

Large Scale Additive Manufacturing in Kentucky, Concrete 3D Printing the Next Generation of Homes and Products

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Abstract

Over the past several years, Additive manufacturing (AM) has been altering the landscape of virtually every global industry, from aerospace to agriculture. Though the majority of these AM applications have been of moderate to smaller size, the technology has now evolved to the point where entire homes can be 3D printed. This presentation will provide an overview of concrete AM applications and announce a new, four year, federally funded initiative for Kentucky that will accelerate the integration of concrete AM within the state's construction industry. With the initiative's overall goal being to support disaster relief and flood reconstruction efforts, while simultaneously creating a new manufacturing and economic driver for Eastern Kentucky. Information and examples related to breakthroughs associated with concrete AM such as materials, social sustainability outcomes, and novel structural design techniques will also be presented.

Biography of Presenter

Professor Wooldridge is a Registered Architect, a Professional Engineer in multiple disciplines including Architectural, Mechanical, and Biosystems, and holds multiple patents. His Master's degree is in Manufacturing Systems Engineering with an additive manufacturing focus. A fourth generation cattle farmer, he also owns two private engineering and design firms and has designed buildings across the central and southern regions of Kentucky. Wooldridge is a consulting reviewer for Autodesk's educational program and provides training in additive manufacturing, pre-engineering, generative design, and Artificial Intelligence at Somerset Community College (SCC). He serves on the advisory council for the national Additive Manufacturing Coalition, created the nation's first statewide, 3D printing technician certificate program, and is the director of the KCTCS Additive Manufacturing Center.

