Romualdi, Davidson & Associates
Consulting Engineers

James M. Thompson

P.E., Ph.D. Civil Engineering

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Areas of Specialization

Failure analysis, forensic engineering, structural engineering, structural analysis, drone pilot, construction engineering, building and infrastructure damage identification, assessment, and repair recommendations, condition assessments, code compliance assessments, and slip, trip, and fall accidents.

Remote Pilot – Certificate No. 4554025 - 2021

Professional Registration

Registered Professional Engineer – Pennsylvania

Certified Building Contractor – Florida (Inactive)

Educational Background

Ph.D., Civil (Structural) Engineering, Lehigh University, 2004

M.S.E., Civil (Structural) Engineering, Johns Hopkins University, 1992

B.M.E., Mechanical Engineering, Villanova University, 1985

Employment History

2020 – Present Structural Engineer, Romualdi, Davidson & Associates, Pittsburgh, PA

- Investigate and assess structural problems and failures, highway accidents, general building and construction problems, slip/trip/fall accidents, tree and vehicle impacts into buildings, demolition accidents, foundation cracking, wind damage, vehicle accidents.

2020 – Present Part-Time Instructor, Carnegie Mellon University, Pittsburgh, PA

- Teaching Structural Analysis and Structural Design

2012 – 2020 Assistant Teaching Professor, Carnegie Mellon University, Pittsburgh, PA

- Taught Introduction to Civil and Environmental Engineering, Solid Mechanics Laboratory, Civil and Environmental Engineering Projects, Civil and Environmental Engineering Design, Structural Design, Structural Analysis, and Vibrations

2019 Instructor, Lion Education International, Dalian, China

- Taught Calculus II and Linear Algebra in a summer program at Dongbei University of Finance and Economics, Dalian, China

2014 – 2018 Project Manager, Carnegie Mellon University Facilities Management and Campus Services, Pittsburgh, PA

- Directed and coordinated contractors in the repair and replacement of deteriorated concrete sidewalks and stairs around campus

Employment History (cont.)

2014– 2020 Associated Consultant, Romualdi, Davidson & Associates, Pittsburgh, PA

- Investigate and assess structural problems and failures

2012 – 2013 Principal, Paul C. Rizzo Associates, Pittsburgh, PA

- Developed a damage assessment and repair cost estimate for AMI Stadium in Christchurch, N.Z.; the February 2011 earthquake severely damaged the stadium. Damage assessment included field evaluation of the structure's condition in July 2012
- Project Manager for qualification of Westinghouse AP1000 calculations for containment modules, revisions and production of as-built drawings for the AP1000 projects in China

2010 External Instructor, University of Pittsburgh, Pittsburgh, PA

- Taught Steel Design, served on a Ph. D. Committee

2009 – 2011 Assistant Engineering Manager, GAI Consultants, Inc., Pittsburgh, PA

- Designed a reinforced concrete pile cap for torsion for the foundation of a transmission line across Albemarle Sound, NC
- Structural engineering, construction support, and project management for the AP1000 Nuclear Power Plant for Westinghouse Electric Company, including a six-week assignment for Westinghouse's Site Engineering Office in Sanmen, China in November and December 2009
- Crane runway and crane stop design, existing crane runway assessment
- Consulting and inspection services for a steel pole supported transmission line project in Jakarta, Indonesia, including a site visit to the fabrication plant

2002 – 2009 Assistant Professor, Ohio University, Athens, OH

- Taught Civil Engineering Fundamentals, Civil Engineering Computational Techniques, Statics, Structural Theory I, Structural Theory II, Construction Engineering & Management, Steel Design, Timber Design, Advanced Structural Analysis, and Structural Dynamics

