

Timothy A. Wood, Ph.D., P.E.

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<https://orcid.org/0000-0002-3926-7314>

Research Interests

- *Classical-model, literature-driven, autodidactic, holistic* undergraduate education through classroom, problem-solving, notetaking, laboratory, and research activities
- Production-oriented analysis and inspection of *in-service soil-structure systems* (culvert load rating, MSE retaining walls, buried structure load testing, etc.)

Registration

Professional Engineer, South Carolina, No. 38321

2020 – current

Professional Experience

Associate Professor

2021 – current

[Dr. Emmett I. Davis, Jr., '50 Dept. of Civil, Environmental and Construction Engineering](#),
School of Engineering, The Citadel, Charleston, SC, USA

Assistant Professor

Civil Engineering, The Citadel

2016 – 2021

Senior Research Associate

2016

Center for Multidisciplinary Research in Transportation ([TechMRT](#))
Texas Tech University (TTU), Lubbock, TX, USA

Research Associate

TechMRT, TTU

2009 – 2015

Research Aide

TechMRT, TTU

2007 – 2009

Graduate Research Assistant

TechMRT, TTU

2007

Student Research Assistant

TechMRT, TTU

2006

Education

Doctor of Philosophy in Civil Engineering – **Computational Geomechanics**

2012 – 2015

[Improved Culvert Load Rating through an Evaluation of the Influence of Cover Soil Depth, Demand Model Sophistication, and Live Load Attenuation Method](#)

Texas Tech University, College of Engineering

Master of Science in Civil Engineering – **Structural / Geotechnical**

2007 – 2009

[An Evaluation of Alternative Analysis Methods for Production Load Rating of Culverts](#)

Texas Tech University, College of Engineering

Bachelor of Science in **Engineering Physics / Structures with Honors**

2003 – 2006

Texas Tech University, College of Engineering, Honors College
Summa Cum Laude

Service and Leadership

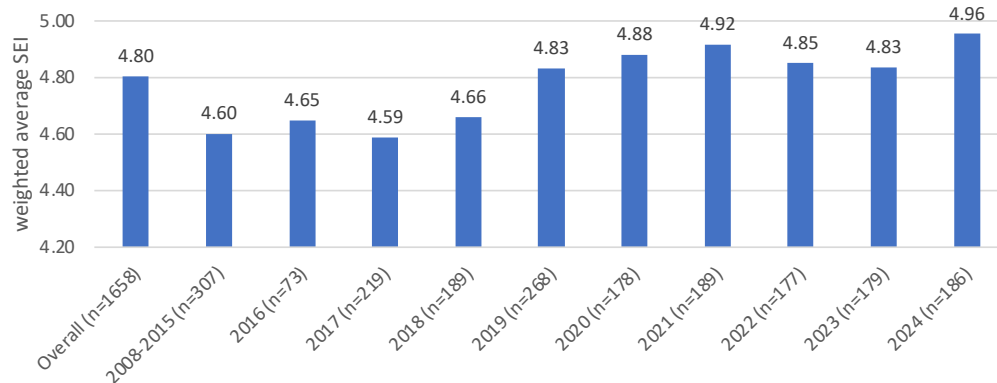
Construction Engineering Program Director	2024 – current
Dr. Emmett I. Davis, Jr., '50 Dept. of Civil, Environmental and Construction Engineering, School of Engineering, The Citadel, Charleston, SC, USA	
Board of Trustee Member and Secretary	2025 – current
HOUSE Theatre, Inc. non-profit, North Charleston, SC, USA	
Deacon and Secretary	2024 – current
Holy City Church, Charleston, SC, USA	
Professional Society Memberships	
Christian Engineering Society (CES)	2023 – current
American Society for Engineering Education (ASEE)	2016 – current
ASEE Southeast Section (ASEE-SE)	2016 – current
TRB Committees AFF70 and AFS40	2019 – 2020
American Society of Civil Engineers (ASCE)	2018 – 2020
Committee Research Coordinator	2020 – 2025
AKB70 Standing Committee on Culverts, Buried Bridges and Soil-Structure Interaction Transportation Research Board (TRB), National Research Council, National Academies of Science, USA	
CEITL&DE Faculty Fellow	2023 – 2024
Center for Excellence and Innovation in Teaching, Learning and Distance Education The Citadel, Charleston, SC, USA	
Faculty Fellow in Residence	2020
CEITL&DE, The Citadel, Charleston, SC, USA	
Senior Consultant	2020 – 2023
RBM Consulting Group, Inc. Converse, TX, USA	

