

CURRICULUM VITAE

MIKE SIMARD, PE, PMP, CEP

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PROFESSIONAL SUMMARY

Pragmatic, hands-on engineering leader with over 30 years' experience in power generation, biomass conversion and building material industries. Expertise in process design, equipment design, process scale-up, manufacturing, project management and cost estimating. Specific technical skill in slurry pumping, supercritical fluids, mixing systems, liquid/solid separation, compressed-air systems and material handling.

Education consists of a bachelor and master degrees in mechanical engineering as well as an MBA. Licensed *Professional Engineer* (PE), certified *Project Manager Professional* (PMP) and *Certified Estimating Professional* (CEP). Instructor, entrepreneur, published author, conference speaker and inventor with multiple patents.

Provides consulting and expert services in the following areas:

- ◆ Equipment Design
- ◆ Process Scale-up
- ◆ Manufacturing
- ◆ Technical Due Diligence
- ◆ Feasibility Studies
- ◆ Project Management
- ◆ Cost Analysis & Estimating
- ◆ Operations Management
- ◆ Design/Build Construction
- ◆ Engineering Documentation

POSITION SUMMARY

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| • Principal | PACED Engineering, Inc. | 2018 – present |
| • Associate Professor of the Practice | Villanova University | 2018 – present |
| • Adjunct Professor | Widener University | 2017 – 2018 |
| • Vice-President of Engineering | Renmatix, Inc. | 2009 – 2018 |
| • Founder/President | Distinctive Stoneworks, Inc. | 2006 – 2008 |
| • Plant Manager | CETCO, Inc. | 2003 – 2005 |
| • Plant Manager / Project Manager | Soprema, Inc. | 1998 – 2002 |
| • Contract Manager / Project Engineer | GE Energy – Hydro division | 1991 – 1997 |

EDUCATION

- **Master of Business Administration** (Executive MBA) 1996 – 1998
Simon Fraser University. Vancouver, BC, Canada.
- **Master of Science in Mechanical Engineering** 1991 – 1994
Polytechnique - University of Montreal. Montreal, QC, Canada.
- **Bachelor of Science in Mechanical Engineering (Co-op)** 1986 – 1990
University of Sherbrooke. Sherbrooke, QC, Canada.
- **Associate Degree – Aircraft Maintenance** 1983 – 1986
National Aeronautics School. St-Hubert, QC, Canada.

CERTIFICATIONS

- Licensed **Professional Engineer** (Pennsylvania)
- Certified **Project Management Professional** (PMP) from PMI
- **Certified Estimating Professional** (CEP) from AACE International
- **GE Edison Engineering Program** graduate
- Fluent in French (written & spoken)

PUBLICATIONS

- Biomass Processor Banishes Bottleneck. Chemical Processing, April 2016.
- Scaleup Options and Risk. Chemical Engineering, April 2014.

CONFERENCE PRESENTATIONS

- Cost Estimating of Chemical Plant Construction. International Solvothermal and Hydrothermal Association Conference. Valladolid, Spain. 11 September 2023.
- PMMA hydrolysis in subcritical water: temperature, time and pH effects. 13th International Symposium on Supercritical Fluids. Montreal, Canada. 16 May 2022.
- Project Management Implementation in a Capstone Design Course. American Society for Engineering Education. 10 April 2021.
- Scaling Disruptive Technology. Annual Green Chemistry & Engineering Conference. Washington, D.C. 18 June 2013.
- Engineering the Bio-Based Industrial Revolution. ASME Chapter Meeting. Philadelphia, PA. 8 November 2012.
- Rheology and Pumping of Woody Biomass Slurries. AIChE Annual Meeting – Particle Technology Forum. Minneapolis, MN. 19 October 2011.

PATENTS

- Lignin Fired Supercritical Water Generator, System and Method. US 9,518,729B2 - 2016.
- Energy Recovery when Processing Materials with Reactive Fluids. US 9,328,963B2 - 2016.
- Method of Transporting Viscous Slurries. US 9,102,885B2 - 2015.
- Lignin Production from Lignocellulosic Biomass. US 8,663,800B2 - 2014.
- Self-Cleaning Apparatus & Method for Thick Slurry Pressure Control. US 8,409,357B2 - 2013.
- Lignin Production from Lignocellulosic Biomass, US 8,404,051B2 - 2013.
- Lignin Production from Lignocellulosic Biomass, US 8,317,928B1 - 2012.

