

# Curriculum Vitae

## Paul D. Tucker, SE, PE, DFE, CXL



Mr. Tucker's work experience includes civil and structural engineering positions in industry, academia, and consulting firms. In industry, he has been responsible for structural engineering design, project management, inspections, and code compliance. Mr. Tucker has personally designed thousands of buildings and structures, including but not limited to schools, churches, restaurants, gymnasiums, condominiums, industrial facilities, recreational facilities, retail stores, office buildings, and residential structures. In academia, he has incorporated his industrial and consulting experience into graduate and undergraduate classroom lectures on structural engineering and construction. As a structural engineering consultant, Mr. Tucker applies the principles of design, analysis, testing, and safety to the forensic evaluation of damaged and deficient structures. Mr. Tucker is currently taking a hiatus from his Ph.D. studies at the University of Tennessee in the Biosystems Engineering Department. Mr. Tucker is a native speaker of English, is fluent in Modern Standard Arabic, and has a basic proficiency of Spanish.

### Licensure and Certification

- Licensed Professional Engineer in Florida, #61358
- Licensed Professional Engineer in Tennessee, #108109
- Licensed Professional Engineer in Georgia, #PE029463
- Licensed Structural Engineer in Georgia, #SE000972
- Licensed Professional Engineer in Alabama, #26466
- Licensed Professional Engineer in Virginia, #0402039936
- Licensed Professional Engineer in Ohio, #PE.68993
- Licensed Professional Engineer in North Carolina, #033087
- Licensed Professional Engineer in South Carolina, #ELS.23395 E
- Licensed Professional Engineer in Kentucky, #24964
- Licensed Professional Engineer in Missouri, #2007017124
- Licensed Professional Engineer in Pennsylvania, #PE071001
- Licensed Professional Engineer in Massachusetts, #56314
- Licensed Professional Engineer in Louisiana, #45450
- Licensed Professional Engineer in Idaho, #P-20107
- Licensed Professional Engineer in Texas, #140932
- Licensed Professional Engineer in New Mexico, #16551
- Licensed Professional Engineer in Michigan, #6201310999
- Licensed Professional Engineer in Indiana, #PE12400098
- Certified XL Tribometrist (CXL), #1910810
- Master Certificate in Concrete Repair World of Concrete

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### Formal Education

- Doctoral Research and Studies, Biosystems Engineering, The University of Tennessee at Knoxville, 2014 – 2017, No Degree
- Master of Science, Structural Engineering, The University of Tennessee at Knoxville, 2002
- Bachelor of Science, Civil Engineering, Summa Cum Laude, The University of Tennessee at Knoxville, 1999
- Institutional Degree, Intermediate Arabic, Silver Diploma, Defense Language Institute Foreign Language Center, 1994

### Professional Development

- Courses Taught: Building Structures; Cold-Formed Steel Frame Design for Residential and Small Commercial Buildings; Foundation Damage and Repair – Science, Materials, and Techniques; Pitfalls Designing and Constructing Masonry and Concrete Retaining Walls; Kansas City Hyatt Regency Disaster – What we have learned; Engineering Ethics
- Elevator 101, NCSEA, New Smyrna Beach, FL, 2024
- Engineering Ethics: An Insider's Account of the Space Shuttle Columbia Disaster, NAFE, Daytona Beach, FL, 2024
- Contracts with Bite vs. Contracts That Bite, NAFE, Daytona Beach, FL, 2024
- Reading, Researching, and Understanding White Papers, NAFE, Daytona Beach, FL, 2024
- Storming into the Insurance Industry, NAFE, Daytona Beach, FL, 2024
- Media Minefields: Guidance on When, Why, and How to Engage with the Media, NAFE, Daytona Beach, FL, 2024
- Artificial Intelligence in Forensic Engineering: A New Era of Efficiency, Clarity, and Accuracy, NAFE, Daytona Beach, FL, 2024
- Applying Reverse Projection Photogrammetry in Forensic Engineering, NAFE, Daytona Beach, FL, 2024
- Failure of Climbing Tree stand Due to Corrosion and Selective Leaching of Cable's Galvanic Layer: Failure Analysis and Experimental Study, NAFE, Daytona Beach, FL, 2024
- Improving Forensic Engineering Practice for Property Casualty Losses, NAFE, Daytona Beach, FL, 2024
- Examples of Using Experimental Design Techniques to Solve Problems in the Field, NAFE, Daytona Beach, FL, 2024
- Beyond the Building Code: A Forensic Approach to Construction Defect Evaluation, NAFE, Daytona Beach, FL, 2024
- Forensic Engineering Analysis of a Residential Fire Caused by an Open Neutral, NAFE, Daytona Beach, FL, 2024
- Forensic Engineering Analysis of Abrasive Additives in Painted Walkways Utilizing a Portable Digital Microscope In-Situ as a Tool for Litigation of Slip and Fall Cases, NAFE, Daytona Beach, FL, 2024
- An Introduction to the New ASCE Solar PV Structures Manual of Practice, FLSEA, New Smyrna Beach, FL, 2023
- Case Studies in Professional Ethics, New Smyrna Beach, FL, 2023
- Hail and Wind Damage to Residential Roofs, HAAG Education, New Smyrna Beach, FL, 2023
- Basic Life Support CPR/AED plus FAST, Altamonte Springs, FL, 2023
- Ethics for Practicing Engineer – Managing Risks Imposed on the Public, VectorSolutions, 2023
- Florida Engineering Laws and Rules, VectorSolutions, 2023
- Certified XL Tribometrist Certification Program, Tampa, FL, 2023

