

LAPINA & ASSOCIATES, LLC

FORENSIC ENGINEERS & SCIENTISTS

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Cranberry Township, PA 16066

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**Please Visit Our Website at:
www.LapinaAssociates.com**

Providing Expert Forensic Engineering and Science Services!

- Gas Fires & Explosions
- Vehicle Crashes
- Highway Engineering
- Industrial Injuries
- Workplace Safety
- Product Failures
- Structural Failures
- Construction Injuries
- Premises Liability
- Metallurgical Analysis
- Chemical Analysis
- Excavation & Trenching
- Scaffolding
- Chemical / Petrochemical
- Mining Injuries
- Machine Guarding
- Building Failures
- Product Liability
- Mechanical Engineering
- Structural Engineering
- Civil Engineering
- Electrical Engineering
- Electrical Fire Analysis
- Chemical Engineering
- Agricultural Engineering
- Carbon Monoxide Poisoning
- Mold
- Construction Claims

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Ronald P. Lapina, P.E. – Manager / Mechanical Engineer:

- Typical Areas of Consulting: gas explosions; gas asphyxiations; vehicular crash reconstruction; mechanical equipment failure analysis; safety.
- Master's Degree in Mechanical Engineering
- Registered Professional Engineer – PA, OH, WV, NY, TX, LA, KY, AL, MD, VA, ID
- Member ASME, NSPE, SAE, IAAI, PAAI, ASSE, ASTM, National Safety Council (firm), Energy Association of PA (firm).
- Investigated numerous propane and natural gas fires and explosions for gas companies, equipment suppliers, and plaintiffs, involving: cylinders, valves, piping, stoves, water heaters, furnaces, barbecue grills, etc.
- Investigated numerous carbon monoxide asphyxiations for gas companies, equipment installers, and plaintiffs.
- Presentations on Propane Fire Investigation: International Association of Arson Investigators, PA, NJ, and HI Chapters of IAAI, Ohio Arson School, and NY Office of Fire Prevention and Control.
- Wrote computer programs for evaluation of the performance of centrifugal compressors for the chemical and petrochemical industries.
- Authored 2 books published by Gulf Publishing Co. Authored or co-authored 11 articles published in major petrochemical and fire investigation magazines – some of these articles were published in 2 books and a chemical processing encyclopedia.
- Investigated numerous vehicular crashes involving cars, trucks, motorcycles, bicycles, and pedestrians.
- Investigated numerous products for mechanical design, manufacturing, and warning defects, or alleged defects, including: heaters, stoves, barbecue grills, cooking equipment, compressors, sprayers, circular saws, lawn mowers, presses, conveyors, mills, cranes, chairs, and others.

Victor D. Dozzi, P.E. – Civil Engineer:

- Typical Areas of Consulting: foundation failures; retaining walls; design and installation of structures, including steel, concrete, and reinforced masonry; highway and bridge design and maintenance - signing, corner sight distance, other aspects of safe highway design; site drainage; land development; building water proofing; septic system installation; construction claims.
- Bachelor's Degree in Civil Engineering.
- Registered Professional Engineer – PA, OH, WV, AL, GA, IN, MD, NJ, NY, TN.
- Life Member ASCE, Member SAE, ACI.
- Investigated: structural failures, including foundations, roofing, and ceilings; defects in concrete construction; drinking water well contamination; damaged structures to determine structural soundness; traffic crashes caused by defects in the roadway; water infiltration in basements.
- Managed major projects for remediation of contaminated buildings, soil, and groundwater.
- Provided oversight for construction of interstate bridge and highway projects.
- Conducted investigations of residential construction to certify structural soundness.
- Managed engineering design and analysis of heavy industrial structures.

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- Responsible for land use planning, engineering, field surveying, construction of roads and lakes, and installation of underground utilities for 1600-acre recreational facility.
- Developed new light gauge metal structural systems for floor and walls.
- Conducted structural product certification testing.
- Designed steel floating dock structures and conversion of deck barges into floating crane platforms.
- Conducted full-scale load tests of new and old buildings to determine structural soundness.
- Investigated and analyzed existing structures to predict future service life.