Awards and Honors

The Citadel, <i>Faculty Excellence in Teaching Award</i>	2025
The American Society for Engineering Education, Mechanics Division, <i>Archie Higdon Distinguished Educator Award</i>	2024
Best Paper from the New Engineering Educators Division for Wood, T. A. , and S. Laughton. (2024). “There’s a Textbook for this Class? Scaffolding Reading and Note-taking in a Digital Age.” 2024 ASEE Annual Conference & Exposition. [Presenter]	2024
The Citadel, School of Engineering, Dr. Emmett I. Davis, Jr. ’50, Department of Civil, Environmental and Construction Engineering, <i>Dr. Harry C. Saxe Outstanding Teaching Award</i>	2024, 2020
The American Society for Engineering Education, Southeast Section, <i>Outstanding New Teacher Award</i>	2020
Best Paper from the New Engineering Educators Division for Wood, T. A. , Nale, D. D., and Giles, R. K. (2020). “Closing the Homework Feedback Loop Using Dual-Submission-with-Reflection Homework Methodology.” 2020 ASEE Virtual Annual Conference Content Access, American Society for Engineering Education, Virtual. [Presenter]	2020
The Citadel, <i>New Faculty Member Excellence Award</i>	2019
Southern Plains Transportation Center, <i>Top Ph.D. Dissertation Award</i>	2015
Southern Plains Transportation Center, <i>Top Student Paper Honorable Mention</i>	2015
Best of the Session Paper Award Recipient, Texas Section ASCE Jayawickrama, P. W., and Wood, T. A. (2009). “Performance Evaluation of an MSE/Soil Nail Hybrid Wall,” <i>Proceedings, Texas Section ASCE, April 2009, South Padre Island, Texas</i>	2009
Order of the Engineer ringed member	2006
Tau Beta Pi Engineering Honor Society member	2005
Honor Society of Phi Kappa Phi member	2005
Boy Scouts of America, Eagle Scout, Troop 437, Richardson, TX	2002

Teaching Experience

Teaching Evaluation Average by Year



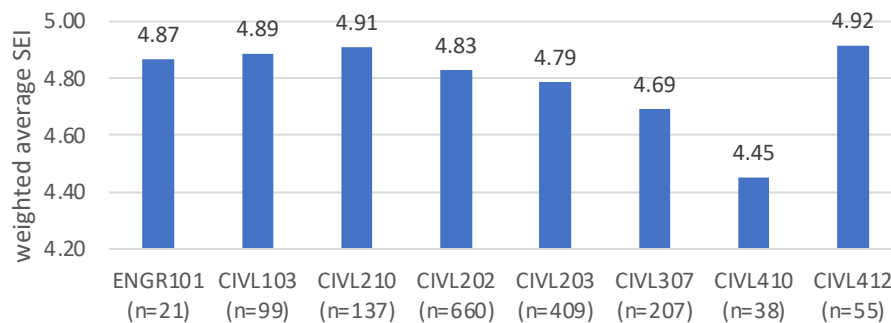
Student evaluation of instruction (SEI) scores (/5.0) with student response sample size, n
 “I would rate my professor as an excellent teacher.” Departmental Standard of 4.2 / 5.0

The Citadel (2016 – Current)

108 sections, 25 terms, 8 courses, 1850 student course contacts

Weighted Average Teaching Evaluation by Students: **4.80** / 5.0

<i>Course</i>	<i>Name</i>	<i>Enrollments</i>
ENGR101	Introduction to Engineering	39
CIVL103	Introduction to Civil Engineering	112
CIVL210	Computer Applications for Civil Engineers	146
CIVL202	Statics	737
CIVL203	Dynamics	463
CIVL307	Mechanics of Materials Lab	234
CIVL410	Geotechnical Engineering II – Foundation Design	45
CIVL412	Engineering Practice and Professional Licensure	74



Student evaluation of instruction (SEI) scores (/5.0) with student response sample size, n
 “I would rate my professor as an excellent teacher.” Departmental Standard of 4.2 / 5.0

Texas Tech University (2008 – 2015)

