

# **PRESENTATION OF QUALIFICATIONS**

**MATTHEW I STEIN, P.E.**



Winner of the national Plant  
Engineering **Product-of-the-  
Year** award, 1992

10591 Belford Place  
Truckee, CA 96161  
[www.stein-design.com](http://www.stein-design.com)

## **SUMMARY OF QUALIFICATIONS:**

- \* B.S. Mechanical Engineering From MIT (1978)

### **Over 30 Years of Engineering Experience:**

- \* Water Filtration and Drinking Fountains   \* Safety Equipment
- \* Medical Devices   \* Acoustics and Electro-Mechanical Devices
- \* Photovoltaic Panels and Wind Turbine Components
- \* Computer Peripherals   \* Automated Machinery
- \* Plastic Part Design Expert (Several Published Articles)

### **Demonstrated Areas of Expertise:**

- \* Project Management and Leadership
- \* Developing New, Innovative Solutions
- \* Aesthetic & Functional Product Design and Development
- \* Patent Research, Claims Development & Process
- \* Strong Analytical Skills
- \* Well Liked and Respected by Subordinates and Peers
- \* Practical Experience and Familiarity with a Wide Variety of Processes and Materials
- \* Expert witness, patent litigation and product liability

## **PROFESSIONAL EXPERIENCE:**

### **STEIN DESIGN**

3/94 to present

### **PRESIDENT & FOUNDER**

My engineering company specializes in product development and machine design. A partial client list includes Applied Solar, Renau Electronic Laboratories, Duraflame, Peterbilt Trucks, The Bradley Corporation, Plantronics, International Gaming Technology, Japan Cash Machine, Applied Science, Auto Safety Solutions, Water Safety Corporation, Safari Outdoor Products, Interphase Technologies, Specialty Fire Pumps, In Green Company, Saint Gobain, and Watson Rounds. We provide innovative and creative solutions to client design and production problems. Product shape and form development from conception to final detailed drawings. Specialists in the creative application of plastics.

Products include medical filters, complex plastic housings, PV solar roofing panels, valves, specialized foam machines, paint application equipment, various water filters and filtration peripherals, small scale sonar, and an innovative dollar bill stacking machine for handling multiple sizes of international currencies. I currently hold twelve patents (both design and utility) and have the ability to find creative, practical and unique design solutions. I have produced designs for several products that went on to become the top selling model for all products in their particular fields.

On a number of occasions, I have acted as an expert witness for patent infringement and product liability cases. So far, all but one of these cases were resolved pre-trial. In a 2008 case that went to court, I was the key technical witness in a case where my client was awarded a substantial judgment against the defendant.

**HAWS COMPANY, Sparks, NV**  
**DIRECTOR OF ENGINEERING**

10/86 to 3/94

Director of Engineering for a leading manufacturer of emergency equipment and drinking fountains. I built the engineering department from one full time engineer and one draftsman to a productive staff of eight people and restored Haws Company's position as the leading innovator in its field. As my department grew, responsibilities shifted from directly designing all new products to guiding and directing my staff of engineers and draftsmen, though my focus remained on new product development.

Personally designed and secured a patent for the "Omni-Flow", an innovative new eyewash design which won the prestigious **Gold Award for Product of the Year** from Plant Engineering Magazine. Other innovative and commercially successful new products included a blow molded gravity fed eyewash (still a top selling product after 20+ years), polar safety shower systems, tempered water systems, high fashion drinking fountains, vandal resistant drinking fountains and a light touch pilot type pressure compensating push button valve. Provided sculptural aesthetic shape development in addition to detailed part designs. Awarded several design and utility patents.

Special project budgetary quotations and customer liaison work with large industrial clients. Developed an extensive "Polar Shower" product line to provide industrial and chemical plants with enclosed, heated, freeze protected and anti-scald protected tempered water emergency shower systems. Provided fluid flow analysis and piping design consultation services to industrial customers for large emergency shower installations.

