BREEAM® USA

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Case Study

UC Davis: BREEAM In-Use Excellent rating unlocks flexibility

As one of the most sustainable universities in the world, UC Davis saw great value in lowering carbon emissions using this science-based standard

"Out of nearly 700 buildings that make up the campus of UC Davis, we identified only 10 that could meet prerequisites with known green building rating systems. With the BREEAM In-Use standard now available for the US marketplace, we wanted to identify if BREEAM was a better fit for the bulk of our building inventory. The team was very pleased with the flexibility and simplicity of using BREEAM as a truly accessible program to help us move forward with our sustainability goals."

Amy Burns, Green Building Coordinator, Green Building Team

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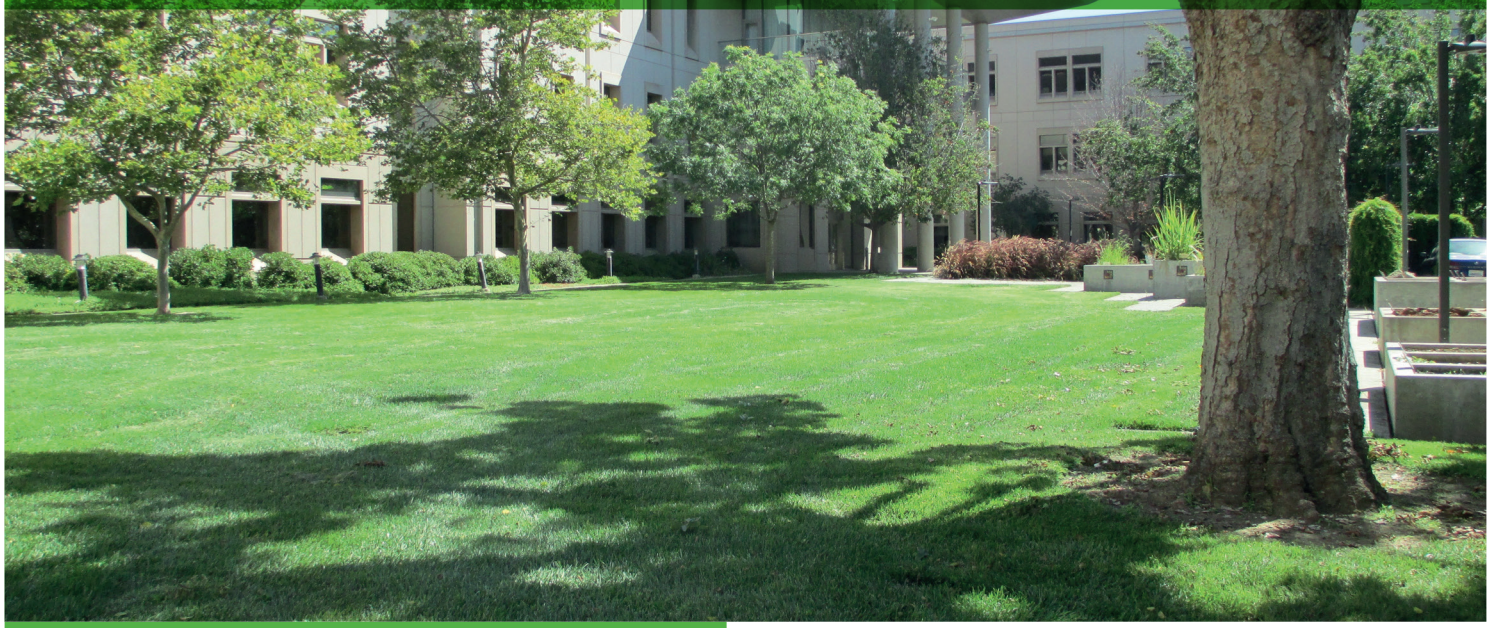
"As a university at the forefront of conducting research to improve the built environment, UC Davis is a superb example of an institution that walks the sustainability talk. The Green Building Team made my job easy because they came with support from UC Davis leadership and had their strategic roadmap clearly defined. Surrounded by an atmosphere of science, the team was excited to learn how to use the BREEAM In-Use system on the Plant and Environmental Sciences building."

Mark Klein, Project Manager, Healthy Buildings



Plant and Environmental Sciences Building Key BREEAM In-Use facts

- 7% of energy in this building comes from the campus Solar Farm
- Well connected to the public transport network providing building occupants with a range of sustainable transportation alternatives
- Water efficient fittings including low-flow fixtures

Project Team

Owner: University of California, Davis

Management Team: UC Davis Facilities Management

BREEAM In-Use Assessor Organization: Healthy Buildings

UC Davis is one of the most sustainable universities in the world. According to the University of Indonesia GreenMetric World University Ranking, it ranks No. 1 in the 2016 assessment of 516 colleges and universities in 74 countries for environmentally friendly campus operations and policies, and research and education on sustainability. UC Davis is also a Top 10 "Cool School" in Sierra magazine's ranking of America's greenest colleges and universities. As a global leader in sustainability, UC Davis understands the impact that buildings have in the big picture of sustainability and are eager to make a difference by lowering carbon emissions across campus.

UC Davis Sustainability Facts

- 14,000 metric tons (9%) of campus' carbon footprint reduced by the 62-acre Solar Farm--the largest installation in the UC system and largest "behind-the-meter" solar plant on a US college campus offsetting electricity demand.
- 14% of campus' power supply comes from the solar installation.
- $5 million (15-20%) of savings annually at maturity from optimizing HVAC control systems for all campus buildings.
- 15,500 tons of material reduced, reused, recycled, and composted in 2015-2016.
- 61 million gallons of potable water (9% of campus' total potable water use for a year) saved annually by switching to recycled water in four cooling towers at UC Davis.
- The campus aims to be carbon neutral by 2025.