2001 – 2002 Visiting Research Scientist, Lehigh University, Bethlehem, PA

- Test engineer for destructive tests on half scale, fiber reinforced polymer composite U. S. Navy ship hull sections
- Diagnosed and solved operating problems with the closed loop servo hydraulic jack system and associated MTS control hardware; revised and emended the test's control program
- Successfully designed and tested a sacrificial steel test specimen to simulate tension failure of the keel and compression failure of the deck; system performed as designed; conducted tests on first fiber reinforced polymer composite ship hull specimen

1995 – 2001 Graduate Research Assistant, Lehigh University, Bethlehem, PA

- Experimentally and analytically investigated the effects of large web openings in precast, prestressed concrete inverted tee girders; developed a design procedure to determine the required reinforcement at the openings based on the results of the investigations

Employment History (cont.)

1994 – 1995 Structural Engineer, Whitney, Bailey, Cox and Magnani, Baltimore, MD

- Investigations of existing buildings, design of schools and other building types and building components

1992 – 1994 Structural Engineer, McCormac Engineering Associates, Baltimore, MD

- Investigated structural capacity of U.S. Embassy buildings in newly independent republics of Kazakhstan and Azerbaijan in 1993
- Existing building investigations and design for reuse, design of prototype retail structures, including Ground Round, IHOP, Pizzeria Uno, and Circuit City

1990 – 1992 Graduate Research Assistant, Johns Hopkins University, Baltimore, MD

- Experimentally measured and numerically modeled the dynamic properties (natural frequencies and mode shapes) of the Sunshine Skyway Bridge. Compared the results from the two approaches and concluded that a relatively simple numerical model is adequate to capture the dynamic properties of a structure this size.

1987 – 1989 Officer in Charge, U. S. Navy Construction Battalion Unit 420, Mayport, FL

- Leader of an independent unit of the Naval Construction Force, responsible for the military readiness and construction skills training of approximately fifty Seabees.
- Executed vertical construction projects in steel, concrete, heavy timber, wood, and masonry and horizontal construction projects (grading and paving) using concrete and asphalt
- Directed military readiness exercise deploying personnel, tools, supplies and construction equipment by landing craft to Cumberland Island National Seashore; performed construction and maintenance work on the island supporting the National Park Service

1985 – 1987 Public Works Officer, Naval Facility Adak, Adak, AK

- Led and supervised a work force of twenty military personnel engaged in building and grounds maintenance, minor construction projects, and repairs on an isolated island location

Professional Affiliations

- American Society of Civil Engineers
  - Member, Board of Trustees, Student Awards Foundation, 2012 – 2020
  - Member and Chair, Committee on Student Members, 2017 - 2022
- American Institute of Steel Construction, Member
- American Concrete Institute, Member
- Structural Engineering Institute, Pittsburgh Section, Member

Honors

- Member, Chi Epsilon, the National Civil Engineering Honor Society
- Member, Pi Tau Sigma, the National Mechanical Engineering Honor Society
- Member, Fritz Engineering Research Society
- Received the Daniel P. Jenny Research Fellowship from the Precast/Prestressed Concrete Institute
- Received Graduate Fellowships including tuition and a stipend to attend Johns Hopkins and Lehigh University
- Awarded the Navy Commendation Medal

Research

- Economy in Simple Shear Connections in Steel Buildings
- Experimental and analytical investigation of the effects of large web openings in precast, prestressed concrete inverted tee girders; development of a design procedure to determine the required reinforcement at the openings based on the results of the investigation
- Optimization of Structural Steel Floor Framing Systems
- Experimental measurement and numerically modeling of the dynamic properties (natural frequencies and mode shapes) of the Sunshine Skyway Bridge. Compared the results from the two approaches and concluded that a relatively simple numerical model is adequate to capture the dynamic properties of a structure this size

