

JAMES R. BRACHTL, P.E.
105 Poplar Knoll Ct
Cary NC 27519
(608) 512-2151 Mobile
E-mail: hvacrengr@gmail.com

CORE VALUES Facts, analysis, consensus, action, follow-up, integrity

Precept of thinking and behavior: How you think is everything.
Published as Secret #1, "10 Secrets of Success," Investors Business Daily Newspaper

Most influential book read: "Decision Making by Argumentation and Debate"

CERTIFICATION Registered Professional Engineer in Illinois (by examination), Wisconsin, Iowa, and Massachusetts

Certificated CDT (Construction Document Technologist - CSI designation by examination)

EDUCATION BS, Mechanical Engineering (Work-Study Program), Illinois Institute of Technology – Chicago

Master of Business Administration, U. of Wisconsin – Madison

PROFESSIONAL AFFILIATIONS ISPE – International Society for Pharmaceutical Engineering
ASHRAE – American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc.
ASHE – American Society for Healthcare Engineering
AFE – Association for Facilities Engineering
NFPA – National Fire Protection Association
ASME – American Society of Mechanical Engineers

SKILLS Management of project design and construction including selection, cultivation, solicitation, coordination, and awarding of work to subcontractors and sub-consultants; follow-up contract administration, oversight, and monitoring of subs' performance; assistance in resolution of routine project difficulties as well as real problems. Concentration in food (candy, baking, health food packaging), pharma, and chemical industries. Primary focus has involved mechanical systems and utilities: Industrial heating, ventilating, air conditioning, refrigeration including design and management of high- and low-pressure steam projects, process piping. Project magnitudes to \$11 million.

Managing and mentoring less experienced engineers.

Above average knowledge of contract law, project delivery methods, accounting, finance allowing me to advise client management on project delivery systems, risk analysis, methods of modifying and mitigating project risks.

Construction cost estimating...life cycle costing and economic analysis of alternatives...application of range estimating and Monte Carlo simulation techniques to problem of establishing confidence intervals and contingency levels for project estimates.

Expertise in mechanical systems analysis and design...equipment selection...load estimates and psychrometric process design...duct system design...engineering of piping systems for water, steam, refrigeration, and process use...energy use modeling...trouble-shooting

Software experience: Trane TRACE, AutoCAD, Word, Excel, Project 2010, Power Point, Crystal Ball, Algor PipePak

RECENT SKILL & EDUCATIONAL UPGRADES **Design of Ammonia Refrigeration Systems for Peak Performance and Efficiency/UW**, College of Engineering, Madison WI, September 9 thru 13, 2013 (40 Professional Development Hours)

Chilled Water Plant Design/University of Wisconsin, College of Engineering, Madison WI November 19 thru 21, 2014 (20 Professional Development Hours)

Construction Law Seminar/Whyte Hirschboeck Dudek, SC (Attorneys), Madison WI July 13, 2016 (7.5 Professional Development Hours)

Managing Engineering Liability and Ethics Issues/HalfMoon Education, Inc., Madison WI March 16, 2017 (7.0 Professional Development Hours)

Piping Design and Analysis Influence on Pipe Support Selection and Design/Piping Technology and Products, Inc., Houston TX, May 29, 2017 (8.0 Professional Development Hours)

