

# Thomas R. Shellenbarger, P.E. Consulting Engineer

## Curriculum Vitae

### Education

**Master of Business Administration (MBA)** • Saint Bonaventure University – Allegany, NY - 1996  
**Bachelor of Science in Mechanical Engineering (BSME)** • R.I.T. – Rochester, NY – 1981

### Professional

Registered P.E. (Professional Engineer)

State of New York, License 083050

State of Pennsylvania License PE079753

### Experience

#### PROFESSIONAL EXPERIENCE

##### **Thomas R. Shellenbarger, PE, Erie, PA 2016-Present**

- Structural and Mechanical Design, Engineering, 3D Modelling, linear and non-linear FEA Analysis. Forensic investigation services for product evaluation, failure, warranty, expert witness as required. Structural consulting and inspections.
- Elastomeric materials sealing specialist. Elastomer properties, chemical resistance, fatigue, durability. Compounding materials for specific severe service applications. Elastomeric bonding in mold.
- Composite materials, design, analysis, manufacture.
- Design and manufacturing methods for all metallic products including welded structures. Composite materials including, carbon fiber, aramid fiber, fiberglass, elastomers, plastics, rubber to metal bonding, Methods including, RTM, VRTM, Autoclave processing, Injection, Transfer, Compression, Vacuum.
- Design with all metallic products, plastics and processing, composites design.
- Valves, Control Valves, Piping, Pipe Couplings, Pipe Joining, Valve Testing, Valve Codes and Standards. Severe service, noise and cavitation control. Patent litigation expert witness.
- Piping and Tank Industry Standards including API, ASME, ANSI, MSS, NACE, ISO.
- AISC Structural codes and building standards.
- 3D rapid prototyping techniques including rapid tooling methodologies.
- 6 sigma, 5s, and quality assurance methodologies.
- Patent Litigation, Product Liability, Safety Labels, Failure Investigation, Expert Witness
- Licensed in New York (#083050) and Pennsylvania (#PE079753).

Providing engineering consulting services to clients worldwide.

## **LORD Corporation – Erie, PA 2014-2016**

### **Staff Engineer-Oil & Gas**

*Responsible for developing new products for customers in the offshore oil and gas markets. Direct interface with customers for innovating product improvements. Team leader for new product development projects.*

Major responsibility for developing new product designs and concepts with customer input in a team environment. Lord is a leader in rubber to metal bonded components. Responsible for commercializing of new products. Direct meetings with global customers, to sell products for new applications, assist customers in improving their products using new elastomer, new processes, bonding geometry, and installation methods. Perform necessary non-linear finite element analysis (FEA) using Autodesk Inventor 3D Models and ANSYS Workbench to provide these customers with decision making information for new product configuration or product redesign. Elastomeric bonding systems to metallic and non-metallic materials, including heat transfer curves, material processing parameters, transfer molding, compression molding, injection molding. Designing with rubber for fatigue life prediction, materials compatibility including oil immersion, shock/load control.

#### *Key Achievements:*

- Designed, tested, and aided commercialization of 2 new products with profitable sales volume of approximately \$10 million at launch.
- Proficiency with Autodesk Inventor & ANSYS Workbench for FEA and other analysis for elastomeric, bonded, composite, and metallic materials in plastic region.

## **Eriez Flotation Division – Erie, PA 2011-2014**

### **Sr. Mechanical Engineer**

*Responsible for new and existing product engineering and engineering management for new division in Erie. Company is a leader in Flotation equipment for minerals separation.*

Developing new product designs and concepts with process engineering input. Developing a team of designer and engineers for design detailing for rapidly growing division. Selecting global fabricators for multimillion dollar contracts, cost estimating, feasibility studies, and project management were major responsibilities. ASME VIII, API-620 & 650, ASME B16.31 and other piping standards used. Motor and variable frequency drive(VFD) application including mounting, shafting and keying, shaft drive systems, “V” belting, gears and transmissions, and control logic. Selection of valves and instrumentation for mining control, control systems design.

#### *Key Achievements:*

- Project Manager for large coal flotation plant builds in Johannesburg, South Africa. Developed new fabricator local to jobsite with project savings over \$.25 million. Managed local representative for jobsite erection and QA, and engineering aspects at our office in Vancouver, BC.
- Used 3<sup>rd</sup> party software for API tank specifications, stress analysis. Managed internal project to develop automated drawings for specifications using skeletal modeling in Inventor. Issued packages of sales approval drawings configurator for 3 product lines.

**Composiflex, Inc. - Erie, PA 2009-2011**

**Manager of Engineering**

*Responsible for engineering management.* Managing all aspects of engineering in a high end-high growth composites manufacturing business with sales in the medical, aerospace, ballistics, and industrial markets. Maintain company engineering requirements for ISO-9001 and AS9100 requirements. Work extensively with sales and marketing on new growth opportunities. Write and maintain procedures and specifications for design and manufacturing processes including vacuum bag molding, autoclave molding, LRTM, RTM, filament winding, and other related processes. Focus on high end, high performance, metal to composites conversion.

*Key Achievements:*

- Worked with several key customers for new products including MRI & CT scanning patient positioning boards and other composite products using Kevlar and Carbon Fiber products for the health care industry. Also managed several projects for aerospace and military customers using carbon fiber, fiberglass, and other composite materials.
- Developed new manufacturing processes for compression molding of composite spring panels, and autoclave material processing.

**Innovative Pressure Technologies - Erie, PA**

2005-2009

**Director of Engineering**

*Responsible for new product development, application engineering, and product design department.* Implemented Procedures for Engineering compliance with ISO-9001 for design. Developed several new product lines for the offshore oil production and exploration marketplace in accordance with API and ASME codes. Designed production test systems for new products in development. Implemented SolidWorks 3D computer aided design and drafting system to shorten time to market, prove design concepts, and reduce cost. Traveled to Europe, India and Asia to develop partnerships with key customers and suppliers on imported private label products and component parts.