Publications and Presentations

- Young, W. A. II, Weckman, G. R., Brown, M. D., and Thompson, J. M., “Extracting Knowledge of Concrete Shear Strength from Artificial Neural Networks,” International Journal of Industrial Engineering: Theory, Applications and Practice, Vol. 15, No. 1, 2008
- Thompson, J. M. and Pessiki, S. P., “Experimental Investigation of Precast Prestressed Inverted Tee Girders with Large Web Openings,” PCI Journal, Vol. 51, No. 6, Nov. - Dec. 2006
- Thompson, J. M. (2019), “Bringing Graphs Alive in Structural Dynamics,” ASEE Annual Conference
- Cartwright, L. G., Dzombak, D. A., Garrett, J. H., Hendrickson, C. T., Oppenheim, I. J., Thompson, J. M., & VanBriesen, J. M. (2012), “Immersive Group Projects for First-Year Civil and Environmental Engineering Students,” Fourth Annual First Year Engineering Experience Conference
- Jones, N. P., Thompson, J. M. (1993), “Ambient Vibration Survey: Sunshine Skyway Bridge,” Proceedings of the Structures Congress
- Jones, N. P., Thompson, J. M. (1992), “Dynamic Characteristic of the Sunshine Skyway Bridge,” Proceedings of the U.S. - Japan Bridge Workshop.
- Jones, N. P., Thompson, J. M., Wilson, J. C. (1992), “Ambient Vibration Survey of Baytown Bridge Towers,” Proceedings of the Structures Congress
- Thompson, J., Pessiki, S., (2005), “Design of Inverted Tee Girders with Regularly Spaced Web Openings for Service Systems,” ACI Convention, New York City
- Thompson, J., Pessiki, S., “Experimental Investigation of Inverted Tee Girders with Multiple Web Openings,” ACI Convention, Detroit
- Pessiki, S., Thompson, J., (1998), “Behavior of Precast Concrete Inverted Tee Girders with Multiple Web Openings,” PCI Annual Convention, Atlanta, Georgia
- Thompson, J. M., & Pessiki, S. P. (2004), “Behavior and Design of Precast, Prestressed Concrete Inverted Tee Girders with Multiple Web Openings for Service Systems,” ATLSS Report 04-07, Center for Advanced Technology for Large Structural Systems, Bethlehem, PA
- Thompson, J. M., & Pessiki, S. P. (2001), “Experimental Investigation of Precast, Prestressed Concrete Inverted Tee Girders with Multiple Web Openings for Service Systems,” ATLSS Report 01-12, Center for Advanced Technology for Large Structural Systems, Bethlehem, PA
- Thompson, J. M. (1994, 1993), Q & A Column, Fine Homebuilding, The Taunton Press, Newtown, CT
- Thompson, J. M. (1994), “Framing Gable Ends,” Fine Homebuilding, Vol. 88, The Taunton Press, Newtown, CT

Professional Development – Workshops and Short Courses Attended

- ASCE 7 Wind Loads Seminar, ASCE, 2022
- AISC 15th Edition Manual Seminar, AISC, 2017
- Carnegie Mellon College of Engineering Spotlight on Education Seminar Series
- Introduction to Bridge Engineering, AISC, 2016
- Eberly Center Workshop on the Scholarship of Teaching, 2016
- Structural Steel Stability, AISC, 2015
- ACI 318-14, Reorganized for Design, ACI, 2015
- University Professor's Masonry Workshop, The Masonry Society, 2015
- Fundamentals of Assessment Workshop, Accreditation Board for Engineering and Technology (ABET), 2015
- Advanced Project Management, GAI Consultants, 2012
- Practitioner and Faculty Advisor Workshop, ASCE, 2007
- Engineering and Economics of Concrete Buildings, Portland Cement Association (PCA), 2006
- Design of Concrete Bridges by the AASHTO LRFD Specification, PCA, 2006
- Teaching Steel Design in 2006, AISC, 2006
- Steel Design after College, AISC, 2005
- Wood Engineering Summer Institute, AWC, 2003
- Buildings under 20 Stories, AISC, 2002
- Civil Engineer Corps Officer School, U. S. Navy, 1986
- Officer Candidate School, U. S. Navy, 1985