PUBLIC SPEAKING EXPERIENCE	<p>How to Assess Risk in Engineering Estimates ASHRAE Madison Chapter Meeting</p> <p>How to Prospect For, Find, and Develop New Business Opportunities by Telephone Process Engineering Group, Affiliated Engineers, Inc.</p> <p>How Pressure Independent Control Valves Reduce Operating Costs and Increase Capacity on Large Chilled and Hot Water Systems</p> <p>How Desiccant Dehumidification Can Reduce Operating Costs on Large and Small Cooling Systems</p>	<p>February 9, 2015</p> <p>2009</p> <p>Numerous Since 2011</p> <p>Numerous Since 2011</p>
TYPICAL CLIENTS and ASSIGNMENTS	<p>Project Manager, Team Leader, Contract Mechanical Engineer HYDRITE CHEMICAL CO. Building expansions and process installation projects at Hydrite plants in Cottage Grove WI, Milwaukee WI, Waterloo IA, Terre Haute IN</p> <p>Building expansions and process installations valued in excess of \$35 million including South Warehouse expansion for Tamol process installation, survey and study of exhaust and ventilation systems in five (5) process rooms (Cottage Grove WI). Responsible for initial process equipment and installation estimate, budget maintenance, directing and coordinating design efforts of architect and structural engineer, communication with municipal officials prior to commencement of construction work, securing necessary permits, supervision of process engineering activities, resolution of design and budget issues, resolution of foundation design and contaminated soil issues, interfacing with plant production staff at all levels of the company in promoting the project and gaining cooperation of all affected parties, selection and solicitation of general contractors and construction managers, writing RFPs and specifications for trade contractors (electrical, mechanical, insulation), sizing vent lines, steam and condensate return piping, design of process room ventilation system, promoting understanding and adherence to plant safety rules by all parties to the project.</p> <p>Contract Mechanical Engineer ANDREW J. FEO & ASSOCIATES, LLC Hoffman Estates IL</p> <p>Mechanical systems engineering for two (2) pharmaceutical compounding clean rooms (USP 797)</p> <p>Project Manager, Assistant to Superintendent/Owner PIPERS MECHANICAL, INC. (Piping Contractor) DuPont Danisco Cellulosic Ethanol Pilot Plant Project Vonore TN</p> <p>Project manager for product development unit process piping in support of piping contractor field superintendent; piping work valued at \$6 – \$9 million. Responsible for resolving technical issues that appeared during fabrication and installation of piping.</p> <p>Also see Evonik Industries (Janesville WI), PGP International (Juda WI), Genencor International, Inc./DuPont (Beloit WI), Plymouth Tube Co. (East Troy WI), below.</p> <p>Energy Analyst (Contract Mechanical Engineer) WISCONSIN ENERGY CONSERVATION CORP. Madison WI</p> <p>Reviewed applications submitted by customers for energy conservation project funding offered through financial incentive programs offered by electric utilities such as Duke Power.</p>	<p>Aug 2011 to Present</p> <p>2015</p> <p>Spring 2011</p> <p>2009 – 2010</p>

POSITIONS HELD Principal Sept 97 to Present
BUILDING & PROCESS ENGINEERING, INC.
 Middleton WI

Concentration on mechanical engineering and construction management for industrial and process-related systems.

Senior Mechanical Engineer Sept 05 to Sept 09
AFFILIATED ENGINEERS, INC.
 Madison WI

See "**City of Milwaukee Central Repair Garage**," below; HVAC for 40,000 sq.ft. cafeteria, **Caterpillar, Inc.**, Peoria IL; see "**3M Corporation (Minneapolis MN)**," below;

Senior Mechanical Engineer July 02 to July 05
McCLIER CORP., UNIT OF AECOM
 Chicago IL

See "**El Ebro Foods (Chicago)**," below; see "**Culinary Arts School**," below; central chilled water system for **Ocala Star Banner** newspaper printing plant, Ocala FL; HVAC for 800,000 sq.ft **DHL Express**, Cincinnati hub operation; HVAC for expansion of **Nestle Willy Wonka Candy Factory**, Itasca IL

Mechanical Department Manager 1999-2000
ASC SERVICES, LLC
 Chicago IL

Organized and personally provided instructional sessions weekly in mechanical engineering. Topics included psychrometric chart use and HVACR load analysis, chilled and hot water hydronic system design, refrigeration piping design. This vertically and horizontally integrated company specialized in telephone switch buildings and data centers.

