

Résumé for:
Ronald L. George, CPD, President
Plumb-Tech Design & Consulting Services, LLC

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Profile:

Mr. George is president of a plumbing & mechanical design and consulting firm that specializes in plumbing, piping, fire protection and air conditioning system design. His firm also provides plumbing & mechanical code consulting services and plumbing product standard development and consulting services. He has over 34 years of experience with plumbing, mechanical and fire suppression system design and he provides forensic investigation services for plumbing, mechanical and fire suppression systems where failures have resulted in property damage, injuries and death. He can also provide oral or written reports explaining the system or product and addressing the installation or product deficiencies that contributed to a failure. He often provides expert witness testimony in the form of depositions and courtroom testimony as required. His company also provides two dimensional (2D) and three dimensional (3D) computer aided design & drafting (CADD) services for all building types. His company also provides Building Information Modeling (BIM) virtual or 3D models of buildings for construction clearance coordination between trades before the building is constructed. Mr. George is very familiar with the Plumbing, Mechanical, Building and Fire codes and product standards and he sits on numerous plumbing code and plumbing product standard committees.

He has worked for several major architectural/engineering and design/construct firms and since 2003 he has had his own firm. His clients include architectural firms, consulting engineering firms, property owners, contractors, insurance companies, attorneys and manufacturers.

In 2011, Mr. George founded the Legionella Prevention Organization. This organization is dedicated to educating the industry about how to minimize Legionella bacteria growth in building water systems. www.legionellaprevention.org.

In 2009, Mr. George gave a presentation at the ASSE conference that led to the development of several ASSE white papers on scald prevention. Mr. George also founded the Scald Prevention Organization. This organization's website is dedicated to educating the industry about how to design and install plumbing systems to minimize the risk of scalding related to plumbing systems. www.scaldprevention.org.

Mr. George has vast experience designing plumbing, mechanical and fire protection systems for all building types including; airports, stadiums, industrial manufacturing facilities, high rise buildings, office buildings, commercial and retail buildings, hospitals, laboratories, prisons, jails, hotels, apartment buildings, military projects, and educational facilities. Some of his recent, notable design experience includes:

- *Detroit Lions - Ford Field Stadium (site of the 2006 Super Bowl XL)(Plumbing/Fire Protection)*
- *Detroit Metro Airport new midfield terminal (McNamara Terminal, Plumbing/Fire Protection)*
- *University of Michigan - Life Sciences Lab Buildings (Plumbing/Fire Protection)*
- *University of Michigan - Rackham Hall Historic Building Renovations (Plumbing/Fire Protection)*
- *University of Michigan - Commons Building (Classrooms, Retail & Food Service spaces, Plbg./Fire Prot.)*
- *University of Michigan - Undergraduate Science Classroom Building on Palmer Drive (Plbg./Fire Prot.)*
- *Michigan Technological University - Computer Science Building & Library Addition, Houghton, MI*
- *9-story, Pontiac Osteopathic Hospital Addition - Operating Rooms, Cafeteria & Bed Tower (Plbg./Fire Prot.)*
- *St. John's Hospital, Detroit, MRI Addition and Emergency Room Addition. (Plbg./Fire Prot.)*
- *Oakwood Hospital Dearborn - E.R. Addition, Cancer Center, Birthing Center and Utility System Upgrades*
- *The MGM Casino in Detroit. (Plbg./Fire Prot.)*
- *The Motor City Casino Hotel Tower in Detroit*
- *26-story Book Cadillac Hotel & Condominium Renovation Project, Detroit, MI (Plbg./Fire Prot.)*
- *23-story Fort Shelby Doubletree Hilton Hotel & Condos, Detroit, MI (Plbg.)*

- *University of Michigan C. S. Mott Children's and Women's Hospital, (Plumbing & Med Gas), Ann Arbor, MI*
- *St. Joseph's Hospital, Critical Care Tower Addition, (Plumbing & Med Gas), Ann Arbor MI*
- *Beaumont Hospital, Royal Oak, MI and Troy, MI (Various Projects for Beaumont Services and Mech. Contr's)*
- *St. Joseph's Hospital, Oakland County, Surgery Addition & Renovations, Plumbing & Med Gas, Pontiac, MI*

Mr. George's responsibilities have included being the lead system designer responsible for plumbing and fire protection system design on many of the projects. He has also assisted with HVAC piping design on many projects. The projects are listed on the following pages under: *Partial List of Project Design Experience*. He has also written construction specifications, performed cost estimates, and participated in value engineering and life cycle cost studies during the planning stages of many of the projects he has been involved in.

He has also worked as a field engineer and provided construction administration services that include: Construction inspection, Weekly field reports and reviewing mechanical equipment shop drawings for conformance with the specifications and contract documents. He has coordinated construction interferences other trades and construction interferences associated with substituted materials.

He has served numerous terms as an officer for the American Society of Plumbing Engineers, Eastern Michigan Chapter, and has also served as the Society's Vice President of Education. He has been a monthly columnist for *Plumbing Engineer Magazine* since 1993 for the *Designer's Guide* and *Code Update* Columns. He has also written plumbing design and code review feature articles for several other national engineering trade publications including: *PM Engineer Magazine*, *Consulting Specifying Engineer Magazine*, *Plumbing Standards Magazine* and several others.

In the year 2000, he was appointed by the International Code Council to serve on the **International Plumbing Code Development Committee** and in 2004, he was appointed to serve on the **International Residential Plumbing & Mechanical Code Committee**. He served as Chairman of the International Residential Plumbing & Mechanical Code Committee for four years. He has also served as a member of the BOCA National Mechanical Code Interpretations Committee. He sits on the **American Society of Mechanical Engineers A112 Plumbing Materials and Equipment main committee** and is a member of numerous ASME A112 plumbing products and materials standards task groups that develop product standards. He is a member of the **American Society of Sanitary Engineering's (ASSE) Plumbing Product Standards Committee (PSC)** and he serves on the **ASSE Seal Control Board (SCB)**. He is the author of the *ASSE/ASPE Plumbing Dictionary*. He also serves on several ASSE plumbing product standard working groups for various plumbing products including various hot water temperature control standards. He regularly attends the model code hearings for the *International Codes* and the *Uniform Codes*. Mr. George is actively involved in Plumbing Code, Mechanical Code, Fuel Gas Code, Energy Code, Swimming Pool-Spa-Hot Tub Code and Fire Code development and he is involved in plumbing industry standards development with the following organizations: NFPA, ASME, ASSE, ASTM, NFPA, ASPE and ISEA.

Mr. George is experienced in designing and investigation of the following plumbing and mechanical systems:

- *Domestic Water & Process Water Distribution systems*
- *Backflow Prevention Equipment and Applications*
- *Domestic Hot Water Systems and Equipment with an Expertise in Scald Investigations.*
- *Heating and Chilled Water Systems*
- *Compressed Air Systems: Medical, Laboratory, and Industrial*
- *Sanitary Waste, Acid Waste and Industrial Waste & Vent Systems*
- *Storm Drainage Systems (Conventional, Overflow & Siphonic)*
- *Fuel Oil Piping Distribution Systems & Equipment*
- *Gasoline & Diesel Storage, Dispensing, Piping & Equipment*
- *Fuel Gasses: Natural Gas, Propane, and Butane.*
- *Medical Gases: Oxygen, Nitrogen, Nitrous Oxide, Vacuum, Air, and Carbon Dioxide*
- *Lab Utilities & Gases: Helium, Hydrogen, Air, Vacuum, and Pure Water Distribution*
- *Steam & Condensate Piping Systems*
- *Pure Water Distribution and Re-circulation Systems and Materials.*
- *Heating Ventilation & Air Conditioning Systems Design, Duct Layout and Sizing*
- *Plumbing and Mechanical System Failure Analysis - Reports, Forensic Investigations & Litigation Support*
- *Fire Protection: Wet, Dry, Pre-Action Sprinklers, Standpipes, Private fire Service mains, Fire Pumps, Storage tanks.*
- *Clean Agent Fire Suppression Systems: (Carbon Dioxide/CO2, FM 200, Intergen, etc.)*

Mr. George provides consulting for, and is familiar with, the following Codes and Standards:

ICC - *International Code Council:*

- *IBC, International Building code,*
- *IMC, International Mechanical code,*
- *IPC, International Plumbing code,*
- *IFGC, International Fuel Gas code,*

(Code and Standard Consulting Continued):

- *IPMC, International Property Maintenance code*
- *IEC, International Energy code.*
- *IRC, International Residential Code.*

IAPMO – *International Association of Plumbing & Mechanical Officials, Uniform Codes:*

- *UMC, Uniform Mechanical Code*
- *UPC, Uniform Plumbing Code*
- *USPHTSC- Uniform Swimming Pool, Hot Tub & Spa Code.*
- *USCC – Uniform Solar Energy Code*

NFPA - *National Fire Protection Association:*

- *Fire Protection codes and Standards*
- *Medical Gas Standards*

ASSE - *American Society of Sanitary Engineering, Plumbing Product Standards*

ASME - *American Society of Mechanical Engineers, Plumbing Product Standards*

ASPE - *American Society of Plumbing Engineers, Plumbing System Design Standards*

CISPI - *Cast Iron Soil Pipe Institute, Piping material and installation standards*

ASHRAE - *American Society of Heating, Refrigeration and Air Conditioning Engineers Standards*

NSF - *National Sanitation Foundation Standards*

ADAAG - *Americans with Disabilities Act - Accessibility Guidelines, ICC/ANSI A117.1*

ISEA - *Int'l Safety Equipment Association ISEA/ANSI Z358.1 Emergency Fixture Standards*

PDI - *Plumbing and Drainage Institute – Material and Installation Standards*

Affiliations/Memberships:

Mr. George is actively involved in the following organizations, committees and activities:

- *International Code Council, (ICC)*

- Former member of the *International Plumbing Code (IPC) Development Committee (1999-2004)*
- Former Chairman of the *International Residential Plumbing & Mechanical Code Committee 2004-2009.*
- Member of the *ICC Plumbing, Mechanical and Fuel Gas Code Interpretation Committee (PMGCIC)*
- International Code Council Instructor for:
 - *International Plumbing Code (IPC) seminars*
 - *International Mechanical Code (IMC) seminars*
 - *International Fuel Gas Code (IFGC) seminars*
 - *International Residential Plumbing & Mechanical (IRC-PM) Code seminars*

- *International Association of Plumbing & Mechanical Officials (IAPMO)*

- Member of the IAPMO “Standards Council”
 - The IAPMO Standards council oversees the *Uniform Plumbing code, Uniform Mechanical Code, Uniform swimming Pool, Hot Tub & Spa Code,* and the *Uniform Solar Energy Code.* The committee also reviews all appeals to the *Uniform Codes* and they appoint members to the various *Uniform Code technical committees.*
- Former Member of the *Uniform Plumbing Code “Answers and Analysis Committee”*
 - Mr. George served on this committee which received all requests for code interpretations and the committee would provide a written response to the petitioner. Throughout the year the committee provided answers to code questions and each year the committee meets to decide which questions are worth adding to the *Uniform Codes Interpretations Answers and Analysis book.*

- *Building Officials and Code Administrators (BOCA)*

- Former member Mechanical Code Interpretations Committee. This code organization no longer exists.

