

## **EDUCATION**

- 2014 **Bachelor of Science, Mechanical Engineering**  
Tennessee Tech University, Cookeville, Tennessee
- 2008 **Associates of Science, Heavy Equipment Dealers Service Technology**  
South Georgia Technical College, Americus, Georgia

## **EXPERIENCE**

- December 2018  
to Present **Engineering Design & Testing Corp.**  
**Nashville, Tennessee**  
*Consulting Mechanical Engineer*  
Engineering expert specializing in root cause analysis, including malfunctions involving machinery, mechanical equipment & systems, plumbing systems in residential, commercial, and industrial applications. Analysis of heating, ventilation, and air conditioning (HVAC) systems and associated equipment. Cost estimation of damage to HVAC/mechanical systems. Provide failure analysis of fire suppression systems. Investigation to determine fire origin and cause analysis.
- June 2018  
to December 2018 **Harpeth Park Engineering**  
**Franklin, Tennessee**  
*Mechanical Consulting Engineer*  
Provided consulting services for mechanical, plumbing, and fire protection engineering to residential, commercial, and industrial projects. Mechanical and Plumbing Engineer-of-Record for new construction, renovation, and design-build projects. Provided code-compliant and cost-effective engineered solutions for commercial offices, restaurants, multi-family, assisted living facilities, and retail.
- March 2014  
to June 2018 **Gresham Schelton Engineering**  
**Franklin, Tennessee**  
*Engineer-in-Training*  
Provided mechanical and plumbing systems design under supervision of Engineer-of-Record. Conducted building heating and cooling load calculations, assisted with selecting mechanical and plumbing equipment required and generated construction documents.
- March 2014  
to June 2018 **Oak Ridge National Laboratory**  
**Oak Ridge, Tennessee**  
*Mechanical Engineering Intern*  
Worked under supervision in the Energy and Transportation Science Division's ZEBR Alliance Home Project. Installed and maintained data acquisition, controls, and occupancy simulation for residential research projects. Generate sample reports from collected data.

June 2006  
to August 2007

**Thompson Machinery Caterpillar  
LaVergne, Tennessee**

*Student in ThinkBig Program*

Performed heavy equipment repairs under supervision. Manufacturer-directed program. Conducted field repairs, rebuilt engines, hydraulics, machine shop exposure including welding.

## **EXPERIENCE**

### ***Design and Construction (partial list)***

#### **Illume Townhomes — Nashville, Tennessee**

Designed mechanical and plumbing systems for a new, 5-story multi-family housing facility.

#### **Little Rey Restaurant — Atlanta, Georgia**

Designed mechanical and plumbing systems for restaurant including kitchen hood and grease removal systems.

#### **East Park Office Building — Brentwood, Tennessee**

Designed Mechanical Engineer-In-Charge. providing assistance and documentation for 225-ton chilled water retrofit.

#### **608 Main/Austin Peay Dormitory — Clarksville, Tennessee**

Mechanical and Plumbing Engineer In Charge for a new 5-story dorm facility on Austin Peay University campus.

#### **Deer Run Camps & Retreats Auditorium — Thompson Station, Tennessee**

Provided mechanical and plumbing systems design and documents for a new auditorium facility (occupancy to be approx. 500); challenging aspects of design included commercial kitchen, 1-phase power, heat pump/electric heat only.

#### **DuraAuto Aluminum Anodizing Plant Addition — Lawrenceburg, Tennessee**

Provided mechanical and plumbing systems design for a new anodizing facility addition to an existing industrial complex.

### ***Forensic Engineering Investigations (partial list)***

#### **Malfunction of Municipal Freshwater Pump System – Dover, Tennessee**

Determined cause and scope of damage to a freshwater pump system housed within a pier that supported a bridge overpass. The bridge overpass sustained a barge impact.

#### **Fire in Tractor/Trailer – Charleston, Tennessee**

Determine origin and cause of fire involving a tractor/trailer. Cause of fire determined to be frictional heating resulting from a bearing malfunction within the driver steer wheel hub.

