**Groundbreaking Environment and Energy Installation at Stanford University**

*Environmental Studies Demonstration Facility Completed*

Cupertino Electric, Inc. announced that it has completed the design and installation of the electrical systems for the new Jerry Yang and Akiko Yamazaki Environment and Energy Building at Stanford University, referred to as SEQ2.

The US$118 million building, part of a new 8.2 acre Science and Engineering Quad built by the School of Engineering is used as a virtual living laboratory for training students about green building technologies and solar energy. It is one of the few facilities of its kind in the country, and serves as a hub for Stanford's environmental community.

The 166,000 square foot building officially opened March 4, 2008. With state-of-the-art metering, measurement and verification systems, the building provides students and researchers with data to analyze and learn about various sustainable building technologies and practices.

CEI, renowned for its work in forward thinking technologies, is serving as the electrical engineer of record. The general contractor is Hathaway Dinwiddie. The architect of record is Boora Architects and ARUP acted as the consulting engineer.

The building, constructed to meet the highest sustainable standards, reduces the carbon footprint and uses 50 percent less energy and 90 percent less water than a traditional building of comparable scale.
Sustainable technology deployed in the building includes highlighting three different solar photovoltaic technologies, architectural light shelves, occupancy sensors, daylight harvesting, and discrete dimming to minimize lighting demand loads. Motorized windows and chilled beams have been utilized to take advantage of the Palo Alto climate and minimize energy consumed for heating and cooling the building. An extensive and integrated building management system collects critical data including information from a weather station on the roof to provide automatic control as well as measurement logging and verification.

The three-level basement houses the major lab facilities, including wet laboratories that are utilized to study wave action and its effects on coastal life, as well as dry laboratories. The floors above contain conference and teaching spaces with access to the monitoring systems incorporated in the structure.

"Stanford took a leadership role in this project, taking initiative in producing one of the most environmentally sensitive and sustainable buildings that has ever been built," said John Curcio, vice president of CEI. "The idea was to create a space that was a great environment for study. That is a true credit to Stanford's vision."

Among the many sustainable features within the building are:

- A natural ventilation system incorporating atriums and active chilled beams;
- An automatic daylight dimming system using photocells mounted on the exterior of the building and auto-dimming fixtures;
- Light wells for the basement and transoms within the office walls for natural light;
- The use of light shelves to bounce natural light into the perimeter office spaces;
- Cisterns for rainwater collection for use in irrigation;
- Infrastructure for addition of fuel cells;
- Three varieties of solar photovoltaic technologies;
- A rooftop weather station; and
- Integrated systems for metering, monitoring, measurement, and verification.

**Unprecedented collection of technologies**

The varieties of systems for climate control installed by CEI are one of the true innovations of this facility. Photocells measure the amount of light entering the building through the extensive atriums and perimeter windows. The systems then relay directions to the interior lighting fixtures and lights are dimmed or increased accordingly. Monitoring systems designed by CEI also take in temperature readings of the rooms, causing windows to automatically open and shut to provide ventilation.

CEI has installed three different kinds of photovoltaic systems on the roof to provide for research into the different technologies currently available to see which is more efficient. Currently, monocrystalline, polycrystalline, and thin film panels are in place. Provisions have also been made to accommodate a fourth set of solar arrays to house the next generation of technology.

Extensive and detailed monitoring for the different arrays allow students to ascertain the effects of wind, rain, clouds, and temperature on the distinct units. With the infrastructure for an additional installation in place, CEI has taken steps to help the

laboratory remain current as new innovations arise.

"It's a very unique project," said CEI Project Executive Jeremy Camper. "With all the technologies integrated, there will be so much data that comes out of this building. The whole building is a working lab and the majors that are focused here are going to be all about sustainability."

CEI's next major initiative at Stanford will be the design/build of the electrical systems for the new Knight Management Center for the Stanford University's Graduate School of Business. This will be a LEED certified project and will incorporate a solar photovoltaic component.

**About Cupertino Electric Inc.**

With over 50 years of experience, Cupertino Electric, Inc. (www.cei.com) has established itself as a premier provider of electrical turnkey solutions. CEI designs, installs, commissions, upgrades, and maintains electrical infrastructure systems for facilities from mission critical data centers and semiconductor plants, to commercial and industrial buildings. CEI has earned recognition as a Certified Green Business by the City of San Jose and the County of Santa Clara by demonstrating exemplary commitment to protecting the environment, conserving natural resources, and enhancing quality of life for the people of their community. Corporate headquarters for CEI are in San Jose with offices in San Francisco, Los Angeles, and Gilbert, Arizona.

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