CIVL3121 Geotech Lab: 18 sections, 9 terms, 307 student course contacts

Average Teaching Evaluation by Students: **4.60** / 5.0

Published Work

Refereed Conference Presentations and Proceedings: 64

- Laughton, S., and **T. A. Wood**. (2025). ["Work In Progress: Implementing the 'Good Old-Fashioned Student' Teaching Model in the Two-Year College Classroom."](#) 2025 ASEE Annual Conference & Exposition. Montreal, Quebec: American Society for Engineering Education.
- Wood, T. A.**, and H. Kaufman. (2025). ["Equivalent Systems, Distributed Loads, and Reactions - One Model to Teach Them All."](#) 2025 ASEE Annual Conference & Exposition. Montreal, Quebec: American Society for Engineering Education. **[Presenter]**
- Wood, T. A.**, S. Laughton, and T. Doeffinger. (2025). ["The Classical Model for Knowledge Persistence."](#) 2025 ASEE Annual Conference & Exposition. Montreal, Quebec: American Society for Engineering Education. **[Presenter]**
- Wood, T. A.** (2024). ["A Framework for Engineering Analysis and Worship."](#) *Proceedings of the Christian Engineering Conference 2024*, 298–309. George Fox University, Newberg, OR. **[Presenter]**
- Wood, T. A.**, and S. Laughton. (2024). ["There's a Textbook for this Class? Scaffolding Reading and Note-taking in a Digital Age."](#) 2024 ASEE Annual Conference & Exposition. **[Presenter]**
- Mazzaro, G. J., **T. A. Wood**, and K. Skenes. (2024). ["Growth of Student Awareness within a Discipline-Agnostic Introduction-to-Engineering Course."](#) 2024 ASEE Annual Conference & Exposition. **[Presenter]**
- Wood, T. A.**, G. J. Mazzaro, and K. Skenes. (2024). ["The Eclectic Reader for Introduction to Engineering."](#) 2024 ASEE Southeast Section Meeting. Marietta, GA: American Society for Engineering Education. **[Presenter]**
- Laughton, S., and **T. A. Wood**. (2024). ["An Active Learning Case-Study Approach to Introduction to Civil Engineering."](#) 2024 ASEE Southeast Section Meeting. Marietta, GA: American Society for Engineering Education.
- Wood, T. A.** (2023). ["Teaching or Learning? A Framework for Shaping Good Old Fashioned Engineering Students."](#) 2023 ASEE Annual Conference & Exposition. Baltimore, MD: American Society for Engineering Education. **[Presenter]**
- Wood, T. A.**, and S. Laughton. (2023). ["Latest Improvements in Metacognitive-Informed, Dual-Submission Homework Methods."](#) 2023 ASEE Annual Conference & Exposition. Baltimore, MD: American Society for Engineering Education. **[Presenter]**
- Wood, T. A.**, and K. T. Brown. (2023). ["Geotechnical Site Characterization in a Box: Bringing the Full Site Characterization Experience to the Classroom."](#) 2023 ASEE Annual Conference & Exposition. Baltimore, MD: American Society for Engineering Education. **[Presenter]**
- Wood, T.A.** (2023). "3D Printed Demos for Centroid, Moment of Inertia, and Principal Axis". 2023 ASEE Annual Conference & Exposition, Baltimore, MD: American Society for Engineering Education. **[Presenter – Presentation Only]**

- Mazzaro, G.J., Skenes, K. and **Wood, T.A.** (2023). '[A Review of Multi-Disciplinary Introduction-to-Engineering Courses and Unified-First-Year Engineering Programs American Society for Engineering Education](#)', in *ASEE Southeastern Section Conference*. Arlington, VA: ASEE SE. **[Presenter]**
- Wood, T.A.**, Nale, D.D. and Laughton, S. (2023). '[Shaping Good Old-Fashioned Students through Reading and Note-taking: A Work in Progress](#)', in *ASEE Southeastern Section Conference*. Arlington, VA: ASEE SE. **[Presenter]**
- Wood, T. A.**, Bowers, J., Janusz, L. (2023). "AKB70 Research Road Map." *Transportation Research Board 2023 Annual Meeting*, AKB70 Committee Meeting, National Academies of Science, Washington, D.C. **[Presenter – Presentation Only]**
- Wood, T.** and Arslaner, E. (2022). '[3D Printed Composite Body Illustrating Area and Mass Moment of Inertia with Mohr's Circle and Pole Method](#)', in. *2022 ASEE Annual Conference & Exposition*, Minneapolis, MN: American Society for Engineering Education.
- Wood, T.A.** (2022) '[Shaping Good Old-Fashioned Students: A Work-In-Progress](#)', in. *2022 ASEE Southeastern Section Conference*, Charleston, SC: ASEE SE. **[Presenter]**
- Wood, T.A.**, Nale, D.D. and Brown, K. (2022). '[Shaping Good Old-Fashioned Students: A Homework Methodology](#)', in. *2022 ASEE Southeastern Section Conference*, Charleston, SC: ASEE SE. **[Presenter]**
- Burke, R., **Wood, T.A.** and Batouli, M. (2022). '[Longitudinal Study in Construction Affection through Role Playing Game](#)', in. *2022 ASEE Southeastern Section Conference*, Charleston, SC: ASEE SE.
- Nale, D.D., Giles, R.K., Ryan, J., Davis, W.J., Grossman, M., and **Wood, T.** (2022). '[On-Line FE Exam Review Course Results in Effective Instructional Model](#)', in. *2022 ASEE Southeastern Section Conference*, Charleston, SC: ASEE SE.
- Wood, T. A.** (2021). "[3D Printed Composite Body Illustrating Composite Body Centroid and Center of Gravity](#)." *2021 ASEE Virtual Annual Conference Content Access*, American Society for Engineering Education, Virtual. **[Presenter]**
- Wood, T. A.**, Nale, D. D., and Brown, K. T. (2021). "[Student Response System Best Practices for Engineering as Implemented in Plickers](#)." *2021 ASEE Virtual Annual Conference Content Access*, American Society for Engineering Education, Virtual. **[Presenter]**
- Burke, R., Batouli, M., and **Wood, T. A.** (2021). "[Gamification of Construction Engineering Inaugural Experience](#)." *2021 ASEE Virtual Annual Conference Content Access*, American Society for Engineering Education, Virtual.
- Wood, T. A.** (2020). "[Three Models and Engineering Analysis](#)." *2020 ASEE Virtual Annual Conference Content Access*, American Society for Engineering Education, Virtual. **[Presenter]**

