

## **Joshua D. Clapp, M.S., P.E.**

Project Manager  
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### **Academic History**

- University of Maine, B.S. in Civil Engineering, 2005, 3.8 GPA
- University of Maine, M.S. in Civil (Structural) Engineering, 2007, 4.0 GPA
- University of Maine, Ph.D. Student in Civil (Structural) Engineering, expected graduation 2016.

### **Professional Appointments**

- 9/11 – present: Engineer III – Project Manager, Advanced Structures and Composites Center, Orono, ME
- 12/08 – 9/11: Engineer II – Research Engineer, Advanced Structures and Composites Center, Orono, ME
- 6/07 – 12/08: Research Engineer, Civil Engineering Department, University of Maine, Orono, ME
- 6/05 – 6/07: Graduate Research Assistant, University of Maine, Orono, ME

### **Recent Journal/Conference Papers**

Luszczki, G.E., Clapp, J.D., Davids, W.G., and Lopez-Anido, R. (2013). “Withdrawal Capacity of Plain, Annular Shank, and Helical Shank Nail Fasteners in Spruce-Pine-Fir Lumber.” *Forest Products Journal*, 63.5-6: 213-212.

Brayley, K.E., Davids, W.G. and Clapp, J.D. (2012). “Bending Response of Externally Reinforced, Inflatable, Braided Fabric Arches and Beams.” *Construction and Building Materials*, 30: 50-58.

Davids, W.G., Walton, H.J., Clapp, J.D., Lopez-Anido, R.L., and Dagher, H.J. (2012). “Response of Concrete-Filled Tubular FRP Arches to Construction-Induced Loading”, International Bridge Conference, 29th Annual IBC 2012.

Kenry, K.S., Clapp, J., Davids, W.G., Barna, A.M. (2011). “Back-Calculated Pavement Layer Modulus Values of Geogrid Reinforced Test Sections”, Geo-Frontiers 2011, ASCE.

Davids, W.G. and Clapp, J.D. (2011). “FE Analyses and Experiments Assessing the Load-Deformation Response of Inflated Fabric Beams and Arches.” National Agency for Finite Element Methods and Standards, NAFEMS World Conference 2011.

Davids, W.G. and Clapp, J.D. (2009). “Load-Deformation Response of Pressurized Tubular Fabric Arches”, Proceedings of the 5th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference. Palm Springs, CA, May 4-7.

## Synergistic Activities

- Currently Project Manager and Ph.D. Student collaborating on a project with NASA to help better understand the behavior of Hypersonic Inflatable Aerodynamic Decelerators (HIADs) through a rigorous experimental program and advanced finite element models.
- Responsible engineer for the design, modification, and use of large-scale structural test frames at the Advanced Structures and Composites Center.
- Project Manager for Secure Hybrid Composite Shipping Container Project. Led efforts to manufacture full-scale prototype containers that passed industry standard structural tests and received certification for use in the supply chain.
- Primary developer of DamStable for dam stability analysis per FERC and ACoE requirements, co-developer of the FEA program EverStressFE ([www.civil.umaine.edu/EverStressFE](http://www.civil.umaine.edu/EverStressFE)), and contributing developer of PressArchAnalysis ([www.civil.umaine.edu/pressarchanalysis](http://www.civil.umaine.edu/pressarchanalysis)).
- Developer of 3D beam-element finite element analysis code for Advanced Infrastructure Technologies to include the effects of construction-induced loading and soil-structure interaction for the Bridge-in-a-Backpack technology. Initial improvements to the analysis methodology resulted in the use of 50% less carbon fiber per square foot of bridge area.
- Led R&D efforts to develop a new structural member for blast application for the U.S. Army, which resulted in 12x performance for only 4x cost increase as compared to traditional solutions.
- Led experimental efforts testing braided, strapped airbeam arches and straight tubes for the U.S. Army Natick Soldier Center and contributed to the development of airbeam analysis software.