EXPERT WITNESS EXPERIENCE

- Estate of Steven Herring v. GE, et al. Case 19-CI-07753 (Jefferson County, KY). 2022-2023.
- Prab, Inc. v. Dynamix Casting Fluxes LLC. Case 2020-0463-CB (County of Kalamazoo, MI). 2021-2022.
- City of Richland v. Earth To Go & P&L Coatings. Case 18CM-CC00072 (Camden County, MO). 2021.
- Gudel, Inc v. RSB Transmissions NA, Inc. Case 20-1518-CB (Calhoun County, MI). 2021.

PROFESSIONAL MEMBERSHIPS

- American Society of Mechanical Engineers (ASME)
- Association for the Advancement of Cost Engineering (AACE International)

DETAILED ACADEMIC EXPERIENCE

VILLANOVA UNIVERSITY (Villanova, PA) 2018 - present
Villanova University is an Augustinian private research university founded in 1842.

Associate Professor of the Practice

Teaching

- Implemented new structure to *Senior Capstone Design* course:
 - Prepare all lectures on engineering design and project management topics.
 - Mentor multiple student teams in the execution of a variety of senior design projects.
 - Solicit industry sponsors to obtain relevant student projects and financing.
- Proposed, prepared and delivered new course *Engineering Economics* covering manufacturing costs, capital cost estimating and cash flow analysis.

Research Grants

- Contributor on Super-Foaming of polymers by combination of sub and supercritical carbon dioxide and water. Dr. Danilo Cantero (PI) of Universidad de Valladolid. Grant from Spanish Ministry of Science and Innovation: 227,480€. 2021-2024
- Co-PI on Sports and Performance Engineering Seed Grant: Athletic Force Plate with Dr. Mark Jupina. Grant from Villanova College of Engineering: \$10,000. 2022-2023.
- PI on Nanocellular polymer materials properties and manufacturing methods. Grant from Villanova Freshman Match Research Program: \$1000. 2023
- PI on SBIR/STTR and University Science & Technology Partnerships. Department of Defense – Air Force special topic partnership with Lockheed Martin Space: \$20,000. 2020-2021.
- PI on Thermal analysis of thick-walled bee hive. Grant from Villanova Freshman Match Research Program: \$1000. 2020

WIDENER UNIVERSITY (Chester, PA) 2017 - 2018
Widener University is a private university established in 1862.

Adjunct Professor

- Lecturer for entire senior engineering class on various topics related to *Senior Design* course.
- Prepared all course materials and instructed *Engineering Economics* course.
- Prepared and monitored lab activities of *Engineering Techniques* course for freshman.

DETAILED PROFESSIONAL EXPERIENCE

PACED ENGINEERING, INC. (Berwyn, PA) 2018 - present
PACED Engineering is a consulting firm that offers project auditing, cost engineering, design, documentation and expert witness services.

Principal

- Provide expert witness analysis and testimony in the areas of process & equipment design, manufacturing, cost analysis and general mechanical engineering.
- Provide consulting services to clients in the preparation and analysis of engineering projects.
- Provide confidential expertise in the analysis of various engineering problems.

RENMATIX, INC. (Kennesaw, GA & King of Prussia, PA) 2009 - 2018
Venture backed start-up with unique technology to break down biomass into a variety of cellulosic products for food, cosmetic and biochemicals markets.

Vice-President of Engineering

- Managed new technology Front End Loading engineering activities with EPC firm.
- Led site selection for commercial plant, including both technical due diligence and negotiation of government incentives.
- Led \$10M design upgrade and automation of biorefinery demo plant to meet strategic partner's validation testing.
- Member of company's management team and contributed to strategic business decisions.