- *American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)*

- Member Detroit Chapter,
- Member Legionella Task Group for SP 188 for control of Legionellosis in Building Water Systems
- Member Guideline 12 committee developing designs for control of Legionella in Building Water Systems.

- **American Society of Plumbing Engineers (ASPE):** Past President Eastern Michigan Chapter.
 - CIPE: I was Certified in Plumbing Engineering (CIPE) by exam by ASPE in 1983.
 - I was Certified in Plumbing Design in 1998. By ASPE.
 - ASPE: Former Society Board Member, Vice President Education
 - ASPE: Member of the following Plumbing System Design Standard Committees:
 - Member, ASPE Venting design standard committee
 - Member, ASPE Water pipe sizing design standard committee
 - Member, ASPE "Temperature Limits for Domestic Hot Water Systems" committee
- **National Fire Protection Association (NFPA):**
 - Member "Industrial Committee" and - Member "Health Care Facilities Committee".
 - Active Firefighter, Emergency Medical Responder with Estral Beach Volunteer Fire Department.
- **Society of Fire Protection Engineers (SFPE):**
 - Member Michigan Chapter.
- **American Society of Mechanical Engineers (ASME)** - Member of several plumbing product standard committees:
 - A112 Main Committee over Plumbing Materials and Equipment which oversees all standards under ASME A112 plumbing product and material standards.
 - CSA/ ASME A112 North-American Harmonization Committee: For Canadian Standards harmonization.
 - A112.4.1, Relief Valve Drain, Member, Standard committee
 - A112.4.3, Water Closet Seal, Member, Standard committee
 - A112.4.7, Sub-metering systems, Member, Standard committee
 - A112.4.14, Manually operated 1/4 turn shut-off valves for plumbing systems, Member, Standard committee
 - A112.6.3, Floor Drains, Member, Standard committee
 - A112.6.4, Roof Drains, Member, Standard committee
 - A112.6.7, Floor Sinks, Member, Standard committee
 - A112.6.9, Siphonic Roof Drain Systems, Member, Standard committee
 - A112.14.3, Grease interceptors, Member, Standard committee
 - A112.14.4, Grease Removal Device, Member, Standard committee
 - A112.14.5, Oil interceptor, Member, Standard committee
 - A112.14.6: Biological Enzyme Grease Removal Device, Standard committee
 - A112.18.3: Backflow Device, Member, Standard committee
 - A112.18.6 Flexible Water Connector, Member, Standard committee
 - A112.18.8 Sanitary Waste Valves, Member, standard committee
 - A112.18.9, Protective covers for ADA Traps, member standard committee
 - A112.19.3 Vitreous China Plumbing Fixtures
 - A112.19.5 Water Closet Trim, Member, Standard committee
 - A112.20.1 Residential Fire Protection Installation Standard committee
 - A112.20.2 Medical Gas installation Standard committee
 - A112.20.3 Process piping installation Standard committee
- **American Society of Sanitary Engineering (ASSE):**
 - Member and active with this Standards Development Organization.
 - Former V.P. and current Director of the Michigan Chapter ASSE
 - Member ASSE Plumbing Product Standard Committee
 - Member ASSE Seal Control Board
 - Member of the ASSE Legionnaires Disease Research Committee
 - Member of the ASSE Plumbing Product Testing Laboratory Evaluation Committee
 - Chairman of the ASSE Committee responsible for editing and publishing the "Plumbing Dictionary"
 - Member of the ASSE Plumbing Research Committee
 - Member of the ASSE Plumbing Technical Committee
 - Member of the ASSE Scald Awareness Committee
 - Member of the following ASSE plumbing product standard working groups:
 - ASSE 1010 Performance Requirements for Water Hammer Arrestors
 - ASSE 1016 Automatic Compensating Valves for Individual Showers and Tub/shower Combinations
 - ASSE 1017 Temperature Actuated Mixing Valves for Hot Water Distribution Systems
 - ASSE 1070 Temperature Actuated mixing valves for point-of-use
 - ASSE 1018 Trap Seal Primer Valves – Water Supplied

- ASSE 1044 Trap Seal Primer Valves – Drainage Supplied
- ASSE 1066 Individual Balancing In-line Valves for Individual Fixtures.
- ASSE 1071 Temperature Actuated Mixing Valves for Emergency shower & Eyewash Applications
- ASSE 1072 Trap Seal Protection Devices

In addition to the above committees, Mr. George Participates in the following ASSE committees:

- ASSE Series 7000, 8000, 9000, 10,000, & 11,000, 12000 Installation Standards Technical Committees for minimum training requirements for installers and inspectors of various plumbing and piping systems.
- Former ASSE representative on the ASME A112 Plumbing Materials and Equipment Committee.

Mr. George participates in the following activities:

- Former Instructor for High Rise Plumbing Design and Plumbing code Classes at the University of Wisconsin
- Former Instructor - Oakland Community College, *Plumbing Design & Code Review* classes.
- Former Instructor - Lawrence Technological University, *Plumbing & Fire Protection* Classes
- Frequent Speaker at industry meetings: *ASPE, ASSE, SFPE, MBPA, ABPA, Mechanical Contractor Assoc, ICC, IAPMO and various Plumbing Inspector association meetings.*
- Member Estral Beach, Vol. Fire Dept., **Firefighter/Medical Technician**, former **Fire Chief**. 1997 - present
- Former **Firefighter/Medical Technician**: Berlin Township, Michigan (Newport) Vol. Fire Department. 1996-2007
- Former **Firefighter/EMT, Captain**, Kennedale, TX Vol. Fire Department, 1980-1987
- Former Member, **Berlin Township, Water and Sewer Board of Directors.**
- Consultant to Berlin Township Water & Sewer Department.

Honors & Awards:

- **1993 ASPE Award of Merit**,
Achieving goals as President of E. Mich. Chapter of the American Society of Plumbing Engineers
- **1994 ASPE Society Presidents Award** –
For setting up and instructing Plumbing Design Courses at Oakland Community College.
- **1995 ASSE - L. Glenn Shields Award**, 1995,
Michigan Chapter of ASSE Plumbing industry award for industry contributions.
- **1996 ASPE Society Directors Award** –
For developing & instructing college courses on Advanced Plumbing Systems Design
- **2002 ASSE Michigan Chapter “Engineer of the Year” Award** –
Received the “John E. Matthews - *Engineer of the Year Award*” from Michigan Chapter ASSE
- **2002 ASPE Service Award**
- for serving as V.P. of Education for the American Society of Plumbing Engineers
- **2005 Philippine Society of Sanitary Engineers Certificate of Appreciation**
- for presenting seminars at the 2005 conference in Manila on “*The Fire Suppression System Contribution to the Progressive Structural Collapse of the World Trade Center*” and a presentation on “*Forensic Investigations of Plumbing Systems*”
- **2008 IAPMO Plaque for Serving on the Uniform Plumbing Code Answers and Analysis Committee**
- **2009 IAPMO Plaque for Serving on the Uniform Plumbing Code Answers and Analysis Committee**
- **2009 Plaque of appreciation for Serving on the IAPMO Standards Council**
- **2009 Honorary Membership, Fellowship Award** by the **Indian Plumbing Association** (Hyderabad, India)
- **2010 Certificate of Appreciation** for conducting a Plumbing Design Seminar in New Delhi, India, by the **Indian Plumbing Association** (New Delhi Chapter)
- **2010 Certificate of Appreciation** for conducting a Fire Safety Seminar in New Delhi, India, by the **Indian Fire and Security Association** (New Delhi, India)

Professional Work Experience:

The firms listed below are Architectural/Engineering firms for which I have been employed continuously since 1978.

Plumb-Tech Design & Consulting Services LLC Monroe, Michigan
Jan 2011 – Present

President of Ron George Design & Consulting Services Monroe, Michigan
June 2003 – Present

Job duties included: Plumbing/Piping/Fire Protection & HVAC system design, plbg. & mech. code and standard consulting, Forensic Investigations for Litigation support, Technical Writing, Computer Aided Drafting (CAD) services.

SMITHGROUP INC. Architects, Engineers Detroit, MI

November, 1994 – June 2003 (9-1/2 years)

Job duties included: Plumbing/Piping/Fire Protection & assisted with HVAC Piping Systems Design for numerous Major Projects in the Detroit Metro Area and around the country. I provided construction administration on a few projects. I also performed forensic investigations for several attorneys in a litigation support role for plumbing systems failures that included scalding deaths and property damage. While at Smithgroup Inc., I wrote technical articles for several trade publications in my spare time and was trained on AutoCAD.

SSOE ARCHITECTS, ENGINEERS, INC., Troy, MI

April 1992- November 1994

Job duties included: Plumbing/Piping/Fire Protection system for numerous building types. Design & Training Seminars.

WOLF WINEMAN ENGINEERS, INC., Southfield, MI

December 1990 – April 1992

Job duties included: Plumbing/Piping/Fire Protection System Design, Construction inspection and administration.

EVERETT L. BROWN ARCHITECTS/ENGINEERS, INC., Indianapolis, IN

April 1990-December 1990

Job duties included: Plumbing/Piping/Fire Protection System Design, Construction inspection and administration.

UNITED CONSULTING ENGINEERS, Indianapolis, IN - contract position

February 1990-April 1990

Job duties included: Plumbing/Piping/Fire Protection System Design, Construction inspection and administration.

FLUOR DANIEL Engineers, Constructors, Greenville, SC - contract position

July 1989-February 1990

Job duties included: Managing the Plumbing/Piping/Fire Protection System Design for the DuPont Projects in the Delta Division, Construction inspection and administration. Cad Operation.

CRS SIRRINE Engineers, Constructors, Greenville, SC - contract position

November 1988-July 1989

Job duties included: Plumbing/Piping/Fire Protection System Design on an Intergraph CAD System.

