



ENGINEER: CIVIL/STRUCTURAL

MATTHEW E. BUCKNER, P.E.

Engineering Design & Testing Corp.
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EDUCATION

2004 **Bachelor of Science, Civil Engineering**
Tennessee Technological University, Cookeville, Tennessee

EXPERIENCE

April 2012
to Present **Engineering Design & Testing Corp.**
Nashville, Tennessee

Consulting Engineer (April 2012-Present)

District Engineering Manager (April 2012-Present)

Consulting in the areas of civil and structural engineering for industrial, commercial and residential structures; structural failure analysis; evaluation of wind, fire, flood, water intrusion and ground-related damages; evaluation of construction materials and methods; evaluation of construction installation and methods; evaluation of roofing and exterior veneer cause of damage; evaluation of storm water systems; preparation of cost to repair estimates; review of building code and industry standard compliance; consultation in construction defect related disputes.

June 2004
to March 2012 **Cornerstone Engineering, Inc.**
Madisonville, Tennessee

Vice President

Management of design and drafting department; design of additions and retrofits to existing commercial buildings, schools, office buildings and existing freestanding signage; retrofit and update existing commercial buildings; field analysis of freestanding signage; signage cabinet framing analysis; design and inspection of metal-frame building concrete foundations and slabs.

Project Engineer

Design of foundations, columns and sign cabinets for freestanding signage; review of geotechnical reports; performed structural design with aluminum, steel, wood, masonry and concrete; design of bolted and welded connections; design using structural steel shapes such as I-beams, square tube, rectangular tube, angles, channels and built-up sections; field surveys for concrete and masonry retaining wall design; masonry and concrete retaining wall design; design of open-span basements and specialty areas encompassing architectural elements.

December 2002
to July 2003 **Gilbert Southern Corp.**
Atlanta, Georgia

Field Engineer/Internship

Road crew supervisor during rehabilitation of Highway 75 in downtown Atlanta; including project estimation and traffic support, safety for employees, and scheduling. Experience with heavy equipment operation, including bulldozer, fork-truck, backhoe and road grader.

EXPERIENCE

Design and Construction (partial list)

University of Missouri Football Scoreboard — *Columbia, Missouri*

Designed all structural aspects of the freestanding 100-foot-tall by 120-foot-wide, steel framed video board anchored in concrete foundations.

University of Alabama Football Scoreboard — *Tuscaloosa, Alabama*

Designed all structural aspects of hanging 80-foot-wide, steel framed video boards and attachment to stadium.

Sagemont Church — *Houston, Texas*

Designed 170-foot-tall steel cross and accompanying foundation.

Gardendale First Baptist – *Gardendale, Alabama*

Designed 125-foot-tall steel cross and foundation system.

Sweetwater School Board Administration Building — *Sweetwater, Tennessee*

Designed all structural aspects of new 5000 square foot masonry building.

Rehabilitation of Schools for Monroe County School Board — *Sweetwater, Tellico & Vonore, Tennessee*

Designed and retrofitted schools with new or updated classrooms, gymnasiums, and cafeterias.

Possee Construction — *Vonore, Tennessee*

Designed and supervised construction of retaining walls, long span glulam wood beams, and steel beams in residential applications, worked with contractor to minimize costs and project window.

Crossville Hardwoods — *Crossville, Tennessee*

Designed foundations for 50,000 square foot metal building system, supervised construction, worked with contractor to minimize costs.

Engineering Investigations (partial list)

Pates Ford Marina — *Smithville, Tennessee*

Evaluation of scope of damage to steel and concrete marina and concrete boat docks.

Parking Deck Collapse — *Miami, Florida*

Evaluation of scope of damage to precast parking deck.

Tornado Damaged Building — *Mt. Juliet, Tennessee*

Determine scope of damage to masonry and wood framed building.

Le Bonheur Children's Hospital — *Memphis, Tennessee*

Determine cause of damaged flooring in the hospital. The damaged flooring resulted from cracked lightweight concrete decking. Determine the cause of the cracks in the lightweight concrete decking.

