



AEC.org/EDU19

Extrusion Design University – EDU '19

Returns in 2019

Aluminum Extrusion Design, Applications & Technology Conference

September 12, 2019 • Music City Center

Nashville, Tennessee USA

CO-LOCATED
WITH



Educational Sessions • Networking • Optional Plant Tour

Join us for Extrusion Design University 2019 – EDU '19 in Nashville!

EDU '19 is a one-day event that features educational presentations covering aluminum extrusion design, applications, and technology focused on expanding aluminum extrusion knowledge.

This event connects industry experts who understand extrusion design and production processes with designers, engineers, specifiers and manufacturers who are interested in enhancing their knowledge and understanding of aluminum extrusions. EDU '19 is designed to educate, accelerate professional growth and facilitate relationships.

If you design, engineer, specify or use aluminum extrusions, the EDU '19 program will benefit you. From alloys and applications to paint and fabrication, the program provides a wealth of information and resources on aluminum extrusion.

Learn & Earn

Aluminum Extruders Council (AEC) is submitting the presentations at EDU '19 for continuing education learning units for building professionals. In addition, many of the presentations at EDU should provide engineers with Professional Development Hours through their state's engineering professional development program.

For more information, visit AEC.org/EDU19.



Why Attend?

- **Learn** from aluminum extrusion industry leaders who will share their technical knowledge and expertise.
- **Earn** CEU and PDH credits in one convenient place! Get your professional development requirements accomplished at EDU '19!
- **Connect** with fellow designers and engineers, develop relationships and share challenges at networking events.
- **Find answers** to questions on popular aluminum extrusion topics, including alloys and tempers, extrusion applications, finishing, fabrication and more.
- **Explore** aluminum extrusion applications, including LED lighting, signage, crash management for automotive structures, and much more.
- **Meet** with dozens of aluminum manufacturers and related suppliers who will be on hand at Aluminum USA (ALU USA). Your EDU '19 registration includes entry to Aluminum USA.

What You Will Learn

A total of 12 one-hour educational sessions, many registered for continuing education credits, cover the aluminum extrusion process—from alloys to finishes and fabrication to joining. Each track covers specific topics, including: **Automotive, Architecture, and Industrial Engineered Products**

For complete information about sessions that have been AIA CES registered, visit AEC.org/EDU19.

AEC reserves the right to alter the schedule and substitute speakers as needed.





What is Included in EDU '19 Registration?

Your registration for Extrusion Design University includes:

- Your choice of four one-hour sessions from 12 offered, each arranged in **three concurrent tracks including:** *Architecture, Automotive and Industrial/Engineered Products*
- *Entrance to Aluminum USA both days, including a reception on Thursday evening.*
- Continental breakfast and break refreshments on Thursday.
(Note: Lunch is on your own. There are many meal options available at Music City Center.)



About Aluminum USA

ALUMINUM USA is the leading exhibition and technical conference for aluminum products, technologies and investments in the United States. Bringing the industry together every two years, ALUMINUM USA is the place to be to get a comprehensive overview of the entire aluminum industry. It represents the entire value chain offering solutions for the aluminum industry and all applications fields.

For details, visit Aluminum-US.com.

EDU '19 Schedule at a Glance

THURSDAY, SEPTEMBER 12

8:00 a.m. – 8:45 a.m.	General Session
9:00 a.m. – 10:15 a.m.	Session I
10:30 a.m. – 11:45 a.m.	Session II
11:45 a.m. – 1:00 p.m.	Lunch & Aluminum USA Expo
1:15 p.m. – 2:30 p.m.	Session III
2:45 p.m. – 4:00 p.m.	Session IV
4:00 p.m. – 5:00 p.m.	Reception in Aluminum USA Expo

FRIDAY, SEPTEMBER 13

8:00 a.m. – Noon	Optional Tour to Bonnell Aluminum*
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****Additional registration required; you must be registered for EDU '19 to register for the plant tour.***

– See page 3 for details.

Hotel Reservations

Hotel accommodations should be made directly with the Aluminum USA official housing firm.

