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Partners in Prevention

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Partner Spotlight – Meet Dr. Forrest Masters

Dr. Forrest Masters is a professor in the University of Florida Engineering School of Sustainable Infrastructure & Environment. He also serves as Associate Dean for Research and Facilities in the university's Herbert Wertheim College of Engineering. He is a member of the FLASH Board of Directors and the Executive Committee of the American Society of Civil Engineers' Infrastructure Resilience Division.

FLASH: Please tell us about your background.

MASTERS: I received my doctorate in civil engineering at the University of Florida in 2004, immediately preceding the major hurricane outbreaks in 2004 and 2005 that included Charley, Katrina, among other major storms. My active research focuses on surface-level tropical cyclone wind field and its effect on the built environment.

FLASH: How did you get involved with FLASH?

MASTERS: My service activities that focus on reducing the loss of life and property during extreme wind events closely align with the objectives and commitments of FLASH. For example, we operate a wind tunnel facility for the National Science Foundation that enables research to improve building design in areas prone to extreme winds.

FLASH: How did you become interested in disaster safety?

MASTERS: Chasing storms during my undergraduate days sparked my interest in disaster safety. Years of study on tropical cyclone effects on the built environment deepened it and gave it focus. At the University of Florida I was fortunate to lead the team that developed equipment to recreate a hurricane environment in a laboratory setting for scientific study.

FLASH: What do you see to be the future of resilient building? What do you think is moving the cause of resilience forward?

MASTERS: The adoption of methods and techniques to automate the design, construction, inspection, and maintenance of civil infrastructure and lifelines are keys to resiliency. I am especially interested in how artificial intelligence and robotics can reshape industry practice and workforce development. Current mitigation strategies focus on how to improve the codes and standards developed in the last few decades. Ultimately, they center on guiding people, i.e., designers, builders, and inspectors. I imagine a future where this guidance shifts toward optimizing engineering and construction to reduce material use, build time, and environmental impact while ensuring sound engineering is in place.

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FLASH: Can you tell us about a specific project you are working on or are passionate about in the resilience field?

MASTERS: I would cite the National Science Foundation (NSF) Natural Hazards Engineering Research Infrastructure (NHERI) program. It is a collection of 11 university programs that operate as a national facility for the engineering and science communities. Recognizing the national need for resilience against multiple natural hazards, NSF invested $40M to create a network of shared, state-of-the-art research facilities and tools located at universities around the country to explore and test ground-breaking concepts to protect homes, businesses, and infrastructure lifelines. Our hope is that it will enable innovations to help prevent natural hazards from becoming societal disasters.