Flooded Apartment Buildings — *Louisville, Kentucky*

Determine cause of water intrusion into apartment buildings. Separation of flood water of culvert from rainfall.

Fire Damaged Structural Brick Building — *Sturgis, Kentucky*

Determine scope of damage to building resulting from fire. The building was condemned.

Water Intake Pump House — *Spring City, Tennessee*

Debris entered a concrete pump house one year after substantial completion of renovation. Evaluation of the installation of water tight materials, including laboratory tests and analysis of exemplar materials.

Evaluation of Sinking Building — *Chattanooga, Tennessee*

Evaluation of storm water culvert that passes under a sinking building. Determine cause of damage to building. Designed foundations for 50,000 square foot metal building system, supervised construction, worked with contractor to minimize costs.

Aircraft Hangar Collapse — *Colt, Arkansas*

Determine cause of damage to aircraft hangar from elevated winds.

Historic Covered Bridge — *Elizabethton, Tennessee*

Evaluation of bridge constructed in 1882. Determine cause of damage to historic covered bridge - reported damaged from wind.

Liberty Bowl Memorial Stadium — *Memphis, Tennessee*

Evaluation of exterior cladding of ticket towers at stadium. Determine cause of damage to stone veneer.

City of Camden — *Camden, Tennessee*

Determine cause of damage to public in-ground concrete pool and pool decking.

Single Family Dwelling — *Nashville, Tennessee*

Jackhammering on adjacent property reported to have caused cracking and subsequent water intrusion. Determine cause of damage to dwelling.

Legal Consultations (partial list)**Masonry Building Damaged from Water Pipe Explosion — *Knoxville, Tennessee***

Determine scope of damage to building resulting from water pipe explosion.

Moisture Intrusion into Basement

Evaluation of construction methods.

Collapsed Building during Construction — *Nashville, Tennessee*

Consulted on proper masonry erection process and required OSHA wall bracing along with building code analysis.

Grocery Store — *Nashville, Tennessee*

30' tall glass windows fell from a building. Consulted on installation of window mullions and window systems.

Condominium Fire — *Osage Beach, Missouri*

Cost of repair dispute. Performed scope of damage investigation to burnt condominiums. Prepared cost of repair estimate.

Addition of Pavilion to Single Family Dwelling — *Thompson's Station, TN*

Faulty workmanship dispute. Evaluation of construction methods. Scope of damage investigation and review of estimated cost to repair.

REGISTRATIONS and CERTIFICATIONS

Registered Professional Engineer in Alabama (#31354)
Registered Professional Engineer in Arizona (#51451)
Registered Professional Engineer in Arkansas (#14456)
Registered Professional Engineer in Colorado (#PE0048035)
Registered Professional Engineer in Florida (#71780)
Registered Professional Engineer in Georgia (#PE039724)
Registered Professional Engineer in Indiana (#PE11200492)
Registered Professional Engineer in Kentucky (#28787)
Registered Professional Engineer in Louisiana (#0035768)
Registered Professional Engineer in Mississippi (#20632)
Registered Professional Engineer in Missouri (#2013025018)
Registered Professional Engineer in New Jersey (#24GE04906700)
Registered Professional Engineer in North Carolina (#048138)
Registered Professional Engineer in Oklahoma (#24663)
Registered Professional Engineer in Pennsylvania (#PE078328)
Registered Professional Engineer in South Carolina (#28336)
Registered Professional Engineer in Tennessee (#00112499)
Registered Professional Engineer in Texas (#106774)
National Council of Examiners for Engineering and Surveying (#41716)

PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers (ASCE)
Confined Space Entry
International Society of Explosives Engineers, Tennessee Chapter
Level 1 Certified Blaster
National Roofing Contractors Association

INVITED PUBLICATIONS

Post-Fire Structural Evaluations, WNY Engineer, Issue 7, Volume 85, 2013. (a publication of The Engineering Society of Buffalo, New York)

