 PM</td>
<td><strong>NEW!</strong> F110: Winning the Workplace Challenge: Getting Along and Getting Things Done</td>
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<td>Tanya Williamson - Married to the Ring LLC, D/B/A Tanya Williamson &amp; Associates</td>
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<tr>
<td>1:00 PM – 2:30 PM</td>
<td><strong>NEW!</strong> F111: How to Attract and Keep the Right Talent</td>
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<td>William LaRue - TFC Inc.</td>
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<td>Marion Wells - Human Asset Management</td>
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<td>Shelly Otenbaker - WayPoint Marketing Communication</td>
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<td>3:30 PM – 5:00 PM</td>
<td><strong>NEW!</strong> F112: Three Key Areas That are Essential to Become a Better Leader</td>
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<td>Cullen Hackler - Porcelain Enamel Institute, Inc.</td>
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<td>3:30 PM – 5:00 PM</td>
<td><strong>NEW!</strong> F113: Read (Hidden) Emotions - Know What Others are Thinking and Feeling</td>
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<td>Dan Seidman - Read Emotions</td>
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<td>8:00 AM – 12:30 PM</td>
<td><strong>NEW!</strong> WS12: Leadership Skills &amp; Development Workshop</td>
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<td>Good Leadership Is Key for Employee Retention</td>
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<td>Lisa Ryan - Grategy</td>
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<td>1:00 PM – 2:30 PM</td>
<td><strong>NEW!</strong> F114: Blue-Collar Leadership* &amp; Culture: The 5 Components for Building High Performance Teams</td>
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<td>Mack Story and Ria Story - Top Story Leadership/Blue-Collar Leadership</td>
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<td>1:00 PM – 2:30 PM</td>
<td><strong>NEW!</strong> F210: Diversity, Equity, and Inclusion: Future-Proofing Your Workforce</td>
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<td>Robert Tessier - Airgas, an Air Liquide Company</td>
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<td>Kevin Coleman - KMC EMPOWERMENT LLC</td>
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<td>3:30 PM – 5:00 PM</td>
<td><strong>NEW!</strong> F211: Why You Can’t Get Your People Motivated &amp; What To Do About It</td>
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<td></td>
<td>C.W. DeBettignies - Gainsharing Inc.</td>
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**MONDAY, SEPTEMBER 13 - THURSDAY, SEPTEMBER 16**

**3D/ADDAITIVE MANUFACTURING SHOWCASE**

3D/Additive Manufacturing has proven to be a formidable technology in manufacturing. This year, FABTECH will feature a presentation showcase in the 3D/Additive Manufacturing Pavilion to provide access to information on this fast-growing technology. The showcase, located in South Hall, features industry-leading companies sharing 20-minute presentations on the latest in the Additive Manufacturing community.

Visit fabtechexpo.com/conference for complete session descriptions.
EDUCATIONAL SESSIONS

MONDAY, SEPTEMBER 13

1:00 PM – 5:00 PM
W1: HOW TO CREATE AND WRITE A QUALITY MANUAL FOR THE ATF PROGRAM
One of the requirements of the ATF program is writing a quality manual for the implementation of the quality system in a welding shop. This conference will help you develop ideas for you to write the quality manual and provide you with tips on the process.
Emil Pagoaga - American Welding Society

W2: OVERVIEW OF WELDING INSPECTION
1:00 PM – 2:00 PM
Overview of Visual Inspection and Nondestructive Testing
An overview of surface and volumetric inspection methods used for welding inspection.
Scott Witkowski, Republic Testing Laboratories, LLC

2:00 PM – 3:00 PM
The CWI Program and Endorsements
What’s new with the CWI certification and education programs, including new endorsements.
Richard Campbell, Bechtel

3:00 PM – 4:00 PM
Various NDT Certification Programs
An overview of various NDT programs, including ASNT SNT-TC-1A compared with CP-189, ISO, and ASME’s ANDE program.
David Bajula, ACUREN

4:00 PM – 5:00 PM
COVID 19: A Catalyst for Increased Adoption of Drones in Remote Visual Inspection
Applications of drones (Unmanned Arial Systems -UAS) and other remote visual inspection aids for welding inspection with an overview of ASME Section V work to maintain continuity in alternate platforms of remote inspection.
Kimberley Hayes, Valkim Technologies, LLC

TUESDAY, SEPTEMBER 14

W3: AWS/WELD-ED CONFERENCE – PROJECT BASED WELDING CURRICULUM
8:30 AM - 8:45 AM
Welcome / Introductions
Monica Pfarr, Executive Director AWS Foundation, PI Weld-Ed
Rick Polanin - AWS VP, CoPI Weld-Ed, Professor ICC