**Allegheny Bradford Corporation - Bradford, PA**

2004-2005

**Regional Sales Manager**

*Managed all Western US accounts for company manufacturing ASME pressure vessels and TEMA heat Exchangers for the sanitary process industries.* Reviewed existing heat exchanger designs and made suggestions for improvement. Managed territory sales exceeding \$6.5 million. Established representation plan and key account objectives.

**Advanced Automation Solutions, Inc. - Lake City, PA**

2002-2004

**Owner/Operator**

*Startup Corporation to serve the growth -market for high-end automation and control products. Company was founded due to acquisition and subsequent closure of Copes-Vulcan, Inc Lake City facility by SPX Valves and Controls.*

Developed business relationships with key manufacturers, sales to target accounts, overall business management, strategic and growth plans. Authorized dealer for Fleetboss Global Positioning Solutions

Inc., Manufacturers Representative for Lifetrak GPS, SPE Software, and Genesys Controls. Consulting engineer for valves, pressure vessels, control systems, piping systems, mechanical design, stress analysis, cavitation control, and fluid dynamic analysis. Experienced in ASME Codes Section I, III, IV, VIII, IX and ASME B31 Codes.

**Copes-Vulcan, Inc.** - Lake City, PA

1997-2002

**Vice President Engineering & General Manager**

*Served as Vice President and General Manager of \$42 million control valve and desuperheater manufacturer with 80+ global sales representatives and gross profitability of 27%. Reported Directly to President and CEO.*

Responsibility for driving bottom line factors, including company vision, long-range strategic planning, global engineering management, and product development processes. Directed operations for engineering, manufacturing, marketing, and service of severe duty control valve, desuperheater, and turbine bypass product lines. Redefined organizational structure, oversaw major product initiatives, performed monthly financial evaluation of company product line results. Provided cross-functional management; to VP Marketing, and Directors of Engineering, Quality Assurance, and Information Technology Systems; and general oversight of 55 employees.

**Dresser Industries Inc., DMD Division,** - Bradford, PA

1991-1997

**Manager Product Design / Product Manager**

*Served as Manager Product Design and Product Manager for \$40 million metallic and plastic - pipeline joining, repair, and valve manufacturer. Reported to Division General Manager*

While Manager Product Design, directed design and application engineering groups. Implemented ISO 9001 new product development process including phases for Quality Function Deployment (QFD), R&D, Design for Manufacture and Assembly (DFA/DFM), pilot and full manufacture, and review process for ensuring success. Managed product liability initiatives and performed duties as investigator, expert witness, and engineer. Participated on industry standards committees ensuring future product compliance and competitive stature. Provided cross-functional management to Chief Design and Chief Application Engineer, and general oversight of 15 employees.

While Product Manager, coordinated customer site visits, product communications, and focus groups. Utilized ROI pricing models and a highly profitable pricing strategy for over 20 product lines. Conducted product and training seminars for distributors and customers.

**Dresser Industries, Inc., Industrial Valve & Controls Division,** - Alexandria, LA

1981-1991

**Account Specialist / Product Design and Field Service Engineer**

While Account Specialist, managed all accounts in Ohio Valley territory. Surpassed sales goals by developing and managing distributors, direct selling key OEM accounts, and developing strong high level contacts with other major utility and petrochemical processing end users. While Product Design and Field Service Engineer, improved upon existing designs by traveling to customer sites for equipment startup, troubleshooting, warranty claims, installation and maintenance. Developed product line extensions and improvements of ASME code safety and pressure relief valve lines.

**Patents**

Inventor on US Patents 5,944,991 - Pipeline Strainer and 5,947,443 – Plug Valve; both assigned to Dresser Industries, Inc.

### **Recent Consultant History**

- GT Services LLC. - Elastomer to Metal Bonding processes and manufacturing Improvements
- Honeywell Inc. - Validate steam valve testing program for new product line of HVAC steam control valves.
- Dresser Inc. - Opinion and report on Code compliance of Natural gas distribution valves for meeting DOT Title 49 Requirements for anticipated heat and control of natural gas flow after.

### **Recent Expert Witness History**

- Defendant support in patent litigation suit involving infringement of a rotary control valve patent; In progress 2019
- Expert Report submitted to Buzgon Davis Law Offices, Lebanon, PA, after evaluation of a youth activity tracker, and personal injury caused to 9 year old female. Causation from lithium polymer battery malfunction, 2018.
- Expert Witness / test program supporting litigation for Cohen, Seglias, Pallas, Greenhall & Furman PC, Philadelphia, PA, in the case of Lobar v. County. of Lycoming, 16-1320 at Lycoming County Landfill, Montgomery, PA, Leachate tank liner construction, 2018.
- Expert Affidavit submitted in the Supreme Court of New York State in Orange County for Morrison & Wagner LLC, New York, NY, in the case of Candela v. Algonquin Gas Transmission et al, 2018. Evaluation of laws regarding workplace safety and violations committed on a gas transmission compressor station upgrade. Personal Injury. Case Index No.: EF003995/16.
- Expert Report for Marks, O'Neill, O'Brien, Doherty & Kelly, P.C., Pittsburgh, PA in the case of Wissinger v. Maple Mountain Industries, 2018. Evaluation of product and product warnings. Case settled out of court after report filed. G.D. 13-018087.
- Depositions given for Dresser Industries on wrongful death case involving 4 men in Macomb Township Michigan in 1996. OSHA accident number 201400041. Case settled out of court prior to my trial testimony. City of Detroit and Contractor fined.

## **THOMAS R. SHELLNBARGER, P.E.**

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