**HEALTHTEK, INC , Nevada city, CA**  
**SENIOR MECHANICAL ENGINEER**

10/84 to 10/86

Broad engineering responsibilities for a start-up medical equipment manufacturer. Product design and development, automated assembly machinery design, manufacturing engineering, jig and fixture design. Automated assembly machinery involved rotary index tables including membrane feeds, transfer punches, heat stakes, ultrasonic welders and PLC controllers. Assembly rates of over 10,000 units per shift were achieved. projects included vented chemotherapy drug dispensing device, IV filter, IV filter assembly machine, QC testing filter assembly machine, peristaltic pump components and a permanent eyeliner tattooing device. Additionally, designed numerous miscellaneous precision injection molded parts.

**SEAGATE TECHNOLOGY, Scotts Valley, CA**  
**SENIOR ADVISORY ENGINEER**

10/83 to 10/84

Product design, manufacturability analysis and cost reduction for 5.25" Winchester disc drives. Design of precision die castings, stampings, powdered metal, ground and machined components.

Designed crash stop and low mass carriage for ST-212 and the carriage lock mechanism for ST-400 series disc drives. Implemented major carriage, housing and assembly redimensioning for improved manufacturing and cost reductions. Developed an excellent knowledge of geometric tolerancing and an innovative tolerance analysis technique which simplified the task of performing tolerance analysis for complicated mechanical assemblies. Combined theoretical dynamic analysis with experimental modal analysis to come up with a major cost reducing design for vibration and shock isolators.

**PLANTRONICS, INC, Santa Cruz, CA**  
**SENIOR MECHANICAL ENGINEER (CONTRACT)**

1/82 to 7/83  
and 12/79 to 6/80

Designed the original "Starset Supra", a lightweight telephone headset. This product has been a tremendous success and has spawned an entire family of headsets. Sales far out-stripped initial marketing projections and the Supra remained Plantronic's number one selling headset for more than a decade. Designed plastic, metal and foam components for a teletype device for deaf persons telecommunications, a telephone answering system and a speakerphone. Some acoustic analysis and design. Invented an innovative snap together tamper resistant terminal housing with a simple hidden disassembly feature.

**INTELLECT, INC, Honolulu, HI**  
**MECHANICAL ENGINEER (Contract)**

10/81 to 1/82

Designed enclosures and other mechanical hardware for digital air traffic control telecommunication systems. Established design guidelines and trained employees in precision sheet metal design.

**HEWLETT PACKARD (OED), Palo Alto, CA**  
**DEVELOPMENT ENGINEER**

7/78 to 11/79

Responsible for mechanical aspects of barcode reader (HP Wand) and optical encoder from prototype into production. Design, testing and evaluation of precision injection molded parts.

**PLANTRONICS, INC, Santa Cruz, CA**  
**ENGINEERING INTERN**

Summer, 1977

## **EDUCATION, TRAINING, CERTIFICATION:**

### **FORMAL:**

B.S. Mechanical Engineering awarded by Massachusetts Institute of Technology, 1978. Maintained a 3.5 GPA. Emphasis on Mechanical Design, Heat Transfer and Stress Analysis.

### **CONTINUING:**

FIRST THINGS FIRST: Covey Leadership Center, 1994

PROJECT MANAGEMENT: SKillpath, INC, 1993

IMPLEMENTING ISO-9000: William's Seminars, 1993

MANAGING MULTIPLE PRIORITIES: SKillpath, INC, 1991

COMPUTER AIDED DESIGN: Truckee Meadows Community College, Reno, NV, 1989

MANAGEMENT SKILLS: Fred Pryor Seminars, 1988

SOLAR WORKSHOP: Cabrillo College, Aptos, CA, 1980

LINEAR ACTIVE NETWORKS: Stanford University, 1979

PLASTIC PART and INJECTION MOLD DESIGN: PDF seminars, 1978

### **CERTIFICATION:**

Professional Engineer #M023939: State of California, 1988.

CA General Contractor Lic# 805418, 2001

HI General Contractor Lic# BC23798, 2003

### **REFERENCES:**

Professional and personal references are available upon request.