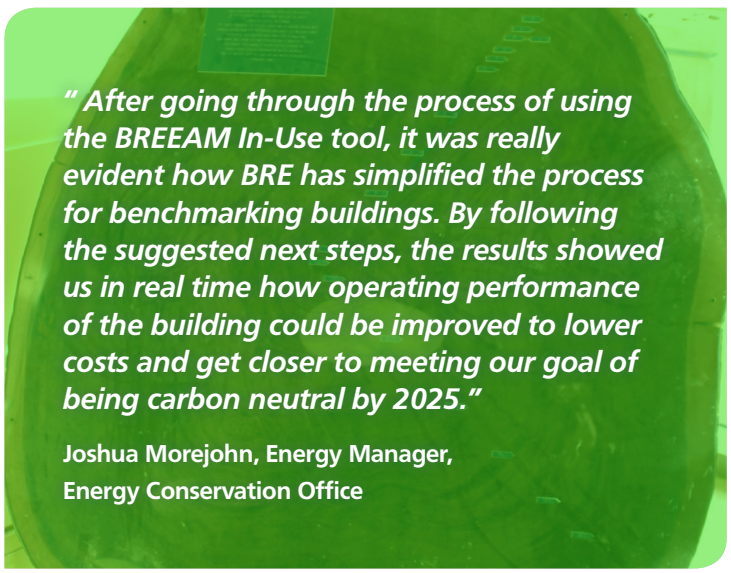
The BREEAM In-Use Assessment

Part 1 (Asset Performance)

Rating: Excellent — Star Rating: 5 Stars

Part 2 (Building Management)

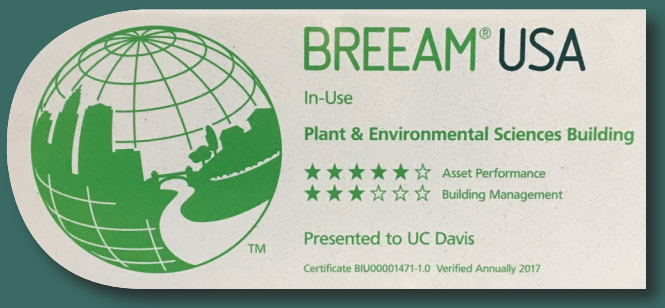
Rating: Good — Star Rating: 3 Stars



" After going through the process of using the BREEAM In-Use tool, it was really evident how BRE has simplified the process for benchmarking buildings. By following the suggested next steps, the results showed us in real time how operating performance of the building could be improved to lower costs and get closer to meeting our goal of being carbon neutral by 2025."

Joshua Morejohn, Energy Manager, Energy Conservation Office

The Project



Built in 2001 and located in Davis, CA, Plant and Environmental Sciences is a 3-story, 126,651 ft2 building that provides state-of-the-art facilities for research. Laboratories make up 80% of the building with the rest consisting of faculty offices from the Departments of Plant Sciences and Land, Air and Water Resources. The Green Building Team chose this building to pilot the BREEAM In-Use program because the building had undergone recent upgrades to increase energy efficiency, reduce water use, and improve indoor air quality and wanted to recognize the completed work.

Although UC Davis relies on the Solar Farm to lower their carbon footprint, they also realize how important it is not to "solarize" your inefficiencies. The facilities team has been outstanding in improving building operations. Recent upgrades include:

- In 2014, the Facilities Management Energy Conservation Office performed an HVAC retrofit on the laboratories, which resulted in 36% total energy savings. The following activities contributed to major energy savings:
  - Temperature setbacks.
  - Reduced exhaust velocities established through wind tunnel studies.
  - Reduced air flow rates when building was unoccupied.
  - Replaced ten existing exhaust fan motors with new high efficiency motors.
  - Upgraded to new relays and direct digital controls (DDC).
  - Established occupancy-based lighting and HVAC control for spaces and fume hoods.
- Low-flow fixtures.
- Energy Star computers.
- New LED lighting with HVAC control protocols in use to minimize energy consumption and lower carbon footprint.

BREEAM Drives Success by:

- Setting benchmarks that exceed regulations and local practices
- Recognizing actions and initiatives that are innovative and improve on BREEAM benchmarks and certifications
- Gathering industry feedback to ensure its continuing relevance to the market
- Promoting high levels of performance and best practice through published case studies and the BREEAM annual awards event
- Monitoring and carrying out research to further knowledge, strengthen industry tools, improve guidance and increase BREEAM's value

Value of BREEAM

Created in 1990 by BRE (the Building Research Establishment), BREEAM was the first green building certification program and today is recognized as the world's leading sustainability assessment method with over 2,250,000 assets registered and 600,000 certifications issued. BREEAM In-Use provides existing buildings a quick and cost effective method to benchmark buildings in real time.

BREEAM is based on scientifically backed standards, covering nine categories: Energy, Heath & Well-being, Land Use, Materials, Management, Pollution, Transport, Waste and Water.

BREEAM In-Use is an online environmental assessment methodology for independent, third-party assessment and certification of a building's performance. The methodology allows for a separate assessment of asset performance, building management and occupier management, providing a journey to understanding and improving the performance of a building or portfolio.

BREEAM USA

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About BREEAM USA

BREEAM USA is a partnership between BRE Group, the world's leading authority on all aspects of the built environment, and BuildingWise, the award-winning US-based LEED certification consultancy, established to provide a sustainability certification and improvement solution to the 5.6 million existing buildings in the United States not covered by existing green building programs.

Getting Started with BREEAM USA

Register your project for $1,000 on www.breeamusa.com to start measuring your building's performance for benchmarking or working towards certification.

If you have any further questions, give us a call at 844.280.9550 or send us an email at info@breamerica.com