Stephen J. Stock, P.E., P.L.S. – Civil / Mining Engineer:

- Typical Areas of Consulting: excavation; trenching; mold; cranes; ladders; walkways; scaffolds; fall protection; tunneling; conveyors; gas well safety; mine fires; mine stability issues; mining injuries; mining safety and health; construction; product failures; workplace safety.
- 22 years with OSHA and MSHA, U.S. Department of Labor.
- Master's Degree in Mining Engineering, Bachelor's Degree in Civil Engineering
- Registered Professional Engineer – PA, KY, SC, WV, OH, NC; Professional Land Surveyor – PA, WV
- Member ASCE, SME
- Investigated products for manufacturing and warning defects, or alleged defects.
- Mining consultant on underground mine fire.
- Provided technical and on-site assistance to OSHA for shoring, process failures, shafts, tunneling, blasting, demolition, scaffolding, concrete and masonry, excavations, confined space design, bridge failures, crane lift failure, and others.
- Worked to provide instructional materials for OSHA on trenching/excavating and tunneling.
- Taught OSHA 500 Safety and Health training course. Authorized to teach OSHA 10-hour and 30-hour safety and health training to general industry and construction personnel.
- Developed recommendations for safer and more efficient mining operations.
- Participated in the investigation of multiple fatality construction, petrochemical, and mining accidents.
- Gave presentations on OSHA's Tunneling Regulations at the "Underground Technology Research Council Conference", and to OSHA personnel and the various craft trades working on Boston's Big Dig Project.
- Gave presentations on OSHA's Excavation and Trenching Regulations to various organizations throughout the country as well as governmental agencies.
- Principal MSHA reviewer for numerous high hazard freshwater, slurry and refuse impoundments.

Robert S. Bogan – Metallurgist:

- Typical Area of Consulting: metal failure analysis.
- Master's Degree in Metallurgy

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- Bachelor's Degree in Mechanical Engineering and Materials Science.
- Performed numerous materials investigations to determine cause of failure. Investigations involved material analysis via SEM and other standard metallographic techniques. Experience includes cast iron, carbon, alloy, and stainless steels, and aluminum.
- Awarded two U.S. patents related to improvements in the steelmaking process.
- Evaluated material cleanliness to determine suitability for specific applications.
- Performed SEM analysis of inclusions to improve steel's cleanliness and mechanical properties.
- Received highest corporate technical achievement award for practices to improve cleanliness and develop high quality deep draw stainless steel.
- Developed both hardware and software to evaluate steel cleanliness via a non-destructive ultra-sonic technique. Used SEM to verify the results.
- Developed software to minimize breakouts during continuous casting process.
- Taught at the college level.

Hubert C. MacDonald, Jr., Ph.D. – Chemist:

- Typical Areas of Consulting: chemical analysis; hazardous materials; environmental health and safety,
- Doctor of Philosophy Degree in Analytical Chemistry, Master of Science Degree in Inorganic Chemistry.
- Member ASTM, IEEE, ACS, SACP, SSP, and Committee Member of ASTM E30 (Forensic Science) and D27 (Electrical Insulating Liquids and Gases).
- Supervised use and disposal of hazardous materials (both "Toxic Substance Control Act" and "Resource Conservation Recovery Act").
- Experienced in the use of many chemical instrumental methods including gas chromatography, atomic absorption spectroscopy, x-ray fluorescence spectroscopy, x-ray diffraction spectroscopy, inductively coupled plasma spectroscopy, various electrochemical methods. Familiar with many other chemical instrumental methods.
- Completed US EPA Hazardous Materials Incident Response Operations training with 40 hours of training to meet requirements of 29 CFR 1910.120(e)(3)(i).
- Provided compliance for Environmental Health and Safety plans.
- Participated in the clean-up of many PCB contaminated sites for major corporations.
- Presented "Right to Know" plans.
- Developed and directed implementation of site Environmental Health and Safety Plan for a major industrial manufacturer.
- Developed and implemented laboratory quality assurance plan.
- Performed periodic audits to determine compliance with health, safety, and environmental regulations.
- Co-edited and contributed to an eight volume book series on the use of computers in chemical instrumentation.
- Co-authored three papers in scientific journals.
- Taught analytical chemistry, inorganic chemistry, and forensic chemistry at the college level.

