

## William G. Davids, Ph.D., P.E.

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Civil and Environmental Engineering  
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### Professional Preparation

University of Maine, B.S. in Civil Engineering, 1989  
University of Maine, M.S. in Civil (Structural) Engineering, 1991  
University of Washington, Ph.D. in Civil (Structural) Engineering, 1998

### Appointments

7/12 – present: Professor and Chair of Civil and Environmental Engineering, Orono, ME  
9/09 – present: Professor of Civil/Structural Engineering, University of Maine, Orono, ME  
9/04 – 8/09: Associate Professor of Civil/Structural Engineering, University of Maine, Orono, ME  
9/98 – 8/04: Assistant Professor of Civil/Structural Engineering, University of Maine, Orono, ME  
9/94 – 8/98: Graduate Research Assistant, University of Washington, Seattle, WA  
4/91 – 9/94: Structural Engineer, Sverdrup Corporation (now Jacobs Engineering), Seattle, WA  
9/89 – 1/91: Graduate Research Assistant, University of Maine, Orono, ME

### Five Most Relevant Products

Davids, W.G., Poulin, T.J. and Goslin, K.G (2013). "Finite-Element Analysis and Load Rating of Flat Slab Concrete Bridges." *Journal of Bridge Engineering* (doi: 10.1061/(ASCE)BE.1943-5592.0000461).

Dagher, H.J., Bannon, D.J., Davids, W.G., Lopez-Anido, R.L., Nagy, E. and Goslin, K. (2012). "Bending Behavior of Concrete-Filled Tubular FRP Arches for Bridge Structures." *Construction and Building Materials*, 37: 432-439.

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. (2009). "In-Plane Load-Deflection Response and Buckling of Inflated Fabric Arches." *Journal of Structural Engineering*, ASCE, 135(11): 1320-1329.

Davids, W.G. and Zhang, H. (2008). "Beam Finite-Element for Nonlinear Analysis of Pressurized Fabric Beam-Columns." *Engineering Structures* 30(7): 1969-1980.

### Other Significant Products

Kabche, J.P., Peterson, M.L. and Davids, W.G. (2011). "Effect of Inflation Pressure on the Constitutive Response of Coated Woven Fabrics Used in Airbeams." *Composites Part B: Engineering*, 42: 526-537.

Davids, W.G., Rancourt, D.G. and Dagher, H.J. (2011). "Bending Performance of Composite Wood I-Joist/OSB Panel Assemblies." *Forest Products Journal*, 61(3): 246-256.

Alvarez-Valencia, D., Dagher, H.J., Davids, W.G. Lopez-Anido, R.A. and Gardner, D.J. (2010). "Structural Performance of Wood Plastic Composite Sheet Piling." *Journal of Materials in Civil Engineering*, ASCE, 22(12): 1235-1243.

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- Silva-Henriquez, R., Gray, H., Dagher, H.J. Davids, W.G. and Nader, J. (2010). "Strength Performance of Prestressed GFRP-Glulam Beams." *Forest Products Journal*, 60(1): 33-39.
- Davids, W.G., Sandford, T., Ashley, S., DeLano, J. and Lyons, C. (2010). "Behavior of Integral Abutment Bridges with Short Steel Pile-Supported Abutments." *Journal of Bridge Engineering*, ASCE 15(1): 32-43.

### Synergistic Activities

- 1) Management team member at the UMaine Advanced Structures and Composites Center. Help set the future direction of the Center, actively mentor students and staff, and collaborating on a wide range of research topics and industry projects
- 2) In addition to basic research, actively involved in economic and product development. For example, co-holder of US Patent No. 6,699,575, "Wood composite panels for disaster-resistant construction." issued March 2, 2004. This patent is based in part on research conducted under NSF grant No. 0080214.
- 3) Primary developer of the finite-element analysis programs *EverFE* ([www.civil.umaine.edu/EverFE](http://www.civil.umaine.edu/EverFE)), *EverStressFE* ([www.civil.umaine.edu/EverStressFE](http://www.civil.umaine.edu/EverStressFE)) and *PressArchAnalysis* ([www.civil.umaine.edu/pressarchanalysis](http://www.civil.umaine.edu/pressarchanalysis)). Collectively, these programs represent the practical application of nearly 15 years of state and federally funded research, and the underlying computational algorithms and FE technology development have been published in 15 journal articles dating from 1997 to the present. EverFE is used world-wide for the analysis of rigid pavements by researchers and practitioners, and as an educational tool.
- 4) Co-developer of the *AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members*, which was published by AASHTO in fall 2012.
- 5) Active in industry consulting in areas ranging from practitioner education via the delivery of short courses on advanced engineering topics, young engineer oversight and mentoring, providing expert capabilities for complex engineering analyses, and software development.

### Collaborators and Other Affiliations

University of Maine: Aria Amirbahman, Habib Dagher, Douglas Gardner, Dana Humphrey, Eric Landis, Roberto Lopez-Anido, Jean MacRae, Melissa Maynard, Steve Shaler  
University of Washington: Joe Mahoney, George Turkiyyah  
University of Notre Dame: Ashley Thrall  
University of California at Davis: John Harvey

### Graduate Advisors (M.S. and Ph.D.)

University of Maine: Vincent Caccese, Habib Dagher, Mohammed Elgaaly (now at Drexel University)  
University of Washington: Loyce Adams, Marc Eberhard, Joe Mahoney, Greg Miller, George Turkiyyah

### Graduate Advisees (Last 5 Yrs. – 23 total committees chaired or co-chaired at U. of Maine)

Kevin Brayley, Hannah Breton, Matthew Burns, Josh Clapp, Paul Curtis, Garrett Luszczki, Edwin Nagy, Nicholas Parlin, Heather Parry, Timothy Poulin, Derek Rancourt, Harold Walton

### Post-Doctoral Advisees (Last 5 Yrs. – 3 total at U. of Maine)

Jean-Paul Kabche