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- For the Betterment of the Structural Engineering Profession: A Joint CASE, NCSEA & SEI Town Hall Event, Florence, KY, 2022
- Initial Investigation into the Partial Collapse of the Champlain Towers South Building in Surfside, FL, Dandridge, TN, 2022
- Advance repair: Structural Distress, Assessment & Strengthening Solutions, Las Vegas, NV, 2022
- Repair Fundamentals I: Surface Preparation, Reinforcement, Material Selection & Placement, Las Vegas, NV, 2022
- Repairing Concrete Cracks: Evaluation & Selection of Repair Materials, Las Vegas, NV, 2022
- Post-Tensioning: Repairs, Modifications & Evaluation of Existing Structures, Las Vegas, NV, 2022
- Repair Fundamentals II: Waterproof, Protection & Corrosion Prevention, Las Vegas, NV, 2022
- How to Evaluate the Structural Integrity of Concrete Walls and Slabs, Dandridge, TN, 2021
- How to Test Concrete Structures Using Impact-Echo Method, Dandridge, TN, 2021
- Nondestructive Testing for Structural Condition Assessment, Dandridge, TN, 2021
- Protective Design using ELS Software, Dandridge, TN, 2021
- Seismic Analysis using ELS Software, Dandridge, TN, 2021
- Extreme Loading for Structures High Fidelity Non-Linear Structural Analysis, Dandridge, TN, 2021
- Helix Micro Rebar for ICF Construction, Dandridge, TN, 2021
- Winds of Change: How ASCE 7-16 Is Affecting Florida, GAF and International Institute of Building Enclosure Consultants, Daytona, FL, 2021
- Wind Load Effects on Canopy Systems, Florida Structural Engineers Association, Daytona, FL, 2021
- Overview of Changes and Additions in ACI 318-19, Florida Structural Engineers Association, Daytona, FL, 2021
- Introduction to ASCE/SEI 41, Seismic Evaluation and Retrofit of Existing Buildings, Applied Technology Council for the Federal Emergency Management Agency, Daytona, FL, 2021
- Technical Topics in Forensic Engineering, National Academy of Forensic Engineers, Daytona, FL 2021
- Remote Forensic Inspections in the Age of COVID-19, Daytona, FL, 2021
- Forensic Engineering of Pedestrian and Worker Fall Incidents – The Evolution of Analysis Techniques and Safety Requirements, Daytona, FL, 2021
- Goals, Methodology, and Tools for Investigating Electrical Shocks, Daytona, FL, 2021
- Current Assessment of Stand-up Forklift Underride Accidents, Daytona, FL, 2021
- Ethics for Forensic Engineers, Daytona, FL, 2021
- Overheating Poor Electrical Connections, Daytona, FL, 2021
- Forensic Engineering Analysis of a Collision Involving Aftermarket Bumper and Grille Guard Structure, Daytona, FL, 2021
- Human Factors - Why We Do What We Do, Dr. Philip Fatolitis, Orlando, FL, 2021
- Insidious Thermal Forces in Steel Structures, National Council of Structural Engineers Associations, Daytona, FL, 2020
- Overview of Changes and Additions in ACI 318-14, National Council of Structural Engineers Associations, Daytona, FL, 2020