PHILLIPS SWAGER ASSOCIATES Architects, Engineers, Peoria, IL - contract position

August 1987-November 1988

Job duties included: Plumbing/Piping/Fire Protection System Design on an Intergraph Microstation CAD System.

STONE & WEBSTER ENGINEERING CORPORATION, Engineers, constructors, Houston, TX - contract position

January 1987-August 1987

Job duties included: Preparing pipe support drawings in conformance with Nuclear Regulatory Commission Requirements for the Comanche Peak Nuclear Power Plant in Glenrose, Texas.

CARTER & BURGESS, INC. ENGINEERS-PLANNERS, Fort Worth, TX

July 1982-November 1986

Job duties included: Plumbing/Piping/Fire Protection System Design. During this time I was trained on the Intergraph Computer system for Computer Aided Design. (CAD)

LAWRENCE D. WHITE ASSOCIATES, ARCHITECTS/ENGINEERS, INC., Fort Worth, TX

February 1980-July 1982

Job duties included: Plumbing/Piping/Fire Protection System Design for Several Texas Prisons, The Fort Worth City/County Jail and numerous commercial projects.

LOVE, FRIBERG & ASSOCIATES, INC., Consulting Engineers, (presently Friberg, & Associates, Inc.), Fort Worth, TX

February 1978-February 1980

Job duties included: Plumbing System layout and drafting on numerous hospital, laboratories, universities, commercial and military projects under the direction of several plumbing & mechanical engineers.

Relevant Training/Education:

- University of Wisconsin, College of Engineering – High Rise Plumbing Design - Waste, Vent & Hot & Cold water Piping, Mar. 2010-11
- University of Wisconsin, College of Eng'g – Water Conservation, Wastewater Treatment, Medical Gasses, Siphonic drains. Mar. 2009-10
- College of Plumbing Knowledge, Charlotte Pipe & Foundry - 2008
- Architecture/General studies University of Texas at Arlington, 1979 - 1980
- General Studies, Tarrant County College, Fort Worth, TX 1981 - 1984
- Fire Science Studies – Tarrant County College, Fort Worth, TX, 1981 - 1982
- Plumbing System Design Studies, Tarrant County College, Fort Worth, TX, 1981 - 1984
- Plumbing/Piping/Fire Protection Studies, Brookhaven College, Dallas, TX, 1985
- Plumbing/Fire Protection Design Seminar Series, DFW Chapter of A.S.P.E., 1979
- Heating Ventilation Air Conditioning (HVAC) Studies, Tarrant County College, Fort Worth, TX, 1982

Relevant Training/Education (Cont.):

- CAD Operator Training, "AutoCAD 14 & AutoCAD 2000" Schoolcraft College, Livonia, MI, 2000
- CADD Operator Training, "Intergraph Vax and Microstation" Intergraph Corporation, 1983
- Fire Sprinkler & Standpipe Systems Course, Tarrant County College, Fort Worth, TX, 1982
- Irrigation Systems Design, Weathermatic "College of Irrigation Knowledge", Dallas, TX, 1982
- Automatic Sprinkler Systems Plan Review Seminar sponsored by N.F.P.A., Chicago, IL, 1990
- Fire Sprinkler Systems Seminar, Viking Corp., Hastings, MI, 1997
- (3) Boiler/Water Heater Design Seminars, PVI Industries, Fort Worth, TX, 1978, 1980, 2000
- Boiler/Water heater Seminar - Sellers Corp., Lexington, KY, 1980
- Water Heater Seminar - Bradford-White Corp., Grand Rapids, MI 1997, 2001
- Kohler Mfg Fac., Kohler Wisconsin, Cast Iron fixture manufacturing processes seminar 2001
- Kohler Mfg Fac., Kohler Wisconsin, Vitreous China Manufacturing process seminar 2001
- Copper fin tube water heater / boiler Seminar - Lochinvar Corp., Nashville, TN, 1995, 2003
- Copper fin tube water heater / boiler seminar Weben Jarco Corp. - Dallas, TX, 1985
- Copper fin tube water heater / boiler Seminar - RBI Water Heaters, Ontario, Canada, 1998
- Pump Systems Design Seminar - Bell & Gossett 'Little Red School House', Chicago, IL 1995
- Chilled Water and Heating Hot Water Water-Hydronic System Seminar - Bell & Gossett 1985, 2000
- Steam & Condensate Piping Systems Seminar - Bell & Gossett, 1995, 2000
- Mixing Valve Seminar - Leonard Valve Co., 1995
- Mixing Valve Seminar - Symmons Valve Co. Boston, MA, 2003
- Mixing Valve Seminar - Lawler Valve, Ind., IN., 1998
- Mixing Valve seminar - Armstrong - Rada Valve Co. - Three Rivers, MI, 2003,
- Certification Program - Legionellae Control in Healthcare Facilities Seminar, 2001
- Legionellae Control in Plumbing & Mechanical Systems Seminar, Armstrong Industries, 2005
- PC Computer systems training, Greenville Tech. College, Greenville, SC, 1997
- Business Administration studies, Greenville Tech. College, Greenville, SC, 1997
- Uniform Plumbing Code Inspector Training, Lansing, MI, 1992
- BOCA Plumbing Code Training Seminar, Grand Rapids, MI, 1995
- BOCA Plumbing Code Training Seminar, Detroit, MI, 1991
- Plumbing Inspectors Courses, Keego Harbor, MI, 1992, 1993, 1995, 1996, 1998, 2000, 2002, 2004,
- Fire Investigator Training - International Association of Arson Investigators - Mich. Chapter - 2003
- Cast Iron Pipe Testing Class, CISPI Certified Testing Lab, (Hardness test, tensile test, Metallurgy) 2007
- Cast Iron Pipe Installation Class - Charlotte Pipe Training Facility, Charlotte, NC. Cast Iron Pipe Foundry Tour 2008
- Plastic Pipe Installation Class - Charlotte Pipe Training Facility, Charlotte, NC, Plastic Pipe Manufacturing Plant Tour 2008
- Charlotte Pipe & Foundry, College of Plumbing Knowledge, Charlotte, NC 2007
- Weekly Firefighter and Medical First Responder Continuing Education training through Berlin Township Volunteer Fire Department.
- Western Mich. Univ. - Cause & Origin of Water Heater & Appliance Fires - Fire Findings Laboratories, Benton Harbor, MI, 2005
- Attendance at monthly Amer. Soc. of Plumbing Engineers, technical meetings on various topics for continuing education to maintain CEUs for "Certification in Plumbing Design" - 1979 thru present, monthly technical seminar re-certification training 2 hours/month.
- Attendance at annual ASPE Educational Conventions & Symposiums to maintain CEUs for "Certification in Plumbing Design" 1980 thru present, Approx 12 hours of training per year.
- Attendance at annual meetings for numerous industry plumbing related groups: American Backflow Prevention Association, American Society of Sanitary Engineering, National Fire Prot. Assoc'n, Plumbing Inspectors Assoc. of Michigan, ICC, IAPMO, ASSE, ASME, ASTM and other industry meetings for codes and standards continuing education seminars.
- Pumps Systems Classes 24 hour course at Grundfoss Pumps, Kansas City, KS 2012
- Pump Systems Class Bell & Gossett/R.L. Deppmann Co, Detroit MI 2012

Certifications:

- Certified in Plumbing Engineering (CIPE) - By Exam - American Society of Plumbing Engineers, 1983
- Certified in Plumbing Design - (CPD) 2000 American Society of Plumbing Engineers renewed with continuing education
- Licensed Irrigator, State of Texas 1982-1986
- Certified Legionella Prevention Specialist. (July 2001)
- Certified Fire Investigator, International Association of Arson Investigators, Michigan Chapter. 2003

Related Interests:

- Instructor for University of Wisconsin College of Engineering, Department of Professional Development, Plumbing System Design Classes.
- Former Instructor for: ASPE Plumbing Design Courses at Oakland Community College.
- Lecturer for: Environmental Systems class on plumbing & fire protection topics at Lawrence Technological University.
- Instructor at Charlotte Pipe & Foundry College of Plumbing Knowledge. (4 day plumbing design and installation class)
- Instructor for: Plumbing System Design and Code seminars for Michigan Chapters of ASPE and ASSE.
- Speaker at American Backflow Prevention Association's annual seminars
- Monthly columnist for the "Code Update/Code Classroom" Column in "Plumbing Engineer Magazine"
- Former monthly Columnist - Designers Guide Column in "Plumbing Engineer Magazine"

- Speaker at University of Michigan Fire Prevention & Control Seminars.
- Volunteer Firefighter. With certifications for: Firefighter 1, Firefighter 2, and Hazardous materials operations, Trained in Emergency Medical Services as a medical first responder including burn care and I maintain over the 24 hours minimum of medical training CEUs every 3 years
- Former Fire Chief, Estral Beach Volunteer Fire Department currently an active member of the department.

Publications:

I am a monthly columnist and technical editor for “Plumbing Engineer Magazine”, I served as a technical editor for “Plumbing Systems & Design Magazine” and I have written numerous articles for various plumbing industry magazines such as “Plumbing Systems & Design Magazine”, “PM Engineer Magazine”; “Consulting Specifying Engineer Magazine”; “Plumbing Standards Magazine”; “Building Design & Construction Magazine” “Wholesaler Magazine” and “Facilities Maintenance Magazine”. I have written over 200 articles published in these plumbing engineering related publications. The following is a partial list of books and published articles:

Date	Title of Book	Publisher
2010	Contributing Author – ASSE/ASPE Editor Plumbing Dictionary	The American Society of Sanitary Engineering & American Society of Plumbing Engineers.
2010	Contributing Author - Energy & Water Conservation Guideline Book	The American Society of Sanitary Engineering
2007	Contributing Author - 2006 International Plumbing Code Study Companion	The International Code Council
1998	Contributing Author - ASPE Hot Water Design Manual (Chapters: Restaurants, Hospitals, Pool heaters)	American Society of Plumbing Engineers