For Reservations, please go online and visit:
www.AEC.org/EDU19 or
www.Aluminum-US.com
for a link to make your room reservation.

EDU '19 & ALU USA will take place at:

Music City Center
201 Fifth Avenue South
Nashville, Tennessee 37203 USA



Optional Extrusion Plant Tour*

To aid in learning objectives at **EDU '19**, an optional tour of the Bonnell Aluminum production facility in Carthage, Tennessee, approximately one hour east of Nashville, will be offered.



Bonnell Aluminum Carthage Facility Friday, September 13 | 8:00 a.m. – Noon

The Bonnell Aluminum Carthage facility provides high-end custom extrusions for many different industries, but mainly focuses on commercial construction. Bonnell provides a full service experience by providing the customer complete quality control through casting their own billet, offering custom extrusions, wet paint, and anodizing, as well as providing thermal barrier capabilities with their polyurethane and I-strut lines. This is followed by custom packaging. The tour will showcase Bonnell's full capabilities showing the Casting, Extrusion, Anodizing, Paint, Finishing, and Shipping operations.

Roundtrip transportation will be provided with tour participants leaving at 8:00 a.m. and returning to Music City Center by Noon. Complete tour details will be provided to participants in advance.

** Participation is subject to final approval by management. You must be registered for EDU '19 to participate in the plant tour.*

The General Session

The General Session at EDU '19 includes engaging speakers who bring insight and perspective, equipping delegates with the emerging information they need to better understand and utilize aluminum extrusions.

Thursday, September 12

8:00 a.m. – 8:45 a.m.



Welcome & Aluminum Extrusion Industry Overview

Jeff Henderson,
President
Aluminum Extruders Council (AEC)

Jeff Henderson, President of the Aluminum Extruders Council, will provide a general overview of the industry and the AEC to provide delegates with an understanding of the importance of this industry to the economy and manufacturing. Topics will include an overview of the Aluminum Extrusion Fair Trade efforts, the Council's focus on expanding knowledge of aluminum extrusions with design, engineering and academic communities, and its commitment to helping AEC members overcome the challenges that arise in a competitive manufacturing environment.

Aluminum Extrusion & Sustainability

Representative from Alcoa Corporation

The importance and number of sustainability-related concepts are constantly growing in North America as well as globally. This session aims to describe the processes and opportunities for product differentiation in the aluminum extrusion industry in regards to sustainability. Alcoa, as a recognized sustainability leader with over 15 years on the Dow Jones Sustainability Index and member of the Aluminum Stewardship Initiative, will give their views on this hot topic.

Times subject to change. AEC reserves the right to alter the schedule and substitute speakers as needed.

EDU '19 Educational Breakout Sessions

Thursday, September 12

9:00 a.m. – 4:00 p.m.

Visit AEC.org/EDU19 for updates and to find sessions that are available for AIA CES credits.

Automotive/ Transportation Track

Specifying & Achieving Desired Extrusion Performance for Automotive Extrusions

Mark Butterfield,

Magnode, A division of Shape Corp,

Since 2012, the usage of extruded aluminum shapes in North American light vehicles has grown by more than 50%, to over 25 pounds per vehicle. Today, aluminum extrusions can be found in applications as varied as crush cans, trim members, rocker sections and seat backs – each with a unique set of performance requirements.

As automotive aluminum extrusion applications continue to grow, engineers seeking optimized performance are increasingly going beyond the "shorthand" of alloy and temper designation by specifying the desired microstructure for the final component. Mini cases will be used to illustrate successful application of microstructure specification.

Aluminum Extrusion Alloys for Lightweighting Transportation Programs

Jerome Fourmann,

Rio Tinto Aluminium

Engineered products using aluminum extrusions provide a number of options and solutions. This presentation will discuss how aluminum extrusion can help meet tomorrow's fuel economy targets while providing the comfort, safety, and performance that consumers demand. A variety of alloys suited to transportation applications will be reviewed along with their characteristics, industry standards and performance impact.

Anodize for Auto and B&C Application

Linda Newman & Daryl Jones,
Houghton International

Anodizing processes have been used for decades in a wide range of products as solutions for everything from aesthetics to corrosion protection. This session will outline anodizing processes specifically geared to automotive applications. The features and benefits anodizing for any automotive component requirements will be discussed.

