NOEL R. FLORES, Ph.D., P.E.

SENIOR STAFF CONSULTANT

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Dr. Noel Flores is a Senior Staff Consultant with Engineering Systems Inc. (ESi). His background includes structural engineering and the mechanics of structures under impact. He has provided structural engineering services for residential structures, expeditionary military structures, and large-scale heavy civil projects in water resource infrastructure. Dr. Flores has conducted failure analysis of reinforced concrete, steel, and timber including mass timber. Additionally, Dr. Flores has utilized experimental methods, and finite element analysis and other numerical methods to simulate impulsive, blast-like loads. His research background includes the design and implementation of experiments including custom test fixture fabrication, optical and physical instrumentation, and data acquisition.

In his Ph.D. research, Dr. Flores developed a testing system and methodology to study the effects of high rate, impulsive loading on cross-laminated timber (CLT). His testing system included realistic boundary conditions and provided data on the effects of connection rigidity on CLT behavior. In-situ quasi-static residual capacity testing and failure analysis was performed to aid in damage characterization. He also implemented innovative uses of instrumentation including the development of a new method, the Direct Force Method, and the use of digital image correlation (DIC) to improve damage characterization in CLT.

Prior to joining ESi, Dr. Flores served as a structural engineer for the New York City Department of Environmental Protection (NYC DEP). While at the NYC DEP, Dr. Flores performed analysis, design, inspection, and repairs for several large-scale tunnels including the Rondout West Branch Tunnel Bypass and City Tunnel No. 3. Dr. Flores has also served as a structural engineer lead in South Florida and provided design, repairs and rehabilitation, and design services during construction for highway and water resource infrastructure. He has experience with structures ancillary to the function of canal infrastructure including spillway structures, spillway gates, and seawalls. Dr. Flores has experience performing structural inspections and providing evaluations and recommendations.

Dr. Flores is fluent in Spanish.

Areas of Specialization

- Civil Infrastructure
- Code Compliance
- Computational Mechanics
- Cross-Laminated Timber
- Design Analysis
- Experimental Mechanics
- Inspection and Evaluation of Structures
- Mechanics
- Mechanical Testing
- Rehabilitation and Repair
- Shock and Impact
- Structural Engineering
- Timber

May 2024

Education

Ph.D., Structural Engineering, Mechanics, and Materials, Georgia Institute of Technology

M.S., Structural Engineering, Mechanics, and Materials, Georgia Institute of Technology

B.S., Civil Engineering, Columbia University

B.A., Mathematics and Italian Studies Double Major, Wesleyan University

Certifications

National Floor Safety Institute Walkway Auditor Certificate Holder
Sunbelt MEWP Boom/Scissor Operator Certification

Licensed Professional Engineer (P.E.)

State of Georgia – License No. PE043963
State of Alabama – License No. PE53104
State of Minnesota – License No. PE62260

Continuing Education

Wood Anatomy (SBP 6013)
    Department of Sustainable Bioproducts, Mississippi State University, Spring 2024

OSHA 10-Hour Construction Safety and Health Course

Envision Sustainability Professional (ENV SP)

OSHA 30-Hour Construction Course

Positions Held

Engineering Systems Inc. (ESi), Peachtree Corners, Georgia
    Senior Staff Consultant, 2022 – Present

R.J. Behar and Company, Inc., Fort Lauderdale, Florida
    Structural Engineer, 2015 - 2017

Department of Environmental Protection, New York, New York
    Structural Engineer, 2012 – 2015

Teaching and Research

 Georgia Institute of Technology
- **Graduate Research Assistant**, 2018 – 2022
  Structural Engineering and Mechanics of Materials Laboratory
- **Instructor,** Fall 2021
  ARCH 8833 – Integrated Building Systems

Professional Affiliations/Honors

- American Society of Civil Engineers (ASCE), Member
- Georgia Institute of Technology Tower Award - GPA greater than 3.5 for Master's degree
- Wesleyan Janina Montero Prize - Academic excellence and community engagement award
- Wesleyan Scotts Prize - Italian Studies Departmental Honors
- Ronald E. McNair Fellow

Publications/Presentations

Flores, Noel R., T. Russell Gentry, Lauren K. Stewart. "Design of an Impulsive Center-Point Testing System with Realistic Boundary Conditions". The 6th International Conference on Protective Structures (2023), Auburn University, Auburn, AL, USA.

Flores, N. R. "Experimental Methods for Understanding the Performance of Impulsively Loaded Cross-Laminate Timber Panels," Ph.D. Dissertation, Georgia Institute of Technology, 2022, pp. 1–328.

Sanborn, K., **Flores, N. R.**, Gentry, T. R., Stewart, L. K. "Towards an SDOF Model for Predicting Blast Performance of Cross-Laminated Timber," Structures Under Shock and Impact 2018 Conference Proceedings.

Flores, N.R., Gentry, T.R., Stewart, L.K. "Behavior and Damage Characterization of Impulsively Loaded Cross-Laminated Timber Panels," Applied Sciences 12, no. 23:12076. https://doi.org/10.3390/app122312076