## **PUBLICATIONS:**

*Geomagnetic Storms, EMP and Nuclear Armageddon.* Nexus magazine, February/March 2012, Mapleton, Queensland, Australia.

*When Disaster Strikes: A Comprehensive Guide for Emergency Planning and Crisis Survival.* Published by Chelsea Green Publishing Company, White River Junction, VT, November 2011.

*Emergency Survival Kits.* Mother Earth News magazine, Issue No. 243, December 2010/January 2011, Ogden Publications, Topeka, KS.

*Blending Solar Panels with Roof Profiles: Simulation Guides the Design of Innovative Solar Panel Frames, Reducing Molding Time, Material and Cost.* ANSYS Advantage Magazine, Volume II, Issue 3, 2008, Canonsburg, PA.

*When Technology Fails: A Manual for Self-Reliance, Sustainability and Surviving the Long Emergency.* Second edition, published by Chelsea Green Publishing Company, White River Junction, VT, 2008.

*No-Hassel Kitchen Appliance: Finite Element Analysis Helps Redesign a Countertop Water Filter.* ANSYS Advantage Magazine, Volume I, Issue 2, 2007, Canonsburg, PA.

*Design Space in a Small Design Shop: Affordable Simulation Package is a Necessary Tool in Analyzing Complex Plastic Parts.* ANSYS Solutions Magazine, Volume 3, Number 3, summer 2001, Canonsburg, PA.

*When Technology Fails: A Manual for Self-Reliance & Planetary Survival.* First edition, published by Clear Light Books, Santa Fe, NM, 2000.

*Emergency Eyewashes & Showers: Tempered Water Systems Warming Up to a Good Idea.* Occupational Health & Safety, Canada, 1993 Buyer's Guide.

*Safety Showers Are in From the Cold: Several Options Are Available to Maintain Tempered Water in Shower and Eyewash Stations, Year Round.* Safety & Health magazine, June, 1989.

## **Addendum I: Client list, past 15 years**

### **CLIENT LIST, PAST 8 YEARS:**

1. Videojet Technologies Inc. Design and analysis of collapsible ink jet cartridge for high-volume high speed assembly line container marking systems.
2. Acorn Engineering. Design of tempered water systems for chemical decontamination and safety shower/eyewash.
3. Quality Plastics. Stress analysis for police car prisoner transport seating systems.
4. Thermocon LLC. Thermal analysis and system design for company manufacturing innovative heating/cooling systems for industrial slurry tanks.
5. Applied Science Corporation. Designed various blood mixing devices and peripheral instruments for this medical manufacturer.
6. H2Technologies: Work on hydrogen fueling station equipment design to provide hydrogen for fuel cell powered vehicles, and auxiliary oxygen and hydrogen for bottled gas suppliers.
7. Applied Solar/Open Energy Corporation: Design of photovoltaic roofing panels.
8. Simple Pump. Designed bicycle powered add-on accessory to provide well pump services without electrical power.
9. Specialty Fire Pumps: Designed special high volume pump for mixing and pumping fire fighting foam solutions.
10. Water Safety Corporation: Design water filtration and treatment products.
11. Renau Electronic Laboratories: Design of various relay, sensor and instrument housings.
12. Garmond /Interphase Corporation: Mechanical designed of mini sub sonar systems, sonar boat navigational and sonar type fish location devices.
13. Wild Winds Enterprises: Design of remote controlled device for animal training and competition.
14. Impulse Devices: Consulting on explosion proof design for an alcohol distillation device for small "boutique" distilleries.
15. Active Roof Technologies: Design, engineering, and technical writing services for a company that makes a solar hot air space heating product using an envelope type metal roofing system.
16. Prime Energy: Work on custom wind turbine design.
17. Vital Systems. Design of plastic housing for hand held heart monitoring instrument.
18. Aeroplane Factory. Provided design services and stress analysis on after-market landing gear linkages for out-of-production classic airplanes.
19. Production Pattern & Foundry: Structural analysis on aluminum castings for Peterbilt trucks.
20. JCM: Expert witness in Mars Vs JCM case 2006 and 2007 (the "Nugent" case). Expert witness work in JCM vs Mars case 2007 and 2008 (the "Nevada" case).
21. Anwyl, Scofield & Stepp. Provided expert witness advice for legal case involving failed consumer water filter housings (including stress analysis).
22. Bainbridge Timbercreek: Designed plastic mixing tips for glue dispensing equipment. Consulting and expert witness work pertaining to patent related issues.
23. Jatco. Provided plastic part design services for client of this injection molder. Design of ink jet cartridge manufacturing clip.
24. In Green Company. Design of product for monitoring moisture content in planter pot soils.
25. Fits Again LLC. Design of consumer product to stretch wet clothing while drying so as to maintain original shape and fit without problems due to shrinkage.
26. Orbit Baby. Provided stress analysis services to this manufacturer of innovative baby carriages.
27. Roxi Group: Design of dispensing system for beverage rimming materials.
28. JVS Global: Design of insulated sports bottle.

