

01/16/09



Mark Dristy, PE

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SUMMARY:

Experienced, versatile electro-mechanical engineer (BSME, MS, PE), technician, project engineer, product developer, designer, program manager, consultant and mentor with a great deal of creative energy - Seeks position with an exceptional team of individuals in the development of an exceptional product or execution of an exceptional mission. I can provide strategic and tactical guidance as well as hands-on effort in all aspects of product development including program management, business development, engineering, design, test, prototyping, marketing, manufacturing and more.

EXPERIENCE:

5/2001 - Present:

Marc Edward LLC, Oswego, NY

Engineering & Design Consulting

I own and run all aspects of this (one-man) company from engineering and project management and design process consulting to business development, marketing and bookkeeping. Help clients with **electro-mechanical product design and development**. Help clients create efficient product development standards, procedures and departments. Perform any or all of product concepting, analysis, modeling, detailing and fabrication. I also provide **wind-energy** and **solar-electric** site assessment services. Projects include:

- Currently developing and building a high-power density, static water feed, 0-gravity PEM **fuel cell** for potential use on NASA's Orion Orbiter and the planned Lunar Outpost
- Currently developing and building a PEM fuel cell which incorporates **heat-pipe** cooling technology.
- Currently developing a passive reactants-**humidification** and product-water **degasification** system for PEM fuel cells.
- Currently developing (conceptually) a modularized hydrogen-bromine **flow battery energy storage system** with a power output of 50 – 1,000 kW and an energy storage capacity of 500 - 2,000+ kw-hr. Attempting to procure **VC funding** to further develop this product.
- Developed, built and tested a 4,000 psi PEM hydrogen generator and electro-chemical hydrogen compressor. Currently working on a 6,000 psi version of this device.
- Developed, built and tested a single cell, **hydrogen-chlorine regenerative fuel cell**.
- Designed an **alkaline (KOH) fuel cell** stack which incorporated integrated metal-hydride based H₂ storage capability.

- Designed and built (from quarter sawn oak) a suite of high-end **church furniture** including minister's chairs, podium, lectern, tables, and more.
- Designed a high-pressure (2,000 psi) PEM based regenerative fuel cell for use on **satellites**.
- Designed a high-pressure (2,500 psi) PEM hydrogen generator for use in a **Stirling engine** gas replenishment system.
- Designed, developed, and built a PolySpool irrigation tube dispensing system. Allowed one person to lay irrigation tube ("poly") instead of two people.
- Developed and built prototype miniature electro-mechanical RETAANE® **drug delivery device** to combat wet macular degeneration.
- Developed wind-energy site assessment algorithms to allow an annualized site assessment with only two to three weeks of wind speed data collection.

11/1997 - 4/2001:

Proton Energy Systems, Inc., Wallingford, CT

Principal Engineer

I was among the first employees of this alternative energy start-up company and was engaged in all aspect of product development, project engineering, design engineering, test, manufacturing, and business systems development. Helped grow the company from six to 50+ employees before resigning my position (I was not laid off) to start Marc Edward LLC.

- Designed, built and tested the **electrolysis** cell stack for the Chrysalis® **hydrogen generator**.
- Co-designed the electrolysis cell stacks in the HOGEN 380®, HOGEN 40® hydrogen generators
- Designed and built a discrete regenerative electrolysis/fuel-cell based energy storage training instrument.
- Developed **ISO 9001 compliant design process quality standards** for the company.
- Designed and built assembly and test tooling for the aforementioned products.
- Trained and mentored new engineering staff members.
- Performed Pro/Engineer & Pro/Intralink **CAD Administrator** functions.

12/1996 - 11/1997:

M.E. Dristy & Associates, North Granby, CT

Principal

- Self employed mechanical design engineer and consultant. Designed a number of mechanical products and components for companies such as Proton Energy Systems, Sunex, Micar Innovations, Anderson Design, Sherwood Paper Products and ADC Broadband. Left to join one of my clients (Proton Energy Systems, Inc.) to become their Principal Engineer

2/1985 - 5/1997:

Hamilton Sundstrand, Windsor Locks, CT

(Division of United Technologies Corporation)

Space Systems International & Aircraft Systems Groups

Principal Designer & CAD Administrator

- Led the transition a 75 person electro-mechanical design department from a 2D (CADAM) to a 3D **parametric computer aided design and data management** system (Pro/Engineer and Pro/PDM).
- Developed design-process compliant systems and procedures to support the use of above systems and reduce design cycle time and cost.
- Trained personnel on the proper use of the new CAD and PDM systems.
- Hamilton Sundstrand representative of the UTC **Rapid Prototyping Consortium**.