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John G. Bistolas, P.E. – Electrical Engineer:

- Typical Areas of Consulting: electrically powered equipment; electrical machine guarding; electrical fire causation; control systems; electrocutions.
- Bachelor's Degree in Electrical Engineering.
- Registered Professional Engineer – PA.
- Investigated electrical equipment, controls, and wiring for cause of down time.
- Designed emergency generator systems for telecommunications systems and prisons.
- Designed power distribution systems for heavy industrial facilities.
- Designed electrical systems for process equipment for heavy industrial facilities.
- Managed on-site construction for expansion for wastewater treatment facilities.
- Managed on-site electrical construction for heavy industrial facilities.
- Coordinated on-site electrical design changes to ensure compliance to electrical standards.
- Prepared electrical construction specifications for equipment purchase and installation.
- Experience as submarine electrician in U.S. Navy.
- Experience as steel mill electrician.

Peter L. Procopio, RA – Architect:

- Typical Areas of Consulting: architectural design issues; Code and ADA compliance; construction materials and assembly analysis; premises liability, including stairways and ramps; slip and falls
- Bachelor's Degree in Architecture.
- Registered Professional Architect – PA.
- Provided professional design services of programming, planning, schematic and design development, code review, construction documents, bid evaluation, construction administration, and construction management.
- Designed projects include new construction, adaptive reuse, renovations and historical renovations.
- Designed and developed facilities serving a wide array of use groups – commercial, education, municipal, retail, hotel, industrial, religious, and residential.
- Developed projects in compliance with model codes and provisions, including BOCA, CABO, Life Safety, PA Labor & Industry, IBC, ADA guidelines, and various city, municipality, and township zoning ordinances.
- Provided client representation before zoning and planning commissions and councils.
- Provided Project Management services to coordinate professional consultants, including: heating/plumbing/electrical engineering, geotechnical, landscape, and signage. Managed in-house project technical and support personnel.
- Prepared and coordinated technical specifications utilizing Master Spec 16 division format to define project scope in methods and materials.
- Provided construction administration services during project construction phases.
- Evaluated existing facilities for ADA accessibility and barrier-free design.
- Provided master planning services for long term goals.

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Richard E. Horn, P.E. – Chemical Engineer:

- Typical Areas of Consulting: Process equipment failures; rotating equipment, associated piping, valves and equipment; electrochemical processing equipment, plating, anodizing, failures due to corrosion; pressure vessel failures; boiler water, waste water losses; chemical spills, associated pollution, and environmental concerns.
- Bachelor's Degree in Chemical Engineering with advanced degree credits in Electrochemistry and Thermodynamics.
- Registered Professional Engineer – PA.
- Started and managed an inorganic chemical manufacturing company until it was sold. The company produced compounds of tin, zinc, copper, and other organic, inorganic and organometallic compounds.
- Provided engineering design for company processes and for equipment manufactured by the company.
- Analyzed process and equipment failures due to corrosion and other causes. Directed repairs or engineered replacement components.
- The company serviced the Automotive, Chemical, Metal Finishing, Circuit Board, and Anodizing Industries.
- Provided technical service where equipment failure or other cause resulted in process or other equipment failures.
- Investigated process failures, and assisted in waste regeneration, remediation, and recovery.
- Assisted in the determination of the cause of an industrial fire suffered by the company, and in reestablishing production.
- Familiar with ISO 9000 accreditation.
- Authored six (6) U.S. patents in electrochemical and membrane processes.
- Authored and presented several papers at AIChE and MFSA meetings.
- Taught chemistry, physics, and calculus.

Don Matzkie, Ph.D., P.E. – Transportation / Civil Engineer:

- Typical Areas of Consulting: highway and transportation engineering; highway and bridge design and maintenance; transportation operations and control; work zone safety; compliance; program and policy issues; design and installation of structures.
- Doctor of Philosophy Degree in Civil Engineering with concentration in Transportation Engineering, Master of Science Degree in Civil Engineering with concentration in Structural Analysis, Solid Mechanics and Materials.
- Registered Professional Engineer – PA, Registered Professional Land Surveyor – PA.
- Member Transportation Research Board.
- Provided expert witness testimony before the Special Court in the Rail Value Case, before the Surface Transportation Board in railroad merger cases, and in administrative law proceedings.
- Responsible for analysis and conceptual design for transit centers in Williamsport and York, PA.
- Responsible for design of toll facilities on the Mon-Fayette Transportation Project for the PA Turnpike Commission.