- Wood, T. A.** (2020). "[Effective PocketLab Sensor Use in an Engineering Dynamics Course.](#)" 2020 ASEE Virtual Annual Conference Content Access, American Society for Engineering Education, Virtual. **[Presenter]**
- Wood, T. A.,** Nale, D. D., and Giles, R. K. (2020). "[Closing the Homework Feedback Loop Using Dual-Submission-with-Reflection Homework Methodology.](#)" 2020 ASEE Virtual Annual Conference Content Access, American Society for Engineering Education, Virtual. **[Presenter]**
- Watson, M. K., Ghanat, S. T., **Wood, T. A.,** Davis, W. J., Bower, K. C., Hornor, T., and Welch, R. W. (2020). "[A Summer Calculus Experience to Encourage Development of Community and Self-efficacy Building of Civil Engineering Students.](#)" 2020 ASEE Virtual Annual Conference Content Access, American Society for Engineering Education, Virtual.
- Watson, M. K., Ghanat, S. T., Wood, T. A., Davis, W. J., Hornor, T., and Bower, K. C. (2020). "[GIFTS: Reimagining the Early Calculus Experience.](#)" 2020 First-Year Engineering Experience, American Society for Engineering Education, Virtual.
- Batouli, M., **Wood, T. A.,** Michalaka, D., Brown, K., and Welch, R. (2020). "[Adopting ASCE ExCEED Model for Engineering Education: Lessons Learned and Implementation Strategies.](#)" ASEE Southeastern Section Conference, American Society for Engineering Education, Auburn, AL, 9.
- Wood, T. A.,** and Niswender, C. (2020). "An Improved, Low-Cost Culvert and Hydraulic-Infrastructure Inspection Vehicle: CHIVE." *Transportation Research Board 2020 Annual Meeting*, Session 1669, National Academies of Science, Washington, D.C. **[Presenter]**
- Watson, M. K., Ghanat, S. T., **Wood, T. A.,** Davis, W. J., and Bower, K. C. (2019). "[A Systematic Review of Models for Calculus Course Innovations: American Society for Engineering Education.](#)" 2019 ASEE Annual Conference and Exposition, American Society for Engineering Education, Tampa, FL.
- Book, E. K., **Wood, T. A.,** and Plumblee, J. M. (2019). "[Student and Faculty Perspective and Survey Results on an Innovative Homework Process: American Society for Engineering Education.](#)" 2019 ASEE Annual Conference and Exposition, American Society for Engineering Education, Tampa, FL.
- Wood, T. A.,** Batouli, M., Michalaka, D., Brown, K., and Book, E. (2019). "[Perspectives on an Innovative Homework Policy.](#)" 2019 ASEE Southeastern Section Conference, Raleigh, NC, 7.
- Batouli, M., Burke, R., and **Wood, T. A.** (2019). "[Gamification of Student Advising: Helping Students Decide Between Civil and Construction Engineering.](#)" ASEE Southeastern Section Conference, Raleigh, NC, 4.
- Wood, T. A.,** E. O. Terrell, and J. Johnsen. (2018). "[Scale Model Investigation of Pipe Pile Plugging.](#)" *International Foundation Conference and Equipment Expo*, 353–362. Orlando, FL: ASCE Geo-Institutes. **[Presenter]**

