

PAUL ZAMROWSKI ASSOCIATES, INC.
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CURRICULUM VITAE

COLIN SEYBOLD, P.E.

Forensic Mechanical Engineer

SUMMARY

Mr. Seybold has over 26 years of forensic and design engineering experience in HVAC, plumbing, fire protection and building automation systems for the commercial, industrial and residential industries. His engineering responsibilities include system design, system evaluation and troubleshooting, failure investigation, and field construction. Forensic experience includes investigation and analysis of water and fire damage, frozen pipes, pipe breaks, boiler explosions, fire protection system failures, heating and air conditioning systems, water heaters, mold problems, automotive oil filters, sewer back-ups, evaluating equipment damage, video imaging of plumbing systems, fire cause and origin investigations and faulty construction evaluations. Proficient in the use of heating and cooling load calculations to determine adequate heat usage, energy usage and proper HVAC system design.

EDUCATION

- Bachelor of Science in Mechanical and Aerospace Engineering, Rutgers College of Engineering.

LICENSES

- Registered Professional Engineer – Pennsylvania, New Jersey, Delaware, Maryland, Washington D.C., California, North Carolina, Nevada.
- NCEES Record.

PROFESSIONAL AFFILIATIONS

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

PROFESSIONAL LECTURES & PRESENTATIONS

- Biotech Manufacturing Facilities – ISPE Delaware Valley Spring Course, 2005.
- Facility Space and Capacity Planning – Barnett International 2004.

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EXPERIENCE

Forensic Engineering

- Provided expert testimony at trial regarding a fire loss associated with a kitchen hood exhaust system in a restaurant.
- Provided forensic investigations into cause of frozen pipes due to various reasons including the lack of heat, failure of heating systems, lack of propane, lack of fuel oil, improper construction methods, improper winterization methods and thermostat battery failure.
- Provided heating load calculations and energy usage analysis to determine whether adequate heat was maintained in residential structures to prevent freezing.
- Provided cooling load calculations for residential and commercial buildings to determine the failure of air-conditioning systems to properly cool during the summer months.
- Provided forensic investigation into the cause of a fire in a commercial building.
- Provided forensic investigation into pipe failures associated with municipal water distribution systems and sanitary sewer systems.
- Provided forensic investigation into damage of HVAC, plumbing and fire protection systems due to theft or vandalism.
- Provided forensic investigation into the failure of a high temperature sintering furnace.
- Provided forensic investigation into the cause of an automotive engine failure.
- Determine cause of the failure of a fire protection system that leaked causing water damage.
- Determined cause of boiler corrosion failures.
- Provided forensic investigation into cause of frozen pipes in a residential baseboard heating system.
- Provided damage evaluation to existing pumps exposed to water during flood.
- Determined cause of several boiler explosions.
- Provided forensic investigation into damage to residential appliances and HVAC systems due to fire.
- Determined cause of frozen pipes and provided cost estimate and proper repair requirements to cooling tower.
- Provided construction expertise to determine premature failure of chilled water system due to improper construction methods.
- Determined cause of water damage due to water filtration cartridge failure.
- Provided testing of automotive oil filter to identify cause of oil leak.
- Determined cause of water damage in residential basement. Investigation included water bill evaluation to confirm date of loss.
- Determined cause of commercial restaurant drainage system back-up including the evaluation of the grease trap system. Provide video documentation of the cause.
- Investigated the cause of frozen underground pipes serving a residential swimming pool.

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- Investigate failures of the mechanical systems (pumps, DE filters, sand filters, chlorine injection systems, etc.) of several commercial swimming pools.
- Determine the cause of a residential inground swimming pool to lift up out of the ground.
- Determined the cause of flooding in a commercial property due to storm sewer system failure.
- Investigated the cause of school mold growth as a result of the HVAC system.
- Determined the cause of the backup of an underground sanitary sewer system for a commercial property.
- Evaluated the operation of a power operated sliding door involved in a pedestrian injury claim.
- Evaluated the claim of the replacement costs for a geothermal system damaged during a residential fire.
- Determined the validity of a soot damage claim by taking samples and analyzing the laboratory test results.