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- Changes to the 2016 TMS 402/602 Building Code for Masonry Structures, National Council of Structural Engineers Associations, Daytona, FL 2020
- The Anatomy of a Fall, Dr. Philip Fatolitis, Orlando, FL, 2020
- New Solutions in the New Design Guide 21 on Welding, National Council of Structural Engineers Associations, Daytona, FL, 2020
- Code Compliance and Existing Structures, National Council of Structural Engineers Associations, Daytona, FL, 2020
- Contract Review: Key Provisions – Raising the Bar, AXA XL, Daytona, FL, 2020
- Ethics for Professionals, RedVector, Daytona, FL, 2020
- Deposition/Courtroom 101, National Academy of Forensic Engineers, 2020
- Curriculum Vitae for Forensic Engineers, National Academy of Forensic Engineers, 2020
- Daubert Hearing from Hell, National Academy of Forensic Engineers, 2020
- Structural Inspection with Ground-penetrating Radar, Orlando, FL, 2020
- Human Factors – Slips Trips and Falls, Dr. Philip Fatolitis, Orlando, FL 2019
- Certified XL Tribometrist Certification Program, Tampa, FL, 2019
- Florida Engineers' Laws and Rules, RedVector, 2020, 2019, 2017, 2015, 2013, 2011, 2009, 2007
- Fastening Systems for Seismic Applications, Knoxville, TN, 2012
- Designing Wood Framed Structures for Wind Loading and Metal connectors for the New Building Code, Knoxville, TN, 2011
- Masonry Design: Installation and Workmanship, American Concrete Institute, 2011, 2009
- 306R Cold Weather Concrete: Structural Concrete, American Concrete Institute, 2011
- Physical Properties and Durability of FRC, American Concrete Institute, 2011
- Concrete Floor and Slab Construction, American Concrete Institute, 2011
- Quality Management Introduction, Knoxville, TN, 2009
- Concrete Evaluation and Repair, American Concrete Institute, 2009
- Tennessee Multi-Hazard Mitigation Center at UT, Knoxville, TN, 2008
- Pump Station Expansion Overview – New Orleans, LA, Knoxville, TN, 2008
- AISC Seismic Provisions for Structural Steel Buildings, Knoxville, TN, 2008
- LEED Certification, Knoxville, TN, 2008
- Structural Forensic Engineering Projections, Knoxville, TN, 2008
- Professional Ethics for Civil Engineers Using Fundamental Canons of Engineering Practice, Knoxville, TN, 2008
- KUB Pace 10 Off-Line Storage Tank Project Overview, Knoxville, TN, 2007

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- KUB Reference Design Guides, Knoxville, TN, 2007
- Kilowatt Ours, Knoxville, TN, 2007
- Liability IQ for Architects and Engineers, Knoxville, TN, 2006, 2004
- Engineering in Karst, Knoxville, TN, 2006
- RAM International Seminar Series for Improving Design and Drafting for Structural Engineers, Knoxville, TN, 2005
- Flood Risk Analysis, Knoxville, TN, 2005
- Designing with CON/SPAN Bridge Systems, Knoxville, TN, 2005
- Technical and Project Management, Philadelphia, PA, 2005
- PACE 10 Update: KUB's Accelerated 10-Year Wastewater System Improvement Program, Knoxville, TN, 2005
- Post-Tensioning of Two-Way Systems in Buildings, Knoxville, TN, 2005
- Lateral Design Workshop, Atlanta, GA, 2004
- Technology Trends for the Design Office, Knoxville, TN, 2004
- Automotive Engineering at The University of Tennessee, Knoxville, TN, 2004
- Rockslide Stabilization Techniques and Gray Fossil Site Update, Knoxville, TN, 2004

## Professional Affiliations

- National Academy of Forensic Engineers, Senior Member (2020 – present)
  - Internet Committee (2020 – present), Conference Committee (2021)
- National Society of Professional Engineers, Member (1998 – present)
- Florida Engineering Society (2019 – present)
- Florida Structural Engineers Association (2019 – present)
- Tennessee Society of Professional Engineers, Member (1999 – present, Knoxville Chapter: Chapter Director, 2003 – 2004, 2006 – 2011, Secretary 2004 – 2006)
- Structural Engineering Institute (2019 – present)
- American Society of Civil Engineers, Student Member (1997 – 1999), Member (1999 – present)
- American Society of Testing and Materials (2019 – present)
- Fenestration & Glazing Industry Alliance (Formerly AAMA) (2019 – present)
- American Institute of Steel Construction, Member (2004 – present)
- American Concrete Institute, Member (2004 – present)

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- Tennessee Structural Engineers Association, Member (2006 – 2019, East Region: Vice-President, 2006 – 2010, President 2010 – 2012, Past-President, 2012 – 2014.)