8:45 AM – 9:15 AM
Advantages of a Welding Project Based Curriculum
Rick Polanin, AWS VP, CoPI Weld-Ed, Professor ICC

9:15 AM – 10:00 AM
Yuba Community College Project Fabrication
Dan Turner, Professor, Weber Yuba Community College

10:00 AM - 10:15 AM - BREAK

10:15 AM – 11:00 AM
Plummer Lecture
Building the Next Generation of Welders
James N. Colton II, Assistant Professor of Welding at the Pennsylvania College of Technology

11:00 AM – 11:45 AM
Lincoln Foundation Project Awards

11:45 AM – 12:30 PM
Lunch - Hypertherm Plasma Cutting for Student Projects

Welding continued on page 34
### EDUCATIONAL SESSIONS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
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<tbody>
<tr>
<td>12:30 PM – 1:15 PM</td>
<td>Miller Electric Projects</td>
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<tr>
<td>1:15 PM – 2:00 PM</td>
<td>AWS Poster Competition Used as a Student Project</td>
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<tr>
<td>2:00 PM – 2:45 PM</td>
<td>Innovations in Project Based Teaching</td>
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<tr>
<td>2:45 PM – 3:30 PM</td>
<td>AWS Foundation Scholarship Opportunities</td>
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<tr>
<td>3:30 PM – 4:00 PM</td>
<td>Wrap-Up, Evaluations</td>
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### W4: ALUMINUM WELDING

This session will address some of the more important differences between the welding of aluminum and steel.

- **8:00 AM – 9:00 AM**
  - **Part 1: An Overview of Aluminum Welding**
    - Tony Anderson, ITW Welding North America
- **9:00 AM – 10:00 AM**
  - **Part 2: Basic Aluminum Metallurgy**
    - Carson Williams, Hobart Aluminum
- **10:00 AM – 11:00 AM**
  - **Part 3: Filler Metal Selection for Aluminum Welding**
    - Galen White, Hobart Aluminum

### W5: ADVANCED NDT METHODS AND YOUR FUTURE AS A CWI

- **8:00 AM – 9:00 AM**
  - **Computed and Digital Radiography**
    - Computed (CR) and Digital Radiography (DR) compared with film radiographic testing (RT).
    - David Bajula, Acuren
- **9:00 AM – 10:00 AM**
  - **Advanced Ultrasonic Testing**
    - Use of phased array ultrasonic testing (PAUT), time of flight diffraction (TOFD), other automation of UT
    - Chris Goocher, ProSpec NDE
- **10:00 AM – 11:00 AM**
  - **What’s Next in Your Career as a CWI?**
    - Question and answer session with presenters who are CWIs. Discuss questions such as if you are a Welder, what is there for you if you become a CWI; and if you are already a CWI, what can you do with that, such as become a SCWI, supervise other NDT personnel, other options.
    - Richard Campbell, Bechtel

### W6: METALLURGY (INTERMEDIATE)

Intermediate metallurgy provides a fundamental introduction to metallurgical concepts of crystal structure, alloy strengthening, diffusion, dislocations, and phase diagrams. We will build upon these concepts by exploring their kinetic effects on carbon steels, through time-temperature-transformation diagrams, microstructure, and material properties.

- **1:00 PM – 5:00 PM**
  - **W6: METALLURGY (INTERMEDIATE)**
    - Ben Pletcher, Bechtel

### W7: ADDITIVE/ASME

- **8:00 AM – 9:00 AM**
  - **Research Works to Support Development of Section IX Rules for GMAW-AM**
    - Teresa Melfi, The Lincoln Electric Company
- **9:00 AM – 10:00 AM**
  - **Development of an ASME Section VIII Code Case for Using Titanium for Pressure Boundary Parts Using Electron Beam Direct Energy Deposition Wire Fed Additive Manufacturing Process**
    - John O’Hara (Sciaky)
    - Benjamin Sprengard (Enerfab)

### W8: METALLURGY (ADVANCE)

Advanced Metallurgy builds upon the intermediate course by exploring gas and liquid metal reactions during welding, changes within the heat affected zone, and kinetic correlations between welding heat input and structural changes. We will explore stainless steel alloys through elemental additions, how to use Schaeffler/WRC diagrams for dissimilar metal welding, and how microstructural stability affects corrosion properties. We will wrap up with a brief overview of the other alloys families and how metallurgy affects their weldability.