#### **Tornado Damage to 3-Story Conveyor System**

Determine scope of damage to conveyor equipment damaged resulting from severe tornado damage to the facility that housed the equipment. Oversight of construction of temporary structure installed to protect equipment from further damage during building demolition and re-construction. Evaluation of repairs required to restore damage conveyor equipment to minimize business interruption.

---

**Tornado Damage to 36 Powered Industrial Trucks (Forklifts)**

Determine scope of damage to forklifts damaged from exposure resulting from a tornado. Evaluate and conduct operational testing on each forklift. Provided cost analysis of repair/replacement for each forklift.

**Commercial Pollution Control Unit – Nashville, Tennessee**

Determine origin and cause of fire involving pollution control unit installed in a restaurant located in a high-rise structure. Cause of fire from improper maintenance checks resulting in electrical fault.

**Hydraulic Passenger Elevator System – McMinnville, Tennessee**

Determine cause of malfunction in elevator. Cause of malfunction from build-up of heat within elevator machine room. Root cause from lack of proper ventilation/cooling within elevator machine room, per manufacturer's specifications.

**Auto Industry Float Glass System – Nashville, Tennessee**

Determine cause of damage to mechanical equipment associated with float glass system. Float glass furnace components damaged from loss of cooling water; loss of cooling water the result of power interruption to the facility. Determine scope of damage to the furnace equipment.

**Commercial Conveyor Oven – Cookeville, Tennessee**

Determine cause of explosion that took place within conveyor oven. Cause of explosion from improper diagnostic and safety procedures on the part of repair contractor.

**Swimming Pool Filtration Pump – Nashville, Tennessee**

Determine cause of water discharge resulting from malfunction in swimming pool pump. Cause of water discharge was the result of the separation of main pump sections from a fracture of the band clamp. Root cause of the water discharge was over-tightening of the band clamp.

**Flour Storage/Handling Silo System — Lebanon, Tennessee**

Determine origin and cause of fire involving dehumidifier. Cause of fire from improper installation/design with fluidizing process.

**Mechanical Ventilation Unit Fire — Spring Hill, Tennessee**

Determine root cause of fire in HVAC unit. Cause of fire from high resistance connection with heater controls.

**Soot Damage/Propane Sampling — Gainesboro, Tennessee**

Determine cause of soot damage and retrieve LP Propane sample for testing from two residences.

**Water Damage to Residence — Charlotte, North Carolina**

Determine cause of damage to flooring in residential application. Cause of damage from improper plumbing installation to refrigerator.

**CNC Plasma Table Explosion — Memphis, Tennessee**

Determine cause of explosion with industrial CNC plasma cutting system.

**HVAC Condensate Drainage Evaluation — Charlotte, North Carolina**

Evaluate HVAC system, determine failure points of installation. Improper drainage p-trap had been installed resulting in moisture buildup.

**Fire Department Breathing Air Tank Filling System — Livingston, Tennessee**

Determine cause of malfunction in air compressor used to fill breathing air tanks for fire department.

**Multiple Roof-Mounted HVAC Units — Clarksville, Indiana**

Determine scope of damage to multiple roof-mounted HVAC units from hail. Obtained and reviewed repair estimates.

**Damage to Outboard Motor — Granville, Tennessee**

Evaluate steering mechanism in Mercury 250 HP outboard motor for manufacturing defect.

**Tractor Rollover — Cookeville, Tennessee**

Mechanical evaluation of tractor after rollover event resulted in fatality.

***Mechanical Experience With Heavy Machinery (partial list)***

**Waste Management D8 Dozers — Nashville, Tennessee**

Field repair and replacement of tracks and track shoes on D8 dozer operating in landfill. Additional dozer work included troubleshooting dozer failures after dozer was driven through large quantities of raw fiberglass.

**Crawler Loader Engine Removal — Nashville, Tennessee**

Removal of diesel engine in CAT 963 crawler loader in the field.

**CAT 826 Landfill Compactor — Nashville, Tennessee**

Field removal of cab on landfill compactor to diagnose electrical problems.