PUBLICATIONS

Post-Fire Structural Evaluations, EDT Blog Post, (A publication of EDT Engineering Design & Testing Corp.), August 16, 2018

Stormwater, Among Other Things, EDT Blog Post, (A publication of EDT Engineering Design & Testing Corp.), August 29, 2018

PRESENTATIONS

Post Fire Structural Evaluations, Engineering Design & Testing Corp., June 2012; Birmingham, Alabama
Technological Review of Unmanned Aerial Vehicles and Their Uses, EDT, February 2017; Cayce, South Carolina

CONTINUING EDUCATION

- 2019 *"Interdisciplinary Investigations"*, EDT
 "No Tears Veneers – Keeping Water Out of Walls", EDT
 "Toybox for Civils", EDT
- 2018 *"Fire Retardant Treated Wood and Pressured Treated Wood"*, EDT
 "Heat, Air and Moisture Components of Building Envelopes", EDT
 "Introduction to Wood Connection Analysis", EDT
 "Large and Multi-Claimant Construction Defects", PLRB Large Loss
 "Liar, Liar, House on Fire", PLRB Large Loss
 "Mold Basics", RedVector
 "Pier and Beam Foundation Design", RedVector
 "The EDT Approach to Design/Construction Defects Investigation", EDT
 "Water Damage Oddities", PLRB Large Loss
- 2017 *"Engineering Analysis of Failure: Determination of Cause in Legal Environment"*, EDT
 "Failures Related to Concrete Volume Change and Restraint", ACI
 "Hurricane Mitigation; Design and Construction Lessons", RedVector
 "Large Loss Report Writing", EDT
 "MSE Retaining Walls-Design Analysis", EDT
 "Wind Design for Components and Cladding Using ASCE 7-16", ASCE
 Florida Engineering Laws and Rules
- 2016 *"Design of Steel Elements for Second Order Effects"*
 "Ethical Decision Making for Engineers #1"
 "Hurricane Damage Investigations-Wind vs. Water"
 Ethics Course, ACEC Indiana
 Indiana Rules and Statutes, ACEC Indiana
 Tennessee Law for Design Professionals
- 2015 *"Ethical Decision Making for Engineers #2"*
 "Federal Rules of Civil Procedure: Rule 26-Expert Report", EDT
 "Modern Data Management for Engineering Investigations, Acquisition, Storage and Access", EDT
 "On Thin Ice-Building Failures During Winter", EDT
 "What to Do When You Get It Wrong", EDT
 Florida Engineers' Laws and Rules
- 2014 *"Presentation of Credentials in Litigation"*, EDT
 "The Pyramid Concept of Case Management for Civil/Structural Engineers", EDT
 "To Fall or Not to Fall? That is the Question: A Guide to the Investigation of Imminent Collapse", EDT
 "Condition Assessment of Existing Structures", Charlotte, NC
 "What's Your Business? The Art of an Elevator Pitch", ASCE

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- OSHA Asbestos Awareness Standard for General and Construction Industry, R&R Environmental
- 2013 “Avoiding Failures of Retaining Walls”, ASCE
- “Changes in the Wind Provisions of the ASCE 7 Standard”, EDT
- “Concrete 1: Evaluation and Causes of Damage”, RedVector
- “Concrete 2: Repair, Planning, and Preparation”, RedVector
- “Concrete 3: Methods, Materials, and Maintenance”, RedVector
- “Ethical Decision Making for Engineers #2”, RedVector
- “Ethical Decision Making for Engineers #3”, RedVector
- “Filing Rules in a Judicial System”, EDT
- “Level One: Practical Blasting Fundamentals”, International Society of Explosives Engineers
- “Metal Roofing: Composition and Damage Assessment”, EDT
- “Social Networking and the Consulting Engineer”, EDT
- “The Appraisal Process and Reference Hearing for the Resolution of an Insurance Claim”, EDT
- “What’s Your Business? The Art of an Elevator Pitch”, ASCE