- Grayson, J. M., **Wood, T. A.**, Robinson, R., Plumbee, J., and Prince-Nelson, S. (2018). ["The Influence of Mathematical Preparedness on Student Performance in an Engineering Statics Course."](#) *ASEE Southeastern Section Conference*, Daytona Beach, FL.
- Wood, T.A.**, Lawson, W.D., Jayawickrama, P.W., and Surles, J.G. (2018). ["Pullout Behavior of Steel Mechanically Stabilized Earth Reinforcements,"](#) *Transportation Research Board 2018 Annual Meeting*, Session 386, Washington, D.C. 18-01457. **[Presenter]**
- Wood, T.A.**, Surles, J.G., Mousavi, S.M., Jayawickrama, P.W., Javid, A.D., Seo, H., and Lawson, W.D. (2017). ["Modeling Factors Influencing Culvert Load Ratings: A Parametric Analysis,"](#) *Geotechnical Frontiers 2017 Transportation Facilities, Structure, and Site Investigation GSP 277*, Orlando, FL, March 12-15, 2017. **[Presenter]**
- Mousavi, S.M., Jayawickrama, P.W., **Wood, T.A.**, and Lawson, W.D. (2017). ["Selection of Soil Stiffnesses for the Load Rating of In-Service Culverts,"](#) *Geotechnical Frontiers 2017 Transportation Facilities, Structure, and Site Investigation GSP 277*, Orlando, FL, March 12-15, 2017.
- Wood, T.A.**, Grayson, J.M., and Brown, K. (2017) ["Faculty and Student Perceptions of Plickers,"](#) *ASEE Zone II Conference*, San Juan, Puerto Rico, March 2-5, 2017, V3D2.
- Grayson, J.M., Ghanat, S. and **Wood, T.A.** (2017) ["Use of Active versus Passive Learning pedagogies in a Statics course to Address Variations in Student Performance between Course Sections,"](#) *ASEE Zone II Conference*, San Juan, Puerto Rico, March 2-5, 2017, V3D3.
- Seo, H., **Wood, T.A.**, Javid, A.H., and Lawson, W.D. (2017). "A Simplified Pavement Model for Improved Production Culvert Load Rating," *Transportation Research Board 2017 Annual Meeting*, Session 221, Washington, D.C. 17-05787.
- Lawson, W.D., Seo, H., **Wood, T.A.**, and Surles, J.G. (2017). "Practical Lessons Learned from Load Rating Thousands of Older, Bridge-Class, Reinforced Concrete Box Culvert Structures," *Transportation Research Board 2017 Annual Meeting*, Session 221, Washington, D.C. 17-06025.
- Wood, T. A.**, Lawson, W.D., Seo, H., and Surles, J.G. (2016). "Improved Load Rating of Reinforced Concrete Box Culverts Through Depth-Calibrated Live Load Attenuation," *Transportation Research Board 2016 Annual Meeting*, Session 743, Washington, D.C. 16-0523. **[Presenter]**
- Morse, S.M., **Wood, T. A.**, and Lawson, W.D. (2016). "CULVLR: Software Program for Load Rating of Reinforced Concrete Box Culverts," *Transportation Research Board 2016 Annual Meeting*, Session 743, Washington, D.C. 16-4338. **[Presenter]**
- Jayawickrama, P. W., Lawson, W. D., Seo, H., **Wood, T. A.** and Moghaddam, R. B. (2015). ["Prediction of Axial Load Capacity Based on Texas Cone Penetration Test Data,"](#) *Proceedings, International Conference on Geotechnical Engineering 2015*, pp.443-446.

- Jayawickrama, P. W., Lawson, W. D., **Wood, T. A.**, and Surles, J. G. (2015). ["Impact of Compaction Level and Depth of Fill on the Pullout Resistance of Ribbed Strip MSE Reinforcement."](#) *IFCEE 2015*: pp. 1483-1492.
- Lawson, W. D., Terrell, E. O., Surles, J. G., Moghaddam, R. B., **Wood, T. A.**, Seo, S. and Jayawickrama, P. W. (2015). "Correlation of Texas Cone Penetration and Standard Penetration Test N-Values," *Proceedings 2015 Geo-Congress: International Foundations Congress. & Equipment Exposition*, San Antonio, TX, Mar 17-21, 2015.
- Jayawickrama, P. W., **Wood, T. A.**, and Lawson, W. D. (2015). "Influence of Cover Soil Depth on Reinforced Concrete Box Culvert Load Rating," *Transportation Research Board 2015 Annual Meeting*, Session 614, Washington, D.C. 15-4795.
- Jayawickrama, P. W., Lawson, W. D., **Wood, T. A.**, and Surles, J. G. (2015). "Pullout Resistance Factors for Ladder-like Strip Reinforcements Used in MSE Wall Construction," *Transportation Research Board 2015 Annual Meeting*, Session 503, Washington, D.C. 15-4776.
- Jayawickrama, P. W., Lawson, W. D., **Wood, T. A.** and Surles, J. G. (2014). ["Pullout Behavior of Welded Grid Reinforcements Embedded in Coarse Granular Backfill,"](#) *Proceedings 2014 Geo-Congress: Geo-Characterization and Modeling for Sustainability*, Atlanta, GA, Feb 23-26, 2014.
- Wood, T. A.**, Lawson, W. D., Newhouse, C. D., and Jayawickrama, P. W. (2014). ["Comparison of Culvert Load Ratings Calculated by Three Methods,"](#) *Geo-Congress 2014 Technical Papers*: pp. 1473-1482.
- Lawson, W. D., Jayawickrama, P. W., **Wood, T. A.**, and Surles, J. G. (2014). "Evaluation of AASHTO Default Values for Pullout Friction Factor, F^* , for Steel Grid Mat Reinforcement," *Transportation Research Board 2014 Annual Meeting*, Session 268, Washington, D.C. 14-5707.
- Lawson, W. D., Jayawickrama, P. W., **Wood, T. A.**, Surles, J. G. (2013). ["Pullout Resistance Factors for Steel Reinforcement used in TxDOT MSE Walls,"](#) *Geotechnical Special Publication No. 231, Geo-Congress 2013: Stability and Performance of Slopes and Embankments III*, San Diego, CA, March 3-7, 2013.
- Lawson, W. D., Jayawickrama, P. W., **Wood, T. A.**, and Surles, J. G. (2013). "Pullout Resistance Factors for Inextensible MSE Reinforcements Embedded in Sandy Backfill," *Transportation Research Board 2013 Annual Meeting*, Session 209, Washington, D.C. 13-2684.
- Jayawickrama, P. W., Senanayake, A., Lawson, W. D., and **Wood, T. A.** (2012). ["Impact of Spatial Variability of Soil Parameters on Culvert Load Rating,"](#) *Geotechnical Special Publication No. 225, Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering*, Oakland, CA.
- Jayawickrama, P. W., Lawson, W. D., **Wood, T. A.**, Surles, J. G., and Senanayake, A. (2012). "Effect of Skewing and Splaying on Pullout Capacity of Steel MSE Reinforcement,"

Transportation Research Board 2012 Annual Meeting, Session 614, Washington, D.C. 12-2021.

