

# BRENT EUBANKS

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## Multidisciplinary Building Research Engineer

Award-winning mechanical engineer and permaculture designer with two decades of experience, who is driving the transition to sustainable civilization by supporting disruptive technologies to dramatically transform the status quo of energy and infrastructure.

**PE • LEED AP • Certified Permaculture Designer • California Naturalist**

*Lateral Thinker • Holistic Analyst • Design-Phase Researcher • Interdisciplinary Communicator*

*Passive Solar • Natural Ventilation • Thermal Mass • Control Systems*

*Unconventional Solutions That Work*

## PROFESSIONAL EXPERIENCE

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**Eubanks Engineering Research, Oakland, CA**

**2020-present**

*Principal*

Independent consultant specializing in R&D and innovation for the built environment. Clients include cleantech startups, design firms, and commercial and academic research groups.

- Technical Advisor/Mentor: NYSERDA EIR, Launch NY, Cleantech Open, Carbon 13
- Clients include controls, insulation, geothermal, greenhouse, and exterior insulation startups
- Authored best-practices manual for building control systems ([tinyurl.com/2mt28e3o](http://tinyurl.com/2mt28e3o)).

**Carbon Lighthouse, San Francisco, CA**

**2018-2020**

*Building Systems Lead Research Engineer*

Led in-house research team to identify and validate building energy efficiency technologies, including mechanical, electrical, controls and occupant-based strategies. Develop selected measures to integrate with Carbon Lighthouse's efficiency production process. Mentor and train engineering peers. Support particularly challenging projects, including central plant renovations.

**Integral Group, Oakland, CA**

**2015-2018**

*Building Automation Lead Engineer*

Dramatically advanced the company state of practice for controls. Mentor to junior engineers and technical resource for senior engineers. Investigate new controls products and technologies. Design control systems and sequences of operation for cutting-edge commercial and institutional projects.

- Established Division 25 as separate engineering discipline: Created master specifications, sequences, control details and design standards; trained staff on best practices for controls
- Specified controls including custom sequences for unusual systems: DOAS with radiant slab ([tinyurl.com/2n72anjz](http://tinyurl.com/2n72anjz)), thermodynamically-zoned heat pumps ([tinyurl.com/2o3ecwop](http://tinyurl.com/2o3ecwop))
- Building automation lead for Google's new corporate campus, including controls specification and sequences for heat recovery/geothermal central plant ([tinyurl.com/2jbas47n](http://tinyurl.com/2jbas47n))
- Key personnel in building automation research projects with LBNL and CEC

**Taylor Engineering, Alameda, CA**

**2009-2015**

*Mechanical Engineer & Project Manager*

Design and project management, from schematic design through construction administration and commissioning, with emphasis on control sequence development and testing. Perform energy, CFD and comfort analyses for mixed-mode HVAC systems using thermal mass, natural ventilation, ceiling fans and evaporative cooling. Coordinate integration of architectural and daylighting features with mechanical systems. Projects included commercial buildings, academic and industrial laboratories, and data centers.

- Designed and tested unique thermal-mass-based HVAC system for a new \$75M public school complex. Won ASHRAE Technology Award. Project information: [tinyurl.com/2h2btjqv](http://tinyurl.com/2h2btjqv)
- Collaborated with equipment manufacturers to develop new products.
- Authored ASHRAE Guideline 36: best-in-class sequences of operations for HVAC control.
- Developed software for VAV fume hood retrofits at UC Berkeley, Caltech, and LBNL.
- Wrote and executed functional tests for 16,000-ton campus chiller plant for California DGS.

**Cogent Energy, Concord, CA****2007-2009***Energy Efficiency/Commissioning Engineer*

Performed commissioning of existing and new commercial and institutional buildings and campuses. Perform peer review, field inspections, testing, trend analysis, functional testing, and client presentations.

**Stantec Consulting, San Francisco, CA****2006-2007***Engineering Designer*

Provided conceptual and analytical design support to green building projects. Analyze low-carbon energy options for large multifamily housing projects. Model unconventional HVAC strategies such as natural ventilation. Advise colleagues on PV system design for multiple projects.

**Cooperative Community Energy, Sebastopol, CA****2000-2006***PV Engineer & Business Development Specialist*

Designed, engineered, and managed installation of large photovoltaic energy systems for residential, institutional, and commercial customers. Develop proposals and close sales. Created performance estimation and proposal tools used by all salespeople. Author of winning proposal for Solar Sebastopol, a municipal partnership to promote PV installations. Served on Board of Directors 2005 – 2007.

**Rotary Rocket Company, Mojave, CA****1997-1999***Rocket Engine Design Engineer*

Developed novel high-pressure rocket engine combustor for this VC-funded space launch startup (i.e. SpaceX 15 years early). Developed and test-fired three engine generations in 18 months. Responsibilities included design, drafting, specifications, test procedures, prototype fabrication, and manufacturing process development.

**EDUCATION**

<b>Bachelor of Science, Mech. Eng.</b>	<i>California Institute of Technology (Caltech)</i>	<b>1995</b>
<b>Green Business Development</b>	<i>Institute for Environmental Entrepreneurship</i>	<b>2001</b>
<b>Certified Permaculture Designer</b>	<i>Occidental Arts and Ecology Center</i>	<b>2004</b>
<b>LEED® Accredited Professional</b>	<i>U.S. Green Building Council</i>	<b>2004</b>
<b>California Naturalist</b>	<i>University of California</i>	<b>2013</b>

More than 300 hours of continuing education, including HVAC Equipment (ME x470) and HVAC Energy Management Systems (ME x473) at UC Berkeley, as well as Daylighting Principles, Control Sequence Design, Critical Control Sensors, Solar Thermal and Radiant Heating Systems, Automated Demand Response Strategies, Combined Heat and Power Systems, Sustainable Site Planning and Landscape Design, Energy Auditing, PV Advanced Technical Training, Business Plan Preparation, Finance and Accounting Principles.

**AWARDS**

<b>Winner, Greenbuild Design Slam</b>	Greenbuild Conference and Expo	<b>2006</b>
<b>Professional Engineer</b>	California Board for Professional Engineers	<b>2012</b>
<b>Region X Technology Award, First Place</b>	ASHRAE	<b>2013</b>
<b>Society Technology Award, Hon. Mention</b>	ASHRAE	<b>2014</b>

**PUBLICATIONS & COMMITTEES**

<a href="#">"Climate Adapted Design for a California School"</a>	<i>ASHRAE Journal</i>	<b>2014</b>
<a href="#">"Control Sequences and Controller Programming"</a>	<i>ASHRAE Journal</i>	<b>2015</b>
<a href="#">"High Performance HVAC Sequences of Operations"</a>	<i>ASHRAE GPC 36</i>	<b>2015</b>
<a href="#">"Advanced Building Automation Systems Best Practices"</a>	<i>California Energy Commission</i>	<b>2022</b>
<a href="#">ASHRAE Standard 207</a>	Voting Member	<b>2009-2014</b>
<a href="#">ASHRAE Guideline 36</a>	Voting Member	<b>2015-present</b>
<a href="#">ASHRAE Standard 231</a>	Voting Member	<b>2020-present</b>