Date	Title of Article	Publication
04/08-Present	Monthly Columnist - Plbg, Mech. and Fuel Gas Code and Plbg. Standard Updates	Plumbing Engineer Magazine
03/08	Domestic Hot Water and Scald Prevention in the Codes	Plumbing Engineer Magazine
02/08	Emergency Fixtures and the Codes	Plumbing Engineer Magazine
01/08	Cast Iron Pipe and the Standards	Plumbing Engineer Magazine
01/07 - 12/07	Monthly Proposed Code Change/Code Update Columns	Plumbing Engineer Magazine
12/06	Code Update – UPC Code Changes - 2003 to 2006 - Part 3	Plumbing Engineer Magazine
12/06	The History of Emergency Fixture Water Tempering Systems	Plumbing Engineer Magazine
11/06	Code Update – UPC Code Changes - 2003 to 2006 - Part 2	Plumbing Engineer Magazine
10/06	Code Update – UPC Code Changes - 2003 to 2006 - Part 1	Plumbing Engineer Magazine
09/06	Code Update – IPC Code Changes - 2003 to 2006 - Part 6	Plumbing Engineer Magazine
08/06	Code Update – IPC Code Changes - 2003 to 2006 - Part 5	Plumbing Engineer Magazine
07/06	Code Update – IPC Code Changes - 2003 to 2006 - Part 4	Plumbing Engineer Magazine
06/06	Code Update – IPC Code Changes - 2003 to 2006 - Part 3	Plumbing Engineer Magazine
05/06	Code Update – IPC Code Changes - 2003 to 2006 - Part 2	Plumbing Engineer Magazine
04/06	Code Update – IPC Code Changes - 2003 to 2006 - Part 1	Plumbing Engineer Magazine
03/06	Standard Update – Mixing Valve Standard Has Trouble Gaining Support	Plumbing Engineer Magazine
02/06	Code Update – A Report on the International Plumbing code Hearings	Plumbing Engineer Magazine
01/06	Code Update – One Code Progress – San Antonio	Plumbing Engineer Magazine
12/05	New Plumbing Product Standards Being Developed	Plumbing Engineer Magazine
11/05	Standard Update – ASPE HW Design Standard Committee	Plumbing Engineer Magazine
10/05	Hurricane Katrina Code Issues for the Rebuilding Effort	Plumbing Engineer Magazine
09/05	Point – Counterpoint, Trap Primers vs Trap Seal Protection Devices	Plumbing Engineer Magazine
09/05	One Plumbing Code and One Mechanical Code are a Possibility!	Plumbing Engineer Magazine
08/05	ASSE Standards Update	Plumbing Engineer Magazine
08/05	Trap Primers and the Code	Plumbing Engineer Magazine
07/05	Code Update – Update on ICC Code Adoptions and UPC Code Changes	Plumbing Engineer Magazine
06/05	Update on ASSE Standards	Plumbing Engineer Magazine
05/05	Code Update – Uniform Plumbing Code Hearings Denver, CO	Plumbing Engineer Magazine
04/05	Code Update – A Report on the International Plumbing Code Hearings	Plumbing Engineer Magazine

Date	Title of Article	Publication
04/05	SNAFU with Canadian Standards at ICC Code Hearings	Consulting-Specifying Engineer Magazine
03/05	Code Update Column – Grease Interceptor Requirements in the Codes	Plumbing Engineer Magazine
11/04	Commercial Kitchen Plumbing for Contractors	Reeves Journal
11/04	Grease Interceptors	PM Engineer Magazine
02/04	Commercial Kitchen Plumbing	PM Engineer Magazine
09/03	Specification Section Revisions	PM Engineer Magazine
06/03	Code Changes for Thermostatic Mixing Valves	PM Engineer Magazine
03/03	Sizing Water Heaters for Hotels/Motels	PM Engineer Magazine
08/02	Get Ready to Learn New Spec Section Numbers – Changes are Proposed in the CSI Format	Plumbing Engineer Magazine
07/02	Water Flow Testing - to Determine Design Pressures	Plumbing Engineer Magazine
06/02	Swimming Pool Design Considerations	Plumbing Engineer Magazine
05/02	Master Thermostatic Mixing Valve Sizing	Plumbing Engineer Magazine
05/02	2002 ASPE Education Report	Plumbing Engineer Magazine
04/02	Thermal Expansion in Hot Water Systems	Plumbing Engineer Magazine
03/02	Valve Types and their Applications	Plumbing Engineer Magazine
02/02	Food Waste Grinders and Grease Interceptors	Plumbing Engineer Magazine
01/02	The Industry has lost a Key Player – Tribute to Pat Higgins	Plumbing Engineer Magazine
01/02	Who's who in ASPE – List of ASPE Officers	Plumbing Engineer Magazine
01/02	Not Everything that Leaks is Broken – Relief Valves & Backflow Preventers	Plumbing Engineer Magazine
12/01	Shop Drawings and Product Submittals	Plumbing Engineer Magazine
11/01	Questions & Answers: Corrosion in Drains a Galvanic Installation	Plumbing Engineer Magazine
10/01	A Scalding Hot Topic – Domestic Hot Water System Temperatures	Plumbing Engineer Magazine
09/01	Water Properties and Treatment Methods	Plumbing Engineer Magazine
08/01	Island Fixture Venting	Plumbing Engineer Magazine
07/01	Piping Materials	Plumbing Engineer Magazine
06/01	The History of Plumbing - Part 4	Plumbing Engineer Magazine
06/01	Modern Plumbing Enhances the American Way of Life	Plumbing Engineer Magazine
06/01	Troubleshooting Pumps – Commons Pump Start-up Problems	Plumbing Engineer Magazine
05/01	The History of Plumbing - Part 3	Plumbing Engineer Magazine
05/01	Legionnaires' Disease and Plumbing Systems	Plumbing Engineer Magazine
04/01	The History of Plumbing - Part 2	Plumbing Engineer Magazine
04/01	Questions & Answers: Pump Check Valves, Pump Sizing, Roof Sumps, Shower Pan Liners, PVC Pipe	Plumbing Engineer Magazine
03/01	RLE Quiz Over the Technical Proceedings of the 2000 ASPE Convention	Plumbing Engineer Magazine
03/01	Hot Water Temperature Maintenance and the Codes	Plumbing Engineer Magazine
03/01	The History of Plumbing - Part 1	Plumbing Engineer Magazine
02/01	Drainage System Venting	Plumbing Engineer Magazine
02/01	Education Update	Plumbing Engineer Magazine
01/01	Mechanical & Plumbing Design Checklist	Plumbing Engineer Magazine
12/00	The Last Question & Answer Forum of the Millennium	Plumbing Engineer Magazine
11/00	Piping Insulation Design Considerations	Plumbing Engineer Magazine
10/00	The First Building Code, The Hammurabi Code	Wholesaler Magazine
10/00	Americans with Disabilities Act and Plumbing Systems	Consulting-Specifying Engineer Magazine
10/00	Pressure Balancing vs Thermostatic Mixing Valves	Plumbing Engineer Magazine
09/00	Q & A's – HW Return, Water Hammer, Booster Pump Sizing	Plumbing Engineer Magazine
08/00	Grey Water Systems	Plumbing Engineer Magazine

Date	Title of Article	Publication
07/00	History of Venting	Plumbing Engineer Magazine
06/00	High Water Mark” (Commercial Irrigation Systems)	Consulting-Specifying Engineer Magazine
06/00	Questions & Answers – HW Return Systems	Plumbing Engineer Magazine
05/00	Copper Water Piping	Plumbing Engineer Magazine
03/00	Domestic Hot Water Recirculation Systems	Plumbing Engineer Magazine
02/00	Design Considerations for Low Flow Fixtures	Plumbing Engineer Magazine
01/00	Preparation of Plumbing Drawings	Plumbing Engineer Magazine
12/99	Contributions to the Information Pool	Plumbing Engineer Magazine (Q&A compilation)
11/99	Thermal Shock and Hot Water Storage Temperature	Plumbing Engineer Magazine
10/99	Sizing Domestic Cold Water Systems with Flushometer Valves	Plumbing Engineer Magazine
09/99	Domestic Hot Water Systems for Commercial Kitchens	Plumbing Engineer Magazine
08/99	Compressed Air Energy Savings	Plumbing Engineer Magazine
07/99	More on the Review of Schematic Design on Development Drawings	Plumbing Engineer Magazine
06/99	Reviewing Schematic Design on Development Drawings	Plumbing Engineer Magazine
05/99	Plumbing Fixtures	Plumbing Engineer Magazine
04/99	A Plumbing Library	Plumbing Engineer Magazine
03/99	Fuel Gas Systems	Plumbing Engineer Magazine
02/99	Construction Administration	Plumbing Engineer Magazine
01/99	Calculating Pressure Losses	Plumbing Engineer Magazine
12/98	Water Hammer Arresters	Plumbing Engineer Magazine
11/98	Storm Drainage Systems	Plumbing Engineer Magazine
11/98	The History of Codes	Plumbing Engineer Magazine
10/98	The “Wonder Years” - The Last 25 years of Plumbing Evolution	Plumbing Engineer Magazine (25th Anniversary Issue)
09/98	Irrigation Systems - Part 2	Plumbing Engineer Magazine
08/98	Irrigation Systems - Part 1	Plumbing Engineer Magazine
07/98	Web Site Helps Project Communications	Plumbing Engineer Magazine
06/98	Trust Your Instincts: Give Value Engineering a Chance	Plumbing Engineer Magazine
05/98	Softening the Hard Water Problem	Plumbing Engineer Magazine
04/98	A Septic System Overview	Plumbing Engineer Magazine
03/98	Heat Recovery Systems	Plumbing Engineer Magazine
02/98	Process Piping Layout and Design Recommendations, Part 2	Plumbing Engineer Magazine
01/98	Process Piping Layout and Design Recommendations, Part 1	Plumbing Engineer Magazine
12/97	Pressure Reducing Valve Stations	Plumbing Engineer Magazine
11/97	Controlling Water Hammer in Plumbing Systems	Plumbing Engineer Magazine
10/97	Organizing Your Plumbing Design System, Part 2	Plumbing Engineer Magazine
09/97	Organizing Your Plumbing Design System, Part 1	Plumbing Engineer Magazine
08/97	Pure Water Systems	Plumbing Engineer Magazine
07/97	Piping Accessories	Plumbing Engineer Magazine
06/97	Pipe Expansion and Contraction Design Considerations	Plumbing Engineer Magazine
05/97	Fire Sprinkler Design Considerations	Plumbing Engineer Magazine
04/97	Acoustics in Plumbing Design	Plumbing Engineer Magazine
03/97	The Internet: Making the World Smaller	Plumbing Engineer Magazine
02/97	Selecting Swimming Pool Water Heaters	Plumbing Engineer Magazine
01/97	Acid Waste Systems	Plumbing Engineer Magazine
12/96	Fuel Oil Systems - Part 2	Plumbing Engineer Magazine
11/96	Fuel Oil Systems - Part 1	Plumbing Engineer Magazine

