

Research Development Fund – FALL FY18 Application Template

SUBMISSION DEADLINE: *March 30, 2018 at 12 noon CDT* to rdf@tamu.edu

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Application Title: Advanced Infrastructure Manufacturing & Materials (AIMM)

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Key Participating Units: College of Engineering (CVEN, MSEN, ISEN, MEEN, CSEN), College of Architecture (ARCH, COSC), College of Science (CHEM), Center for Infrastructure Renewal

Anticipated Request Amount (\$): 1,064,500

Executive summary of this application to utilize Research Development Funds:

This proposed usage of RDF funds targets the development of the Advanced Infrastructure Manufacturing & Materials (AIMM) lab at the Center for Infrastructure Renewal (CIR) at the Texas A&M University RELLIS Campus. Innovation in infrastructure manufacturing is a burgeoning research field that is seeing tremendous investments in the US. The development of the AIMM lab will set TAMU apart from other institutions such that the University will be seen as the world leader in this realm. While several other US institutions are currently working on topics such as 3D printing of civil infrastructure using antiquated, existing materials, the proposed list of equipment will enable the AIMM lab to simultaneously develop new construction methods along with new, cheaper, more sustainable materials optimized explicitly for the new construction methods. This unique approach of symbiotic development of new materials and infrastructure manufacturing methods will enable TAMU to outcompete other institutions for research grants in this field. Currently, NSF has a strong focus on manufacturing and the NIST Office for Advanced Manufacturing (OAM) is responsible for the NIST Manufacturing USA Institute Program. In addition, the Department of Defense (DOD) and the U.S. Army Corps of Engineers have a focus on rapid construction and automation. The proposed investment will make Texas A&M very well placed to receive significant funding from these agencies. The AIMM lab will be supervised by Dr. Kalantar (ARCH), but will be a facility centered around harnessing collaborative expertise from three colleges: Engineering, Science, and Architecture. Ultimately, this collaborative enterprise will result in a much needed transformation of the construction industry that dramatically enhances efficiency and leads to infrastructure manufactured in less time and at lower cost. As the AIMM lab will be housed in the new CIR, which is an open user facility, the lab will be open to researchers across campus. The implementation of a web-based Laboratory Information Management System (LIMS) with easy direct billing of usage fees and online scheduling will readily enable access to potential users.