Joining Aluminum Extrusions through Friction Stir Welding

Jason Weber, *Taber Extrusions*

Engineered products using aluminum Friction Stir Welding (FSW) is not a new technology and has been in use for decades. Although pioneered for the aerospace industry, recent advances in FSW machine design and FSW capacity continues to open the possibility for new products to be joined through FSW. This presentation will cover the basics of what FSW is, current products that are Friction Stir Welded, general design practices for extrusions incorporating FSW features, and typical performance of FSW joints versus other joining technologies.

Architecture Track

High Performance Fluoropolymer Coatings

Scott Moffatt, *PPG Industries*

This course is designed to explain the differences in PVDF versus FEVE fluoropolymers resin systems. It also covers the type of products available by explaining pigmentation used for durability, IR reflectivity and appearance options like solids, micas and metallics. There are different types of application methods for fluoropolymers and various qualities available in liquid and powder formulations. This course also gives performance overviews based on AAMA performance specifications.

Aluminum Extrusion Anodizing for B&C Applications: What You Should Know

W. Adam Stone, *Bonnell Aluminum*

Better understand the requirements deemed "critical to success" to anodizing for aluminum extrusions in building & construction applications. This session will cover the differences between various anodizing types (Class I, II and III), clear versus 2-step, the relative strengths and weaknesses of each anodizing type, comparisons with AAMA 2603 and 2605 coatings, corrosion resistance and common types of corrosion, the effect of alloys and temper and the importance of die maintenance to achieve finish consistency. The cleaning and maintenance specifications (AAMA 609-610) required to maintain finish durability, and testing requirements to ensure anodizing quality will be discussed.

Designing High Performance Facades

Bill Blazek, *Technoform*

This course describes the multiple challenges in designing high performance building envelopes in order to deliver energy performance, sufficient glazed area for optimized daylight admission and views, thermal comfort and condensation resistance (indoor air quality), as well as structural and durability performance, yet still provide architectural design freedom.

Common disconnects in specifying fenestration and fenestration components are reviewed. The concept of the "thermal zone" is introduced, and technologies such as polyamides thermal breaks and warm-edge spacers that improve its performance are described. Guidance is provided on choosing the optimum thermal break and edge-of-glass spacer technologies to meet thermal performance requirements while still delivering the structural and durability requirements, and also allowing architectural design freedom. The fenestration U-factor requirements of the recently updated and more stringent energy codes, and how to specify fenestration components to meet them, are also covered.

When to Use Storefront or Curtainwall

Chris Giovannielli, *Kawneer*

This course provides an overview of the differences between curtain wall and storefront designs and functions. System fabrication and installation, and water performance are also discussed. Learn how each system is best utilized in a commercial project, what should be considered when deciding between storefront or curtain wall and the various applications for each system.

Industrial Engineered Products Track

Design Considerations for Cost Effective Extruded Products

Andrew Tomczyk,
*Erbisloeh Aluminum Solutions Inc. —
WKW Extrusion*

Target costing is a key element for success of any product, no matter the market. Often, target costs are missed and profitability suffers due to design concepts that are overlooked. The presentation will cover the most important factor for cost consideration, the weight of the part, with the speaker explaining how to optimize profile design for best weight and utilize Computer-aided Engineering (CAE) analysis for best structural performance with least material. Additionally, value-added fabrication, such as CNC machining, punching, sawing, and drilling, contributes 25-30% of cost to the product. CNC vs punching, as well as communizing radii for CNC milled features for cost effectiveness will be discussed.

Fabrication: Adding Value to Aluminum Extrusions, When & How

Mark Butterfield,
Magnode, A division of Shape Corp.

Over the last two decades extruders have extended their offerings to the marketplace in the way of fabricated aluminum extrusions. From precision cutting to CNC machining, extruders are adept at delivering a final part straight to your production line. However, the question is: where in the manufacturing continuum should you ask your supplier to deliver? This session will help you determine what options are available and how they can transform the way you make your products.



