

OCTOBER 26-28, 2016 BALTIMORE, MARYLAND



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Large-scale Interactive 3-D Printing Technology Demo at METALCON

Newton, Mass., Oct. 18, 2016—The largest international event for the metal construction industry showcases a 3-D printing technology project developed by the Department of Energy's Oak Ridge National Laboratory (ORNL) and industry partners at METALCON's annual tradeshow and conference on October 26 at the Baltimore Convention Center.

As part of its focus on technology this year, METALCON is featuring ORNL's Additive Manufacturing Integrated Energy (AMIE) project. AMIE demonstrates rapid innovation through additive manufacturing, or 3-D printing, addressing electricity supply and reliability challenges via an integrated approach to power generation, storage and consumption.

AMIE connects a natural gas-powered hybrid electric vehicle with a high-performance building—both printed on the world's largest polymer 3-D printer. Power flows between the vehicle and building using a fast, efficient bi-directional wireless power transfer technology developed by ORNL. The structure's 3.2-kilowatt solar panel system, paired with the electric vehicle's batteries, generates and stores renewable power. It is a model for energy-efficient systems that link buildings, vehicles and the grid—a breakthrough in offsetting power supply disruptions.

In addition, AMIE exemplifies additive manufacturing's rapid prototyping potential in design, manufacturing and construction technologies, which will enable products to go-to-market more quickly and reduce the amount of waste generated by traditional construction methods.

Dr. Roderick Jackson, the technical lead for AMIE and the Building Envelope Systems Research group leader at ORNL, is a special guest speaker at METALCON. Jackson, who has a background in construction, will present the *Future of Design and Technology Trends in Construction* followed by a guided tour of AMIE in the exhibit hall. He will explain multiple uses of this new technology combined into one project and discuss the potential of integrated design, build and energy efforts.

(more)

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METALCON

A FUTURE BUILT BY HAND

“The folks at METALCON and the Metal Construction Association (MCA) understand the concept and recognize the innovation AMIE presents and how this technology could apply to the metal construction industry,” said Jackson.

“The whole idea behind this prototype is to introduce disruptive innovations to the construction industry. Although AMIE is constructed from polymer composites, we can explore how to apply this technology to the metal construction industry.”

“We brought together expertise from multiple research teams, along with 20 industry partners including 100 individuals, and the U.S. Department of Energy,” said Jackson. “We took the risk to demonstrate how it can be done. We went from a sketch on a restaurant receipt after a dinner meeting to a final product demo in just nine months. We will discuss not only how it was done, but also what rapid prototyping means for the future of the construction industry.”

“We want to know what innovations we can implement today to prepare the metal construction industry for the future,” said Jackson. “Perhaps there is a challenge in the industry we can help overcome using additive manufacturing or integrated energy technologies.”

METALCON Show Director, Claire Kilcoyne, is excited to showcase AMIE in the exhibit hall. “We have an amazing opportunity to create an interactive learning experience for our attendees by connecting our educational program to the exhibit hall with this major added attraction,” said Kilcoyne. “This 3-D printing technology offers considerable benefits to the metal construction industry.”

About ORNL

ORNL is managed by UT-Battelle for the Department of Energy's Office of Science. High-resolution photos of the AMIE demonstration are available at www.flickr.com/photos/oakridgelab/albums/72157658718524166 along with a video of the AMIE demonstration at <https://youtu.be/RcKQBIFJRN4>. For more information, please visit www.ornl.gov/amie.

About METALCON

Established in 1991, METALCON is the largest international event in the metal construction industry. Unique in both its service and show management to this vibrant industry, METALCON is the only annual tradeshow and conference devoted entirely to the application of metal in industrial, institutional, light commercial and residential projects. Its success is based on three key methods of education: exhibits, an extensive conference program and interactive, learning zones. METALCON is produced by PSMJ Resources, Inc., and sponsored by The Metal Construction Association. This is the event's second time in Baltimore. For more information, visit www.metalcon.com or call 800-537-7765.

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