Date	Title of Article	Publication
10/96	Specifying Fire Protection Systems Using Division 13	Plumbing Engineer Magazine
09/96	An Introduction to Compressors	Plumbing Engineer Magazine
08/96	Backflow Prevention for Irrigation Systems	Plumbing Engineer Magazine
07/96	Comments on the Specifics of Specifications	Plumbing Engineer Magazine
06/96	Selection and Application of Pipe Hangers and Supports	Plumbing Engineer Magazine
05/96	Natural Gas Piping - Drip Legs & Sediment Traps	Plumbing Engineer Magazine
04/96	The History of Plumbing	Plumbing Standards Magazine
04/96	Plumbing Design for Detention Facilities	Plumbing Engineer Magazine
03/96	Estimating Water Demand - Part 2	Plumbing Engineer Magazine
02/96	Estimating Water Demand - Part 1	Plumbing Engineer Magazine
12/96	Determining Available Water Pressure for Hydraulic Calculations	Plumbing Engineer Magazine
12/95	Design Considerations for Backflow Preventers in Basements - Part 2	Plumbing Engineer Magazine
11/95	Design Considerations for Backflow Preventers in Basements - Part 1	Plumbing Engineer Magazine
10/95	Water Conservation in Commercial/Institutional Buildings	Plumbing Engineer Magazine
09/95	Sizing Domestic Hot Water Systems	Plumbing Engineer Magazine
08/95	Certification in Plumbing Engineering Exam Review - No. 3	Plumbing Engineer Magazine
07/95	Design Considerations for Hospital Plumbing	Plumbing Engineer Magazine
06/95	Fire Sprinkler Systems and Backflow Prevention	Plumbing Engineer Magazine
05/95	Certification in Plumbing Engineering Exam Review - No. 2	Plumbing Engineer Magazine
04/95	Thermal Expansion in Hot Water Systems	Plumbing Engineer Magazine
03/95	Certification in Plumbing Engineering Exam Review - No. 1	Plumbing Engineer Magazine
02/95	Storm Drainage Systems	Plumbing Engineer Magazine
01/95	Hot Water Systems Quiz	Plumbing Engineer Magazine

Partial List of Project Design Experience for Ronald L. George:

Industrial Projects:

Caterpillar Corporation,

Building VV Addition, Peoria, Illinois.

Daimler / Chrysler Automotive Corporation,

New Headquarters Building 16 - Stories, Auburn Hills, Michigan.

Daimler / Chrysler Automotive Corporation,

Information Services Offices, Auburn Hills, Michigan.

Daimler / Chrysler Automotive Corporation,

Materials Lab, Auburn Hills, Michigan.

Daimler / Chrysler Automotive Corporation,

Building 18 Expansion, Auburn Hills, Michigan.

Daimler / Chrysler Corporation,

New Paint Shop, Newark, Delaware.

Daimler / Chrysler Corporation,

Power House & Air Compressor Plant, Dayton, Ohio.

Ford Motor Company,

Scientific Research Lab, Dearborn, Michigan.

General Motors Corporation

Vehicle Assembly Plant, Lake Orion, Michigan.

General Motors Corporation,

Vehicle Proving Grounds, Milford, Michigan.

General Electric Co.

Aircraft Engine Turbine Plant, Greenville, South Carolina.

Kodak Co.

Film Processing Facility, Rochester, New York.

Kimberly/Clark Paper Company,

Pulp and Paper Mill, Jenks, Oklahoma.

Governmental Projects:

National Institute for Standards & Technology NIST

Fuel oil system study. Forensic evaluation and failure analysis for the existing power plant fuel system.

National Institute for Standards & Technology NIST

Fuel Oil System design for the new power plant expansion.

Tarrant County Texas, City/County Jail and Courts Complex

8-Story Jail & Courts Building, Fort Worth, TX

Burnett Park Fountains,

Decorative Water Fountains, Fort Worth, TX.

Lake County Jail, County Jail and Criminal Justice Facility

Crown Point, Indiana.

Spencer County/Jail

Rockport, Indiana.

Noblesville Park & Recreation Department,

(2) Golf course irrigation systems with pump houses, Noblesville, IN.

Texas State Capital Building,

Renovation of Lt. Governor's Quarters, Austin, TX.

Texas State Capital Building,

Renovation of the State Senate Chambers, Austin, TX

Utility Projects:

Texas Utilities – Comanche Peak Nuclear Power Plant

Pipe Support Design & Engineering to NRC Requirements, Glen Rose, TX

Village Creek Wastewater Treatment Plant

Fort Worth, Texas

National Institute for Standards & Technology NIST

Fuel Oil System design for the New Power Plant Expansion

Michigan Bell Telephone Company,

24 - Fuel Oil Tank & Piping Projects for telephone switching centers. New emergency generators & double wall diesel fuel tanks with double wall fuel oil piping & leak detection and tank inventory monitoring systems.

Detroit, MI; multiple locations; -Cadillac, MI; Marquette, MI; Lansing, MI; Grand Rapids, MI; Pontiac, MI; Birmingham, MI; Ann Arbor, MI; Port Huron, MI; Saginaw, MI; Farmington Hills, MI; Bloomfield Hills, MI; Jackson, MI

Institutional – HealthCare Projects:

Oakwood Hospital and Medical Center,

Cancer Center, Labor & Delivery Addition & Utility Additions and Renovations, Dearborn, MI

Pontiac Osteopathic Hospital,

Master plan and Patient Tower Addition, Pontiac, MI

Detroit Medical Center,

Clinical Cancer Center, Detroit, MI

Detroit Medical Center,

Women's Center, Two new 9-Story Buildings with 3-story connector bridge, Detroit, MI

Detroit Medical Center,

Vascular Institute, 9 story building, Detroit, MI

Detroit Medical Center,

Cardiac Institute, high-rise building, Detroit, MI

St. John Hospital and Medical Center,

Emergency Room Renovation, Detroit, MI

St. John Hospital and Medical Center,

MRI Unit Addition, Detroit, MI

St. Josephs Hospital

Critical Care Tower Addition – Ann Arbor, MI

St. Josephs Hospital

Surgery Center Addition and Renovations – Pontiac, MI

Bethania Regional Healthcare Center,

Expansion and Renovation, Wichita Falls, TX

Harper Hospital

Cardiac Catheterization Lab. /Detroit Medical Center, Detroit, MI

Beaumont Hospital,

Anatomic Pathology Lab, Royal Oak, MI

Botsford Hospital

New Endoscopy Suites, Farmington Hills, MI

Botsford Hospital

New Emergency Room and Operating Room Addition, Laboratories, Operating Rooms and support areas, Labor & Delivery rooms, Dietary Department, Commercial Kitchen & dining facilities, Central Sterile Supply and Rooftop Heliport.

Mount Clemens General Hospital

4- story - Heart Center, Mount Clemens, MI

Henry Ford Hospital

New hospital – Bloomfield Hills, MI

Oakwood Southshore Hospital

5-story addition – Trenton, MI

C.S. Mott Children's & Women's Hospital at University of Michigan

New 750 Million Dollar Children's & Women's Hospital – Ann Arbor, MI

Educational Projects:

Carmel High School,

One million square foot addition to existing High School, Carmel, IN

Carmel High School,

5000 seat Football stadium/Athletic complex, Irrigation system, showers/lockers, food service & support facilities, Carmel, IN.

North Branch High School,

New High School, North Branch, MI

University of Michigan – Dearborn Campus,

College of Science & Letters, Dearborn, MI

University of Michigan – Anna Arbor Campus

Life Sciences Laboratory Building

University of Michigan – Ann Arbor Campus,

Rackham Hall Renovations

University of Michigan – Ann Arbor Campus,

Palmer Drive Parking Structure

University of Michigan – Ann Arbor Campus,

New Palmer Drive Chiller Plant

University of Michigan – Ann Arbor Campus,

Commons Building, 8 story, conference center & cafeteria

University of Michigan – Ann Arbor Campus,

Palmer Drive "L" Building, 5-Story, Laboratory Classroom Building

University of Michigan – Ann Arbor Campus,

Palmer Drive Plaza - Fountains, drains & snow melt system

Michigan State University

Agricultural Hall - Lansing, MI

Educational Projects (Cont.):

Michigan State University

Shaw Hall - Dormitory Building, Lansing, MI

Michigan State University

Shaw Lane - Parking structure, Lansing, MI

Michigan Technological University

Environmental Science Building, Houghton, MI

Delta College

Project A - Industrial Arts Building renovations and addition, Saginaw, MI

Delta College

Project B - Swimming Pool, Physical Education, and Cafeteria Renovations and Additions, Saginaw, MI

Delta College

Fire Protection Master Plan, Saginaw, MI

Military Projects:

U. S. Navy, Bachelor Enlisted Quarters,

(9) – High Rise Apartment Buildings, Great Lakes Naval Training Center, IL

U. S. Navy, Naval Facilities Command NAVFAC-Chesapeake,

Ship Materials Technology Facility, Naval Surface Warfare Center, Bethesda, MD

U. S. Navy, Aircraft Maintenance Hanger,

Naval Air Station, Dallas, TX

U. S. Army, Aircraft Maintenance Hanger & Shops,

Robert Gray Army Airfield, Fort Hood, TX

U. S. Army, Barracks Rehabilitation,

Fort Hood, Fort Hood, TX

U. S. Air Force, Enlisted personnel Dining Facility,

Carswell AFB, Fort Worth, TX

U. S. Air Force, Enlisted Personnel Housing,

Carswell AFB, Fort Worth, TX

U. S. Army, Armored Vehicle Weapons Training Center.

Survey and Renovation of Mechanical Systems in 500 Barracks and Support Buildings, Fort Polk, LA

U. S. Army, Senior Non-Commissioned Officers Academy,

Fort Bliss, TX

U. S. Navy, Water Tower & Pump House Building,

400,000 gallon water tower to provide adequate water pressure for several new buildings,
Great Lakes Naval Training Center, IL

Commercial Projects:

Sky Chefs, Commercial Airlines Kitchen

Dallas/Fort Worth Airport, TX

Sky Chefs, Commercial Airlines Kitchen

Los Angeles International Airport, CA

Waller Creek Office Tower and Parking Garage,

12 Story Office/Parking Garage, Austin, TX

Allied Bank and Office Tower,

4 - story building, Port Arthur, TX

Federal Office Building,

4 - story building, Port Arthur, TX

Midland Plaza, Office Building,

6 – Story building, Midland, TX

Savings West Office Building,

7 – Story office building, Fort Worth, TX

Waller Creek Hotel and Restaurant,

12-story hotel & Restaurant building, Austin, TX

COBO Hall

Expansion & Renovations of Convention Center, Concessions & Restrooms, Detroit, MI

