



Roger W. Griffith, P.E.
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Curriculum Vitae

PROFESSIONAL CREDENTIALS

Over 33 years of experience as a mechanical engineer in design, maintenance, and operation of mechanical, plumbing and sprinkler systems. Expert Witness/Consultant since 2002 for **plumbing codes and design, hot water scalding, legionella, gas appliances and venting, carbon monoxide poisoning, fuel gas fires and explosions, HVAC design, sprinkler system design, and failure analysis of mechanical and plumbing equipment/systems.**

Registered Professional Engineer in: Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Indiana, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, North Carolina, Ohio, South Carolina, Tennessee, Texas, and Virginia.

Diplomate, National Academy of Forensic Engineer; Board Certified Forensic Engineer (DFE)

Licensed commercial mechanical contractor in Tennessee (CMC); 2004 (expired).

PROFESSIONAL EXPERIENCE

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| 1997 to present | <p>Griffith Engineering & Consulting, Inc.
<i>Principal Engineer</i></p> <ul style="list-style-type: none">• Designer of mechanical, plumbing and fire protection systems for commercial and industrial projects. Engineer-of-Record on over 3 million square feet of commercial and industrial construction projects, such as convention centers, schools, office buildings, condominium projects, apartment buildings, hotels, manufacturing facilities, medical office buildings, restaurants, historic buildings, dormitories, fire halls, and maintenance facilities.• Provide expert witness and litigation support related to the design, installation, maintenance, and operation of mechanical, plumbing, and sprinkler systems, including forensic investigations of mechanical, plumbing, and sprinkler system failures. |
| 2016 | <p>Mesa Associates
<i>Mechanical Engineering Consultant</i></p> <ul style="list-style-type: none">• Process piping engineer for the Tennessee Valley Authority's new bottom ash dewatering facilities. |



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- 2014 to
2016 **Retiree Resource Corporation**
Mechanical Engineering Consultant
- Process piping engineer for the Tennessee Valley Authority's new bottom ash dewatering facilities.
- 1983 to
1997 **Tennessee Valley Authority**
Various Positions
- Quality Manager (1994-1997)*
- Trained personnel at all levels of the corporation in problem-solving, root cause analysis, statistical process control, failure modes and effects analysis, and business process re-engineering.
 - Presented paper at the Federal Quality Conference in Washington, D.C. on problem solving with quality teams.
 - Sponsored quality team that was selected as finalist in the RIT/USA Today Quality Cup competition for their problem solving project.
 - Advised quality teams on process improvement methods.
- Maintenance Supervisor, John Sevier Fossil Plant (1992-1994)*
- Supervised craft and engineering personnel at 800MW electric generating facility. Responsible for mechanical maintenance of plant equipment including boilers, piping, heat exchangers, pumps, and conveying systems.
 - Implemented total quality management program in maintenance department.
 - Utilized root cause analysis for accident investigations and hazard analysis.
- Mechanical Engineer, Boiler and Heat Exchanger Group (1990-1992)*
- Performed boiler inspections to determine root causes of failures at various fossil plants.
 - Inspected fans, pumps structures, ductwork and other plant equipment and designed modifications and upgrades as required.
- Maintenance Engineer, John Sevier Fossil Plant (1988-1990)*
- Performed predictive maintenance and failure analysis of plant equipment.
 - Designed and coordinated equipment modifications and upgrades.
- Valve and Heat Exchanger Specialist (1985-1988)*
- Designed upgrades and modifications for power plant condensers, valves, and various heat exchangers to improve performance and reliability.
 - Performed failure analysis on plant equipment including heat exchangers, condensers, valves, and piping.
- Piping Analyst (1983-1985)*
- Performed stress analysis of piping systems for the Watts Bar Nuclear Plant.

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE); 1996 - present

American Society of Mechanical Engineers (ASME); 1991 - present



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American Society of Plumbing Engineers (ASPE); 1998 - present

- past Vice-President of Technical of East Tennessee chapter; (2004)
- past Vice-President of Education of East Tennessee chapter; (2005)
- past Vice-President of Legislation of East Tennessee chapter; (2003)
- President of East Tennessee chapter; 2016-2017

American Society of Sanitary Engineers (ASSE); 2015 - present

American Society of Testing & Materials (ASTM); 2016 - present

International Code Council (ICC); 2014 - present

National Academy of Forensic Engineers (NAFE), Board Certified Diplomate Forensic Engineer (DFE); 2016 - present

National Fire Protection Association (NFPA); 2004 - present

National Society of Professional Engineers (NSPE); 2012 - present

CODES AND STANDARDS

ASPE Technical Standard 15 – Hot Water Temperature and Control, member; (2009 – 2010).