Utilization of Aluminum Extrusion in LED Fixtures

Speaker TBD, Almag Aluminum

Aluminum extrusions are present in a multitude of components that make up a light fixture in today's lighting industry – and with very good reason. The recent advancement of extrusion technology, as well as the inherent properties of aluminum, makes choosing aluminum extrusions as a light fixture component an easy choice. Aluminum has a high strength-to-weight ratio and great corrosion resistance, which make it great for light housings, as well as high thermal conductivity making it great for heatsinks. Aluminum extrusions are also soft enough to be formed prior to age hardening, yet hard enough to have good machinability afterwards. Knowing the limits of aluminum extrusions will help provide a better solution to light fixture designs.

Extrusion Design Through Visual Applications

Rob Nelson, Almag Aluminum

Aluminum extrusions are used in all types of applications that support the signage industry. Aluminum's high strength-to-weight ratio and great corrosion resistance make it an optimal choice for frames and fixtures for visual displays. Whether the application is in an indoor retail space or harsh external environment, aluminum meets the challenge. In most cases the signage is not about the extrusion but about the advertisement and this presentation will explore fit, form and function of a rapidly growing industry.

AEC reserves the right to alter the schedule and substitute speakers as needed.



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Extrusion Design University – EDU '19

September 12, 2019

Music City Center, Nashville, Tennessee • USA

REGISTRATION FORM

Register online at www.AEC.org/EDU18

Hotel Reservation Information

For hotel reservations, please go online: please visit www.AEC.org/EDU19 or www.Aluminum-US.com

EDU '19 will take place at:
Music City Center
201 Fifth Avenue South
Nashville, Tennessee 37203 USA

SEND COMPLETED REGISTRATION FORM AND PAYMENT TO:

1000 N. Rand Road, Suite 214
Wauconda, Illinois 60084 USA

OR SECURE FAX: 847.526.3993

NOTE: For your protection, **do not email** form with credit card information. Please fax or mail completed form to AEC.

QUESTIONS?

Tel: 847.416.7215
Email: mail@aec.org or ljurcenko@tso.net

Cancellation Policy

Registration fees will be refunded only if written notice is received at the Executive Office on or before **September 5, 2019**. A 20% administrative fee will be deducted from the refund. Delegate substitutions may be made at any time without penalty.

Register Early! Only those registered may attend scheduled functions. Registration fees include all as-registered program sessions, entrance to Aluminum USA, take-home materials, scheduled receptions and breaks. *Please print legibly.* To register online, go to www.AEC.org/EDU19.

Full Name _____

Preferred First Name for Badge _____

Job Title _____

Company Name _____

Address _____

City, State/Province _____ Zip/Postal Code _____

Country _____ Telephone _____

Email _____

Check here if you require assistance to fully participate. AEC will contact you.

Registration Fees Please choose from the following registration options:

<i>U.S. dollars only</i>	Early Registration Fee by June 15, 2019	Registration Fee After June 15, 2019	<i>Subtotal</i>
<input type="checkbox"/> EDU '19	\$199	\$249	\$
<input type="checkbox"/> Yes, I will attend the Optional Plant Tour on 9/13/19	[This cell is intentionally blank]		
GRAND TOTAL =			\$

PAYMENT

My payment for \$_____ will be paid via:

- Check enclosed *(Make check payable to Aluminum Extruders Council)*
- Or charge by Credit Card VISA MasterCard American Express Discover
(Do Not email your credit card information. Please fax or mail completed form to AEC.)

Printed Name of Cardholder **(required)** _____

Signature _____

Billing Address **(if different than above)** _____

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September 12, 2019

Music City Center • Nashville, TN

Register Now! Early discount ends June 15!

*Expand your knowledge and understanding
of Aluminum Extrusion!*

Education • ALU USA Expo • Networking & more!



AEC.org/EDU19

**Register by
6/15/19
to Save!**

Extrusion Design University

*Aluminum Extrusion Design,
Applications & Technology Conference*

September 12, 2019

Music City Center

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- + Education Sessions**
- + Networking**
- + Optional Extrusion Plant Tour
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