

# 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*

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## PROFESSIONAL EXPERIENCE

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**Eubanks Engineering Research, San Francisco, CA**

**2020-present**

*Principal*

Independent consultant supporting innovation and R&D for the built environment and A&E industry. Clients include cleantech startups, design firms, and commercial and academic research groups.

**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. Developed 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. Developed and implemented new standards. Acted as mentor to junior engineers and technical resource for senior engineers. Researched new controls products and technologies. Specified control systems and sequences of operations 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 (<https://tinyurl.com/2n72anjz>), thermodynamically-zoned heat pumps (<https://tinyurl.com/2o3ecwop>)
- Building automation lead for Google's new corporate campus, including controls specification and sequences for heat recovery/geothermal central plant (<https://tinyurl.com/2jbas47n>)
- Key personnel in building automation research projects with LBNL and CEC

**Taylor Engineering, Alameda, CA**

**2009-2015**

*Mechanical Engineer & Project Manager*

Responsible for the full range of design and project management activities, from schematic design through construction administration and commissioning, with emphasis on control sequence development and testing. Performed energy, CFD and comfort analyses for mixed-mode HVAC systems using thermal mass, natural ventilation, ceiling fans and evaporative cooling. Coordinated 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: <https://tinyurl.com/2h2btjqu>
- Collaborated with equipment manufacturers to develop new products.
- Authored best-in-class sequences of operations for control of air-side HVAC systems through ASHRAE Research Project 1455. Results formally adopted by ASHRAE as Guideline 36.
- Developed software to support VAV fume hood retrofits, now in use throughout firm. Designed and tested VAV fume hood retrofits for 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. Responsibilities included peer review, field inspections and testing, trend data analysis, functional testing, and presenting reports to clients.

**Stantec Consulting**, San Francisco, CA **2006-2007**  
*Engineering Designer*  
 Provided conceptual and analytical design support to green building projects. Analyzed low-carbon energy options for large multifamily housing projects. Modeled unconventional HVAC strategies such as natural ventilation. Advised 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. Developed proposals and closed sales. Created performance estimation and proposal tools used by all salespeople. Authored 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>	ASHRAE Journal	<b>2014</b>
<a href="#">"Control Sequences and Controller Programming"</a>	ASHRAE Journal	<b>2015</b>
<a href="#">"High Performance HVAC Sequences of Operations"</a>	ASHRAE GPC 36	<b>2015</b>
<a href="#">"Advanced Building Automation Systems Best Practices"</a>	California Energy Commission	<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>