Design / Field Experience

- Facilities Engineer. DPT Laboratories. In charge of the construction of facility projects and day to day maintenance of boilers, chillers and HVAC systems serving multiple buildings. Managed staff of 23 personnel on a 24-hour a day, 7-days a week, and 365 days a year work schedule.
- Lead HVAC Engineer. Lonza Biologics, Singapore. Provide on-site support for Lonza's LBXS1 facility to resolve HVAC design and control issues. Providing on-going support for Lonza's LBXS2 facility. Acting as the owner's HVAC expert for all design issues for their second \$350 million dollar manufacturing facility.
- Lead HVAC Engineer. Dendreon, Morris Plains, NJ. Dendreon's New Jersey Manufacturing Facility Upgrade Project. Designed the HVAC systems to support Dendreon Immunotherapeutic facility including chilled water and heating water system design. Provided energy analysis for chillers, boilers, and DX rooftop air-conditioning units.
- Lead HVAC Engineer. Lonza Biologic, Portsmouth, NH. Provided a GMP gap analysis for the HVAC system. FDA and EU standards were followed. Analysis included the review of area classification, room pressurization, room cleanliness levels, air change rates, and gowning/ airlock usage. Provided detail designs to upgrade any items identified during the gap analysis.
- Lead HVAC Engineer. Tengion, East Norriton, PA / Winston-Salem, NC. Human organ regeneration facilities. Designed, commissioned and validated the HVAC and Building Management Systems (BMS) for both facilities. Areas included ISO 5, 7, and 8 areas, R&D laboratories, and administrative support areas. Utilities were provided by steam boilers, air-cooled chillers, custom air-

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handling units, heating water system, chemical free steam, packaged rooftop units, and CRAC units.

- Lead HVAC Engineer/HVAC Commissioning Engineer. Wyeth, Pearl River, NY: Wyeth's Building 100 aseptic vial filling production facility. Responsibilities included HVAC system commissioning, troubleshooting and engineering support. Scope of work included corrective actions to the room pressurization control, the Building Management System, and the redesign, and testing of a Grade A unidirectional hood. Provided cGMP compliance expertise throughout the design build process. Provided chilled water system capacity study and system analysis for proper operation.
- Lead HVAC Engineer/HVAC Commissioning Engineer. Wyeth, Pearl River, NY. Wyeth's Building 43B HVAC renovation of an existing aseptic processing suite. Responsibilities included HVAC system evaluation, troubleshooting and upgrading of the existing system to create an EU/FDA compliant aseptic suite. Scope included corrective actions to a Grade A unidirectional hood, modifications to existing control system, development of URS and FRS documents, and the development and execution of the IQ and OQ protocols.
- Lead HVAC Engineer. Hematech, Sioux Falls, South Dakota. Hematech's Sioux Falls Prairie Campus project. This 40,000 square foot facility was designed to house a number of functions, including research and development, administration, clinical material development, and manufacturing areas. The manufacturing areas included a cGMP Pilot Plant for plasma and serum processing and antibody purification, BSL-3 immunology suites for microbial, insect and mammalian cell culture, a BSL-3 vivarium, warehousing, shipping, and receiving areas.
- Lead HVAC Engineer. Core Tech Solutions, East Windsor, NJ. Core Tech Solutions' transdermal patch manufacturing facility project. Responsibilities included providing a HVAC system design, provided expertise for meetings with FDA pre-inspection meetings, provided on-site construction support for all trades until project completion, and assisted owner in meeting local building inspector's requirements.
- Lead HVAC Engineer. Protein Sciences, Meriden, CT. Protein Sciences biopharmaceutical facility renovation project. Responsibilities included providing a HVAC system GAP analysis and a cost estimate to upgrade the existing system into cGMP compliance in terms of proper room pressurization levels, air filtration levels, air change rates, and temperature and relative humidity control.
- Lead HVAC Engineer. Enzon, South Plainfield, NJ. Enzon's cleanroom upgrade project. Upgraded existing class 100,000 spaces to class 10,000 spaces within a limited budget. Responsibilities included HVAC design specifications, construction drawings, HVAC zoning, area classification and pressurization diagrams, and air flow diagrams.