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- Conducted traffic and impact analysis for highway corridor studies in PA, WV and NC, including planning for alternatives to the Allegheny Tunnel for the PA Turnpike Commission.
- Conducted rural highway needs study in twenty counties for the Ohio DOT.
- Conducted focused study of the railroad system in the nine-county Southwestern PA Region for the SPC and PennDOT.
- Conducted statewide railroad studies for the states of KY, LA, MI and PA, and regional railroad studies in Southern MN and Northwestern PA.
- Studied prospects for rerouting of trains carrying hazardous materials to minimize population exposure for USDOT.
- Provided structural design for a variety of highway projects in the Pittsburgh, PA area.
- Taught and supervised student research in transportation planning and engineering at Rensselaer Polytechnic Institute.

James J. Secosky, AIA – Architect:

- Typical Areas of Consulting: architectural design; construction means and methods; construction materials and assembly analysis; construction safety; premises liability, including stairways and ramps; slip and fall; Code and ADA compliance.
- Bachelors Degree in Architecture.
- Registered Professional Architect – PA.
- Provided professional design services of programming, schematic design, design development, building code review at the state and local levels, construction documentation, bidding, construction administration, construction management, LEED design and certification, project commissioning, project turnover and maintenance scheduling.
- Designed and managed construction of various types of new buildings, adaptive re-use projects, building renovations, interior design, historical preservation and landscape design.
- Designed, developed, and managed construction of facilities for a wide array of use groups: industrial, commercial, educational, health care, research, municipal, retail, hotel, food service, and residential.
- Developed, designed and managed construction of projects in conformance to model codes and provisions, including: BOCA, CABO, IBC, Life Safety, NFPA, OSHA, PA Labor & Industry, ADA guidelines, LEED, and various county, city, municipality, and township zoning ordinances.
- Provided client representation before zoning and planning commissions, health departments, water and sewage authorities and financial institutions.
- Provided Project Management services to coordinate professional consultants, including: surveying, geotechnical, hazardous materials removal, HVAC, electrical, plumbing, acoustical, environmental, and structural engineering.
- Provided master planning services for corporate, academic and research facilities.
- Managed major construction management firms from initial project estimating, through engineering, construction and scheduling, to commissioning and project turnover.
- Evaluated existing facilities and sites for ADA accessibility and barrier free design.
- Set up maintenance and housekeeping contracts for major building projects.
- Lectured on design, project management and construction at the University level.

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Roelof H. deVries, P.E. – Mechanical and Agricultural Engineer:

- Typical Areas of Consulting: agricultural machinery, turf care equipment, construction equipment, specialty off-road equipment, dump trucks, OTR trailers, hydraulics, mechanical equipment failure analysis, off-road vehicle stability, safety.
- Master's Degree in Agricultural Engineering, Bachelor's Degree in Mechanical Engineering.
- Registered Professional Engineer – PA.
- Member SAE, ASME.
- Provides instruction, lab supervision, and course development in Machine Design, Strengths of Materials, Engineering Design, Engineering Drafting, Computer Aided Engineering at University of Pittsburgh at Johnstown.
- Supervised and participated in design and project management for new product development, product improvement, stress analysis, specification development, warranty, and failure analysis for dump truck bodies, dump trailers, transfer trailers for solid municipal waste, pushout trailers, walking-floor trailers, and specialty equipment including frac sanders, custom trailers and fire trucks.
- Responsible for all aspects of starting production of forgings for automotive driveline parts, design and supply of forging tooling, and logistical support.
- Supervised and participated in design and project management for new product development, product improvement, warranty and failure analysis, prototyping and testing, manufacturing engineering, and technical publications for line of turf care equipment and sod farm equipment, including turf tractors, mowers, snow removal equipment, ground-working attachments, turf maintenance equipment, sod harvesters, wider-area rotary mowers, transportable forklifts, high-capacity vacuums, sod laying equipment, and golf course maintenance equipment.
- Provided design and project management for industrial tractors and tractor-loaders.
- Designed process equipment for frozen dinners and cookies.
- Designed tooling for agricultural equipment.
- Designed and Developed mine refuge alternatives for compliance with new MSHA regulations.
- Authored 7 patents for Sod Harvesters, Mowing Deck, and Cookie Sandwicher.