Jayawickrama, P. W., Lawson, W. D., and **Wood, T. A.** (2011). "A Large Scale Test System to Investigate MSE Soil Reinforcement-Backfill Interaction," *Proceedings CD-ROM, International Conference on Advances in Highway Engineering and Transportation Systems*, Colombo, Sri Lanka.

Senanayake, A., Jayawickrama, P. W., Lawson, W.D., and **Wood, T. A.** (2011), "Role of 3D Finite Element Modeling in the Analysis of Soil-Structure Interaction Problems," *Proceedings CD-ROM, International Conference on Advances in Highway Engineering and Transportation Systems*, Colombo, Sri Lanka, July 25-26, 2011.

Jayawickrama, P. W., Lawson, W. D., and **Wood, T. A.** (2011). "[Evaluation of Soil Properties for Culvert Load Rating Applications](#)," *Geo-Frontiers 2011*: pp. 2659-2668.

Wood, T. A., Lawson, W. D., Newhouse, C. D. and Jayawickrama, P. W. (2010). "The Influence of Structural Analysis Method on Culvert Load Rating" *Compendium of Papers CD-ROM, 89th Annual Meeting of the Transportation Research Board*, Washington D.C., January 10-14, 2010.

Jayawickrama, P. W., and **Wood, T. A.** (2009). "Performance Evaluation of an MSE/Soil Nail Hybrid Wall," *Proceedings, Texas Section ASCE, April 2009, South Padre Island, Texas*, (Best of the Session Paper Award Recipient).

Wood, T. A., Jayawickrama, P. W., and Lawson, W. D. (2009). "[Instrumentation and Monitoring of an MSE/Soil Nail Hybrid Retaining Wall](#)," *Contemporary Topics in Ground Modification, Problem Soils, and Geo-Support*: pp. 177-184.

Newhouse, C. D., and **Wood, T. A.** (2008). "[The Effect of Temperature on the Effective Prestressing Force at Release for PCBT Girders](#)," *ASCE Structures Congress*. ASCE, Vancouver, BC. **[Presenter]**

Refereed National Circulars: 1

Standing Committee on Subsurface Soil-Structure Interaction. (2018). [*Culverts and Soil-Structure Interaction: Fifty Years of Change and a Twenty-Year Projection*](#). Transportation Research Board of the National Academy of Science, Washington, D.C. [Wood, T.A. serving as Format Editor]

Refereed Journal Articles: 10

Firoj, M., Yang, D. Y., **Wood, T. A.**, & White, K. (2025). [*Uncertainty Analysis and Quantification of the AASHTO Live Load Distribution Model for Moderately Buried-Reinforced Concrete Box Culverts*](#). *J. Bridge Eng*, 30(7).

Wood, T. A., Lawson, W. D., Jayawickrama, P. W., and Surles, J. G. (2018). "[*Pullout Behavior of Steel Mechanically Stabilized Earth Reinforcements*](#)." *Transportation Research Record: Journal of the Transportation Research Board*.

Seo, H., **Wood, T. A.**, Javid, A. H., and Lawson, W. D. (2017). "[*Simplified System-Level Pavement-Stiffness Model for Box Culvert Load-Rating Applications*](#)." *J. Bridge Eng.*, 22(10), 04017066.

Wood, T. A., Lawson, W. D., Surles, J. G., Jayawickrama, P. W., and Seo, H. (2016). "[*Improved Load Rating of Reinforced Concrete Box Culverts through Depth-Calibrated Live Load Attenuation*](#)." *J. Bridge Eng.*, 21(12), 04016095.

Wood, T. A., Lawson, W. D., and Jayawickrama, P. W. (2015). "[*Influence of Cover Soil Depth on the Load Rating of Reinforced Concrete Box Culverts*](#)." *Transportation Research Record*, 2511, 63-71.

Jayawickrama, P. W., Lawson, W. D., **Wood, T. A.**, and Surles, J.G. (2015). "[*Pullout Resistance Factors for Steel MSE Reinforcements Embedded in Gravelly Backfill*](#)." *J. Geotech. and Geoenviron. Eng.*, 141(2), 04014090.

Wood, T. A., Lawson, W. D., Jayawickrama, P. W., and Newhouse, C. D. (2015). "[*Evaluation of Production Models for Load Rating Reinforced Concrete Box Culverts*](#)," *J. Bridge Eng.*, 20(1), 04014057.