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- Lead HVAC Engineer. Pfizer, Brooklyn, NY. Pfizer's site master plan project. Provided conceptual engineering to identify and resolve HVAC related issues in order to update the existing plant to meet cGMP standards. Provide utility analysis of chilled water, heating water, and steam.
- Lead HVAC Engineer. ImClone, Branchburg, NJ. ImClone's new biopharmaceutical facility. Responsibilities included detailed engineering to produce construction documents adhering to cGMP standards. Provided HVAC design specifications, construction drawings, HVAC zoning, area classification and pressurization diagrams, and air flow diagrams. Designed the chilled water system and the associated cooling tower water system.
- Lead HVAC Engineer. Medarex, Greenwich, NJ. Medarex's R&D lab facility renovation project. Renovated an existing building to provide a new research and development lab space. Provided HVAC design specifications, construction drawings HVAC zoning, area classification and pressurization diagrams, and air flow diagrams.
- Lead HVAC Engineer. Pharmacia (G.D. Searle), Barceloneta, PR. Pharmacia's bulk pharmaceutical chemical plant renovation project. Responsible for the engineering and design of the HVAC system serving Class 100,000 areas. Activities included interfacing with the client, coordinating design activities between disciplines, participating in design reviews, and field survey of the site.
- Lead HVAC Engineer. Aventis, Swiftwater, PA. Aventis' new formulation/fill finish and packaging facility. Responsibilities included conceptual architectural and HVAC designs.
- Lead HVAC Engineer. MedImmune, Gaithersburg, MD. MedImmune's new biopharmaceutical facility. Responsibilities included conceptual HVAC design. HVAC conceptual design included HVAC zoning, area classification and pressurization diagrams, and utility and air flow diagrams.
- Lead HVAC Engineer. Aventis, Kankakee, IL. Aventis' Viral/DNA biopharmaceutical facility renovation project. Activities included conceptual estimating, heating/cooling load calculations, developing air flow diagrams, area classification and pressurization diagrams, HVAC zoning diagrams, control diagrams, plan drawings, sections, schedules, and detail drawings.
- Lead HVAC Engineer. Warner Lambert, Ringaskiddy, Cork, Ireland. Responsible for engineering a Class 10,000 HVAC system serving a \$60 million bulk pharmaceutical chemical plant. Specified and designed HVAC systems serving Class 100,000 areas including a crystallizer, centrifuge, dryer, and pack-out rooms. Met with the client's representatives to describe the functionality of the system. Produced all of the HVAC specifications for the bulk chemical building and the bulk tableting facility using European standards, British standards, and applicable U.S. standards.

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- Lead HVAC Engineer. Hoffmann-La Roche, Nutley, NJ. Responsible for designing a Class 100,000 HVAC system for installation of a fluid bed dryer in a building expansion effort. Coordinated efforts with other disciplines to facilitate construction efforts. Reviewed vendor drawings and provided owner with engineering support. Also, designed the HVAC and utility systems for 5,800 square-foot fluid bed dryer installation project in an existing operating facility.
- Lead HVAC Engineer/Site Engineer. Shaklee Corporation; Norman II, Norman, OK. Responsible for designing HVAC systems for a 58,500 square-foot multiple product/potent product solid dosage pharmaceutical manufacturing facility. Designed a primary/secondary chilled water system while adding two 600 ton chillers and associated cooling towers. Provided cost estimate support for all project phases. Designed a Class 100,000 HVAC system for a 3,000 square-foot solid dosage/ potent product pharmaceutical production facility. Provided construction support during start-up to resolve ductwork installation, room pressurization, and HVAC control problems. Prepared an HVAC estimate for conceptual phase.

COMMUNITY VOLUNTEER EFFORTS

- Head and Assistant Soccer Coach - Voorhees, NJ and Cherry Hill, NJ
- South Jersey Girls Soccer League – Past Board Member
- Assistant Lacrosse Coach - Voorhees, NJ
- Community Swim Club President - Voorhees, NJ
- SJAC Club Swim Team - Timer and Meet Set Up Crew, Fundraising Chair
- Loyola University Swim Team – Parent Committee Member
- Mid Atlantic Yacht Racing Association Scoring Official
- Main Line High School Sailing Association Scoring Official
- Yacht Club of Sea Isle City, New Jersey New Building Committee – Engineer