Engineering Director

- Negotiated OEM partnerships to jointly develop and test equipment for unique service conditions in areas of slurry pumping, high pressure control and supercritical water heating, resulting in scale-up solutions and proprietary equipment.
- Designed engineered solutions to unique technical problems, resulting in multiple patents.
- Led fast track design/build of \$3M innovative office/labs build-out to support company growth, completed on time and budget.
- Managed facility maintenance, including building systems, utilities, labs and pilot equipment.
- Developed engineering standards, CapEx estimates models and other eng'g procedures.
- Prepared and engaged in technical due diligence with investors and strategic partners.
- Led EHS committee with focus on process safety, prepared procedures and trained personnel.

Projects Director

- Led the design of process equipment, procurement, construction and commissioning of the company's first biorefinery demonstration plant while meeting tight schedule and budget.
- Applications development of mechanical equipment for extreme service in areas of high-pressure slurry pumping, filtration and pressure control.

DISTINCTIVE STONEWORKS, INC. (Powder Springs, GA) 2006 – 2008
Manufactures custom stone products for the high-end landscaping and building markets.

Founder / President

- Negotiated manufacturing license agreement (1st in U.S.) with Australian company.

- Set-up production plant and prepared all marketing materials for successful launch of new product.
- Led sales effort of new product and grew business from zero to positive cash flow in 6 months.

CETCO (division of Amcol International) (Cartersville, GA) 2003 – 2005

Develops and supplies products to the soil sealing and waterproofing markets.

Transition Project Manager

- Managed consolidation plan of four manufacturing plants into a newly acquired facility (55 acres).
- Led demolition of previous tenant's equipment through tear down, auction & disposal, resulting in surpassed revenue targets by 10%.
- Quickly set-up distribution center and doubled warehouse capacity with innovative storage systems.

Plant Manager

- Led turnaround of new acquisition's manufacturing operations: doubled plant output in first 3 months by providing organization and accountability.
- Re-engineered production process and specified new adhesive coating and custom reeling equipment, resulting in 45% increase in throughput and 35% decrease in labor.
- Collaborated with R&D in re-design of products to improve performance and quality.

SOPREMA INC. (Chilliwack, BC) 1998 – 2002

French multinational that develops and manufactures polymer membranes for the construction industry.

Plant Manager

- Directed growth from start-up to full two-shift operation producing \$20M annually.
- Initiated and drove continuous improvement projects throughout the organization, achieving 35% productivity improvement in two years through focus groups and Lean techniques.
- Developed sourcing plan for major raw materials and negotiated annual competitive agreements (\$5M) with captive supplier base.
- Developed and implemented all management systems: personnel policies, health & safety program, ISO 9001 quality, ISO 14001 environmental, preventive maintenance and training program.

Project Manager

- Negotiated land purchase and managed design/build construction of 70,000 ft² manufacturing facility (\$15M) that was completed on time and 11% below budget.
- Supervised installation of all plant equipment and led plant through smooth and timely production start-up, on schedule and below budget.
- Prepared technical specifications and sourced bitumen pumps, thermal oil heater, bitumen tanks, dry material silos, chilled-water system and compressed air system.

GE ENERGY - HYDRO DIVISION (Montreal QC & Vancouver BC) 1991 – 1997
Designs & manufactures hydroelectric turbines and generators for the global power generation industry.

Contract Manager

- Managed \$25M contracts with major electrical utility: negotiated contractual issues, ensured obligations were met and facilitated customer problem resolution.
- Led internal cross-functional team in execution of contracts (design, manufacturing & installation) and developed detailed action plans for problem areas.

Supplier Development Manager

- Developed new supplier base in new geographical area: negotiated 20% savings on \$500K of orders.
- Negotiated and placed purchase orders of up to \$1M in foreign countries (Eastern Europe, Asia) with significant savings.

Project Team Engineer

- Led concurrent turbine refurbishment projects requiring constant coordination directly with major customer.
- Managed manufacturing of generator components at subcontractor in China.
- Reduced costs and eliminated quality problems in areas such as fabricating, machining and babbitting.
- Contributed to writing of Quality Assurance manual and procedures for ISO 9001-94 certification and led internal and external quality audits.
- Developed first manufacturing process "Know how book" and became manufacturing expert of Francis type turbine runners.
- Led ISO 9001 quality audits and Six-Sigma projects; obtained green belt certification.