Lawson, W. D., Jayawickrama, P. W., **Wood, T. A.**, and Surles, J. G. (2014). "[*Evaluation of AASHTO Default Values for Pullout Resistance Factor, F* for Steel and Grid Mat Reinforcement*](#)," *Transportation Research Record*, 2462, 7-17.

Lawson, W., Jayawickrama, P., **Wood, T. A.**, and Surles, J. (2013). "[*Pullout Resistance Factors for Inextensible MSE Reinforcements Embedded in Sandy Backfill*](#)," *Transportation Research Record*, 2363, pp.21-29.

Jayawickrama, P. W., Lawson, W. D., **Wood, T. A.**, and Senanayake, A. J. (2012). "[*Effect of Skewing and Splaying on Pullout Capacity of Steel Reinforcement in Mechanically Stabilized Earth Structures*](#)," *Transportation Research Record*, 2310, 81-89.

Refereed Online Publications: 4

- Wood, T.** (2023). "[Three Model Framework for Engineering Problem Solving](#)". *Engineering Unleashed*. Friday, June 2, 2023.
- Wood, T.** (2023). "[3D Printed Composite Body Illustrating Composite Body Centroid and Center of Gravity](#)". *Engineering Unleashed*. Tuesday, May 30, 2023.
- Wood, T.** (2023). "[3D Printed Composite Body Illustrating Area and Mass Moment of Inertia with Mohr's Circle and Pole Method](#)". *Engineering Unleashed*. Tuesday, May 30, 2023.
- Wood, T., Burke, R., and Mostafa B.** (2023) "[Intro to Construction Engineering Game](#)". *Engineering Unleashed*. Tuesday, May 30, 2023.

Major Deliverables: 4

- The Citadel, Roof, K., Fye, S., & **Wood, T. A.** (2024). [QEP: Advising Tomorrow's Principled Leaders](#) [SACSCOC Quality Enhancement Plan]. The Citadel: The Military College of South Carolina.
- Wood, T. A.,** Morse, S.M., Jayawickrama, P. W., Newhouse, C. D., and Lawson, W. D. (2013). *Culvert Load Rating Software CULVLR 1.0.2*. TxDOT Product No. FHWA/TX-13/5-5849-01-P1. TechMRT: Multidisciplinary Research in Transportation, Texas Tech University, Lubbock, TX.
- Lawson, W. D., P. W. Jayawickrama, and **T. A. Wood**. 2012. [Field Guide for Reinforcement Reconfiguration Around Obstructions](#). Research Product. Lubbock, TX: TechMRT: Multidisciplinary Research in Transportation, Texas Tech University.
- Lawson, W. D., **Wood, T. A.,** Newhouse, C. D., and Jayawickrama, P. W. (2009), [Texas Department of Transportation Culvert Rating Guide](#), TechMRT: Multidisciplinary Research in Transportation, Texas Tech University, Lubbock, TX.

Research Reports: 17

- Yang, D. Y., K. White, T. A. Wood, and Portland State University. Department of Civil & Environmental Engineering. (2025). [Risk-Based Methodology for Structural Evaluation of Bridge-Sized Culverts](#).
- Lawson, W. D., H. Seo, J. G. Surles, S. M. Morse, P. Jayawickrama, S. W. Bae, **T. A. Wood**, S. Gunerathne, B. Afolabi, M. Mousavi, and A. H. Javid. (2018). [Load Rating TxDOT pre-1980 In-Service Culverts: Model Enhancements, Procedure Improvements, and Results for 1,000 Structures](#). 304. Austin, TX: TxDOT.
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- Lawson, W. D., Jayawickrama, P. W., **Wood, T. A.**, and Surles, J. G. (2011). *Final Research Report: MSE Pullout Testing for RECO HA-Ladder and HA-Strip Reinforcements*. TechMRT: Multidisciplinary Research in Transportation, Texas Tech University, Lubbock, TX. (290 pages)
- Lawson, W. D., C. D. Newhouse, P. W. Jayawickrama, **T. A. Wood**, and TechMRT. (2009). [Evaluating Existing Culverts for Load Capacity Allowing for Soil Structure Interaction](#). Summary. Lubbock, TX: TechMRT: Multidisciplinary Research in Transportation, Texas Tech University.
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Research Experience

Co-Principle Investigator: 12 projects, \$3.7 million (prorated \$620,000)

Review Engineering Essential Foundation Skills (REEFS)

Amount: \$10,000 (**\$1,500 as Co-PI**) 6/1/2023 – 12/31/2023
Sponsor: The Citadel School of Engineering
Contribution: Developed math review lecture videos for online distribution to incoming engineering students with engineering examples and homework problems.

Common Introduction to Engineering Course Development

Amount: \$12,000 (**\$4,000 as PI**) 3/1/2022 – 12/20/2024
Sponsor: The Citadel School of Engineering Vision Grant
Contribution: Provide leadership in cross-departmental course development. Developed and implemented the Civil and Construction Engineering module in the course incorporating KEEN Entrepreneurial Minded Learning.

