

EDUCATION

- 1993 **Master of Science, Mechanical Engineering**
Georgia Institute of Technology, Atlanta, Georgia
- 1986 **Bachelor of Science, Mechanical Engineering**
University of Illinois, Urbana, Illinois

EXPERIENCE

- March 2019
to Present **EDT Engineers**
Charlotte, North Carolina
Consulting Engineer
Specialized consulting in the areas of mechanical systems, manufacturing processes, mechanical process engineering, and evaluation of machinery. Root cause investigation and analysis of mechanical damage to equipment, components, and analysis of mechanical damage to equipment, components, and materials, including fracture analysis and failure analysis. Investigation of incidents involving residential, commercial and industrial systems. Damage evaluation and assessment.
- July 2017
to Feb 2019 **Fluor**
Crystal River, Florida
Principal Field Engineer
Engineering manager for plant startup of Chemical and Power plant equipment. QA/QC of high-chrome welding. Equipment alignment and commissioning of rotating equipment including steam turbine-generators, combustion turbine-generators, compressors, chillers, blowers, fans, and pumps. Walkdown of installed systems to validate P&ID and materials of construction. Startup of water treatment and demineralizer systems, reverse osmosis trains, boilers and cooling towers.
- December 2015
to July 2017 **Fluor**
Charlotte, North Carolina
Principal Design Engineer
Develop material and process specifications. Support plant construction and startup. Select materials and equipment to meet needs of process. Develop plant layout, piping and instrumentation diagrams (P&ID), perform pump, pipe and flow modeling. Perform model reviews with clients. Design power piping systems, including stress analysis and pipe support design. Issue pipe and pipe support fabrication drainings. Prepare permitting drawings.
- April 2005
to Dec 2015 **Chicago Bridge and Iron**
Charlotte, North Carolina
Lead Design Engineer
Process engineer for SCR and wet scrubber projects, create P&ID. Support plant construction and startup. Perform Engineering calculations and studies. Size process equipment. Select materials and equipment to meet needs of process. Develop plant layout, piping and instrumentation diagrams (P&ID), perform pump,

pipe and flow modeling. Perform model reviews with clients, Prepare permitting drawings. Develop material and process specifications

January 2002
to April 2005

Duke Engineering and Services/ Framatome ANP
Charlotte, North Carolina

Lead Development Engineer

Create renewable energy project P&ID, plant performance calculations and layout documents. Calculate heat values of biomass fuels. Perform ultimate heat sink and heat load calculations. Create design change packages for plant modifications. Perform field surveys of facilities. Specify, select and validate material selections. Oversee plant modifications.

December 2000
to Jan 2002

Corning
Concord, North Carolina

Construction Owner Engineer

Oversee plant construction. Perform reviews of construction and engineering drawings for completeness and accuracy. Observe and approve equipment startup for process and utility equipment. Perform energy studies and propose energy conservation/reuse projects.

February 1998
to Nov 2000

Emcor
Salisbury, North Carolina

Program Lead Engineer

Perform energy studies at industrial and pharmaceutical facilities. Perform cooling tower analyses. Complete hydraulic studies of chilled water systems and associated air conditioning systems. Execute performance evaluation of chillers, air compressors, boilers and cooling towers. Propose energy recovery projects. Improve the efficiency of blower systems.

EXPERIENCE

Engineering Investigations (partial list)

Evaluate Air Conditioner — Glastonbury, Connecticut

Package Air Handler Malfunction reported at seasonal startup. Investigate damage, weather conditions, and maintenance records. Conduct root cause analysis.

Evaluate Boiler Malfunction

Boiler malfunction reported during power outage. Investigate boiler historical performance information. Complete literature search of boiler, and review maintenance reports. Conduct evaluation of boiler feed valve in laboratory. Write root cause report.

Investigate Implosion of Deaerator Vessel — Florence, South Carolina

Investigate Implosion of Deaerator Vessel. Vessel implosion occurred at boiler startup, evaluate process data, review condition of existing deaerator, perform work to locate replacement unit for client.

Evaluate Elevator Drive Unit — Hartford, Connecticut

Perform site inspection of drive unit for hydraulic elevator. Research background of elevator type and control system. Review maintenance records and evaluate building occupancy patterns. Determine root cause of equipment malfunction.

Evaluate Paper Digester Upset — *Glens Falls, New York*

Review process for paper pulp digester. Review construction drawings of digester and evaluate process data, review P&ID and maintenance records. Review process performance information to identify timeline of events. Determine root cause of upset.

Evaluate Fire Damage to Water Heater — *New York, New York*

Perform off-site evaluation of water heater. Interpret fire plume markings and heat damage to water heater to identify initiation location and cause of fire. Prepare final report on cause and origin.

Evaluate Fracture of Filter Housing — *Roxbury, Connecticut*

Perform fractography examination of filter housing. Research filter housing installation and maintenance requirements. Research materials of construction and common failure modes. Identify fracture type and root cause.

REGISTRATIONS and CERTIFICATIONS

Registered Professional Engineer in Florida (# 80947PE)
Registered Professional Engineer in Illinois (# 062072194)
Registered Professional Engineer in Louisiana (# PE00365684)
Registered Professional Engineer in North Carolina (# 027024)
Registered Professional Engineer in Pennsylvania (# PE083830)
Registered Professional Engineer in South Carolina (# 37083)
Registered Professional Engineer in Tennessee (# 123668)
Registered Professional Engineer in Virginia (# 0402045765)

PROFESSIONAL ORGANIZATIONS

American Society of Mechanical Engineers
ASM International
National Fire Protection Association

PUBLICATIONS

The Hydrodynamics of Two-Phase Countercurrent Flow in Inclined Channels, Thesis written as part of master's degree in Engineering by R. Turk 1993.

CONTINUING EDUCATION

2018 *Florida Laws and Rules for Engineers* (Biennium Cycle 2017 -2019, Florida approved course)
 Lubrication Applications, Specifications and Selection, PDH Online Seminar
 Welding Basics for the Process Engineer, PDH Online Seminar
 Weldment Strength Excel Calculations, PDH Online Webinar

2017 *Cooling Towers Made Easy (Session M320)*, PDH Online Course
 HVAC: Cool Thermal Storage (Session M145), PDH Online Course

- North Carolina Board Rules for Practicing Engineering (Session G148)*, PDH Online Course
- 2016 *Emergency and Standby Generator Application (Session E158)*, PDH Online Course
Variable Speed Drives in Electrical Energy Management (Session E154), PDH Online Course
Welding for Design Engineers, Fluor Corporate Course, Live Session, Charlotte, North Carolina