Cottonwood Village Apartments,

Dallas, TX

Federal Express Freight Facility,

Indianapolis, IN

Park Central Bowling Lanes,

Bowling Center, Fort Arthur, TX

Park Central Shopping Center,

Shopping Mall, Port Arthur, TX

Regency Park Condominiums,

2-story condos, Port Arthur, TX

Commercial Projects(Cont.):

Wedgewood Station Post Office

Altamesa Boulevard, Fort Worth, TX

MGM Casino/Hotel

Detroit, MI

Book Cadillac Marriott Hotel/Apartments

Detroit, MI

YMCA Health Club, Detroit

Detroit, MI

YMCA Health Club, Milford

Milford, MI

Fort Shelby – Doubletree Hilton Hotel

23 Story Hotel & condo project, Detroit, MI

Retail Projects:

Meijer Stores Projects

Store #25 Addn., Okemos, MI; Store #30 Remodel, Jackson, MI; Store #51 Addn. & remodel, Findlay, OH

Store #117 Sylvania Twp., OH; Store #119 Kalamazoo, MI; Store #124 Fort Wayne, IN; Store #125 Fort Wayne, IN

Store #126 Mansfield, OH

Super K-Mart Stores

Terre Haute IN

Evansville, IN

Spartanburg, SC

Greenwood, CO

Mervyn's Department Store

Flint, MI

Institutional – Jail / Prison Projects:

Texas Department of Corrections, Cofield Unit

2500-man Prison, Huntsville, TX

Texas Department of Corrections, Ellis II Unit

2500-man Prison, Huntsville, TX

Texas Department of Corrections, Furgeson Unit

Additions and renovations, Huntsville, TX

Texas Department of Corrections, Pack III Unit

2500-man Prison, Huntsville, TX

Ft. Worth/Tarrant County, City/County Jail

8-Story Building, Fort Worth, TX

Lake County Jail, County Jail and Criminal Justice Facility

Crown Point, IN

Spencer County Jail,

Rockport, IN

Laboratory Projects:

University of Michigan – Ann Arbor Campus

Life Sciences Laboratory Building

Daimler / Chrysler Corporation, Materials Lab,

Auburn Hills, MI

E.I. DuPont Co.,

Medical Products Research Laboratory, Chambers Works Plant, Deepwater, NJ

Ford Motor Company,

Scientific Research Lab, Dearborn, MI

University of Michigan - Dearborn,

Collage of Science & Letters, Dearborn, MI

Michigan State University - Agricultural Hall

Agriculture Science Labs - Lansing, MI

Michigan Technological University

Science Building, Houghton, MI

Harper Hospital

Cardiac Catheter Lab. /Harper Hospital Projects.

Beaumont Hospital,

Anatomic Pathology Lab, Royal Oak, MI

Vic Wertz, Clinical Cancer Research Center,

Wayne State University/Detroit Medical Center, Detroit, MI

Stadium/Assembly Building Projects:

New Major League Baseball Stadium, Detroit Tigers – Comerica Park

Detroit, MI

New National Football League Foot Ball Stadium, Detroit Lions – Ford Field

Detroit, MI

Renovations - Will Rogers Memorial Coliseum Renovations – Multi Use Arena

Fort Worth, TX

New Detroit Lions – Headquarters and Training Facility

Allen Park, MI

Airport Projects:

Dallas / Fort Worth International Airport

Terminal 3E HVAC Improvements and Admirals Club Addition

Terminal 2W Renovations

Terminal 3E Airside Expansion

Terminal 4E Section C Federal Inspection Facility

Terminal 2E-3E Apron Control Tower

Terminal 3E Section C Expansion

Terminal 3E A & B Lounge & Restroom additions

Cleveland Hopkins International Airport

New Concourse D and connector tunnel

Detroit/Wayne County Metropolitan Airport

New Midfield Terminal – Ed McNamara Terminal

Detroit/Wayne County Metropolitan Airport

Regional Commuter Terminal

Forensic Investigations/Plumbing & Mechanical System Investigation: 1998 – 2008 (Partial List)

Mr. George has been investigating Plumbing, Mechanical and Fuel Gas System failures since 1998. The following list is a partial list of investigations:

National Institute of Standards & Technology - Fuel oil System Failure (Investigation & Report on recommended corrective actions)

Mr. George was asked to investigate a fuel system pump failure that baffled facility engineers and contractors. He provided an investigation, hydraulic analysis and report showing the cause of multiple fuel oil pump failures that led to their fuel oil system to shut-down during a changeover from natural gas to fuel oil during the winter peak months. The facility had several large boilers that operated on dual fuel burners and they receive a discounted fuel rate for switching to fuel oil during periods of peak demand on the natural gas system. The problem was found to be air that became trapped in a high point an oversized fuel oil suction piping header. The piping system design caused high velocity areas that caused foaming of the fuel oil and low velocity areas with oversized pipes that allowed a large air pocket to develop over a period of time and eventually the air was drawn into the fuel oil pump suction and it caused pump cavitation in the primary fuel oil pump. When the operator switched to the back-up pump it immediately suffered the same fate because the air pocket had already formed. The back-up pump was damaged within a few minutes. Mr. George determined the cause of the problem and provided a report and drawings with recommended piping changes to solve the problem. The system has been working fine since then. - Gaithersburg, MD

Roof Collapse

Warehouse Building - Brownstown, MI. Mr. George was asked to investigate a roof collapse at a warehouse building where a roof had collapsed after a rain storm. After performing the sizing calculations, it appeared the engineer of the building used the wrong scale when he measured the roof areas to calculate roof drainages sizes. The engineer of record's defense was that yes he used the wrong scale but, controlled flow roof drainage systems are allowed and that type of system would allow water to pond on the roof and discharge at a lower flow rate to prevent flooding of nearby storm drains and streams. When asked if this was the design intent, and was the structural engineer involved in the process, it was found there was no communication with the structural engineer to plan on several feet of water being allowed to pond on the roof.

Fire Pump/Water Main Failures

Investigation of a fire protection system failure for a warehouse building near Detroit, MI.

A water main leak from an old fire main caused the water pressure to drop in the fire protection loop around a warehouse building. When the flow exceeded the capacity of the pressure maintenance pump or jockey pump, the main fire pump started and according to NFPA requirements it does not cycle off and it must be alarmed to a central alarm station. The warehouse facility had a contract with an alarm company to monitor the alarm and because of previous false alarms, the company was instructed not to call the fire department and they were instructed to call facility maintenance personnel. The alarm company called the maintenance person they were instructed to call and since he was away over the weekend, they left a message on the facility maintenance manager's phone after hours on Friday evening. The pump ran with very little flow over the next several hours and the resulting heat build-up caused the thermal relief valve on the pump casing to discharge a high volume of water in the below grade pump room. The discharge rate overwhelmed the sump pump and when the water level rose to the level of the pump controllers it shorted out and eventually the room was completely submerged in water. All pump and control related equipment and electrical switchgear was submerged and had to be replaced. The failure was the result of very old corroding fire main piping in the underground fire protection loop around the building. A recommendation was made to begin replacing the fire protection main to prevent future reoccurrences and a recommendation was made have the alarm company contact the fire department or a responsible person that acknowledges the problem and not to simply leave a message on an answering machine when there was an alarm in the future.

Scald Investigation

Davis vs. Saperstein Case - Detroit, MI. Child was scalded in bathtub. No anti-scald devices were present. Unlicensed maintenance personnel replaced the water heaters with new smaller water heaters and the resulting lack of hot water caused the unqualified main to increase the hot water delivery temperatures to compensate for the new undersized equipment. This led to the severe scalding of a young boy in a bathtub.

Scald Investigation

Malanak vs American House, - Westland, MI, 79 year old with approximately 13% scald burns to face, chest, feet and legs with subsequent wrongful death from sepsis. Improper piping installation by a contractor caused a scalding incident that eventually led to the death of two people. This case was over two years old when Mr. George became involved and he solved the case within a few weeks. Six other experts had worked on the case for over a year. Mr. George found several clues that indicated there were piping changes. The clues confirmed the anomalies that were described as occurring with the plumbing system. Circulating pumps were failing in very short periods of time and complaints of hot water system temperatures being too hot or too cold led Mr. George to look for clues that the hot water recirculation piping was installed wrong. The piping clues were there. That caused Mr. George to investigate further and find changes to the piping system were made after the original scald incident under fraudulent pretenses to cover up the piping errors. The other experts on the case had been referencing an article in *Plumbing*

Engineer Magazine that Mr. George wrote prior to the incident that addressed problems with maintaining the hot water temperature with an oversized thermostatic mixing valve. The attorney for the facility decided to contact Mr. George to ask a few questions and to get a second opinion. It turned out it was not an oversized mixing valve, because the mixing valve was re-circulated and piped properly upon Mr. George's inspection. The clues and subsequent investigation led to discovery that a contractor had improperly piped the Hot water system during a renovation prior to the incident so that the mixing valve could not control the temperature when there was no water usage in the system. The contractor realized the mistake after someone was scalded to death and the system was still experiencing significant temperature fluctuation problems. The contractor called the manufacturer's representative for the mixing valve to inquire about the situation. The mixing valve manufacturer's representative explained how the piping arrangement should be done to allow mixing when there is no flow in the system and to prevent scalding and thermal shock. The contractor realized that his piping arrangement was not done per the mixing valve manufacturers printed installation instructions and that the piping arrangement had led to the scalding injury and Mr. Melaniak's subsequent death because of the improper piping arrangement. The contractor then tried to cover his tracks by contacting the facility and claiming the mixing valve was defective and they should hire him to shut down the hot water system overnight so he could replace the defective thermal element in the mixing valve. While the system was shut down the contractor did not replace the thermal element in the valve, he revised the hot water recirculation piping. This act constituted fraud when it was discovered the mixing valve still had the original serial number on the thermal element and the HW circulating piping was revised. Mr. George discovered the re-circulating piping was revised after the scald incident because of the manufacturing dates on the revised piping. Other clues were: discolorations at specific solder joints where the new tie-ins were made and the revised piping had uniform pricing code stickers from a local hardware store where the date of the piping purchase could be traced to the revised piping and capped piping connections where the revisions were made. There were numerous other clues that led Mr. George to investigate the dates on the revised piping and it showed the recirculation piping was manufactured and installed after the original scald incident. There was a large settlement for this case and the family of the deceased made a donation to the University of Michigan Burn Center in memory of their father, Emil Melaniak, who tragically died as a result of scald burns he received from the improper piping arrangement. The family wanted to help prevent this from occurring again so they donated a portion of the proceeds to the University of Michigan Burn Center. The University of Michigan Hospital Burn Center used the donation to create and help fund a website with information on scald burn prevention. Mr. George was subsequently hired by the University of Michigan to prepare a report with material and suggestions for scald burn prevention for the U of M Burn Center web site. Eventually Mr. George was hired by and consulted for the opposing counsel in subsequent scald cases. \$1.35 million dollar settlement.