Senior Design Engineer

- Designed and prototyped various mechanical devices for **spacecraft** (Shuttle orbiter, International Space Station) and aircraft. These included coolant system components, **high-pressure PEM oxygen generators**, wastewater treatment system components, **graphite-composite** acoustical enclosures, and **satellite hydrazine thrusters**.

Management Development Intern

- A combination of assignments in **International Business Development**, Advanced Engineering, Test Engineering, and Mechanical Design. This program was designed to broaden my exposure to the company in preparation for higher-level management positions.

Project Engineer

- Worked on a team to develop a classified, lightweight, **advanced composite**, high-pressure, on-board aircraft defense system. Project required the application of structural engineering, composite materials design and processing, and program management know-how. Developed processes for manufacturing advanced composite **turbine engine components** (Inlet Guide Vanes and External Exhaust Augmenters) for the Pratt & Whitney PW1129 and PW5000 turbine engines. Developed and implemented cost reduction methods for commuter **aircraft propeller blades** (Dash-8).

EDUCATION:

2/1997 Western New England College, West Springfield, MA GPA: 3.60

Masters of Science in Engineering Management with dual emphasis on leadership skills and applied engineering

2/1985 University of Buffalo, Buffalo, NY

GPA: 3.33

Bachelor's Degree in Mechanical Engineering

AFFILIATIONS:

Since 1984 - Tau Beta Pi Engineering Honor Society

Since 1984 – Pi Tau Sigma Engineering Honor Society

SKILLS:

Pro/ENGINEER - Expert - Used 13 years

Pro/MECHANICA – Intermediate - Used 3 years

Pro/INTRALINK - Intermediate - Used 8 years

Classical Structural Analysis – Expert - 12 years

GD&T Drafting (ANSI Y14.5M) – Intermediate - Used 11 years
Design Process per ANSI/ASQC Q9001 - Intermediate - 9 years
MS Word – Intermediate - Used 12 years
MS Excel - Intermediate - Used 12 years
MS PowerPoint – Intermediate - Used 10 years
MS Visio – Beginner – Used <1 year.

MANUFACTURING PROCESSES:

Precision Machining, Sheet Metal, Injection Molding, Dip Molding, Compression Molding, SLA, SLS, Casting, Advanced Composites, Welding, Model Making, Laser Cutting, Water Jet Cutting, Woodworking, Diffusion Bonding.

REFERENCES:

References will be provided upon request.

ADDITIONAL INFORMATION:

Patents Awarded:

7,270,908 - Proton exchange membrane electrochemical cell system.
7,014,947 – Integrated membrane support and frame structure.
6,926,988 – Apparatus & method for maintaining compression of the active area.....
6,916,445 – High differential pressure electrochemical cell.
6,855,450 – Proton exchange membrane electrochemical cell system.
6,811,915 – Cell frame/flow field integration method and apparatus.
6,682,843 – Integral screen/frame assembly for an electrochemical cell.
6,666,961 – High differential pressure electrochemical cell.
6,653,011 – Electrochemical cell frame having integral protector portion.
6,585,869 – Means of maintaining compression of the active area in an electrochemical...
6,524,454 – Integrated membrane and electrode support screen and protector ring for an..
6,368,740 - Electrochemical cell frame having integral protector portion.
6,365,032 - Method for operating a high-pressure electrochemical cell.
6,270,636 - Integrated membrane and electrode support screen and protector ring for....
6,117,287 - Electrochemical cell frame.

Registered Professional Engineer (Connecticut PEN18361)

Emergency Medical Technician – PA Dept. of Health, Certificate #209343

Firefighter – Oswego Town Volunteer Fire Dept, Oswego, NY
PA130 Certified Wild-Lands Firefighter
NFPA Certified Level I Firefighter (PA Certification # 13424)
PA Certified Vehicle Rescue Technician (Cert # 213075)

Photovoltaic Installer in-training – Completed the Florida Solar Energy Center’s course entitled “Installing Photovoltaic Systems.”

Midwestern Renewable Energy 10kW Grid-Tied ARE-442 Installation Course (included installation of an ARE-442 wind turbine on a 118’ tower.)