

# Jonathan C. Sparks, P.E.

## Experience

10/07-present Sparks Engineering, LLC Las Vegas, NV

### **Principal Partner (full time)**

- Serve as business manager of design, development, and marketing.
- Assist Financial department with all cash flows and financial planning.
- Design mechanical and plumbing systems for all projects.
- Oversee all engineering consultation with current and prospective Clients
- Prepare and oversee proposal process.
- Serve as primary point-of-contact for Engineer-as-Record projects

2/04-10/07 Nevada By Design/CCSD, Las Vegas, NV

### **Mechanical Engineer (part time)**

- Designed portions of mechanical and plumbing systems for schools, and admin. buildings
- Modernized central plants at Durango, Green Valley, and Cimarron High Schools
- Prepared rough & detailed scopes and estimates for various projects.
- Review designs of outside firms. Coordinate with Project Managers to create quality plans
- Help develop CCSD standard specifications and details for CCSD Engineering Services
- Participate with Engineering Services to develop Design Standards
- Worked in conjunction with several CCSD departments to find and implement solutions as a team, including SPRS, Mod services, Inspection Services, and Finance
- Provide construction phase engineering support

2/01-2/04 Sigma Mechanical Engineering Consultants, Las Vegas, NV

### **Mechanical Engineer/Designer**

- Design mechanical and plumbing systems for commercial buildings
- Serve as mechanical project engineer for new central plant systems for Nevada high schools
- Create reports for proposed upgrades of plumbing systems for elementary, middle, and high schools
- Extensive use of AutoCad to create construction documents (plans and specifications) for mechanical and plumbing divisions

12/99-2/01 Vought Aircraft Industries, Inc./Northrop Grumman Corp., CA

### **Mechanical Engineer Sr.**

- Create and maintain CATIA solid-models of 747 fuselage tool/panel measurement systems
- Establish methodology for the accurate measurement of key tooling and 747 AFA panel features using laser measurement apparatus
- Provide technical support for QA Tooling, and Manufacturing departments for tool/product inspection measurement
- Make decisions regarding new IDS/QAIP data measurement requirements for new AFA aircraft panels

7/98-12/99 Northrop Grumman Corp. Hawthorne, CA

### **Mechanical Engineer**

- Create QA laser computer programs for tool/part inspections
- Maintain the customer Inspection Databases (IDS)

1/98-7/98 Multimedia Environmental Technologies Las Vegas, NV

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## Research Engineer

- Create finite volume mesh of YMSCO target area from USGS topographical data
- Run simulations of groundwater flows and heat transfer for YMSCO using TOUGH2
- Help develop CFD program to model groundwater flows and to validate TOUGH2

1/95-12/95

UNLV

Las Vegas, NV

## HVAC Design Engineer

- Calculate heating/cooling loads for residential buildings
- Design fan/coil unit system for heating and cooling
- Created a balanced ventilation system for a residence

1/95-8/95

Department of Energy

Las Vegas, NV

## Energy Conservation Engineer

- Serve as energy conservation contact for DOE on the Yucca Mountain Project (NEECAP)
- Help complete solar energy project for the Miner's Change House
- Handle energy conservation reporting per CFR requirements

3/94-5/94

UNLV/Southwest Gas

Las Vegas, NV

## Optimization Analyst

- Model natural gas distribution (Laughlin to L.V. main) using GASUS software program
- Optimize twin gas compressor usage by simulating the supply-demand flows

## Education

### University of Nevada, Las Vegas

B.S. (Mechanical Engineering) 1995 GPA 3.05/4.0

M.S. (Mechanical Engineering) 1998 GPA 3.82/4.0 Thesis Topic: Two-Phase Flow

## Honors

CCSD S.P.R.S. Quarterly Award Nominee (2006)

Sigler & Reeves Certificate of Achievement – Air and Water Systems I & II (2001& 2004)

Northrop Grumman Engineering Excellence Award (1999)

UCCS Nevada-Board of Regents Graduate Scholar Award Nominee (1998)

T B II Engineering Honors Member (1997)

Stocker Scholarship Recipient (1994)

## Skills

- Design of Grease Hood Exhaust Systems
- Design of Grease Interceptor Systems
- Design of Medical Gas Systems
- Industrial Ventilation and Plumbing Systems Design Experience
- Design of private water and sewage systems
- Specification Writing (CSI Member)
- Strong knowledge of IBC, UMC, and UPC codes
- Natural gas distribution analyses using GASUS simulation software
- Strong understanding of psychrometrics as related to HVAC
- Computational Fluid Dynamics: FLUENT, FIDAP experience
- Hydronic Design Experience
- Design of thermal and fluid systems experience
- Multiphase flow analyses
- Strong experience with HVAC Heating/Cooling Load calculations

# Jonathan C. Sparks, P.E.

- Data acquisition; Computer-machine interfacing
- Instrumentation experience: fiber optics equipment, pressure and temperature transducers; motion control equipment
- Geometric Dimensioning and Tolerancing
- AutoCad R2000-2009; CATIA; Visual Basic; Fortran; MS Office; UNIX
- Technical Writing

## Licenses

- CSI Construction Documents Technologist Certification CDT (2005)
- Professional Engineer (P.E.) Registration. Mechanical Engineering – NV # 15996 (2003)
- Professional Engineer (P.E.) Registration. Mechanical Engineering - CA #31532 (2000)
- Professional Engineer (P.E.) Registration. Mechanical Engineering - AZ #48851 (2008)
- Registration with the National Council of Examiners for Engineering and Surveying (NCEES) - Mechanical Engineering (2005)

## Publications

*Experimental Investigation of Local Properties in Two-Phase Fluid-Flow Hydrodynamics.* 1998. (Master's Thesis)

*A Two-Phase Flow Hydrodynamics Experiment to Demonstrate Basic Features of Two-Phase Heat Transfer.* 1997. ASME Proceedings. 32<sup>nd</sup> National Heat Transfer Conference. (co-author)

*Determination of Local Two-Phase Variables and Flow Pattern Characterization in an Upward-Flow, Rectangular Channel.* 1998. ASME Proceedings. Heat Transfer Division. (co-author)