Risk Based Methodology for Structural Evaluation of Bridge-Sized Culverts

Amount: \$252,157 (**\$37,290 as Co-PI**) 7/1/2021 – 9/26/2024
Sponsor: Federal Highway Administration (FHWA)
Contribution: Developing consistent risk-based methods for load rating bridge sized reinforced concrete box culverts.

Encouraging Civil Engineering Retention by Increasing Community and Self-Efficacy

Amount: \$999,914 (**\$100,000 approx. as Co-PI**) 5/1/2018 – 4/30/2023
Sponsor: National Science Foundation (NSF)
Contribution: Supporting community building and enrichment activities for high-achieving, low-income students with demonstrated financial need at The Citadel in Charleston, SC.

Culvert Inspection Software, Tools and Techniques

Amount: **\$15,000.00 as PI** 9/1/2016 – 6/30/2021
Sponsor: Citadel Foundation and School of Engineering Faculty Research Grants
Contribution: Developed culvert inspection and load rating capabilities including the CHIVE culvert inspection vehicle with veteran student Craig Niswender.

Load Rating TxDOT pre-1980 In-Service Culverts

Amount: \$1,097,227 (**\$175,566 as Co-PI**) 7/15/2014 – 6/15/2016
Sponsor: Texas Department of Transportation (TxDOT) Bridge Division
Contribution: Data management for 11,000 culvert structures, overseeing 60 undergraduate researchers, culvert load rating expertise, reporting

Snow and Ice Chemicals for Texas Roads: Modification 3, Field and Lab Testing

Amount: \$226,164 (**\$29,401 as Co-PI**) 8/31/2014 – 8/31/2015
Sponsor: TxDOT/Federal Highway Administration (FHWA)
Contribution: Field testing of deicing salts, design and execution

Reliability Based Deep Foundation Design Using Texas Cone Penetrometer (TCP) Test
Amount: \$399,845 (**\$99,961 as Co-PI**) 9/1/2012 – 8/31/2014
Sponsor: TxDOT/FHWA
Contribution: Data management and analysis of 75 deep foundation load tests, programming, reporting

Load Rating TxDOT Culvert Design Standards 6/1/2012 – 4/30/2013
Amount: \$180,449 (**\$45,112 as Co-PI**)
Sponsor: TxDOT/FHWA
Contribution: Data management, load rating 2000 culvert standard designs under a full range of cover soil depths, culvert load rating expertise, reporting

Software Development to Implement the TXDOT Culvert Rating Guide 6/1/2012 – 11/20/2012
Amount: \$74,288 (**\$18,572 as Co-PI**)
Sponsor: TxDOT/FHWA
Contribution: Development of CULVLR (TxDOT's multibarrel, reinforced concrete box culvert load rating program), culvert load rating expertise

Pullout Resistance of Mechanically Stabilized Earth Reinforcement in Backfills Used in Texas
Amount: \$393,374 (**\$78,675 as Co-PI**) 9/1/2009 – 8/31/2012
Sponsor: TxDOT/FHWA
Contribution: Large scale lab testing design, large-scale pullout testing of over 700 steel MSE reinforcements, data management and analysis, reporting

Perform Live Load Testing of Sandwich Panel System (SPS) Bridges in Wise County
Amount: \$29,366 (**\$14,683 as Co-PI**) 10/8/2009 – 8/31/2010
Sponsor: TxDOT/FHWA
Contribution: Field testing execution, data acquisition

Full-time Researcher: 5 projects, \$1.4 million

Testing of Alternative Supporting Materials for Portable Roll-Up Signs Used for Maintenance

Work Zones 9/1/2010 – 8/31/2013

Amount: \$508,663,

Sponsor: TxDOT/FHWA

Contribution: Field testing design and evaluation of portable roll-up signs

Implementing the Ultra-High Pressure Water Cutter for Roadway Maintenance Applications

Amount: \$333,490 9/1/2010 – 8/31/2012

Sponsor: TxDOT/FHWA

Contribution: Field testing execution, gathering data on pavement roughness, reporting

MSE Pullout Testing for RECo HA Ladder and HA Strip Reinforcements 6/1/2011 – 8/31/2011

Amount: \$24,052

Sponsor: Reinforced Earth Company, Vienna, VA

Contribution: Large-scale lab testing execution, data analysis, reporting

Evaluating Existing Culverts for Load Capacity Allowing for Soil Structure Interaction

Amount: \$215,630 9/1/2007 – 8/31/2009

Sponsor: TxDOT/FHWA

Contribution: Live load field testing design and execution, data analysis, numerical modeling, parametric analysis, report preparation

Design Procedures for MSE/Soil Nail Hybrid Wall Systems 9/1/2004 – 8/31/2008

Amount: \$386,157

Sponsor: TxDOT/FHWA

Contribution: Field testing execution, data acquisition

Additional Proposals:

NCHRP 15-54: Proposed Modifications to AASHTO Culvert Load Rating Specifications

Selected but not awarded

Amount: \$500,000 (**\$100,000 as Co-PI**)

Sponsor: National Cooperative Highway Research Program (NCHRP)