- **1:00 PM – 5:00 PM**
  - **W8: METALLURGY (ADVANCE)**
    - Ben Pletcher, Bechtel

### W9: WELD CRACKING

- **8:00 AM – 11:00 AM**
  - **What’s New in the 2021 Edition of ASME Section IX**
    - Walter Sperko, Sperko Engineering Services, Inc.
    - Lynn Sturgill, Sturgill Welding & Code Consulting
  - **9:00 AM – 10:00 AM**
    - **Qualifying GMAW Additive Manufacturing to ASME Section IX**
      - Teresa Melfi, The Lincoln Electric Company
  - **10:00 AM – 11:00 AM**
    - **What’s New in the 2021 Edition of ASME Section VIII**
      - Tom Pastor, The Hartford Steam Boiler Inspection & Insurance Company

### W10: ASME CODES AND STANDARDS UPDATE

- **8:00 AM – 9:00 AM**
  - **What’s New in the 2021 Edition of ASME Section IX**
  - **9:00 AM – 10:00 AM**
    - **Qualifying GMAW Additive Manufacturing to ASME Section IX**
      - Teresa Melfi, The Lincoln Electric Company
  - **10:00 AM – 11:00 AM**
    - **What’s New in the 2021 Edition of ASME Section VIII**
      - Tom Pastor, The Hartford Steam Boiler Inspection & Insurance Company

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1:00 PM – 3:00 PM
**AWS 17TH EXCELLENCE IN WELDING AWARDS CEREMONY**
The best and brightest stars in the welding industry will be honored for their outstanding industry achievements at the 15th Annual Excellence in Welding Awards. Presented by the AWS and WEMCO, a standing committee of AWS, the Excellence in Welding Awards are the industry’s top honors saluting the year’s most outstanding public initiatives and programs that promote the image of welding. By invitation only.

**MONDAY, SEPTEMBER 13 – THURSDAY, SEPTEMBER 16**

**CAREERS IN WELDING MOBILE EXHIBIT**
Open during show hours
The American Welding Society Foundation’s Careers in Welding Mobile Exhibit, sponsored by Lincoln Electric, is a 53-foot expandable trailer that visits major events across the country, providing individuals with a unique, hands-on virtual reality welding experience, as well as a host of information about career opportunities in the welding field. Visitors can check out “Metal Maiden”, a metal-art sculpture in the likeness of the Statue of Liberty, created by Stephanie Hoffman and Barbie the Welder. Events are being planned throughout the week with some of the biggest names in the welding industry.

Visit careersinwelding.com/fabtech2021 for the most up-to-date details and schedule.
DESTINATION
CHICAGO

Chicago has something for everyone. From world-class museums, parks and amazing architecture to shopping on the Magnificent Mile and a wide range of dining options, and much more!

Get the Best Hotel Selection and Savings
Book your stay through onPeak, FABTECH’s Official Hotel Provider, for guaranteed lowest rates and big benefits — including complimentary shuttle service and no booking or service fees! Reserve your rooms early for the best selection and price — hotels sell out quickly. Visit fabtechexpo.com/accommodations.

Start Planning Now!
Download the FABTECH app to access show info on the go — exhibits, a floor plan, sessions, agenda planner and more — at fabtechexpo.com/mobile-app.

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<tr>
<th>Industry Average</th>
<th>AMADA HRB ATC</th>
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<tbody>
<tr>
<td>Total Setup Time</td>
<td>Total Setup Time</td>
</tr>
<tr>
<td>14.8%</td>
<td>16.5%</td>
</tr>
<tr>
<td>11.7%</td>
<td>9%</td>
</tr>
<tr>
<td>5.9%</td>
<td>9%</td>
</tr>
<tr>
<td>5.1%</td>
<td>9%</td>
</tr>
<tr>
<td>21.7%</td>
<td>3.7%</td>
</tr>
<tr>
<td>9.3%</td>
<td>9.3%</td>
</tr>
<tr>
<td>8.1%</td>
<td>8.1%</td>
</tr>
<tr>
<td>17.4%</td>
<td>17.4%</td>
</tr>
</tbody>
</table>

Customers previously achieving 10-12 setups per shift now complete 35-45 setups per shift utilizing the HRB ATC.

- Average tool setup 1-2 minutes.
- One HRB ATC replaces 2-3 standalone press brakes.
- 3-fold job increase and the ideal solution for high-mix, low-volume.
- Utilizes economical, American-made HRB AFH tooling.
- Total bending solution reduces the need for skilled operators.

From Production To Rush Job In Minutes
Scan each QR code for video.

Made in USA Expedites Delivery

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