This is a design standards committee that provides industry guidelines for hot water temperature limits and control for plumbing systems to prevent scalding.

ASSE Scald Awareness Task Group, member. The task group was formed to make the general public and plumbing community more aware of potential scald issues relative to plumbing systems. The task group has published the following white papers during my membership:

- Adjustment of Automatic Compensating Valves to Prevent Potential Scald Hazards; 2014 – 2015
- Guidelines for Temperature Control Devices in Domestic Hot Water Systems; 2016
- Recommended Installation Practices For Residential Storage Type Water Heaters To Reduce the Danger of Scalds, 2017

ASSE 1082 Working Group, member; (2016-present). The Working Group is developing a standard for Tankless Water Heaters Used as Temperature Control Devices for Hot Water Distribution Systems.

ASSE 1084 Working Group, member; (2017-present). The Working Group is developing a standard for Tankless Water Heaters Used as Temperature Control Devices for Point-of-Use Applications.

ASSE 1085 Working Group, member; (2017-present). The Working Group is developing a standard for Tankless Water Heaters Used as Temperature Control Devices for Emergency Fixtures.



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ASHRAE Technical Committee TC6.6 - Service Water Heating Systems, provisional corresponding member; (2016 - present). Technical Committee 6.6 is concerned with two general areas: (1) service water requirements, and (2) design of the system for heating and distributing service hot water.

ASTM Subcommittee F15.03 – Safety Standards for Bathtub and Shower Structures, member; (2016 - present). This subcommittee has jurisdiction for the following standards:

- F444-88 Standard Consumer Safety Specification for Scald-Preventing Devices and Systems in Bathing Areas
- F445-88 Consumer Safety Specification for Thermal-Shock-Preventing Devices and Systems in Showering Areas
- F446-85 Standard Consumer Safety Specification for Grab Bars and Accessories Installed in the Bathing Area
- F462-79 Standard Consumer Safety Specification for Slip-Resistant Bathing Facilities

ASTM Committee E58 on Forensic Engineering, member; (2016 - present). The Committee promotes Forensic Engineering knowledge and the development of appropriate standards intended to promote the awareness of the scientific, engineering, ethical, and legal consideration inherent in Forensic Engineering investigations, reporting, and testimony.

- Subcommittee E58.01 General Practice
- Subcommittee E58.02 Product Defect Incidents

ICC, Plumbing Mechanical Gas Code Action Committee (PMGCAC) member; (2017-2019). The PMGCAC reviews and proposes revisions to the International Plumbing, Mechanical, Fuel Gas, Private Sewage Disposal, and Swimming Pool and Spa Codes and the International Residential Code, chapters 12 through 33.

NFPA 54: National Fuel Gas Code, Technical Committee, member; (2016 - present). The committee has primary responsibility for changes and updates to the code, which covers the installation and operation of fuel gas piping systems, appliances, equipment, and related accessories, with rules for piping systems materials and components, piping system testing and purging, combustion and ventilation air supply, and venting of gas-fired appliances and equipment.

HONORS AND AWARDS

Graduated college with high honors - *Magna Cum Laude*.

Pi Tau Sigma, Mechanical Engineering Honor Society, past member

Tau Beta Pi, Engineering Honor Society, past member

ARTICLES, PRESENTATIONS, AND TECHNICAL REPORTS



Roger W. Griffith, PE

What is Meant by 'Feet of Head'? ASPE newsletter, East TN chapter, 2005

Pipe Sizing, ASPE newsletter, East TN chapter, 2005

Sizing Thermal Expansion Tanks, ASPE newsletter, East TN chapter, 2004

"NFPA 96 and Building Code Requirements for Commercial Kitchen Hood Systems", presentation to Fire Officials and Building Officials, Sevier County, Tennessee, 2004

Quality Improvement Tools & Techniques; Instructor, TVA University course, 1993 - 1997

Fault-Tree Analysis; Instructor, TVA University course, 1996 - 1997

EDUCATION

Bachelor of Science degree in Mechanical Engineering, Tennessee Technological University, Cookeville, TN; 1983