Résumé of David Butler

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Profile

Recognized building systems engineer and home performance expert with multi-disciplinary background. Proven expertise in the following areas:

- mechanical system design for high performance homes
- airflow/refrigeration diagnostics and performance metrics
- building science and home performance concepts
- residential energy modeling and life cycle cost analysis
- software development, strong intuitive skills in boundary condition testing
- technical writing and editing; technical content auditing
- electric utility demand response and energy efficiency programs, including M&V
- home automation (integrated home systems)
- standards development for home networking and smart grid protocols

Professional Experience

Owner / President, Building Systems Engineer

2009–current Optimal Building Systems, LLC

Provide HVAC design services for high performance homes. Primary deliverable is an optimized HVAC specification. Also make recommendations for envelope, solar and other optimized building systems based on careful energy modeling and lifecycle cost analysis. Clients include custom builders, architects and homeowners. Optimal Building Systems also provides back-office mechanical systems design and training services to HERS raters and other energy/design professionals. Related professional activities include:

- participating in various building science standards development efforts (primary author of forthcoming BPI Duct System Standard)
- evaluating residential energy monitoring and control systems, CT calibration
- filing technical briefs in state utilities commission dockets (net metering, RES rules)

Project Manager HVAC Services

2005–2008 Environmental Building Solutions (Energy Star / HERS provider)

Provided load calculations, HVAC design services and HERS ratings to Energy Star builder partners in Charlotte area. Responsible for HVAC training and support for EBS raters.

Senior Building Systems Engineer

2001–2004 and 2008–2009 Enalasys Corporation

Senior technical advisor to CEO and CTO of a dynamic start-up company, wearing many hats. Enalasys produces leading-edge HVAC diagnostic tools and monitoring systems, and provides measurement and verification services to electric utilities for large scale energy efficiency programs. The company's flagship product, eScan™, consists of laptop software and a network of wireless sensors and flow hoods designed to measure in-situ HVAC system performance in real time. The eScan system supports whole-building diagnostics through its integration with tools produced by The Energy Conservatory. ChargeRite™, an eScan derivative, is approved for HVAC compliance verification under California Title 24.

(continued)

Enalasys Corporation (continued)

- as company's senior energy analyst, responsible for thermodynamic and psychrometric calculations throughout product line
- managed redesign of eScan software (functional logic, user interface, customer reports)
- managed field test program for eScan software and hardware
- conducted proof-of-concept research for a residential gateway project
- developed rationale for minimizing the number of sensors required for in-situ performance monitoring of unitary HVAC systems (e.g., continuous commissioning)
- wrote winning proposal for a Department of Energy SBIR grant for low-cost continuous commissioning for residential HVAC systems (partnered with Oak Ridge National Labs)
- served as liaison to company's research partners
- assisted in development of eOne Platform™, the company's web-based technology that supports its utility-scale verification and data collection services
- developed test bed for validating the performance of airflow hoods
- responsible for technical content of eScan training curriculum and product literature
- conducted directed research and wrote numerous technical briefs for senior management

Owner / Consultant, Building Systems Engineer

1985–2009 Residential Micro Systems

- Pioneer and recognized leader in the home automation industry (integrated home systems).
- Provided research and product development services to a variety of clients with primary focus on integrated home systems, advanced energy management strategies, evolving home networking standards, and human factors. Notable clients include GE, Smart House Ltd, Square D, Électricité de France, Lutron, Intellon, Egis Sarl, NorTel and Arvida Disney.
- Supported functional design of a network thermostat for a major electronics manufacturer.
- Core member of Consumer Electronics Bus (CEBus) committee (1985–1992), predecessor of CEA R7 Home Network Committee. Assisted in development of the CEBus Common Applications Language (CAL). Portions of CAL became the basis for IEC 12.22, the forerunner and a core communications protocol for today's 'smart grid' standards.
- Produced *At Home With Technology*, a popular nationally syndicated newspaper column that appeared weekly in four dozen newspapers including the Atlanta Journal & Constitution, San Jose Mercury News and The Cleveland Plain Dealer. Topics included home security, energy management, home automation, environmental control and whole-house audio-video. During column's 5-year run (1992–1997), employed small research and admin staff.
- Published numerous magazine and journal articles on evolving home automation industry, communication standards, energy management, and human factors.
- Designed former residence as a laboratory for advanced home systems research and acted as general contractor (1998–1999, http://veryuniquehome.com). Incorporated sub-metering (M90 registers) and flexible wiring pathways in support of various monitoring and control projects. Developed unique wall system and thermal envelope. Beta tested Energy-10, a DOE-2-based energy simulation tool optimized for passive solar design. Designed custom multi-zone forced air distribution and control system.
- Retrofitted current home with various efficiency improvements, load monitoring equipment and most recently, installed 5kW photovoltaic system to achieve net-zero energy.

Production Planning & Materials Management

1975–1982 VF Corp (formerly Blue Bell, Inc.) and Springs Mills, Inc.

Held progressive positions in manufacturing management advancing to Director of Production Planning & Materials Management. As a member of senior management at Blue Bell's Puerto Rico Division, responsible for production schedules, work orders & purchasing for 7 factories producing 10 million Wrangler jeans annually. Also worked at Sanford and Greensboro, NC divisions, interrupted in 1978 by a one-year stint with Springs Mills, Lancaster, SC.

Education

Master of Science in Engineering

1982–1984 North Carolina State University, Electrical & Computer Engineering

Major emphasis in digital design and communications theory; minor emphasis in software systems engineering; graduated top of class

Bachelor of Science, Business Administration

1970–1974 University of North Carolina at Chapel Hill

Major emphasis in production management with minor emphasis in cost accounting; worked part time throughout college; graduated Phi Beta Kappa

Notable Professional Activities and Honors

- Contributor to forthcoming 6th edition of Residential Energy, Krigger & Dorsi (2011)
- Primary author of forthcoming Building Performance Institute (BPI) standard for Single-Family Residential HVAC Duct Systems (2010)
- Group Manager of 3000+ member RESNET BPI Group on LinkedIn (since 2010)
- Presenter at 2009 RESNET Conference: HVAC for high performance homes
  Note: abridged version published in Home Energy Magazine (Sept/Oct 2009)
- Builder's Challenge Partner (since 2009)
- Participated in RESNET-NREL Existing Homes Software Taskforce (2008–2009); ACCA Review Committee for Manual D 3rd Ed. (2008); Arizona Corporation Commission Smart Meter Workshops (2007); PATH: Partnership for Advancing Technology in Housing (2002)
- Associate member, American Society of Heating, Refrigeration, and Air-Conditioning Engineers (since 2001)
- Technical writer and consultant for Pathfinder - Strategies for Intelligent Products and Services for the Home, Parks Associates (1988–1989)
- Keynote speaker, DOMOTIQUE 88 - First International Conference on Intelligent Homes, Paris, France (1988)
- Charter member of the Home Automation & Networking Association (1988)
- Lead columnist for Electronic House Magazine, EH Publishing (1985–1987)
- CFPIM Fellow, American Production And Inventory Control Society (1985)
- Honoraries: Phi Eta Sigma (1971); Phi Beta Kappa (1973); Eta Kappa Nu (1984); Tau Beta Pi (1984); Phi Kappa Phi (1984); Upsilon Pi Epsilon (1984)

Professional References

Recent client & peer testimonials may be found here: http://optimalbuilding.com/references.php