**“Spec-Shop” Repairs — LaVergne, Tennessee**

Complete disassembly/reassembly of individual heavy equipment components including CAT 3406 diesel engine, large wheel loader hydraulic cylinders, hydraulic hammers, large wheel/tire assemblies. Assisted with engine dyno testing after rebuilds.

**Machine Shop Exposure — Americus, Georgia**

Proper instruction on basic machine shop equipment including welding course, instruction on cutting equipment, and soldering.

**REGISTRATIONS and CERTIFICATIONS**

Registered Professional Engineer in Arkansas (#18706)

Registered Professional Engineer in Florida (#88267)

Registered Professional Engineer in Georgia (#PE045538)

Registered Professional Engineer in Illinois (#062.071087)

Registered Professional Engineer in Indiana (#PE11900037)

Registered Professional Engineer in Kentucky (#34357)

Registered Professional Engineer in Mississippi (#29734)

Registered Professional Engineer in Missouri (#2019002241)

Registered Professional Engineer in North Carolina (#049088)

Registered Professional Engineer in Tennessee (#121010)

Registered Professional Engineer in Louisiana (application pending)

Registered Professional Engineer in Michigan (application pending)

---

NAFI Certified Fire and Explosions Investigator (#23887-13744)  
NAFI Certified Vehicle Fire Investigator (#23887-13744v)  
National Council of Examiners for Engineering and Surveying Record (#1518397)  
OSHA Permit-Required Confined Space Entry (#112296)  
FAA Remote Pilot Certification (#4414014)

## **PROFESSIONAL ORGANIZATIONS**

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)  
American Society of Mechanical Engineers (ASME)  
Materials Engineering Institute, ASM International  
National Association of Fire Investigators (NAFI)  
National Fire Protection Association (NFPA)

## **PUBLICATIONS**

*Condensate Drainage*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), March 21, 2019  
*How to Extend the Life of Your HVAC Equipment – This Summer and Beyond (Part 1)*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), June 6, 2019  
*How to Extend the Life of Your HVAC Equipment – This Summer and Beyond (Part 2)*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), June 12, 2019  
*How to Extend the Life of Your HVAC Equipment – This Summer and Beyond (Part 3)*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), June 20, 2019  
*Air Infiltration & Leakage (Part 1)*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), September 19, 2019  
*Air Infiltration & Leakage (Part 2)*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), September 26, 2019  
*Plasma Cutting Machine Explosion*, [EDT Blog Post](#), (A publication of EDT Engineering Design & Testing Corp.), May 13, 2020

## **PRESENTATIONS**

*“Water Heating: Thermal Expansion to Explosion”*, EDT Engineering Design & Testing Corp., March 2019

## **CONTINUING EDUCATION**

2020     *“Analysis of Cross-Linked Polyethylene”*, EDT  
          *“Back to Basics: Fire Science with a Spark”*, EDT  
          *“Welding Processes, Techniques, Standards, Inspections and Failure Modes”*, EDT  
          *“Understanding the Impact Power Quality Problems – Defining Voltage Surges and Sags”*, EDT  
          *“Engineering Laws, Rules and Ethics for Indiana/Professional Engineers”*, CEDengineering.com  
2019     *“A Brief Review of Polymers: Characterization and Failure Analysis”*, EDT  
          *“Building Your Practice – Means & Methods for Success”*, EDT

---

*“Construction Engineering: A Focus on the Use of Cranes in Construction Operations”, EDT*

*“Quantitative Measurement of LP and Natural Gas Systems”, EDT*

*“Interdisciplinary Investigations”, EDT*

*“Vehicle Fires”, EDT*

*Investigation of Gas and Electric Appliance Fires, Fire Findings*

*National Association of Fire Investigators CFEI Training Program, NAFI*

*National Association of Fire Investigators CFVI Training Program, NAFI*

*Ethics I for Professional Engineers, PDHnow*

2018 *Commercial Gas Detection, ASHRAE*

*Fundamentals of Engineering (FE) Exam Blueprint Creation Meeting, NCEES*