Engineering Manager 1990 - 1992
 Building Services Division
GIBSON ELECTRIC, INC. (Former Unit of JWP)
 Oak Brook IL

Lead commercial and industrial project engineering and drafting group in large organization. Developed predictive energy consumption models utilizing Trane TRACE 600 (DOS) for twelve (12) commercial buildings under program sponsored by Commonwealth Edison Co. (Chicago)

ENGINEERING AND PROJECT MANAGEMENT
 (Abbreviated List)

Cheese Producer and Packager (Wisconsin and other states): Wrote study on the effect of production room relative humidity on the propagation and support of *Listeria monocytogenes* for this multi-plant company

Genencor (Beloit WI): Wrote process piping, welding, fabrication, and insulation specs for multi-plant enzyme expansion project

West Bend Plastics (West Bend WI): Designed plant dehumidification system for maintaining plant environment at 44 F dew point, eliminating damaging condensation, improving comfort

Rhodia, Inc. (Chicago Heights IL): Project manager and mechanical engineer of MEP package for chemical plant laboratory remodel project

Evonik Industries (Janesville WI): Project manager and mechanical engineer for desiccant-based cooling tunnel dehumidification system for drying chemical product

City College of Chicago, **Culinary Arts School**, South Shore Cultural Center (Chicago): Large kitchen ventilation system including six (6) hoods and make-up air system for this registered historic building

Bakery (Melrose Park IL): Low-temperature R407A baked goods freezer

P-3 District Cooling Plant (Chicago): Engineering team member on design of **30,000-ton ammonia refrigeration system**; responsibilities included **sizing ammonia vent piping, sizing emergency ammonia absorption exhaust system** for mechanical room.

EI Ebro Foods (Chicago): Complete mechanical systems engineering for fast-tracked relocation of ethnic food packer. Scope included production area ventilation and hood design, high- and low-pressure boiler selection and piping design for process use, compressed air and natural gas distribution systems

Nestle USA (Kathryn Beich Candy, Bloomington IL): Chilled water system expansion and candy production area HVAC and refrigeration for major production line expansion

Nestle USA (The Willy Wonka Candy Factory, Itasca IL): Project manager and mechanical engineer for numerous projects: Direct expansion refrigeration systems for 50 F controlled humidity production areas in candy manufacturing plant; design, furnish, and install large walk-in cooler for the conditioning of taffy prior to milling and processing; panning area reheat system; jacketed sucrose piping; conversion of fifty (50) large direct expansion rooftop units to rooftop chilled water air handling units supplied by central chilled water system; refrigerated and liquid and dry desiccant systems for 50 F and 30% relative humidity candy production areas

Brach's Candies (Chicago): Project manager and engineer for indoor propylene glycol storage tank farm in large candy plant; blowdown and condensate management system for large high pressure boilers

Farley Candy Company (Melrose Park IL): Project manager and engineer for deaerator and condensate management system for **high and low pressure boilers**

BASF (Burlington MA): Lead engineer on conversion of 90,000 sq.ft. spec building into series of nine (9) Class 10,000 clean rooms.

Peabody MA: Refrigeration system for **15,000 bushel controlled atmosphere apple storage facility**

NOW Natural Foods (Bloomington IL): **Desiccant-based low humidity HVACR system for pill press and gelatin capsule filling operations** in vitamin production department; HVAC system suitable for operation in presence of alcohol vapors for essential oils production room

PGP International (Juda WI): Project manager and engineer for seven-hundred horsepower high pressure boiler and deaerator installation with economizers, stacks, condensate return system improvements in **whey processing plant**

U.S. Army (Kabul, Afghanistan): Fuel storage and conditioning system for power plant housing fourteen (14) large diesel generators

3M Corporation (Minneapolis MN): Mechanical systems required to support 750 hp diesel engine exhaust filter test cell. Saved money through careful analysis of project requirements, evaluation of existing re-usable equipment.

Plymouth Tube Co.: Designed steam-grid heaters and filtration system for alkali bath tanks in tube mill

City of Milwaukee Central Repair Garage: Designed replacement of all HVAC systems in this 145,000 sq.ft., 1978 building. Client goals included preparing for future LEED Silver application. Two years after completion, this project was awarded a first-place runner-up prize by the Milwaukee Chapter of the International Facilities Management Association for reducing energy consumption by 50%.