29. Auto Safety Solutions: Performed design and project management work on an adjustable wide angle blind spot automotive mirror.
30. Roadrunner Solar: Design and engineering services on a solar hot water panel project.
31. FOA: Design assistance on a specialty off road vehicle shock absorber.
32. UVCM: Design services for a UV lamp to purify pond and fountain water.
33. Lobster Sports: Stress analysis and design for baseball pitching machines.
34. Saint Gobain: Stress analysis and design of various plastic part snap fits for fluid dispensing devices.
35. Peter Edwards Industrial Design: Analyze heat transfer in various electronic enclosures.
36. Gus Gustafson: Designed clothing hanger device.
37. Eldorado Stone: Designed mold bases for fake rock concrete building fascia molding process.
38. Safety Snare/John McCafferty: Design work on power pole lineman safety tool.
39. Aeras: Design work on training device for gymnasiums.
40. Airtegrity: Design work on die cast enclosures for wireless internet access device.
41. Power Up Products: Design work on various lighting and control products for commercial vehicles.
42. Synergy Technology: NOTE, the project work for Safety Snare, Aeras, Airtegrity, and Power Up Products were performed as a contract employee of Synergy Technology, an engineering consulting firm. In general, the work performed for Synergy Technology was performed out of my Stein Design office and not on site at Synergy Technology. The work for all other clients was all performed under my own consulting firm, Stein Design.
43. Sierra Design Group: Worked as a consultant (Stein Design) for Sierra Design Group on a cash machine retrofit kit for IGT slot machines 1998-1999. This kit incorporated JCM's World Bill Acceptor (WBA).
44. IGT: Worked as a consultant (Stein Design) for IGT 1994-1996. Worked on IGT's World Bill Acceptor (WBA) project and slot machine handle assembly cost reduction project.



## **Addendum II: Listing of Prior Patents from Inventor Matthew I Stein**

1. Hanger Attachment, US Patent 7,124,920 B October 24, 2006.
2. Eye Wash Station, US Patent 6,296,626 B1 October 2, 2001.
3. Eye Wash Station, US Patent D438,983 S March 13, 2001.
4. Igniter, US Patent Des. 424,374 May 9, 2000.
5. Igniter, US Patent 6,050,811 April 18, 2000.
6. Portable Dental Irrigation for Pets, US Patent Des. 406,334 March 2, 1999.
7. Bill Stacker, US Patent 5,803,227 September 8, 1998.
8. Pedestal Mounted Drinking Fountain, US Patent Des. 366,384 January 23, 1996.
9. Pedestal Mounted Drinking Fountain, US Patent Des. 356,229 March 14, 1995.
10. Pedestal Mounted Drinking Fountain, US Patent Des. 353,739 December 27, 1994.
11. Tempered Water Mixing System, US Patent 5,350,112 September 27, 1994.
12. Emergency Wash Station, US Patent 5,008,963 April 23, 1991.