Scald Investigation

Fu vs. Washington, Univ. – St. Louis, MO, A University Professor was scalded from an epileptic seizure that occurred because of exposure to a sudden temperature change in shower. Upon collapsing his toddler son tried to turn off the water and could only reach the cold water valve. No scald protection in the form of a master thermostatic mixing valve or an anti-scald valve, or any other means of scald protection was in place in the University Housing building tub/Shower Unit.

Combined Domestic Hot Water & Heating Water System Failure

The Grand Apartment Building - N. Bethesda, MD, improper piping caused/product failure. A design build contractor decided to combining separate domestic hot water and heating hot water system to save money on a high rise condominium building project. This created combined heating & domestic hot water system. There were numerous problems with materials, pipe sizing, code compliance, manufacturer's warranties and liability issues associated with this system. Mr. George prepared a report listing the many systems design problems, manufacturer warranty violations and code violations and liability issues along with recommendations for corrective action.

Water Hammer Investigation

A Contractor closing a quick operating fill valve on tanker truck caused a water hammer shock wave that travelled back through the water main and ruptured the water service piping at a nearby home. The resulting piping rupture caused significant water damage and foundation damage to the home. Mr. George provided an oral report of his opinions of the cause of the incident – California

Lack of Hot Water at a shower

Mr. George was asked to investigate why a homeowner could feel hot water at the water heater and at nearby fixtures and the homeowner could not get hot water at the master bathroom shower on the other end of his home. Upon investigation, it was discovered the homeowner had underground plumbing and because the home was located in Phoenix, Arizona, the homeowner felt he did not need piping insulation on the underground piping. Mr. George explained that without insulation the 1/2 inch copper water pipe that was in contact with almost 100 feet of sand/soil underground was losing most of its heat to the ground and what he had was similar to a floor warming system. Mr. George recommended corrective actions.

Plumbing System Drainage Problems with a renovation project which installed low flow fixtures in an existing building.

Mr. George was asked to investigate drainage problems with a 73-story high rise major hotel that was experiencing major drain blockages after a renovation project that installed low flow fixtures. The facility maintenance manger said prior to the renovation on a typical morning when the hotel was at maximum occupancy they would have one staff plumber working full time to unclog

water closets. After the renovation project they found that the number of clogged toilet calls increased significantly to the point that they had to hire more plumbers to handle the increased volume of plugged toilets during maximum occupancy periods. Mr. George was hired by the hotel chain to performed testing of the drainage system to determine if the problem was caused by the piping system or the pressure fluctuations within the stack of the high rise building. The investigation found the branch piping and system pressures were within acceptable limits in the codes. Mr. George found that some models of the old water closets (prior to the renovation project) were still in the basement along with some spare models of the new water closets. Mr. George proposed to have testing done to compare the performance of the old water closets to the new water closets. He developed a testing protocol in accordance with ASME Standards to the have the fixtures tested through an independent testing laboratory. The testing showed the newer units met the ASME standard, but had poor flushing performance compared to the older model water closets. The hotel negotiated with the fixture manufacturer to have all of the fixtures replaced on a floor by floor basis. Major hotel in Detroit, MI

Plumbing System Investigation

Flooding was occurring in a lobby and several other areas of a new high-rise building complex for a computer software company corporate headquarters building. Mr. George's investigation revealed there were miscellaneous plumbing contractor sizing problems and there was a house trap prior to the storm drain connection to a combined sewer. Mr. George gave a report recommending changing some pipe sizes and adding a vent to the inlet of the house trap to prevent the drain from air binding when the drain was operating at full flow during storm events. – Detroit, MI

Scald Investigation

Child Scalded, Stadium Apartments, Ann Arbor, MI, A University of Michigan student was living in an Apartment with her infant child. There was no air-conditioning in the apartment and on a hot summer day the child became agitated because of the heat and began crying. The mother went into the bathroom, placed the child in the bathroom lavatory and she began to run cool water over the baby and she began washing him with a wet washcloth to cool and sooth the infant. While sitting in the lavatory under the flow of water, the child reached over and grabbed the lavatory faucet handle and pulled it to the hot position causing extremely hot water to come out of the faucet causing severe burns over the childs lower torso. Mr. George inspected the facility and found numerous code violations including: No door or lock on the water heater room where anyone in the building had access to all of the water heater controls, several water heaters were missing the thermostat control knob, one of the four water heaters was venting combustion products inside the laundry room of the building, and the water heaters were set to a temperature that allowed hot water temperatures that were measured by Mr. George as high as 167 degrees F in the apartment with no thermostatic controls at the water heater and no anti-scald valves at any fixtures in the apartments.

Scald Investigation

Williams vs Heatherwood Apartments, Inkster, MI. Child scalded in tub no anti-scald devices were installed.

Scald Investigation

Kathleen Merritt vs First Housing Corp. Disabled person scalded in a barrier-free tub/shower unit. There was an anti-scald shower valve in the apartment, but it was not set by the installing contractor. Mr. Georges investigation showed the oxidation on the maximum temperature limit stop set screw indicated the valve had never been set to limit the hot water temperature to a maximum of 120 degrees as required by code.

Scald Investigation

Genesan Muthusburamanian scald Case, Dearborn, MI Apartments, Adult male fainted in shower and he was scalded when he grabbed at the shower controls on the way down. No temperature controls or anti-scald valve in place.

Scald Investigation

Kings Lane Apartments, Burton, MI, Child scalded in bathtub. A combined heating hot water system and domestic hot water system coupled with undersized water heaters led to a shortage of hot water on cold winter mornings during peak heating season. The lack of hot water and building heat in the combined system caused maintenance personnel to increase the boiler temperatures and the water heater storage temperatures to compensate for the undersized heating equipment. The installation of the indirect water heaters also allowed the water heaters to exceed the set point on the thermostat because of a control wiring and piping error. This caused the hot water temperatures to become excessive when the building heating hot water demand was not there. A toddler was scalded while bathing when water approaching 170 degrees F entered the bathtub.

Scald Investigation

Hotel in Jacksonville Fla. Scald case. An adult male had an Epileptic seizure in shower. The seizure may have been triggered by thermal shock in the shower causing him to faint and grab the shower controls on the way down. There was an anti-scald valve installed in the shower, but the victim was scalded with anti-scald valve in place because it had not been set by the installing contractor or seasonally adjusted by building maintenance personnel as required by the manufacturer of the valve.

Water Leak Investigation – Thermal Expansion

An automotive manufacturing facility had recently updated the employee toilet facilities and soon after the renovation the building maintenance personnel noticed water on the floor near the water heater relief valve discharge pipe termination. The maintenance personnel blamed the leak on a faulty relief valve and asked the water heater manufacturer to replace the valve. After replacing the relief valve the discharge continued so Mr. George was asked to investigate he determined that the water heater and relief valve were working fine and that the system had a reduced pressure backflow preventer and there was no thermal expansion tank on the domestic hot water system as required by the plumbing code. The backflow preventer created a closed plumbing system where pressure would increase dramatically when the water heater burner cycled after each break. Mr. George found that the facilities assembly line would stop several times during the day to allow assembly line workers to have breaks and lunch periods. During each break there was a significant usage of hot water for hand washing during each break. The water heater experienced a significant draw of hot water from the tank which was replaced by incoming cold water. Upon resumption of the assembly line work there was no usage of hot water and the water heater burner came on heating up the 38 degree cold water to 140 degrees. The resulting thermal expansion of the cold water caused the pressure to build in the hot water system and the temperature and pressure (T&P) relief valve would discharge a small amount of water onto the floor. The Plumbing code required a maximum pressure of 80 pounds per square inch (PSI) in the plumbing system and it required a means of relieving thermal expansion. The relief valve was discharging at 150 PSI. The solution is to provide a thermal expansion tank sized to allow for thermal expansion to occur while keeping the system pressure below 80 PSI and to preventing the T&P relief valve from discharging. The solution was to add a properly sized thermal expansion tank to the cold water side of the water heater. Automotive Assembly Plant – Detroit, Michigan

Product Failure/ Thermal expansion Water Leak, Water Damage Investigation

Photo Processing Facility, Rockville, MD

Water Leak from a burst pipe/Water Damage – Mr. George was asked to investigate an incident where a water pipe burst and caused a significant financial loss from damages to a photo processing building and its contents. Mr. George investigated on behalf of a valve manufacturer who was the defendant as the insurance company was going after subrogation from the valve manufacturer because the pipe that burst was in the valve manufacturer's valve control cabinet. Mr. George determined the water damage was because of the lack of a thermal expansion tank and water hammer arrestors in the system. The investigation revealed numerous plumbing system alterations that were made by an unlicensed facility maintenance worker that were not done in accordance with good engineering practice and not installed per the plumbing code. The similar piece of pipe was tested and found to burst at about 1,100 PSI. The report revealed that thermal expansion events had been occurring on a regular basis based on water stains and calcium build-up on the floor at each T&P relief valve. The relief valves had scaled over and become inoperable because of hard water in the facility. The pressure relief valves were no longer operational. A hurricane and associated storm system passed over the area causing power outages over a holiday weekend. Upon restoration of power, the water heaters experienced a significant thermal expansion event causing the pipe to burst. The case was dismissed at trial when it was pointed out the maximum allowable pressure in the plumbing system is 80 PSI and the material expert fore the insurance company could not give a technical reason for why he felt another pipe material should have been used in spite of his own testing showing a burst pressure significantly higher than 80 PSI.

Plumbing Product False Advertising Claim

Mr. George was asked to give his opinion of a manufacturer's advertising claim after review of product and review of the performance of the product for a false advertising lawsuit of one manufacturer vs. another.