### Professional Experience

- Partner, Arete Forensics, PLLC, formerly Professional Engineering and Inspection Services, PLLC (Dandridge, TN), Orlando, FL 2006 – present
- Senior Engineer IV, J.S. Held, LLC, Orlando, FL, 2021 – 2021
- Project Manager, Forensic Engineering Technologies, LLC, Orlando, FL, 2019 – 2020
- Appointee to the Building Inspection Board of Appeals, Jefferson County, TN, 2011 – 2020
- Owner/Partner, C2it Wall Repair, LLC, 2015 – 2020
- Adjunct Lecturer, Department of Civil and Environmental Engineering, University of Tennessee, 2012 – 2017: 2019
- Office Principal, Pennoni Associates Inc., 2005 – 2006
- Owner/Partner, Progressive Engineering Group, LLC, 2003 – 2005
- Structural Engineer, A&S Building Systems, 2000 – 2003
- Project Engineer, Construction Systems Group, Inc., 1999 – 2000
- U.S. Military, Electronic Signal Intelligence Specialist, Voice interceptor, Translator / Interpreter, Arabic Linguist, Member of TLQ-17 Jamming Team, LLVI Squad Leader, Feb. 1993 – Nov. 1996 (90-day early release to pursue a college degree).

### Specialized Training

- Arabic Degree: Defense Language Institute, Monterey, CA
- Military Intelligence Specialists: Goodfellow A.F.B. San Angelo, TX
- Air Assault School: Fort Campbell, KY
- Combat Lifesaver Course: Fort Campbell, KY
- Driver Training Course: Fort Campbell, KY
- Continuing Arabic Training: Fort Campbell, KY

### Honors and Awards

- Military: Two Army Achievement Medals, Good Conduct Medal, National Defense Medal, Army Service Ribbon, Air Assault Badge, Expert Rifleman's Badge, Expert Grenade Launcher Badge, Expert Hand Grenadier Badge, Basic Training Outstanding Soldier of the Cycle, Basic Training Outstanding Soldier of the Fourth Training Brigade, Army High P.T. Award, Defense Language Institute Provost's Award Recipient, The Distinguished Honor Graduate Defense Language Institute, The Distinguished Honor Graduate 98G Intelligence Training School Goodfellow A.F.B., Three Department of the Army Certificates of Achievement, Two-Time 101<sup>st</sup> Airborne Division "Eye of the Eagle Award" Recipient, Selected to Represent 101<sup>st</sup> Airborne Division in the Worldwide Language Olympics, Association of the United States Army Certificate of Commendation, Department of the Air Force Letter of Commendation, 344<sup>th</sup> Military Intelligence Battalion Letter of Commendation, Defense Language Institute Certificate of Achievement, STRAC award winner Goodfellow, A.F.B.

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- Academic: Summa Cum Laude, Tau Beta Pi – National Engineering Honor Society, Chi Epsilon – National Civil Engineering Honor Society, Gamma Sigma Delta – The Honor Society of Agriculture, Gamma Beta Phi – National Honor Society, Calloway Endowment Fund Scholarship, Tennessee Road Builders Scholarship, Civil Engineering Department Scholarship, Dean's List 1997-1999, 2001-2002, 2014-2017.

## Teaching and Curriculum Development

### The University of Tennessee, Knoxville

- Construction Engineering - Courses Taught: Construction Management and Methods; Construction Engineering II
- Civil Engineering – Courses Taught: CADD Applications for Civil Engineers
- Structural Engineering – Courses Taught: Structural Systems; Analysis of Framed Structures; Structural Steel Connection Design; Behavior of Steel Structures

## Volunteer Experience

- Associate Editor: The Journal of the National Academy of Forensics Engineers, 2022 - Present
- Assistant Coach: Team 16249 Excaliper: Tesla-Orlando League of F.I.R.S.T Tech Challenge robotics competition, 2019 – Present
- Volunteer for F.I.R.S.T Tech Challenge Orlando League robotics competitions. 2023 – Present.
- Judge of the National Steel Bridge Competition: American Institute of Steel Construction, 2019 and 2020
- President of the East Tennessee Wrestling Association, 2010 - 2014