Industrial Furnace Explosion & Fire Investigation

Furnace Explosion and fire injured a worker. Mr. George investigated a rotating air furnace in automobile insulation manufacturing facility in Ohio. Mr. George found that there was no preventative maintenance program in place and the maintenance was done on an emergency basis. According to maintenance records and depositions they would wait until something broke before attempting any repairs. This caused the maintenance people to hold up production and on one occasion a burner safety control was bypassed with a jumper wire in order to keep the facility on line. This eventually led to an explosion and fire that severely injured a worker. OSHA investigated and cited for manufacturer by-passing safety controls at an automotive Insulation Manufacturing facility in Ohio. Mr. George's report showed that the lack of routine maintenance allowed the combustion air inlet to become clogged with insulation debris from the manufacturing process. The untrained maintenance workers did not know how to silence the alarm and get the furnace running so the safety switch was by-passed with a jumper wire that allowed the gas valve to open and continue the burner ignition cycle. When the pressure sensor for the fan proving switch was by-passed it did not interrupt the combustion start-up sequence as it should have and the fuel gas solenoid opened up and continued operating, allowing fuel gas to enter the combustion chamber as if nothing was wrong. Area factory workers noted small whiffs of fire and black smoke emitting from the top of the heating furnace on several occasions during ignition prior to the accident. This was because the combustion air inlet was clogged up causing an extremely rich gas mixture in the combustion chamber. The rich flame caused the inspection port to become sooty or black from combustion that was too rich. Plant workers in the area called maintenance because of the smell of gas when it was too rich to burn. The maintenance worker sent to investigate the furnace was burned by the explosion and fire when he opened the inspection door to see if the furnace was lighting. Opening the door introduced oxygen and the resulting explosion and fire caused the worker to be thrown about 8 feet

onto some nearby assembly line racks after he climbed up on the furnace and opened the inspection port to view the burner assembly. Opening the viewport door allowed air to the rich fuel gas mixture. The worker was airlifted to an area burn center.

Cross-Linked Polyethylene PEX Pipe Fitting failures

Investigation of a failure of PEX pipe fittings at a condominium complex in Oakland, County, Michigan.

Investigation revealed an inferior non-code cast brass fitting was used which caused numerous fitting failures throughout the complex. The fitting manufacturer agreed to pay for replacement fitting and the cost of all labor for repairs. The fittings appeared to be from a batch of bad fittings where there was apparently a metallurgical problem with that batch of fittings. Replacement fittings were forged brass and plastic fittings.

Gas exposure O2 deprivation from an appliance pilot

Apartment Building New York, NY.

Nursing Home Patient - Base Board heater exposure burn

Nursing Home in Ohio.

Construction Payment Dispute

Architect/ Owner/ Contractor dispute over a construction delay, Detroit, MI

Scald Case

Nursing Home, San Mateo, CA

House Fire Investigation

Investigation into the possible cause of a house fire, Lake Charlevoix, MI

Construction Accident Investigation & Report

Investigation into a plumbing related construction accident, Chicago, IL

House Explosion & Fire

Investigation of a propane gas explosion & fire that resulted in one death & one serious injury to another, New Braunfels, TX

Nursing Home Hot Water System Investigation & Report

Macomb, MI

Scald Investigation

3 year old child scalded over 50 percent of his body in a bathtub without proper temperature controls. Apartment Building, Boston, MA

Steam Scald Case

A customer at a health club was severely scalded when he passed out in the steam room due to high temperature. Mr. George investigated and found that there was no temperature sensor or automatic temperature control valve serving the steam room. The only controls on the industrial heating boiler steam piping serving the steam room were the pressure controls on the discharge header for controlling the steam boiler burner and a manual shut-off valve.

Pipe Explosion/Injury Investigation

Investigation into a Plastic pipe explosion that severely injured a worker when the plastic pipe was filled with compressed air and it exploded. Beaumont, Texas.

Scald Investigation

Scald of an elderly tenant in a Seniors Apartment Building, Fort Worth, TX

Scald Investigation

Scald Death of an 8 year old girl in the State of Georgia - Capital Murder Case

Scald Investigation

Scald investigation of a teenage girl who suffered an epileptic seizure in a shower and was scalded. No- anti-scald valve installed on the tub/shower and no thermostatic mixing valve installed on the water heater. San Antonio, TX

Code Investigation/Product Evaluation

Investigation of a floor mounted water closet fixture to wall connection for a manufacturer of a water closet. A fixture manufacturer developed a push-on type water closet connection to the drainage system. Mr. George provided a report covering the code equivalence for this type of joint. The code has since been changed to accept this technology.

Water Damage Investigation

Investigation and report on a sewage backup incident in the basement of a residence which was caused by a water utility contractor crushing a plastic building sewer line. The damage occurred while the contractor was working on repairs to a building water service pipe nearby. The resulting damage to the sewer caused significant sewage back-up into the home and subsequent mold damage and physical ailments to the occupants.

Legionnaires Disease Incident

Investigation of a Legionellosis incident at a Texas Hospital that led to several Deaths and numerous people that had contracted Legionnaires Disease.

The following forensic investigations are listed with the project number and without a write-up. If you require further information about these cases please contact Mr. George.

- 11002 Steam Sauna Scald Investigation Condominium building, Fort Lee, NJ – for 3rd Party Defendant Steam Sauna Manuf.
- 11004 Scald Case in Kansas City, Plaintiff
- 11009 Water damage to a residence - PEX melted at connection to sauna steamer unit. Plaintiff
- 11010 Scald Case - Apartments, Charlottesville, VA, Plaintiff
- 11011 Legionnaires Disease Case, Hotel, Miami, FL, Plaintiff
- 11012 San Diego, CA - Gas Explosion Investigation - PG&E, Plaintiff
- 11013 University Boiler-WH flue failure study, Oakland County, MI, Investigation & Report only.
- 11014 HW scald incident in NY-Group Home, Defense
- 11015 Monroe Twp. Apartment - Scald Case child in bathtub, Plaintiff
- 11024 Insurance Co. vs Plumbing Co. - Dishwasher Water leak subrogation, Plaintiff
- 11025 Oregon, OH Water Treatment Plant- fuel oil system investigation of spill., Defense Fuel oil level switch manufacturer.
- 11026 State of LA vs Bartley - Cecelia Bonin Public Defender Capital Murder Scald Case, Defense
- 11027 College Scald Case-Charleston WV, Defense
- 11028 Fred Semke-36 story Lennox Condos-Chicago IL-Water Damage-Pump sizing/Waterproofing/Grooved Coupling, Plaintiff
- 11029 State of Kansas - Child scalded in care of father. Criminal Charges, Plaintiff
- 11032 Jerome Roberts Child Scald Case – San Diego, CA
- 11036 Diesel Generator Fuel Oil Spill, Plaintiff
- 11040 Residence in Indiana. -Water Damage Investigation, plaintiff
- 11041 Flood incident investigation-House trap
- 11042 AAV Stadium vent savings study & report
- 11044 New Jersey WWTP pumps flood-Travelers-Wolf Sampson
- 11047 Connecticut-child Scalded in a whirlpool, Plaintiff.
- 11050 Scald case, Chicago IL Apartment Building-Plaintiff
- 11052 Gainesville Florida Hospital Legionnaires Disease Outbreak , Plaintiff
- 11053 35 story Condos Flood over 70 Million dollars in flood damage, Investigation, Plaintiff -Subrogation
- 11058 Las Vegas Hotel Legionnaires Disease Outbreak and Death Investigation, Plaintiff
- 11060 San Mateo CA Scald Case. Defense of property owner.
- 11061 Scald Case - Hotel - Riverside CA, Plaintiff
- 11063 Twenty two story High Rise Condo-PEX fitting failure investigation-flood, Newport, RI, Defense of Engineer.
- 11064 Cincinnati Chemical Tank farm, Chemical transfer hose connection failure. Defense
- 11067 Saline MI - Scald Case WH replacement by contr. claiming to be licensed & trained. No a license/No training, Plaintiff
- 11068 PEX Plumbing failure- Stillwater, OK, Plaintiff
- 11069 Kansas City Woman scalded in shower in an Apartment building without temperature controls, Plaintiff
- 11070 Wyoming Nat'l Park Geothermal Steam Bath Scald Case. Park officials would not let vendor add temp. controls. , Plaintiff
- 11072 Anchorage, AK - Broken water pipe - Scald Case, Defense
- 11074 Scald Case, Apartment complex – Steubenville, Ohio, Defense
- 11075 Beverly Hills CA, Scald Case, Plaintiff
- 11076 High School Constr. dispute resolution. Contractor vs school district-contract language. Cause of Delays. Defense
- 11077 Scald Case Kansas City, KS, Defense
- 12006 Scald Case, Apartment Building, St. Louis, MO, Plaintiff
- 12007 Construction dispute Fort Leonard Wood, MO, Defense
- 12009 Scald Case, Apartment Building, Toledo OH, , Plaintiff
- 12013 Fremont Insurance Linda Blais Water Damage product failure. , Plaintiff Subrogation
- 12016 Brass Dezincification consulting Ohio, Brass Manufacturer-Code Consulting
- 12017 Scald Case Apartment building, KC, KS, Plaintiff
- 12018 PEX fitting failure investigation, Dallas, TX, Plaintiff
- 12019 Scald Case Apartment Building-Richmond VA, Plaintiff
- 12025 PVC Water Heater Flue Failure, carbon monoxide poisoning investigation, Seattle, WA, Plaintiff

12039 Anderson Copper & Brass - PEX Dezincification issue – Arizona, Consulting
12043 HWR Circulator Pump/balancing investigation, Ferris State University for an Engineer in Southfield, MI, Defense
12044 Pump failure investigation, Municipal pump, Plaintiff
12049 Miami Valley OH Hospital - Legionella - Jules Zacher, Plaintiff
12054 Scald Incident Child Scalded in Whirlpool tub. Farmington, Connecticut, Plaintiff
12056 PEX Dezincification investigation, , Plaintiff
12058 Hotel - Legionella Investigation Owner vs prev. owner undisclosed prior Legionella condition. Plaintiff.
12059 Heat pump system failure investigations, Class action, Defense (Control component failure)
12060 Scald case, Detroit housing agency, Defense
12061 German Manufacturer – Legionella, Consulting
12062 Notre Dame University-Water Damaged Condo, South Bend, IN, Plaintiff subrogation
12063 Marina Fire Suppression system design investigation/ Construction dispute. Erie Twp., MI, Defense of Engineer.
12064 Scald case at an Apartment building, Lubbock TX, Plaintiff
12065 Ski resort copper pipe erosion case, Boyne Falls, MI, Defense
12066 Fuel dispenser - auto shut-off failure – Retail store gas station, Plaintiff
12068 Chicago Hotel Legionella Investigation, Plaintiff
12069 Ocean City, Maryland Hotel Legionella Investigation, Plaintiff
12071 Ohio University water main joint failure in tunnel/basement mechanical room investigation. Defense